

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 12 - HABITAT CORRIDORS

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

Status: Achieved

Comments:

The City has adopted plans and ordinances or is in the process of reviewing plans for the habitat corridors including the hillside areas, the Arroyo Seco Master Plans sub-areas, Eaton Canyon, and the Green Space and Recreation Element of the General Plan. A summary of each is provided below. As the City of Pasadena is primarily a built-out community, large expanses of natural, undeveloped and unprotected land do not exist.

Recommendations:

1. Arroyo Greenways Agreement – Pursue implementation of the Arroyo Greenways Agreement, particularly points that specifically address the protection of critical habitat corridors and other key habitat characteristics.
2. Restoration Plan Implementation – Pursue implementation of measures contained within the *Arroyo Seco Watershed Restoration Feasibility Study* in support of restoration.
3. Habitat Restoration Funding – Proactively seek funding for habitat restoration projects outlined in the Arroyo Seco Master Plans.

Background:

Green Space and Recreation Element

The *Green Space and Recreation Element* is the City's guiding policy document for the preservation of existing green space as well as the future stewardship of both passive and active recreation areas. A draft version of the element is being reviewed by staff with a final version tentatively scheduled for City Council review in 2006. Provisions for preserving and managing natural resources are key components of the element.

Arroyo Seco Master Plans

The Arroyo Seco Master Plans establish policies that protect, restore, and prevent unsuitable development in habitat areas. The master plans is a collective term for the 1) *2003 Design Guidelines for the Arroyo Seco*, 2) *2003 Hahamongna Watershed Park*

Master Plan, 3) *2003 Lower Arroyo Master Plan*, and 4) *2005 Central Arroyo Master Plans*. Collectively, these documents provide detailed implementation schedules for habitat restoration, preservation and enhancements throughout the Arroyo. These areas are linked to the regional Angeles National Forest and the Santa Monica Mountains Rim of the Valley Trail system. Related to this, there are also master plans for each of the three geographical sub-areas as follows:

1. Upper Arroyo Seco (from the JPL bridge at the north to the Devil's Gate Dam at the south – approximately 300 acres)
2. Central Arroyo Seco (from Devil's Gate Dam to the Colorado Street Bridge – approximately 550 acres)
3. Lower Arroyo Seco (from the Colorado Street Bridge to the southern city boundaries - approximately 150 acres)

These planning efforts are supported by the General Plan Land Use Element Policy 9.2 – Arroyo Seco: “Continue and complete comprehensive planning for, and implementation of plans for the Arroyo including restoration of the natural area of the Lower Arroyo and the development of the Hahamongna Watershed Park Plan.”

Eaton Canyon

The *Land Use Element* of the General Plan includes the following policy: “Identify and continue protection of Eaton Canyon as an open space and recreation area, and as a nature center.” The *Green Space and Recreation Element* expands on this policy as follows: “Explore master planning opportunities in the existing OS (Open Space) zoned area associated with the civil defense site and flood control areas.” The *Recreation and Parks Master Plan* supports the protection of open space districts, such as Eaton Canyon and improvements to create a north/south trail through Eaton Canyon. Further recommendations for protecting the Eaton Canyon watershed are found under Action 20-21.

Related Efforts

The City's Parks and Natural Resources Division is a member of the Council of Arroyo Seco Agencies (CASA), which meets regularly to address issues such as those covered by this Action and include the entire Arroyo Seco Watershed. Habitat restoration projects are coordinated between agencies on the Arroyo. Pasadena also participates in the Council of Arroyo Seco Organizations (CASO) which is a gathering of all the non-governmental organizations with an interest in the entire Arroyo Seco watershed. There is momentum to develop an Arroyo Greenways Agreement that would ask each municipality to commit to endorsing a set of common "green goals" for the Arroyo Seco, including the protection of wildlife corridors.

The State of California has recognized the *Arroyo Seco Watershed Restoration Feasibility Study*, funded by the California Coastal Conservancy and prepared by Northeast Trees and the Arroyo Seco Foundation, as a valuable watershed master plan. Pasadena and its resources in the Arroyo Seco are extensively referred to in this document with goals and recommendations for future projects also described.

Another recently completed study by Northeast Trees takes the above mentioned study and advances it by developing specific recommendations for habitat restoration for the entire Arroyo Seco Watershed, including portions located in Pasadena. Staff has utilized some of the recommendations in this study for restoration projects in the Arroyo to ensure that Pasadena is contributing to the restoration of the entire watershed and not just the limits within the City.

The Army Corps of Engineers, the U.S. Fish and Wildlife, and the California State Fish and Game have strict protocols to protect key habitat characteristics in the Arroyo Seco.

