A photograph of several wind turbines in a field during a sunset. The sun is low on the horizon, casting a warm glow over the scene. The turbines are silhouetted against the colorful sky. The background shows rolling hills covered in trees.

Las Positas College Climate Action Plan 2010



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Letter from the President

1

Executive Summary

The Las Positas College community understands what it means to “think globally and act locally.” As an educational institution, the college recognizes its responsibility is two-fold. First, it must lead by example for other institutions and for future generations. Second, it must prepare a new kind of workforce equipped with the knowledge and skills to work in or with emerging clean industries.

As a signatory to the American College and University President’s Climate Commitment (ACUPCC), Las Positas College has agreed to initiate actions designed to move the campus towards carbon neutrality. The college has completed a greenhouse gas (GHG) emissions inventory report for years 2005 to 2008, and it has taken proactive measures to reduce GHG emissions while planning for further, long-term reductions. Early actions include, but are not limited to:

- Minimum LEED Silver or equivalent rating for all new construction and renovations;
- Energy star procurement;
- Conversion from T-12 to T-8 fluorescent lights;
- Solar panels on parking lots;
- Replace gas-powered vehicles with alternative fuel vehicles;
- Alternative fuel infrastructure development;
- Promotion of alternative transportation;
- Reclaimed water program;
- Stormwater management;
- Comprehensive recycling and composting program;
- Paper reduction initiative;
- Reduced use of plastic water bottles; and
- Distance learning courses and web communications.

While specifically focused on reducing the carbon footprint of the College's activities, practices and operations, the strategies included in this plan also consider improvement to the local environment and neighboring communities within the region. Mitigation strategies cover the following five major areas:

- Buildings and energy;
- Transportation;
- Waste and recycling;
- Water; and
- Research, Education and Community Outreach.

Buildings and energy – Purchased electricity is Las Positas College's second highest source of GHG emissions, making up 18% of total emissions in the baseline year 2008. Natural gas

and electricity are provided primarily through Pacific Gas & Electric. As of 2009, the college produced about 20% of its electricity needs with solar power. To become "grid neutral" by 2030, two additional megawatts of renewable energy will be produced on site. Further measures to increase energy efficiency will involve enhanced building energy management controls and expanding the central utility plant.

Transportation – Transportation sources include fuel purchases for District-owned vehicles, directly financed travel, air mileage from the International Student Program, and student, staff and faculty commuting to and from campus. Transportation is the primary source of GHG emissions for the college, accounting for nearly 80% of the gross total in the baseline



year 2008. Student commuting makes up about 68% of the 2008 total with about 78% of the 9,000 + students driving alone. Addressing this considerable emission source will involve innovative strategies, incentives for carbon reducing behavior and practices, working together with local transportation providers, and educating the campus community about alternative transportation options.

Waste and Materials – Most waste and materials (with the exception of fertilizers) are indirect emissions considered under scope 3, as defined by the GHG Protocol. Waste and materials account for the least amount of GHG emissions, with less than 3% of total emissions in 2008. Although this sector source is not a major contributor to the college's carbon footprint, the college administration is committed to further reducing paper consumption, conserving valuable drinking water, and reducing waste on campus through improved electronic document

management systems, and reduced waste in food packaging, among other strategies.

Las Positas College began implementing sustainability actions in conjunction with the 2006 passage of a \$495 million capital improvement bond (Measure B Bond). As a result of these actions, the per student GHG emissions have had a downward trend over the past four years. Las Positas College and the Chabot-Las Positas Community College District are committed to continually improve and sustain excellence in education, economic, social and environmental responsibility. This Campus Climate Action Plan provides a pathway to achieving the college's near term goal of meeting a 15% reduction in emissions below 2008 levels by 2020 with consideration of the longer term vision of reaching carbon neutrality by 2050. As the college and neighboring community grow, the climate action plan will be updated periodically to ensure continued movement towards academic, social, economic, and ecological sustainability.

2

Baseline Emissions Inventory

In 2009, Las Positas College developed a greenhouse gas emissions inventory report summarizing the campus's anthropogenic greenhouse gas emissions for fiscal years 2005 to 2008. The inventorying process was the first step in determining major sources of emissions and identifying reduction opportunities to help the campus move towards climate neutrality.

Methodology

The Greenhouse Gas Emissions Inventory Report covers both direct sources ("scope 1" emissions), such as fuel combustion of District-owned vehicles and fertilizers, and indirect sources ("scope 2" – purchased electricity and "scope 3" – all other indirect emissions), such as purchased electricity, campus commuting, air travel, waste water, solid waste, and paper use for fiscal years 2005 to 2008. Calculations were based on generally accepted principles and guidelines as provided by the ACUPCC and Clean-Air Cool Planet, the Intergovernmental Panel on Climate Change (IPCC), the World Resources Institute Corporate Accounting and Reporting Standard (The GHG Protocol), and United States Environmental Protection Agency (US EPA) with adjustments, as necessary, utilizing campus-specific data and inputs when and where possible. Results are presented in metric tons of carbon dioxide equivalent (MtCO₂e), using 100-year global warming potentials from the Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report (TAR).

