

Fine Arts Museums of San Francisco

Climate Action Plan: 2011 – 2012



Legion of Honor



de Young

**Fine Arts Museums of San Francisco Departmental Climate Action Plan
Fiscal Year 2011-2012
Climate Liaison: Al Barna**

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1. Introduction

The Fine Arts Museums of San Francisco’s (FAMSF) carbon footprint includes the consumption of energy (electricity, natural gas) in all three of our facilities and the liquid fuels from our vehicle fleet and diesel generators. It is our goal to maintain compliance with the San Francisco Department of Environment’s Greenhouse Gas Emissions Targets and Departmental Climate Action Plan Ordinance (Environmental Code Chapter 9).

To the best of our ability, we have confirmed that the carbon footprint data provided to us on Google Docs is accurate.

The Fine Arts Museums goal is to maintain our commitment to reducing CO2e emissions whenever possible while protecting the museums collections.

2. Departmental Profile

Departmental Mission

The mission of the Fine Arts Museums of San Francisco (the de Young Museum and the Legion of Honor) is to provide, through the development and utilization of the collections, exhibitions, education, and community outreach programs, a rich and diversified experience of art and culture for the Bay Area, Northern California, and national and international audiences.

Departmental Budget

FY12/13 Base			FY12/13 Base Proposed			FY12/13 FINAL		
Legion	deYoung	Total	Legion	deYoung	Total	Legion	deYoung	Total
5,728,631	6,055,270	11,933,901	6,072,986	7,316,003	13,538,989	5,668,565	6,414,641	12,233,206

Number of Employees

The Museums currently employs 572 active employees.

The Fine Arts Museums of San Francisco (FAMSF) workforce comprises (a) employees of the Corporation of the Fine Arts Museums (COFAM) and (b) employees of the City and County of San Francisco (CCSF). There are 321 COFAM employees and 251 CCSF employees.

COFAM: Full-Time—160, Part-Time—19, On-Call—142

CCSF: Full-Time—47, Part-Time—38, On-Call—166

There are 249 computer workstations distributed throughout both museum facilities and the museum warehouse.

Departmental Facilities (location and approximate size)

The Department's facilities are comprised of the following business locations:

deYoung Museum
50 Hagiwara Tea Garden Drive
Golden Gate Park
San Francisco, CA 94118
292,500 sq. ft.

Legion of Honor
100 34th Avenue
Lincoln Park
San Francisco, CA 94121
117,665 sq. ft.

Warehouse
1819 Egbert Avenue
San Francisco, CA 94124
27,440 sq. ft.

Existing Environmental Goals

FAMSF strives to provide a high quality cultural experience for visitors and a safe and healthy workplace for employees with minimal impact on the natural environment in Golden Gate Park, Lincoln Park, and the City and County of San Francisco.

Vehicles

The FAMSF uses three vehicles that are maintained by Central Shops. A straight truck and a smaller Sprinter are used primarily for hauling building materials and exhibition furniture between the Museums three locations. A light duty passenger van is used by the Museums Department for on-site education and outreach programming .

Departmental Climate Action Plan Contact

The Fine Arts Museums Climate Action Plan contact is:

Al Barna
Occupational Health and Safety Officer
Phone: 415-750-7631
Email: abarna@famsf.org

3. Departmental Carbon Footprint

Energy Use and Emissions Information

The Fine Arts Museums' carbon footprint includes the consumption of energy (electricity, natural gas) in the three facilities that we occupy and the liquid fuels from our vehicle fleet and diesel generators.

For FY11/12, our CO2e consumption and emissions are verified from the google docs data:

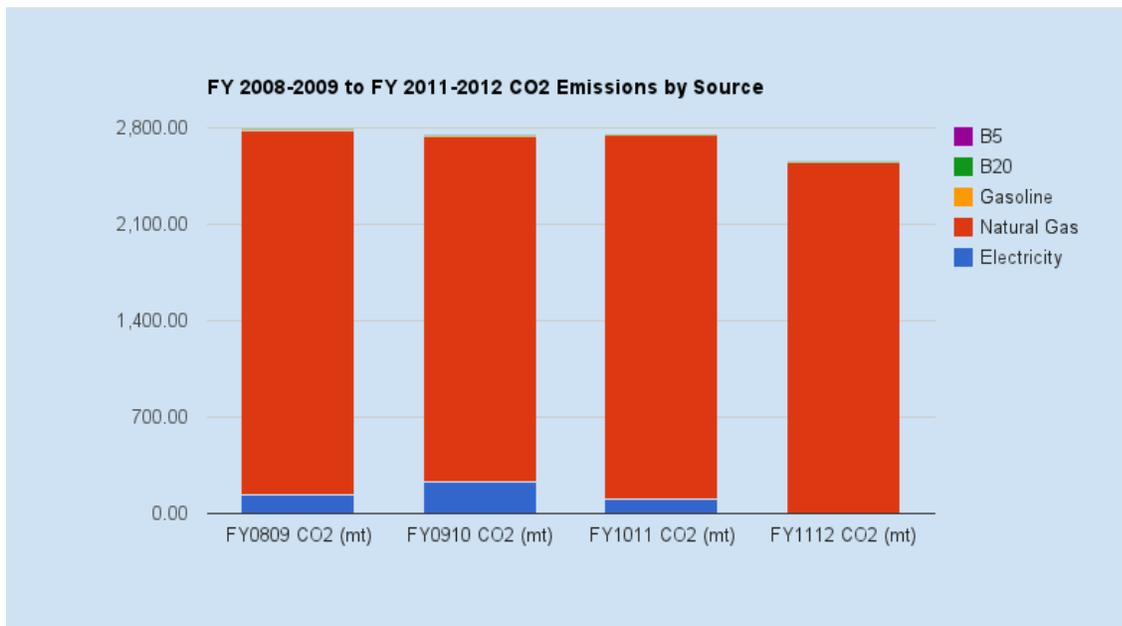
For FY 2011-2012, 2,556.67 metric tons of CO2 emissions were produced from building energy, and 7.64 metric tons of CO2 emissions are from liquid fuels produced our vehicle fleet.

FY 2008-2012 Emissions by Energy Source ANNUAL DEPARTMENTAL CO2 emissions (mt)				
Emission Source Detail:	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012
Electricity	134.83	229.51	101.29	0.00
Natural Gas	2,646.84	2,506.72	2,641.99	2,549.04
Steam				
Total Building Energy CO2 (mt)	2,781.67	2,736.23	2,743.28	2,549.04
Gasoline	5.56	7.05	5.78	3.49
B20	3.47	2.97	2.36	4.06
B5	0.00	0.00	0.31	0.09
CNG				
Propane				
Total Mobile Fuel CO2 (mt)	9.04	10.02	8.45	7.64
Total CO2 (mt)	2,790.70	2,746.25	2,751.74	2,556.67

FY 2008-2012 Consumption ANNUAL DEPARTMENTAL CONSUMPTION				
Emission Source Detail (UNITS)	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012
Electricity (kWh)	12,822,994	13,225,132	13,237,489	12,894,446
Natural Gas (th)	498,838	472,431	497,925	480,406
Steam (lbs)				
Water (gal)		11,558,096	13,510,376	11,767,536
Wastewater Discharge (gal)		10,399,594	12,151,933	10,587,416
Gasoline (gal)	632	800	656	397
B20 (gal)	428	366	291	500
B5 (gal)	0	0	32	9
CNG (GGE)				
Propane (gal)				

Notes:

The CO2 emission calculations are in metric tons, and exclude CH4 and N2O.



3a. Building Energy

In an effort to increase our energy efficiency and conservation, the museums have been installing the V-Mod HVAC/UVGI maintenance tool. A typical installation of the V-Mod can potentially pay for itself in less than one year through energy and maintenance savings. When installed, the lamp destroys contaminants in the HVAC system, including molds and bacteria and maintains the system to virtually original specifications making it an extremely versatile UV-C system. The system delivers better energy savings through improved system efficiency. This system produces no ozone, gases, or other noxious fumes, and eliminates the need for chemical coil cleaning treatments. This project was started in the final quarter of 2010 and will continue into the next fiscal year. To date, eight of eleven air-handling units (AHU) have been retrofitted with UVDI systems.

The new deYoung Museum provides ideal conditions for viewing the collection and is also an example of sustainable design. Sustainable design combines energy and resource use in both the construction and operation of a building as well as indoor air quality and pollution reduction.

The roof form with the long canopy on the west side shades the walls and glazing from direct solar radiation, which significantly reduces the cooling load on the building. The materials used in the exterior walls provide sufficient insulation.

