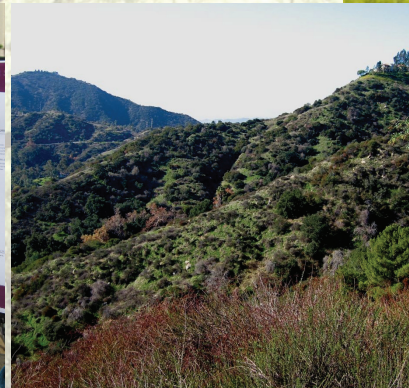
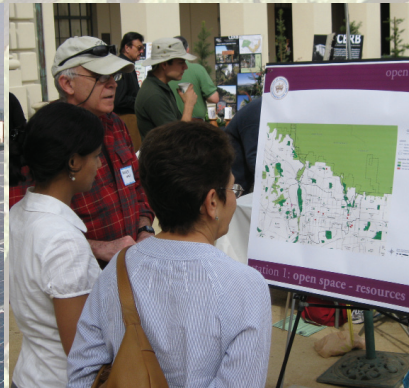




General Plan Update

Draft Open Space & Conservation Element October 2011



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Open Space & Conservation Element

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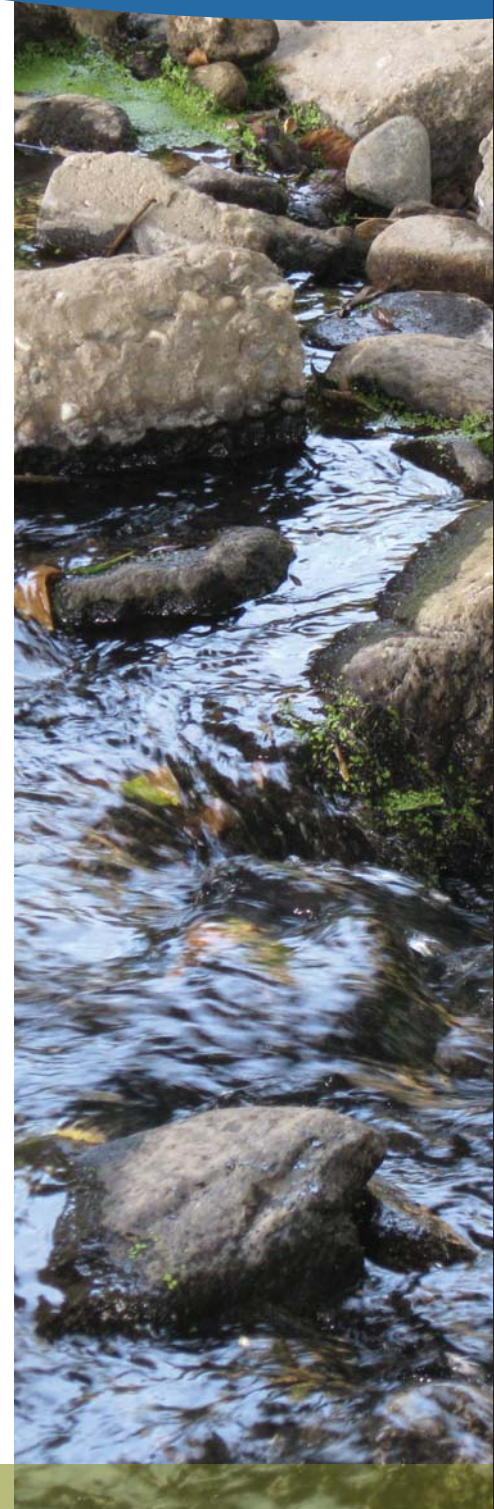


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Framing the Challenge

From the Tongva to the Spanish Californios, to folks from Indiana and Iowa, Pasadena has long attracted people because of its beauty and abundance. The ease with which crops could be grown in combination with a temperate climate drew all of these groups to this area. People moved here in droves in search of better health, better climate, and the California dream. Here in Pasadena, that dream was special-with the mountains to the north, and the Arroyo Seco on the west and Eaton Canyon on the east, residents were embraced by the natural world. Those who lived here delighted in their proximity to nature, while still appreciating the comforts of civilization. They hiked in the mountains and in the arroyos, and soaked up the winter sun. In recognition of these qualities, people came here for their physical, psychological and spiritual health.

However, as the population grew, it began to encroach on the natural world, and there was a growing awareness of the negative human impact on our environment and quality of life. In response to increased citizen awareness of the need to protect our natural environment, conserve our resources and adopt sustainable practices, in 2006 the City Council declared Pasadena a Green City and signed on to the United Nations Urban Environmental Accords of 2005. The City committed to developing sustainable practices regarding energy, waste, environmental health, water, urban nature, transportation and urban design.

This update to the Open Space and Conservation Elements of the General Plan memorializes the principles and goals expressed in the Green City Declaration and United Nations Urban Environmental Accords. It elevates the importance of sustainable practices and protection of our natural environment and provides the framework, policies and implementation plans to protect our remarkable quality of life.



Pasadena has always been a special place, and to preserve that unique identity, we need to protect and acquire open space, protect and restore our air and water resources; we must revive that special Pasadena dream and pass on these opportunities and resources to our children.



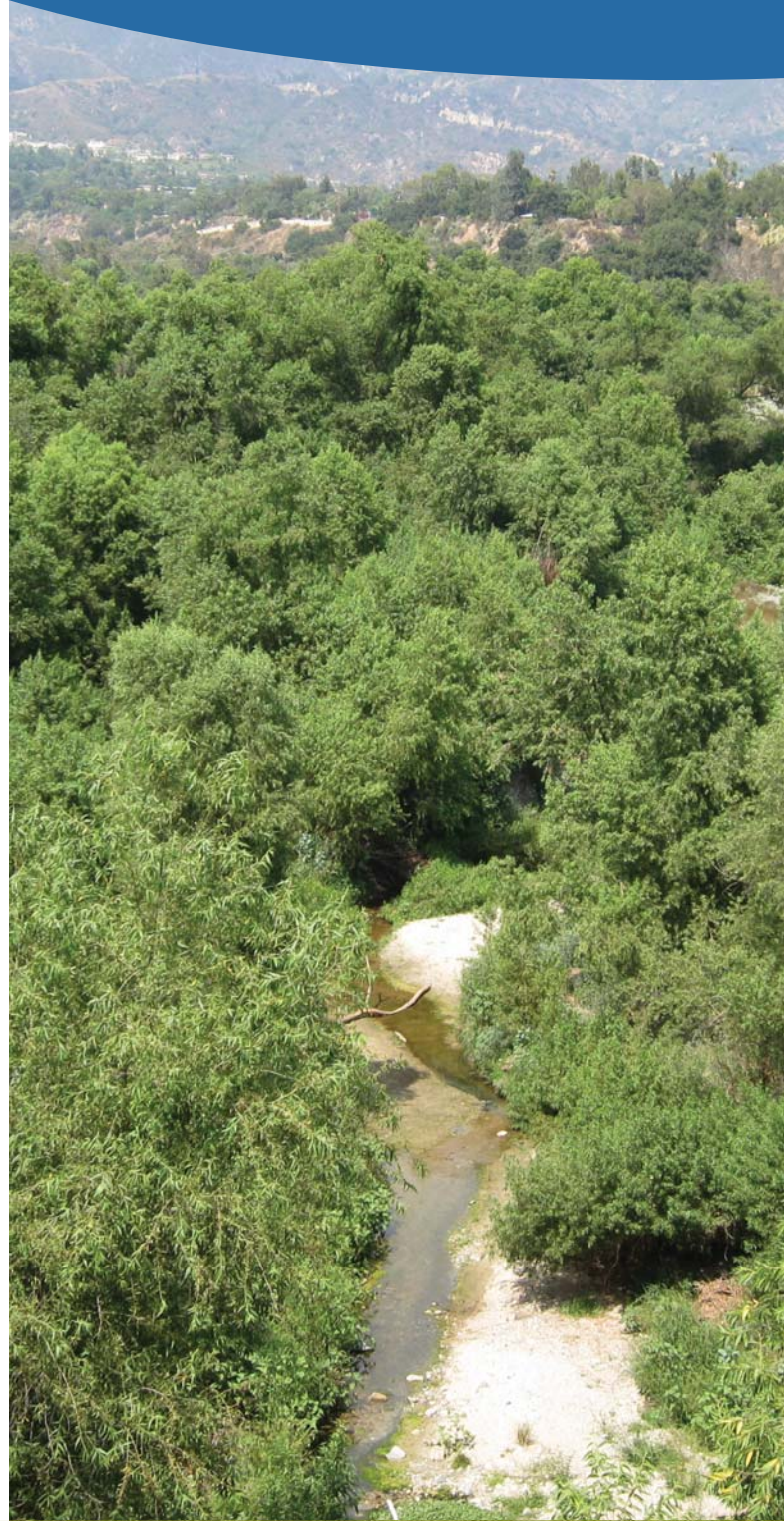


Executive Summary

The Open Space & Conservation Element provides a blueprint for natural open space and conservation. In order to establish this blueprint, the Element includes an inventory of existing open space areas, a summary of existing open space and conservation plans, and agencies that the City partners with to protect and enhance natural open space. The Element also reviews the existing documents related to conservation, including the plans of the City's Green City Program, the Water and Power Integrated Resource Plans (IRP), and the California Green Building Code.

The Element establishes goals and objectives in the areas of Open Space, Wildlife & Native Plants, and Environmental Quality, Conservation & Sustainable Use Practices. The Element also includes a series of implementation measures to achieve these goals and objectives. Some of the implementation measures, particularly in the area of conservation, are restated from existing plans, such as the Water and Power IRPs which serve as implementation documents in these areas.

The Element summarizes the community participation process that involved hundreds of participants in events that included an open house, community meeting, and in coordination with the General Plan Land Use & Mobility Element Update, Moveabout tours and a citywide open house and neighborhood workshops.







Introduction

General Plan Guiding Principles

In 1994, the Comprehensive General Plan Revision Program was a directed response to growth management issues that came to the forefront during much of the 1980s. The revision program was designed to provide a unified vision for the future of the City. It is a vision that was shaped and driven by community values and reflects the input of Pasadena residents.

The extensive community outreach conducted during the 1994 Revision Program led to the creation of seven guiding principles that serve as the overall framework for each General Plan Element. The seven guiding principles of the City's General Plan are as follows:

- Growth Will Be Targeted to Serve Community Needs and Enhance the Quality of Life.
- Change Will Be Harmonized to Preserve Pasadena's Historic Character and Environment.
- Economic Vitality Will Be Promoted to Provide Jobs, Services, Revenues And Opportunities.
- Pasadena Will Be Promoted as a Healthy Family Community.
- Pasadena Will Be a City Where People Can Circulate Without Cars.
- Pasadena Will Be Promoted as a Cultural, Scientific, Corporate, Entertainment and Educational Center for the Region.
- Community Participation Will Be a Permanent Part of Achieving a Greater City.





Passive Recreation

activities like hiking, walking, or observing nature

Active Recreation

activities like playing sports or using playgrounds

State-Mandated Elements

The Pasadena Open Space and Conservation Element meets the State requirements for Open Space and Conservation Elements as defined in Sections 65301(e) and 65302(d) of the Government Code. According to these requirements, the Open Space Element must contain goals and policies to manage open space areas, including undeveloped lands and outdoor recreation areas. Specifically, the Open Space Element must address several open space categories such as those used for the preservation of natural resources and managed production of resources. Open space maintained for programmed and organized outdoor recreation is addressed in the Green Space Element.

The Conservation Element must contain goals and policies to protect and maintain natural resources such as water, soils, wildlife, and minerals, and prevent wasteful resource exploitation, degradation, and destruction. Additionally, while air quality is not a state-mandated element, air quality is included in the Open Space and Conservation Element to address reducing pollutant levels through stationary source, mobile source, transportation and land use control, and energy conservation measures. Because the subjects required to be addressed under the Open Space Element and Conservation Element overlap substantially, the two elements have been combined. See Appendix I for the California Government Code requirements.

Coordination with the Green Space Element

The Green Space, Recreation & Parks Element and Master Plan were adopted by the City Council in November 2007. Whereas the Green Space Element primarily addresses recreation areas and programs, the Open Space & Conservation Element serves as the guiding policy document for the acquisition and preservation of natural open space. The mutually reinforcing policies in both Elements guide the preservation of Pasadena's open spaces, while ensuring that opportunities for both active and passive recreational use of parks and open space are available throughout the City, and that these opportunities are responsive to the community's needs. Together these Elements overlap and complement each other and address the state requirements for an Open Space Element.

Replaces Energy Element

Pasadena's 1983 Energy Element is one of the optional Elements that comprise the General Plan. In order to address energy issues in a more comprehensive manner, this element will be eliminated and energy policies will be addressed in this Open Space & Conservation Element. Policies and implementation measures developed by the Environmental Advisory Commission and in the Energy Integrated Resource Plan are reflected in this Element.

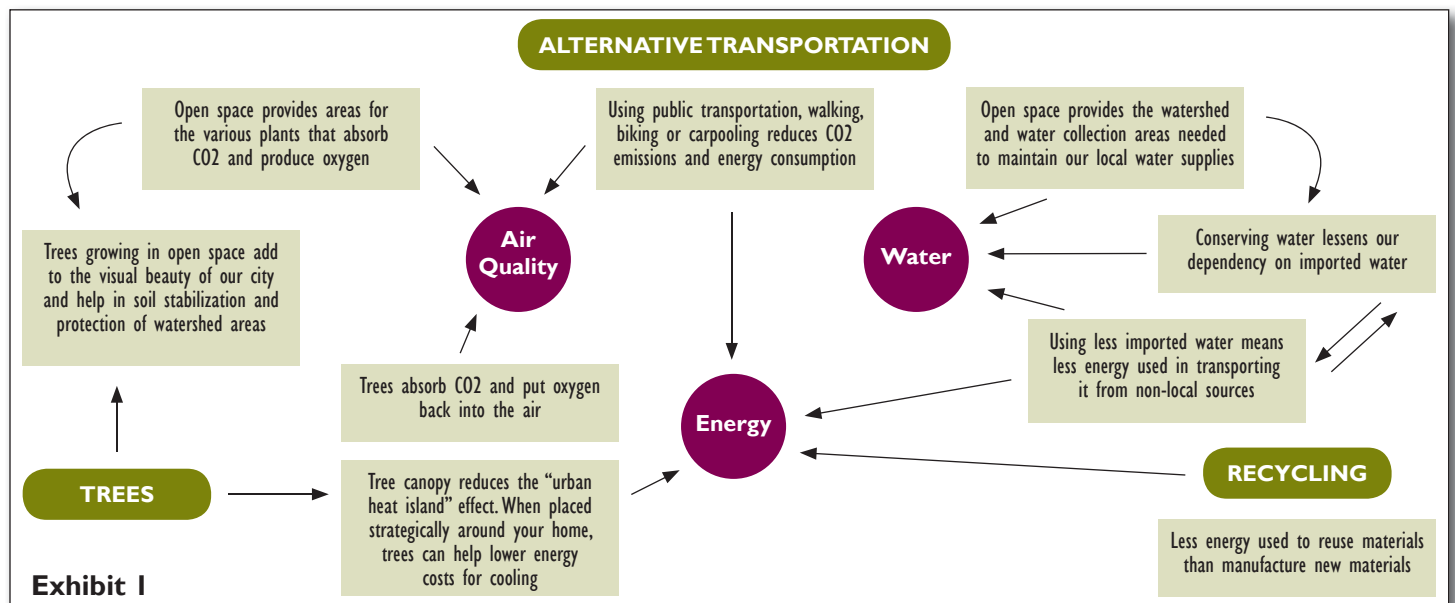
Purpose

The Open Space and Conservation Element establishes policies that focus on the protection and enhancement of open space and natural resources to ensure a high quality living environment in Pasadena. With this in mind, the Open Space and Conservation Element is developed to:

- Recognize and identify the various open space and natural resources that Pasadena possesses.
- Acknowledge the value and importance of the ecological systems and the natural environment that support native plants and wildlife by protecting, maintaining, restoring and increasing open space and natural resources.
- Develop policies that promote the conservation of energy, air, water, and natural resources, and in doing so, enhance the overall quality of life in Pasadena.
- Promote actions and activities that will prevent or eliminate damage to the environment by adopting sustainable practices and effective waste management.
- Ensure long-term economic, social and environmental vitality by protecting our resources and adopting sustainable practices.



- Recognize and highlight the interconnectedness and relationship between the health of our open spaces, wildlife, native vegetation, and ecosystems (as expressed by our open space goals), and the health of our human environment with regard to air, water, energy consumption and waste management (as expressed by our conservation goals). See Exhibit I.







Vision Statement and Core Principles

Vision Statement

Pasadena treasures, protects, restores, and expands its natural open space and exemplifies innovative and effective natural resource stewardship and conservation.

The City shall be guided by these core principles when achieving its vision statement.

- Pasadena keeps conservation of natural resources and open space opportunities at the center of all city decision-making.
 - Pasadena recognizes and values the environmental, social, and economic benefits provided by open space and natural resources.
 - Pasadena provides equitable access to open space resources for all residents in all neighborhoods.
 - Pasadena cooperates as a community to conserve natural resources and protect open space.
 - Pasadena partners with other public and private entities to meet conservation and open space goals.
 - Pasadena leads and educates the community on resource conservation and open space protection.
 - Pasadena advocates and develops connectivity between its open space resources and surrounding communities.
 - Pasadena adopts innovative technologies and techniques to improve its conservation programs and policies.
 - Pasadena implements this element in an open and transparent manner.
- 
- Pasadena is accountable for the timely effective and measurable implementation of this element.
 - Pasadena meets and exceeds the 2005 United Nations Urban Environmental Accords.





Themes

Through public outreach, the community expressed the following themes as important to this plan.

Here are the things we value

- We love and appreciate Pasadena's natural open spaces and conservation efforts.
- Residents agree that parks and open spaces are a major contributor to quality of life citywide.
- Our unique natural areas and the easy access to wilder areas in the foothills and mountains are very important to our community.
- Residents support Pasadena's environmental sustainability efforts.

Here are the issues that need to be addressed

- Establish more open space in Pasadena.
- Create more parks in the Central District.
- Protect open space from loss to new development.
- Establish a citywide network of open spaces with equitable access to all residents and neighborhoods.
- Improve water and energy conservation efforts and reduce solid waste.
- Pasadena should play a leadership role in sustainability and become a "model sustainable city."

