

**QUARTERLY WATER ISSUES UPDATE**  
**December 2006**

Issues related to Palo Alto's water supplier, the San Francisco Public Utilities Commission (SFPUC), and the agency representing the wholesale customers of SFPUC, the Bay Area Water Supply and Conservation Agency (BAWSCA), are discussed below.

**I. Water Supply Issues**

**Water Availability**

SFPUC's latest Hydrological Conditions Report contains information about the regional system's water supply reliability. The Hetch Hetchy precipitation index (computed using six Sierra precipitation stations indicating wetness of the basin) for the 2006 water year (October 1, 2005 through September 30, 2006) was 50.9 inches, or 143% of the average season-to-date precipitation. The September precipitation was 0 inches.

The water received in the SFPUC's Tuolumne Basin reservoirs (Hetch Hetchy, Eleanor and Cherry Lakes and the New Don Pedro Water Bank) from inflows and precipitation for the 2006 water year was about 1,970,000 acre-feet. San Francisco's total entitlement for the 2005 water year (October 1, 2004 through September 30, 2005) was 1,600,000 acre-feet (compared to 331,555 acre-feet for the 2004 water year).

San Francisco's water bank in New Don Pedro Reservoir was full at 570,000 acre-feet as of October 1, 2006. The total water in storage in New Don Pedro, the mountain system and the local systems was about 1,290,000 acre-feet as of October 1, 2006, leaving about 168,000 acre-feet of available storage capacity in the system.

**II. Water Quality**

There were no significant water quality issues to report.

**III. SFPUC Issues**

**Water System Improvement Program (WSIP)**

As required by AB 1823, on September 1, SFPUC submitted its annual report describing progress made on the implementation of its WSIP during FY 05-06 to the Joint Legislative Audit Committee, the California State Seismic Commission (CSSC), and the California Department of Health Services (CDHS). This report addresses progress made over the last year on meeting program goals and objectives as well as implementation of specific improvement projects for the regional water system. SFPUC reported on its revisions to the program adopted by the SFPUC Commission in November 2005, the independent reviews of the program by the new program management consultant, the reports to the CSSC and CDHS in January 2006, implementation of the quarterly progress reports, development of individual Project Management Plans for each project, the convening of the Seismic Safety Task Force to independently review the program,

initiation of a Quality Management Program, the hiring of key positions and progress on the PEIR.

### **Water System Improvement Program Performance Tracking**

SFPUC issued its third quarterly report on the WSIP on August 15, 2006. The primary conclusion is that the program still has the same scope, budget and schedule as that adopted by the Commission in November 2005. As of June 30, 2006, there are 22 projects in the planning phase, with 15 projects currently undergoing environmental review, and 14 projects in the design phase. Of the 14 projects in design phase, 3 projects went into bid and award. 7 projects are in the construction phase.

The regional program overall is close to the planned schedule (4.2% complete versus the planned 4.5% complete). The planning, design, construction, and program management phases are close to the schedule. However, the environmental review phase is behind schedule (17.8% complete compared to 23.3% complete). Reasons for being behind on this phase include: 1) some projects that were thought to receive a Negative Declaration will need EIRs; 2) inclement weather has delayed data collection by some environmental field survey teams; and 3) delay in procurement of consultants.

### **WSIP Program EIR**

SF's Planning Dept.'s Major Environmental Analysis (MEA) group is in charge of completing the PEIR for SFPUC's WSIP. MEA held a briefing on the PEIR for the BAWSCA agencies on September 14. The briefing focused on the alternatives that will be examined in the PEIR and the question of growth inducement that will be addressed in the document. The key items discussed included:

- The PEIR is a high level review of the WSIP. It will address construction and operations effects, but from a program-level only. There will not be much site-specific analysis. The review will identify "potentially significant" impacts, many of which will need further analysis and mitigation in project level EIRs. The PEIR is the ONLY place where growth effects are analyzed. This issue will not be revisited on the subsequent project EIRs.
- CEQA requires a review of alternatives that can: 1) meet most of the basic project objectives, and 2) avoid or minimize significant WSIP impacts. The PEIR alternatives include:
  - Preferred alternative: This alternative is the WSIP as submitted. The regional system's demands (purchase requests) for 2030 of 300 mgd would be met. This means that an additional 35 mgd of new supplies would be found. 10 mgd of this is from additional conservation, recycled water, and groundwater in SF. This alternative requires additional diversions from the Tuolumne River, but these diversions are still under SF's water right on the Tuolumne.
  - No project alternative: This alternative is required by CEQA to compare environmental consequences of implementing the project vs. not implementing the project. It is not a "no action" or "do nothing" scenario. It includes existing conditions and describes what would SFPUC and BAWSCA agencies do if the WSIP were not approved. Selected WSIP projects would be implemented in order to comply with regulations (e.g. dam safety, water quality regs).

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- No purchase request increases – reliability only – alternative: In this alternative, SFPUC would meet purchase requests up to current supply assurances (184 mgd for BAWSCA agencies and current usage for SFPUC). Most WSIP projects would be implemented with the possible exception of the treatment plant expansion.
- Aggressive conservation and water recycling alternative: This alternative was not yet fully defined, but would involve additional conservation and water recycling projects throughout the SFPUC service area. The basis for this will be the development of the Regional Water Supply Option #4 (RWSO4), which attempted to identify all the possible projects that could be done in the service area. About 25 mgd was identified; however, some of these are in the conceptual phase and may not be real or possible. This alternative may be constructed to meet the 2030 purchase requests, which could mean some small increase in diversions from the Tuolumne River.
- Note that no alternative proposes more diversions from the Tuolumne River than the preferred alternative or than that available under SFPUC’s existing water right.
- The table below is an attempt to compare the PEIR alternatives.

	<b>Preferred Alternative</b>	<b>No Project Alternative</b>	<b>No purchase request increases</b>
Does alternative meet 2030 demands?	Yes	Would meet demands as much as possible under existing water rights	No
Additional diversions from the Tuolumne?	Yes	Yes	Some increases from current.
Dry year water transfers (from MID/TID and groundwater conjunctive use)	Yes	No	Limited – only for existing customer reliability.
10 MGD of recycled water, conservation, and groundwater in SF?	Yes	No	Yes
Performance	Meets all WSIP Level of Service (LOS) goals	- Meets demand in most years, but not in dry years. - Drought-time cutbacks would exceed 20% LOS goal. - system reliability improvement short of LOS goals.	- Drought supply for existing customers. - Meets 20% rationing goal for existing customers. - All system reliability improvements made - Does not meet one chief objective: meeting future needs through 2030.
Environmental Impact	Baseline	- Less Tuolumne River diversions reduces some system impacts. - Fewer facility construction impacts. - Growth effects?	- Less Tuolumne River diversions reduces some system impacts. - About same construction impacts. - Reduces indirect growth impacts, but growth and related impacts still exist.

