



REPORT TO COUNCIL
City of Sacramento
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WORKSHOP
April 4, 2006

Honorable Mayor and
Members of the City Council

Subject: City Council Workshop on the Proposed Draft Sustainability Agenda for the City of Sacramento and Consideration of the United Nations (UN) Urban Environmental Accords (M05-097)

Location/Council District: Citywide

Recommendation:

Accept the attached draft Sustainability Agenda and direct staff to continue the improvement process as described in the report. Authorize the Mayor to sign the UN Urban Environmental Accords.

Contact: Gary Stonehouse, Consultant, 808-5567, Keith Roberts, Senior Engineer, 808-4726

Presenters: Gary Stonehouse, Keith Roberts

Department: Development Services, General Services

Division: Planning

Organization No: 4821

Summary:

The proposed Sustainability Agenda is the first draft attempt to provide a context for City programs and policies that reduce environmental and energy impacts. This first draft focuses on City programs. It will be expanded in future presentations to include programs of our Joint Powers Agencies and other partnering agencies such as SMUD and SAFCA.

The UN Urban Environmental Accords contain twenty-one programs recommended to be implemented by the year 2012.

The workshop will have three parts. First, Planning staff will present the draft agenda for Council review, discussion and direction. Second, each of the participating Departments will make presentations on the programs included in the agenda. Third, staff will explain the UN Urban Environmental Accords.

Committee/Commission Action: None

Background Information:

The adopted Strategic Plan calls for the development of a Sustainability Agenda (Agenda). In 2005, the Council heard a report that contained definitions of sustainability and examples of how other jurisdictions have organized their documents.

The Council received the staff report and directed that an Agenda be developed following a format with goals, objectives, programs and measurement tools. Staff from Development Services, General Services, Neighborhood Services and the Utilities Department met to coordinate efforts and presentations to the Council. The attached draft Agenda is the result of efforts from all of these departments, coordinated by the Planning Division.

The proposed Agenda is not a complete or final document. It currently is an initial attempt to begin organizing a broad set of operational programs and initiatives that have been undertaken by the City. Staff intends to add sustainability programs from our partnering regional agencies and joint powers authorities in the near future.

The Agenda is organized into four major subtopics:

- Reasons for a sustainability agenda
- Definitions and policy framework
- Agenda/existing programs
- Next Steps

Reasons for the Agenda

The Agenda provides an explanation of the global, regional, and civic reasons for a sustainability agenda for the City, as well as definitions of sustainability and the policy direction of the Agenda. The City's interests in sustainability fall into these categories including the City's own businesses and operations, the City's development review programs and the City's role in community and political leadership.

Policy Framework

The Agenda policy framework establishes the ongoing role for the City and incorporates sustainability concerns in the City's decision-making processes.

"The City of Sacramento intends to conduct its businesses in a way that increases the sustainability of this and future generations. The City will incorporate sustainability concerns in its operating principles and programs. The City has put numerous programs to enhance sustainability in place already and intends over time to add to and expand such programs. The City will include

fiscal responsibility, social equity, and environmental sustainability in its decision-making processes.

The City will establish its role in implementing local and regional programs to respond to the global issues identified in this Agenda. The City accepts the responsibility for doing its appropriate part in these efforts.

The City's goal is to have continuous improvement in implementing its Sustainability Agenda and for the specific programs that are identified in it. The City will create a Sustainability Coordinating Committee to encourage additional and continuing efforts.

The City will advocate for Sustainability efforts at the regional, state and federal level."

Measuring Success

The Agenda includes a discussion of ways to measure progress towards sustainability. There are a number of standards that can be used to measure progress. They include the United Nations Urban Environmental Accords (see Attachment B), the SACOG Blueprint and the Sacramento Greenprint. The U.S. Green Building Council, which developed the Leadership in Energy and Environmental Design (LEED) certification rating system for buildings, is now developing a LEED rating system for neighborhood development. None of these measuring options fit exactly with the circumstances of the City of Sacramento. (The UN Urban Environmental Accords, for example, has a standard of having transit lines within one-half kilometer of all residences. In Sacramento, we typically talk in terms of a quarter and eighth of a mile from stations.) A next step in the sustainability agenda program would be to develop our own measuring device.

Inventory of Programs

Finally, the heart of the Agenda is an inventory of existing City programs that contribute to a sustainable direction. Nearly one hundred existing programs have been organized into the following six categories

1. Energy Supply-Climate Change
2. Environmental Health
3. Preservation of Open Space, Habitat, Farmland
4. Water Quality, Efficient Water Use, Flood Management
5. Smart Growth and Intelligent Transportation
6. Material Resources/Waste
7. Next Steps

Next Steps

The next steps in the development of this Agenda are to organize an ongoing staff committee to coordinate and expand supporting programs, to add the programs from regional and joint powers agencies, and to bring forward a proposal to develop the City's own greenhouse gas emissions reduction programs.

Urban Environmental Accords

The United Nations (UN) holds a conference each year during the week that includes World Environment Day (the first week of June). The 2005 conference was held in San Francisco and the theme was "Greening Cities". Mayors from the World's 100 largest Cities were invited to the conference. The UN requested several cities with "green" backgrounds (including Sacramento) to develop a themed template that other cities might use to begin a transformation towards sustainability - hence the Urban Environmental Accords were created.

Sacramento did provide some input into the development of the Urban Environmental Accords.

The Urban Environmental Accords is a set of 21 Actions covering 7 broad categories (Energy, Waste Reduction, Urban Design, Urban Nature, Transportation, Environmental Health and Water). See Appendix C of Attachment A for the complete text of the Urban Environmental Accords and its 21 Actions.

The Urban Environmental Accords is asking for cities to consider implementing 3 Actions per year over the next 7 years. Based on the number of Actions implemented, cities will be awarded between 1 and 4 stars at the 2012 UN World Environment Day conference. Sacramento is working on approximately 10 Actions with existing programs and activities and has apparently achieved 1 star.

The preamble of the Urban Environmental Accords clearly states that these Actions are "first steps" in a transformation towards sustainability and that continuous improvement will be needed to achieve sustainability in the long term.

The Urban Environmental Accords complements the City Council goal to achieve sustainability and livability and is an excellent foundation for the larger Sustainability Agenda process that the City is pursuing for the following reasons:

- Actions are more easily understood compared to the more ethereal term "sustainability"
- The Urban Environmental Accords is self described as "first steps" towards sustainability
- The Urban Environmental Accords provides a common goal for 6 departments to achieve
- The 7 categories cover the overall subject fairly well (but not perfectly)
- The Urban Environmental Accords can be used as an indicator of success or need for improvement for the larger Sustainability Agenda
- Benchmarking between cities can be a great motivational tool

Over 50 cities signed the Urban Environmental Accords at the 2005 conference. As of February 21, 2006, 88 Cities throughout the world have signed the Urban Environmental Accords, including 6 in California (Berkeley, Emeryville, Morro Bay, Novato, Oakland, San Francisco) and 19 in the US (see Appendix D of Attachment B for the complete list of cities).

Financial Considerations:

The financial considerations of each program will be considered at the time it is brought to the Council for approval or in the context of the annual budget process.

Environmental Considerations:

The adoption of this agenda is not a project under CEQA.

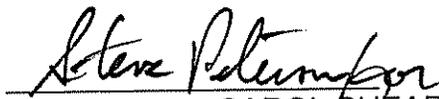
Policy Considerations:

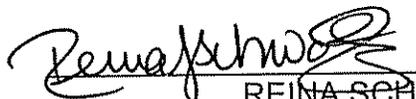
The development and approval of this Agenda is consistent with the Council's adopted Strategic Plan. Within the Agenda is a proposed set of policies to establish the City's role in a sustainability program and to incorporate sustainability concerns in the City's decision-making processes.

Emerging Small Business Development (ESBD):

None

Respectfully Submitted by:


CAROL SHEARLY
Director of Planning


REINA SCHWARTZ
Director of General Services

Recommendation approved:

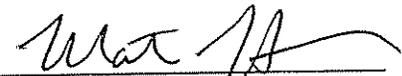

RAY KERRIDGE
City Manager

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Draft

**A Sustainability Agenda
For the City of Sacramento**

March 2006

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Introduction

The City of Sacramento has been implementing a number of policies and programs aimed in part at reducing direct or indirect impacts on the environment. Examples range from buying hybrid sedans to adopting transit oriented development plans around transit stations; from requiring new City facilities to be green to storm water conservation programs; from community gardens to affordable housing.

In 2005, the City Council adopted a Strategic Plan for the City. One of the goals of that plan is to achieve livability and sustainability. Both livability and sustainability are major themes in the development of a new City General Plan. The City Council asked staff to assemble this Sustainability Agenda prior to the completion of the General Plan. The purpose of this agenda is to assemble in one document descriptions of all of the City's programs that contribute to moving toward a more sustainable community, region and world and to set these programs in the context of sustainability issues.

The City of Sacramento wants to have an active agenda of sustainability programs for many reasons, and they range from global to regional to civic to neighborhood. Sustainability is about making decisions for the present that do not limit the ability of future generations to make decisions about their needs. It is therefore about shepherding finite resources and using renewable sources of energy and other materials.

Reasons for a Sustainability Agenda for the City of Sacramento

Global

The global reasons for a sustainability agenda include understanding our contribution to global issues such as climate change and energy resource depletion, and strategizing about how the City can act locally to reduce greenhouse emissions that cause climate change, conserve finite energy resources, and manage our material resources. It is reasonable to conclude, after studying the issues just mentioned, that mankind is living in ways that have changed the earth's climate, that are exhausting the earth's energy resources and that cannot be sustained into the future.

These are not simple issues, but there are some simple conclusions that help clarify the situation. A more in-depth reporting of the status of each issue is included in Appendix B of this report.

Global Warming

The California Environmental Protection Agency in its Climate Action Team Report to the Governor and Legislature (December 8, 2005) concluded:

"Human activities are altering the chemical composition of the atmosphere through the rapid buildup of climate change emissions—primarily carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Atmospheric concentrations of these gases in the ambient atmosphere are increasing at a rate not experienced for millions of years..."

"There is no scientific uncertainty about the fact that human activities have increased the atmospheric abundance of climate change emissions. The uncertainties start when we try to predict exactly what climate changes will be in various local areas of the Earth..."

In the preparation of this report, the State developed a set of future scenarios and reached to following possible consequences:

- A diminishing Sierra snow pack of up to 90 percent during the next 100 years. As an increasing portion of precipitation falls as rain rather than snow, flood risk will increase.
- Increasing temperatures from 8 to 10.4 degrees (F) will cause a 25 to 35 percent increase in the number of days Californians are exposed to ozone pollution in most urban areas.
- Potential impacts from limited water storage, increasing temperatures, and salt water intrusion into the Delta would threaten the agricultural industry

- Erosion of the coastlines and seawater intrusion into the state's delta and levee systems may result from a 4 to 33 inch rise in sea level during the next 100 years.

The State's Climate Action Team Report to the Governor and Legislature also contains the elements of a comprehensive strategy to reduce greenhouse gas emissions over a fifteen-year period.

The strategy includes vehicle emissions standards, increased use of renewable resources, better energy building standards, a green buildings initiative, and the Hydrogen Highway initiative. Additional strategies are identified that will need to be put in place in order to meet the State's goals. Simply put, the two categories strategies with the biggest potential impact on greenhouse gas emissions relate to planting and managing trees (forest management, forest conservation and reforestation) and reducing the greenhouse emissions of the transportation sector, which is California's single largest source of greenhouse emissions (42%).

According to a report prepared by the State of California entitled "*Global Climate Change - In Support of the 2005 Integrated Energy Policy Report*", limiting the growth in vehicle miles traveled (VMT) can best be achieved at the regional, state, or local level, using a combination of public transit, transit-oriented development, in-fill development, and urban revitalization. The report also stated that low-VMT policies have already produced a 2-10% statewide savings from "smart growth" land use planning measures at the local level. Furthermore, the report found that consistent methods for monitoring and reporting greenhouse gas reductions from "smart growth" measures is needed to ensure that regional planning priorities and goals are achieved.

Energy Resources

Our industrial society, economy, and financial systems are based on the assumption of continual growth, which depends on the ever-increasing availability of cheap energy from fossil fuels. Oil is the lifeblood of modern civilization, which has powered phenomenal economic and population growth over the last century and a half. Many of the consumer goods that we take for granted are made possible because oil is available for such a low price. Even the food we eat depends heavily on fossil fuels, including oil. For every calorie of food energy consumed in the United States, the equivalent of 10 calories of energy from fossil fuels is needed to produce it.

World demand for oil continues to increase, and is expected to grow 50% by 2025; however, oil supplies are finite. Geologists agree that eventually we will reach a point when oil extraction and production "peak" and then begin to decline. At this point, without mitigation, we will enter a long-term period where declining oil supply cannot meet world demand. This would translate into a worldwide shortage of liquid fuels such as gasoline and diesel fuels.

For the purpose of this report, the term "peak oil" refers to the halfway point in world oil reserves. Global conventional oil discovery peaked in 1964 and has been declining ever since. Today, we consume about six barrels of oil for every new one we discover.

When will global oil production peak? Most experts believe that peaking will occur sometime in the next 20 years, but many think that it will occur before 2010. The U.S. Department of Energy has projected a production peak somewhere between 2021 and 2037. The subject is controversial because peak oil projections are fraught with uncertainties due to unreliable data, political bias, institutional self-interest, and other factors. The bottom line is that no one knows for sure, but geologists have no doubt that it will happen.

A study entitled "Peaking of World Oil Production: Impacts, Mitigation, and Risk Management" was released in February 2005. The report concluded that "viable mitigation options exist on both the supply and demand sides, but to have substantial impact, they must be initiated more than a decade in advance of peaking." And that "prudent risk management requires the planning and implementation well before peaking. Timely, aggressive risk management will be essential."

Material Resources/Waste

In the natural world, materials are endlessly cycled and recycled through complex, interrelated processes, such as the carbon cycle, the nitrogen cycle, decomposition and soil deposition, the hydrologic cycle, etc. Historically, most civilizations used natural materials to make re-useable or biodegradable items. Metals & glass have been recycled by human civilizations for a long time. Our civilization, on the other hand, is the most wasteful in human history. We have replaced the natural processes with a system based on the linear, one-way flow of materials, from "source" to "sink" in a process called "throughput" (also sometimes called "cradle to grave"). In this system, source landscapes, such as forests, mines, oilfields, watersheds, farms, etc. provide the raw materials for manufacture and consumption. After being manufactured by industry, used by consumers, or burned for energy, the wastes flow into the "sinks" – our air, water, and land. Eventually, the one-way throughput process destroys the landscapes upon which it depends. Source landscapes eventually run out of raw materials and become depleted, sinks become overloaded with waste and become degraded, poisoned, and dysfunctional.

By contrast, sustainable practices take advantage of, or model, natural processes by re-using, recycling, or re-assimilating waste materials back into useful resources (also sometimes called "cradle to cradle"). Sustainable processes are non-linear in nature. Recycling, composting, and co-generation are all examples of sustainable practices, which capture and recycle materials and energy. At the very least, in a sustainable society, non-linear throughput processes would be minimized so that the wastes are limited to an amount that can be safely provided by the sources and absorbed by the sinks.

Recycling and composting are sustainable alternatives to landfills. Both reuse materials that would otherwise be wasted. Recycling is economical, saves energy, and saves trees and forests. Some examples are given below:

- When you recycle an aluminum can, you save enough energy to run a TV set for 3 hours
- Recycling newspapers at home, and white paper at the office, reduces the demand for both tropical and temperate timber. In addition, making recycled paper requires 60% of the energy needed to make virgin paper.
- Recycling saves cities and consumers money. When there's less garbage, we pay less to dump it.

Table 6 in Appendix A of this report lists the City's current solid waste and recycling programs, some of which are mandated by State law.

These global issues are obviously far beyond the ability of the City or the region to resolve. But it is proper for the City to determine its appropriate role. The State's Climate Action Report, for example, indicates that three significant parts of greenhouse gas emission reduction strategy are modified emissions standards by the Air Resources Board, planting trees and managing forests and smart growth and intelligent transportation programs. The City has very robust efforts in the last two programs.