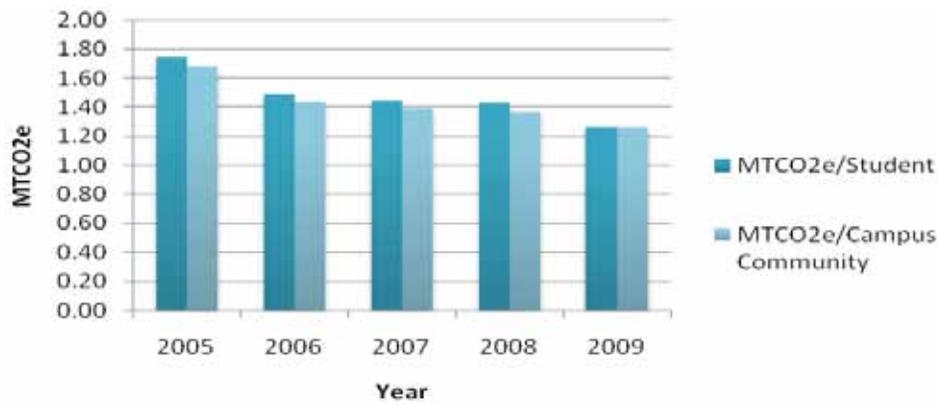
Table 2-1. Las Positas College Historical GHG Emissions, by Scope

LAS POSITAS COLLEGE		2005	2006	2007	2008
Scope 1	Direct Transportation	37.4	37.7	21.8	33.4
	Agriculture	0.2	0.2	0.2	0.2
Scope 2	Purchased Electricity	2,297.8	2,723.9	2,642.3	2,629.3
Scope 3	Faculty / Staff Commuting	1,020.2	1,171.6	1,259.2	1,344.8
	Student Commuting	9,221.2	9,919.0	10,461.4	9,847.3
	Directly Financed Air Travel	51.8	52.5	68.0	82.6
	Other Directly Financed Travel	19.5	17.4	22.1	25.5
	Study Abroad Air Travel	73.2	79.5	104.8	168.6
	Solid Waste	18.5	19.1	14.3	17.9
	Wastewater	1.0	1.1	1.3	1.3
	Paper	12.3	13.6	13.5	14.6
	Scope 2 T&D Losses	227.3	269.4	261.3	260.0
	Offsets	Additional	-3.5	-4.6	-4.8
Totals	Scope 1	37.6	37.9	22.0	33.6
	Scope 2	2,297.8	2,723.9	2,642.3	2,629.3
	Scope 3	10,645.0	11,543.2	12,205.9	11,762.6
	All Scopes	12,980.4	14,305.0	14,870.2	14,425.5
	All Offsets	-3.5	-4.6	-4.8	-4.8
	Net Emissions	12,976.9	14,300.4	14,865.4	14,420.7
Population	Students -	7421	9620	10298	10123
	Faculty and Staff	313	358	386	408
	TOTAL Campus Community	7734	9978	10684	10531
Per Capita Emissions	MtCO ₂ e/Student	1.75	1.49	1.44	1.43
	MtCO ₂ e/Campus Community	1.68	1.43	1.39	1.37

2005-2008 Inventory Results

A detailed overview of gross and net emissions for years 2005 to 2008, is provided in Table 2-1. Over the four-year period, there was an average growth rate of 3.7% in historical gross greenhouse gas (GHG) emissions. In 2005, gross emissions were estimated at 12,980.4 MtCO₂e and in 2008 they were estimated at 14,425.5 MtCO₂e. Scope 3 emissions account for a majority of campus GHG emissions, with transportation (primarily from commuting) being the largest sector source, accounting for nearly 80% of all emissions.

Despite growth in total gross emission levels, student per capita emissions steadily declined over the same period from 1.75 MtCO₂e in 2005 to 1.43 MtCO₂e in 2008. Further decline in student per capita emissions is observed in the last year, reaching about 1.26 MtCO₂e per student in 2009 as a result of new renewable energy sources and increased energy efficiencies on campus.

Figure 2-1. Per Capita Emissions

Source: Parsons Brinckerhoff, 2010

Base Year Summary

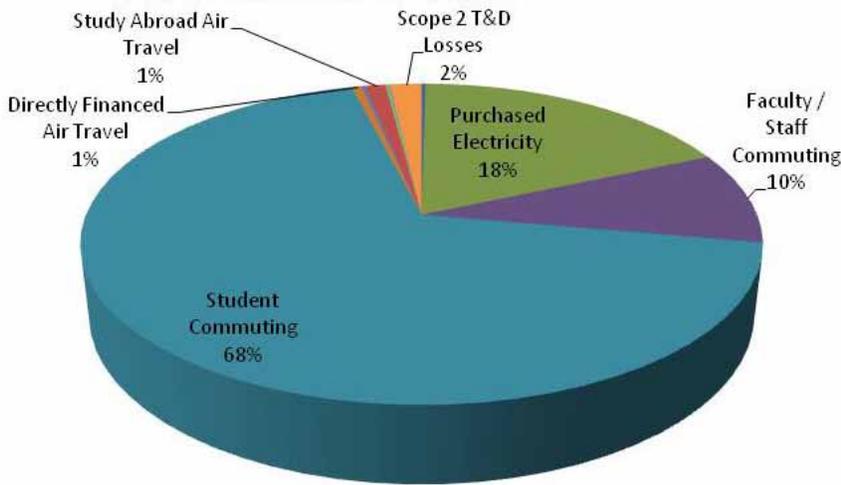
In 2008, the college was responsible for nearly 14,426 metric tons of carbon dioxide equivalent (MtCO₂e)¹. Transportation, including fuel purchases, air travel and other directly financed travel, and daily commuting by students, staff and faculty, accounted for nearly 80% of all emissions. As anticipated for a two-year commuter college, nearly 70% (see Figure 2-2) of total emissions are derived from student commuting, with about 78% of the student population reporting as solo drivers.