The primary function of the air-conditioning systems is to preserve the collection and to provide comfortable conditions for viewing. The systems are designed to be energy efficient. Supply air is introduced at floor level, which takes advantage of stratification in the gallery spaces to reduce cooling loads and provide stable internal conditions. This system also reduces the total fan-pressure, which reduces electrical consumption by the fans. This low-level supply system uses a higher temperature for supply air than the conventional ceiling supply system, which in the mild climate of Golden Gate Park results in reduced demand for mechanical cooling.

The chillers, the central source of cooling for the building, are very efficient and use a refrigerant that does not deplete the Ozone Layer.

Direct sunlight into gallery spaces is undesirable, however, diffuse daylight in gallery spaces not only reduces electrical energy use it provides a better quality of light for viewing artwork. Daylight is introduced to the gallery spaces in two ways. Vertical shaded glass lets in diffused daylight from the main

courtyard and the south facing façade above the main entrance. Skylights with light baffles and reflectors introduce controlled daylight into gallery rooms on the upper floor. The glass used is a high performance type that lets in visible light yet cuts out a large percentage of the solar gain.

Much of the copper used for the building façade was recycled copper. Copper is 100% recyclable.

The wood used in floors, ceilings and art cases is from sustainable growth forests in Australia.

Fly ash (a fine, glass-like powder recovered from gases created by coal-fired electric power generation) was used in the concrete, thus using a material that would otherwise go into landfills.

More than 85% of the materials from the demolition of the old de Young and Asian Art Museum were recycled. This included more than 13,000 tons of concrete, 108 tons of asphalt, 40 tons of steel, and 50 tons of steel reinforcing bars from the concrete.

The rainwater runoff from the roof goes into recharge chambers under the Sculpture Garden rather than going into the city sewers.

Energy Conservation and Efficiency Measures

HVAC: FAMSF is using the economizer operation on 13 of 14 total Air Handling Units (AHU) that supply our facilities. The AHU's condition air in four ways: heat, cool, dehumidify, and humidify. The AHU then distributes the preconditioned air to the zones for tempering as needed to maintain zone set points. The AHU's condition the air in two ways; mechanically, or through economized control. Mechanical cooling is done through chiller plants. There are three chiller plant types utilized in FAMSF facilities designed to minimize energy consumption for fluctuating demands: helicals, adaptive frequency drive centrifugals, and an air cooled system two-stage screw type compressors.

Building Automation System (BAS): These systems are incorporated into all main equipment within the facilities. The BAS monitors, balances, and controls the interactions between equipment and climate settings. The system dictates operation and sets parameters from which all equipment functions. The BAS fine-tunes temperature and humidity control to various zones in the museums using Proportional Integral Derivative (PID) calculations that balance and maintain climate. With zone climates maintained, the systems as a whole see fewer energy spikes which lead to significant savings during peak demand hours.

Lighting: FAMSF uses two general lighting system control types to maintain efficiency and reduce energy consumption: dimming control, and lighting control relay systems (Wattstopper). The dimming control is integrated with Wattstopper at the FAMSF's largest facility, increasing the level of efficiency. Wattstopper automatically sheds gallery lighting after the museums close to reduce energy consumption. Exterior lights adjust automatically for sunset and sunrise throughout the year. Photocells turn off gallery backlit skylights at FAMSF's largest facility. Motion sensors turn off lights in workspaces when no motion is detected. Incandescent and fluorescent brightness can be dimmed in several areas of the museums, resulting in considerable energy savings. The museum store lighting at the de Young Museum has been upgraded with an LED system which also results in lower energy consumption.

Our water efficiency and conservation program is under development. All plumbing fixtures in the de Young Museum are equipped with water saving motion sensors. We are in the process of determining the cost effectiveness of replacing the current battery operated motion sensors with a hard-wired system.

3a1. Energy Efficiency

The Fine Arts Museums have not initiated any energy efficiency and retrofit projects in FY 2011-2012.

Existing Commercial Buildings Energy Performance Ordinance Compliance

In order to comply with the Existing Buildings Energy Performance Ordinance (ORD 17-11, SF Environment Code Chapter 20), The Fine Arts Museums of San Francisco assisted the SFPUC in producing the 2011 Energy Benchmarking Report for San Francisco Municipal Buildings by verifying our

Departments list of facilities, and the existing data for each facility (street address, year built, gross square footage, and building type).