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- In the alternatives that don't meet the BAWSCA agencies increased demands in 2030, the PEIR must state what the agencies will do. Alternatives are to:
  - Develop more local water supplies (groundwater, local surface water). There are limited opportunities for this since much of the surface water in the service area has been developed (by SFPUC), SCVWD manages the groundwater in Santa Clara County, and San Mateo County doesn't have much groundwater anyway.
  - Import water – this could be from transfers north or south of the Delta. BAWSCA has the authority to effect such transfers, but would require arrangements with SF for the use of existing infrastructure. Additional storage may be required. The impacts from such transfers, such as from the Delta, would need to be evaluated.
  - Develop additional conservation and water recycling. RWSO4 suggested the potential for an additional 15 mgd within the BAWSCA service area. This will be the focus of the Aggressive Conservation/RW Alternative.
  - Accept greater frequency and/or greater severity of water shortage cutbacks.
- The WSIP variants to be examined include:
  - All new water from the Tuolumne
  - Desalination for drought water supply
  - 10% rationing in a drought
- Growth inducement analysis – one key focus for many who will be reviewing the PEIR will be the growth inducement potential of the project. CEQA requires a discussion of ways a project could (directly or indirectly) impact growth potential. Questions that must be addressed and the answers for the WSIP are:
  - Would the WSIP foster economic or population growth? NO
  - Would the WSIP allow construction of additional housing? NO
  - Would the WSIP remove an obstacle to population growth? YES – the WSIP would reduce water supply constraints, thereby removing one obstacle to growth. Therefore, the WSIP has growth inducement potential.
- What level of growth could the WSIP support? To evaluate this, the growth and demand projections used for the WSIP must be reviewed and checked for consistency with adopted General Plans, ABAG growth projections, and Urban Water Management Plans. The question of if the growth served by the WSIP is planned growth will be examined. Are there any areas where supply increases due to the WSIP might serve growth beyond that identified in adopted General Plans?
- The demand projections for the WSIP were prepared in 2000-2001. Many were based on ABAG's Projections 2002. ABAG has since prepared Projections 2003 and Projections 2005. The later projections have slightly lowered employment numbers and slightly higher population numbers for 2030. The numbers are generally consistent with those shown in the BAWSCA projections.
- What are the indirect, environmental effects of that growth? Impacts of planned growth are analyzed by land use agencies in adopted General Plan EIRs. The findings on those EIRs include some significant, unavoidable impacts and many significant, mitigable effects. The PEIR will summarize the General Plan EIRs adopted by local land use jurisdictions – specifically the findings, mitigation measures, and overriding considerations.

### **BAWS Symposium**

The Bay Area Water Stewards (BAWS), a group of environmental interest groups, will be very involved in reviewing the SFPUC's PEIR on the WSIP. The SFPUC hosted a symposium on September 28 for BAWS to provide a forum for outside experts to review water demand, conservation program selections, and alternative supply information provided to San Francisco for its use in preparing the PEIR.

In advance of the symposium, BAWS requested detailed information about the current water usage patterns, water demand projections and evaluation of potential water conservation measures by the BAWSCA agencies. One piece of information requested was the per capita water usage for each agency. Out of the BAWSCA agencies, Palo Alto has the fourth highest per capita water usage for single-family residential customers and the highest per capita water usage for multi-family residential water customers.

At the symposium, SFPUC and BAWSCA provided a summary of the methodology used by SFPUC and the retail agencies to develop long-term water demand forecasts and select conservation programs for the Program EIR. Overall, the BAWSCA agency demands are projected to increase from 2001 to 2030 by 14%, or 38 million gallons of water per day (mgd). The demand increase is 7.6% for Single-family residential customers, 4.1% for Multi-family residential customers, and a whopping 25% for non-residential customers. Broken down another way, the growth is about 9% for indoor use and over 22% for outdoor use.

A panel assembled by the Bay Area Water Stewards (BAWS) reviewed the materials for the entire SFPUC service area and individual agency details. Comments from the panel included:

- The demand projections of the BAWSCA agencies are too high. Particular focus was put on the six agencies predicting the highest growth rates over the next 25 years (East PA, Hayward, ACWD, Santa Clara, Stanford, and Milpitas). Reasons for the projections being too high include:
  - Employment projections were based on ABAG's 2002 projections, but these have been revised downward as shown in ABAG's 2005 projections.
  - No consideration for price is included in the forecasting methodology. The assumption that water price elasticity is zero was questioned. Many speakers identified this as a major shortcoming in the forecast.
  - The projections do not contemplate new plumbing code changes or standards that will be implemented over the next 25 years, yet we know these are likely to occur. In addition, new technologies will emerge and improve efficiency more than assumed.
  - Conservation programs are not aggressive enough (only 4% overall for the BAWSCA agencies). SCVWD studies have shown that 38% reductions are possible. Pacific Institute studies show that 39% reductions are possible.
  - The conservation programs analyzed do not target the high growth areas: nonresidential load and irrigation usages. These two areas have the highest potential for savings and, if proper efficiency programs were designed, the growth rates assumed for these uses would certainly fall.