¹A unit of carbon dioxide equivalent (MtCO₂e) represents a standard unit covering the total impact of the six major greenhouse gases: carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Emissions Forecast

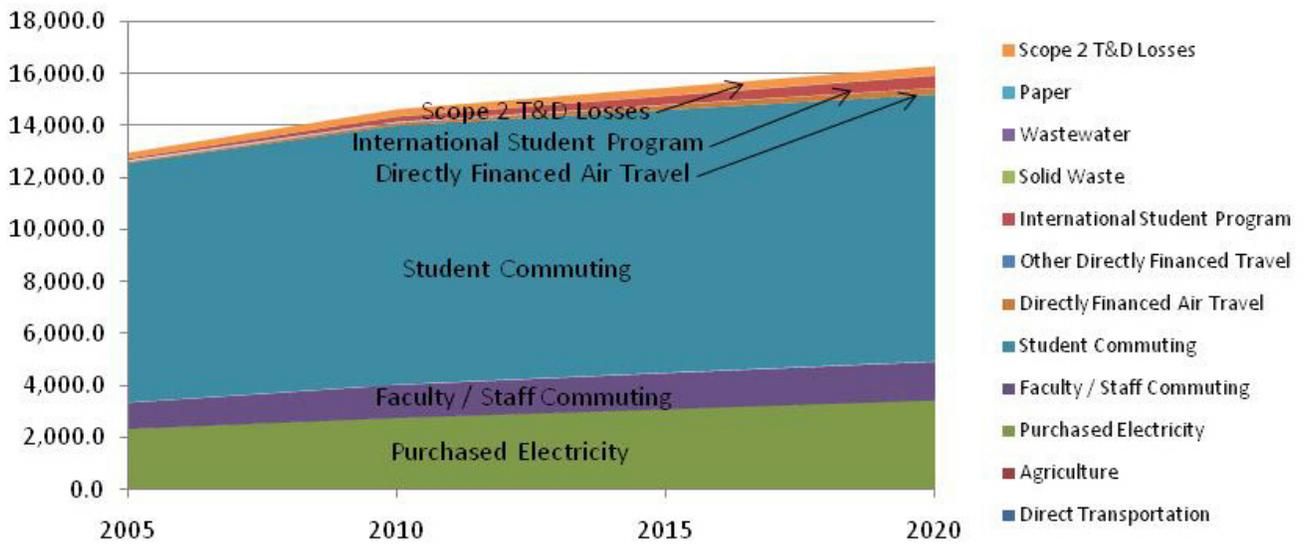
To understand future baseline trends in GHG emissions under business as usual (BAU) assumptions, reference case projections were estimated from year 2009 through 2020. Figure 2-3 illustrates the historical and reference case gross GHG emissions through 2020 and the reduction trend line necessary to achieve a 15% reduction below 2008 levels by 2020 (a 2020 target equivalent to approximately 12,262 MtCO₂e). Without emissions reduction measures, gross GHG emission levels in year 2020 are projected to reach approximately 16,271.5 MtCO₂e. Las Positas College, however, has taken proactive measures to implement early energy- and cost-saving strategies to reduce its current and future emissions. This is revealed through the declining emissions per student. Early action measures and further emissions reduction strategies are discussed in the following sections.

Figure 2-2. 2008 Gross GHG Emissions Summary (MtCO₂e)



Source: Parsons Brinckerhoff, 2009

Figure 2-3. Las Positas College Historical and Reference Case GHG Emissions, 2005-2020 (MtCO₂e)



Source: Parsons Brinckerhoff, 2009

3

Early Actions

Las Positas College has taken early action measures to improve campus sustainability and reduce greenhouse gas emissions. A number of early, tangible actions taken in the areas of buildings and energy, transportation, water and waste, education and outreach are outlined below.

Buildings and Energy

01 Minimum LEED silver or equivalent for all new construction and renovations

In 2005, the Chabot-Las Positas Community College District Board of Trustees adopted a Sustainability Design Policy that requires all new buildings constructed under the Measure B Bond issued to be a minimum Leadership in Energy and Environmental Design (LEED) Silver Certified and that all new renovations be LEED Silver equivalent. Sustainability guidelines can be found in the 2005 Las Positas College Facilities Master Plan. Current LEED projects totaling \$120 million include the College Center for the Arts, the Child Development Center, a Science Building, and a Student Services Building. Construction of these buildings is expected to be completed by 2013.

