TO: HONORABLE CITY COUNCIL

ATTN: POLICY AND SERVICES

FROM: CITY MANAGER DEPARTMENT: UTILITIES

DATE: SEPTEMBER 13, 2005 CMR:367:05

SUBJECT: ADOPTION OF A RESOLUTION ADOPTING THE AHWAHNEE WATER PRINCIPLES FOR RESOURCE EFFICIENT LAND USE

RECOMMENDATION
Staff recommends that the City Council approve a resolution adopting the Ahwahnee Water Principles, as modified for implementation in the City of Palo Alto.

BACKGROUND
The City of Palo Alto has taken a number of steps towards efficient use of resources. In July 1999, Palo Alto’s City Council acknowledged City participation in the Santa Clara County Green Business Program and adopted the Green Government Pledge [CMR:284:99]. This pledge stated that the City would demonstrate environmental leadership regionally and support the reduced consumption of energy, water, materials, and other natural resources. The City Council adopted a Sustainability Policy in April 2001 [CMR:175:01], which indicated the city’s intent to become a sustainable community. In April 2003, the City Council adopted the Green Building Policy [CMR:243:03] to help reduce the impact that a given building or construction project has on the environment. On June 1, 2003, City of Palo Alto Utilities (CPAU) launched PaloAltoGreen, a voluntary program offering a renewable energy option to all residents, businesses, and industrial customers located within its service territory.

The Local Government Commission (LGC) is a nonprofit, nonpartisan, membership organization that provides inspiration, technical assistance, and networking to local elected officials and other dedicated community leaders who are working to create healthy, walkable, and resource-efficient communities. The LGC's membership is composed of local elected officials, city and county staff, planners, architects, and community leaders. In March 2005, LGC adopted the Ahwahnee Water Principles for Resource Efficient Land Use.
DISCUSSION

Staff reviewed the Ahwahnee Water Principles and has proposed modifications so that they will be feasible and able to be implemented in Palo Alto. The original wording of each of the nine Community Principles and five Implementation Principles is provided as well as proposed modifications for several of the principles.

Community Principles

1. Community design should be compact, mixed use, walkable and transit-oriented so that automobile-generated urban runoff pollutants are minimized and the open lands that absorb water are preserved to the maximum extent possible.

Comments: No changes to the original language are proposed.

2. Natural resources such as wetlands, flood plains, recharge zones, riparian areas, open space, and native habitats should be identified, preserved and restored as valued assets for flood protection, water quality improvement, groundwater recharge, habitat, and overall long-term water resource sustainability.

Comments: No changes to the original language are proposed. The long-term protection and conservation of open space, wetlands, riparian areas and native habitats is a highly valued principle in Palo Alto. More than 4,000 acres of natural habitat, stretching from the shores of the San Francisco Bay to the Santa Cruz Mountain range have been preserved as un-developable open space and park land. The City of Palo Alto will continue to pursue land conservation and open space acquisition, as federal and state grant funding are available. However, as a mature, land-locked community, opportunities for acquiring additional open space parkland are rare. When property does become available, the cost of undeveloped land is extremely expensive.

3. Water holding areas such as creek beds, recessed athletic fields, ponds, cisterns, and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape.

Comments: Palo Alto’s Municipal Golf Course is a 160-acre flood retention area. Palo Alto contains approximately 150 acres of athletic fields and park areas that reduce runoff and serve to recharge groundwater, and Palo Alto’s Baylands contains about 640 acres of tidal flood control basin. Staff proposes the following changes to the language so that the City can adopt and implement this principle:

Water holding areas such as creek beds, recessed athletic fields, ponds, cisterns, and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape, while meeting best practices for mosquito control and groundwater pollution prevention.
4. All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater.