Throughout the drafting of the Open Space and Conservation Element, the Planning Department encouraged the public's participation and feedback through attendance at public meetings and submission of comments and questions to staff. The vision, themes, and implementation measures contained herein reflect residents' desire to protect the very qualities that make Pasadena a desirable and unique community.



GENERAL PLAN UPDATE

PASADENA

Guiding Our Community's Future





Open Space

The Open Space section addresses city-wide efforts (past, present and future) to preserve and acquire open space in the City of Pasadena. The section begins with a definition of the Open Space (OS) land use category. The Element recommends further refinement of this category in order to differentiate between natural (undeveloped/relatively undisturbed land) and developed (parks, golf courses, community gardens) open space. The Arroyo Seco and Eaton Canyon Corridor are Pasadena's most prominent examples of both types of open space, providing spaces for active and passive recreation, rich biodiversity and flood control infrastructure.

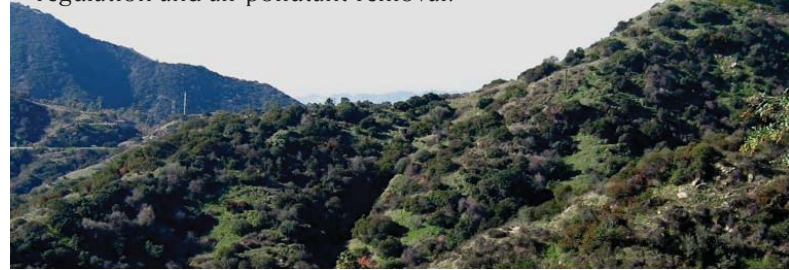
The section also establishes Open Space Acquisition Criteria to direct the City in the data it collects about existing and potential open spaces, and to provide city decision-makers with criteria to evaluate potential open space acquisition and protection. These criteria were refined in a series of community workshops that invited residents to determine which are most relevant to Pasadena.

The Open Space & Conservation Element objectives complement the efforts of the Land Use, Mobility, and Green Space Elements and are consistent with the City's park master plans, as they all reflect the overall goals of the City. State law requires that all elements of the General Plan be internally consistent with each other.

The Open Space section also addresses the Residential Impact Fee (RIF) imposed on new residential development in order to mitigate the impacts of new residents on the park system. The section elaborates on calculation methodology, distribution of collected fees, and allowed uses for fees.

Additionally, this document identifies potential partners for the City's acquisition and protection of open space. Lastly, the section lists implementation measures to carry out the objectives of the open space section, along with the corresponding department responsible for carrying out the measure. Each corresponding measure also lists an estimated time frame, which range from 1 to 10 years.

Nature's Services are the ways in which nature benefits humans, particularly those benefits that can be measured. Examples include water storage and filtering, climate regulation and air pollutant removal.



The following goals and objectives have been developed to protect and increase Pasadena's natural open space and support Pasadena's conservation efforts by protecting Pasadena's watersheds, improving air quality and reducing energy needs.

Goals and Objectives

Preserve, Acquire and Create Open Space

- Preserve currently zoned open spaces, natural open spaces, hillsides, viewsheds, watersheds and recreational areas.
- Develop criteria, prioritize and plan to acquire additional open space.
- Create additional open spaces through reclamation and restoration.
- Participate in regional, state and federal programs designed to preserve, maintain and acquire open space.
- Direct organized recreation to existing parks, fields, and school facilities and away from natural open spaces.

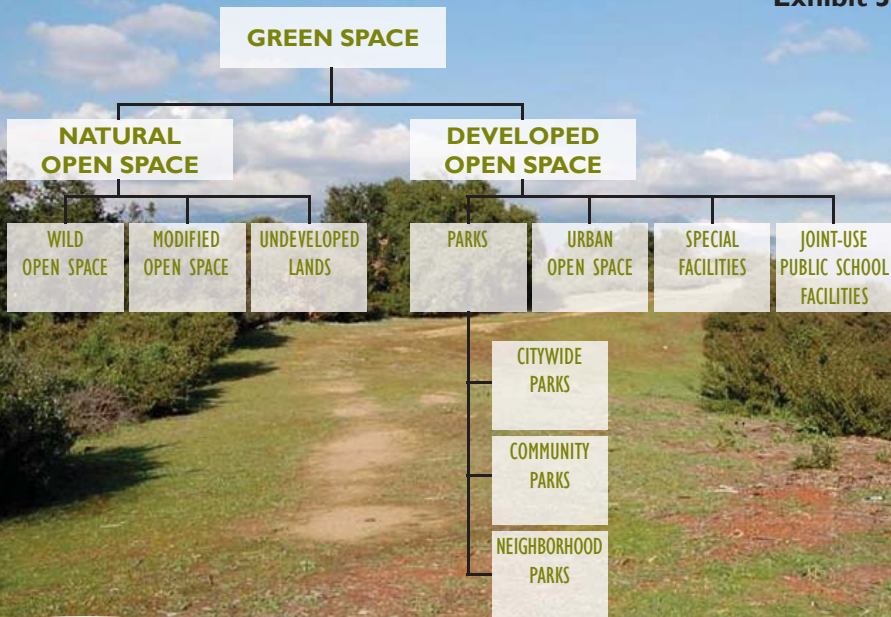
Develop Access & Connectivity for Wildlife and People

- Develop open space and wildlife corridors and establish easement and acquisition programs.
- Acknowledge, restore and maintain Pasadena's connections with trails in the Angeles National Forest and regional trail systems.
- Ensure that all Pasadena residents have access to information about where open spaces are located and the transportation opportunities and options for getting to them.

GENERAL PLAN UPDATE

PASADENA

Guiding Our Community's Future



One PUSD student says of Arlington Garden, "I like it because I can hear my thoughts here."

Preserve, Restore and Maintain the Eaton Canyon Corridor & the Arroyo Seco

- Preserve, restore and maintain the natural character of the Eaton Canyon Corridor and the Arroyo Seco as self-sustaining healthy ecosystems of plants and animals. Their natural character will continue to inspire people, as it has throughout time.
- Promote responsible human interfaces with these unique natural environments in open space planning.

Welcome and Value the Importance of Citizen Participation

- Citizen participation shall play a major role in all phases of open space planning.
- The City shall provide the public with timely information regarding open space planning and decision making.

Define and Recognize the Benefits Derived from Open Space

- The opportunity to experience open space is vital to the physical and psychological well being of Pasadena’s residents.
- Account for impacts to “nature’s services” and associated value when making decisions about open space. Open space is important for the health of the ecosystem and provides direct and indirect economic benefit to the City.
- Preserve, restore and maintain Pasadena’s natural amenities and recreation options which provide unique value to Pasadena’s character and desirability as a place to live, visit, and conduct business.

Economics of Open Space

Walkable neighborhoods, parks and open spaces generate economic benefits to local governments, home owners, and businesses through higher property values and correspondingly

higher tax revenues. The economic benefits of open, walkable spaces can inform policy maker’s decisions about zoning, restrictions on land uses, and government purchases of lands for parks and similar initiatives. Parks may also generate “public” benefits to the whole community, such as alleviating traffic congestion, reducing air pollution, providing flood control, supporting wildlife habitat, improving water quality, and facilitating healthy lifestyles.

Open Space Definitions

Open Space or OS is a category used in Pasadena’s zoning Code and in the General Plan Land Use Diagram. In the current General Plan diagram, OS is defined as follows:

This category is for a variety of active and passive public recreational facilities and for City-owned open space facilities. This includes natural open spaces and areas which have been designated as environmentally and ecologically significant. This category also applies to land which is publicly owned though in some instances public access may be restricted.

Exhibit 2 depicts properties with open space characteristics in the City as they are currently zoned – i.e. parcels that appear to be or function as open space. The common trait that these disparate parcels share is that their development footprint, if any, is small in relation to total lot area. These parcels may be partially developed or vacant, institutional or residential, and be located in hillside or flat-land areas. This map illustrates that the western edge of the City has the

Current Zoning Designations

Open Space (Green on Exhibit 2): This category (OS) is for a variety of active and passive public recreational facilities and for City-owned open space facilities. This includes natural open spaces and areas, which have been designated as environmentally and ecologically significant (emphasis added). This category also applies to land, which is publicly owned, though in some instances public access may be restricted. Most importantly, this designation only applies to lands owned by the City.

The Open Space and Conservation Element recommends further refinement of the OS zoning district into separate natural and developed open space zones.

Specific Plan or General Commercial (Light Blue): The Specific Plan category is for areas that are targeted for a significant portion of projected future development while preserving and enhancing areas of historical architectural significance. These Specific Plans addressed areas where the light rail transit stations are located and where land use can be changed to accommodate future needs to meet the goals of this transportation system.

General Commercial (CG) is a non-specialized commercial category intended to permit a broad range of retail and service businesses. It includes commercial areas along major thoroughfares, freestanding commercial establishments and shopping centers. Professional offices are also permitted in this category. This category has more intense levels of activities associated with retail development.

Residential (Red): Residentially zoned (RS) land can provide opportunities for open space. Sometimes development will only cover a small portion of a large lot. The remainder of the parcel functions as open space. This is especially the case with hillside properties, where the slope of the land may make development unfeasible on portions of a particular lot.

Planned Development (Purple): The Planned Development (PD) zoning district is intended for sites where an applicant proposes and the City desires to achieve a particular mix of uses, land use compatibility, or special sensitivity to neighborhood character.

Public/Semi-Public (Gold): This category (PS) is also used to designate land used by some quasi-public entities, including public utilities and such institutions as churches, private schools and private hospitals. An example of a public/semi-public use with open space potential is the Lida Street campus of the Art Center College of Design.

Multi-family Residential (Blue): These areas (RM) are intended to accommodate a variety of housing units including apartment, condominium and townhouse developments but specific parcels may be inventoried as vacant.

most parcels with open space characteristics, and that most of these parcels are zoned for residential uses or are already zoned as open space. The legend for the map lists the zoning designations of the various open space parcels displayed in the exhibit. These designations are defined above.

The 2007 Green Space, Parks and Recreation Element and Master Plan developed definitions for the various types of open space in Pasadena. The term Green Space has been used since the 1994 General Plan as an umbrella category to encompass all natural and developed open spaces in the City. Natural and Developed Open Space further define Green Space. See Exhibit 3.

Developed Open Space is addressed in the Green Space Element and includes citywide, community and neighborhood parks. The Green Space Element also addresses Urban Open Space such as paseos, courtyards, golf courses and community gardens. There was significant community support for community gardens during the preparation of the Open Space & Conservation Element. The plan includes implementation measures supportive of these open spaces.

Arlington Garden in West Pasadena is an example of a community-driven water-wise garden in harmony with the regional climate. The garden is designed to attract butterflies and birds, and demonstrate how beautiful, practical, water-wise and satisfying a well-planned and maintained climate appropriate garden can be. Earthside Nature Center in East Pasadena is another example of a community driven effort to re-establish an open space oasis that once hosted a native plant demonstration garden.

Natural Open Space is defined as undeveloped land that has been maintained in a relatively undisturbed state. This category includes wild and modified open space areas.

Wild Open Space – Open space left wild. Completely undeveloped and used for wildlife habitat and conservation. An example is the 1,000 acres of city-owned open space north of Hahamongna Watershed Park and Jet Propulsion Laboratory characterized by native vegetation and no park improvements except for trails.

Modified Open Space – Open space that has been altered or artfully restored to make it more accessible for human use. Alterations can include walking paths or hiking trails. It may also provide wildlife habitat and have value for the conservation of water and air quality. The Lower Arroyo Seco is an example of a modified open space which is characterized by hiking trails, archery course, casting pond, and restored stream habitat.

Undeveloped Lands – The City of Pasadena is largely built out, but a few significant areas of non-city owned undeveloped natural open space remain. These include:



Exhibit 6

Eaton Wash Recreational Corridor –
Los Angeles County owns and maintains hundreds of acres in the eastern area of Pasadena. These lands are part of the County's flood control system and are primarily made up of channels, basins and associated uses.

Southern California Edison Transmission Line Property –
Several Edison high voltage transmission lines bisect the eastern side of the City. The land on which these lines are situated is owned in fee by Edison and it is zoned as open space (OS). These areas have open space and recreation potential as evidenced by the lease of three acres by the city and its subsequent development as Viña Vieja Park. This property also has potential as a location for multi-use trails and a north-south connection through this portion of Pasadena.

Hillside Open Space – Several large undeveloped areas of open space exist in the hillside and canyon areas on the eastern and western edges of the city. These areas are privately owned and some have entitlements for development. They do not have OS zoning, but are instead residentially or institutionally zoned. These areas have limited potential as active recreational areas, but they have a high value from an aesthetic standpoint if they are maintained in an undeveloped condition. In the Arroyo Seco, some of these hillside areas are part of the canyon banks that give the Arroyo Seco its unique character. In some sections of the Arroyo, these properties prevent access to the public areas of the Arroyo.

Caltrans 710 Freeway Corridor – A large parcel located along the proposed freeway corridor just north of California Street is owned by Caltrans. This parcel could have potential for temporary recreational use. Also within the corridor are the Pasadena Community Garden site, and the triangle below Bellefontaine Street which currently functions as an informal, temporary open space.

Open Space Inventory

A citywide inventory of open space was conducted for this element examining potential open space parcels from the western hillsides of the City to the Eaton Canyon Corridor to determine their degree of open space potential as a means of land preservation and habitat protection. The inventory incorporates and expands on previous open space inventories prepared for the Green Space Element (2007), Sensitive Lands Inventory (2003), and Environmental Impact Reports prepared for the Arroyo Seco, Art Center and Annandale Canyon. The inventory looks at both publicly and privately owned land that has open space potential. Some of this land has buildings on it and some is completely vacant. See appendix 3 for more information.

Open Space Zoning District

Pasadena currently has nearly 2,400 acres of parcels zoned open space (OS). The OS zoning district includes:

- city parks
- city-owned and privately owned golf courses such as Annandale and Brookside
- Arroyo Seco and Eaton Canyons, including utility owned lands in Eaton Canyon

Open Space that is not zoned OS

In addition to the areas currently zoned open space, a significant number of properties in the City have open space characteristics that functionally serve as open space. These portions of properties include (but are not limited to) unimproved portions of sites and undevelopable slopes.

Characteristics of natural open space

Natural open space is a landscape that is mostly unaffected by human activity. While the majority of open space and potential open space sites in Pasadena have been altered from their historical biological make-up, many sites maintain native plant communities and wildlife, especially in Eaton Canyon, the Arroyo Seco, and those areas located adjacent to the San Gabriel Mountains. For example, analysis done for the Sensitive Lands Inventory of 2003 revealed that approximately 52 acres of land could be categorized as a coastal sage scrub community, which, due to its small geographic range, is one of the world's most endangered biotic communities. An additional 240 acres was identified as being home to an upland chaparral community and 110 acres have riparian woodland characteristics. Exhibit 4 shows the variety of vegetation zones in and around Pasadena.

City Parks

Pasadena has approximately 300 acres of developed city parks. They are classified into three types of parks primarily based on their size, function and character.

Neighborhood Parks - These facilities are approximately 1 to 6 acres in size, and are designed primarily to provide facilities for preschool and elementary age children. They may be combined with or be located adjacent to elementary schools. They primarily serve the immediately surrounding residential area. Pasadena has 15 Neighborhood Parks: Allendale Park, Brenner Park, Defender's Park, Eaton Blanche Park, Grant Park, Gwinn Park, Hamilton Park, Jefferson Park, La Pintoresca Park, McDonald Park, San Rafael Park, Singer Park, Sunnyslope Park, Viña Vieja Park, and Washington Park.

Community Parks - These facilities are approximately 5 to 25 acres in size and are designed primarily for recreational activities of all age groups. They serve and attract users from a wider community than the neighborhood parks. They may be combined with or be located adjacent to junior high or high school sites. Pasadena has five Community Parks: Central Park, Memorial Park, Robinson Park, Victory Park, and Villa Parke.

Citywide Parks - These parks afford contact with the natural and/or historic environment and possess a unique character or function not found in neighborhood or community parks. They contain facilities which are used by residents throughout the city for activities which cannot be accommodated in other parks. Pasadena has four Citywide Parks: Brookside Park, Rose Bowl Area H/Central Arroyo Seco Open Space, and Lower Arroyo Park/Lower Arroyo Seco Open Space.

See Appendix 3 for additional information about the Open Space Inventory.

Trails

Pasadena has a wealth of trails both within the city limits and in the surrounding cities and Angeles National Forest, as illustrated in Exhibit 5. This map depicts hiking and bikeway trails in and around Pasadena. Most of the trails are hiking trails that are north of Pasadena in the Angeles National Forest. The Arroyo Seco trails include an extensive network of hiking/equestrian trails. A multi-use paved roadway is in the Central Arroyo. The City has about 23 miles of paved bikeways and bikers can also enjoy Class I bike paths in the surrounding communities.

The Rim of the Valley Trail is envisioned to connect public parks, trails and wildlife habitat preserves along the San Fernando and La Crescenta Valleys. The Altadena Crest trail now consists of three unconnected segments, and will eventually form a continuous path from Hahamongna Watershed Park to Eaton Canyon Natural Area.

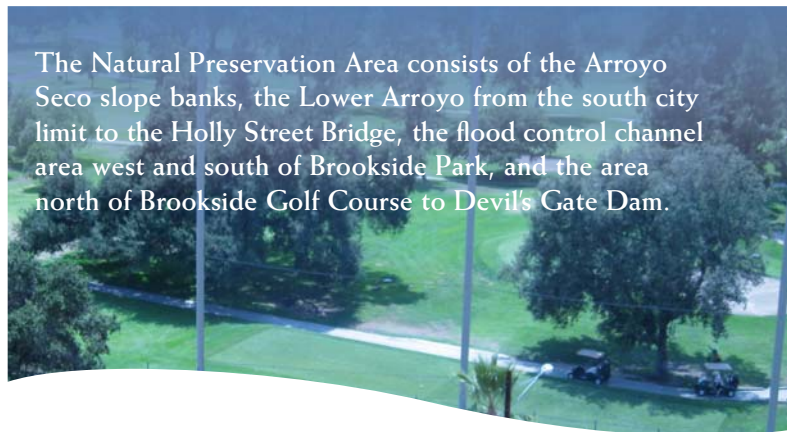
Arroyo Seco and Eaton Canyon

Pasadena is located at the base of the San Gabriel Mountains which are a transverse range (running east-west.) Two large canyons cut through the city – the Arroyo Seco on the west and Eaton Canyon on the east. These open space areas are the primary green spaces for the City and are iconic elements of the City's regional identity.