Hillsides

The Zoning Code (PMC Title 17) includes provisions for protecting hillside areas from unsuitable development. The following list includes the purposes of the hillside overlay districts applicable to Action 12:

1. Preserve and protect views to and from hillside areas to maintain the identity, image, and environmental quality of the City;
2. Maintain an environmental equilibrium consistent with the native vegetation, animal life, geology, slopes, and drainage patterns by preserving and protecting existing natural resources including native flora and fauna, sensitive wildlife habitats, wildlife corridors, and mature trees to the greatest extent feasible;
3. Prohibit features that would create or increase fire, flood, landslide or other safety hazards to public health and safety; injure the habitability, stability and value of properties in the affected communities;
4. Preserve significant natural topographic features, including swales, canyons, knolls, ridgelines, and rock outcrops, riparian vegetation, natural streambeds, and woodlands to the maximum extent feasible. While it is recognized that development may necessarily affect natural features, a major design objective shall be to minimize these impacts;
5. Ensure a safe means of ingress and egress for vehicular (including emergency equipment) and pedestrian traffic to and within the hillside areas, with minimum disturbance to the natural features;
6. Provide development standards that promote orderly development consistent with the traditional scale and character of the community, and that preserve privacy and views;
7. For hillside subdivisions, ensure that development sites are concentrated in areas with the greatest environmental carrying capacity and limited to very low densities in areas with low environmental carrying capacity;
8. Avoid residential densities that would require extensive grading or would generate extensive traffic; and
9. Preserve and protect existing natural resources including native flora and fauna, sensitive wildlife habitats, and mature trees.

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ACTION 13 - PUBLIC TRANSIT

Action: Develop and implement a policy which expands affordable public transportation coverage to within half-a-kilometer (1,640 feet) of all city residents by 2015.

Status: Achieved

Comments:

The City of Pasadena is committed to improving transit service in order to stem the increasing reliance on the automobile. The City has focused on this goal for the past decade with considerable success. Currently, Pasadena is served by more than 25 transit routes including 400 bus stops with 89% of the population residing within a quarter-mile of a transit stop (approximately 1,300 feet).⁴ Local service routes have been approved for future system expansion based on availability of funding, and coordination with regional transit providers has been improved to promote use of regional services.

This action warrants an “achieved” status because the City of Pasadena has unique geographic and topographical features which make it impractical and economically infeasible to provide affordable public transit within ½ kilometer of all city residents. As noted above, the City has been tremendously successful in providing public transportation to a vast majority of residents and visitors. Consequently, providing transportation to all without consideration of user-need may have a direct negative impact on air quality.

Recommendations:

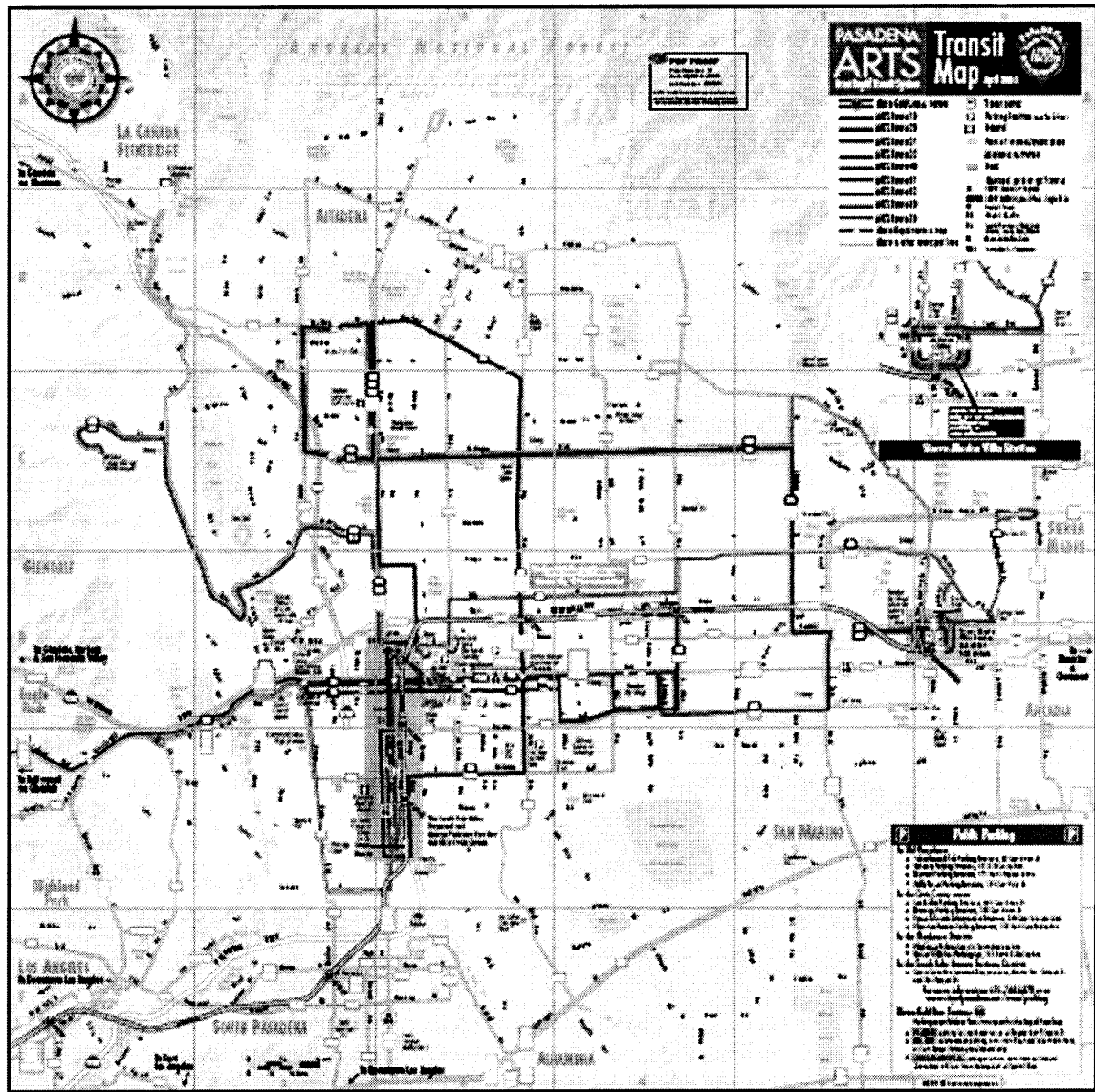
1. ARTS Funding – Continue to expand the City's local transit service, Pasadena Pasadena Area Rapid Transit System (ARTS), as funding allows.
2. Public Transit Coordination – Remain actively involved in the facilitation and coordination of transit services within Pasadena that are provided by other agencies.
3. Transit Policy – Proactively review policy initiatives that promote public transit services in Pasadena through the continued involvement of staff in regional and subregional transit planning groups.

