Planning, Building & Environmental Services
1195 Third Street
Napa, CA 94559
www.countyofnapa.org
(707) 253-4417

Hillary Gitelman, Director

A Tradition of Stewardship
A Commitment to Service

Best Management Practices Checklist for Development Projects

Napa County General Plan Policy CON-65 (e) and Policy CON-67 (d) requires the consideration of Greenhouse Gas (GHG) emissions in the review of all discretionary projects and to promote and encourage "green building" design. The below Best Management Practices (BMPs) reduce GHG emissions through energy and water conservation, waste reduction, efficient transportation, and land conservation. The checklist included here should be consulted early in the project and be considered for inclusion in new development. It is not intended, and likely not possible for all projects to adhere to all of the BMPs. Rather, these BMPs provide a portfolio of options from which a project could chose the most appropriate, taking into consideration cost, co-benefits, schedule, and project specific requirements. Please check the box for all BMPs that your project proposes to include and include a separate narrative if your project has special circumstances.

check if and how much proposed	ID #	BMP Name
		Building Energy
☐	**BE-1**	**Generation of on-site renewable energy** *If a project team designs with alternative energy in mind at the conceptual stage it can be integrated into the design. For instance, the roof can be oriented, sized, and engineered to accommodate photovoltaic (PV) panels . The applicant can easily determine the estimated electrical consumption based on the square footage, type of construction, and type of use; typical electrical (not including natural gas) consumption for Napa County is 1.93 kwh/gsf during operating hours. A basic typical PV panel generates approximately 375 watts of electricity per square foot per hour. If you intend to do this BMP, please indicate the location of the proposed PV panels on the building elevations or the location of the ground mounted PV array on the site plan. Please indicate the total annual energy demand (see above typical consumption and multiply it by the times and days of operation per year) and the total annual kilowatt hours produced (multiply the size of the system by 1600 to get from kilowatt hours to annual kilowatt hours) and the potential percentage reduction of electrical consumption.* GHG reduction potential: **********
☐	**BE-2**	**Exceed Title 24 energy efficiency standards: Build to CALGREEN Tier 2** *The California Building Code update effective January 1, 2011 has new mandatory green building measures for all new construction and has been labeled CALGREEN. CALGREEN provides two voluntary higher levels labeled CALGREEN Tier I and CALGREEN Tier II. Each tier adds a further set of green building measures that go above and beyond the mandatory measures of the Code. In both tiers, buildings will use less energy than the current Title 24 California Energy Code. Tier I buildings achieve at least a 15% improvement and Tier 2 buildings are to achieve a 30% improvement. Both tiers require additional non-energy prerequisites, as well as a certain number of elective measures in each green building category (energy efficiency, water efficiency, resource conservation, indoor air quality and community).* GHG reduction potential: ********

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☐ **BE-3** **Exceed Title 24 energy efficiency standards: Build to CALGREEN Tier 1**

See description below under BE-4.

GHG reduction potential: ****

☐ **BE-4** **solar hot water heating**

Solar water heating systems include storage tanks and solar collectors. There are two types of solar water heating systems: active, which have circulating pumps and controls, and passive, which don't. Both of them would still require additional heating to bring them to the temperature neccessary for domestic purposes. They are commonly used to heat swimming

GHG reduction potential: **

☐ **BE-5** **Energy conserving lighting**

Lighting is approximately 25% of typical electrical consumption. This BMP recommends installing or replacing existing light bulbs with energy-efficient compact fluorescent (CF) bulbs or Light Emitting Diode (LED) for your most-used lights. Although they cost more initially, they save money in the long run by using only 1/4 the energy of an ordinary incandescent bulb and lasting 8-12 times longer. Typical paybacks from the initial purchase is about 18 months.

GHG reduction potential: **

☐ **BE-6** **Energy Star Roof/Living Roof/Cool Roof**

Most roofs are dark-colored. In the heat of the full sun, the surface of a black roof can reach temperatures of 158 to 194 °F. Cool roofs, on the other hand, offer both immediate and long-term benefits including reduced building heat-gain and savings of up to 15% the annual air-conditioning energy use of a single-story building. A cool roof and a green roof are different in that the green roof provides living material to act as a both heat sink and thermal mass on the roof which provides both winter warming and summer cooling. A green (living) roof also reduces stormwater run off.

GHG reduction potential: **

☐ **BE-7** **Planting of shade trees within 40 feet of the south side of the building elevation**

Well-placed trees can help keep your building cool in summer. If you choose a deciduous tree after the leaves drop in autumn, sunlight will warm your building through south and west-facing windows during the colder months. Well-designed landscaping can reduce cooling costs by 20% . Trees deliver more than energy and cost savings; they are important carbon sinks. Select varieties that require minimal care and water, and can withstand local weather extremes. Fruit or nut trees that produce in your area are great choices, providing you with local food as well as shade.Please use the site or landscape plan to indicate where threes are proposed and which species you are using.

GHG reduction potential: *

Efficient Transportation

☐ **ET-1** **Alternative fuel and electrical vehicles in fleet**

The magnitude of GHG reductions achieved through implementation of this measure varies depending on the analysis year, equipment, and fuel type replaced.