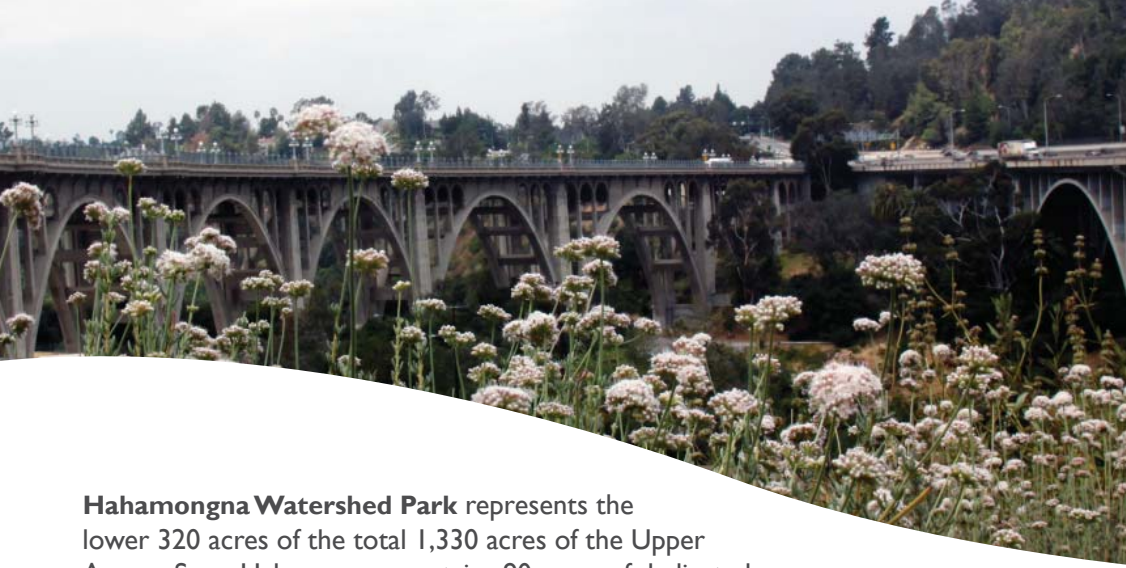
Arroyo Seco

The Arroyo Seco is the City's largest natural open space and is described as a deeply cut canyon linking the San Gabriel Mountains to the Los Angeles River. The Arroyo extends eight miles in Pasadena and includes three distinct geographic areas which are also citywide parks – Hahamongna Watershed Park, the Central Arroyo and the Lower Arroyo.

All three parks have a system of trails that connect the three areas to each other and to the larger regional trail system for horses, hikers and bicyclists. All three areas contain unique land formations and plant communities that contribute to the special character of the Arroyo. See Exhibit 6.



The Natural Preservation Area consists of the Arroyo Seco slope banks, the Lower Arroyo from the south city limit to the Holly Street Bridge, the flood control channel area west and south of Brookside Park, and the area north of Brookside Golf Course to Devil's Gate Dam.



Hahamongna Watershed Park represents the lower 320 acres of the total 1,330 acres of the Upper Arroyo Seco. Hahamongna contains 90 acres of dedicated parkland known as the Oak Grove Area. This citywide park is largely natural open space area that provides passive recreational uses that coexist with the flood management operations of the Los Angeles County Flood Control District.

Hahamongna Annex is a recent 30 acre acquisition by the City that was added to the Hahamongna Watershed Park Master Plan in 2010. This area is included in the 90 acre parkland total for Hahamongna Watershed Park Master Plan, but not yet dedicated as parkland.

The **Central Arroyo Seco** contains a total of 254 acres of parkland and open space. The developed public parkland in the Central Arroyo, Brookside Park and Area H, is 81 acres in size.

The Central Arroyo Seco is the most developed of the three sections of the Arroyo. Both the Rose Bowl Stadium and Brookside Park are in the Central Arroyo. The Rose Bowl loop provides a 3-mile circuit around the periphery of the stadium and the golf courses and provides the most active outdoor gym in the city. The Central Arroyo is a popular location for large-scale events, primarily due to abundant parking and its proximity to the Rose Bowl.

The Lower Arroyo Seco contains a total of 150 acres of parkland and open space. The 51 acre developed parkland in the Lower Arroyo includes the casting pond, archery range, and the low-flow project area. The Pasadena Municipal Code designates it a Natural Preservation Area as indicated by its largely open space character (PMC 3.32.100). Prominent vistas of cultural landmarks such as the historic Colorado Street Bridge and the ribbon of historic arroyo stonewalls give this portion of the Arroyo Seco its distinction and also contribute to the individual's recreational experience.

The importance of the Arroyo Seco as a valued resource to the City as a whole prompted the need for the Arroyo Seco Master Plans. The Arroyo provides not only opportunities for recreation but also a rich ecosystem within the Pasadena city limits. The Plans address development of recreational,

educational and interpretive opportunities and protection and restoration of the ecosystem, while recognizing the important existing water supply and flood control functions of the area.

The four planning documents that make up the Arroyo Seco Master Plans are as follows:

- Design Guidelines for the Arroyo Seco (2003)
- Hahamongna Watershed Park Master Plan (HWP) (2003)
- Lower Arroyo Master Plan (LAMP) (2003)
- Central Arroyo Master Plan (CAMP) (2005)

Eaton Canyon Corridor

The Eaton Canyon Corridor includes Eaton Canyon, the Eaton Wash Reservoir and Dam, and the Eaton Wash. It includes a system of channels, roads, dams, recharge basins and other flood control infrastructure bisecting the eastern part of the City.

Eaton Wash Reservoir and the Eaton Wash Dam were built in 1937 and are controlled by the Los Angeles County Department of Public Works. The dam is a rock fill, 63 feet in height, and 1,545 feet in length. Normal storage for the reservoir is 721 acre feet. It has a surface area of 54 acres and drains an area of 9.47 square miles. Its primary usage is for flood control and debris storage.

Eaton Wash is a historical stream that today is managed as a flood control channel as water flows from the San Gabriel Mountains to the Rio Hondo River and ultimately to the ocean. It is named after Judge Benjamin Eaton who grew grapes in the area in the 1860s.

Four existing Neighborhood Parks (Sunnyslope, Gwinn, Viña Vieja, and Eaton Blanche) are located immediately adjacent to the flood control channel and would be part of this recreational corridor. Some sections of the channel have large stands of mature trees including Coast Live Oaks. These areas have significant aesthetic and recreational appeal.



Within those areas, several sites ranging from two to ten acres have the potential to be developed for recreational use. This type of use is consistent with the County's goals and objectives, provided that the use does not interfere with flood control activity. These sites are linked by the linear flood control channels that bisect the eastern portion of the city. The access roads along these channels could possibly be used as recreational trails. Similar access roads adjacent to county flood control channels are now used as trails in the Arroyo Seco.

In 1932, the potential use of these areas for recreation was documented in a plan entitled "Eaton Canyon Park". This plan proposed a system of park areas extending from the mouth of the canyon to the southern City limit. These areas were to form a continuous band of open space areas, similar to the Arroyo Seco, albeit on a much smaller scale.

In December 1967, Ronald B. Townsend, the City's Director of Parks, approved a plan entitled "Eaton Canyon Area Development". This plan also proposed an interconnected system of parks and open space areas along the Eaton Canyon drainage. The proposed improvements were laid out in great detail and connections with the city's existing park facilities, such as Victory Park and Eaton-Blanche Park, were included.

See Exhibits 7a and 7b for more details on these park plans.

Emerald Horseshoe

The Emerald Horseshoe Concept Plan describes the area defined by Eaton Wash and the Arroyo Seco connected by the Altadena Crest Trail forming a horseshoe shape. The name references the Emerald Necklace Plan for a 17 mile loop of parks and trails along the Rio Hondo and San Gabriel Rivers. The Concept Plan was prepared in 2008 and provides recommendations for a continuous trail that connects these three areas.

Open Space Protection and Acquisition Criteria

One of the primary objectives of the Open Space and Conservation Element is to establish criteria for the protection and acquisition of open space and natural lands. The purpose of these Evaluation Criteria is to direct the

City in what data it collects about its existing and potential natural open spaces and to provide city decision-makers with a set of criteria to use to evaluate and prioritize these properties for acquisition or protection. The Open Space and Conservation Element considers a wide range of functions and values, public benefits, and location in the selection criteria.

One of the data resources that grew out of the May 8, 2010 Open Space and Conservation Community Workshop was the ranking of Evaluation Criteria for Open Space by the public. An inventory of 40 criteria in the topic areas listed below was presented to residents to determine which are most relevant to Pasadena, and what priorities should be applied to land acquisition when considered by the City. The Evaluation Criteria were further refined by the same exercise being performed by the Open Space and Conservation Committee for matters of comparison. The 11 thematic areas for the Evaluation Criteria included:

- Wildlife Resource
- Plant Resource
- Trail Resource
- Archeological or Historic Resource
- Scenic Resource
- Passive Recreational Opportunities
- Watershed Resource
- Access
- Partnership
- Economic Opportunity
- Densely Populated Urban Opportunities

The Open Space and Conservation Element expresses the commitment and desire for open space preservation by the citizens of Pasadena. This document is a dynamic one, intended to suit a changing community. Not all properties are available for purchase at the same time. Thus, the opportunity for a specific acquisition could be lost. Priority must be given to specific properties that meet the criteria when they become, or are about to become, available for purchase. It is recognized that these criteria may be subject to differing interpretations depending on the nature and

Top Ranked Open Space Acquisition Criteria

The site is subject to imminent threat of development, resulting in irreversible ecological impacts. Economic Opportunity
The site connects two core habitat areas by serving as a habitat linkage or movement corridor for wildlife. Wildlife Resource
The site supports passive recreational opportunities such as hiking, picnics, photography, biking, etc. Passive Recreational Opportunities
The site largely contains a high diversity of undisturbed plant communities. Plant Resource
The site is identified as part of an area of exceptional scenic value. Scenic Resource
The site is located within a designated ecologically-sensitive watershed or significant ecological area. Watershed Resource
The site is located in an area with extremely limited open space access or in an area with a dense population with limited private open space. Densely Populated Urban Opportunities
The site provides the opportunity to restore, reclaim or rehabilitate an area into a natural open space by reintroduction of native habitat. Densely Populated Urban Opportunities
The site provides a location for a substantial-sized or environmentally significant riparian or wetland restoration project. Watershed Resource
The site is used by threatened or endangered animal or bird species. Wildlife Resource
The site is used by a wide variety of animals Wildlife Resource
The site is within walking distance from public transportation. Access
Strong neighborhood support exists for open space on this site. Partnership
The site contains a plant community that is rare or unusual in the region. Plant Resource
The site contains a significant, irreplaceable link in an existing or planned trail. Trail Resource
The site contains easy, level trail opportunities through scenic and natural areas that are accessible to trail users of many ages and physical conditions. Trail Resource

circumstances of various opportunities for the acquisition of open space. Based on input from the community, the criteria will be weighted and applied to potential natural open space properties to determine where to direct city efforts and funds for protection. Any particular criterion may receive more or less weight depending on a variety of factors.

The top community supported criteria are listed below. They range across several thematic areas including plant resources, wildlife resources, trail and watershed resources. For more information and the full list of 40 criteria, see Appendix 4.

Interconnections with other plans and other agencies

Because open space and park policies touch on so many aspects of the General Plan, the community vision within the Open Space and Conservation Element is broad in scope, allowing the objectives and policies expressed herein to complement the efforts of other Elements. For example, the Element will help to support the directed development patterns prescribed in the Land Use Element because they provide a means to preserve valuable green space and parks. In concert with the Green Space Recreation and Parks Element, this Element promotes opportunities for integrated bike and pedestrian trail networks and reinforces the vision of the Mobility Element for increased non-motorized circulation throughout Pasadena. The Open Space and Conservation Element will add force to the policies for protecting the natural and developed areas of the Arroyo Seco Master Plans. These and other examples throughout this document demonstrate the close relationship that must exist between the visions of individual Elements of the General Plan, as they reflect the overall goals of the City.

Other groups and agencies involved in Open Space

Preserving and acquiring open space is a critical challenge for the City. To help meet this challenge, the City may have to partner from time to time with other government agencies and non-profit organizations to purchase open space lands as they become available. Government partnerships allow the City to leverage funds for open space purchases. Non-profit agencies can acquire land on behalf of the City and offer the donor or seller tax benefits.

Government Conservancies

Pasadena is within the jurisdiction of two of the nine conservancies set up by the State of California – The San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC) and the Santa Monica Mountains Conservancy (SMMC).

The RMC is tasked with preserving open space and habitat in order to provide for low-impact recreation and educational uses, wildlife habitat restoration and protection, and watershed improvements within its jurisdiction.

The mission of the SMMC is to “strategically buy back, preserve, protect, restore, and enhance treasured pieces of Southern California to form an interlinking system of urban, rural and river parks, open space, trails, and wildlife habitats that are easily accessible to the general public. The SMMC works through direct action, alliances, partnerships, and joint powers authorities.”

Other Government Agencies

Los Angeles County Flood Control Maintenance Division (LA County Flood Control) is a division of the Los Angeles County Department of Public Works. It operates and maintains dams, open channels, storm drains, debris basins, check dams and pumping plants. As part of its flood control and water supply responsibilities, the department has 15 major dams and 27 spreading grounds in the county.

The U.S. Forest Service was established in 1905 and is an agency of the U.S. Department of Agriculture. The Forest Service manages public lands in national forests and grasslands, including the 655,387-acre Angeles National Forest located just north of the metropolitan area of Los Angeles.

Other Non-Profit Partners

Arroyos & Foothills Conservancy: The mission of the Arroyos & Foothills Conservancy (AFC) is to preserve natural open space. AFC focuses its work in the San Gabriel foothills and arroyos extending from the environs of Eaton Canyon to the western Verdugo Mountains. AFC works with property owners, governments, land trusts, and other stakeholders to acquire, restore, protect, and maintain natural areas.

Arroyo Seco Foundation, founded by Charles Lummis, is a grass roots citizen-led organization that promotes “integrated, harmonious approaches to watershed and flood management, water conservation, habitat enhancement” in addition to expanding recreational opportunities. The foundation focuses much attention on replanting and rehabilitating the Arroyo Seco and surrounding environments (such as the San Gabriel Mountains).

See Appendix 2 for more information about these and other groups.

Residential Impact Fee

The Residential Impact Fee (RIF) was created in 1988 to help mitigate impacts on the park system from new residential development. The fee is imposed on all new residential development including subdivisions, single-family dwelling units, multifamily dwelling units, work/live units, additions of new residences to preexisting construction, and any other form of residences.

On October 2005, the City Council adopted a new RIF calculation methodology. It changed from a flat fee per dwelling unit to one based on the number of bedrooms within a residential unit. The fee change was supported by a nexus study conducted in 2005.

From July 2003 through June 2010, the City collected \$18.7 million, and appropriated \$18.3 million to projects around the City. The Municipal Code requires that funds be appropriated within five years or returned to the applicant. The City has not returned any funds because they were not appropriated. Some money, including building and planning fees, was refunded to applicants because projects were halted. The RIF does not require the spending of funds, but funds must be appropriated to a capital project to be expended.

Distribution of Fees

In July 2000, the City Council established three park impact districts: West, Central, and East. Marengo and Allen Avenues from north city limits to south city limits serve as the dividing lines for the districts. Ninety percent of the RIF collected within a park impact district must be spent on neighborhood and community parks within that district. The remaining ten percent of the funds are distributed to the citywide parks which include Hahamongna, Central Arroyo and Lower Arroyo. Interest earned on the funds collected may be used to maintain any park or any capital improvement located in any park.

Allowable Uses

Pasadena Municipal Code §4.17.050 defines allowable uses for the RIF as “...parkland acquisition, capital improvements and maintenance.” The allowable uses are further defined in PMC §4.17.060 which allows the RIF to be used “...to develop park or recreational facilities, or targeting certain improvements for acquisition, construction and installation.” The RIF can also be used on any school ground park which is the subject of a cooperative agreement between the City and the Pasadena Unified School District. Chapter 4.17 does not mention “public open space,” although the RIF cost study does support the purchase of public open space that will become dedicated parkland.

Creation of New Parklands

In 2006, the RIF helped fund the creation of Viña Vieja Park in East Pasadena which became the City's first new park in over 30 years. Among other amenities, Viña Vieja contains the City's first dog park. In 2009, the RIF helped fund the creation of Annandale Canyon Park in the San Rafael Hills above west Pasadena. Annandale Canyon Park provides hiking and other passive recreational opportunities through a wildland area.

Park and Open Space Improvements

The RIF is also used to improve parks and open spaces. Some of the expenditures of the RIF include replacement and new construction of park restrooms, playground equipment, park lighting improvements, trail construction and park walkway replacement. The RIF has also been used to fund improvements on school playgrounds where the City and the PUSD have joint-use agreements to allow school facilities to be used as parks.

Appendix 6 provides detailed information on RIF revenues and appropriations from July 1, 2003 through June 30, 2010. The exhibit lists projects in the City's Capital Improvement Program (CIP) that have received RIF funding. Projects receiving RIF funds include the acquisition of Annandale Park, trail development at Hahamongna Watershed Park, and the rebuilding of public facilities at existing parks. The majority of funding is shown to be allocated toward improving facilities at existing parks. The RIF is the primary funding mechanism for open space acquisition and capital improvements in the City budget.