Comments: No changes to the original language are proposed. The Palo Alto Municipal Code incorporates a set of standards that are applied to any new or renovated landscape for commercial, industrial, multi-family common area, or City facility projects with 1500 square feet of landscaped area. The Code requires that these plans meet the requirements of *The City of Palo Alto Landscape Water Efficiency Standards* before a building or grading permit is issued. Parks landscape and irrigation designs and implementation take all the above into effect. Irrigation devices in City parks and open spaces utilize weather-monitoring systems to maximize water-use efficiency, and artificial turf will be explored for playing fields in certain areas resulting in significant reductions of irrigation water. Bio-swales for the capture and natural filtering (bio-remediation) of run-off water have been incorporated into the design of public parking lots at the Baylands Nature Center resulting in a significant reduction of run-off water that enters the marshes or creeks. Bio-swales are also strongly encouraged by the City Planning Department for private and commercial development.

There are several possible problems to adopting and implementing this principle as written. Color is demanded in landscape plantings and drought resistant plants are not generally colorful. Artificial turf is beneficial in reducing water consumption, but has the disadvantage of being less permeable than natural sod. With respect to the landscape ordinance, enforcement issues exist. The landscape ordinance does not capture potential savings for projects with less than the minimum landscape area requirements.

5. Permeable surfaces should be used for hardscape. Impervious surfaces such as driveways, streets, and parking lots should be minimized so that land is available to absorb storm water, reduce polluted urban runoff, recharge groundwater and reduce flooding.

Comments: The Parks Division is using decomposed granite permeable pathways. The Open Space Division has utilized resin and latex-based semi-permeable paving surfaces in open space areas and for public parking lots at the Baylands Nature Preserve. The on-going maintenance of these surfaces is much greater than asphalt surfaces. However, the Fire Department has safety concerns about having streets permeable as its trucks are unable to function properly on permeable streets. Also, safety problems exist due to lack of funding to repair/re-stabilize decomposed granite paths as they become eroded, and continual resurfacing of non-traditional permeable road and parking lot surfaces is required to prevent potholes and safety hazards. Impermeable surfaces are beneficial in some sensitive habitat areas where the road or parking lot surface serves to collect and channel run-off water through specially designed bio-swales.

To address these problems, staff proposes the following changes to the language so that the City can adopt and implement this principle:
Permeable surfaces should be used for hardscape where practical. Impervious surfaces should be minimized wherever practicable or runoff water should be redirected so that land is available to absorb storm water, reduce polluted urban runoff, recharge groundwater and reduce flooding.

6. Dual plumbing that allows gray water from showers, sinks and washers to be reused for landscape irrigation should be included in the infrastructure of new development.

Comments: The city currently has no programs to promote the use of gray water. The costs for systems to reliably use gray water could be burdensome for some residents and businesses. Gray water systems must comply with California Plumbing Code Appendix G-A as adopted by the California Department of Water Resources. This is not very practical for single-family homes. Kitchen sinks are not permitted to be connected to a gray water system. Using water from washers is problematic as Appendix G-A prohibits laundry water from soiled diapers to be utilized in a gray water system. All gray water systems must be for subsurface landscape irrigation only.

To address these problems, staff proposes the following changes to the language so that the City can adopt and implement this principle:

Dual plumbing that allows gray water from showers, and non-kitchen sinks to be reused for subsurface landscape irrigation should be encouraged for new and remodeled buildings, and education programs should be developed on the proper construction and operation of systems that use grey water.

7. Community design should maximize the use of recycled water for appropriate applications including outdoor irrigation, toilet flushing, and commercial and industrial processes. Purple pipe should be installed in all new construction and remodeled buildings in anticipation of the future availability of recycled water.

Comments: The City completed a Recycled Water Master Plan in 1992, and Council certified the Program EIR for Recycled Water Master Plan in 1995. Recycled water is currently used to irrigate the Municipal Golf Course, Greer Park, the Baylands Athletics Fields and landscaping around the Regional Water Quality Control Plant. The Open Space Division utilizes recycled water for the Baylands Duck Pond and golf course ponds rather than using fresh or well water. Currently, Utilities Resource Management is conducting a Recycled Water Market Survey to update the cost estimates and list of potential customers identified in the 1992 Master Plan. The study should be complete in the Spring of 2006. It should be noted that there is a possible pre-emption problem with the state building code. Any changes to building requirements must be consistent with state laws requiring uniformity in building codes except in certain limited circumstances. Staff believes that the City should not restrict use to recycled water only – other nonpotable supplies may be available. The cost may be nontrivial in some applications – possibly a project size threshold should be established for implementation.