Regional

Three regional issues include smart growth (counterpoint to sprawl), flood protection, and air quality.

Smart Growth

We have an approved regional scenario for smart growth, the SACOG Blueprint. Regional leaders as well as the Sacramento City Council have approved the planning and growth concepts contained in this fifty-year scenario. The next steps for the City are to translate the Blueprint into a twenty-five year General Plan and to develop the implementation tools to encourage smart growth to actually happen. The General Plan update is well underway and, at Council direction, is being based upon smart growth principles. The intent of the plan is to ensure that all parts of the city benefit from the way we capture our share of the regional growth.

Smart growth implementation tools are still being researched, examined, even contemplated. For smart buildings, we have the LEED (Leadership in Energy and Environmental Development) rating system developed by the US Green Building Council. That same council, in cooperation with the Congress of New Urbanism and the Natural Resources Defense Council, has prepared a draft LEED rating system for neighborhood development. The rating system includes evaluations of site selection,

site design, mixed use, transit orientation, and building materials and infrastructure design. The summary of the rating factors and selected examples of the details of the individual rating sheets are contained in Attachment E. The Council does not expect to have this rating system completed for general use until 2008.

Another aspect of smart growth is maintaining a supply of affordable housing, which is key to maintaining the jobs/housing balance and limiting urban sprawl in the region. The lack of affordable housing near jobs causes a shift of workers to the suburbs, or even the exurbs, in order to find affordable housing.

The City has various strategies for maintaining a supply of affordable housing. Planning tools include having an adequate land supply, infill strategies, and participation in SACOG Blueprint. Development-based tools include the Housing Trust Fund and the City's Mixed Income Ordinance. The Housing Trust Fund applies to commercial and industrial development and has supplemented 1,600 residential units so far. The Mixed Income Ordinance applies to residential development and has planned or produced a total of 2,500 units.

Flood Protection

Currently, Sacramento and SAFCA have a goal of obtaining citywide 100-year flood protection, after which 200-year flood protection will become the objective. A thorough discussion of flood safety is beyond the scope of this report; however, some mention of the global warming wild card is warranted in the context of sustainability and environmental health. Current FEMA flood insurance rate maps were based on historical data. However, climate models suggest that historical data will not be relevant in the future. The level of flood protection for Sacramento should be based on the most up-to-date information about the climate of the future, not the past. The safety and sustainability of Sacramento depend on it.

Air Quality

Air quality is a major environmental health issue for Sacramento, particularly in the summer when an inversion layer traps pollutants close to the ground. Vehicles and other mobile sources powered by combustion (such as lawnmowers) cause 70% of our air pollution. The Sacramento region has been designated as a severe ozone non-attainment area by the U.S. Environmental Protection Agency (US EPA). In the summer, the Sacramento area fails to meet both state and federal standards for ozone. Although ozone in the upper atmosphere protects us from harmful ultraviolet rays, at the ground level it is an irritant that causes the eyes to burn, and it can damage lung tissue. Other problematic air pollutants include carbon monoxide, hydrocarbons, sulfur dioxide, and oxides of nitrogen (NOx).

The air quality in the Sacramento region has actually improved in the last decade due to cleaner cars, smog check requirements, reformulated gasoline, vapor recovery systems on gasoline dispensers, and state and federal regulations for solvents in

paints and other consumer products. However, in the future the combined impact of more people, more cars, and more hot days due to global warming will make meeting air quality standards a greater challenge.

SACOG has estimated that there will be 1.7 million more people in the Sacramento Region in 2050 than there were in 2000, which will bring the number of residents to over 3.6 million. If present trends are continued, residents will drive many more miles annually and spend more time in their cars, which will have a negative effect on air quality. Compact development and mixed use land use patterns, coupled with mechanisms to set aside open space, can help alleviate air quality problems by reducing vehicle miles traveled (VMT).

Civic

At the civic level the City's interest in sustainability include the City's own businesses and operations, the City's development review programs and the City's role in community and political leadership.

The City's Business and Operations

The City currently has 4,865 full time equivalent staff and an annual operating budget of \$787.9 million (adopted FY 2005/06 budget from all funding sources). This budget is consistent with City Council's philosophy of fiscally responsible spending, reflecting the Council's core value of maintaining a balanced and sustainable budget.

The City's 2005-2010 Capital Improvement Program (CIP) is a five-year program with a total budget of \$366.6 million from all funding sources.

The City of Sacramento owns, operates and maintains over 500 buildings totaling greater than 3,000,000 square feet of occupied space, not including parking garages. In addition, the City has nearly 750 signaled intersections, 36,000 streetlights and pumps more than 45 billion gallons of domestic water per year to its 120,000 water, storm and sewer customers. Combined, these facilities consumed over \$12 million per year in electricity and natural gas in 2005.

The City has also implemented a wide array of energy conservation programs (over 110 projects) that are saving the City nearly \$1 million per year in avoided energy costs. These include energy surveys; LED traffic signals; pump, lighting systems, heating and air conditioning systems and controls replacements; and conversion to variable volume cooling systems. Water efficiency is improved through the systematic replacement of obsolete plumbing fixtures and irrigation system upgrades to City parks.

Development Review

The City of Sacramento plans, reviews, supports and encourages quality private development at the rate of about \$1 billion in private valuation per year. The City has put plans, policies and programs in place that support movement towards sustainability, certainly as it relates to smart growth, affordable housing and other social and environmental goals. Several of these programs and policies are included in this Agenda's inventory.

The update of the City General Plan will provide the opportunity for the comprehensive application of policies that support sustainability.

Definitions and Policy Framework

Definitions

Two commonly used definitions of Sustainability are:

"Meeting the needs of the present without compromising the abilities of future generations to meet their own needs." United Nations World Commission on Environment and Development.

"A whole systems approach that successfully aligns environmental, economic and social equity concerns in a manner that results in multiple benefits." Marin County General Plan.

Triple bottom line

A common feature in sustainability strategies is the concept of using a triple bottom line for decision-making. The triple bottom line means considering the financial implications, environmental sustainability and social equity aspects of a particular decision.

Other people's measuring sticks

It is desirable to be able to measure progress towards achieving Sustainability. In time it is likely that the City will develop a series of specific goals or indicators of such progress. In this first edition of the Sustainability Agenda, however, there are very few goals. That does not mean, however, that the City cannot gauge the direction of its programs and policies. Others have been here before the City and have developed ways to evaluate our position and direction.

One example is the UN Urban Environmental Accords. The Accords consist of twenty-one categories of environmental conditions that the UN, through an advisory group, has recommended to cities throughout the world. Successfully carrying out the projects will gain the City stars in a rating system.

The US Green Building Council has developed the LEED (Leadership in Energy and Environmental Design) rating system for green buildings. They are currently working with the Congress of New Urbanism on a similar rating system for Neighborhood Development. Excerpts from the current draft are included in Appendix E of this report.

SACOG's Blueprint provides the City and the region with a checklist of sorts for developing and implementing smart growth and intelligent transportation plans. The City is currently translating the Blueprint from a regional scenario to the City General Plan. Similarly, the City has endorsed the Sacramento Green Print as the strategy for developing and maintaining the urban forest.

Ecological footprint

The consulting firm, Redefining Progress, in the Bay Area has developed the concept of ecological footprint as a way of assessing relative progress towards sustainability. An ecological footprint is a calculation of the number of acres of land it takes to sustain a person's or a city's lifestyle. The average ecological footprint for the United States is approximately twenty-six acres per person. Unfortunately, the number of productive acres per person in the world is 4.6.

In 1992, an ecological footprint for the City of Santa Monica was calculated at 24 acres per person. In 2004 after many years of pursuing a sustainability plan, the footprint was recalculated at 22 acres.

Continuous effort/continuous improvement

The City intends to develop its own methods of measuring progress in implementing sustainability initiatives. In the meantime, the City will focus on continuing and improving the programs identified in this Agenda.

The Agenda

The City's Sustainability Agenda consists of a number of programs, projects and policies that have been put in place over a number of years. None of these programs were developed because of the creation of this Agenda. The purpose of this section is to identify and categorize these programs against the themes of the Sustainability Agenda so the City leaders can have confidence that the City is doing the right things and can provide direction on additional efforts that are needed in the future.

The programs contained in the six tables of Appendix A represent a significant and position effort by the City in beginning to establish an organized strategy for sustainability.

Next Steps

In addition to the specific program recommendations contained in the previous chapter, we are recommending four additional next steps:

- City Organization for Sustainability - The City Manager has agreed to create a staff committee to coordinate the City's ongoing sustainability activities.
- General Plan update - The new General Plan will incorporate sustainability initiatives relative to the future growth of the City.
- Climate Action Plan - The City should develop its own climate action plan for the reduction of greenhouse gas emissions from City facilities.
- Continuous Effort/Continuous Improvement - Until the City is able to develop its own devices for measuring progress towards sustainability goals, the policy of continuous effort/continuous improvement should be the standard governing the review of programs and projects.

**Table 1
Existing City Projects, Practices and Programs**

ENERGY SUPPLIES/CLIMATE CHANGE					
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/Community/Partnership	City Department	Annual Budget/ Cost (if applicable)	Quantitative Measurement of Project Success/ Implementation (suggested)	
<p>ENERGY EFFICIENT BUILDINGS: Below are two examples of City buildings that were built to be energy efficient. The City has also implemented programs to improve the efficiency of existing City-owned or City operated buildings, including over 110 energy efficient projects over the last 15 years that are saving the City nearly \$1 million per year in avoided energy costs. In general, steps toward improving efficiency have been made by 1) Appointment of qualified staff to manage programs and/or seek grant funding, 2) Measure energy use to determine where improvements are most needed, 3) Install energy-saving devices and retrofits.</p>					
The City constructed and owns the State occupied Joe Serna Jr. Cal EPA Building, which has achieved a Platinum rating under the USGBC's LEED Existing Building program. It is the only high-rise in the nation to achieve this highest rating. It has also been named Energy Star "most efficient high rise in the US"	Internal	Gen Services	None	Operating cost per square foot (\$/SF); % recycling rate; gallons water per square foot	
The new City Hall was designed to be 25% more efficient than the state energy code requires and with 8 months of data available, it is surpassing design expectations.	Internal	Gen Services	None	Operating cost per square foot (\$/SF)	
In September 2004, City Council passed Resolution 2004-751 which requires all new City owned buildings to become LEED Silver Certified	Internal	Gen Services	None	Operating cost per square foot (\$/SF)	
In October 2005, City Council passed Resolution 2005-725 which sets a goal to reduce electrical energy consumption by 20% by 2015.	Internal	Gen Services	None	Operating cost per square foot (\$/SF)	
Heating and air conditioning system was analyzed for problems at the Public Safety Center with a \$10,000 incentive from SMUD. Operating costs were excessive. The study resulted in a \$50,000 remediation project.	Internal	Gen Services	\$50,000	Operating cost per square foot (\$/SF)	
Performed an audit of 20 City buildings for occupancy sensor installation with a \$10,000 grant from the State Energy Commission. (Gen Svcs)	Internal	Gen Services	\$20,000	Operating cost per square foot (\$/SF)	
Performed chilled water system study at the Convention Center with a \$10,000 incentive from SMUD. Study led to design that will reduce energy consumption at Convention Center by 3% per year. As of 2/06, project is soon to be installed.	Internal	Gen Services CC&L	\$200,000	Operating cost per square foot (\$/SF)	

**Table 1
Existing City Projects, Practices and Programs**

ENERGY SUPPLIES/CLIMATE CHANGE					
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/Community/Partnership	City Department	Annual Budget/ Cost (if applicable)	Quantitative Measurement of Project Success/ Implementation (suggested)	
ENERGY EFFICIENT BUILDINGS CONT:					
Two City staff members have become LEED accredited professionals. LEED (Leadership in Energy and Environmental Design) is a points based rating system for determining a building's "greenness".	Internal	Gen Services	None	Quantity of staff that are LEED certified; number of Certified projects	
Digital cooling and heating system controls are provided when possible to allow immediate control of HVAC systems from an Internet browser.	Internal	Gen Services	Sporadic	Operating cost per square foot (\$/SF)	
Utility Account Management System - The City is currently using a software program to track natural gas and electricity usage and provide benchmarks for budget managers. Water and solid waste may be tracked in the future.	Internal	(GSD FPM)	\$20,000	Log activity of program, watch operating cost trends	
City Ordinance (Chapter 15.76) Energy conservation standard for existing residential structures requires energy audit and compliance with energy conservation standards at time of sale. Currently not being enforced.	Community	Development Services Department	None	Number of surveys performed	
Energy Surveys of City-owned buildings to determine if energy efficiency can be improved. Goal is to survey all City buildings at least once every 10 years	Internal	DGS	Sporadic	Operating cost per square foot (\$/SF)	
Solar panels provide power for story boxes at Fairy Tale Town	Internal	CC&L	None		
Participation in the Governor's Flex Your Power at the Pump program to reduce fuel consumption. (Fleet)	Internal	DGS - Fleet	None	None	
In June 2005, City Council passed Resolution 2005-454 which requires a 15% reduction in fleet fuel use by 2010, using 2003 as a baseline year	Internal	DGS - Fleet	None	Fleet fuel use	
Low Emissions Vehicle Policy for all City automotive fleet	Internal	DGS - Fleet		Fleet emissions rate	

**Table 1
Existing City Projects, Practices and Programs**

ENERGY SUPPLIES/CLIMATE CHANGE					
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/Community/Partnership	City Department	Annual Budget/ Cost (if applicable)	Quantitative Measurement of Project Success/ Implementation (suggested)	
ENERGY EFFICIENT BUILDINGS CONT:					
Creation of vehicle standards that include minimum fuel mileage requirements.	Internal	DGS - Fleet		Fleet miles per gallon	
The City recently received the BEREC award (August 2004) for its efforts in improving regional air quality through its fleet replacement program.	Internal & Community	DGS - Fleet	None	Number of awards received	
Convert mercury vapor street lights to high pressure sodium lamps. Reduce wattage from 175 to 100. Will no longer be able to purchase mercury vapor lamps in 2008. City began conversion in late 1980's. Presently converting remaining lamps 1/8 of city/year. FUTURE: Waiting for technology improvements for efficiency of metal halide (white light) lamps.	Internal	DOT		Operating cost per number of streetlights	
Retrofit traffic signals with LED, which reduce power usage (150 Watts reduced to 15 watts). Retrofit began in early 1990's. Currently 75% converted. Remaining 25% are converted 1/8 per year. Estimate completion in 2011.	Internal	DOT		Operating cost per number of signaled intersections	
ENERGY EFFICIENCY OF MISC. EXISTING FACILITIES:					
Climate Action Registry - Carbon dioxide (CO2) is the major greenhouse gas that causes global warming. Quantifying our CO2 emissions is the first step in reducing the greenhouse gas emissions (GHG) from City-owned or controlled facilities. The City is a charter member of, and reports its greenhouse gas emissions to, the California Climate Action Registry (CCAR). After establishing a baseline for CO2 emissions, the success of various methods to reduce CO2 can be measured.	Internal / Partnership with CCAR	General Services	Sporadic	City owned or controlled facilities generated 80,000 metric tons of CO2 in 2004. This can be used as a baseline to measure the success of future efforts.	
REDUCE RELIANCE OF COMMUNITY & REGION ON ENERGY USAGE FOR TRANSPORTATION.					
See Transportation & Urban Design section for information on land use planning which supports transit, bicycles, & pedestrians.		Development Services Department			

**Table 2
Existing City Projects, Practices and Programs**

ENVIRONMENTAL HEALTH				
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/ Community/ Partnership	City Department	Annual Budget / Cost (if applicable)	Quantitative Measurement of Project Success / Implementation (Suggested)
Improve air quality by reducing automotive emissions and other sources of air pollution.				
See Transp. & Urban Design section for information on land use planning and programs to support transit use, bicycles, and pedestrians, and reduce commuter reliance on the automobile.				
Regulate demolition of buildings, including provisions for dust control and prohibition on burning demolition material on site. City Municipal Code, Chapter 15.44.	Community	Development Services		
Conversion of mercury vapor street lights to high pressure sodium lamps results in reduction of toxic mercury content. See ENERGY EFFICIENCY OF MISC. EXISTING FACILITIES	Community	DoT		
Improve Public Health/Fitness				
Install fitness courses and walking/biking trails to promote fitness in City parks; Parks and Recreation Master Plan includes goals, policies and implementation strategies supporting wellness and fitness for people of all ages	Internal	Parks & Rec	Part of individual project capital funding as available	Subject to funding availability and community input in developing park site Master Plans
Community Garden Program: Support establishment of community garden sites on City land; provide space for residents to grow their own food; organic cultivation; operations all sufficient from garden members	Community	Parks & Rec	\$20K/yr. (0.5 FTE staff psn. only)	In 2006, (3) sites citywide (Southside neigh., Johnson Park, Strauch Park)
Cosponsor Farmers' Markets in various City Parks	Community	Parks & Rec	\$10K	40+ events annually
Stock fish for food in various Parks with lakes: Southside, McKinley, Land, N. Laguna Creek Parks	Internal	Parks & Rec	Funded by State of CA	Provided at (4) City sites
Pesticides are not used at Fairytale Town. (Children are particularly sensitive to harmful effects of pesticides.)	Internal	CC&L		
Garden at Fairytale Town uses no pesticides. Garden workshops also teach composting and recycling.	Community	CC&L		
Fairytale Town - Offers a green retirement fund to their employees	Internal	CC&L		
Improve/protect drinking water by protecting water supplies. See Water Issues section.				