Implementation Program

PL = Planning Department
PL-BD = Building Division of Planning Department
PW = Public Works Department
PWP = Pasadena Water & Power
CM = City Manager Department

HSNG = Housing Division
FIN = Finance Department
DEV = Development Division
DOT = Department of Transportation
PHS = Pasadena Humane Society

Time Frame

- short term (1-2 years)
- medium term (2-5 years)
- long term (5-10 years) after adoption of Element
- on-going (occurs regularly)

Implementation Measure	Responsible Department	Time Frame
Protect Existing Open Space Review and update the Initial Environmental Study as a tool to assess the impacts of a proposed development project on open space parcels, sensitive species and habitat areas.	PL	medium-term
Seek out opportunities to expand the joint use of school properties and other non-city recreational facilities in order to meet our existing recreational needs and prevent any encroachment into natural open space areas.	PW	on-going
Develop a program for the City to receive conservation easements and reach out to property owners about the benefits of this program.	PL, PW	short - medium-term
Continue to preserve and restore the Arroyo Seco and Eaton Canyon.	PW	on-going
Investigate whether the “Natural Preservation Area” designation established in the Municipal Code (3.32.100) for use in the Arroyo Seco for portions south of Devil’s Gate Dam should be expanded to include parts of Eaton Canyon or other natural open space.	PW	medium-term
Increase Open Space Use the Open Space Criteria developed for the OSCE Element to evaluate privately owned property with open space characteristics.	PL	medium-term
Annually review all significant and/or at risk open space properties to determine their status for acquisition or protection.	PL, DEV	on-going
Seek out and develop pocket parks, paseos and other urban open spaces.	PL, PW	medium-long -term
Create an east-west greenbelt through the City - investigate using former Santa Fe right-of-way.	PL, PW	medium-long - term
Funding Sources for Open Space Acquisition Investigate a property tax related fee for open space.	PL	medium-term
If no support exists for a citywide assessment district, investigate local assessment districts (like Annandale Canyon) for priority open space sites using the process outlined above.	CM, PL, FIN	Following completion of citywide process for above
Investigate an optional open space contribution on PWP bill (like optional Green Power) used to create open space throughout the city. Identify areas with most need for open space.	FIN, PWP	short-term
Where appropriate coordinate with the Department of Transportation to use transportation improvement funds if parks and open space improvements include transportation components such as bikeway or pedestrian walkway.	FIN, PWP	short-term

Residential Impact Fee		
Continue to impose a fee on new residential development to mitigate the impact of new residents on existing parks and open space	PL, PW	on-going
Develop a plan to establish a fixed ratio for spending the residential impact fee so that it emphasizes acquisition rather than repairs with the goal of reallocating a higher proportion of the responsibility for park improvement and repairs to the General Fund.	PL, PW	short-medium term
Report annually to the City Council on the revenues, appropriations, and expenditures of the Residential Impact Fee.	PL, PW	medium-long -term
Zoning Changes		
Develop and implement a natural open space zoning designation that focuses on preservation of open space as a conservation resource. Have multiple zoning designations - one for active recreation (park), one for more natural open space areas (open space), and one for urban open space.	PL	short-term
Study all existing open spaces in the city to give them the new “park”, “open space” or “urban open space” zoning.	PL	medium-term
Change zoning of publicly owned properties (Annandale Canyon, Earthside Nature Center) to open space as well as privately owned properties with willing owners (Eagle Rock Trail property.)	PL	short-term
Re-evaluate and revise if necessary, the existing Hillside Development Ordinance to ensure it protects open space on hillside properties.	PL	short-term
Protect the existing natural open space within the Hahamongna Watershed Park Master Plan area.	PW, PL	On-going
Partnerships with Other Groups & Governments		
Continue to work with neighboring communities and non-profit organizations to strengthen the trail and habitat connectivity between our open spaces and those in surrounding areas (Eaton Canyon and Arroyo Seco)	PW	on-going
Form partnerships with joint powers authorities to identify and restore threatened and degraded habitat areas.	PW	short - medium-term
Coordinate with Arroyos & Foothills Conservancy to create a Master Plan for the Eaton Wash Corridor	PL, PW	medium-term
Management and Public Education		
Investigate having the city staff responsibilities for natural open space consolidated into one city division (currently covered by Planning Division, Development/Real Estate Division, Public Works Parks & Forestry Division)	PL, CM, PW	medium-term
Expand educational opportunities within open space lands and parks.	PW	medium-term
Inform and educate the community about Pasadena’s open space resources and public accessibility.	PW	short-term
Actively pursue funding opportunities for open space through City staff with expertise in grant writing.	PW	short-term
Incorporate environmental management as a key consideration in the land use planning and decision making process.	PL, PW	short-medium term





Wildlife, Native Plants and the Urban Forest

The Wildlife, Native Plants, and Urban Forest section of the Open Space and Conservation Element is intended to protect and enhance Pasadena's urban forest, native vegetation and native wildlife. The section establishes current conditions, as well as existing policies and future actions.

There are approximately 62,000 street and park trees in the City of Pasadena, and the City has attained "Tree City USA" recognition for the past twenty years. Trees in urban areas provide many economic and aesthetic benefits to the city. As such, the City has taken extensive measures to ensure the protection of our city's trees. With the passage of the Tree Protection Ordinance in 2002, staff and advisory commissions now reconfigure site plans for many projects in order to save trees that would otherwise be removed, and require replacement trees on new developments.

Pasadena's Mediterranean climate contributes to a diverse variety of habitats. Some of Pasadena's rich plant and animal species have been identified as threatened. In order to preserve these populations and encourage breeding and maintaining genetic diversity, the section recommends the protection of movement corridors in key areas of the City.

Pasadenans can take simple measures to encourage beneficial wildlife in their yards and other open spaces. Simple actions include providing water (birdbaths, rain gardens), providing food (plants with seeds and/or nectar for wildlife), and limiting the use of insecticides and turf grass.

Conversely, Pasadenans can discourage negative wildlife/human encounters in "wildlife interface areas" (residential areas adjacent to foothills) by removing access to unnatural food sources.

Lastly, this section lists implementation measures for achieving the objectives of the Wildlife, Native Plants, and Urban Forest chapter, along with the department responsible for carrying out the measure. Each corresponding measure also lists an estimated time frame which range from 1 to 10 years.



The following goals and objectives have been developed to protect and enhance Pasadena's urban forest, native vegetation and native wildlife.

Goals & Objectives

Wildlife: Protect, restore and maintain native wildlife in the city.

- Create, protect, restore and maintain areas of the city to support important native wildlife resources.
- Identify, prioritize and restore high priority habitat in open space areas.
- Balance urban wildlife and habitat with public health and safety.
- Reduce attractive nuisances for wildlife



Native Plants: Protect, restore and maintain areas of the city containing important native vegetation resources

- Create and restore historic native plant communities in open space areas
- Encourage use of native plants in public and private landscapes
- Provide public education programs regarding the benefits of native vegetation and plants in open space and developed areas of the city

Habitat Connectivity: Protect important open space and habitat linkages.

- Identify, prioritize and protect open space corridors
- Coordinate and partner with adjacent land managers to identify and protect critical wildlife linkages
- Develop strong protection measures for the most critical wildlife corridors

Urban Forest: Protect and enhance Pasadena's trees on public and privately owned land.

- Increase the number of trees in the City to diminish the urban heat sink, and improve air quality.
- Continue with citywide tree replacement planting program to replace street trees as they meet their life expectancy.
- Increase tree canopy coverage by 5% by 2020 ensuring equitable distribution throughout all neighborhoods in the City.

Existing Conditions

Urban Forest

Pasadena is well known for its abundance and variety of trees, both on public and private property, having been a Tree City USA designation for the past twenty years and receiving a Tree City Growth Award for the past ten years. There are approximately 62,000 street trees and park trees in Pasadena. Of these, approximately 6,000 are palm trees,

5,000 are young trees planted within the past five years, and over 50,000 are mature hardwood trees.

Street trees in urban areas provide many economic benefits to the city, including reducing traffic speed and protecting pedestrians, reducing the need for drainage infrastructure by catching and holding rain before it hits the ground, absorbing chemicals from tailpipe emissions, and cooling the air. For example, a study of the tree canopy coverage in the Playhouse District of the downtown was completed in 2007 that evaluated the economic benefits of Pasadena's trees in addition to the aesthetic and environmental benefits. The analysis showed that the city trees produce over \$8,000 of annual economic benefits that could increase to nearly \$12,000 by 2012 as the trees grow larger.

The city completed a tree canopy analysis which inventoried 62,000 street trees, 125,000 park and Arroyo trees and more than 200,000 trees on private property. The analysis identified more than 4,200 acres of tree canopy coverage - or nearly a third of the City's total land acreage. 50% of the City's parkways are planted with trees.

In 2002, the City Council adopted a Tree Protection Ordinance (TPO) that regulates the removal of protected trees on private property. In January 2010, the TPO was strengthened and improved to better meet the goals of protecting and growing Pasadena's urban forest. The TPO is an important tool in protecting the urban forest by enabling staff and Advisory Commissions to reconfigure site plans for many projects, saving large numbers of trees that otherwise would have been removed, and requiring the extensive planting of new replacement trees in new development projects.

Significant Plant and Animal Communities

Pasadena has a Mediterranean climate, with warm dry summers and wet winters. The climate, influenced by the ocean on one side and the San Gabriel Mountains on the other, has led to a rich, diverse mosaic of habitats. Exhibit 4 depicts the vegetation types in the Pasadena region. Plant communities include oak woodland, coastal sage scrub, chaparral, riparian (stream side), along with intergradations of higher elevation mountain vegetation. There are numerous microclimates and transition zones between these natural plant and animal communities. (See Arroyos & Foothills Conservancy web page)

A number of rare and sensitive animals and plant species are present in Pasadena's open spaces or have been identified in the recent past, including Coast Horned Lizard, Two-striped Garter Snake, Cooper's Hawk, Least Bell's Vireo, Yellow Warbler, Yellow-breasted Chat, Engelmann Oak, Southern California Black Walnut and others. Species no longer common near urban areas still exist in the remaining wild foothills, canyons, and streams including Black Bear, Cougar, Bobcat, Gray Fox, Miriam's Chipmunk, several bat species, Mountain King Snake, and tree frogs.

Tremendous varieties of birds live in the foothills or migrate along the Pacific Flyway, and over 180 species have been recorded for the Arroyo Seco watershed (Pasadena Audubon Society). Seen regularly are California Thrasher, American Dipper, California Quail, Killdeer, several woodpecker species, Phainopepla, Steller's Jay, warblers, vireos, towhees, Oregon Junco, Mountain Chickadee, Oak Titmouse, Bushtit, and Black Phoebe. Wildflowers like the California Poppy, Bush Monkey Flower, Penstemon, Arroyo Lupine, Indian Pink, Mariposa Lily, Sacred Datura, and Chinese Houses are sprinkled throughout the foothills and canyons, blooming each spring and summer.

Many animal species need movement corridors in order to respond to seasonal and weather change. Movement corridors are also essential for breeding, foraging, and maintenance of genetic diversity in wildlife populations.

Wildlife corridors may also help facilitate the re-establishment of populations that have been reduced or eliminated due to random events (such as fires or disease). Corridor needs vary according to the local animal population and species.

Encouraging Beneficial Wildlife

There are many actions that Pasadenans can take in their yards and open spaces to encourage wildlife. The National Wildlife Federation has a process to designate backyards as a "Certified Wildlife Habitat."

The following steps can ensure that a backyard is friendly to wildlife:

- **Provide water** - ponds, birdbaths or rain gardens.
- **Provide food** - Landscape with plants that provide seeds, berries, fruit or nectar for wildlife. Supplement with birdfeeders.
- **Create shelter** - Use logs and rocks to provide shelter for lizards and other small animals. Native vegetation and shrubs can provide shelter for larger animals.
- **Go green** - Limit the use of insecticides and herbicides. Reduce turf grass in favor of native and wildlife friendly vegetation.

Discouraging Negative Wildlife/Human Encounters

Negative encounters often occur when animals like bears, raccoon, and coyotes become accustomed to unnatural food sources like trash, pet food, and even pets. These animals can then lose their fear of humans and become dangerous, and it can even artificially increase their populations. Landscaping with non-native plants can also lead to these problems. Easy food sources like citrus trees, avocados, and berries can attract unwelcome visitors.

Much can be done to minimize these negative wildlife/human encounters. Securing trash, keeping pet food and small pets indoors, and landscaping with native plants can greatly reduce these problems and artificially inflated wildlife populations.

The Pasadena Humane Society (PSPCA) provides advice and educational programs about living with and deterring wildlife.

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Time Frame

- short term (1-2 years)
- medium term (2-5 years)
- long term (5-10 years)
after adoption of Element
- on-going (occurs regularly)

Implementation Measure	Responsible Department	Time Frame
Trees and Urban Forest		
Continue to implement and periodically assess the effectiveness of the Tree Ordinance which protects native and significant trees on public and private property.	PL, PW	on-going
Continue to implement and periodically assess the effectiveness of the PWP Cool Trees Guidebook and Rebate Program which also provides a list of eligible trees that are appropriate for planting in Pasadena and a process for planning the orientation and location of shade trees.	PW	on-going
The Green City Action Plan (2006) includes a goal to plant and maintain canopy coverage in not less than 50% of all available sidewalk planting sites.	PW	on-going
Create innovative strategies to develop and expand the urban forest.	PW	short-medium term
Continue to implement the Green City Action Plan Goal (UEA 11) of planting and maintaining canopy coverage in not less than 50% of all available sidewalk planting sites.	PW	on-going
Wildlife Habitats and Corridors		
Promote best practices in land management to minimize negative impacts on wildlife and native plants.	PW, PL	on-going
Identify, protect and expand wildlife corridors and habitat areas on public, private properties, Eaton Canyon and the Arroyo Seco.	PW	on-going
Establish policies for neighborhoods that are adjacent to natural open space areas to minimize the negative interactions with wildlife.	PW, PHS	short-term
Review and revise the Hillside Development standards to ensure that new hillside development respects open spaces and wildlife habitat connectivity	PL	short-medium term
Pursue opportunities to restore habitat in open spaces throughout the City.	PW	short-medium term
Develop a science-based strategic plan to restore habitats in the Hahamongna Watershed Park area.	PL, PW	medium-term

Wildlife		
Continue education about wild animals, especially in wildlife interface areas	PW, PHS	on-going
Adopt the bird-friendly tree trimming practices of the Los Angeles Audubon “Guide to Bird-Friendly Tree and Shrub Trimming and Removal”.	PW	short-medium - term
Educate city staff that manage open space lands on bird friendly practices	PW	short-medium - term
Educate and encourage property owners and tenants to extinguish all interior building lights and non-essential outdoor lights, especially all flood lighting during migration time, and to shield essential lighting to protect night migrating birds.	PWP, PL	on-going
Native Plants		
Educate the public about and discourage the use of non-native invasive species in landscape areas throughout the City.	PL, PW	on-going
Educate city staff and the community about caring for native plants.	PL, PW	on-going
Use locally indigenous native plant and shrubs appropriate to their local community in open space and habitat restoration projects.	PW	on-going
Investigate a ban on selling invasive non-native plant species at nurseries in Pasadena.	PL, PW	medium-term

AUTOMATED PARKING FACILITY

**PAY MACHINE AT EXIT
NO ATTENDANT AVAILABLE**

COMPOST IT

ALL
food,
soiled paper,
waxed paper



RECYCLE IT

ALL
styrofoam



TRASH IT

ALL
plastic film
and wrappings,
bathtubs,
toys,
shoes



PASADENA PUBLIC WORKS

**PLASTIC BOTTLES
ALUMINUM CANS**

City of Pasadena
**RECYCLE
BOTTLES AND CANS**

City of Pasadena



**RECYCLE
BOTTLES AND CANS**

CITY OF PASADENA
INCORPORATED JUNE 1888
**DEPARTMENT
OF PUBLIC WORKS**

CITY OF PASADENA
INCORPORATED JUNE 1888
**DEPARTMENT
OF PUBLIC WORKS**



Environmental Quality, Conservation & Sustainable Use Practices

Pasadena aims to establish itself as a national and international leader on energy and water conservation and environmental stewardship efforts. The Environmental Quality, Conservation and Sustainable Use Practices section of the Open Space and Conservation Element tracks current efforts to conserve the natural and urban environment through sustainable practices in energy, water, air and land. Pasadena is taking action to mitigate climate change and promote unparalleled environmental standards, and currently participates in various international, national, state and local sustainability efforts.

The section then describes current conditions and current policies for energy, water and greenhouse gas in the city. The City aims to reduce its dependence on coal-based power (currently at 54% use in the City) and increase use of sources of renewable electricity. The City has established policies to reduce reliance on imported water supplies and improve local surface water capture, stormwater and recycled water programs. Pasadena is committed to international, federal and state actions aimed at climate change reduction. The section describes each of these actions and their expected targets.

In accordance with the Urban Environmental Accords, Pasadena has implemented local policy that reduces waste (disposable, toxic, non-renewable) and creates recycling and composting programs. The section describes various refuse types and goals Pasadena has set to reduce them. The City has set an ambitious waste reduction goal of zero waste to landfill and incinerators by 2040. The City also proposes a Toxic Products Inventory in order to educate emergency personnel and Homeland Security Safety Training officers to identify locations and hazard levels of toxic products. With regards to new construction, Pasadena has adopted a version of the CALGreen code that requires new mandatory construction provisions in order to align with the sustainable



development goals of the Green City Action Plan. These goals include strategies for energy efficiency, water conservation, and greenhouse gas emissions reduction, as well as varying “tiers” according to a development’s size.

Lastly, the section lists implementation measures to carry out the objectives of the Environmental Quality, Conservation and Sustainable Use Practices section, along with the corresponding department responsible for carrying out the measure. Each corresponding measure also lists an estimated time frame, which range from 1 to 10 years.

Goal and Objectives

Establish Pasadena as a national and international leader on energy and water conservation and environmental stewardship efforts, including air quality protection, energy efficiency requirements, renewable energy standards, natural resource conservation, and greenhouse gas emission standards in the areas of energy, water, air and land.

- Protect and conserve natural resources.
- Improve the quality of the **natural** environment through increased conservation and sustainable practices.
- Improve the quality of the **urban** environment through increased conservation and sustainable practices.
- Effectively manage environmental health and reduce solid waste utilizing best practices and the most current technologies.
- Increase public, private, and governmental awareness of the natural environment and environmental health.

Existing Conservation and Sustainability Efforts

The City of Pasadena, listed among the 50 greenest cities in America by Popular Science Magazine, is taking action to mitigate climate change and promote unparalleled environmental standards through its implementation of actions in support of sustainability and environmental stewardship. Pasadena's move toward sustainable practices is coming both from participation in voluntary international and national efforts as well as green practices mandated by the State. The City's active commitment to conservation and sustainability is a demonstration of residents' desire for Pasadena to be a world class leader in environmental policy and practice.

International Sustainability Efforts

The **United Nations Green Cities Declaration** is a collaborative platform and a call to action for cities across the globe to take in recognition that a majority of the world's population now reside in cities, and that cities consume 75% of the world's natural resources creating environmental challenges. The Urban Environmental Accords contain 21 action items that lay the groundwork for addressing universal urban environmental issues on energy, waste reduction, urban design, urban nature, transportation, environmental health, water issues.