02 Energy Star procurement

In 2006 the District Purchasing Office developed an RFP process that includes a request for Energy Star certified products.

LEED Silver Certified or Equivalent Buildings

Measure B Bond Funding



1 *Student Services Building*

2 *Science Building*

3 *Child Development Center*

4 *College Center for the Arts*



03 Conversion from T-12 to T-8 fluorescent lighting²

All fluorescent bulbs and ballasts have been converted from T-12 to the more efficient T-8 lighting system. Older, linear fluorescent fixtures generally used T-12 type magnetic ballasts which operate at 60 Hz and require 15% more power beyond the lamp requirements to operate. Not only do the new bulbs save energy, but they promote health: studies have shown that although the light flicker generated at a 60 Hz cycle is undetectable to the human eye, over time it can affect performance, concentration, and the overall health of some individuals. Newer T-8 electronic ballasts operate at 20,000 Hz. T-8 bulbs are more efficient and save about \$30 per year in energy use per light fixture over T-12.

04 Solar panels in parking lots

In 2009, more than 6,600 solar panels were installed with capacity of producing 1.1 megawatts of electricity, meeting more than 20% of the campus's current electricity needs. Although the recent GHG Emissions Inventory Report did not include the solar panels (as its installation occurred after 2008), the solar power is estimated to reduce annual CO₂ emissions by approximately 527 metric tons, equivalent to planting about 130 acres of trees. Economic benefits of the solar panels also include about \$2.9 million in California Solar Initiative Incentives and reduced electricity bills. Real-time data can be viewed at: <http://kiosk.utilityvision.com/content/projects/LasPositas/Production.aspx>.

²The T figure describes the diameter of the bulbs in 1/8 inch increments (T8 = 8/8 = 1 inch and T12 = 12/8 = 1.5 inches)

Transportation

05 Replace gas-powered vehicles with alternative fuels

The District replaced four of its security vehicle fleet with hybrid-electric security vehicles.



06 Alternative fuel infrastructure development

In 2010, plug-in electric chargers will be installed in parking lots across the on campus.

07 Promotion of alternative transportation

Information on transportation alternatives such as carpooling, biking or taking public transit to the campus is disseminated through posters and on the campus sustainability website at: <http://www.laspositascollege.edu/green/index.php>.

Water and Waste

08 Reclaimed water program

The campus irrigation systems for lawns and landscaping uses reclaimed water, and weather sensor systems have been installed to maximize water efficiency throughout the year. Since reclaimed water contains minerals and phosphates, nitrogen-containing fertilizers are not required for lawns or landscaping, saving both nitrogen emissions and valuable drinking water. Reclaimed water also replaces domestic potable water in toilets in the new buildings on campus.

09 Stormwater management

As part of the bond program, a campus wide stormwater management plan has been implemented. The Stormwater management plan is designed with retention and filtration basins such that campus outflows will be at no greater rate and no less quality than outflows prior to the bond program.

10 Comprehensive recycling and composting program

The Chabot-Las Positas Community College District implemented an integrated waste management plan in 2003, including on-site composting of organic material, construction waste diversion, and single-stream recycling.



To improve waste management through better separation of construction debris, trash and dirt fill generated during current and future construction activity, Las Positas College requires construction bid documents to include a “Debris Recycling Statement.” Through this program, overall waste diversion rates have been as high as 85.3%.

11 Paper reduction initiative

Over the years, Las Positas College has continuously reduced its consumption of paper through a number of efforts, including: online admission applications; registration, grades, and course materials through Blackboard and instructional websites; reduced number of hardcopy agendas and minutes for institutional meetings; electronic curriculum development; GoPrint stations in the library, computer labs, and classrooms; online job postings; and using recycled scratch paper and “Green Books.”

Education and Community Outreach

12 Sustainability committee

The Las Positas College Sustainability Committee started as a task force in 2007/2008 and is now a formalized standing committee with at least 13 members. Its membership currently consists of student representatives, faculty from various divisions, classified staff, and administrators.

13 Distance learning

Currently, Las Positas College offers more than 75 online courses and 25 hybrid courses, reducing the number of vehicle trips to campus and associated emissions.

14 Web communications

Through the work of the Sustainability Committee and the College Web Master, a “Las Positas Goes Green” website was designed and released in February 2010. This website includes information about the college’s sustainability initiatives, real-time information about renewable energy generated from the college’s solar panels, and alternative transportation opportunities to reach the campus, including public transit, bicycle, and carpool options.



4

Mitigation Strategies (2010-2020)

01 Generate Renewable Energy On-Site

As noted above, in 2009, more than 6,600 solar panels were installed on campus with the capacity of producing 1.1 megawatts of electricity. As a result of the installation, annual electricity purchases have been reduced by approximately 20% and the installation has the potential to decrease annual emissions by an expected 527 MtCO_{2e}, equivalent to planting about 130 acres of trees. Economic benefits of the solar panels also include about \$2.9 million in California Solar Initiative Incentives, and additional cost savings on electricity bills. Additional renewable energy production on site is currently being explored to generate at least another two megawatts of power, enabling the college to become grid neutral. Additional renewable sources of energy under consideration by the District include the following or a combination of the following: additional solar photovoltaic panels, wind power, biogas, and fuel cell technology. The tables below (which will follow with each strategy) outline the potential for GHG reductions for years 2010, 2015, and 2020. The values are expressed in terms of metric tons of carbon dioxide equivalent (MtCO_{2e}).