⁴ Arroyo Verdugo Cities Transportation Audit Project

Background:

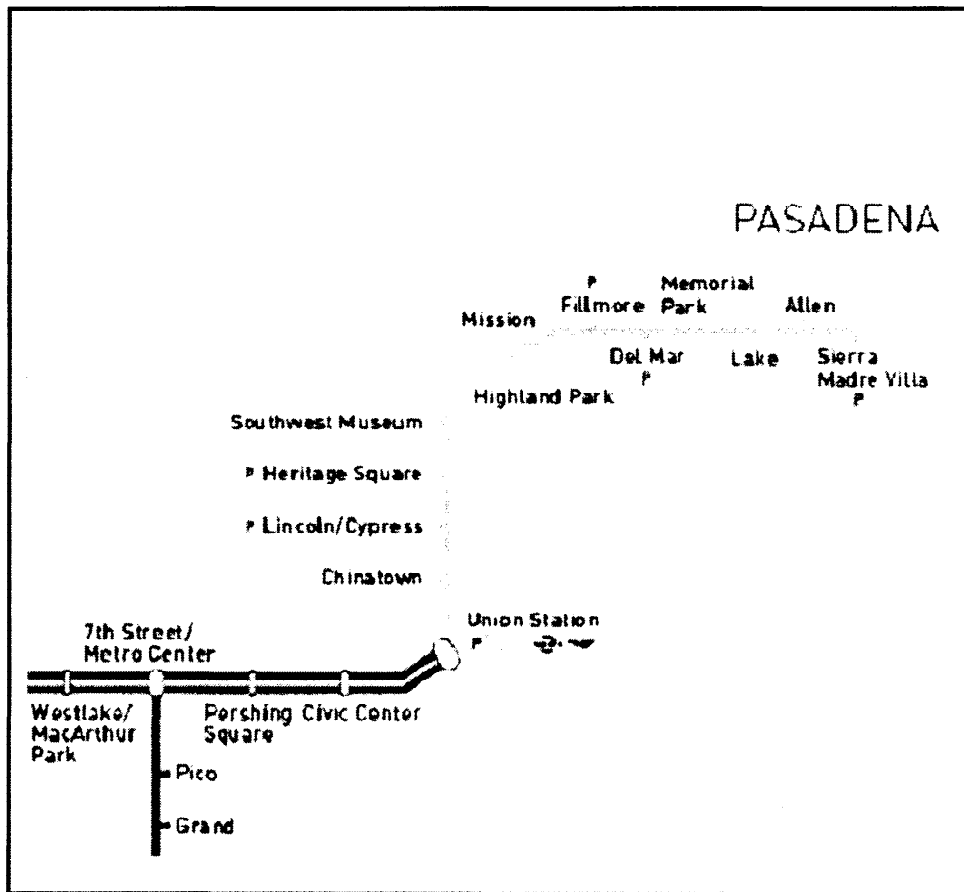
Pasadena benefits from an extensive network of coordinated regional and local transit services including 15 routes operated by Metro, community express services operated by Foothill Transit, Montebello Bus Lines, Sierra Madre commuter shuttles, and an express line operated by the Metro Gold Line Light Rail. Local transit service, Pasadena Area Rapid Transit System (ARTS), has undergone significant development since its inception in 1994. An overview of the primary transit providers and maps are provided below.

Figure 1: Transit Services in Pasadena



Metro

Metro provides a total of 33 local and express routes in the San Gabriel Valley (SGV) area. Six major transit stations in Pasadena are part of the 13.7 mile Gold Line service that links to the regional transit network at Union Station in Los Angeles and provides riders with a near seamless connection to the Metro Red Line subway, the Metrolink commuter rail network and Amtrak. The rail service extends the reach of the Metro Rail system to 73 miles providing access from Pasadena to destinations throughout the region. Pasadena's Gold Line stations maximize access for passengers arriving by bus, bicycle, on foot, or by car, and serve major destinations within Pasadena. Improved pedestrian access and access for disabled persons are important features of these stations and their operating provisions.