On June 5, 2005, the United Nations unveiled the **Green Cities Declaration and Urban Environmental Accords (UEA)** – a set of 21 actions in seven thematic areas for cities to take as first steps in addressing urban sustainability. On September 18, 2006, the City Council authorized Mayor Bogaard to sign the United Nations Urban Environmental Accords on behalf of the City and also the United States Conference of Mayors Climate Protect Agreement. The UEA is implemented through the Green City Action Plan and Green City Indicators, discussed later in this chapter.

UEA Thematic Areas:

- Energy
- Waste Reduction
- Urban Design
- Urban Nature
- Transportation
- Environmental Health
- Water

National Sustainability Efforts

The **US Conference of Mayor's Climate Protection Agreement** seeks for cities across the United States to commit to reducing global warming pollution levels to 7 percent below 1990 levels by 2012 in accordance with the Kyoto Protocol. In order to achieve this goal, cities are asked to take actions in their own operations and communities. The Agreement offers twelve measures for cities to take that will contribute to reducing greenhouse gas emissions (GHG). The goals are compatible with the Urban Environmental Accords although the focus is directed towards reducing global warming.

State Sustainability Efforts

To address the urgency and gravity of environmental, social, and economic issues confronting urbanized centers, sustainability professionals from a number of major cities in California met in late 2007 to create **Green Cities California (GCC)**. The purpose of this collaborative is to cooperatively and collectively take action to accelerate local, regional, national and international efforts to achieve sustainability.

Participating cities currently include Berkeley, Los Angeles, Pasadena, Oakland, Sacramento, San Diego, San Francisco, San Jose, Santa Barbara, Santa Monica, and the County of Marin, which together represent over eight million California residents.

The Pasadena City Council adopted a resolution in support of Green Cities California on February 4, 2008 and committed to take the following five actions in solidarity with the GCC member cities:

- Purchasing 100% post-consumer recycled paper for municipal operations.
- Prohibiting the purchase of bottled water for municipal operations and government sponsored events.
- Adopting a carbon offset plan for municipal employee air travel.
- Adopting municipal fleet fuel efficiency standards.
- Promoting the purchase of California foods for municipal events and operations

Local Sustainability Efforts

Environmental Charter

- The City of Pasadena elects to be an environmental advocate and a leader in environmental compliance and protection. The City shall cultivate superior environmental standards that will provide for sustainable municipal development.
- The City recognizes that growth and opportunity can not be conducted at the expense of environmental protection and enhancement, and that growth and environmental stewardship are intimately related.
- The City believes that the implementation of an environmental ethic need not interfere with economic development, and that practicing such environmental ethic can ultimately be expected to enhance economic affairs and provide for responsible, farsighted development.

- The City believes that the protection of the urban and natural environments is a social responsibility and a fundamental obligation of a democratic government, and that an ecologically impoverished and polluted environment adversely impacts human health.
- The City is striving to become a model for environmental excellence and a prevailing force in environmental protection. To accomplish these goals, the City shall establish policies that will incorporate environmental responsibility into its daily management of urban and industrial growth, education, energy and water use, air quality, transportation, waste reduction, economic development, and open space and natural habitats.

Pasadena's **Green City Action Plan** is the plan by which the City is using the goals of the 2005 United Nations Urban Environmental Accords. The plan outlines goals that the City can achieve through governmental leadership and community participation. The Green City Action Plan is pushing Pasadena toward environmental sustainability while meeting the city's economic needs.

The **Green City Indicators** compliments the Green City Action Plan annual reports. These are a set of sustainability indicators grouped by the seven thematic areas of the Urban Environmental Accords. The goal is for the city to use this database as a tool for assessing the city's progress in meeting the Urban Environmental Accords targets in a verifiable and measurable way. Additionally, the data will serve to identify areas where adjustments in the Green City Action Plan may need to be considered if progress is lacking. The 2008 version is the first year the indicators were produced.

The **Environmental Advisory Commission** consists of nine Pasadena residents who advise the City Council and make policy recommendations in support of the goals and objectives of the City's Environmental Charter and monitor and guide the Green City Action Plan. This commission holds monthly public meetings and serves as a forum for the discussion of environmental issues with local, regional, and global impacts. The environmental policy matters within the purview of the Commission include energy, waste reduction, urban design, preservation and enhancement of urban natural areas, transportation, environmental health, and water.

Existing Utility Conditions and Urban Planning

Energy

- Increase conservation, efficiency and sustainability.
- Adopt and implement objective s and policies to reduce the City's peak electric load, and maximize the energy efficiency of new and existing buildings.

Relevant Urban Environmental Accords:

Action 1:

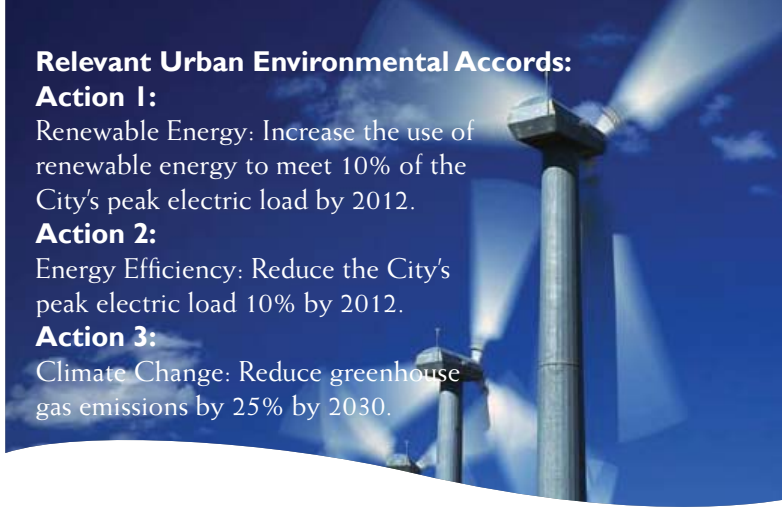
Renewable Energy: Increase the use of renewable energy to meet 10% of the City's peak electric load by 2012.

Action 2:

Energy Efficiency: Reduce the City's peak electric load 10% by 2012.

Action 3:

Climate Change: Reduce greenhouse gas emissions by 25% by 2030.



Pasadena Water and Power (PWP) is a municipal utility that manages a service territory of 58,000 customers with a peak load of slightly more than 300 megawatts. PWP's power comes from Coal (54%); Renewables (16%); Natural Gas (13%); Nuclear (7%); Large Hydroelectric (4%) and unspecified sources of power (7%).

Adopted unanimously by City Council on March 16, 2009, Pasadena Water & Power's **Integrated Resource Plan** establishes a framework for meeting Pasadena's future electricity needs through a combination of energy efficiency measures, demand-side management, renewable energy policies, and expanding supply. The plan establishes a preferred resource portfolio by which Pasadena will meet its energy requirements over the next 20 years. In compliance with AB 32's greenhouse gas emission reduction goals, the Preferred Resource Plan aims to reduce coal-based power (a heavy emitter of Greenhouse Gases) from 62% to 23% of total energy and to increase renewable-based electricity (including local and remote solar, wind, and geothermal energy) from 10% to 40% of total energy consumed.

Renewable Portfolio Standards is a State law that requires electric utilities to obtain a minimum percentage of their electricity requirements from renewable resources that have a smaller environmental impact than most conventional resources.

Greenhouse Gas (GHG) Reductions: State law that requires electric utilities to reduce the level of GHG emissions they produce through the provision of electric service.

The **Preferred Resource Plan** includes the following key elements, which will require PWP to take specific actions to begin reconfiguring its existing portfolio over the next several years:

- Coal Power Displacement: By 2016, reduce purchases of power from the IPP coal plant of at least 35 MW

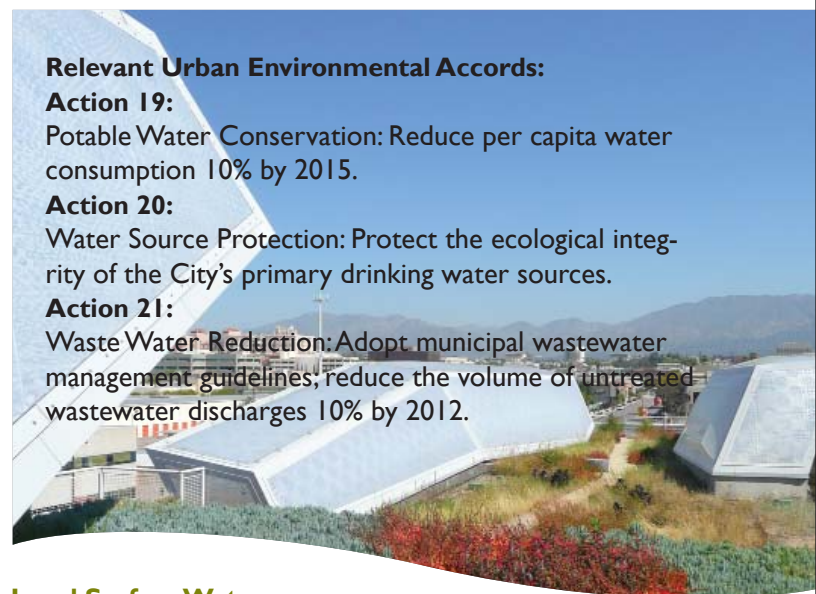
- **New Local Gas-Fired Generation:** By 2014, retire the existing 65 MW Broadway 3 power plant and replace it with a comparably sized new combined cycle plant at the same site
- **Energy Efficiency and Load Management:** Implement programs to achieve significant reductions in electricity consumption according to the following timeline:
 - **Energy Savings:** Reduce energy sales by 12.5% below expected levels by 2016
 - **Peak Load Savings:** Reduce peak load by 10% below expected levels by 2012
 - **Demand Response:** Reduce peak load by an additional 5 MW by 2012 through programs that provide customers with information and economic incentives to reduce their consumption during peak load periods
- **Renewable Energy:** By 2020, increase the proportion of PWP's energy mix provided by renewable energy sources to 40% according to the following general guidelines:
 - 15% by 2010
 - 33% by 2015
 - 40% by 2020
- **Solar Photovoltaic:** By 2020, develop programs to add at least 15 MW of solar photovoltaic installations in Pasadena according to the following timeline:
 - 3 MW by 2010
 - 10 MW by 2015
 - 15 MW by 2020
 - 19 MW by 2024
- **Feed-In Tariff:** By 2020, establish a feed-in tariff program offering to purchase up to 10 MW of qualifying renewables of all technologies located inside Pasadena at a price up to 15 cents/kWh
- **GHG Emissions Reductions:** By 2020, achieve CO2 emissions reductions of at least 40% according to the following timeline:
 - 5% by 2010
 - 25% by 2015
 - 40% by 2020

Water

- Increase the efficiency of water use among Pasadena residents, and commercial and industrial organizations.
- Protect local water supply sources and plant trees and vegetation that are consistent with habitat and water conservation policies
- Improve surface permeability and recharge aquifers / enhance storm water quality to prevent pollution/trash from entering Los Angeles and San Gabriel Rivers and ocean.

The City of Pasadena and neighboring communities receive water supply from the City of Pasadena Water and Power Department (PWP), which relies on two main sources: local groundwater from the Raymond Basin and imported water purchased from Metropolitan Water District of Southern California (MWD). The historical supply mix has averaged 60 percent imported and 40 percent local supplies.

MWD imports water from the Sacramento-San Joaquin Delta via the State Water Project, and from the Colorado River. In recent years, prolonged droughts and environmental flow restrictions have triggered MWD to impose allocation limits to its member agencies for the first time since 1991. Future reliability of imported water will continue to face uncertainties from climate change, environmental regulations, and droughts. Although MWD has taken steps to plan for these uncertainties, achieving reliability will depend on a number key water policy and management decisions on a regional and local level. Other important issues associated with imported water include water quality and cost, which in the past few years has increased substantially. In addition to imported water issues, recent groundwater levels in the Raymond Basin have resulted in the Raymond Basin Management Board calling for a reduction in water rights holders for the foreseeable future. This will result in a 20 percent reduction in PWP's groundwater pumping by 2014.



Relevant Urban Environmental Accords:

Action 19:

Potable Water Conservation: Reduce per capita water consumption 10% by 2015.

Action 20:

Water Source Protection: Protect the ecological integrity of the City's primary drinking water sources.

Action 21:

Waste Water Reduction: Adopt municipal wastewater management guidelines; reduce the volume of untreated wastewater discharges 10% by 2012.

Local Surface Water

PWP diverts surface water runoff from two streams that flow within its service area. Although this water can be treated and used directly for water supply, PWP currently diverts and spreads the water in spreading basins, where it percolates into the ground. By doing so, PWP acquires spreading credits which can then be used to pump groundwater at a later time.

Arroyo Seco – The larger of the streams is the Arroyo Seco, which lies on the northwest side of the City. PWP has a longstanding right to divert up to 25 cubic feet per second (cfs) from this source. The Arroyo Seco is a continuous stream, with large seasonal variations in flow. On average, 95 percent of total annual precipitation occurs between November and April. There are also significant year to year differences that are caused by the climatic and precipitation variability. Diverted stream water is only used for spreading.

Devil's Gate Tunnel – PWP has a right to divert 1.82 cfs from the Devil's Gate Tunnel which is located next to the

Arroyo Seco spreading basins. There is also a pre-1914 right that allows much greater diversion. The quality of water emanating from the tunnel is more suitable for agricultural use and is therefore now used in the Arroyo Seco for landscape uses. The right to divert the Devil's Gate Tunnel water was granted by license issued in 1986 by the State Water Resources Control Board.

Eaton Canyon – The second stream is in Eaton Canyon, which lies in the eastern portion of the City. It is bounded by the San Gabriel Mountains on the north and the east, Altadena Drive on the west, and New York Drive on the south. PWP has the right to divert up to 8.9 cfs from this source, all of which is used for spreading.

Local Surface Water Capture

Water demand outpaces local availability in Southern California. The demand for water will only increase as populations and urbanized areas continue to grow larger. Unfortunately, conventional land development practices (covering the city with hard, impermeable surfaces) leave few places where rain can soak into the ground. Instead, the water flows across the hard surfaces, picking up oil, pesticides, animal waste and trash. It then rushes off the streets into storm drains and concrete channelized rivers that lead to the ocean. Instead of being used to supplement local water supplies, rainfall is mostly squandered, while rivers, streams, bays and ocean get polluted.

This is a critical issue for L.A. County because more than half the water used by our ten million-plus residents comes from distant locations such as the Colorado River and Sacramento River Delta. Transporting this water to Southern California faucets and lawns is expensive and wasteful.

Harvesting rainwater will reduce our need to import this costly water; supply us with additional water during dry months; and reduce urban runoff that pollutes our rivers, bays, and ocean.

A new state assembly bill seeks to hold on to that water better in the future. The proposed Rainwater Capture Act of 2011 (AB 275 - Solorio) would allow landscaping contractors to install water capture systems on properties so that homeowners could divert the water for irrigation or other non-drinking uses. Outdoor watering is a huge part of Southern California's water demand. Rainwater capture lessens the impact of people on their environment.

Water Conservation

Water Integrated Resource Plan (Adopted on January 31, 2011) Pasadena and neighboring communities receive their water supply from the City of Pasadena Department of Water and Power (PWP), which relies on two main sources: local groundwater from the Raymond Basin and purchased water from the Metropolitan Water District of Southern California (MWD).

MWD imports their water from the Sacramento-San Joaquin Delta via the State Water Project, and from the Colorado River. An eight year drought in the Colorado Basin—more severe than any other measured in the 20th century—resulted in record lows in Colorado River water levels. Water supplies from the State Water Project have also been significantly reduced due to recent court restrictions to protect fisheries in the Delta and a prolonged drought. These strains on MWD's supply sources have caused it to dip into emergency storage, and impose water allocation limits to its member agencies for the first time since 1991. In addition, MWD's imported water costs have increased an average of 12 percent per year from 2006 to 2010. In terms of local water supplies, water levels in the Raymond Basin continue to be below historical averages, and as a result PWP's overall groundwater pumping rights will be reduced by 20 percent for the foreseeable future. Groundwater contamination is also an issue that will require PWP to invest in well treatment over the next few years and potentially beyond. In response to water supply limitations from MWD and reduced local groundwater, Pasadena recently enforced city-wide Level I shortage and water restrictions to its residential and commercial/institutional customers.

To address these critical water supply challenges, PWP has taken a proactive step to lead as a model water agency by developing a Water Integrated Resources Plan (WIRP). The WIRP evaluated many different alternative water supplies and water conservation options in order to develop a comprehensive long-term strategy that achieves multiple goals. The WIRP was developed using an open, participatory planning process involving input from a dedicated stakeholder Advisory Committee and the public at large. In any strategic document, it is important for an overarching mission statement to be crafted that establishes the major goals of the plan. The WIRP Advisory Committee, representing Pasadena's stakeholders, developed the following WIRP mission statement:

The Pasadena Water Integrated Resources Plan will provide an achievable, long-term strategy to meet current and future water needs. The goals of the WIRP are to sustainably and cost-effectively address local and regional water supply and demand issues, reflect community values, and adapt to changing conditions.

Some of the recommended water conservation strategies from the 2011 WIRP include:

- Convert approximately 70% of existing single-family homes to comply with California Model Landscape Ordinance – through PWP rebates and rate structures.
- All new single-family homes will have drought tolerant front yards, with warm season lawn (model landscape compliant) back yards – through ordinances and PWP rebates.

- Convert 60-70% of existing multifamily and commercial landscapes to comply with the California Model Landscape Ordinance – through PWP rebates and rate structures.
- Double the implementation of PWP's current indoor conservation for single-family homes – through PWP rebates and ordinances for plumbing retrofits on resale of property.
- Continuation of PWP's current indoor conservation for multifamily and commercial properties – through PWP rebates.
- Individual meters for all new multifamily accounts – through ordinance.

WIRP Stormwater Programs

Stormwater or urban runoff currently is routed to a storm drain pipe network and discharged to streams and flood control channels that leave the service area. Typically, this stormwater carries with it all the pollutants and trash that have been picked up along parking lots and streets. Other departments and agencies are already implementing programs to treat or reducing stormwater discharges to comply with Total Maximum Daily Load regulations that protect receiving waters (local streams and the ocean). There are options to capture on-site stormwater at residential homes and commercial parking lots primarily for groundwater recharge and some non-potable reuse.