Reduction Strategy (MtCO _{2e})	2010	2015	2020
Solar Panels	-527.1	-527.1	-527.1
Add'l Renewable Energy Generation	0.0	-527.1	-527.1

02 Expand Building Energy Management Controls

The college plans to expand its building energy management controls to aid in further energy efficiencies, reduce reliance on petroleum-based energy sources, and cut greenhouse gas emissions while saving on utility expenditures.



Part of this effort includes expansion of the central utility plant which when fully connected will enable heating and cooling of older, existing buildings about 40% more efficiently than the currently decentralized HVAC systems. A component of the central utility plant is an ice storage system. Ice is produced at night at lower energy costs which is used during peak daytime hours for building cooling.

Additional potential energy efficiencies include improved building temperature controls and power management for electronics and lighting. It is recommended that seasonal thermostat ranges for buildings range from 70-76 degrees Fahrenheit in the summer and 68-72 degrees Fahrenheit in the winter. According to the U.S. EPA, a home saves 1% of its heating bills for each degree the thermostat is turned down. Applying this formula directly to institutional buildings, lowering the temperature in campus buildings by two degrees should also save up to 2% of heating costs for the college.

Reduction Strategy (MtCO ₂ e)	2015	2020
Enhanced Building Energy Mgmt	-13.3	-14.7

03 Reduce Vehicle Miles Traveled (VMT)

Like many other commuter colleges, reducing GHG emissions from transportation is one of the biggest challenges Las Positas College faces. Commuter travel makes up nearly 80% of the college’s total emissions. Key means to reducing transportation-related GHG emissions will involve a reduction in vehicle miles traveled, improvements in vehicle technology, fuels, and design and operations of transportation networks (both vehicular and non-vehicular). Using these strategies, the college can influence VMT reduction.

A campus-wide transportation survey conducted in fall 2009 revealed that 67% of all respondents drive alone to campus, with about 78% of the student population as solo drivers. When choosing how to get to campus, survey responses showed that the most important factors were travel time and convenience. For those usually driving alone to campus, 60% of respondents would be willing to try carpooling as a transportation alternative. About 39% of respondents who drive alone would also consider taking public transit and 37% would be willing to telecommute (i.e., work from home or take online courses).

In addition to the transportation survey, home-based zip code analyses were conducted to determine primary neighborhoods which the college serves. Figure 4-1 illustrates that nearly 7,000 individuals (approximately 65%) of the campus community (students, faculty, and staff) live in the five zip codes shaded in green. The top home cities are Livermore, Pleasanton, Tracy, Dublin, San Ramon, and Castro Valley with about



65% of campus commuters living in the corridor between the Dublin/Pleasanton BART station and the college.

To address the commuting needs within this corridor, a number of transportation alternatives and strategies are being explored for the next three to ten years, including:

- A robust ridesharing program;
- Implementation of an Express Shuttle service;
- Exploring partnerships with local car-sharing services to provide transportation alternatives to and from campus, and to accommodate for mid-day trips; and
- Improved bicycle facilities and infrastructure.

Ridesharing and Express Shuttle Service

A robust ridesharing program would involve coordination at the regional level with 511 Rideshare and at the campus level through student organizations. Ridesharing can offer a fun and social alternative to driving alone. Sharing the ride also means sharing the costs, and it provides access to carpool lanes and reduced bridge tolls during peak commute hours. The program could be promoted through the campus green website, on-line listings, and forums for students, faculty, and staff and bulletin boards. To incentivize ridesharing, those who commute to campus as part of this program with occupancy of two or more people could have access to reserved, prime parking spaces on campus.