Number of total vehicles _____

Typical annual fuel consumption or VMT _____

Number of alternative fuel vehicles _____

Type of fuel/vehicle(s) _____

Potential annual fuel or VMT savings _____

GHG reduction potential:**********

☐ **ET-2** **Vehicle Miles Traveled (VMT) reduction plan**

Selecting this BMP states that the business operations intend to implement a VMT reduction plan reducing annual VMTs by at least 15%.

Tick the box for what your Transportation Demand Management Plan will include:

- ☐ employee incentives
- ☐ employee carpool or vanpool
- ☐ priority parking for efficient transporation (hybrid vehicles, carpools, etc.)
- ☐ bike riding incentives
- ☐ bus transportation for large marketing events
- ☐ Other:

_____

_____

_____

Estimated annual VMT _____

Potential annual VMT saved _____

% _____

GHG reduction potential: ******

☐ **ET-3** **Bicycle Incentives**

Napa County Zoning Ordinance requires 1 bicycle rack per 20 parking spaces (§18.110.040). Incentive that go beyond this requirement can include on-site lockers for employees, showers, and for visitors items such as directional signs and information on biking in Napa. Be creative!

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_____

GHG reduction potential: **

☐ **ET-4** **Bicycle Route Improvements**

Refer to the Napa County Bicycle Plan (NCPTA, December 2011) and note on the site plan the nearest bike routes. Please note proximity, access, and connection to existing and proposed bike lanes (Class I: Completely separated right-of-way; Class II: Striped bike lane; Class III: Signed Bike Routes). Indicate bike accessibility to project and any proposed improvements as part of the project on the site plan or describe below.

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GHG reduction potential: **

☐ **ET-5** **Public Transit Accessibility**

Refer to http://www.ridethevine.com/vine and indicate on the site plan the closest bus stop/route. Please indicate if the site is accessed by transit or by a local shuttle. Provide an explanation of any incentives for visitors and employees to use public transit. Incentives can include bus passes, informational hand outs, construction of a bus shelter, transportation from bus stop, etc.

☐ **ET-6** **Electrical Vehicle Charging Station(s)**

As plug-in hybrid electric vehicles (EV) and battery electric vehicle ownership is expanding, there is a growing need for widely distributed accessible charging stations. Please indicate on the site plan where the station will be.

GHG reduction potential: *

Site Design

☐ **SD-1** **Preservation of developable open space in a conservation easement.**

Please indicate the amount and location of developable land (i.e.: under 30% slope and not in creek setbacks or environmentally sensitive areas for vineyards)conserved in a permanent easement to prohibit future development.

GHG reduction potential:
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☐ **SD-2** **Habitat restoration or new vegetation (e.g. planting of additional trees over 1/2 acre)**

Napa County is famous for its land stewardship and preservation. Restoring areas within the creek setback reduces erosion potential while planting areas that are currently hardscape (such as doing a bio-retention swale rather than underground storm drains) reduces stormwater and helps the groundwater recharge. Planting trees can also increse the the annual uptake of CO2e and add to the County's carbon stock.

GHG reduction potential:
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☐ **SD-3** **Site Design that is oriented and designed to optimize conditions for natural heating, cooling, and day lighting of interior spaces, and to maximize winter sun exposure; such as a cave.**

The amount of energy a cave saves is dependant on the type of soil, the microclimate, and the user's request for temperature control. Inherently a cave or a building burmed into the ground saves energy because the ground is a consistent temperature and it reduces the amount of heating and cooling required. On the same concept, a building that is oriented to have southern exposure for winter warmth and shading for summer cooling with an east-west cross breeze will naturally heat, cool, and ventilate the structure without using energy. Please check this box if your design includes a cave or exceptional site design that takes into consideration the natural topography and sitting. Be prepared to explain your approach and estimated energy savings.

GHG reduction potential: *

☐ **SD-4** **Limit the amount of grading and tree removal**

Limiting the amount of earth disturbance reduces the amount of CO2 released from the soil

and mechanical equipment. This BMP is for a project design that either proposes a project within an already disturbed area proposing development that follows the natural contours of the land, and that doesn't require substantial grading or tree removal.