Some of the recommended strategies from the 2011 WIRP for stormwater diversion include:

- Residential Cisterns: Collect rainwater from rooftops and store in 100 gallon cisterns for non-potable use.
- Residential Rain Gardens: Downspout from rooftop to garden bio-retention area (approximately 30 ft²).
- Residential Infiltration strip/bio-swale: Bio-retention strip at edge of lot to capture storm runoff and over watering from property; implemented on a neighborhood scale.
- PWP would provide rebates for approximately 10,000 homes (25% participation) for each type of residential option.
- Commercial Parking Lot Swales: Large bio-retention area to collect runoff from parking lot areas.
- Permeable Pavement Parking Lots.
- PWP would provide rebates for
 - o 30% participation of parking lot swales.
 - o 20% participation of permeable pavement.

Due to current credit formulas implemented by the Raymond Basin Management Board, these options would not provide significant supply yields, but they would add replenishment to the groundwater basin and add significant water quality benefits for compliance.

Water Waste Prohibition and Water Shortage Plan (WWP/WSP) Ordinance. Effective July 4, 2009, new water shortage procedures took effect in Pasadena through revisions to PMC Section 13.10. The revisions take a three-pronged approach to ensuring a more effective and meaningful response to the City's water supply challenges: (1) specific instances of conspicuous water waste will be prohibited permanently; (2) if the Council determines that a water shortage exists, additional restrictions will be invoked depending on which level of shortage is declared; and (3) warnings and fines will enforce the permanent water waste prohibitions and any additional water shortage restrictions.

- No watering outdoors between 9 a.m. and 6 p.m. except with a hand-held container or hose with a shut-off nozzle, or for very short periods when adjusting a sprinkler system.
- No watering during periods of rain.
- No excessive water flow or runoff onto pavement, gutters or ditches from watering or irrigating landscapes or vegetation of any kind.
- No washing down paved surfaces unless for safety or sanitation, in which case a bucket, hose with a shut-off nozzle, cleaning machine that recycles water or low-volume/high-pressure water broom must be used.
- All property owners must fix leaks, breaks or malfunctions when they find them or within seven days of receiving a notice from PWP.
- Fountains and water features must have re-circulating water systems.
- Vehicles must be washed with hand-held buckets and/or hoses equipped with water shut-off nozzles (does not apply to commercial car washes).
- Restaurants may not serve drinking water unless by request and must use water saving dish-wash spray valves.
- No installation of non-recirculating water systems at new commercial car washes and laundries. Effective July 1, 2010, all commercial car washes must have recirculating water systems or secure city waivers.
- Hotels and motels must give guests the option to decline changing of daily bed linens and towels.
- No installation of single-pass cooling systems in buildings requesting new water service.

Water Efficient Landscape Ordinance. Pursuant to the requirements of Article 10.8 of the Government Code ("Water Conservation in Landscaping Act," Govt. Code §§ 65591 et. seq.), on March 15, 2010 Pasadena's City Council directed the preparation of a Water Efficient Landscape Ordinance, modeled after the Department of Water Resources model ordinance. The model ordinance limits irrigation of certain new and existing landscaped area to a calculated amount of water. This water limit is determined by a mathematical formula based on the size of the landscaped area, type of plant material, regional climate, and other variables. The ordinance was adopted March 1, 2010.

Recycled Water

Recycled, or reclaimed, water is treated wastewater used for landscape irrigation, industrial cooling processes, toilet flushing and many other uses. Because it is never used for drinking, it cannot be distributed through regular water lines that provide tap water. Instead, recycled water requires a separate distribution system to get from the original source to residential and commercial customers who have installed the appropriate piping necessary to have the recycled water delivered to their properties. There are a number of important benefits to recycled water, including conservation of millions of gallons of potable (drinkable) water from underground and from surface sources such as lakes and rivers; and it provides a reliable supply for landscape irrigation and other uses during droughts.

In 2010, Pasadena Water and Power (PWP) began the process of developing recycled water facilities, which will allow the delivery of up 6,000 acre-feet per year of recycled water produced at the Los Angeles/Glendale Water Reclamation Plant to Pasadena. PWP's ultimate goal is to maximize the use of recycled water and to reduce the use of imported and local potable water supplies for non-potable applications.

PWP is building a 25-mile pipeline to bring recycled water from an existing hub on Pasadena's western boundary to selected sites in the city. The first phase of the project would take about five years to complete and would irrigate Brookside Park, Brookside Golf Course and the Rose Bowl, sparing enough clean drinking water to serve 2,000 Pasadena homes for an entire year. Phases 2 and 3 would expand the pipeline system further into Pasadena making the network available to more potential users.

Treated according to strict government safety standards for irrigation and industrial uses, recycled water is a proven resource for cities throughout our naturally arid region. With the completion of all three phases of the project to irrigate city parks, school fields, freeway landscaping and other public grounds, Pasadena would save up to 650 million gallons of drinking water per year, getting us even closer to the Green City Action Plan goal of cutting citywide use by 10 percent.

Graywater is wastewater that originates from household fixtures such as showers, bathtubs, clothes washing machines, and bathroom sinks; graywater excludes wastewater from toilets, dishwashers, and kitchen sinks.

On-site graywater can be collected and used for outdoor non-potable uses such as drip irrigation. It is important not to mistake graywater with recycled water, which is subject to treatment and purification to make it suitable for a range of beneficial uses.



The California Plumbing Code was revised in 2011 with less stringent requirements for graywater installations; however, enforcement of the regulations is administered through the local enforcing agency (Pasadena). Because graywater has not been widely used previously, code standards are still evolving to reduce potential health risks.

Water Quality

- Adopt policies which encourage the use of natural processes to capture, treat, and infiltrate urban runoff throughout the watershed.

In the Raymond Basin, groundwater quality has been impacted by a variety of chemical contaminants including volatile organic compounds (VOCs), perchlorate, nitrate and arsenic. VOCs are man made compounds that were commonly used as solvents, degreasers and dry-cleaning agents. Perchlorate was used as a component in rocket fuel and fertilizer. Nitrates can come from a variety of sources including fertilizer, landfills and septic tanks. Finally, arsenic, which is a naturally occurring chemical, can also be found in groundwater. All of these compounds can have negative health impacts and all have maximum contaminant levels (MCLs) which have been set by the Environmental Protection Agency, with the exception of perchlorate, which currently has a notification level set by Department of Health Services (There is ongoing discussion for a perchlorate MCL).

ACRONYMS

IX System – Ion Exchange perchlorate treatment system

MCL – Maximum Contaminant Levels

MHTS – Monk Hill Treatment System

PWP – Pasadena Water and Power

VOC – Volatile Organic Compounds

STATE ACRONYMS

CAA – Clean Air Act

CARB – California Air Resources Board

CAT – California Climate Action Team

CEQA – California Environmental Quality Act

EPA – Environmental Protection Agency

GHG – Greenhouse Gas

OPR – California Office of Planning and Research

SCAG – Southern California Association of Governments

Water quality and operational challenges at many of Pasadena Water & Power's (PWP) wells are responsible for underproduction of the combined operating yield rights and spreading credits in recent years. Although water quality issues have been discovered at individual wells, PWP uses a combination of removing wells from service, blending, and treatment to ensure water delivered to customers does not exceed the MCLs established by the California Department of Public Health and United States Environmental Protection Agency. Water quality issues identified at the wells include perchlorate, volatile organic compounds, nitrates, 1,2,3-trichloropropane, and radionuclides.

PWP recently completed the MHTS (Monk Hill Treatment System) and is planning the Sunset Treatment Plant and Eastside Well Collector Project to ensure groundwater reliability.

Groundwater clean up programs in progress

Monk Hill Treatment System

In the Monk Hill sub-area, concentrations of perchlorate, carbon tetra-chloride, and several other contaminants resulted in shut down of four of PWP's wells between 1997 and 2002, namely Arroyo, Well 52, Ventura, and Windsor. The source of the contamination is the NASA Jet Propulsion Laboratory (JPL). PWP's design for the MHTS for groundwater from these wells used influent concentration estimates based on 1997-2002 data for flow and concentrations from the impacted wells. Updated groundwater quality measurements in December 2010 through February 2011 were obtained from the impacted wells, which showed that contaminant concentrations have decreased since the shutdown of the wells. This decrease may be partially due to NASA's remediation efforts at the JPL over the past ten years.

In March of 2011, MHTS was brought on-line to treat groundwater from the Arroyo Well, Well 52, Ventura Well, and Windsor Well in the Monk Hill sub-area of the Raymond groundwater basin. The treatment technology used at the MHTS includes removal of perchlorate using single use ion exchange resin and absorption of organic

chemicals using liquid phase granular activated carbon. The same type of equipment has been successfully used since July 2004 at the Lincoln Avenue Water System on water that is also drawn from the Monk Hill sub basin.

With the recent completion of the MHTS, PWP's pumping capacity has increased by 15.3 cfs as a result of the four newly activated groundwater production wells. This project will allow PWP to maximize use of its operating yield rights and surface runoff spreading credits.

Sunset Treatment Plant

PWP proposes to install an ion exchange perchlorate treatment system (IX system), a booster station, a chloramination system, and piping at the PWP's Sunset Reservoir site. The proposed IX system will be designed to remove perchlorate contamination from groundwater produced from either PWP's Copelin Well or Sunset Well. To meet water demands, PWP also proposes blending treated water with one to three additional untreated wells (Garfield, Villa, and Bangham) exhibiting perchlorate levels typically below the MCL. The number of wells operating at any one time depends on a number of factors such as time of year (i.e. more wells operating during the summer than winter), wells requiring service, current levels of perchlorate, available groundwater supply, and the desire to rebound groundwater levels in certain regions of the sub-basin. The design of the IX system accounts for the full build out at 2,300 gpm to treat both Copelin and Sunset in anticipation of future increases in the levels of perchlorate and/or due to stricter regulatory compliance.

Eastside Well Collector Project

PWP is planning to complete the Eastside Well Collector project, which would involve new raw water conveyance to blend production from seven PWP wells (Chapman, Craig, Jourdan, Monte Vista, Well No. 58, Well No. 59, and Woodbury). Groundwater from the Pasadena sub-area pumped from

these wells will flow directly into the existing Jones Reservoir, where a new chloramination facility will provide centralized groundwater disinfection prior to introduction into the distribution system. This project would increase PWP's groundwater pumping capacity by addressing entrained air issues and need for chloramination in several of the wells, but would not provide new water supply yield.

Increasing pumping capacity provides additional flexibility in PWP operations to support planned increases in yields from recharge of surface runoff diversion and stormwater harvesting supplies and to meet demands with groundwater sources.

Once these projects are complete, PWP will have 16 wells with a combined pumping capacity of 38,500 AFY. Offline wells in PWP's system are planned for repair, blending, or treatment to provide additional pumping capacity and may be used for the following:

- Reserve pumping capacity during short term shut downs of other wells.
- Extraction of water from the long-term storage account.
- Additional pumping capacity needed to support planned increases in yields from recharge of surface runoff diversion, stormwater harvesting, and imported water supplies.
- Use of pumping from different areas of the groundwater basin to stabilize water levels.

Greenhouse Gas (GHG)

- Preserve and plant trees that absorb carbon dioxide and pollutants
- Encourage and provide incentives for the use of alternatives to single-occupancy vehicle use, including using public transit, carpooling, vanpooling, telecommuting, bicycling and walking.
- Encourage the transition of municipal fleet to electric, hybrid and natural gas. Support the expansion of electric vehicle infrastructure throughout the City.

In an effort to stabilize GHG emissions and reduce impacts associated with climate change, international agreements, as well as federal and state actions have been implemented beginning as early as 1988. The regulatory setting related to GHG emissions includes the international, federal, state, regional, and local government agencies discussed below. These agencies work jointly, as well as individually, to address GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs.

International

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in

signing the United Nations' Framework Convention on Climate Change agreement (Kyoto Protocol) with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHG in the United States. The plan consists of more than 50 voluntary programs.

Federal

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce GHG intensity generated by the United States. These programs focus on energy efficiency, renewable energy, methane, and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In February 2002, the United States government announced a strategy to reduce the GHG intensity of the American economy by 18 percent over the 10-year period from 2002 to 2012. GHG intensity measures the ratio of GHG emissions to economic output. Meeting this commitment will prevent the release of more than 100 million metric tons of CO₂e emissions to the atmosphere (annually) by 2012 and more than 500 million metric tons (cumulatively) between 2002 and 2012. This policy has three basic objectives: slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government such as aircraft, ships, and certain locomotives. In *Massachusetts v. Environmental Protection Agency*, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO₂ and other greenhouse gases as pollutants under the federal Clean Air Act. To date, the EPA has not developed a regulatory program for greenhouse gas emissions, nor has it been mandated to do so.

State

The California Air Resources Board (CARB) is responsible for implementing state policy to address global climate change. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and State air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a “waiver” request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO₂ and other GHG emissions from passenger vehicles and light duty trucks. In December 2007, EPA initially denied the request for a waiver. However, on June 30, 2009, the EPA reversed its initial denial and announced that it had granted the California Request to Reduce Vehicle Greenhouse Gas Emissions “waiver” request.

In June 2005, California Governor Arnold Schwarzenegger issued Executive Order S-3-05, GHG Emissions, which established the following GHG reduction targets for the State as well as a process to ensure that the targets are met:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80% below 1990 levels.

Executive Order S-3-05 directed the Secretary for the California EPA to report every two years on the State’s progress toward meeting the Governor’s GHG emission reduction targets. As a result of this executive order, the California Climate Action Team (CAT), led by the Secretary of the California EPA, was formed. The CAT is made up of representatives from a number of State agencies and was formed to implement global warming emission reduction programs and report on the progress made toward meeting State-wide targets established under the Executive Order. State agency members include the Business, Transportation and Housing Agency; Department of Food and Agriculture; Resources Agency; Air Resources Board; California Energy Commission; Public Utilities Commission; and Department of Water Resources. The CAT published its Climate Action Team Report to Governor Schwarzenegger and the Legislature

in March 2006, in which it laid out 46 specific emission reduction strategies for reducing GHG emissions and reaching the targets established in the Executive Order.

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to State-wide levels of 1990 by 2020 through an enforceable State-wide emission cap which will be phased in starting in the year 2012. Emission reductions shall include carbon sequestration projects (projects that would remove carbon from the atmosphere), and best management practices that are technologically feasible and cost effective.

CEQA Guidelines Addressing Greenhouse Gases

An additional bill related to AB 32, Senate Bill 97 (SB 97) requires by July 1, 2009, that the California Office of Planning and Research prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by the California Environmental Quality Act (CEQA), including but not limited to, effects associated with transportation or energy consumption. The Resources Agency was then required to certify and adopt the guidelines by January 1, 2010, and to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to AB 32.

OPR released the CEQA guideline amendments for GHG emissions to the State Resource Agency on April 14, 2009. The State Resources Agency certified and adopted the CEQA guideline amendments into law on December 31, 2009. OPR does not identify a threshold of significance for GHG emissions, nor has it prescribed assessment methodologies or specific mitigation measures. The amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

While the OPR has not yet adopted formal significance thresholds, OPR issued a guidance document on June 19, 2008 to provide interim advice to lead agencies regarding the analysis of GHG emissions in environmental documents. The technical advisory suggests three components for CEQA disclosure: quantification of GHG emissions from a project’s construction and operation, determination of significance of the project’s impact to climate change, and if the project is found to be significant, the identification of suitable alternatives and mitigation measures. The analysis contained herein follows this guidance.

On December 6, 2007, CARB released the calculated 1990 GHG emissions of 427 million metric tons of CO₂e. In 2004, the emissions were estimated at 480 million metric tons of CO₂e. A reduction of 13 percent was needed to reduce 2004 levels to 1990 levels. A series of early actions, tailpipe regulations, and the development of fuels with less carbon in them are estimated to provide reductions totaling 66 million tons of CO₂e. CARB prepared a Scoping Plan to develop programs and measures to address the remaining 107 million tons of CO₂e in order to reach the total of 173 million tons by the year 2020. The Scoping Plan was submitted to CARB in November of 2008 and was approved by CARB on December 11, 2008.

Utility Standards Addressing Greenhouse Gases

California Energy Commission AB 2021 (Levine, Chapter 743, Statutes of 2006) the intent of the Legislature is that load-serving entities procure all cost-effective energy efficiency measures so that the state can meet the goal of reducing total forecasted electricity consumption by 10 percent over the next 10 years. Local publicly owned electric utilities shall acquire all energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible. Energy savings achieved through the enactment of this act are an essential component of the state's plan to meet the Governor's greenhouse gas reduction targets established in Executive Order S-3-05.

On August 21, 2006 California Solar Initiative SB 1 was signed. The California Public Utilities Commission and the California Energy Commission will implement the program. The California Solar Initiative offers solar incentives to energy users (except new homes) in investor-owned utility territories in California. The program has a goal to install 1,940 MW of new solar power by 2017.

On September 29, 2006, Senate Bill 1368 (Perata, Chapter 598, Statutes of 2006) was signed. This law limits long-term investments in baseload generation by the state's utilities to power plants that meet an emissions performance standard which was jointly established by the California Energy Commission and the California Public Utilities Commission. The Energy Commission has designed regulations that establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs CO₂ per megawatt-hour. This will encourage the development of power plants that meet California's growing energy needs while minimizing their emissions of greenhouse gases.

In January 2008, the California Air Pollution Control Officers Association released a white paper entitled CEQA and Climate Change. The white paper examines various threshold approaches available to air districts and lead agencies for determining whether GHG emissions are significant.



Regional

The South Coast Air Quality Management District (SCAQMD) is the agency principally responsible for comprehensive air pollution control in the Basin. In order to provide GHG emission guidance to the local jurisdictions within the South Coast Air Basin, the SCAQMD has organized a Working Group to develop GHG emission analysis guidance and thresholds.

SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. The tiered approach defines projects that are exempt under CEQA and projects that are within a GHG Reduction Plan as less than significant.

Local

In the City of Pasadena, the primary tool to address greenhouses gases is the Mobility Element of the General Plan. The City is in the midst of a major update to the Mobility Element. The updated plan will introduce sustainable transportation and circulation goals and policies to encourage non-automotive alternatives for residents and visitors to move about the City.

As required by AB32 the City of Pasadena has established a draft GHG emissions inventory for community wide emissions along with an action plan. (See Appendix I.) The inventory includes emissions from the following categories:

- Energy: Natural Gas Combustion; Electricity (consumed and generated).
- Solid Waste Management: Waste Reduction/Recycling (emissions from the transportation of recyclables and equipment used to sort materials at facility); Solid Waste (emissions generated by transportation of waste, equipment used in disposal at landfill, and emissions from decomposition in landfills).
- Urban Nature: Landscape Equipment; Transportation.
- Water: Potable Water (energy to treat and transport water); Waste Water Treatment.