**Table 3
Existing City Projects, Practices and Programs
PRESERVATION OF OPEN SPACE, HABITAT & FARMLAND**

Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal / Community/ Partnership	City Department	Annual Budget/Cost (if applicable)	Quantitative Measurement of Project Success / Implementation (Suggested)
Preserve natural open space, habitat, and farmland The Natomas Basin Habitat Conservation Plan (NBHCP) is a conservation plan for the Natomas Basin that was established under State and Federal law to allow for development in what is now the North Natomas Community Plan area. The Natomas Basin Conservancy serves as plan operator for the NBHCP by acquiring and managing habitat land for the benefit of the 22 "special status" species covered under the Plan.	Community	Development Services	TBD	As of 12-10-06, 3,965.46 acres in the Natomas Basin were preserved under the Plan.
Projects that enhance/restore wetlands or riparian habitat and provide for interpretation of park and wildlife resources with \$367,285 in grants competitively awarded from the State of California Habitat Conservation Program: Orchard Park Riparian Restoration; Robla Community Park Wetlands Enhancement Phase I & Phase II; Jacinto Creek Parkway Riparian Restoration; and Southside Park Lake Rehabilitation.	Community	Parks & Rec	\$1,518,836 estimated total project costs	Acres restored or enhanced TBD
Constructing recreation trails and revegetating areas along the Ueda Parkway with a \$250,000 grant and acquiring the 124.5 acre Dry Creek Parkway Extension as an open space enhancement of the Truxel Road Extension Project with a \$350,000 grant from the Environmental Enhancement and Mitigation competitive grant program. The Environmental Enhancement and Mitigation Program provides funding from the State of California to mitigate the environmental impacts of modified or new public transportation facilities.	Community	Parks & Rec	\$1,671,057 estimated total project costs	124.5 acres Dry Creek Parkway Extension acquired and 12 miles of trails along Ueda Parkway constructed.
Developing complete program for Natural Resource/Open Space Management in City Parks system. An RFP has been issued for a Natural Space Mgmt. Plan; proposals are under review. Scope of work for Plan includes: natural area maintenance Best Mgmt. Practices; staff training; public outreach campaign; natural area design palettes & guidelines; analysis of staffing & funding needed for a natural area mgmt. program	Internal	Parks & Rec	TBD - no budget allocated at this time	TBD

**Table 3
Existing City Projects, Practices and Programs**

PRESERVATION OF OPEN SPACE, HABITAT & FARMLAND				
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/ Community/ Partnership	City Department	Annual Budget/Cost (if applicable)	Quantitative Measurement of Project Success/ Implementation (Suggested)
Preserve natural open space, habitat, and farmland continued				
Re-developed brownfield/closed landfill sites into parks (such as Sutter's Landing Regional Park; Docks area). Public spaces acquired and developed by City as opportunities arise and funding secured	Internal	Parks & Rec	Funded staff time (P&R, Eco. Dev.)	(Acres of landfills converted to parks)
Nature/Environmental Issues Education and Appreciation				
Offering a City University course for staff on habitat protection, restoration and natural resource management	Internal	Parks & Rec	Funded staff time of Natural Resource Specialist	Number of persons enrolled in course (25)
Installed various interpretive signs in nature areas to educate people on natural resources and encourage stewardship	Community	Parks & Rec	Part of park development project budgets	Signs installed at Robla Comm. Park, Jacinto Creek Pkwy, N. Laguna Creek Pkwy.

**Table 4
Existing City Projects, Practices and Programs**

WATER ISSUES: WATER QUALITY / EFFICIENT WATER USE / FLOODPLAIN MGMT.				
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/Community/Partnership	City Department	Annual Budget/Cost (if applicable)	Quantitative Measurement of Project Success / Implementation
Reduce pollutants in surface waters and ground waters, some of which are drinking water sources.				
Stormwater Quality Improvement Program (SQIP) A diverse program including community education, integrated pesticide management program, erosion control, water quality testing and interagency collaboration. Program also includes detective work to find and eliminate connections between sanitary sewer system and storm drain systems.	Internal and Community	Utilities	\$1.4m/ year	Measurable change in urban discharge quality
Stormwater Management and Discharge Control Ordinance: Protect the health, safety and general welfare of the citizens by protecting quality of drinking water sources. Protect and enhance water quality of watercourses, water bodies, and wetlands by controlling nonstormwater discharges to the stormwater conveyance system, by eliminating discharges to the stormwater conveyance system from-spills, dumping, or disposal of materials other than stormwater, and by reducing pollutants in urban stormwater discharges to the maximum extent practicable, as mandated by State and Federal law. City Municipal Code - Chapter 13.16.	Community	Utilities	N/A	Measurable change in urban discharge quality
Combined Stormwater-Sewer System upgrades, which has effectively reduced Combined System Overflows (CSOs)	Community	Utilities	Approx \$5-10m/yr	
Stormwater Quality Improvement Partnership. Partners include the County of Sacramento and the Cities of Sacramento, Folsom, Elk Grove, Citrus Heights, Ranch Cordova and Galt. Focus is on improving the quality of urban discharge.	Community	Utilities	Included in cost of Stormwater Quality Improvement Program (above)	Measurable change in urban discharge quality
Drinking Water Source Water Protection Program. Program focus is on monitoring and protecting drinking water source water at the plant intakes. Emphasis is on protection of human health.	Community	Utilities	\$150k/ year	Lack of degradation of Sacramento and American Rivers
National Pollutant Discharge Elimination System (NPDES) Stormwater Permittee cost sharing MOU This is the cost sharing mechanism for W3. It outlines, based on population, the portion of the cost shared activities to be borne by each partner.	Community	Utilities	Included in cost of W1	

**Table 4
Existing City Projects, Practices and Programs**

WATER ISSUES: WATER QUALITY / EFFICIENT WATER USE / FLOODPLAIN MGMT.				
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/Community/Partnership	City Department	Annual Budget/Cost (if applicable)	Quantitative Measurement of Project Success / Implementation
Promote efficient water use				
Partnership in the Business Environmental Resource Center (BERC) This is funded by various County Agencies, the Air Board and the City. It serves as a resource for area businesses to assist in compliance with environmental based regulations	Community	Utilities	\$65k/ year	Number of businesses in the City receiving assistance.
New ordinance requiring phased installation of water meters on all water connections on or before January 1, 2025, as mandated by State law. City Municipal Code, Chapter 13.04.	Community	Utilities		Establishment of baseline water use, so that quantities of water conserved can be measured.
Systematic replacement of all plumbing fixtures with water efficient models	Internal	General Services	Included in Maintenance budgets	Gallons of water used per square foot
Parks Design/Irrigation: Improve water efficiency of irrigation and plant materials in existing City parks	Community	Parks & Rec	Budget depends on year-to-year funding. From 2001-present, \$5M in capital funding provided. Annual General Fund funding for irrigation water efficiency is estimated at \$100K.	No. of parks retrofitted with water efficient irrigation; No. of irrigation gallons saved per year (study under development).

**Table 4
Existing City Projects, Practices and Programs**

WATER ISSUES: WATER QUALITY / EFFICIENT WATER USE / FLOODPLAIN MGMT.				
Simple, Plain English Description of Project, Practice, or Program (include reason and goal)	Internal/Community/Partnership	City Department	Annual Budget/Cost (if applicable)	Quantitative Measurement of Project Success / Implementation
Promote efficient water use				
Conducted or partnered on restoration projects to enhance various wetlands, rivers, creeks, etc. (Longview Oaks Vernal Pool Enhancement, Sand Cove Streambank Restoration on Sacto. River, Southside Lake Bank Restoration, Orchard Park Riparian Restoration) - 2003 to 2006	Partnerships with flood control agencies and federal & state granting sources	Parks & Rec	Longview Oaks = \$148,800; Sand Cove = \$1,213,000; Southside Lake Rstr = \$183,700; Orchard Park Rstr = \$150,000	(Acres restored or enhanced TBD)
Arcade Creek Watershed Management Plan (Completed)	Partnership	Parks & Rec and Utilities	\$40,000	(Acres restored or enhanced TBD)
Arcade Creek Feasibility Study and Restoration Design (Completed)	Partnership	Parks & Rec and Utilities	\$140,900	(Acres restored or enhanced TBD)
City Water Conservation Program to reduce water use in City operations and in private sector.	Community	Utilities	\$250k/ year	Reduction of water use in City operations and in private sector
Promote public health and safety by minimizing flood risk specific areas				
Regulates new development or substantial improvements to existing development. Requires methods of protection against flood damage in areas vulnerable to flooding in order to minimize flood damage and improve public safety.	Community	Utilities	Approx \$300-500k/yr	Reduced risk of internal (local drainage system) and external flooding (rivers)

**Table 5
Existing City Projects, Practices and Programs
SMART GROWTH AND INTELLIGENT TRANSPORTATION**

Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal / Community / Partnership	City Department	Annual Budget/Cost if applicable	Quantitative Measurement of Project Success / Implementation (Suggested)
Adopt policies and standards which support transit, bicycles, and pedestrians				
City Transit Pass Program to encourage transit usage by non-exempt City employees	Internal	Finance/Revenue Division	Est. annual cost \$175,000	240 employees participate
Transportation Management Associations (TMA): Promote alternative commute modes in order to reduce traffic congestion, optimize use of the transportation system, and improve air quality. The program establishes TMA requirements for employers and developers within the city in order to meet the thirty-five (35) percent trip reduction goal. (Chapter 17.184)	Community	DOT	Each TMA (geographical area) has their own budget	Number of plans and employees represented required to take part in program; Modal split improvements
City participation in the Guaranteed Ride Home Program, provided by the Sacramento Transportation Management Association (TMA) as a part of TMA membership. This program encourages employees to rideshare & bicycle to work by providing a guaranteed ride home under certain circumstances.	Internal	DGS/DOT		TBD. (Improvement in no. of employees who rideshare or bike to work)
Participation in Transit for Livable Communities (TLC) to identify land use and policy recommendations for light rail station area development.	Community	DSD with support from DOT	In Long Range Planning Work Program	Currently implementing recommendations.
Implementation of Transit for Livable Communities recommendations, including the following: Light rail station policy and interim ordinance; establishment of a transit overlay zone district; 65th Street/University Transit Village Plan; 65th Street South Area Plan; grant funding for infrastructure and urban design plans for 65th Street, Florin Road, and Meadowview Stations; community level policies and zoning changes for four south line station locations.	Community	DSD (with support from DOT)	In Long Range Planning Work Program	TBD.

**Table 5
Existing City Projects, Practices and Programs
SMART GROWTH AND INTELLIGENT TRANSPORTATION**

Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal/Community/Partnership	City Department	Annual Budget/Cost if applicable	Quantitative Measurement of Project Success / Implementation (Suggested)
Adopt policies and standards which support transit, bicycles, and pedestrians				
Bicycle Master Plan - Identifies bikeways for on-street and off-street travel.	Community	DOT	On-Street projects funded project by project. \$75,000 allocated annually to complete bicycle segments on-street.	Number of bikeway miles (trails and on-street) added per year.
Planning efforts for growth through reinvestment: Promote revitalization and reuse of existing developed areas: R-Street Corridor, Commercial Corridor Revitalization, Broadway Corridor, Docks area.	Community	DSD, EDD	In DSD/Planning Work Program	Some efforts being implemented through new policies & ordinance.
Pedestrian Friendly Street Standards - Feb. 2004, updated the City Street Standards to make them more pedestrian friendly. Encourages alternate mode use.	Community	DOT	None	The standards have been implemented
Central City Parking Master Plan - Establishes goals, objectives and recommendations for all parking within the central city. Council is expected to adopt the Master Plan in April 2006.	Community	DOT	None	Unknown

**Table 5
Existing City Projects, Practices and Programs
SMART GROWTH AND INTELLIGENT TRANSPORTATION**

Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal/Community/Partnership	City Department	Annual Budget/Cost if applicable	Quantitative Measurement of Project Success / Implementation (Suggested)
<p>Adopt policies and standards which support transit, bicycles, and pedestrians</p> <p>Implementing Service Level Goal for 0.5 linear miles of off and on street trails/bikeways (for walking/jogging, bicycles)</p>	Partnership	Parks & Rec., DOT	Funded staff supports implementation thru City Quimby and Park Impact and Fee Ordinances, development requirements, City Bikeway & Pedestrian Master Plans	Periodic analysis of meeting of these goals and guidelines (min. of every 5 years in updating of Parks and Recreation Master Plan)
Pedestrian Master Plan - Guiding document for the development of all pedestrian ways in the city through retrofits in existing developed areas and guidance for new development areas to promote walkability.	Community	DOT	\$400,000 for retrofit pedestrian improvements	Linear feet of new sidewalk, landscape strips, lighting, curb and gutter
Neighborhood Traffic Management Program (NTMP) - work with residents on traffic issues to improve neighborhood livability	Community	DOT	\$470,000	Neighborhoods completed (average 8 per year). Satisfaction survey results (2005 results: 70% satisfied with results, 87% would recommend program to other neighborhoods)
Bus Transportation Enhancement - City partners with RT to coordinate bus priority enhancements on high ridership arterials.	Community/Partnership	DOT/RT	Grant funded project by project	Maintain bus schedule by giving bus priority at certain intersections
Emergency Vehicle Priority - Provides Fire Dept. vehicles priority in getting thru a signalized intersection during an emergency	Internal/Community	DOT/Fire	\$200,000	Response time runs and intersection collisions involving emergency vehicles

**Table 5
Existing City Projects, Practices and Programs**

SMART GROWTH AND INTELLIGENT TRANSPORTATION				
Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal / Community/ Partnership	City Department	Annual Budget/Cost if applicable)	Quantitative Measurement of Project Success / Implementation (Suggested)
Adopt policies and standards which support transit, bicycles, and pedestrians				
<p>General Plan Update, incorporating Smart Growth Principles, SACOG Blueprint and Transit for Livable Communities: Policies and initiatives intended to address the negative consequences of urban sprawl. It is widely accepted that compact, mixed-use development utilizes land more efficiently and can reduce dependency on the automobile by supporting transit and encouraging alternative modes such as bicycling and walking.</p>	Community	Development Services	General Plan Update Budget is 2.8 Million	SACOG Blueprint Preferred Scenario would result in region-wide benefits when compared to the Base Case Scenario (2025) including: A reduction of greenhouse gas emissions of 14%, a reduction in the area of urbanized land from 662 sq. miles to 302 sq. miles, and a reduction in the area of converted agricultural land from 166 square miles to 102 square miles.
<p>Participation in Transportation and Air Quality Collaborative from April 2001 to Dec. 2005. 100 Stakeholders from diverse backgrounds convened to formulate an agreement on transportation, air quality, land use, economic vitality, and funding. One of the four major goals was sustainability.</p>	Community	Development Services	Approx. \$150k	Produced final report, which included best practices for transportation, transit, pedestrians, bicycles, complete streets, funding, and land use, including re-urbanization, open space, and urban form. The collaborative was unable to come to a binding agreement on transportation and air quality.