Pasadena ARTS

Pasadena Area Rapid Transit System (ARTS) operates seven local routes, primarily in the City of Pasadena, with some service to the neighboring communities of Altadena and La Canada Flintridge. It carries approximately 5,000 passengers per day with fares ranging from \$0.25 to \$0.50. Service is provided through a contract with a private provider. ARTS operating policy decisions are made by the Pasadena City Council.

Foothill Transit

Foothill Transit is the major service provider in the eastern portion of the San Gabriel Valley, with a total of 28 local and 6 express routes. One local route and one express route operate in Pasadena. The majority of routes operate out of the maintenance facility in Pomona. Management and operation of the system is provided by private contractors. Policy decisions are made by the Foothill Transit Board of Directors. Foothill Transit operates 2,400 revenue hours and 38,277 revenue miles of service each weekday, serving approximately 49,000 passengers. Fares range from \$0.50 to \$1.00, with \$3.50 for express.

Montebello Bus Lines

Montebello Bus Lines operates seven local routes and three express routes. It operates one route into Pasadena. Its service area includes Montebello and several other nearby communities. Service is operated by the City of Montebello using its own staff and maintenance facility. The system carries approximately 30,000 passengers per day, on 784 revenue hours and 15,262 revenue miles of service. Fares range from \$0.40 for seniors to \$0.90 for adults. The express fare is \$1.10. It has 82 buses in the fleet, with 56 deployed in the peak period.

LADOT

The Los Angeles Department of Transportation (LADOT) operates one express route into Pasadena. The express service connects Pasadena to Encino by way of Glendale, Burbank and North Hollywood. The fare ranges from \$0.45 to \$2.20, depending on the distance traveled and fare type.

Sierra Madre

The City of Sierra Madre operates the Gold Line Shuttle which provides connections to the Sierra Madre Villa Gold Line Station. Fares are \$0.50 with seniors, disabled, and youth riding for free.

La Canada-Flintridge

The City of La Canada-Flintridge operates a free shuttle along Foothill Boulevard in La Canada Flintridge on weekdays. It is part of the Glendale Beeline system's Route 3.

Dial-A-Ride

At a cost of \$0.50 per ride, Dial-A-Ride is a shared, curb-to-curb transportation service provided for residents who live in Pasadena, San Marino, Altadena, and the other unincorporated Los Angeles County areas in the service area (e.g., Chapman Woods, Kinneloa area, and the unincorporated area of the City of San Gabriel). Riders must be 60 years or older or for those under 60 years they must have a physician-certified disability that prevents the use of regular public transit.

ADA Service in the Pasadena Area

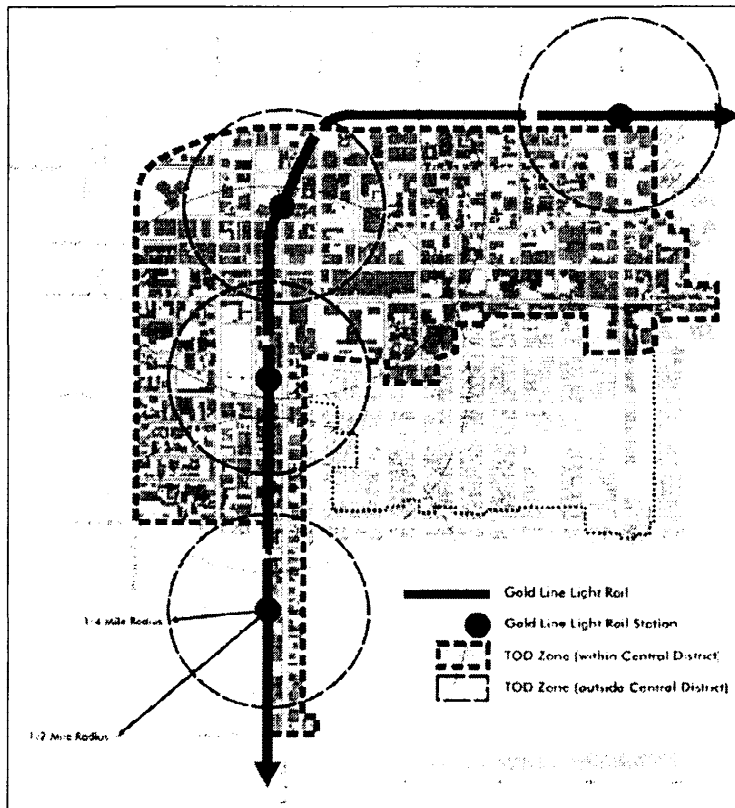
Access Paratransit is the mandated Americans with Disabilities Act (ADA) complimentary public paratransit service for people with disabilities to use accessible bus or train services in Los Angeles County. Access Paratransit is a curb-to-curb

shared-ride service. Several riders may be transported at one time in the same vehicle. Access Paratransit transportation service is available for any ADA paratransit eligible individual to any location within $\frac{3}{4}$ of a mile of any fixed bus operated by the Los Angeles County public fixed route bus operators and within $\frac{3}{4}$ of a mile around METRO Rail stations during the hours that the systems are operational. Access Paratransit operates seven days a week, 24 hours of the day in most areas of Los Angeles County. Fares are distance-based and range from \$1.80 (up to 20 miles) to \$2.70 (more than 20 miles) for each one-way trip.