Environmental Health and Solid Waste

- Promote, encourage and enforce the use of green, non-toxic and recycled materials and products.
- Promote, encourage and enforce recycling citywide.
- Maximize collection of and proper disposal of litter.
- Increase the diversion of waste materials from landfills through the reduction, reuse, and recycling of wastes to the highest and best use.
- Achieve zero waste to landfills and incinerators by 2040.
- Educate businesses, institutions, and residents about the use of toxic chemicals and materials, and encourage best practices with regards to reduction of their use and proper disposal.

Environmental health is concerned with all aspects of the natural and built environment that may affect human health. It is the branch of public health that encompasses the assessment and control of those environmental factors that can potentially affect us and is targeted towards preventing disease and creating health-supportive environments. Some of the areas of concern include solid waste management and land use and planning as related to sustainable building practices.

Relevant Urban Environmental Accords:

Action 4:

Zero Waste: Achieve zero waste to landfills and incinerators by 2040.

Action 5:

Manufacturer Waste: Reduce the use of a disposable, toxic, or nonrenewable product category at 50% by 2012.

Action 6:

Recycling: Implement “user friendly” recycling and composting programs with the goal of reducing 20% per capita solid waste disposal to landfills and incinerators by 2012.

Solid Waste Management

Municipal solid waste is composed of items we consume, discard or abandon on a daily basis. It predominantly includes food and yard wastes, containers and product packaging, and other miscellaneous inorganic wastes from residential, commercial, institutional, and industrial sources.

Waste management is the collection, transport, processing, recycling or disposal, and monitoring of waste materials. The term usually relates to materials produced by human technological and social activity, and is generally undertaken to reduce their negative effect on health, the environment or aesthetics. Waste management is also carried out to recover resources from the waste stream. Waste management can involve solid, liquid, gaseous or radioactive substances, with different methods and fields of expertise for each.

Managing the refuse of society is an essential government function. Waste materials that are not effectively managed, collected, and disposed of pose a health threat. Waste can contaminate surface water, groundwater, soil, and air which cause more problems for humans, other species, and ecosystems. Solid waste management requires an integrated approach focusing first on health and safety. The City is required to comply with California Public Resources Code requirements for integrated waste management practices.

A primary component of any integrated solid waste management strategy is waste reduction. Waste reduction is essential in all facets of society, including the home, government and private offices, manufacturing facilities, and entertainment establishments. Wasted materials cause environmental impacts at each stage of their life cycle. There are impacts associated with the initial manufacture of the material, the transport of the material for sale, and the transport of the material for disposal or recycling. For waste materials that cannot be reduced at the source, local government must take steps to ensure efficient collection, maximum recycling/composting, and safe and environmentally sound disposal. If not recycled or composted, the material takes up space in a landfill.

Pasadena must continue to take an active role in educating the public about the economic and environmental benefits of waste reduction. For example, consumable items should be as durable as possible, with a long and efficient life that prevents wasting of resources. Environmental policies such as “pay as you throw” can reduce the cost of management and reduce waste quantities. Waste recovery (that is, recycling, reuse) can curve economic costs because it avoids extracting raw materials and often cuts transportation costs.

The City of Pasadena has set an ambitious waste reduction goal of zero waste to landfills and incinerators by 2040. Tracking of waste diversion reveals that solid waste disposal at landfills increased during the period from 2007-2008. While data for 2009 shows that solid waste disposal has decreased from 2008 levels, this is attributable to the economic decline that has occurred. In 2010, the City reduced its per capita waste disposal rate to 3.4 pounds per person per day. This is lower than the statewide per capita disposal rate of 4.5 pounds per person per day, and is a 25% reduction from the City’s 2005 baseline. The City continues to increase its diversion rate, reaching 72% in 2010. The City has adopted the goal to reach 75% diversion by 2015.

Existing Waste Diversion Programs

In order to keep the City’s waste diversion programs on track toward achieving the 2040 zero waste to landfills goal, the following waste diversion projects have been implemented.

AB 939 – Recycling

In 1989, California Assembly Bill 939 established the current organization, structure and mission of CalRecycle. The purpose was to direct attention to the increasing waste stream and decreasing landfill capacity, and to mandate a reduction of waste being disposed. Jurisdictions were required to meet diversion goals of 25% by 1995 and 50% by the year 2000. A disposal reporting system was established with CalRecycle oversight, facility and program planning was required, and cities and counties began to address their waste problems. The City continues to increase its diversion rate, reaching 72% in FY10, and has set a goal to reach 75% by 2015.

Construction and Demolition Waste Management Ordinance - Construction and demolition waste represents a significant part of the solid waste stream, with current estimates at 22 percent of the total tonnage. Much of this material can be reused or recycled, conserving natural resources and saving valuable landfill space. In response to State-mandated waste reduction goals, and as part of the City's continued efforts to reduce land-filled tonnage, the City adopted Ordinance No. 6917 in 2002 (Chapter 8.62 of PMC). The ordinance requires that certain demolition and/or construction projects divert at least 50 percent of waste either through recycling, salvage or deconstruction.

Pay-As-You-Throw is the trash collection system approved by Pasadena's City Council in May 1999. The program is tailored to single family residences and multi-family units of four or less. With Pay-As-You-Throw, the cost for collection is based upon how much a household recycles and how much it throws away. The more a household recycles, the less they pay. It is important to reduce, reuse and then recycle everything from soda bottles and magazines to yard trimmings. The program is environmentally friendly, and it helps the city meet the requirements set by AB939 which requires a 50% reduction of trash going to the landfill by the end of the year 2000.

Proposed Waste Diversion Programs

Pasadena is committed to forging policies in support of increased environmental stewardship in partnership with the business community. Pasadena's Green City Action Plan identifies the development of a plastic bag and polystyrene reduction programs to support its goal of achieving zero waste to landfills by 2040.

Relevant Urban Environmental Accord: Action 16:

Toxics Reduction: 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 municipal government.

Proposed Plastic Bag Ban is a proposed ordinance (2011) that would ban plastic carryout bags, impose a ten cent charge on paper carryout bags, and require affected stores to provide reusable bags to customers for sale or at no charge. The stores that would be affected by the proposed ordinance includes large grocers (gross annual sale of \$2 million or more), retailers (at least 10,000 square feet of retail space and has a licensed pharmacy) as well as farmer's markets, drug stores, pharmacies, supermarkets, grocery stores, convenience food stores, food marts, and liquor stores.

Proposed Polystyrene Container Ban is a proposed ordinance (2012) that would ban polystyrene takeout containers at restaurants and fast food outlets. Details of the ban will be coordinated in partnership with local businesses. It is the City's responsibility to manage the collection, recycling / composting, and proper disposal of waste materials. The California State Legislature is considering a bill that would ban restaurants, grocery stores and other vendors from dispensing food in expanded polystyrene containers, commonly known as Styrofoam, by 2016. Senate Bill 568 was approved in June 2011 by the State Senate and is being considered in the Assembly. The bill would exempt school districts and city and county jurisdictions if they implemented programs that recycled more than 60 percent of their foam waste. The measure would make California the first to institute a statewide ban on such containers. More than 50 California cities and counties already have similar bans.

Toxics Reduction

In evaluating methods for achieving UEA Action 16, the City immediately recognized that no centralized, computer-based toxic product inventory existed. An internal staff working group was formed to develop a strategy for addressing this discrepancy. Since its formation in July 2008, the working group has completed the following tasks:

1. Defined "toxic products."
2. Developed a Toxic Products Inventory of over 580 hazardous products used in municipal operations.
3. Identified a health hazard rating criteria for products in the inventory.
4. Prioritized products with the highest health hazard rating score for replacement with safer alternatives or discontinued use.
5. Documented existing toxic reduction practices.
6. Developed a Toxic Product Alternative Criteria checklist for the selection of environmentally preferable (greener) alternatives.

The approach emphasizes removing toxins from the work place and environment, creating an integrated system for assessing future product purchases, as well as an accessible and centralized database.

Toxic Products Inventory

The products identified for replacement contain chemicals which are both a health hazard to workers during use and are detrimental to the environment. From paint thinners to pesticides, the completed Toxic Products Inventory identifies over 580 hazardous products used in municipal operations with 62 products having the highest health hazard rating; 52 of which are associated with Pasadena Water & Power Department operations; nine in Public Works Department; and one in Public Health Department.

Residing on a secure web portal, the centralized inventory database can be used by emergency personnel to identify the locations and hazard levels of toxic products; provide Homeland Security community safety benefits; be used by Safety Training Officers for employee safety and protection training; and identify and eliminate duplicative purchases resulting in cost savings.

Workplace exposure to chemicals can cause health risks to employees. Chemicals from these products may find their way into the environment during their manufacture, use and disposal, potentially remaining in the environment for indefinite periods. Replacing hazardous products with acceptable green alternatives increases work place safety, and lessens the negative impacts on air quality, greenhouse gas emission, water quality and overall environmental quality.

Sustainable Building Practices

Green Building standards incorporate energy and water savings, toxic reductions and solid waste construction into the building of new structures and remodeling of existing structures.

In January 2011, the **California Green Building Standards Code (CALGreen)** took effect. The code is established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impact during and after construction. CALGreen offers state-wide uniformity to many established and emerging local green building ordinances.

The City has tailored CALGreen to better meet local needs and make it stronger than the minimum state requirements. When the City adopted CALGreen, minor amendments were included to not only make the new ordinance as strong as the Pasadena Green Building Ordinance, but more progressive. Pasadena's previous Green Building ordinance only applied to:

- New multi-family, mixed use and commercial buildings of four stories or more.
- Alterations or construction over 25,000 sq. ft.
- Municipal buildings of 5,000 sq. ft. or more.
- Buildings meeting this threshold were required to meet LEED Certification standards.

Pasadena's version of CalGreen applies to new construction projects of all sizes, including residential additions and remodels except where exempted elsewhere in the codes. These smaller projects which were previously below the Green Building Ordinance threshold will now be required to meet minimum state standards less stringent than LEED.

Whereas there are many voluntary measures which builders may select as part of their compliance with CALGreen, in Pasadena

these provisions are mandatory in order to align with the sustainable development goals of the Green City Action Plan. These specifically address energy efficiency, water conservation and greenhouse gas emissions reduction. For example, the following staff recommended provisions are now mandatory:

- All new and re-roofs of low-slope roofs be "Cool Roof" certified.
- Energy budgets for all new and added energy consuming fixtures are reduced by at least 15% under the requirements of the California Energy Code.
- Provide water-resistant flushing to comply with industry standards or manufacturer's instructions.
- Pre-install conduits in all new buildings for future photovoltaic systems.

CALGreen has different requirements for two tiers of buildings:

Tier 1 Buildings: Municipal buildings of 5,000 sq ft or more of new construction, non-residential buildings of 25,000 sq ft or more of new construction, tenant improvements of 25,000 sq ft or more and mixed use/multi-family residential buildings four stores in height or more.

Tier 2 Buildings: New municipal buildings, municipal renovations of 15,000 sq ft or more, and commercial type buildings of over 50,000 sq ft or more.

In Pasadena, Tier 1 Buildings must comply with voluntary measures equal to 40 LEED points. Tier 2 Buildings must comply with voluntary measure equal to 50 LEED points. Because CALGreen is new, the effectiveness of the voluntary and mandatory measures will be reviewed after two to four years of experience in implementing the ordinance and adjustments may be made at that time.

As discussed above, the strongest conservation and sustainability efforts originate at the state and local levels. While the state sets a high bar in terms of environmental stewardship, Pasadena in some cases goes further by setting higher targets. The implementation measures in this chapter outline actions intended to support existing mandates and allow flexibility to utilize new techniques and technologies as they arise.

Implementation Program

PL = Planning Department	HSNG = Housing Division
PL-BD = Building Division of Planning Department	FIN = Finance Department
PW = Public Works Department	DEV = Development Division
PWP = Pasadena Water & Power	DOT = Department of Transportation
CM = City Manager Department	PHS = Pasadena Humane Society

Time Frame

- short term (1-2 years)
- medium term (2-5 years)
- long term (5-10 years) after adoption of Element
- on-going (occurs regularly)

Implementation Measure	Responsible Department	Time Frame
ENERGY Continue to enforce the Title 24 and CALGreen requirements for cool roofs in new buildings and remodeling projects. After some experience with CALGreen evaluate the effectiveness of this measure and determine if it should be strengthened.	PL-BD, PWP	on-going
Educate homeowners and builders about the benefits of cool roofs and vegetative roofs.	PL, PWP	short-term
Continue to enforce the CALGreen Code voluntary measures for reducing heat island effects and optimizing energy efficiency in new construction. After some experience with CALGreen evaluate the effectiveness of this measure and determine if it should be strengthened.	PL-BD	on-going
Continue to implement the CALGreen requirement that Tier 1 buildings must exceed the California Energy Code (2008) by 20% and Tier 2 Buildings must exceed the California Energy Code by 30%.	PW	on-going
Affordable housing development shall incorporate energy efficient design and features to the maximum extent feasible. The City will target local funds, including redevelopment and community development block grant resources, to assist affordable housing developers in meeting the energy efficiency requirements.	HSNG	on-going
Promote photocells, timers or motion sensors on all permanently installed exterior lighting.	PL-BD	medium - term
Prohibit continuous all-night outdoor lighting in sports stadiums and construction sites unless required for security reasons.	PL-BD, PL	medium - term
Continue to prohibit wood-burning fireplaces in new buildings.	PL-BD	on-going
Develop a plan to achieve 50% paved surface shading with vegetation or solar trees within 5 years, in consultation with City arborist.	PL-BD, PW	medium - term
Enforce the CALGreen Code which has voluntary measures for buildings to use on-site renewable energy for at least 1% of the electrical service over current protection device rating or 1KW, whichever is greater, in addition to electrical demand required to meet 1% of natural gas and propane use. After some experience with CALGreen evaluate the effectiveness of this measure and determine if it should be strengthened.	PL-BD	short - term
Continue to develop programs that provide feedback and information to residents and businesses regarding their energy use and strategies to reduce usage.	PL-BD, PWP	short-medium
Implement the programs of the Power IRP.	PL-BD, PWP	on-going

ALTERNATIVE ENERGY

Investigate potential alternative energy generation locations for residential, institutional, commercial and municipal.

PWP

medium - term

Review and revise building and development codes, design guidelines, and zoning ordinances to remove barriers to alternative energy generation.

PL-BD

medium - term

Provide grants, rebates, and incentives for renewable energy projects, including reduced fees and expedited permit processing.

PL-BD, PWP

short-term

Provide creative financing for renewable energy projects, including subsidized or other low-interest loans, and the option to pay for system installation through long-term assessments on individual property tax bills.

PWP

on-going

Pursue partnerships with other governmental entities and with private companies and utilities to establish incentive programs for renewable energy.

PWP

on-going

By 2020, establish a feed-in tariff program offering to purchase up to 10 MW of qualifying renewables of all technologies located inside Pasadena (Power IRP).

PWP

long - term

By 2014, retire the existing 65 MW Broadway 3 power plant and replace it with a comparably sized new combined cycle plant at the same site (Power IRP).

PWP

medium-term

By 2016, reduce purchases of power from the IPP coal plant by at least 35 MW (Power IRP).

PWP

medium-term

By 2024, develop programs to add at least 19 MW of solar photovoltaic installations in Pasadena according to the following timeline: 3 MW by 2010; 10 MW by 2015; 15 MW by 2020; 19 MW by 2024 (Power IRP).

PWP

long-term

WATER

Continue to implement and assess the effectiveness of the Comprehensive Water Conservation Plan. Includes provision of water usage data, on-line videos and workshops, an advertising campaign, increasing customer recognition efforts, and a website dedicated to water conservation and efficiency.

PWP

medium - term

Implement the CALGreen Code voluntary measures to have a minimum of 20% (Tier 1) and 30% (Tier 2) of the total parking, walking, or patio surfaces to be permeable. After some experience with CALGreen evaluate the effectiveness of this measure and determine if it should be strengthened.

PWP

medium - term

Continue to implement the CALGreen Code mandatory water efficiency measures to achieve a 20% reduction.

PWP

on-going

Continue to implement both non-residential and residential voluntary measures of the CALGreen Code to reduce or eliminate potable water in outdoor water use. Methods used to comply with this section include use of graywater.

PWP

on-going

Landscaping

Include low-water landscaping in place of hardscaping around transportation infrastructure, institutions, and in city-owned properties.

PL-BD, PWP

short - term

Investigate adopting the CALGreen building Code non-residential voluntary measures for hardscape alternatives as a mandatory measure by the city.