GHG reduction potential: *

		Sustainability
☐	**S-1**	**Are you, or do you intend to become a Certified Green Business/Winery?** *As part of the Bay Area Green Business Program, the Napa County Green Business Program is a free, voluntary program that allows businesses to demonstrate the care for the environment by going above and beyond business as usual and implementing environmentally friendly business practices. For more information check out the Napa County Green Business and Winery Program at www.countyofnapa.org.* GHG reduction potential: *
☐	**S-2**	**Will this project be designed and built so that it could qualify for LEED?**
	S-2 (a)	☐ **LEED™ Silver** (check box S-1 and this one)
	S-2 (b)	☐ **LEED™ Gold** (check box S-1, S-1a, and this box)
	S-2 (c)	☐ **LEED™ Platinum** (check all 4 boxes) GHG reduction potential: *
☐	**S-2**	**Use of recycled materials** *There are a lot of materials in the market that are made from recycled content. By ticking this box, you are committing to use post-consumer products in your construction and your ongoing operations.* GHG reduction potential:
☐	**S-4**	**Local food production** *There are many intrinsic benefits of locally grown food, for instance reducing the transportation emissions, employing full time farmworkers, and improving local access to fresh fruits and vegetables.* GHG reduction potential:
☐	**S-5**	**Education to staff and visitors on sustainable practices** *This BMP can be performed in many ways. One way is to simply put up signs reminding employees to do simple things such as keeping the thermostat at a consistent temperature or turning the lights off after you leave a room. If the project proposes alternative energy or sustainable winegrowing, this BMP could include explaining those business practices to staff and visitors.* GHG reduction potential:

Water Conservation

☐ **WC-1** **Connection to recycled water**

Recycled water has been further treated and disinfected to provide a non-potable (non-drinking water) water supply. Using recycled water for irrigation in place of potable or groundwater helps conserve water resources.

GHG reduction potential: **

☐ **WC-2** **Install Water Efficient fixtures**

WaterSense, a partnership program by the U.S. Environmental Protection Agency administers the review of products and services that have earned the WaterSense label. Products have been certified to be at least 20 percent more efficient without sacrificing performance. By checking this box you intend to install water efficient fixtures or fixtures that conserve water by 20%.

GHG reduction potential: **

☐ **WC-2** **Connection to recycled water**

Recycled water has been further treated and disinfected to provide a non-potable (non-drinking water) water supply. Using recycled water for irrigation in place of potable or groundwater helps conserve water resources.

GHG reduction potential: **

☐ **WC-3** **Low-impact development (LID)**

LID is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. There are many practices that have been used to adhere to these principles such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Please indicate on the site or landscape plan how your project is designed in this way.

GHG reduction potential: **

☐ **WC-5** **Water efficient landscape**

If your project is a residential development proposing in excess of 5,000 sq. ft. or a commercial development proposing in excess of 2,500 sq. ft. the project will be required to comply with the Water Efficient Landscape Ordinance (WELO).

Please check the box if you will be complying with WELO or If your project is smaller than the minimum requirement and you are still proposing drought tolerant, zeroscape, native plantings, zoned irrigation or other water efficient landscape.

GHG reduction potential: **

Waste Reduction

☐ **WR-1** **Recycle 75% of all waste**

Did you know that the County of Napa will provide recycling collectors for the interior of your business at no additional charge? With single stream recycling it is really easy and convenient to meet this goal. To qualify for this BMP, your business will have to be aggressive, proactive and purchase with this goal in mind.

GHG reduction potential: **

☐ **WR-2** **Compost 75% food and garden material**

The Napa County food composting program is for any business large or small that generates food scraps and compostable, including restaurants, hotels, wineries, assisted living facilities, grocery stores, schools, manufacturers, cafeterias, coffee shops, etc. All food scraps (including meat & dairy) as well as soiled paper and other compostable - see http://www.naparecycling.com/foodcomposting for more details.

GHG reduction potential: **

☐ **WR-3** **Implement a sustainable purchasing and shipping programs**

Environmentally Preferable Purchasing (EPP) or Sustainable Purchasing refers to the procurement of products and services that have a reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. By selecting this BMP, you agree to have an EPP on file for your employees to abide by.

GHG reduction potential: **

Other Farming and Business Practices

☐ **F-1** **Alternative Fuel in farming vehicles**

Refer to ET-1 for explanation.

GHG reduction potential:

☐ **F-2** **Use 70-80% cover crop**

Cover crops reduce erosion and the amount of tilling which is required, which releases carbon into the environment.

GHG reduction potential:

☐ **F-3** **Retain biomass removed via pruning and thinning by chipping the material and reusing it rather than burning on-site**

By selecting this BMP, you agree not to burn the material pruned on site.

GHG reduction potential:

☐ **F-4** **Are you, or do you intend to become a Certified "Napa Green"?**

Napa Green is a voluntary, comprehensive, "best practices" program for vineyards. Napa Valley vintners and growers develop farm-specific plans tailored to protect and enhance the ecological quality of the region, or create production facility programs that reduce energy and water use, waste and pollution. By selecting this measure either you are certified or you are in the process of certification.

GHG reduction potential:

Sources:

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2. California Air Pollution Control Officers Associate (CAPCOA). January 2008. CEQA and Climate Change

3. Napa County General Plan, June 2008.

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5. U.S. Green Building Council (2009). LEED 2009 for New Construction and Major Renovations Rating System. Washington, DC: United States Green Building Council, Inc.

6. California Energy Commission (2008). Title 24, Part 6, of the California Code of Regulations: California's Energy Efficiency Standards for Residential and Nonresidential Buildings. Sacramento, CA: California Energy Commission.

7. U.S. Department of Energy (2010). Cool roof fact sheet.

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9. Compact Fluorescent Light Bulbs". Energy Star. Retrieved 2013-05-01.

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