**Table 5
Existing City Projects, Practices and Programs
SMART GROWTH AND INTELLIGENT TRANSPORTATION**

Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal / Community/ Partnership	City Department	Annual Budget/Cost if applicable)	Quantitative Measurement of Project Success / Implementation (Suggested)
<p>Adopt policies and standards to provide a cooler community for improved livability Shaded Parking Lot Ordinance - Amendments to Chapter 11.64 and 17.68 of Title 17 of City code requiring tree planting and maintenance to ensure that at least 50% parking area will be shaded within 15 years.</p>	Community	Development Services	In Long Range Planning Work Program	
<p>Urban Forest Initiative: Planting and maintenance of City trees, which help conserve energy, improve air and water quality, increase property values and add a sense of community pride to neighborhoods.</p>	Community	Parks & Rec	\$4.6M for current general ops., plus \$5.4M (unfunded) for 10-phase Urban Forest Enhancement Plan implementation	Improved forest health, increased canopy coverage, regularly scheduled systematic tree care in all neighborhoods, measured by reduced risk and eliminated backlog of service calls, ultimately lower per-unit cost of service.
<p>City Council passed a resolution in 2001 requiring the use of cool roofs on all new flat roof City construction.</p>	Internal	General Services	None; included in project	Operating cost per square foot (\$/SF)
<p>Implementing goals and policies for open space preservation/management and habitat restoration/enhancement in City parks system per Parks and Recreation Master Plan</p>	Internal/Community	Parks & Rec	Funded staff time; development requirements; Park fees or land dedications per City Ordinances	Areas acquired for City parks system through private development or proactive acquisition are designed and maintained in accordance with these values/policies

**Table 5
Existing City Projects, Practices and Programs**

SMART GROWTH AND INTELLIGENT TRANSPORTATION				
Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal/Community/Partnership	City Department	Annual Budget/Cost if applicable	Quantitative Measurement of Project Success / Implementation (Suggested)
Adopt policies and standards to provide a cooler community for improved livability				
Implementing: 1) Service Level Goals for 5 acres/1,000 of neighborhood/community parks; 8 acres/1,000 of regional parks/parkways/open space; 2) guidelines for all residences within 1/2 mile walking distance of neighborhood parks and within 2 miles of community parks	Partnership with Schools, County, State	Parks & Rec	Funded staff supports implementation thru City Quimby and Park Impact Fee Ordinances and development requirements	Periodic analysis of meeting of these goals and guidelines (min. of every 5 years in updating of Parks and Recreation Master Plan)
Reduce urban sprawl by promoting infill				
Infill Fee Reduction Ordinance: Encourage and promote the development of vacant and underutilized residential lots in target established neighborhoods of the city by providing incentives for infill development. (Chapter 17.191)	Community	Development Services	In Long Range Planning Work Program	

**Table 6
Existing City Projects, Practices and Programs**

MATERIAL RESOURCES/WASTE	Internal or Community	City Department	Annual Budget/Cost if applicable	Quantitative Measurement of Project Success / Implementation (Suggested)
Promote recycling and reuse of finite resources and reduce waste.				
Recapping of heavy duty truck tires, allows reuse of the tire casing up to 6 times. (Fleet)	Internal	Fleet		
Recycling and reuse of car and truck wash water.	Internal	Fleet		
Voluntary containerized green waste program	Community	Solid Waste	\$4 million	50,000 participants by 7/1/06
Resolution 2000-551 provides a bid preference for recycled materials	Internal	Purchasing		
Use of re-refined motor oil and hydraulic oil in City fleet equipment.	Internal	Fleet		
Use of laundered shop rags in Fleet shops.	Internal	Fleet		
Rubberized Asphalt Concrete (RAC) - Use of ground recycled tires in the asphalt concrete that is used to pave City streets. Benefits: reduce tires in landfill, longer lasting material, requires less material (cost effective) and makes streets quieter.	Community	DOT	\$2-3 million	Quantity of recycled tires used
Use of recycled aggregate base material in street repair - Curb and sidewalk concrete are sent to a plant to sort, size and make ready for use as recycled aggregate base material.	Community	DOT	\$100-150,000	Tons of recycled material used
City Facility Recycling Program - Provided to all City departments by Solid Waste Services. Recycling reduces costs associated with waste disposal.	Internal	Solid Waste	\$1 million in free services	Reduced cost. (Proportion of waste recycled)
Solid Waste Services staff review all proposals for construction/new development for compliance with requirements for recycling container space and for diversion of demolition waste from landfill.	Community	Solid Waste		Increased commercial recycling and diversion of construction and demolition waste

**Table 6
Existing City Projects, Practices and Programs**

MATERIAL RESOURCES/WASTE	Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal or Community	City Department	Annual Budget/Cost if applicable	Quantitative Measurement of Project Success / Implementation (Suggested)
Promote recycling and reuse of finite resources and reduce waste.					
	Household Hazardous Waste (HHW) Program - provides for recycling and/or disposal of residential and commercial toxic waste. Residents support program through solid waste disposal rates. Businesses pay the direct cost for HHW materials. Includes household battery collection program.	Community	Solid Waste	\$340,000	Cost per car load, amount of material recycled or reused.
	Electronic Waste Recycling - Participation in State program that provides for free disposal of electronic items, such as computers and computer monitors, which contain hazardous materials.	Community	Solid Waste	State funded	
	Used Motor Oil and Filter Recycling Program: The City funds curbside collection (appointment program) and drop off through the HHW program. Residents can also go to certified used oil recyclers and get paid to recycle used motor oil.	Community	Solid Waste	\$100,000	
	Residential Yard Waste Collection - The City diverts 90,000 tons of yard waste from landfills by collecting and composting residential yard waste. Analysis of the five-year trend shows a growth rate of 6%. Currently, residents have the option to take part in the containerized yard waste collection program described below.	Community	Solid Waste		
	Backyard composting program: Waste reduction program provided by Solid Waste to reduce the amount of yard waste collected by Garden Refuse crews. Three seminars are offered to residents each year to learn the basics of composting. Once residents take the seminar, they can purchase a Biostack composter at a discounted rate.	Community	Solid Waste	\$60,000	400 residents per year.

**Table 6
Existing City Projects, Practices and Programs**

MATERIAL RESOURCES/WASTE Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal or Community	City Department	Annual Budget/Cost if applicable)	Quantitative Measurement of Project Success / Implementation (Suggested)
Promote recycling and reuse of finite resources and reduce waste.				
Residential Recycling Collection - The City currently collects 34,000 tons of recyclables, 21% of residential waste stream from single-family residences. Analysis of the five-year trend for this program shows a growth rate of 6.8%. Weekly recycling would increase resource recovery by 40% and increase the cost of the program by \$1.5 million.	Community	Solid Waste	\$1.6 million	Goal: Diversion of 25% of residential waste stream
Commercial Recycling Collection - The City currently collects 2,827 tons of recyclables (.18% of the commercial waste stream) from the commercial sector. Currently, the commercial sector is not doing its part to divert waste from landfills. This situation will prevent the City from reaching its goal to reach zero waste and make it more difficult to meet the current State mandate of 50% diversion. The Solid Waste authority is developing a generator based recycling requirement to address the need to increase commercial recycling.	Community	solid Waste	unknown	Goal: Commercial diversion rate of 50%
Neighborhood Cleanup Collection - Annual pickup of household waste materials that are not allowed in weekly household waste/recycling pickup. City is shifting from an annual pickup scheduled by neighborhood to pickup by appointment. This program is supported by residential waste disposal fees. Currently, 50% of the tonnage collected is diverted from landfills.	Community	Solid Waste	\$1 million	
Greenwaste composting	Internal	Parks & Rec.	\$20,000 annually for wood recycling and disposal	Percent of greenwaste recycled (currently estimated at 80-90%)

**Table 6
Existing City Projects, Practices and Programs**

MATERIAL RESOURCES/WASTE	Simple Plain English Description of Project, Practice, or Program (Include reason for and goal)	Internal or Community	City Department	Annual Budget/Cost if applicable)	Quantitative Measurement of Project Success / Implementation (Suggested)
Promote recycling and reuse of finite resources and reduce waste.					
Provide for proper disposal of dog waste at City dog parks	Internal	Parks & Rec.	\$10,000 for dog waste stations and bags	Currently not measured. (Improvement in water quality of runoff from parks)	
Provide public information on recycling at City parks/rec. facilities in Department publications with broad distribution	Internal	Parks & Rec.	\$25K	130K info fliers annually	
City departments purchase paper products containing 10% recycled content per City Council Resolution.	Internal	All	NA	Unknown	
City uses mobile shredder (outside company) for large shredding jobs. Shredded paper is recycled.	Internal	Varies		Saved equivalent of 67 trees last year.	
Citywide administrative policy contains instructions for procurement to use specs that promote recycled products when practical.	Internal	Procurement	NA		
Various practices related to reducing waste and promoting recycling of material resources at Convention Center, Fairytale Town, and Old Sacramento. Practices include recycling and use of recycled materials, reduction of materials used, and composting and mulching.	Internal	CC&L			

Appendix B

Technical Summaries of Sustainability Issues

Global Climate Change

While consensus has yet to emerge on the precise timing and magnitude of the greenhouse effect, most scientists now agree that global climate change is occurring, that most of the warming observed over the last 50 years is attributable to human activities, and that it could severely affect natural ecosystems, human welfare, and the world's economy. The culprit is an increase in the concentration of greenhouse gases in the earth's atmosphere, largely due to the burning of fossil fuels and deforestation.

The right balance of so-called "greenhouse" gases (carbon dioxide, water vapor, methane etc.), in the earth's atmosphere moderates the earth's surface temperature, making it suitable for abundant life. If earth had the atmosphere of Mars and Venus, it would be either much too hot or much too cold. Mars has a thin atmosphere with inadequate greenhouse gases, and a surface temperature of -65°F . Venus, on the other hand, has a thick atmosphere with a high concentration of the greenhouse gas carbon dioxide. The surface temperature of Venus is about 800°F . The earth's atmosphere is composed mostly of nitrogen and oxygen, and small amounts of greenhouse gases, which warm the surface to an average of 58°F . Without the small amount of greenhouse gases in the earth's atmosphere, earth would be 50°F - 100°F colder than it is.

Scientists can determine the content of earth's ancient atmosphere by studying ice core samples. They have observed that the amount of the greenhouse gas carbon dioxide in the earth's ancient atmosphere (when it is not offset by other factors) correlates with periods of warming and cooling of the climate. In other words, when carbon dioxide increased, the planet has warmed. When carbon dioxide decreased, the planet has cooled.

Recently, a nearly mile-long core of ice – the deepest and oldest frozen sample drilled in the Antarctic, showed that the levels of two greenhouse gases, carbon dioxide and methane, have not been as high as they are now for 650,000 years. The carbon dioxide content of the atmosphere increased $31\pm 4\%$ in the period from AD 1750 to the year 2000. Methane has also increased $151\pm 25\%$ in the same period. Methane is scarcer, but more efficient as a greenhouse gas. Other greenhouse gases that have increased are nitrous oxide and hydrofluorocarbons, the latter of which is strictly man-made.

Predictably, the world's average temperature has warmed by 1.1°F over the past century. This may not seem like much, but one degree per century is a

substantially faster rate of warming than usual, 20 times faster than average. Scientists believe that this relatively fast rate of warming will cause many of the adverse impacts of climate change. In addition, a recent study published by NASA's Goddard Institute has determined that another degree rise has occurred but has been absorbed by the oceans, effectively delaying the effect on atmospheric temperatures.

The most profound changes in surface temperature have occurred farthest from the equator. For example, in the Arctic portions of Alaska and western Canada, average summer temperatures have increased about 2.5° F since 1961. Other Arctic regions, including Greenland, Scandinavia, and northern Russia, show similar trends.

The increase in surface temperature in the Northern Hemisphere has been greater than during any other century in the last 1,000 years. The ten warmest years in recorded history have occurred since 1990, and 2005 is the warmest year on record. The effects are apparent in the landscape. Non-polar glaciers have been in widespread retreat during the 20th century. In recent decades, arctic sea ice has thinned 40% in late summer to early autumn, and decreased in extent by 10-15% since the 1950's in spring and summer. Global snow cover has decreased in area by 10% since observation from satellites became available in the 1960's. Permafrost has thawed, warmed, and degraded in parts of the polar, sub-polar, and mountainous regions.

With the melting of all of this ice, and the thermal expansion of the oceans, global mean sea level has been increasing. During the 20th century, global mean sea level increased at an average annual rate of 1-2 mm for a total of 7.5 inches (19 cm). Between 2000 and 2100, projections call for a rise of 5.9 to 35 inches (15-90 cm), with a best estimate of 18.8 inches (48cm).

El Nino events have become more frequent, persistent, and intense during the last 20-30 years than compared to the previous 100 years. Ecological impacts, such as coral bleaching have increased in frequency, especially during El Nino events. These are just a small sample of observed changes.

According to the Third Assessment Report of the International Panel on Climate Change (IPCC), Synthesis Report, 2001, the earth is projected to warm 2.5° F – 10.5° F over the period from 1990 to 2100. Climate models also project significant increases in frequency, intensity, and duration of extreme events, such as heat waves, heavy precipitation events (floods, landslides), violent hurricanes, and droughts. Severe social and economic effects from sea-level rise and flooding may displace tens of millions of people. Melting ice and expansion of volume of seawater are expected to cause the flooding of coastal communities and complete loss of some islands. Loss of many lives may occur from heat stress, floods and storms, increased range of disease vectors, water-borne pathogens, exacerbation of water shortages, reduced food availability and

quantity. Ecological productivity and biodiversity is likely being altered. Significant disruptions of ecosystems from disturbances such as fire, drought, pest infestation, invasion of species, storms, and coral bleaching events are expected to increase. The stresses caused by climate change, when added to other stresses on ecological systems, threaten to substantially damage or cause complete loss of some unique systems and the extinction of some species.

The scientific community is working to determine how vulnerable human civilization and earth's ecological systems are to the adverse impacts of future climate change. Although no consensus has been reached as to what constitutes a perilous threshold, there have been increasing warnings about the impacts of global average temperature rising over 3.6° F, which would increase the risk of abrupt climate change. The likelihood and magnitude of adverse impacts is expected to increase with the rate, magnitude, and duration of greenhouse gas buildup and the resulting increase in temperatures. There are also changes, some of which are already occurring, that can cause a domino effect in which climate change induces more climate change. Examples of this include:

- Melting polar ice that reflects less of the sun's energy increasing the rate of warming.
- Warmer temperatures that cause more forest fires and/or contribute to large-scale deforestation, sending more carbon dioxide into the atmosphere while reducing carbon dioxide removal by forests.
- Warmer temperatures causing soils and/or arctic tundra to give off more greenhouse emissions.
- Warmer oceans, which are less able to absorb carbon dioxide than in the past.
- Weakening or possible shutdown of ocean currents (such as the Gulf Stream) which play an important role in distributing heat from the tropics, where there is a lot of it, to polar regions, where there is not. For example, shutdown of the Gulf Stream would cause Britain's climate to resemble that of Newfoundland.
- More need for the use of air conditioning, refrigeration, and irrigation, using more electricity, generating even more greenhouse emissions.
- A reduction in electricity production from dams will require a commensurate increase in power production from dirtier power sources, generating more greenhouse gas emissions.