PL-BD, PWP

short - term

Convert existing single-family landscaping to comply with California Model Landscape requirements: <ul style="list-style-type: none"> • Replace cool season turf with warm season turf for 70% of homes (total cost = \$1000/home); and/or • Replace portion of cool season turf with drought tolerant landscaping for 35% of homes (total cost = \$3000/home) (WIRP). 	PL-BD, PWP	short - term
Require that all new single-family homes shall have drought tolerant landscaped front yards, and warm season lawn (model landscape compliant) back yards – through ordinances for new development and PWP rebates (WIRP).	PWP	long-term
Convert 60-70 percent of existing multifamily and commercial landscapes to comply with California Model Landscape Ordinance – through PWP rebates and rate structure enhancements (WIRP).	PWP	long-term
Municipal Services		
Promote the development and use of recycled water through ordinances (WIRP).	PWP	short - term
Increase the implementation of PWP's current indoor conservation for single-family customers – through PWP rebates and ordinances for plumbing retrofits on resale of property (WIRP).	PWP	long-term
Continue PWP's current indoor conservation programs for multifamily and commercial customers – through PWP rebates (WIRP).	PWP	long-term
Install individual meters for all new multifamily accounts (WIRP). Investigate incentives and requirements for retrofitting existing multi-family development as they are remodeled or expanded.	PWP	long-term
Implement a rate structure that allows PWP to increase fixed revenues (consistent with its cost structure) and explore ways to increase cost fairness related to how customers use water (WIRP).	PWP	long-term
Implement programmatic conservation measures. For example, consider including a stewardship fee on water bills, or greater PWP funding for customer conservation incentives (WIRP).	PWP	long-term
Promote the local collection of rainwater through cisterns, rain gardens, bio-swales, parking lot swales, and permeable parking lot paving (WIRP).	PWP	short - term
WATER QUALITY		
Provide public education regarding the proper disposal of liquid waste, household chemicals, and medications.	PW	short - medium term
AIR QUALITY / GREENHOUSE GAS		
Complete a Greenhouse Gas Inventory.	PL, PWP, DOT, PW	short - term
Develop a Climate Action Plan. Staff is researching model policies for reducing GHG emissions in General Plans.	PL, PWP, DOT, PW	short - medium term
SOLID WASTE		
Develop a Waste Reduction Plan to Achieve 75% diversion by 2015. Continue single stream recycling and curbside green waste recycling to all of its residential customers.	PW	short-term
Investigate a residential curbside food waste recycling program and a business food waste redistribution and food waste recycling program.	PW	medium-term

<p>Develop an environmentally preferred purchasing policy and investigate other opportunities to reduce waste, such as: a tennis shoe recycling program, neighborhood power tool co-op, and waste to energy transformation.</p> <p>Promote and expand recycling programs including hazardous waste and e-waste recycling programs, curbside oil recycling, battery and cell phone drop off locations, sharp needle collection locations, mercury containing light bulb collection locations, Rose Bowl recycling programs, special event recycling program.</p>	PW, PL	on-going
<p>Continue to implement and monitor the effectiveness of the “Construction and Demolition Waste Management” Ordinance. All applicants for covered projects must complete and submit a waste management plan as part of the application packet for a permit issued for a covered project. The applicant must file monthly reports with Public Works recording diversion rates for the project.</p>	PW	on going
<p>Seek opportunities to partner with the City of Glendale and Los Angeles County in waste-to-energy technologies. Conversion technologies refer to a wide array of biological, chemical, thermal, and mechanical processes capable of converting post-recycled residual solid waste into useful products, chemicals, green fuels, and renewable energy.</p>	PL, PW, PWP	short -term
<p>Investigate alternative waste disposal techniques from other countries to achieve Zero Waste goals.</p>	PW	short - term
<p>Require organizers of large events in public facilities to develop a Waste Recycling Program to indicating how recyclable materials will be collected and disposed of.</p>	PW	on-going
<p>ENVIRONMENTAL HEALTH</p> <p>Coordinate and conduct an internal review of City departments’ toxic product reduction compliance with the Green City Action Plan on an annual basis.</p>	FD, PW	on-going
<p>Provide ongoing education and information for residents, businesses, and institutions directed toward increasing awareness of the potential dangers associated with unsafe use and disposal of toxic substances, and publicize and encourage the use of less-toxic alternatives.</p> <p>Promote proper and safe disposal of toxic substances through the availability of City sponsored collection programs.</p>	PW	short-term
<p>MANAGEMENT AND EDUCATION</p> <p>After 2 - 4 years of experience with the CALGreen Code evaluate the effectiveness of the voluntary and mandatory measures and thresholds and determine if they should be strengthened.</p>	PL-BD	short-medium - term
<p>Maintain educational programs to sustain public awareness of the importance of resource conservation (e.g., energy, water, and open space), the continued existence of long-term resource demand challenges, and specific conservation tactics that are recommended.</p>	PWP	on-going

Establish and maintain a clearinghouse of information on available funding alternatives for renewable energy projects, rates of return, and other information to support developers and community members interested in pursuing renewable energy projects.	FIN, PWP	short - term
Develop a water conservation educational program for elementary students (grades 3-6).	PWP	short - term
Develop graywater outreach materials for homeowners and builders.	PWP	medium-term
Continue regional efforts to assess potential greenhouse gas reduction strategies	PL, PWP, DOT	on-going
Develop education and outreach programs to reduce waste production, including plastic bags and Styrofoam take-out container bans.	PW, PL	short - term
Consolidate within one Commission the responsibility to promote the open space, conservation and environmental health policies of this document.	CM, PL	short-term
Continually assess and research best practices and emerging technologies in sustainable environmental practices for areas such as recycling, cogeneration, and disposal to maximize efficient use of City resources and advance environmental protection.	PL	short-term
Cooperate and coordinate on a regional basis with local governments, state agencies, and private solid waste companies to find the best practicable, environmentally safe, and equitable solutions to solid and hazardous waste management.		
Actively promote the function of the interdepartmental city staff Green Team to implement the objectives, goals and policies for each responsible department.	Citywide	short-term



Community Vision

Since Fall 2008, the City has engaged hundreds of residents who have shared their ideas about how to shape our open spaces and conservation efforts at community fairs, open houses and workshops. Throughout the process, a nine-member Open Space and Conservation Element Committee has met continuously, studying the latest trends in open space preservation and conservation practices.

A **web page** (www.cityofpasadena.net/openspace) was established to provide information to the public about the process, as well as to elicit feedback about open space and conservation.

Early on, a **traveling kiosk** provided information at meetings, churches, parks, the Rose Bowl Flea Market, and at events held by organizations such as the Sierra Club. The City also gathered opinions at these events through surveys and **questionnaires**.

In February 2009, the City of Pasadena kicked off the community outreach process with a **Community Fair** in the City Hall Courtyard. Booths run by community organizations and City departments provided up-to-date information on programs and community group activities to preserve open space and protect natural resources. Four Input Stations and a Kids Corner provided participants of all ages the opportunity to record the places they go to enjoy open space and the activities they like to do outdoors, share what they are doing to conserve resources, and discuss their vision and the public review process with City staff. Keynote speaker for the Community Fair, Will Rogers delivered an inspirational speech about the value of public land, noting that great open spaces create a competitive economic advantage for cities. "People can live where they choose to. The people who cities often rely heavily on for healthy economies—well educated, mobile young professionals—prefer verdant and vibrant cities. They aren't just looking for livable cities anymore; they're looking for lovable cities." He urged residents to conserve open space—not just for today, but for the future.



In Summer 2009, the Open Space Element merged with the **General Plan Update** process, providing an opportunity for a more comprehensive look at several critical elements of the City's General Plan. The General Plan Moveabout Tours in Fall 2009 were self-guided tours that took participants to a variety of open spaces and conservation efforts and asked questions. A sample of the questionnaire can be found in Exhibit 8. Other General Plan update efforts included a Citywide Open House, a series of community workshops and a three-day intensive Community Charrette where community members expressed their ideas and concerns for open space and conservation.

On Saturday, May 8, 2010, the City of Pasadena held a Community Workshop at the Art Center College of Design South Campus to continue its ongoing community outreach program to engage city residents and community groups in the process of preparing the Open Space and Conservation Element of the General Plan. The purpose of the workshop was to:

- Confirm Vision Statement and Core Principles for the Open Space and Conservation Element
- Review and comment on Goals and Objectives
- Discuss and prioritize criteria to acquire open space

For more details on the Committee or these outreach events, see Appendix 5.





Community Context

History

Since the City's founding in 1874 as the Indiana Colony, individuals from around the United States have come to Pasadena to settle or to vacation, drawn particularly by the area's abundant natural resources and scenic beauty, most notably provided by the backdrop of the San Gabriel Mountains.

Pasadena grew as a residential locale thoroughly distinct from Los Angeles, its neighbor to the south. Residents in the late 1800s perceived Pasadena as a natural, garden-like setting that did not require formal park planning. By the turn of the 20th century, however, changing development patterns led residents to rethink that stance. Consequently, city government acquired its first green space for Central and Memorial Parks in 1902. In 1903, the City's first park regulating ordinance (#539) was passed. Later, in the 1920s, Pasadena created a citywide recreation program that emphasized after-school playground activities.

As the City has evolved, recreation and green spaces have also evolved to meet changing needs and expectations. Pasadena has a unique and varied inventory of green spaces, including regionally significant open spaces, such as the Arroyo Seco and Eaton Canyon, which include hiking, biking, and equestrian trail networks. Pasadena has 24 dedicated City parks totaling 363 acres of parkland as well as an abundant urban forest of more than 50,000 street trees. In addition the City has added 20.6 acres of passive open space area for a total of 523 acres of open space citywide. Further, the City offers an extensive palette of recreation programs and services available to residents year round.

Each of these components is important in maintaining a high quality of life for those who live, work, and play in Pasadena. Some of the most popular recreation activities in Pasadena do not have a specific facility. Walking, jogging, and bike riding are activities that a large number of Pasadenans enjoy right from their front doors. Green space is found in the City's parkways, along its streets and sidewalks, throughout its hillsides and through mountain vistas.



Demographics

Understanding the demographic context of the City is an important component of recreation facility and program planning.

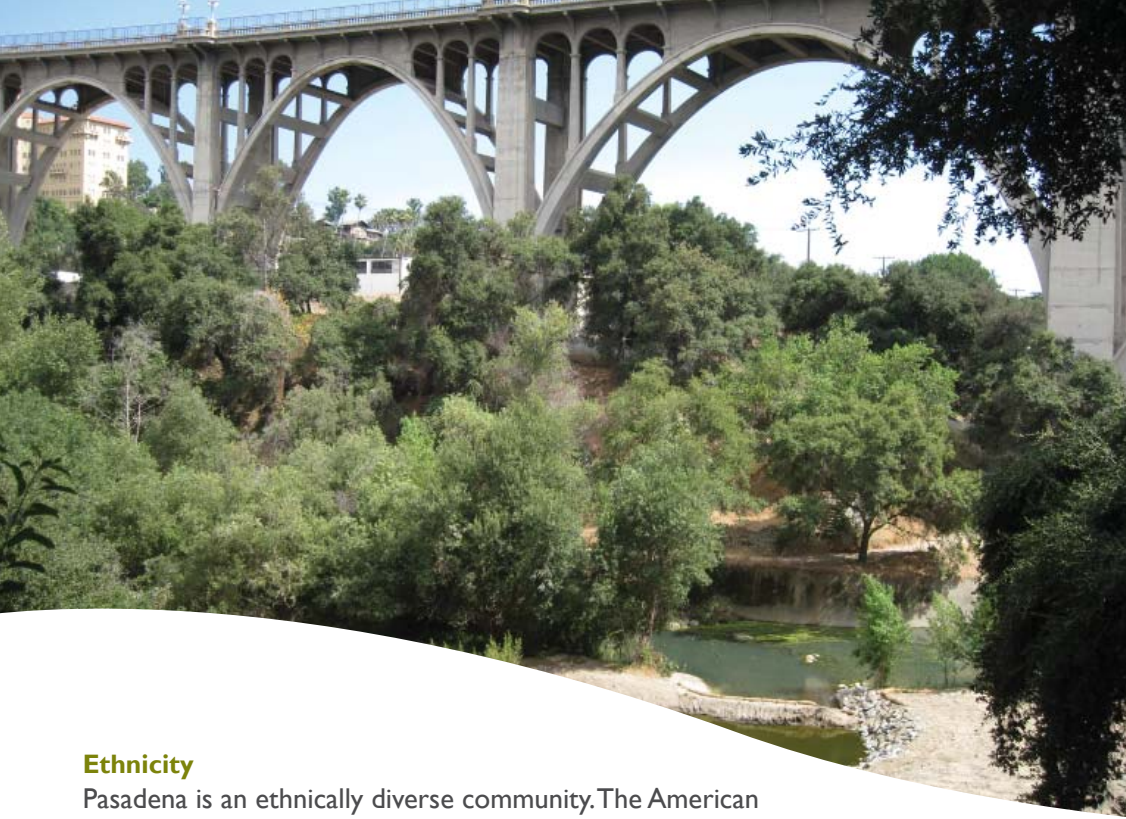
Population Growth

The city's population grew rapidly from the years 1880 to 1950, increasing at an average of 44% each decade, from 391 people to 106,268. The city's growth slowed after the 1950s, but picked up again with 10% growth in the decade between 1980 and 1990, when the city reached a population of 131,591. Growth then slowed again with an increase of only 1.8% between 1990 and 2000, bringing the total population to 133,936. Per the 2010 US Census, the population in 2010 was 137,122, which is a 2.4% increase from 2000.

The following figures reflect statistics from the **2005-2009 American Community Survey 5-Year Estimates**.

Age

In 2005-2009, Pasadena city had a total population of 142,000 - 73,000 (52%) females and 69,000 (48%) males. The median age was 36.6 years. Twenty percent of the population was under 18 years and 13 % was 65 years and older.



Ethnicity

Pasadena is an ethnically diverse community. The American Community Survey Estimates found 59% of Pasadenans are white, 34% are Latino, 11% are African-American, 12% are Asian, 0.5% are American Indian and Alaska Native, 0.5% are Native Hawaiian and Other Pacific Islander, and 14% are some other race. (Percentages may add to more than 100% because individuals may report more than one race.)

Nativity and Language

Twenty-eight percent of the people living in Pasadena city in 2005-2009 were foreign born. Seventy-two percent was native, including 45% who were born in California.

Among people at least five years old living in Pasadena city in 2005-2009, 45% spoke a language other than English at home. Of those speaking a language other than English at home, 62% spoke Spanish and 38% spoke some other language; 38% reported that they did not speak English “very well.”

Education

In 2005-2009, 85% of people 25 years and over had at least graduated from high school and 46% had a bachelor’s degree or higher. Sixteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Pasadena city was 37,000 in 2005-2009. Nursery school and kindergarten enrollment was 3,900 and elementary or high school enrollment was 18,000 children. College or graduate school enrollment was 14,000.

Employment

There are over 100,000 jobs in a wide variety of industries in the City of Pasadena. In 2005-2009, for the employed population 16 years and older, the leading industries in Pasadena city were educational services, health care, and social assistance, 27%, and Professional, scientific, and

management, and administrative and waste management services, 16%.

Among the most common occupations were management, professional, and related occupations, 51%; Sales and office occupations, 21%; Service occupations, 16%; Construction, extraction, maintenance, and repair occupations, 6%; and Production, transportation, and material moving occupations, 6%. Seventy-eight percent of the people employed were private wage and salary workers; 13 % Federal, state, or local government workers; and 9% Self-employed in own not incorporated business workers.

Location

Pasadena is located 10 miles northeast of downtown Los Angeles. The city is bordered by the San Gabriel Mountains to the north and seven cities—La Canada-Flintridge, South Pasadena, Arcadia, Sierra Madre, San Marino, Glendale, Los Angeles and unincorporated Altadena. The latitude is N. 34 9’ and longitude is W. 118 10’. The elevation is 864 feet above sea level.

Climate

The climate is sub-tropical and semi-arid. According to Weatherbase, the average high temperature is 75 Fahrenheit annually. The average low temperature is 48. The overall average temperature is 62. The highest recorded temperature was 113 F on June 17, 1917, while the lowest was 21 F on January 7, 1913. The average yearly rainfall is 21 inches. During the winter months of December through March, it is sunny or partly sunny 75% of the time. It has snowed twice in the City’s history: January 13, 1932 and January 11, 1949.

Air Quality

The South Coast Air Quality Management District (SCAQMD) reports that in the 2003 baseline year for gauging compliance with the Green City Action Plan, 50 days were categorized as having “unhealthy” air quality. Compared to the baseline year, there was a significant drop in days categorized as “unhealthy” from FY06 to FY09: 24 days in FY06, 21 days in FY 07, and 26 days in FY08 and 19 days in FY09. Data for FY10 is pending. The smoggiest month in Southern California is August. For additional information, see the SCAQMD’s website at <http://www.aqmd.gov>.

(An unhealthy ozone day occurs when the air has more than 120 parts per billion of ozone in one hour and there is enough ozone in the air for some people to experience headaches, nausea or shortness of breath.)

Size

Pasadena covers approximately 22.5 square miles, with an average of ten residents per acre.

Housing

In 2005-2009, Pasadena city had a total of 59,000 housing units, 7% of which were vacant. Of the total housing units, 51% was in single-unit structures, 49% was in multi-unit structures, and less than 0.5% was mobile homes. Ten percent of the housing units were built since 1990.

In 2005-2009, Pasadena city had 55,000 occupied housing units - 25,000 (46%) owner occupied and 30,000 (54%) renter occupied. Two percent of the households did not have telephone service and 10% of the households did not have access to a car, truck, or van for private use. Thirty-five percent had two vehicles and another 14% had three or more.

The average rent for a 2 bedroom apartment in March of 2009 was \$1,416 per month according to the Beven & Brock Rent Survey.

Business

The City of Pasadena has over 7 million square feet of office space. Major employers include Jet Propulsion Laboratory, California Institute of Technology, Huntington Memorial Hospital, Bank of America, Kaiser Permanente, Pasadena Unified School District, Pasadena City College, City of Pasadena, SBC, and the Ralph M. Parsons Company. A list of major employers may be found on the internet at:

<http://ww2.cityofpasadena.net/planninganddevelopment/technology/topemploy.asp>

Travel to Work

Seventy-one percent of Pasadena city workers drove to work alone in 2005-2009, 10 % carpoled, 6 % took public transportation, and 9 % used other means. The remaining 4% worked at home. Among those who commuted to work, it took them on average 25.7 minutes to get to work.



References

Eaton Wash Corridor Plan, A Part of the Emerald Horseshoe Trail.

Prepared for the Arroyos & Foothills Conservancy, Mark.Thomsen.Thompson Planning Group. 2011.

Emerald Horseshoe Concept Plan, Trail Connections for the Los Angeles Region.

Prepared for The Altadena Foothills Conservancy, California State Polytechnic University, Pomona. 2008

Final Draft City of Pasadena Greenhouse Gas Emissions Inventory and Reduction Plan.

Atkins, October 2009.

Model Policies for Greenhouse Gases in General Plans.

California Air Pollution Control Officers Association (CAPCOA). 2009

Pasadena, A Natural History. Elizabeth Pomeroy. Arcadia Publishing. 2007.

Water Integrated Resources Plan. Pasadena Water & Power. January 2011.

Web Page Resources

- Arroyo Seco Foundation - <http://www.arroyoseco.org>
- Altadena Watershed Organization - <http://www.altadenawatershed.org/>
- Arroyos & Foothills Conservancy - <http://www.altadenafoothills.org/>
- San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy - <http://www.rmc.ca.gov/>
- Los Angeles and San Gabriel Rivers Watershed Council - <http://lasgrwc2.org/>
- Pasadena Audubon Society - <http://www.pasadenaaudubon.org/>
- Sierra Club of Pasadena - <http://angeles.sierraclub.org/pasadena/>
- The Theodore Payne Foundation - <http://www.theodorepayne.org/>
- U. S. Census Bureau/American Fact Finder - <http://factfinder.census.gov/>
- Arlington Garden - <http://arlingtongardeninpasadena.org>



GENERAL PLAN UPDATE

PASADENA

Guiding Our Community's Future

Acknowledgements

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Bill Bogaard	Mayor
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Jacque Robinson	Council Member, District 1
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Don Bremner	Recreation & Parks Commission
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