Transit Oriented Districts

The City's Zoning Code (PMC Title 17) contains provisions for transit oriented districts which emphasize intensification of development near transit routes and reduced reliance on vehicles. Targeted areas are those that are served by multimodal transportation systems and linked to the surrounding community by pedestrian-friendly streets. The Del Mar Metro Gold Line Station is a good example of a newly developed transit-oriented site. It includes several multistory residential buildings and is part of a larger "urban village" concept that includes public plaza areas, retail stores, and the restored former Santa Fe Depot. Light rail service is coordinated with local transit services and pedestrian needs are addressed. Figure 3 illustrates transit-oriented areas of Pasadena.

Figure 3: Illustration of Transit-Oriented Boundaries in the Central District



City of Pasadena Central District Specific Plan (adopted on Nov. 8, 2004); p. 64

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ACTION 14 - CLEAN VEHICLES

Action: Pass a law or implement a program that eliminates leaded gasoline (where it is still used); phases down sulfur levels in diesel and gasoline fuels, concurrent with using advanced emission controls on all buses, taxis, and public fleets to reduce particulate matter and smog-forming emissions from those fleets by 50% by 2012.

Status: Achieved – Eliminate leaded gasoline
Achieved – Reduce fuel sulfur levels
Likely – Install advanced emission controls on all vehicles
Likely – Reduce particulate matter and smog-forming emissions

Comments:

The State of California Air Resources Board has the toughest fuel emission controls in the United States. Leaded gasoline sale was banned in California in 1992. Sulfur levels in diesel and gasoline fuels are regulated by the California Reformulated Gasoline Phase 3 Standards which limit sulfur content to 30 parts per million beginning December 31, 2005. This is a 50% increase in the previous cap of 60 parts per million which went into effect December 31, 2003.⁵ Compliance with state regulations reduces particulate matter and smog-forming emissions by 50% automatically.

The City Council was presented with an information paper on alternative fuel in March 2006. This report detailed the City's use of vehicle fuel and conversion and purchase of cleaner vehicles. The information contained in the paper is the basis for the recommendations.

Recommendations:

1. Alternative Fuel Vehicles – Seek Federal 2005 Energy Policy Act incentives and AQMD funding sources for vehicles using alternative fuel options.
2. Green Fleet – Complete an inventory of all fleet vehicles and provide an analysis with recommendations for converting or replacing applicable vehicles with clean-fuel energy vehicles.

⁵ California State Air Resources Board, The California Diesel Fuel regulations, Title 13, California Code of Regulations, Sections 2281-2285.

Background:

Diesel and gasoline fuels are regulated by the State of California. However the City can support higher restrictions and controls through the South Coast Air Quality Management Board (SCAQMD), the Southern California League of Governments (SCAG), and the California State Air Resources Board, and by supporting legislation on air quality.

In compliance with the SCAQMD fleet rules, the City will continue to purchase heavy duty CNG powered vehicles as they are due for replacement. Additionally, the City will seek every opportunity to purchase alternate fuel cars and light-duty trucks, in particular hybrid powered. Public Works is currently in the process of conducting a Fleet Utilization Analysis which will include a review of the fleet equipment and vehicles to determine the feasibility of expanding the usage of "green" vehicles into the fleet. Additionally, a citywide committee (Public Works, Police Department, Fire Department, Water & Power, Planning and Development, Transportation, and Public Health) was recently convened to explore fuel usage reduction options and alternative-fuel vehicles.

At present, the City of Pasadena, in compliance with the SCAQMD fleet rules, will no longer purchase diesel fueled vehicles and will instead purchase vehicles fueled by CNG. The City currently has six CNG vehicles. In addition, the City is in the process of converting seven existing refuse packers to CNG and has plans to purchase seven new CNG packers by the end of calendar year 2006.

To support the increased need for CNG fuel, the City is installing a CNG fueling facility at the City Yards. Phase I of this project has been funded as part of the FY06 CIP. Additional funding has been secured through the award of grant monies from the SCAQMD, totaling \$165,000 to date with another \$195,000 pending award. The SCAQMD is fully endorsing the installation of this fueling station as it will be the first for a municipality in the San Gabriel Valley.

The City's Public Works Department is actively committed to the use of cleaner burning fuels and technologies in place of conventional diesel fuel. In 2002, the City was awarded a grant in the amount of \$138,000 from the SCAQMD for the installation of diesel particulate traps on 16 diesel fueled vehicles. The use of particulate traps has reduced particulate matter emissions up to 90%. The remaining 15 vehicles in the diesel refuse fleet are scheduled to have traps installed during FY2006.

The Federal 2005 Energy Policy Act authorizes various incentives which may result in funding for vehicles using alternative fuels. An inventory of the City's fleet will provide information on reducing particulate matter and smog-forming emissions for certain vehicles (information on completing fleet inventories is available at <http://www.greenfleets.org>).