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- The assumptions for unaccounted for water are crude and overstate the amount of water needed.
- History has shown that demand projections have been consistently too high. Part of the reason may be due to the perceived risk of underestimating is far greater than the perceived risk of overestimating demand. However, there are risks of overestimating – too great of a commitment of capital and facilities, ecological costs.
- It was questioned why the total potential for efficiency improvements is not achieved. Part of the answer may be that the wrong perspective is used. The selection of conservation savings completed by BAWSCA focuses on the utility perspective, but this is not the correct way to evaluate cost-effectiveness. The proper perspective is societal, or environmental. To determine the avoided cost, do not assume that it's the average wholesale cost of water. It should consider the ecological value of water as well – this value is non-zero and can be estimated by the costs to restore the Carmel River or the San Joaquin River. These projects can help put a societal value on water remaining in rivers.

Another panel of representatives from water agencies with model efficiency programs presented their programs and offered suggestions to SFPUC and the BAWSCA agencies. There was nothing new here, but these agencies are on the leading edge of efficiency program design and implementation.

### **Possible Impacts of Global Climate Change on Regional Water System**

At the September meeting of BAWSCA's Technical Advisory Committee, SFPUC staff presented a brief analysis of the potential effects of climate change on the regional water system. If, as many climatologists believe, a 3° C rise is likely by 2050 and a 6° C rise is likely by 2100, the snow line in the Sierra Nevada Mountains will increase.

The snow line is expected to increase to 7,000 feet by 2025. More of the precipitation is expected to fall as rain and the reduced snowpack will produce less snowmelt runoff. The runoff pattern is expected to change so that a greater fraction of the runoff will occur in the November through March period and a smaller fraction between April and July.

The Hetch Hetchy basin above O'Shaughnessy Dam covers 459 square miles, of which 87% is above 6,000 feet and 76% is above 7,000 feet. The Cherry Creek basin is 116 square miles, of which 76% is above 6,000 feet and 52% is above 7,000 feet. The Eleanor Creek basin is 79 square miles, of which 60% is above 6,000 feet and 26% is above 7,000 feet.

Preliminary results from SFPUC's runoff forecasting model show runoff shifting to early winter months and less water available to the system under the provisions of the Raker Act. SFPUC expects to conduct further analysis and more sophisticated modeling to identify options for the system operation or infrastructure. This work is not expected to affect projects that are part of the Water System Improvement Program.

#### **IV. Bay Area Water Supply and Conservation Agency Activities**

##### **Proposal to Drain Hetch Hetchy**

BAWSCA's General Manager, Art Jensen, attended the October 10th hearing on the proposal to Drain the Hetch Hetchy Valley before the State Assembly Water, Parks and Wildlife Committee chaired by Assembly Member Wolk.

Many were in attendance, including U.S. Representative George Miller. Miller noted his interest in restoring this "asset of the world" and said that public values have changed over time. There was general agreement that many uncertainties remain: 1) no agreement on source of replacement supplies, 2) cost estimates were disputed (although a construction expert noted that for a project in the conceptual phase, as this is, the range of cost estimates is not out of line.), 3) institutional aspects were unclear, and 4) public opinion is unknown regarding the value of restoration and who will pay.

The hearing was very well organized and focused on next steps. The next level of study is expected to cost \$25 million and the chair indicated her plan to pursue the funding. She also wants future hearings on the proposal to occur around the state.

Mr. Jensen testified at the hearing regarding BAWSCA's position: 1) develop a plan for an alternative, reliable, high quality water supply at the same cost, 2) the plan must be supported with legally enforceable agreements, and 3) all facilities must be operational and all agreements executed prior to any restoration work.

##### **Economic Impact of Water Supply Shortages**

BAWSCA and SFPUC are jointly conducting a study of the economic impact of drought-time water shortages. The report, to be prepared by the Bay Area Economic Forum and SFPUC's consultant, Public Financial Management (PFM), is expected to be completed by the end of the year. This study will investigate the costs of both a 10% cutback and a 20% cutback on water supplies in a drought. Feedback from large water using businesses will inform the study.