The 2011 Energy Benchmarking Report is available at:
www.sfwater.org/modules/showdocument.aspx?documentid=2938

The Fine Arts Museums of San Francisco reviewed the list of it's facilities, which are sorted in the report by building type and listed in order of Energy Use Intensity (EUI) — the total annual energy use of the facility (in BTUs) divided by square feet of building area.

The SFPUC has conducted an energy audit for all three Fine Arts Museums facilities.

Facility Type	# of Facilities Benchmarked for The Fine Arts Museums Facility Type	Page Number(s) in Benchmarking Report
Art/Cultural Center	2	16
Warehouses	1	26

Commercial Lighting Efficiency Ordinance Compliance

All buildings owned by the Fine Arts Museums are compliant with the requirements outlined in the Commercial Lighting Efficiency Ordinance (SF Building Code Chapter 13D).

Information Technology

The Fine Arts Museums have completed a server consolidation project of rack-mounted servers to either virtual servers or blade servers. Both types reduce power and AC needs.

Former Server Room	4958 Watts/HR	16,200 BTU/HR
Consolidated Server Room	3200 Watts/HR	700 BTU/HR

All monitors are set to power save mode after 20 minutes of inactivity.

The Fine Arts Museums purchases Electronic Product Environmental Assessment Tool (EPEAT) Gold Standard certified products. We currently purchase the HP Compaq Elite 8300 SFF PC and the Lenovo ThinkPad X1.

3a2. Renewable Energy

There have been no renewable energy system projects implemented in FY 2011-2012.

3b. Water

The Fine Arts Museums FY 2011-2012 water consumption was 11,767,536 gallons. Water consumption at the Fine Arts Museums can vary due to the potential popularity of any scheduled exhibition. Fluctuations in water consumption over the past four years tend to reflect some of the more heavily attended exhibitions that have been presented. Irrigation system improvements at the de Young Museum and boiler repairs at the Legion of Honor in FY 2011 – 2012 may have contributed to reducing the water consumption total from FY 2010 – 2011.

Emission Source Detail (UNITS)	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012
Water (gal)		11,558,096	13,510,376	11,767,536

3c. Transportation and Fuel

Vehicle Information: 621: Fine Arts Museums						Fiscal Year 2011-2012 Central Shops Fuel Total by Vehicle				
GSA Asset #	Vehicle Type	Year	Make	Model	Vehicle Fuel Type	Total CNG (GGE)	Total B20 (gal)	Total B5 (gal)	Total Gasoline (gal)	Propane (gal)
621-600	Truck	2005	Intl		Diesel	0	330	0	0	0
621-601	Truck	2009	Dodge		Diesel	0	169	9	0	0
621-501	Ld van	2000	Ford		Gasoline	0	0	0	143	0

The Corporation of The Fine Arts Museums of San Francisco, a private corporation, also owns two vehicles used by our department. A straight truck is used by the Museums Store, and a small transit van is used by the Museum Courier.

3c1. HACTO

The Healthy Air and Clean Transportation Ordinance (HACTO) addresses:

- Transit First – At Work
- Transit First – Commuting
- Vehicle Reduction

The Fine Arts Museums encourage employees to commute sustainably to work by offering secure bike-parking lockers and bike racks at our facilities. We also encourage employees to participate in the Pre-Tax Commuter Benefits Program.

The Fine Arts Museums HACTO Report for FY 2012 – 2013 is attached as Appendix A.

3c2. Transportation Survey

This year, the City conducted its biannual survey of City employee commuting and at-work travel behavior. The 2012 CCSF Transportation Survey was administered through the Department of Environment's CommuteSmart team and distributed through Climate Liaisons and others to each department and division.

The Fine Arts Museums of San Francisco ran the survey from December 20, 2012 through January 4, 2013. 33 CCSF employees participated in the survey, resulting in a response rate of 12.60%. The survey results indicated that 50% of survey respondents were not aware of the museums Pre-Tax Commuter Benefits Program. 21.25% of respondents felt that driving alone made for a more convenient and less stressful commute. 20% of respondents stated that public transportation did not match their commute route or schedule.

All new employees are presented with an employee benefits package on their date of hire. The Pre-Tax Commuter Benefits Program Benefit is included in this package.