Staff proposes the following changes to the language so that the City can adopt and implement this principle:
Community design should maximize the use of recycled water or other nonpotable water supplies for appropriate applications including outdoor irrigation, toilet flushing, and commercial and industrial processes. Purple pipe should be installed in large, new construction and remodeled (“remodeled”, used here, means when the plumbing is being replaced) buildings in anticipation of the future availability of recycled, or other nonpotable, water.

8. Urban water conservation technologies such as low-flow toilets, efficient clothes washers, and more efficient water-using industrial equipment should be incorporated in all new construction and retrofitted in remodeled buildings.

Comments: No changes to the original language are proposed. Utilities currently targets incentives for these water-conserving devices through a partnership with the Santa Clara Valley Water District. The California Plumbing Code Standards require new construction and sale of water conserving plumbing fixtures. Utilities offers incentives for installation of water-saving industrial equipment. However, without the current incentives installing water saving industrial equipment could be cost prohibitive for businesses.

9. Ground water treatment and brackish water desalination should be pursued when necessary to maximize locally available, drought-proof water supplies.

Comments: The City completed a Groundwater Supply Feasibility Study in April 2003 to determine the sustainable yield from groundwater. This study determined that groundwater could be used a supplemental supply in droughts to provide up to about 10% of the City’s annual water needs. However, the water would need to be treated so that the water meets all drinking water standards. The cost to have this supply available in droughts will be known when the Program EIR for the City’s water capital improvements (wells, reservoir) is complete (November 2005) and any new wells and reservoirs have been sited.

Staff proposes the following changes to the language so that the City can adopt and implement this principle:

Ground water treatment and brackish water desalination should be pursued when necessary and practical to maximize locally available, drought-proof water supplies.

Implementation Principles
1. Water supply agencies should be consulted early in the land use decision-making process regarding technology, demographics and growth projections.

Comments: No changes to the original language are proposed. The City already does this. A good example is in the preparation of the Urban Water Management Plan in 2000 and the planned update in 2005. Another example is the City’s participation in SFPUC’s Program EIR for its Water System Improvement Program.

2. City and county officials, the watershed council, LAFCO, special districts and other stakeholders sharing watersheds should collaborate to take advantage of the benefits and synergies of water resource planning at a watershed level.
Comments: No changes to the original language are proposed. Palo Alto is taking part in the Integrated Regional Water Management Plan (IRWMP) effort coordinated by ABAG. Palo Alto is also active in regional water supply planning efforts through BAWSCA and the SFPUC. Recently, Palo Alto participated in the Santa Clara County LAFCO’s water service study.

3. The best, multi-benefit and integrated strategies and projects should be identified and implemented before less integrated proposals, unless urgency demands otherwise.

Comments: No changes to the original language are proposed.

4. From start to finish, projects and programs should involve the public, build relationships, and increase the sharing of and access to information. The participatory process should focus on ensuring that all residents have access to clean, reliable and affordable water for drinking and recreation.

Comments: No changes to the original language are proposed.

5. Plans, programs, projects and policies should be monitored and evaluated to determine if the expected results are achieved and to improve future practices.

Comments: No changes to the original language are proposed. Palo Alto actively cooperates with the Santa Clara Valley Water District’s periodic monitoring of the City’s “best practices” in rural road design and maintenance, run-off water containment and trail design to reduce erosion into creeks or streams. Utilities currently submits yearly Best Management Practices reports for water conservation programs and activities to the Utilities Advisory Commission and the California Urban Water Conservation Council. Also, Utilities receives quarterly activity reports from Santa Clara Valley Water District on the joint water conservation programs.

**RESOURCE IMPACT**
Potable water savings, achieved by efficiency improvements or through the use of alternative water supplies such as recycled, or gray water, will result in wholesale water cost savings. However, retail water rates may increase due to the requirement to cover fixed costs over a smaller sales base. There may be a short-term cost impact to new development, but there is insufficient information to assess this impact.