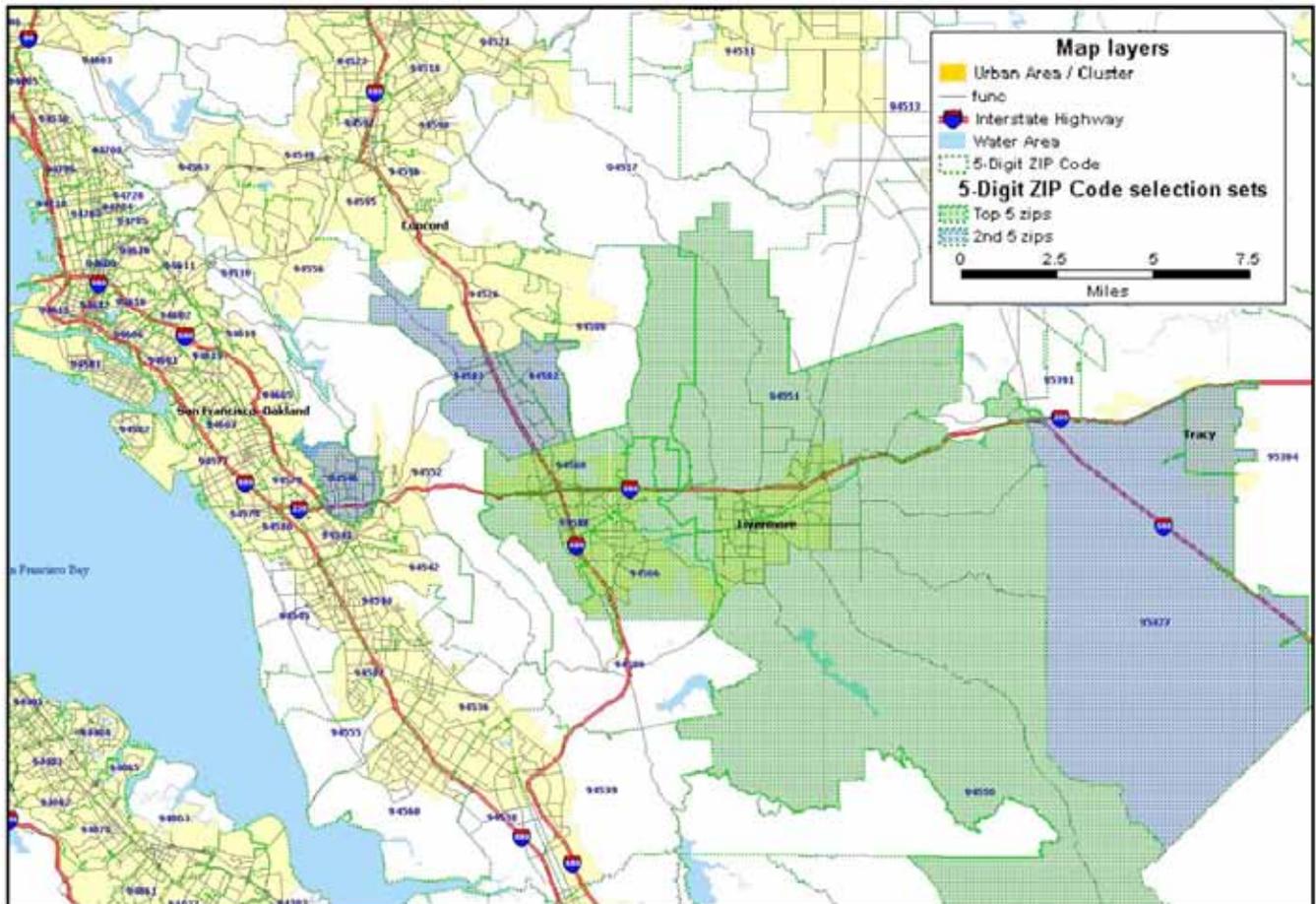
An express shuttle service could have a number of pick-up and drop-off points in areas with the highest student population density in Livermore, Dublin and Pleasanton. The express shuttle service could provide access not only to the campus but to the downtown area and to regional transit networks. Details of shuttle operations are dependent upon further studies. An initial survey of peer shuttle operations revealed all-inclusive costs in the range of \$90,000 to \$400,000 per year.

Car-Sharing Services

Partnering with car-sharing services like City Car Share or Zip Car could provide campus transit/ride share users with access to vehicles when needed for trips to and from campus during the day, thus removing an excuse for driving to campus and reducing the number of solo drivers and relieving parking spaces. Car-sharing vehicles also could be given preferred parking, like carpools and vanpools.

Reduction Strategy (MtCO ₂ e)	2015	2020
Ridesharing + Express Shuttle	-284.1	-567.8

Figure 4-1. Zip Code Analysis



Source: Parsons Brinckerhoff, 2010

Figure 4-2. Proposed Bike Routes, City of Livermore

Source: City of Livermore

Improved Bicycle Facilities and Infrastructure

Currently, there are four bike racks on campus with capacity for storing up to 33 bicycles (Figure 4-3). Working with the welding department, the college plans to increase the number of bike racks available within the next two years and triple the bicycle capacity over the next ten years. Newer, safer bike routes are being developed by the City of Livermore along a new Portola Avenue extension currently under construction to the east (Figure 4-2). Construction of the Isabel/I-580 interchange will improve access to not just Las Positas College, but residential developments, commercial businesses, and future developments

north of I-580. Construction work has already started and completion is anticipated by early 2013. Long-term plans also include connecting Dublin Boulevard and North Canyon Parkway to the west of campus.