We will develop an information campaign to increase employee awareness of the Pre-Tax Commuter Benefits Program and work with the Department of Environment's CommuteSmart team to enhance sustainable commute options for Fine Arts Museum staff.

4. Sustainable Practices

4a. Zero Waste

In 1993, FAMSF implemented a Waste Minimization Program designed to identify waste minimization techniques, strategies, and resources available to reduce or eliminate the generation of hazardous waste. This program is in compliance mandated by the U.S. Congress Resource Conservation and Recovery Act (RCRA) in 1984.

In 2009, a recycling and composting program was implemented that is compliant with provisions established by the City and County of San Francisco. Recology services are provided by Sunset Scavenger.

Batteries, fluorescent tubes/bulbs, and hazardous chemicals are recycled in conjunction with the San Francisco Department of Public Health. Pickup and removal is scheduled on a quarterly basis.

A Hazardous Materials Unified Program Agency (HMUPA) Compliance Certificate is issued on an annual basis. Maintaining the certificate is contingent upon compliance with all provisions of Articles 21, 21A, 22, 24, and 30 of the San Francisco Health Code (SFHC).

In 1997, an Integrated Pest Management Program was created in accordance with the City of San Francisco’s Pesticide Ordinance. The program is administered and monitored by an in-house IPM committee.

Paper Reduction

The following procedures have been implemented in an effort to reduce paper use:

- An electronic invoice scanning program called Paper Save
- 100% recycled paper for copy machines and printers
- e-mail and e-file
- hand towel waste composting
- Recycled wet umbrella bags
- Encourage double-sided document printing
- ADP system paperless time cards
- Reusable gallery guide and pamphlet receptacles

Facility Name	Address	#1 Trash Item	Action to eliminate it from landfill
De Young Museum	50 Hagiwara Tea Garden Drive	Rest room hand towels	Hand towel waste is inspected for contaminants and then diverted to the compost bin.
Legion of Honor	100 34 th Avenue		

4b. Green Purchasing

The Fine Arts Museums make every effort to purchase products that have a minimal impact on the natural environment. The museums Health and Safety Department reviews MSDS’s prior to product purchase and will approve the purchase or recommend a greener substitute product whenever possible.

Contractors are also required to submit MSDS’s for approval by the Health and Safety Department for all products they intend to use prior to starting on any interior or exterior projects on museum property.

This system provides the added benefit of protecting museum staff and visitors with Multiple Chemical Sensitivity (MCS) and Environmental Illness (EI) and enhances our compliance with the Federally mandated Americans with Disabilities Act.

5. Communitywide Impact

The Fine Arts Museums have presented a number of exhibitions that have examined environmental and sustainable issues with education, information, hands-on activities, and programs designed by the museums Education Department.

We have implemented a comprehensive composting and recycling program in all of our café’s and staff lounges.

Visitors who present a MUNI fast pass or valid transfer receive a \$2 discount off the standard museum admission price.

6. Summary and Goals

The Fine Arts Museums of San Francisco recognizes the importance and benefits of reducing the museums carbon footprint. We will continue to explore opportunities and methods to implement sustainability policies that are socially, environmentally, and economically sound. Our challenge is to strike a balance between the conservation requirements of the collections and the needs of museum staff and visitors, and the museums impact on the environment.

Appendix A

HACTO Annual Implementation Report FY:'11-'12

Department *	Fine Arts Museums
Name of Person Preparing Report *	Al Barna
Title of Person Preparing Report *	Occupational Health and Safety Officer
Email of Person Preparing Report *	abarna@famsf.org
Name of Department Head *	Charlie Castillo
Email of Department Head *	ccastillo@famsf.org
Referring back to the HACTO or DepCAP plan submitted for FY 2011–12, please include your Transit–First Plan and policies below: *	The Fine Arts Museums of San Francisco provides employee pre–tax commuter benefits through a WageWorks Commuter Solutions program as well as providing bicycle racks and lockers for employee use.
Below, please report on the success of the above–mentioned policies in reducing single–occupancy motor vehicle use for work–related trips: *	There are currently 24 COFAM employees enrolled in the WageWorks Commuter Solutions program. The 8 employee bicycle lockers are at capacity.
Does your department manage any of its own vehicles? *	Yes
As reported in your 2011 HACTO report, how many vehicles were subject to HACTO? *	3
As reported in your 2011 HACTO report, how many vehicles were planned to be removed from service? *	0
As of June 30, 2012, how many vehicles have actually been removed from service? *	0
Based on the above information, which is true? *	The number of vehicles actually removed from the fleet equaled the planned number
Please provide an explanation of the difference. *	N/A
Each department is required to reduce 5% of their light–duty truck and passenger vehicle fleet. Based on the above data, was your department in compliance? *	Yes
Please explain why your department was not able to comply. *	N/A
Did your department purchase new vehicles that were justified by an increase in workload?*	No