The Impact of Climate Change on California

A 2004 study by a team of leading California scientists, *Climate Change in California: Choosing Our Future* reported significant changes in California's natural resources could result from global climate change. The study looked at two scenarios, one assuming "business as usual" with higher greenhouse gas emissions from continued, intensive reliance on fossil fuels, and the other

assuming a transition to reduced emissions which would peak by mid-century. (Note that the lower-emission scenario in the study is not the lowest possible pathway; actual emission could be lower if early and aggressive steps are taken.) Under both scenarios, the following impacts would occur, but the consequences would be significantly worse under the higher emissions scenario:

Temperature impacts on California:

- Heat waves will be more intense, will occur more frequently, and be sustained for longer periods.
- By mid-century, statewide average summer temperatures are projected to rise 2° F to 4° F for the lower emissions scenario, and 2.5° F to 5.5° F under the higher emissions scenario.
- Toward the end of the century, statewide average summer temperatures are projected to rise 4° F to 8.5° F for the lower emissions scenario, and 7.5° F to 15° F under the higher emissions scenario.
- The most severe and persistent heat is projected for locations that are already hot, such as Fresno and Sacramento. In the 2090's, high-temperature extremes in Sacramento could soar above 109° F to 111° F in the higher emissions scenario.
- Sacramento currently has an average of 18 days per year higher than 95° F. In the lower emission scenario, Sacramento would have 50-60 days per year above 95° F, and 90-110 days above 95° F in the higher emissions scenario at the end of the century.
- Increased temperatures will make it harder to meet ambient air quality standards for ozone.
- California agriculture would be affected and may require new farming practices and shifts in the types of crops planted in the state.
- The risk of fires will increase.

Impacts on Coastal California:

- Rising sea levels along the California coastline may require the construction of sea walls and other structures to protect coastal property.
- Higher sea levels could also allow saltwater intrusion into aquifers and the rich ecosystems at the river mouths.

Water Related Impacts on California:

- Rising sea levels may severely impact the Sacramento-San Joaquin Bay Delta System that is used to transfer water from northern to southern California.
- As temperatures increase, winter storms would more frequently generate rain instead of snow, and the snow pack would melt earlier. This shift would be more pronounced in the high emission scenario. Increased

stream flow levels in the wintertime may substantially increase the risk of flooding.

- A 25-40% reduction in spring snow pack by mid-century, and a 30-70% reduction toward the end of the century under the low emission scenario. Under the high emission scenario, snow pack could be reduced 70-90%. This would severely reduce water supplies in dry spring and summer months. Winter recreation would be substantially impacted or eliminated.
- Changes in winter precipitation are uncertain. In both emissions scenarios, three out of four model runs suggested a decrease in precipitation from 15-30%, but in each scenario one of the model runs suggested that precipitation could increase.

Impacts on California Ecosystems and Human Health:

- Most ecosystems would be heavily impacted. A warmer climate with changes in precipitation will alter the distribution of California's native vegetation, including a severe loss of alpine and subalpine forests, and the widespread displacement of woodland and shrub-lands by grasslands.
- Higher temperatures would cause an increased incidence of infectious disease, heat-related deaths and respiratory problems caused by poor air quality. On the average, mortality estimates for the higher emissions scenario are in the order of 10-100% higher than estimates for the lower-emissions scenario during the 2050's and about 100-150% higher during the 2090's.

Impacts on Energy in California:

- Energy demand may increase, but the degree of increase depends on the level of warming. Presently, Californians spend about \$30 billion on air conditioning and heating per year. A high degree of warming could increase net state energy expenditures by about \$2 billion in 2020.
- Preliminary studies indicate that hydroelectric generation may decrease 10-30% if the dry scenario materializes or increase under the wetter scenario.

With the inertia of the greenhouse gases already present in the atmosphere, and the heat stored in the oceans, we are already committed to further global warming. However, the studies that were done to model the effects of climate change on California suggest that there is a substantial difference in the consequences of climate change between the higher emission scenario in which we continue with our present heavy reliance on fossil fuels and the scenario in which we transition to a reduced emissions economy. Our actions can make a difference, since California is the twelfth largest source of greenhouse emissions

in the world. The climate that our children and grandchildren will experience depends on the emissions choices we make today.

Key References:

1. *Climate Change 2001: Synthesis Report – Summary for Policy Makers, and Assessment of the Intergovernmental Panel on Climate Change.* (This summary, approved in detail at IPCC Plenary, September 2001, represents the formally agreed statement of the IPCC concerning key findings and uncertainties contained in the Working Group contributions to the Third Assessment Report.)
2. *Public Review Draft -Climate Action Team Report to the Governor and Legislature.* California Climate Action Team, December 8, 2005.
3. *Climate Change in California: Choosing Our Future.* A summary prepared by the Union of Concerned Scientists of "Emissions Pathways, Climate Change, and Impacts on California," published in The Proceedings of the National Academy of Sciences (101:34, 2004)
4. *Relentless and Stifling Heat Could Plague Sacramento by Century's End, with Heat-related Deaths also on the Rise, New Study Shows.* Union of Concerned Scientists press release, September 13, 2004.
5. *Global warming hitting home.* Sacramento Bee, September 14, 2004.
6. *Study: Major changes from warming.* Sacramento Bee, August 17, 2004.
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8. *Ice study: Greenhouse gases highest in 650,000 years.* Sacramento Bee, November 25, 2005.

Energy Resource Depletion

Our industrial society, economy, and financial systems are based on the assumption of continual growth, which depends on the ever-increasing availability of cheap energy from fossil fuels. Oil is the lifeblood of modern civilization, which has powered phenomenal economic and population growth over the last century and a half. It is the most versatile and concentrated fossil fuel, and currently accounts for about 43% of the world's total fuel consumption and 95% of the global energy used for transportation. Oil is also the raw material from which we produce a wide array of chemicals such as fertilizer, pesticides, medicines, and materials such as plastic and synthetic textiles. Many of the consumer goods that we take for granted are made possible because oil is available for such a low price. Even the food we eat depends heavily on fossil fuels, including oil. For every calorie of food energy consumed in the United States, the equivalent of 10 calories of energy from fossil fuels is needed to produce it.

The concept of the "energy slave", coined by Buckminster Fuller, is a useful way to illustrate the enormity of modern energy use. Fuller's energy slave is based on the average output of a hard-working man doing 150,000 foot-pounds of work per day and working 250 days per year. The global average per person is just under 2kW, equivalent to 20 energy slaves. In the U.S., our average energy use per capita is 10kW, equivalent to 100 energy slaves. From an energy perspective, our society is a long way from being sustainable. The transition to a sustainable society will probably take place incrementally, over decades or even generations.

Oil is so important that even a temporary disruption in supply, such as the aftermath of Hurricane Katrina or the energy crisis of the 1970's, has huge repercussions. We all know that oil supplies are finite, but what many of us don't realize is that our day of reckoning could be sooner than we think.

Peak Oil

In November 2005, amid growing fears of a global oil shortfall, a bipartisan group of eight U.S. senators proposed legislation to accelerate the nation's shift to new energy sources in the transportation sector, which accounts for two-thirds of U.S. oil consumption. The convergence of growing world demand for oil, and record oil prices in the aftermath of Hurricane Katrina, has drawn attention to potential for another more long-term crisis commonly known as "peak oil".

For the purpose of this report, "peak oil" refers to the halfway point in world conventional oil reserves, the point at which world oil production (meaning extraction and refining) can no longer increase and will thereafter decrease with time. New sources of oil are becoming increasingly difficult to find and

more expensive to develop. Global conventional oil discovery peaked in 1964 and has been declining ever since. Today, we consume about six barrels of oil for every new one we discover. Meanwhile, world demand for oil continues to increase, and is expected to grow 50% by 2025.

In 1956, a geologist working for Shell named M. King Hubbert accurately predicted that the peak in production of oil in the continental United States would occur in 1970. The actual peak occurred in 1971. The oil production from around fifty oil-producing countries, including the North Sea (2001), has also peaked.

When will global oil production peak? Most experts believe that peaking will occur sometime in the next 20 years, but many think that it will occur before 2010. The U.S. Department of Energy has projected a production peak somewhere between 2021 and 2037. The subject is controversial because peak oil projections are fraught with uncertainties due to unreliable data, political bias, institutional self-interest, and other factors. The bottom line is that no one knows for sure, but geologists have no doubt that it will happen.

One of the reasons that oil will peak, and then decline, rather than suddenly run out, has to do with the concept of net energy. When you compare the net energy (the ratio of the energy invested to the energy returned) of various energy sources, you find that oil has a net energy that is extremely high. It was highest in the early days of oil, when for every barrel of oil used for exploration and drilling, up to 100 barrels were found. This was because the first oil that was extracted was near the surface, on land, under pressure, and relatively pure, making it easy to refine. As oil reserves are increasingly less pure, distant, deep, and difficult to extract, oil production takes more energy and money. Eventually, when it takes a barrel of oil to extract a barrel of oil, further extraction would be no longer viable as an energy source.

A study entitled "Peaking of World Oil Production: Impacts, Mitigation, and Risk Management" was released in February 2005. The report was commissioned by the U.S. Department of Energy (DOE), and has since become commonly known as "The Hirsch Report" after its project leader, Robert L. Hirsch. According to the Hirsch report, oil peaking will create a "severe liquid fuels problem for the transportation sector", and will result in dramatically higher oil prices, which in turn will cause "protracted economic hardship in the United States and the world". "Without timely mitigation," the report warns, "the economic, social, and political costs will be unprecedented." The Hirsch Report examined the options for mitigation and made the following conclusions and recommendations:

- Significant improvements in fuel efficiency of autos and light trucks (vans, pick-ups, and SUVs) is possible, but any affordable transition will require more than a decade.

- Greater end-use efficiency of autos and light trucks will neither be sufficient nor timely enough to solve the problem. Substitute liquid fuels will be required to mitigate peaking.
- There are several commercially viable alternatives for converting non-petroleum based fossil fuels (such as coal) into liquid for transportation uses. Construction of a large number of production facilities to produce substitute liquid fossil fuels will be key in mitigating the world peaking of oil. Alternative fuel infrastructure, however, requires long periods of investment and may take 10-20 years of accelerated effort to implement.
- Improved Oil Recovery (IOR) can marginally increase production from existing oil reservoirs.
- There is potential for significant increases in the production of lower-grade oils (heavy oil/oil sands/crude oil/bitumin) from Canada and Venezuela. These resources have lower net energy, are significantly more expensive to produce, and create more pollution, including significant increases in carbon dioxide emissions per barrel. The U.S. has large deposits of oil shale, but processes for mining and recovering domestic oil shale are not currently economically or practically feasible. New proprietary techniques are being developed by Shell, however, the report's authors were not able to evaluate the process or its economics because information about the process is proprietary. The study did point out, however, that like other alternatives, contributions from these options would require 10-20 years of accelerated effort.
- Substitute fuels can be produced from remotely located natural gas utilizing gas-to-liquid (GTL) technology. Several GTL methods are already in use, however, world demand for liquefied natural gas (LNG) is growing, and the U.S. would have to compete with other markets.
- Hydrogen has potential as a long-term alternative to petroleum-based liquid fuels in some transportation applications. Hydrogen is an energy carrier as opposed to an energy source, and requires an energy source, such as gas, coal, nuclear power, or renewables for its production. Without major breakthroughs in fuel cell technology, hydrogen technology will not be practically viable.
- The report concluded that currently, there are no developed biomass-to-fuels technologies that are near cost competitive, due to low net energy gain after growing, harvesting, and conversion to ethanol. For example, the market for ethanol gasoline additive is influenced by federal requirement and facilitated by generous federal and state tax subsidies.

Potential for a more economical production of ethanol from "cellulosic" (woody) biomass holds promise, but more research is needed.

- The report concluded that "viable mitigation options exist on both the supply and demand sides, but to have substantial impact, they must be initiated more than a decade in advance of peaking." The report also concluded that "prudent risk management requires the planning and implementation well before peaking. Timely, aggressive risk management will be essential."

Unfortunately, as far as we know, nothing like the kind of efforts envisioned by the Hirsch report have begun, although there is now a bill in the House of Representatives to begin to address the issue (HR 507). Furthermore, the U.S. Department of Energy appears to have distanced itself from the report, which contains the following disclaimer:

"This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The view and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof."

It should also be noted that while the authors of the Hirsch report did consider conservation in the form of higher mileage autos and light trucks, they did not consider the transportation-land use connection and its potential to reduce oil consumption by reducing the need for transportation by automobile.

Key References:

1. *Race is on for backup fuels*. Sacramento Bee, Final Edition, Saturday November 26, 2005
2. *Experts fear day when oil runs low*. Sacramento Bee, Final Edition, Monday, March 21, 2005
3. *Peaking of World Oil Production: Impacts, Mitigation, and Risk Management*. Robert L. Hirsch, SAIC Project Leader, Roger Bezdek, MISI, Robert Wending, MISI, February 2005

The above report can still be found on a U.S. Department of Energy/National Energy Technology Laboratory at the following web address:

http://www.netl.doe.gov/publications/others/pdf/Oil_Peaking_NETL.pdf

It can also be found at the following Project Censored web address:
http://www.projectcensored.org/newsflash/The_Hirsch_Report_Proj_Cens.pdf

4. *Energy Bulletin.net* – An Internet clearinghouse for current information regarding the peak in global energy supply located at <http://www.energybulletin.net>

Transportation

Any serious attempt to reduce our energy consumption, dependence on petroleum, or greenhouse gas emissions has to begin with transportation. The transportation sector accounts for two thirds of U.S. oil consumption, burning 14 million barrels of oil each day. It is also the major energy user in the State, accounting for roughly 35% of California's energy consumption and over 85% of the petroleum used. According to the U.S. Department of Energy's Energy Information Administration data, in 2004 we used almost four times as much energy for transportation as we did to heat, cool and operate all of our homes combined, and nearly seven times the energy consumed by all commercial enterprises. In addition, the transportation sector has also recently become the largest contributor to U.S. greenhouse gas emissions. In California, the contribution from transportation sector is even higher, accounting for 41.2% of the State's greenhouse emissions.

Since petroleum provides 99% of the energy used for transportation in California, even temporary disruptions can lead to greatly increased oil prices and economic damage.

To date, the chief regulatory strategies such as improving Corporate Average Fuel Economy (CAFE) and auto-emission standards for private vehicles, or the passage of AB 1493, which moved California to the forefront of reducing vehicle climate change emissions, have been dependent on new technology,

Another way to limit greenhouse emissions and energy consumption of the transportation sector is to limit or reduce vehicle miles traveled (VMT), which is growing at a rate of 1.8% per year in California. The State of California recently identified a number of strategies for reducing transportation related greenhouse gas emissions. The State, however, does not have jurisdiction over land use, which is critical for efficient and effective public transit. According to a report prepared by the State of California entitled *Global Climate Change - In Support of the 2005 Integrated Energy Policy Report*, "limiting the growth in vehicle miles traveled (VMT) can best be achieved at the regional, state, or local level, using a combination of public transit, transit-oriented development, in-fill development, and urban revitalization." It also reported that low-VMT policies have already produced a 2-10% statewide savings from "smart growth" land use planning measures at the local level. Furthermore, the report found that consistent methods for monitoring and reporting greenhouse gas reductions from "smart growth" measures is needed to ensure that regional planning priorities and goals are achieved.

Even at the current low levels of public use in the U.S., public transit can move people with half the energy input of private vehicles. One reason is because, for every mile traveled, on the average, public transportation carries about ten times the passenger load of private vehicles. In addition, electrically powered rail is nearly ten times as energy efficient as private cars and over four times as

efficient as other forms of public transit. In addition, traveling by public transportation (on a per person per mile basis) produces nearly 45% less carbon dioxide as travel by private automobiles, SUVs or light trucks. Presumably, as more people use transit, and the passenger load per vehicle increases, the environmental benefits would increase even more.

Public transit cannot efficiently serve sprawling communities, so transit supportive land use is critical. This is why the Sacramento Regional Transit District's (RT) 20-year Transit Master Plan, and the City's General Plan have minimum density guidelines for the area around light rail stations. In addition, the Transit Master Plan also has density guidelines for the area around bus stops.

In 2002, the Sacramento Area Council of Governments (SACOG) embarked on the Blueprint project. The SACOG Blueprint is a regional transportation and land use study to examine alternatives to current transportation investment priorities and land use patterns. Alternatives were developed for comparison to the Base Case Scenario, a continuation of current transportation land use patterns over the next 50 years. Ultimately, a Draft Preferred Scenario was developed and compared to the Base Case Scenario to show how future land use decisions will influence transportation choices, housing diversity, air quality, conservation of natural resources, commute times, and other factors related to livability and sustainability over the next 50 years.