04 Increase Campus Average Fuel Economy

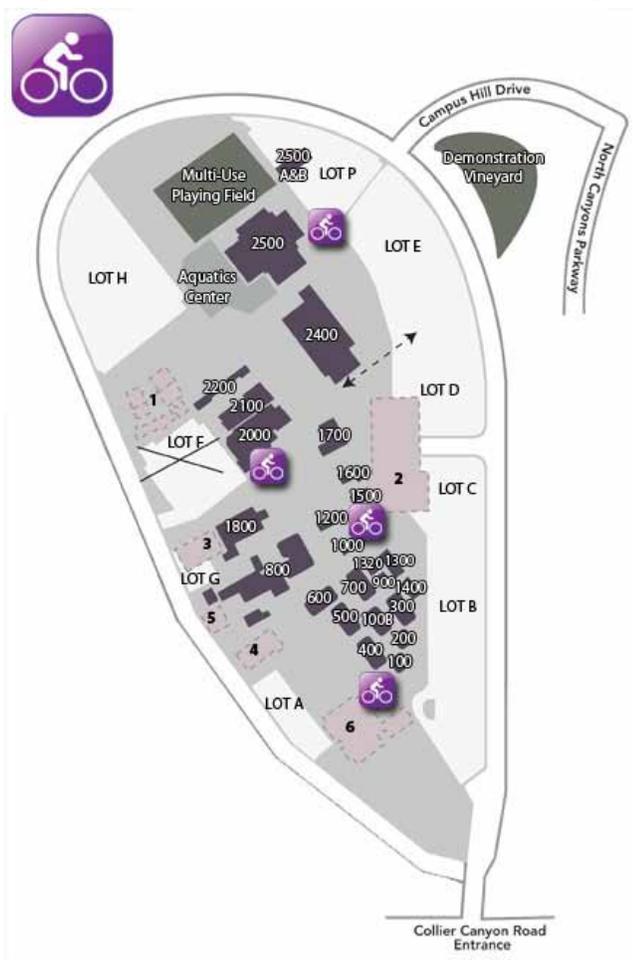
The campus-wide transportation survey conducted in fall 2009 estimated the campus average fuel economy was 25.2 miles per gallon (mpg). One of the goals of the college is to increase the average fuel economy of its campus community to 33.5 mpg (about a 33% increase)

over the next ten years through a combination of improved vehicle and fuel technologies, fleet turnover, alternative transportation modes as compared to driving alone, and eco-driving training. Eco-driving is a form of driving behavior that promotes fuel-savings, including simple ideas like avoiding rapid stops and starts, using cruise control, avoiding unnecessary idling, maintaining appropriate tire pressure, and removing unnecessary weight from a vehicle. The International Transport Forum states that eco-driving can reduce emissions by up to 15%, while a Ford eco-driving test found an

improvement in fuel economy by an average of 24%³ and U.S. EPA states eco-driving has the potential to reduce emissions by up to 33.3%.

Reduction Strategy (MtCO ₂ e)	2015	2020
Increased Fuel Economy	-1,723.6	-2465.3

Figure 4-3. Bike Rack Locations on Campus



Source: www.LasPositasCollege.edu/green/bikeracks.php

05 Sustainable Scheduling

Sustainable scheduling provides a new framework for how we look at using and coordinating resources, time, and energy more efficiently. This strategy will examine work, class, and meeting schedules for students, faculty, and staff, in coordination with transportation schedules and options. Examples of situations or questions this strategy would address include:

If the last class gets out at 9:45pm, and the last transit bus departs campus at 8:37pm, can we work with the local transit provider to better match the transit schedule with the rider needs, or is there a “guaranteed ride home” option that can be explored to provide alternatives to driving alone to campus?

If a faculty member or student has a 1-hour meeting on campus on a day he or she may not normally commute, are there other means of meeting participation, such as video conferencing like CCC Confer.

This strategy may also include options for alternate schedules. There are multiple scheduling schemes that have been studied and implemented across the country that the college and District may consider. Within the next 2-year cycle, the college and District may

³<http://www.ford.com/about-ford/news-announcements/press-releases/press-releases-detail/pr-ford-tests-show-ecodriving-can-28948>

further examine the feasibility of various alternate schedules. Alternate schedules could improve work-life balance of employees, reduce vehicle miles traveled, and provide building energy cost savings. The potential GHG reduction for the college consists of an amalgam of various sustainable scheduling concepts used in other programs across the country considering emissions savings from both transportation and building energy.

Reduction Strategy (MtCO ₂ e)	2015	2020
Sustainable Scheduling (Transp)	-390.0	-426.0
Sustainable Scheduling (Energy)	-134.0	-134.0

06 Research, Education and Community Outreach

Las Positas College Leadership understands that research, education, and community outreach are essential to creating and maintaining a sustainable campus. As a result, a number of avenues for promoting awareness of sustainability have been identified:

- Las Positas College Strategic Plan;
- Enhanced distance learning;
- Development of “Sustainability Concepts;”
- Sustainability events and workshops; and
- Web communications.

The Las Positas College Strategic Plan identifies Sustainability as a Goal. The strategies and performance indicators in the Strategic Plan are aligned with the Climate Action Plan and serve as an additional way to outreach to on-campus and off-campus communities. Inclusion of the Climate Action Plan into the College Strategic Plan situates the Climate Action Plan into the planning, funding, and evaluative structures of the college.

Las Positas College currently offers more than 75 online courses and over 25 hybrid courses. To enhance the current online and hybrid course offerings, other distance learning options can be explored, such as podcasts and using CCC Confer, (a desktop sharing and video conference technology) for California community colleges.