Appendix B

HACTO Annual Plan

Department *	Fine Arts Museums
Name of Person Preparing Report *	Al Barna
Title of Person Preparing Report *	Health and Safety Coordinator
Email of Person Preparing Report *	abarna@famsf.org
Name of Department Head *	Charlie Castillo
Does your department promote or plan to promote employees to use public transit for work-related travel? *	Yes
What resources will your department offer? *	• Other
Other: *	Wageworks
What forms of communications will you use to promote employees to use TRANSIT for work-related travel? *	• New Employee Orientation • Brown bag lunch / Presentation
Does your department offer or plan to offer employees access to a bicycle for work-related travels? *	Yes
Is it / will it be a CityCycle bike? *	Not sure
How many bicycles will be available? *	5
Would your department like to make a request for more bikes? *	Yes
What forms of communications will you use to promote employees to use BICYCLES for work-related trips? *	• Department Website / Intranet • E-mail Blast • New Employee Orientation • Brown bag lunch / Presentation
Does your department belong or have a plan to belong to a City vehicle pool or car-sharing program for work-related travels? *	No
Is your department able or have plans to host a tele-conference call? *	No
Is your department able or have plans be able to host a video-conference call? *	Yes
In the 2012-13 HACTO Report, you will have to provide metrics for these programs. How will you track the implementation of these programs? *	Excel spreadsheet
A. Does your department promote or have plans to promote the use of public transit for commuting to/from work? *	Yes
How will you promote public transit? *	• Encourage participation in the Pre-Tax Commuter Benefits program
What forms of communications will you use to promote employees to use TRANSIT when commuting to/from work? *	• E-mail Blast • Brown bag lunch / Presentation
B. Does your department promote or plan to promote the use of bicycles for commuting to/from work? *	Yes
How will you promote bike-commuting? *	• Provide indoor/safe bike storage • Offer on-site showers and/or lockers
What forms of communications will you use to promote employees to BICYCLE when commuting to/from work? *	• Brown bag lunch / Presentation
C. Does your department promote or	Yes

plan to promote the use of carpooling for commuting to/from work? *	
How will you promote Carpool and/or Vanpool? *	<ul style="list-style-type: none"> • Encourage registration in the 511-matching program
What forms of communications will you use to promote employees to CARPOOL or VANPOOL when commuting to/from work? *	<ul style="list-style-type: none"> • Brown bag lunch / Presentation
D. Does your department offer or plan to offer tele-commuting? *	Yes
Does your department manage any of its own vehicles? *	Yes
Measurement for fleet reduction will be based on fleet inventory as of June 30, 2010. On June 30, 2010 how many vehicles from your department's fleet were subject to HACTO? This number is your "Baseline." *	1
Your 5% fleet reduction is calculated from the Baseline fleet size you supplied in the answer above. What is 5% of the Baseline fleet? Note: this is the average number that must be removed annually through July 1, 2015. *	1
How many vehicles did your department remove from service during FY 11-12 (July 1, 2011-June 30, 2012)? *	1
In FY12-13 (July 1, 2012-June 30, 2013), how many vehicles must be removed from service to be compliant with HACTO's reduction mandate? *	1
How many vehicles is your department planning to remove from service in FY12-13 (July 1, 2012-June 30, 2013)? *	1
The number of vehicles your department plans to remove is: *	Equal to the number needed to be compliant.
The CommuteSmart Team and Clean Vehicle staff have a wide assortment of resources available to you. Please check all of the resources that you would like and we will do our best to accommodate: *	<ul style="list-style-type: none"> • Pre-Tax Commuter Benefits flyers & guides • Phone consultation with a CommuteSmart team member • Phone consultation with a Clean Vehicle team member • Presentation (tabling, brown bag lunch...) at your office