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 15 - TRAFFIC

Action: Implement a policy to reduce the number of commute trips by single occupancy vehicles by 10% by 2012.

Status: Likely

Comments:

The City of Pasadena with a population of approximately 140,000 is visited by millions of people annually. In order to meet the diverse mobility needs of residents, commuters, and visitors, the City has developed proactive policy goals and innovative programs to encourage the most efficient use of the city's existing transportation infrastructure through a balanced multi-modal approach.

Building on and complimenting these successful multi-modal transportation initiatives, the City of Pasadena has contracted with consultants to prepare a comprehensive analysis of the City's transportation infrastructure and to recommend traffic reduction strategies that consider economic development, accommodate future residential and employment growth, and address overall mobility and access. It is anticipated that the study will be completed by fall 2006 with recommendations presented to the City Council by the end of calendar year 2006.

Recommendations:

1. TDM – Continue implementation of existing Transportation Demand Management strategies and based on City Council policy make adjustments based on the completed Traffic Reduction Strategies Study (end of calendar year 2006).
2. Public Transit Marketing – Market the use of public transit, especially for housing located within ¼ mile of transit stations, to support the City's adopted Transit Oriented Development goals. Work with Business Improvement Districts to encourage the BID to provide subsidized or free transit passes for downtown employees.
3. Carpool – Continue to enforce carpool parking requirements.
4. Bicycle Commuting – Amend the Green Building Practices Ordinance to require applicable projects to comply with the LEED Credit Bicycle Storage and Changing Rooms.
5. Pasadena Transportation Management Association (TMA) – Continue to provide a leadership role to the Pasadena TMA to encourage large developments and

employers to promote alternative transportation programs.

6. Bicycle Commuting – Amend the Green Building Practices Ordinance to require applicable projects to comply with the LEED Bicycle Storage and Changing Rooms credit.

Background:

Examples of the City's successful efforts to address traffic and transportation issues include:

1. 2004 Mobility Element - Establishes transportation vision for Pasadena as a "community where people can circulate without cars."
2. Neighborhood Traffic Management Community Program - Seeks to reduce impacts of vehicular traffic in residential neighborhoods.
3. Pasadena ARTS - Expansions of the Pasadena Area Rapid Transit System (ARTS) and adoption of innovative operational strategies including user-friendly vehicle design and amenities.
4. Bicycle Policies - An extensive bicycle network and bike-friendly policies, resulting in the City of Pasadena being awarded the "Most Bike Friendly City for 2004" by the Los Angeles County Bicycle Coalition.
5. Pedestrian Plan - A mature pedestrian network plan and ongoing implementation of pedestrian safety improvements such as recent grant-funded projects that will help students walk safely to and from school is currently under review. The City expects adoption of the plan this year.
6. Innovative Strategies - Implementation of innovative parking demand management strategies using new technologies – including the pioneering implementation of parking benefit districts in 1993 that are now being adopted throughout the country – to help the City serve the diverse parking needs of different user groups including residents, merchants, and commuters.

Traffic Reduction Strategy Study

Consultants are preparing a comprehensive analysis of the traffic reduction impacts appropriate for the City of Pasadena with a final report anticipated at the end of calendar year 2006. The *Traffic Reduction Strategy Study* will include traffic reduction strategy impacts on economic development and overall mobility and access. Some of the strategies to be evaluated that respond to the unique needs and characteristics of the City of Pasadena include the following:

- Strategies to get people out of cars and into transit and/or other modes of transportation (rail, bicycle, walking), including significant increases to local transit services
- Strategies to reduce regional trips passing through Pasadena on City streets, including diverting traffic around the City on existing highways
- Strategies to serve existing mobility needs and accommodate future residential and employment growth without increasing auto traffic

Critical to this effort will be the analysis of mobility and economic impacts resulting from the implementation of proposed traffic reduction strategies. The consultant will review theoretical results and case studies of actual experience with each strategy, problems encountered, and results achieved. It is anticipated that the following will be examined:

Mobility Impacts:

- Potential for trip reduction (peak hour, overall, congestion reduction)
- Potential for application on both existing and new development
- Effects on each type of travel mode and type of user

Economic Impacts:

- Effect on retail sales, property values, development costs, and other indicators
- Effect on the ability to attract and retain jobs, such as the effects on employee benefits (e.g., impact of a parking cash-out amount for employees not driving to work)
- Effects on non-market costs and benefits, such as congestion and related time savings, pollution, and traffic safety

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 16 - TOXICS

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

Status: Likely

Comments:

This action can be addressed through the recommendations, but a comprehensive approach to toxic reduction requires more research and time to develop. Everyday the U.S. produces or imports 42 billion pounds of chemicals, 90% of which are created from oil. Global chemical production is expected to double every 25 years for the foreseeable future.⁶

Recommendations:

1. Prohibited Products – Adopt by resolution the prohibition of use by the City the following products; 1) aerosols, 2) floor wax, 3) standard VOC-emitting paint, 4) chemical paint strippers, 5) VOC-emitting graffiti removers, 6) toxic chemical disinfectants, and 7) toxic pesticides. Include a staff monitoring and training program to ensure compliance.
2. Green Chemistry – Follow the State of California's efforts to create a comprehensive chemicals policy as described in the *Green Chemistry in California; A Framework for Leadership in Chemicals Policy and Innovation*, 2006.
3. Buy Green – Create and implement a municipal procurement plan to ensure that city government workers are not exposed to hazardous chemicals or materials and to conserve natural resources (See Action 5 and prohibited products).
4. Integrated Pest Management – Create and implement a plan to use integrated pest control management for all city facilities and open spaces (parks), in lieu of using only pesticides as a control measure (see prohibited products).