**POLICY IMPLICATIONS**
Adopting the Ahwahnee Water Principles for Resource Efficient Land Use establishes new policy for the City of Palo Alto.

**ENVIRONMENTAL REVIEW**
Adopting the Ahwahnee Water Principles for Resource Efficient Land Use does not constitute a project under the California Environmental Quality Act, therefore, no environmental assessment is required.
ATTACHMENTS
A: Ahwahnee Water Principles for Resource Efficient Land Use, as modified
B: Resolution of the Council of the City of Palo Alto Adopting Ahwahnee Water Principles for Resource Efficient Land Use (as modified for local use)

PREPARED BY: Jane Ratchye, Senior Resource Planner

DEPARTMENT HEAD: ________________________________  
JOHN ULRICH  
Director of Utilities

CITY MANAGER APPROVAL: ________________________________  
EMILY HARRISON  
Assistant City Manager
The Modified Ahwahnee Water Principles for Resource Efficient Land Use
Proposed for Adoption by the City of Palo Alto

Preamble
Cities and counties are facing major challenges with water contamination, storm water runoff, flood damage liability, and concerns about whether there will be enough reliable water for current residents as well as for new development. These issues impact city and county budgets and taxpayers. Fortunately there are a number of stewardship actions that cities and counties can take that reduce costs and improve the reliability and quality of our water resources.

The Water Principles below complement the Ahwahnee Principles for Resource-Efficient Communities that were developed in 1991. Many cities and counties are already using them to improve the vitality and prosperity of their communities.

Community Principles
1. Community design should be compact, mixed use, walkable and transit-oriented so that automobile-generated urban runoff pollutants are minimized and the open lands that absorb water are preserved to the maximum extent possible.
2. Natural resources such as wetlands, flood plains, recharge zones, riparian areas, open space, and native habitats should be identified, preserved and restored as valued assets for flood protection, water quality improvement, groundwater recharge, habitat, and overall long-term water resource sustainability.
3. Water holding areas such as creek beds, recessed athletic fields, ponds, cisterns, and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape, while meeting best practices for mosquito control and groundwater pollution prevention.
4. All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater.
5. Permeable surfaces should be used for hardscape where practical. Impervious surfaces should be minimized wherever practicable or runoff water should be redirected so that land is available to absorb storm water, reduce polluted urban runoff, recharge groundwater and reduce flooding.
6. Dual plumbing that allows gray water from showers, and non-kitchen sinks to be reused for subsurface landscape irrigation should be encouraged for new and remodeled buildings, and education programs should be developed on the proper construction and operation of systems that use grey water.
7. Community design should maximize the use of recycled water or other nonpotable water supplies for appropriate applications including outdoor irrigation, toilet flushing, and commercial and industrial processes. Purple pipe should be installed in large, new construction and remodeled (“remodeled”, used here, means when the plumbing is being replaced) buildings in anticipation of the future availability of recycled, or other nonpotable, water.
8. Urban water conservation technologies such as low-flow toilets, efficient clothes washers, and more efficient water-using industrial equipment should be incorporated in all new construction and retrofitted in remodeled buildings.
9. Ground water treatment and brackish water desalination should be pursued when necessary and practical to maximize locally available, drought-proof water supplies.

Implementation Principles
1. Water supply agencies should be consulted early in the land use decision-making process regarding technology, demographics and growth projections.
2. City and county officials, the watershed council, LAFCO, special districts and other stakeholders sharing watersheds should collaborate to take advantage of the benefits and synergies of water resource planning at a watershed level.
3. The best, multi-benefit and integrated strategies and projects should be identified and implemented before less integrated proposals, unless urgency demands otherwise.
4. From start to finish, projects and programs should involve the public, build relationships, and increase the sharing of and access to information. The participatory process should focus on ensuring that all residents have access to clean, reliable and affordable water for drinking and recreation.
5. Plans, programs, projects and policies should be monitored and evaluated to determine if the expected results are achieved and to improve future practices.