The Draft Preferred Scenario, when compared to the Base Case Scenario, reduces auto trips by about 10% by shifting them to transit, walking, and biking. Vehicle miles traveled (VMT) per day per household declines from 47.2 miles to 34.9 miles. In addition, there would be a 14% per capita reduction in the greenhouse gas carbon dioxide.

The City of Sacramento General Plan Update used the Blueprint Preferred Scenario as a starting point for alternative growth scenarios. *Alternative 1* is the Base Case Scenario, assuming a continuation of current land use patterns. *Alternative 2* is an aggressive version based on the Blueprint Preferred Scenario. *Alternative 3* is not as aggressive as *Alternative 2*, but is also based on the Blueprint Preferred Scenario. Both alternatives are more sustainable than *Alternative 1*.

Key References:

1. *Public Review Draft -Climate Action Team Report to the Governor and Legislature. California Climate Action Team, December 8, 2005.*
2. *Conserving Energy and Preserving the Environment: The Role of Public Transportation, (An Environmental and Energy Study Institute Briefing to Congress, January 15, 2004, Washington D.C.) Robert J. Shapiro*
3. *Sacramento Region Blueprint Transportation and Land Use Study, Special Report – Preferred Blueprint Alternative, January 2005.*

Urban Design and Sustainability

Sustainable development, in the strictest sense, must meet the needs of the present without compromising the ability of future generations to meet their own needs. To use a bank account analogy, we must learn to live off of the interest yielded by our natural systems without liquidating the capital, as we are currently doing at a mind-boggling pace. For example, in 2003 a biologist named Jeffrey Dukes calculated that the fossil fuels we burn in one year came from organic matter containing 44×10^{18} grams of carbon, which is more than 400 times the net primary productivity of the planet's current biota. In other words, every year we burn four centuries worth of ancient plants, animals, and microorganisms. In light of this example, living on interest is a revolutionary notion. Put simply, we really are a very long way from being truly sustainable. So when we talk about sustainability, what we really mean is that we are making incremental progress to transition towards sustainability, a journey that will probably take many generations.

This is why critics of “techno-fixes” (to simply replace fossil fuels with renewables such as biodiesel or ethanol, or from ambient energy from the sun or wind) claim that this simply is not possible at our current levels of energy consumption. One problem is that our built environment was not designed to be sustainable, so massive inputs are needed. Resource Depletion and environmental degradation are embedded in the twentieth century landscape. Conventional industrial development as practiced for the last two centuries is inherently unsustainable. The degree to which we are able to ultimately attain true sustainability depends on the degree to which we are able to reinvent the built environment and integrate it with technology.

In the preface to his book “Regenerative Design for Sustainable Development”, John Tillman Lyle explained why environmental design is such an important consideration

“In shaping the places we live, we shape the patterns of our own behavior. Over the past century or so, we have built into the landscape behavior patterns that derive from attitudes about the nature of the earth and the human relationship with it that go back at least to the renaissance. Expanded and driven by fossil fuels and exploding population, they are not only outmoded but also dangerous. For our culture to survive, for the human environment to become sustainable, we will have to change some of those patterns, which means changing not only our behavior, but our environment. It is not just a matter of fine-tuning, not even a matter of overhaul. What is needed is redesign.”

What Lyle meant by “design” was “conceiving and shaping complex systems”. Ultimately, sustainable development relies on the interaction of numerous systems – energy, water, shelter, food production, and other essential functions

to create human ecosystems based on self-renewing processes whose end products are also their raw materials.

At the present time, people who live downtown in cities use less energy and natural resources than suburban or rural inhabitants. This is true because public transit, walking, and bicycling are viable transportation choices in more dense mixed-use areas, but also, less energy is required to heat and cool multifamily housing than single-family residential units. Time tested principles from traditional cities and towns that were built prior to WWII provide guidance for a transition to more efficient and sustainable land use patterns that support public transit systems and encourage pedestrians and bicyclists.

If linked to the preservation mechanisms, compact higher density land uses can help to preserve farmland and open space. The open space that is preserved can serve multiple purposes, such as recreation/trails, buffers or detention/retention for flooding or groundwater recharge, and habitat preservation.

Key References:

1. *Regenerative Design for Sustainable Development, 1994 by John Tillman Lyle, John Wiley and Sons, Inc.*
2. *Sacramento Region Blueprint Transportation and Land Use Study, Special Report – Preferred Blueprint Alternative, January 2005.*

Environmental Health

We have made a lot of progress in the area of human health in the past two centuries. Advances in medicine, sanitation technology/infrastructure, food preservation, and prevention of insect and animal disease vectors have improved human health and saved lives. Modern technology, however, has also brought new threats to human health and the health of our environment. Thousands of chemicals are used by our industrial society, and many of them have been released into our environment. Toxic chemicals are now in the air we breathe, the water we drink, and the food we eat. Even if these chemicals have been tested and are regulated for safety, little is known about toxic synergistic interactions between them, or the effects on sensitive species. We do know that in general, our children are more vulnerable to environmental health threats because their smaller bodies receive proportionately greater exposure.

Air quality is a major environmental health issue for Sacramento, particularly in the summer when an inversion layer traps pollutants close to the ground. Vehicles and other mobile sources powered by combustion (such as lawnmowers) cause 70% of our air pollution. The Sacramento region has been designated as a severe ozone non-attainment area by the U.S. Environmental Protection Agency (US EPA). In the summer, the Sacramento area fails to meet both state and federal standards for ozone. Although ozone in the upper atmosphere protects us from harmful ultraviolet rays, at the ground level it is an irritant that causes the eyes to burn, and it can damage lung tissue. Other problematic air pollutants include carbon monoxide, hydrocarbons, sulfur dioxide, and oxides of nitrogen (NO_x).

The air quality in the Sacramento region has actually improved in the last decade due to cleaner cars, smog check requirements, reformulated gasoline, vapor recovery systems on gasoline dispensers, and state and federal regulations for solvents in paints and other consumer products. However, in the future the combined impact of more people, more cars, and more hot days due to global warming will make meeting air quality standards a greater challenge.

SACOG has estimated that there will be 1.7 million more people in the Sacramento Region in 2050 than there were in 2000, which will bring the number of residents to over 3.6 million. If present trends are continued, residents will drive many more miles annually and spend more time in their cars, which will have a negative effect on air quality. Compact development and mixed use land use patterns, coupled with mechanisms to set aside open space, can help alleviate air quality problems by reducing vehicle miles traveled (VMT).

A number of studies have indicated that urban sprawl contributes to health problems related to obesity, and that compact development and mixed-use land use patterns that encourage walking and bicycling can help prevent obesity. On the other hand, at least one study has shown that there is no correlation between

urban sprawl and obesity. Certainly, there are other factors involved; such as the level of education of residents, nutritional factors, and exercise routines unrelated to the daily commute to work, which may explain the different results in the studies that have been undertaken. Clearly, walking and bicycling burn more calories than commuting by car and also provide more cardiovascular benefits than driving.

Parks and wild places rejuvenate our spirits, offer much needed recreation, fortify our connection to nature and sustain a vast array of wildlife. Preserving wild places, such as the American River Parkway, is essential to the health of our community. Community and neighborhood parks can provide an array of opportunities for recreation and leisure more easily accessed from home. Parks can also function as activity centers which, when connected by bike routes, streets, and pedestrian paths, foster more walkable, close-knit neighborhoods.

The evidence is mounting that the benefits may go beyond exercise and fun. Richard Louv, the author of the book "Last Child in the Woods – Saving Our Children from Nature Deficit Disorder," submits that the cumulative effect of withdrawing from nature is a disorder of modern society that effects brain development in children, and for adults and children alike increases stress, causes feelings of not being rooted in the world, and may contribute to attention deficit disorder.

In the workplace, it has been shown that providing natural daylight into interior spaces provides a needed connection to nature that improves staff productivity, improves students' test scores, and in the case of retail stores, increases sales. Also, proper specification of building materials and design, operations and maintenance of ventilation systems is paramount in maintaining staff health and productivity.

Clean water is another critical resource for both humans and wildlife. In the United States, there has been a slight decrease in the quality of surface waters, and a significant decrease in the quality of groundwater. In many areas around the world, dependable supplies of clean water are a major issue. Despite the appearance that Sacramento is endowed with abundant water, extensive research conducted by the Water Forum revealed "real limits on our ability to meet water needs solely by diverting or pumping additional water." The Forum summary pointed out that the Sacramento area, surrounding region, and lower American River all suffered some ill effects during the 1976-1977 drought. Since that time, our population has increased, and will continue to increase. As was discussed previously, climatic models of global warming indicate that water supply problems will probably be exacerbated by climate change by reducing snow pack and by making California a dryer state in the future.

Groundwater, which supplies over half of the water used in the Sacramento region, has dropped as much as 90 feet in some areas. In addition to overdrawing, parts of some groundwater basins have been contaminated. If these trends continue, the future reliability of groundwater will be threatened.

The Water Forum resulted in a comprehensive agreement between stakeholders to achieve the objectives of providing a reliable and safe water supply for the region's economic health and planned development to the year 2030, while preserving the fishery, wildlife, recreational and aesthetic values of the lower American River. The agreement specifies the details of how key issues such as groundwater management, water diversion, dry year water supplies, water conservation, and protection of the lower American River will be handled in the future. For the City of Sacramento, the Utilities Department has the primary responsibility of fulfilling the City's commitment to the Water Forum agreement.

Currently, Sacramento and SAFCA have a goal of obtaining citywide 100-year flood protection, after which 200-year flood protection will become the objective. A thorough discussion of flood safety is beyond the scope of this report; however some mention of the global warming wild card is warranted in the context of sustainability and environmental health. Current FEMA flood insurance rate maps were based on historical data. However, climate models suggest that historical data will not be relevant in the future. The level of flood protection for Sacramento should be based on the most up-to-date information about the climate of the future, not the past. The safety and sustainability of Sacramento depend on it.

Key References:

1. *Introduction & Summary: Water Forum Agreement, January 2000*
2. *Sacramento Region Blueprint Transportation and Land Use Study, Special Report – Preferred Blueprint Alternative, January 2005.*
3. *Salon.com "Do Today's Kids Have nature-deficit disorder?"* By Sarah Karnasiewicz

Material Resources/Waste

In the natural world, materials are endlessly cycled and recycled through complex, interrelated processes, such as the carbon cycle, the nitrogen cycle, decomposition and soil deposition, the hydrologic cycle, etc. Historically, most civilizations used natural materials to make re-useable or biodegradable items. Metals & glass have been recycled by human civilizations for a long time. Our civilization, on the other hand, is the most wasteful in human history. We have replaced the natural processes with a system based on the linear, one-way flow of materials, from "source" to "sink" in a process called "throughput", or "cradle-to-grave". In this system, source landscapes, such as forests, mines, oilfields, watersheds, farms, etc. provide the raw materials for manufacture and consumption. After being manufactured by industry, used by consumers, or burned for energy, the wastes flow into the "sinks" – our air, water, and land. Eventually, the one-way throughput process destroys the landscapes upon which it depends. Source landscapes eventually run out of raw materials and become depleted, sinks become overloaded with waste and become degraded, poisoned, and dysfunctional.

Landfills are only one of many examples of a sink. Early municipal landfills were not much more than unlined pits. Rainwater percolated through them, picking up chemicals and heavy metals, and the toxic leachate was then carried into the groundwater. Twenty percent of the EPA's superfund cleanup programs are municipal landfills. Landfill technology has greatly improved, reducing the risk of surface and groundwater pollution. The bottoms of modern landfills are lined with clay and heavy plastic liner. Refuse is laid down in a 10 ft. deep layer and covered by a thin layer of compacted earth. Pollution of surface and groundwater is minimized by lining and contouring the fill, which is also compacted, and by diverting drainage to prevent percolation of water through the refuse. However, according to the book *Regenerative Design for Sustainable Development*, the heavy plastic liners are estimated to last about 30 years, but decomposition processes, which have been slowed by mummification of the waste, will probably last hundreds of years. Therefore, it is possible that there will be a lot of leaking landfills in the 21st century. There are other problems associated with landfills. Many, if not most of the landfills that were close to consumers have filled up and closed. As new landfills are located farther and farther away, the cost of transportation makes them less economical. No one likes to live near them, so it is difficult to site new ones within an economical range of the waste source. Finally, landfills waste materials, which are finite and may be needed by future generations. For example, a significant portion of the world's copper now resides in landfills. Incineration, another linear throughput technology has its own set of problems.

By contrast, sustainable practices take advantage of, or model natural processes by re-using, recycling, or re-assimilating waste materials back into useful resources. This is also known as a cradle-to-cradle process. Sustainable

processes are non-linear in nature. Recycling, composting, and co-generation are all examples of sustainable practices, which capture and recycle materials and energy. At the very least, in a sustainable society, non-linear throughput processes would be minimized so that the wastes are limited to an amount that can be safely provided by the sources and absorbed by the sinks.

Recycling and composting are sustainable alternatives to landfills. Both reuse materials that would otherwise be wasted. Recycling is economical, saves energy, and saves trees and forests. Some examples are given below:

- When you recycle an aluminum can, you save enough energy to run a TV set for 3 hours
- Recycling newspapers at home and white paper at the office reduces the demand for both tropical and temperate timber. In addition, making recycled paper requires 60% of the energy needed to make virgin paper.
- Recycling saves cities and consumers money. When there's less garbage, we pay less to dump it.

Most municipal officials, public health experts, and environmentalists agree that we need to reduce the amount of waste that goes to landfills. The State of California has enacted a number of laws to do just that

- *AB 2020 - The California Bottle Bill and Litter Reduction Act (1987)*
AB 2020 took effect in 1987 to encourage recycling and reduce litter. This law was amended by the Beverage Container Recycling Law (SB 332), which became effective January 1, 2000. The amendment made an additional 2 billion containers (e.g., still waters, juices, coffee and tea drinks, and others) eligible for the California Refund Value. This gives California one of the broadest redemption systems in the United States.
- *Integrated Waste Management Act - AB 939 (1989) and AB 626 (1996)*
California's AB 939 legislation required municipalities to divert 25 percent of their waste stream by 1995 and 50 percent by 2000. This law was amended in 1996 through AB 626 to authorize the California Integrated Waste Management Board (CIWMB) to work with municipalities whose population is less than 250,000 to develop and adopt five-year plans for managing solid waste. The law carries various enforcement steps to ensure that cities and counties are making progress towards these goals, but also is flexible to allow individual reduction goals appropriate for local conditions.
- *Recycling Market Development Zone Program - AB 1909 (1993)*
This legislation established California's Recycling Market Development Zone (RMDZ) Program to provide low-cost loans and other incentives to eligible businesses that locate in designated areas throughout the state. Each eligible business may borrow up to 50 percent of the cost of the

project, with a maximum of \$1 million. These funds may be used by businesses for property, equipment, working capital, leasehold improvement, or refinancing debt. In addition to financial assistance, this program provides a wealth of technical and professional assistance. The California Legislature recently passed a bill that will enhance the Recycling Market Development Zone program by increasing the maximum loan amount from \$1 million to \$2 million, increasing CIWMB's maximum financing contribution from 50 to 75 percent of a project, and extending the existing term of repayment from 10 to 15 years for loans secured by real estate. The bill also allows CIWMB partnerships with other public entities to extend the direct loan program outside a zone and increase CIWMB's ability to leverage its limited funds with other lending entities.

- *Solid Waste: Planning and Market Development - SB 1066 (1997)*
Under this legislation, the California Integrated Waste Management Board (CIWMB) is required to develop a plan to assist local governments in establishing cost-effective recycling programs that provide a quality supply of recycled materials. It also requires the CIWMB to coordinate with other state and federal programs to leverage financing for market development projects and encourages joint activities to strengthen markets for recycled materials. In addition, the CIWMB will use existing data collected from recycling, composting, and disposal facilities to provide information on the recovery and availability of recovered materials.