⁶ *Green Chemistry in California; A Framework for Leadership in Chemicals Policy and Innovation*, 2006, prepared for the California Senate Environmental Quality Committee and Assembly Committee on Environmental Safety and Toxic Materials

5. Drinking Water Procurement – Enforce the administrative policy of eliminating municipal use of vendor provided drinking water at City facilities in order to reduce delivery trucks emitting carcinogenic diesel exhaust throughout each delivery run.
6. Clean Green – Develop and implement practices for the maintenance of public facilities to further advance sustainability and eliminate the use of toxics. Include training of maintenance staff. (See prohibited products)

Background:

Prohibited Products

According to the Department of the Interior, an average of 58.2 lbs. of chemical cleaning products are used per janitor per year, and 35% of cleaners require extreme care during use because they can blind the unprotected user, can cause severe skin damage, or can be absorbed through the skin or be inhaled with the potential of harming the body. Six out of every 100 janitors have lost-work time injuries each year, including eye injuries or irritations, skin irritations or burns, and respiratory problems resulting from the inhalation of chemical fumes.

Many commonly used products can cause blindness, burn skin, interfere with the endocrine system of humans and animals, and through the skin or inhalation, damage the kidneys, liver, developing fetuses, and the nervous system. Other products may irritate the skin and eyes, degrade indoor air quality, and add zinc or hydrocarbon to the building's sewage discharge. The most dangerous cleaning products cause cancer, contribute to global warming, or are ozone-depleting substances. Furthermore, indoor air quality is one of the most important aspects of a healthy and productive work environment. Chemicals contribute to the deterioration of air quality, and can cause headaches, fatigue, and allergic reactions in employees working indoors.

The City can reduce the risk of injury from chemicals by replacing the most dangerous cleaning products with safer ones, by reducing the total number of chemicals used, and by following safety measures. To satisfy this action, it is recommended that the City adopt by resolution prohibition of use in municipal buildings and facilities the following toxic chemicals:

- | | |
|---------------------------------|-----------------------------------|
| 1. Toxic Chemical Disinfectants | 5. Chemical Paint Strippers |
| 2. Aerosols | 6. Standard VOC Graffiti Removers |
| 3. Floor Wax | 7. Toxic Pesticides |
| 4. Standard VOC-Emitting Paint | |

Toxic Chemical Disinfectants

Disinfectants are of particular concern as their active ingredients are among the most toxic chemicals used in cleaning, and include quaternary ammonium compounds (quats), bleach, ethyl and isopropyl alcohol, formaldehyde, and phenolic compounds. Disinfectants are designed to kill germs. To do so, they often contain toxic chemicals that can be harmful to people. Some toxic fumes can escape even through tightly

closed containers. Products used for cleaning offices generally contain low-level disinfectants such as quaternary ammonium compounds (quats) or phenolics, which may only be effective against easier to kill vegetative bacteria when excess soil is first removed and there is a minimum of 10 minutes of contact time. In most situations neither condition is met to make the disinfection successful. Such chemicals may also have the potential to make bacteria more resistant to antibiotics.

Quats may be unsafe for the environment both when they are manufactured and when they are discharged into the waste stream as they are not readily biodegradable. Furthermore, the manufacturing process of quats and phenolics releases carcinogens such as benzene and other volatile organic chemicals (VOCs) into the atmosphere.

Quats and phenolics have negative effects on humans and are considered to be hazardous by Workplace Hazardous Materials Information System (WHMIS) and Occupational Safety and Health Administration (OSHA) criteria. Some products registered as disinfectant cleaners may claim to be non-hazardous because they are exempt of WHMIS, so care must be taken in choosing an appropriate alternative.

As a substitute, hydrogen peroxide is a less toxic while effective germ-killer and disinfectant.

Aerosols

Aerosols are used to dispense a variety of maintenance and pest control products, including general cleaners, insecticides, and paints. Pressurized aerosol products emit unnecessary volatile organic chemicals and produce a fine mist that can be easily inhaled and absorbed into the lungs and bloodstream. Many of the propellants used with aerosol products, such as butane or propane, are flammable and can cause an explosion if the container is punctured or stored at temperatures above 110°F. Aerosol dispensers also waste product by propelling it into the air and onto surfaces other than those intended. The chemical constituents in aerosols include dimethyl ether, liquefied petroleum gas (LPG - mixture of propane, isobutane and n-butane), and toluene.

In lieu of aerosols, liquid forms of cleaning and maintenance products should be used to avoid the release of propellants into the air. The City may establish a policy that requires pump-spray dispensers over aerosols for all cleaning products. Another option is products with soluble compressed gas (e.g., carbon dioxide) or non-soluble compressed gas (e.g., compressed air and nitrogen) propellants as alternatives to LPG.