“Sustainability concepts” have been and will continue to be developed for incorporation in labs, courses, and certification programs for interested faculty members on a voluntary basis. The biology and chemistry teaching labs, for example, have used different strategies, when pedagogically and logistically appropriate, to support sustainability efforts. These include lab-exercise modifications that reduce the amount and toxicity of materials used and the amount of biological and chemical waste generated. Additionally, pooling orders for supplies decreases the number of required vendor shipments (that contribute to greenhouse gas emissions). Other examples of sustainability concepts may include but are not limited to the following:

- Energy and Sustainability (open for Spring 2011) as a core course for the Environmental Studies and Science Program;
- Biology and/or Chemistry: Algae to Fuels;
- Automotive: Hybrid Technology;
- History: Origins of Earth Day or Evolution of Environmental Laws in California involving sustainability; and
- Engineering or Architecture: Green Technology and Green Building Design.

Sustainability events and workshops could include: a reusable office supply exchange program, a “Switch it Off” Campaign, regular E-recycling events, Earth Day events, Eco-

driving training workshops, and a Sustainability Speaker Series. Promotion of and information on sustainability events, workshops, and initiatives should be disseminated through a variety of means, including the Las Positas Goes Green Website.

07 Reduce Paper Volume through Improved Electronic Document Management

Document Management Systems are software packages that allow people to share documents electronically, keep track of drafts, and archive documents, but most importantly, allow “work-flow.” With these systems documents can be routed to a series of people for electronic signatures. This would save an enormous amount of time, money, and paper. Admissions and Records was the first group to evaluate software, and will be followed by Financial Aid, Human Resources, Payroll, and other groups. Software is anticipated to be implemented on campus and District-wide to all interested groups within the next 3-5 years.

Further reductions in paper consumption are expected to be achieved through implementation of CurricUNET. Each year, hundreds of curriculum proposals are created, reviewed, modified, and approved at Las Positas College. Three years ago, the Curriculum Committee began using an online system for review of all curriculum proposals. The Committee is now in the process of implementing CurricUNET to automate the entire process of submitting course and program proposals via a web browser, thereby virtually eliminating the use of paper.

08 Other Campus Actions

Other campus actions to mitigate GHG emissions in the near term include:

- Continue working with the Livermore Amador Valley Transit Authority to identify and implement bus service improvements for all commuting to and from Las Positas College;
- Purchase and install water meters in all buildings and irrigation lines to track monthly usage;
- Install waterless urinals and/or low-flow, high efficiency toilets;
- Explore more energy-efficient heating options for pools, such as using waste heat from co-generation in the future;
- Conduct regular energy audits;
- Explore feasibility of double-sided default printing;
- Reduce waste in food services and packaging and support healthy and sustainable practices for growing, processing, marketing and distributing food;
- Reduce number of shipments and improved distribution methods to reduce GHG emissions;
- Compost food waste and recycle cooking oil for biofuels conversion; and
- Improve plumbing maintenance to minimize potential water leakages.



Table 4-1 below summarizes near-term quantifiable mitigation strategies with full implementation to be phased in over the course of the next ten years. Some strategies, like additional renewable energy generation and improved bicycle facilities and infrastructure are currently in early planning phases with potential implementation within the next 3-5 years.

Annual savings to the college is estimated for year 2020, with the greatest energy and cost savings from renewable energy generation and increased energy efficiency for all campus buildings and facilities. On the other hand, strategies like increased fuel economy and transportation savings from sustainable scheduling are not direct cost savings to the college, but rather to the campus community through estimated annual fuel savings as a result of these strategies. Current average gasoline prices for the San Francisco Bay Area region were considered in this analysis, and as a result, the anticipated cost savings in future years may change depending on changes in future gasoline prices.

Table 4-1. Summary of GHG Reduction Strategies and Impacts

Reduction Strategies	GHG Reductions (MtCO ₂ e)		Initial Cost (Current dollars)	Annual Savings (2020)
	2015	2020		
Composting	-6.7	-8.1	N/A	N/A
Solar Panels	-527.1	-527.1	\$7,000,000	\$224,303
Add'l Renewable Energy Generation	-527.1	-527.1	\$7,000,000	\$224,303
Enhanced Building Energy Mgmt	-13.3	-14.7	\$150,000	\$18,770
Increased Fuel Economy	-1,723.6	-2,465.3	\$0	TBD
Ridesharing + Express Shuttle	-284.1	-567.8	\$250,000	(250,000)
Sustainable Scheduling (Transp)	-390.0	-426.0	\$0	\$15,126
Sustainable Scheduling (Energy)	-134.0	-134.0	\$0	\$18,200
BAU Emissions Baseline	15,460.3	16,271.3		
Total Offsets	-2,551.7	4,670.1		
Net Emissions Baseline	12,908.6	11,601.2	\$14,400,000	\$250,700

Note: Emissions expressed in terms of metric tons of carbon dioxide equivalents (MtCO₂e)

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As part of the President’s Climate Commitment, Las Positas College will update its GHG emissions inventory annually, and provide an update to its Climate Action Plan every two years on the even years. In addition, brief progress reports on the status of Climate Action Plan implementation will be provided every other year, on the odd years. The timetable below illustrates the various check points to fulfill ACUPCC requirements.

Tracking and Measuring Progress

Table 5-1 ACUPCC Progress Reporting Schedule

ACUPCC Requirements	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
GHG Emissions Inventory	•	•	•	•	•	•	•	•	•	•	•	•
Climate Action Plan		•										
Climate Action Plan Update			•			•		•		•		•
Progress Report			•		•		•		•		•	

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Appendices