- *Effective on January 1, 2004, Assembly Bill 28:*
 - Increased the California Refund Value for beverage containers to 4 cents for containers up to 24 ounces and 8 cents for containers 24 ounces or greater.
 - Increased funding for Community Outreach Grants to \$1.5 million each year.
 - Created a new Market Development and Expansion Grant program, up to \$10 million each year to nonprofit, for-profit and government organizations.
 - Allowed up to \$10 million in loan guarantees for market development.
 - Increased Quality Glass Incentive Payments up to \$30 per ton.
 - Made technical changes to the "processing payments" paid to recyclers to help offset the costs of recycling glass and plastic, including a temporary supplemental payment starting July 1, 2004.

- *AB 2901 - Cell Phone Recycling*
AB 2901 was signed on September 29, 2004 and requires cell phone retailers to take back used cell phones for recycling free of charge to the customer. Stores will be required to report to the California

Integrated Waste Management Board on their recycling plan. This law is scheduled to go into effect on July 1, 2006.

- *California Electronic Waste Recycling Act (SB20 signed into law Sept. 2003, amended by SB50, signed into law Sept 2004 to clarify certain provisions of SB20)* The amended California Electronic Waste Recycling Act requires retailers selling certain electronic products defined as Covered Electronic Devices in California to collect an electronic waste-recycling fee from the consumer at the time of purchase, to be used to recycle electronic waste.

The City is currently meeting state mandates, but its recycling effort is impacted by lower than expected recycling of waste in the commercial sector, which is not controlled by the City. Table 6 of this report lists the City's current solid waste programs.

Key References:

1. *Regenerative Design for Sustainable Development, 1994 by John Tillman Lyle, John Wiley and Sons, Inc.*
2. *U.S. Environmental Protection Agency website – www.EPA.gov*



Urban Environmental Accords

Signed on the occasion of United Nations Environment Programme World Environment Day
June 5th, 2005 in San Francisco, California

GREEN CITIES DECLARATION

RECOGNIZING for the first time in history, the majority of the planet's population now lives in cities and that continued urbanization will result in one million people moving to cities each week, thus creating a new set of environmental challenges and opportunities; and

BELIEVING that as Mayors of cities around the globe, we have a unique opportunity to provide leadership to develop truly sustainable urban centers based on culturally and economically appropriate local actions; and

REGALING that in 1945 the leaders of 50 nations gathered in San Francisco to develop and sign the Charter of the United Nations; and

ACKNOWLEDGING the importance of the obligations and spirit of the 1972 Stockholm Conference on the Human Environment, the 1992 Rio Earth Summit (UNCED), the 1996 Istanbul Conference on Human Settlements, the 2000 Millennium Development Goals and the 2002 Johannesburg World Summit on Sustainable Development we see the Urban Environmental Accords described below as a synergistic extension of the efforts to advance sustainability, foster vibrant economies, promote social equity, and protect the planet's natural systems.

THEREFORE, BE IT RESOLVED today on World Environment Day 2005 in San Francisco, we the signatory Mayors have come together to write a new chapter in the history of global cooperation. We commit to promote this collaborative platform and to build an ecologically sustainable, economically dynamic, and socially equitable future for our urban citizens; and

BE IT FURTHER RESOLVED that we call to action our fellow Mayors around the world to sign the Urban Environmental Accords and collaborate with us to implement the Accords; and

BE IT FURTHER RESOLVED that by signing these Urban Environmental Accords, we commit to encourage our City governments to adopt these Accords and commit our best efforts to achieve the Actions stated within. By implementing the Urban Environmental Accords, we aim to realize the right to a clean, healthy and safe environment for all members of our society

IMPLEMENTATION & RECOGNITION

THE 21 ACTIONS that comprise the Urban Environmental Accords are organized by urban themes. They are proven first steps toward environmental sustainability. However, to achieve long-term sustainability, cities will have to progressively improve performance in all thematic areas.

Implementing the Urban Environmental Accords will require an open, transparent, and participatory dialogue between government, community groups, businesses, academic institutions and other key partners. Accords implementation will benefit where decisions are made on the basis of a careful assessment of available alternatives using the best available science.

The call to action set forth in the Accords will most often result in cost savings as a result of diminished resource consumption and improvements in the health and general well-being of city residents. Implementation of the Accords can leverage each city's purchasing power to promote and even require responsible environmental, labor and human rights practices from vendors.

Between now and the World Environment Day 2012, cities shall work to implement as many of the 21 Actions as possible. The ability of cities to enact local environmental laws and policies differs greatly. However, the success of the Accords will ultimately be judged on the basis of actions taken. Therefore, the Accords can be implemented through programs and activities even where cities lack the requisite legislative authority to adopt laws.

The goal is for cities to pick three actions to adopt each year. In order to recognize the progress of cities to implement the Accords, a *City Green Star Program* shall be created.

At the end of the seven years a city that has implemented:

19 - 21 Actions shall be recognized as a ★★ ★★ City

15 - 18 Actions shall be recognized as a ★★ ★ City

12 - 17 Actions shall be recognized as a ★★ City

8 - 11 Actions shall be recognized as a ★ City

ENERGY

Renewable Energy · Energy Efficiency · Climate Change

WASTE REDUCTION

Zero Waste · Manufacture Responsibility · Consumer Responsibility

URBAN DESIGN

Green Building · Urban Planning · Slums

URBAN NATURE

Parks · Habitat Restoration · Wildlife

TRANSPORTATION

Public Transportation · Clean Vehicles · Reducing Congestion

ENVIRONMENTAL HEALTH

Toxics Reduction · Healthy Food Systems · Clean Air

WATER

Water Access & Efficiency · Source Water Conservation · Waste Water Reduction

ENERGY

Action 1 Adopt and implement a policy to increase the use of renewable energy to meet ten per cent of the city's peak electric load within seven years.

Action 2 Adopt and implement a policy to reduce the city's peak electric load by ten per cent within seven years through energy efficiency, shifting the timing of energy demands, and conservation measures.

Action 3 Adopt a citywide greenhouse gas reduction plan that reduces the jurisdiction's emissions by twenty-five per cent by 2030, and which includes a system for accounting and auditing greenhouse gas emissions.

WASTE REDUCTION

Action 4 Establish a policy to achieve zero waste to landfills and incinerators by 2040.

Action 5 Adopt a citywide law that reduces the use of a disposable, toxic, or non-renewable product category by at least fifty percent in seven years.

Action 6 Implement "user-friendly" recycling and composting programs, with the goal of reducing by twenty per cent per capita solid waste disposal to landfill and incineration in seven years.

URBAN DESIGN

Action 7 Adopt a policy that mandates a green building rating system standard that applies to all new municipal buildings.

Action 8 Adopt urban planning principles and practices that advance higher density, mixed use, walkable, bikeable and disabled-accessible neighborhoods which coordinate land use and transportation with open space systems for recreation and ecological restoration.

Action 9 Adopt a policy or implement a program that creates environmentally beneficial jobs in slums and/or low-income neighborhoods.

URBAN NATURE

Action 10 Ensure that there is an accessible public park or recreational open space within half-a-kilometer of every city resident by 2015.

Action 11 Conduct an inventory of existing canopy coverage in the city; and, then establish a goal based on ecological and community considerations to plant and maintain canopy coverage in not less than fifty per cent of all available sidewalk planting sites.

Action 12 Pass legislation that protects critical habitat corridors and other key habitat characteristics (e.g. water features, food-bearing plants, shelter for wildlife, use of native species, etc.) from unsustainable development.

TRANSPORTATION

Action 13 Develop and implement a policy which expands affordable public transportation coverage to within half-a-kilometer of all city residents in ten years.

Action 14 Pass a law or implement a program that eliminates leaded gasoline (where it is still used); phases down sulfur levels in diesel and gasoline fuels, concurrent with using advanced emission controls on all buses, taxis, and public fleets to reduce particulate matter and smog-forming emissions from those fleets by fifty per cent in seven years.

Action 15 Implement a policy to reduce the percentage of commute trips by single occupancy vehicles by ten per cent in seven years.

ENVIRONMENTAL HEALTH

Action 16 Every year, identify one product, chemical, or compound that is used within the city that represents the greatest risk to human health and adopt a law and provide incentives to reduce or eliminate its use by the municipal government.

Action 17 Promote the public health and environmental benefits of supporting locally grown organic foods. Ensure that twenty per cent of all city facilities (including schools) serve locally grown and organic food within seven years.

Action 18 Establish an Air Quality Index (AQI) to measure the level of air pollution and set the goal of reducing by ten per cent in seven years the number of days categorized in the AQI range as "unhealthy" or "hazardous."

WATER

Action 19 Develop policies to increase adequate access to safe drinking water, aiming at access for all by 2015. For cities with potable water consumption greater than 100 liters per capita per day, adopt and implement policies to reduce consumption by ten per cent by 2015.

Action 20 Protect the ecological integrity of the city's primary drinking water sources (i.e., aquifers, rivers, lakes, wetlands and associated ecosystems).

Action 21 Adopt municipal wastewater management guidelines and reduce the volume of untreated wastewater discharges by ten per cent in seven years through the expanded use of recycled water and the implementation of a sustainable urban watershed planning process that includes participants of all affected communities and is based on sound economic, social, and environmental principles.



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Urban Environmental Accords

United Nations Environment Programme World Environment Day 5 June 2007

Urban Environmental Accords Signing Cities

Asia-23

- Ahmedabad (India)
- Calicut (India)
- Changchun (China)
- Delhi (India)
- Dhaka (Bangladesh)
- Gampaha (Sri Lanka)
- Gwangju (Korea)
- Hiroshima (Japan)
- Hyderabad (India)
- Iloilo City (Philippines)
- Jakarta (Indonesia)
- Kabul (Afghanistan)
- Kurunegala (Sri Lanka)
- Matale (Sri Lanka)
- Melbourne (Australia)
- Muntinglupa (Philippines)
- Phnom Penh (Cambodia)
- Seogwipo (Korea)
- Shenyang (China)
- Surabaya (Indonesia)
- Taguig (Philippines)
- Tainan City
- Taipei

Europe-28

- Aarhus (Denmark)
- Arnhem (The Netherlands)
- Assisi (Italy)
- Athens (Greece)
- Chalon-sur-Saone (France)
- Copenhagen (Denmark)
- Istanbul (Turkey)
- Ivano-Frankivsk (Ukraine)
- Izmir (Turkey)
- Jerusalem (Israel)

- Kiev (Ukraine)
- Lakatameia (Cyprus)
- Larnaca (Cyprus)
- Lausanne (Switzerland)
- Limassol (Cyprus)
- London (United Kingdom)
- Lyon (France)
- Moscow (Russia)
- Pafos (Cyprus)
- Sibiu (Romania)
- Sinaia (Romania)
- Stockholm (Sweden)
- Strovoios (Cyprus)
- Stuttgart (Germany)
- Venice (Italy)
- Vienna (Austria)
- Vitoria-Gasteiz (Spain)
- Zurich (Switzerland)

North America-22

- Austin (USA)
- Berkeley (USA)
- Burien (USA)
- Chicago (USA)
- Denver (USA)
- Emeryville (USA)
- Las Vegas (USA)
- Montreal (Canada)
- Morro Bay (USA)
- Mount Vernon (USA)
- New Paltz (USA)
- Novato (USA)
- Oakland (USA)
- Rochester (USA)
- Salt Lake City (USA)
- San Francisco (USA)
- San Jose (USA)
- San Miguel de Allende (Mexico)
- Santa Monica (USA)
- Seattle (USA)
- Syracuse (USA)

- Vancouver B.C. (Canada)

Central and South America-10

- Bahia de Caraquez (Ecuador)
- Canton Sucre (Ecuador)
- Belo Horizonte (Brazil)
- Curitiba (Brazil)
- Lima (Peru)
- Limon (Costa Rica)
- Lurin (Peru)
- Medellin (Columbia)
- Panama City (Panama)
- Rio de Janeiro (Brazil)

Africa-5

- Bamemda (Cameroon)
- Cape Town (South Africa)
- Kampala (Uganda)
- Maputo (Mozambique)
- Nairobi (Kenya)

Updated 2 21. 06

APPENDIX E



LEED-ND

LEED for Neighborhood Developments
Rating System - Preliminary Draft
September 6, 2005

Presented by the partnership of the Congress for the New Urbanism,
the Natural Resources Defense Council and the U.S. Green Building Council



POINT OVERVIEW

Title	Points	Percentage of total points
Location Efficiency (2 Prerequisites / 7 Credits / 28 Points / 25% of total points)		
Prerequisite: Transportation Efficiency	--	--
Prerequisite: Water and Stormwater Infrastructure Efficiency	--	--
Credit: Contaminated Brownfields Redevelopment	4	3.5%
Credit: High Cost Contaminated Brownfields Redevelopment	1	0.9%
Credit: Adjacent, Infill, or Redevelopment Site	3 to 10	8.8%
Credit: Reduced Automobile Dependence	2 to 6	5.3%
Credit: Contribution to Jobs-Housing Balance	4	3.5%
Credit: School Proximity	1	0.9%
Credit: Access to Public Space	2	1.8%
Environmental Preservation (5 Prerequisites / 11 Credits / 13 Points / 11% of total points)		
Prerequisite: Imperiled Species and Ecological Communities	--	--
Prerequisite: Parkland Preservation	--	--
Prerequisite: Wetland & Water Body Protection	--	--
Prerequisite: Farmland Preservation	--	--
Prerequisite: Erosion & Sedimentation Control	--	--
Credit: Support Off-Site Land Conservation	2	1.8%
Credit: Site Design for Habitat or Wetlands Conservation	1	0.9%
Credit: Restoration of Habitat or Wetlands	1	0.9%
Credit: Conservation Management of Habitat or Wetlands	1	0.9%
Credit: Steep Slope Preservation	1	0.9%
Credit: Minimize Site Disturbance During Construction	1	0.9%
Credit: Minimize Site Disturbance Through Site Design	1	0.9%
Credit: Maintain Stormwater Runoff Rates	1	0.9%
Credit: Reduce Stormwater Runoff Rates	1	0.9%
Credit: Stormwater Treatment	2	1.8%
Credit: Outdoor Hazardous Waste Pollution Prevention	1	0.9%
Compact, Complete, & Connected Neighborhoods (3 Prereq / 22 Credits / 42 Points / 37% of total points)		
Prerequisite: Open Community	--	--
Prerequisite: Compact Development	--	--
Prerequisite: Diversity of Uses	--	--
Credit: Compact Development	1 to 5	
Credit: Transit-Oriented Compactness	1	0.9%
Credit: Diversity of Uses	1 to 3	2.6%
Credit: Housing Diversity	4	3.5%
Credit: Affordable Rental Housing	1 to 2	1.8%
Credit: Affordable For-Sale Housing	1 to 2	1.8%
Credit: Reduced Parking Footprint	2	1.8%
Credit: Community Outreach and Involvement	1	0.9%
Credit: Block Perimeter	1 to 4	3.5%
Credit: Locating Buildings to Shape Walkable Streets	1	0.9%
Credit: Designing Building Access to Shape Walkable Streets	1	0.9%
Credit: Designing Buildings to Shape Walkable Streets	1	0.9%
Credit: Comprehensively Designed Walkable Streets	2	1.8%
Credit: Street Network	1	0.9%
Credit: Pedestrian Network	1	0.9%
Credit: Maximize Pedestrian Experience	1	0.9%
Credit: Superior Pedestrian Experience	1 to 2	1.8%
Credit: Applying Regional Precedents in Urbanism and Architecture	1	0.9%
Credit: Transit Subsidy	3	2.6%

~~OPTIONAL 9/5/06~~

Title	Points	Percentage of total points
Credit: Transit Amenities	1	0.9%
Credit: Access to Nearby Communities	1	0.9%
Credit: Adaptive Reuse of Historic Buildings	1 to 2	1.8%
Resource Efficiency (0 Prerequisites / 17 Credits / 25 Points / 22% of total points)		
Credit: Certified Green Building	1 to 5	4.4%
Credit: Energy Efficiency in Buildings	1 to 3	2.6%
Credit: Water Efficiency in Buildings	1 to 2	1.8%
Credit: Heat Island Reduction	1	0.9%
Credit: Infrastructure Energy Efficiency	1	0.9%
Credit: On-Site Power Generation	1	0.9%
Credit: On-Site Renewable Energy Sources	1	0.9%
Credit: Efficient Irrigation	1	0.9%
Credit: Greywater & Stormwater Reuse	2	1.8%
Credit: Wastewater Management	1	0.9%
Credit: Reuse of Materials	1	0.9%
Credit: Recycled Content	1	0.9%
Credit: Regionally Provided Materials	1	0.9%
Credit: Construction Waste Management	1	0.9%
Credit: Comprehensive Waste Management	1	0.9%
Credit: Light Pollution Reduction	1	0.9%
Credit: Contaminant Reduction in Brownfields Remediation	1	0.9%
Other (0 Prerequisites / 2 Credits / 6 Points / 5% of total points)		
Anticipated Accredited Professional Innovation Credit(s)	1 to 2	1.8%
Anticipated Innovation Credit(s)	1 to 4	3.5%
TOTAL	114	100%

Anticipated Certification Levels

(Percentages taken from the "LEED Product Development and Maintenance Manual")

- Certified: 46 – 56 points (40% of total points)
- Silver: 57 – 67 points (50% of total points)
- Gold: 68 – 90 points (60% of total points)
- Platinum: 91 – 114 points (80% of total points)

~~DRAFT ONLY 9/8/09~~

LOCATION EFFICIENCY

Prerequisite: Water and Stormwater Infrastructure Efficiency

Intent

Conserve natural and financial resources required for construction and maintenance of infrastructure. Encourage new development within and near existing communities, in order to reduce multiple environmental impacts caused by haphazard sprawl.