Floor Wax/Polish

Many polish ingredients have been found to cause cancer in animals. Residual vapors can contaminate areas long after application of the wax or polish. The active chemical compounds in floor polish include: nitrobenzene, perchloroethylene, phenol, toluene, and xylene.

As a substitute, the City should use products containing simple alcohols such as methyl or isopropyl alcohol instead of strong solvents such as xylene. Finished wood should be

polished with wax once or twice a year. Wax builds a protective shield, makes wood glossy, and produces a non-skid finish.

Standard VOC-Emitting Paint

Up to 300 toxic substances, including metals, solvents, and fungicides, have been found in commercial oil and latex paints. Not only are the fumes from recently applied paint potentially harmful, vapors are emitted for months after paint dries. The active and harmful chemicals in paint include acetone, n-butyl alcohol, chromium, lead, methyl ethyl ketone (MEK), toluene, and xylene.

The solution to toxic paint is relatively simple and readily available in latex paints. The VOC content of latex paints is much lower than in solvent-based paints, reducing worker exposure. The City should specify low-VOC paints whenever painting municipal facilities. VOCs contribute to air pollution and can cause adverse health effects, including eye, nose, and throat irritation; headaches; and nausea. Light-colored paints typically have the lowest concentration of VOCs. An opportunity clearly presents itself with the renovation of any City facility to use only low-VOC paint.

Chemical Paint Stripper

Most paint strippers contain flammable and toxic solvents. Methylene chloride, a cancer-causing agent, is a major component of nearly all chemical paint removers on the market. Other chemical ingredients include acetone, methyl ethyl ketone (MEK), toluene, trichloroethylene, and xylene.

As a substitute the City of Pasadena could require paint strippers that contain benzyl alcohol, a less-toxic alternative to the solvents typically found in paint strippers. Another alternative is to use paint strippers with natural citrus-based solvents.

Graffiti Remover

The City of Pasadena maintains an attractive downtown with the assistance of chemical graffiti removers. Graffiti removers use strong solvents to remove spray paint, marker, and other indelible substances from barriers, walls, and other surfaces. While effective, these solvents are dangerous for workers applying them, and are polluting to the environment.

The active ingredients in graffiti removers include methylene chloride, toluene and perchloroethylene. All of these chemicals can burn the eyes, skin, nose, and throat, and are suspected carcinogens, especially with repeated exposure.

Non-toxic substitutes are readily available, at comparable prices to the chemical products. Most alternatives involve a soy-based solvent, which is advertised as efficient and affordable.

Pesticides

According to the EPA website, there are over 20,000 pesticide products containing 620 active ingredients on the market. Each year, 1 billion pounds of active ingredients in

conventional pesticides are applied in the United States. There are over 80,000 existing chemicals on the Toxic Substance Control Act inventory and each year an additional 2,000 chemicals are added. Release of these chemicals into the environment through agricultural and nonagricultural application and other means poses serious risks to both human health and ecosystems (e.g., plant and wildlife). Humans are exposed to thousands of these agents either singly or in various combinations every day through air, drinking water, food, and dust. In order to accurately characterize risk from and appropriately regulate the manufacture and use of pesticides and other chemicals, EPA must conduct a cost-benefit analysis for each product. Data needed for such analyses are provided, for the most part, by the manufacturer. It is, however, the responsibility of the Agency to provide detailed data collection protocols. This is accomplished through the publication of test guidelines, which must be developed and periodically reviewed.

Originally, chemicals and compounds used to aid plant growth were biologically based or naturally occurring compounds. The majority of chemicals used today, however, are synthesized. Some of the synthetic chemicals introduced for weed and pest control following World War II were later found to cause health or environmental problems and have been eliminated. Others, while still on the market, are considered hazardous or dangerous, and their use should be limited. In selecting chemicals for use in the landscape, the City should be concerned not only with performance but also with life-cycle impacts associated with production, use, and disposal.

The use of chemicals to protect or improve plants is best addressed at the time plants are selected, by choosing plants not highly dependent on frequent or excessive chemical use. Certain other decisions about chemical use in the landscape for example, to control dust and provide decay resistance for wood can similarly be addressed up-front through good site planning.

The key to responsible chemical use lies in minimizing the need for chemicals, and when needed, relying on organic, biodegradable, nontoxic, and natural products. Conventional chemical use can provide initial success but often leads to longer-term problems—for example, residues can stay in the soil for years, affecting both plant health and water quality. Increased pest resistance to chemical controls (and opening up the ecosystem to new, and potentially more harmful, pests) is a common outcome of highly chemical-dependent landscape management practices.

Green Chemistry

A newly released California report on chemicals advocates the need for a modern, comprehensive chemicals policy to place the state on the path to a sustainable future. A comprehensive policy will correct long-standing federal chemical policy weaknesses and could position California to become a global leader in green chemistry innovation. Without a comprehensive policy and standardized information on the toxicity and ecotoxicity for most chemicals, it is very difficult to identify hazardous chemicals. Government agencies do not have the information they need to systematically identify and prioritize chemical hazards. In 2005, the California Legislature deliberated on 35 bills related to chemicals.