Requirements

- (1) Locate the **project** on a site served by existing water and sewer infrastructure Replacement or other on-location improvements to existing infrastructure are considered “existing” for the purpose of achieving this compliance path.

OR

- (2) Locate the project within a planned water and sewer service area
AND
provide the new water and sewer infrastructure.

Submittals

Provide the following:

- 1) The LEED Letter template, signed by the responsible party, declaring that the requirements have been met; and
- 2) A) For compliance path 1, a site map showing that the project is served by existing water and sewer infrastructure;
OR
B) For compliance path 2,
 - i) a site map showing that the project is within a planned water and sewer service area and
 - ii) a brief narrative explaining the new infrastructure provided by developer and a letter from the relevant public authority stating that water and sewer infrastructure has been provided.

LOCATION EFFICIENCY

Credit: Adjacent, Infill or Previously Developed Site (3 to 10 Points)

Intent

Encourage development within existing communities and already-developed places to reduce multiple environmental harms associated with haphazard sprawl. Reduce development pressure beyond the limits of existing development. Conserve natural and financial resources required for construction and maintenance of infrastructure.

Requirements

- (1) Locate **project** on an **adjacent site** (3 points)
OR
- (2) Locate project on an **infill site** (7 points)
OR
- (3) Locate project on a **previously developed site**. (10 points)

Each project can only earn points for one of the three options.

Submittals

Provide the following:

- 1) The LEED Letter template, signed by the responsible party, declaring that the requirements have been met; and
- 2) a site map demonstrating that the project is located on either an adjacent site, an infill site, or a previously developed site.

ENVIRONMENTAL PRESERVATION

Prerequisite: Erosion & Sedimentation Control

Intent

Reduce water pollution from erosion during construction.

Requirements

- (1) Design a sediment and erosion control plan, specific to the entire **project**, which conforms to U.S. EPA Document No. EPA 832/R-92-005 (September 1992), Storm Water Management for Construction Activities, Chapter 3, or to local erosion and sedimentation control standards and codes, whichever are more stringent. The plan shall meet the following objectives:
 - Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
 - Prevent sedimentation of storm sewer or receiving streams.
 - Prevent polluting the air with dust and particulate matter.

AND

- (2) Stipulate in **CC&Rs** or other binding documents providing that these erosion control requirements will be met for the project as a system, and for each individual building and development phase.

Submittals

Provide the following:

- 1) The LEED Letter Template, signed by the responsible party, declaring that the requirements have been met and indicating whether the project follows local erosion and sedimentation control standards or the referenced EPA standard; and
- 2) a brief list of the measures implemented (if local standards and codes are followed, describe how they meet or exceed the referenced EPA standard); and
- 3) a copy of CC&Rs or other binding documents.

Sources & Resources

This prerequisite was adapted from LEED-NC 2.1.

COMPACT, COMPLETE & CONNECTED NEIGHBORHOODS

Prerequisite: Open Community

Intent

Promote developments that are good neighbors to their surrounding communities. Foster a sense of community and connectedness beyond the development.

Requirements

- (1) Ensure that all streets, sidewalks, and public spaces that are built as part of the **project** or serving the project directly are available for general public use, and are not enclosed within a gated enclave.

Submittals

Provide the following:

- 1) The LEED Letter template, signed by the responsible party, declaring that the requirements have been met; and
- 2) a site plan indicating the publicly available streets and sidewalks.

COMPACT, COMPLETE & CONNECTED NEIGHBORHOODS

Credit: Compact Development (1 to 5 Points)

Intent

Conserve land. Promote community livability, transportation efficiency, and walkability.

Requirements

- (1) Design and build **project** to achieve the the average densities or intensities shown in the table below. To earn specified points, the residential portion of the project must be built to the residential densities in the table below AND all non-residential components of the project must be built to the non-residential intensities below.

Residential Density Measured as dwelling units per acre of buildable land	Non-residential Intensity Measured as Floor to Area Ratio (FAR).	Points Available
15 to 21	0.75 to < 1.0	1
22 to 27	1.0 to < 1.5	2
28 to 34	1.5 to < 2.0	3
35 to 39	2.0 to < 2.5	4
> 39	≥ 2.5 and higher	5

Submittals

Provide the following:

- 1) The LEED Letter Template, signed by the responsible party, declaring that the requirements have been met; and
- 2) a site plan indicating densities and/or intensities.

Notes

For mixed use buildings, density/intensity requirements will be prorated for residential and non-residential areas. Calculation methodology and guidance for this will be developed.

COMPACT, COMPLETE & CONNECTED NEIGHBORHOODS

Credit: Affordable Rental Housing (1 to 2 Points)

Intent

To enable citizens from a wide range of economic levels and age groups to live within a community.

Requirements

- (1) Include a proportion of rental units priced for households earning below **area median income** such that
 - At least 20% of total rental units are priced for households up to 50% of area median income (1 point)
 - OR
 - At least 40% of total rental units are priced for households up to 80% of area median income (2 points).

AND

- (2) Maintain these units at affordable levels for a minimum of 15 years.

Submittals

Provide the following:

- 1) The LEED Letter template, signed by the responsible party, declaring that the requirements have been met;
- 2) a pricing schedule for each unit in the **project**, current HUD data regarding the median income for the jurisdiction in which the project is located and a calculation which demonstrates that the required percentages of affordable housing have been achieved; and
- 3) A copy of the regulatory and operating agreement, deed restrictions, or other recorded document evidencing that the units will be maintained at affordable levels for a minimum of 15 years.

COMPACT, COMPLETE & CONNECTED NEIGHBORHOODS

Credit: Access to Nearby Communities (1 Point)

Intent

Provide direct and safe connections, for pedestrians and bicyclists as well as drivers, to local destinations and neighborhood centers. Promote public health by facilitating walking and bicycling.

Requirements

- (1) Design and build **project** such that there is at least 1 through-street every 1/6 mile. This does NOT include connections that cannot physically be made; e.g. wetlands, rivers, railroads, extreme topography, natural gas lines, pipeline easements, highways, expressways and other limited-access roads.

Submittals

Provide the following:

- 1) The LEED Letter template, signed by the responsible party, declaring that the requirements have been met; and
- 2) a site plan indicating where project streets connect to existing neighboring streets.

RESOURCE EFFICIENCY

Credit: Certified Green Buildings (1 to 5 Points)

Intent

Encourage the design and construction of buildings to utilize green building practices.

Requirements

- (1) Design, construct, or retrofit one building as part of the **project** to be LEED certified under one of the other LEED building-centric rating systems: LEED-NC (New Construction), LEED-EB (Existing Buildings), LEED-H (Homes), LEED-CS (Core & Shell). (1 point)
 AND
 Stipulate in deed restrictions, **CC&Rs**, or other binding development documents, showing that the requirement will be in force in perpetuity.

Additional points for percentages of LEED-certified buildings is available as follows:

Percent of project's buildings LEED certified	Points
20%	2
30%	3
40%	4
50%	5

Submittals

Provide the following:

- 1) The LEED Letter Template, signed by the responsible party, declaring that the requirements have been met; and
- 2) a site plan indicating which building(s) will be built to be LEED certified and under which rating system; and
- 3) a copy of the deed restriction, **CC&Rs**, jurisdictional ordinance or code, or other binding development documents.

RESOURCE EFFICIENCY

Credit: On-Site Power Generation (1 Point)

Intent

Reduce air, water, and land pollution from energy consumption and production by increasing the efficiency of the power delivery system. Increase the reliability of power

Requirements

- 1) Develop or incorporate into future **project** build out through **CC&Rs** or other binding documents, on-site source(s) of power generation sufficient to meet at least 5% of the energy needs of all building uses and commonly owned infrastructure in the project.

Base energy demand is based on the allowable entitled area for the project, according to the following categories:

Category 1: For non-residential buildings and residential buildings over 3 stories, establish the budget based on a design of 15% below ASHRAE/IESNA Standard 90.1 - 1999 or 15% below the local energy code, whichever is more stringent.

Category 2: For residential buildings 3 stories or fewer, establish the budget based on compliance with Energy Star requirements.

Calculations for total on-site energy can include future site or building-integrated systems stipulated through CC&Rs or other binding documents.

Submittals

Provide the following:

- 1) The LEED Letter Template, signed by the responsible party, declaring that the requirements have been met; and
- 2) a narrative describing the on-site power generation systems; and
- 3) calculations demonstrating the percentage of the project's total energy demand supplied by the on-site power generation system(s); and
- 4) a copy of any CC&Rs or other binding documents.

**City of Sacramento
Sustainability Agenda**

General Services and Development
Services
City Council - April 4, 2006

Background

- Origin: City Council Strategic Plan
- Three-year goal
- Transition to sustainability

Status

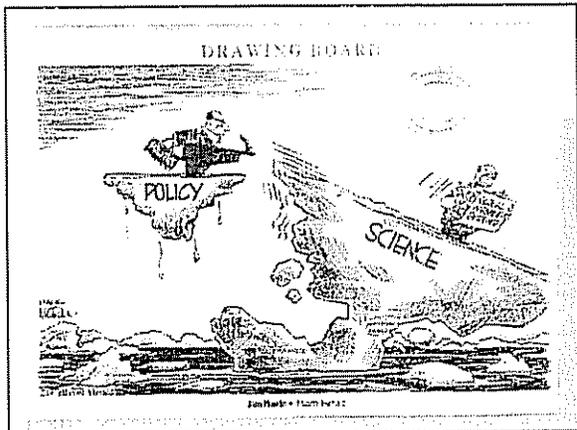
- City Council workshop: Summer 2005
- Presented examples from other jurisdictions
- City Council workshop: April 4, 2006
- Context, 1st cut inventory, goal, UEA

Definitions of Sustainability

- Strict: United Nations World Commission on Environment and Development definition
- Balanced: Marin County general plan definition

Objectives of this workshop

- Context for sustainability in Sacramento
- Policies for the Agenda
- Identify ways to measure progress towards sustainability
- Inventory of existing City programs, practices, and projects
- Next steps



Global Issues

- Climate change
- Energy resource depletion (peak oil)
- Deforestation & habitat loss
- Population / limited resources (water, food)
- Pollution
- Declining oceans

Global Issues That Effect Us Locally (or Will)

- Climate change
 - Air temperature
 - Water supply
 - Flood risk
- Energy resource depletion (peak oil)

Contributions to Regional or Global Issues

- Heavy energy use
- High greenhouse gas emissions
- Conversion of resources to waste
- Loss of plant cover, which takes up CO₂ (habitat loss/open space/farmland)
- Pollution (air/water)

Goals & Policies

- Conduct City business with increasing sustainability
- Incorporate sustainability into operating principles & programs
- Add to and refine existing practices
- Include fiscal responsibility, social equity, and environmental sustainability in decision making

Goals & Policies Cont.

- Do its part to implement regional programs
- Make continuous improvement
- Advocate for sustainability

Inventory of City Projects, Practices, and Programs

- Internal operations (includes services that city provides to community)
- Community at large (through regulation)

**Categories:
Existing Programs, Practices,
& Projects**

- Energy supplies/climate change
- Environmental health
- Preservation of natural open space, habitat & farmland
- Water quality, efficient water use, floodplain management
- Smart growth and intelligent transportation
- Material resources/waste

Next Steps

- Inventory of existing City partners (programs, practices, and projects)
- Develop organizational structure (staff, community)
- General plan update will include sustainability
- Develop climate action plan
- Develop measurement devices

Contributing Staff

- Rebecca Bitter, CC&L
- Alan Boyd, Parks
- Bill Busath, Utilities – Water
- Bob Flemming, Parks
- Jennifer Hageman, DSD – Env. Services
- Fran Halbakken, DOT
- Ann Schmidt, DSD – GIS
- Helen Selph, Planning

More Contributing Staff

- Andrea Shaparenko, DGS
- Chris Stewart, Procurement
- Bob Summerset, DGS – Fleet
- Keith Roberts, DGS
- Mike Root, DOU – Solid Waste
- Karen Shipley, DOT
- Marty Strauss, DOU – Solid Waste
- JP Tindell, Parks

ATTACHMENT C

Urban Environmental Accords

General Services and Development Services
City Council, April 4, 2006

Background

- United Nations
- Theme for 2005- "Greening Cities"
- Urban Environmental Accords (UEA)
- 50 Cities signed on June 5, 2005
- Now 88 Cities have signed
- More information: www.wed2005.org

What Are The Urban Environmental Accords?

- 21 Actions covering 7 broad categories
 - Energy
 - Waste Reduction
 - Urban Design
 - Urban Nature
 - Transportation
 - Environmental Health
 - Water



UEA Is Performance Based

- Many Actions have a measurable goal
- Award ceremony at 2012 UN World Environment Day is planned

Urban Accords	Actions Required
4 Stars	19 of 21
3 Stars	15 of 21
2 Stars	12 of 21
1 Star	8 of 21

UEA and Sacramento

- City is implementing approximately 10 of the 21 actions with existing programs
 - Nearly 2 stars achieved already!
- Six departments participating
- Some actions will require coordination with other agencies to achieve:
 - Air Quality Management District
 - School Districts
 - Regional Transit
 - SMUD

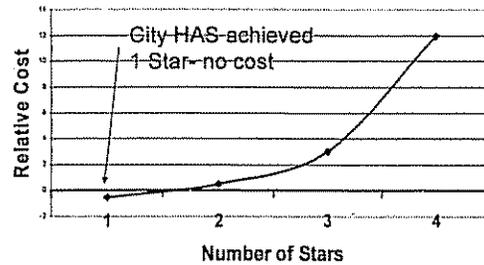
How Does UEA Relate To Sustainability Agenda?

- UEA is a foundation to develop a more complete Sustainability Agenda
 - Agenda tailored for Sacramento
 - UEA can be an indicator of success
 - UEA allows benchmarking between cities
 - Catalyst: cross-departmental issues
 - Common goal for several departments

UEA Costs and Benefits

- Departments are developing costs to implement common sense actions
- Achieving 2 stars will be a minimal cost
- Achieving 4 stars could be quite costly
- Not a discrete cost- but sliding cost

Cost To Achieve Urban Accords



UEA Costs and Benefits

- Many actions will reduce City direct costs
- Many actions reduce societal costs:
 - Air quality improvements reduce health costs
 - Energy efficiency improves national security
 - MANY actions reduce greenhouse gas emissions
- Triple Bottom Line

Conclusions & Recommendations

- Departments have discussed the UEA
- Funding is a concern
- Some funding has been requested for the overall Agenda for FY06/07