#### **V. City of Palo Alto Utilities Issues**

##### **Recycled Water Facility Plan**

Following the UAC's recommendation, on November 20, 2006 the Council decided to proceed with preparing a facilities plan and environmental documents for the project to extend the recycled water system into Palo Alto. Staff has applied for a state planning grant of \$75,000 to complete the study. The state is expected to act on the application in February or March 2007, after which the work can begin.

##### **Capital Improvement Program Status Update**

The Phase I Improvements Project entails preliminary design, final design, related studies (e.g. environmental CEQA compliance, geotechnical evaluations) and construction-phase services for various capital improvement projects related to improving distribution system water quality and the reliability of the water supply system.

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The first three projects described below are approximately 90% complete as of November 8, 2006 and scheduled for completion in December 2006.

### 1. Reservoir Booster Station Improvements

This project consists of upgrading and replacing the mechanical, electrical, and instrumentation equipment at the following pump stations: Quarry (95% completed), Corte Madera (90% completed), Boronda (90% completed), Park (100% completed), and Dahl (100% completed). In addition, this project will provide a secondary (grid or looped) connection/supply to Pressure Area 4 (50% completed; the area generally bounded by Foothill Expressway, Page Mill Road, Arastradero Road, and Deer Creek Road).

### 2. Distribution System Water Quality Enhancement

This project consists of constructing reservoir mixing systems at Monte Bello, Dahl, Park, and Mayfield reservoirs, and ammonia feed at the Hale, Rinconada, and Peers Park well sites. In addition, Carollo provided the City with a water quality monitoring program and recommendations for mobile dechlorination equipment that is used during the City's annual water system flushing operation. This project is part of the larger package including the two projects described in 1. above and 3. below. Mixing systems at Mayfield, Park, Montebello, and Dahl reservoirs (100% completed), and ammonia feed to the existing emergency wells (85% completed).

### 3. Existing Booster Station Improvements

This project consists of designing pressure regulator upgrades at the Quarry, Corte Madera, Boronda, Park, and Dahl booster stations. These improvements are necessary to improve the City's ability to manage water quality in the Foothills Area, as well as supply emergency water demands during a shutdown of SFPUC's Hetch-Hetchy aqueduct system. This project is part of the larger package including the two projects above. Dahl and Park booster stations are 100% complete.

### 4. Emergency Water Supply and Storage Project

These projects consist of these major components:

- A. Reservoir, Pump Station, and Phase 1 Well – the new reservoir, pump station and well, which were recommended in the report entitled “Water Wells, Regional Storage, and Distribution System Study” (1999 Study), will help bring the City's system in compliance with the CDHS recommended supply criteria of meeting at least 8-hours of maximum day demand while maintaining fire suppression reserves; and
- B. Existing and New Wells and Mayfield Pump Station – rehabilitating the City's existing wells to enhance the supply reliability for on-going demands during a shutdown of the SFPUC Hetch-Hetchy aqueduct system. This project also includes augmenting the Mayfield pump station to deliver water to the urban residential, commercial, and industrial areas in the event of such a shutdown.

A Draft Environmental Impact Report (DEIR) was released November 8, 2006. This DEIR is available for review and comment until December 22, 2006. The DEIR is available on the City of Palo Alto Utilities' website at [www.cpau.com/emergencywater/EIR](http://www.cpau.com/emergencywater/EIR).

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After public hearings at meetings of the Planning and Transportation Commission on November 29, 2006 (on the adequacy of the DEIR) and on February 14, 2007 (on the Final EIR), the City Council will hold a public hearing on March 5, 2007 to certify the adequacy of the Final EIR. Updates will be posted to the project website.

### Water Efficiency Programs

City Hall and Cubberly both received free indoor water audits this quarter. The Cubberly report indicates a potential water savings of 2,288 CCF per year if all recommendations are implemented. The City Hall report is still awaiting finalization but will be completed for the next quarterly report.

Staff has continuously been involved with reviewing a number of new construction projects that must comply with the Landscape Water Use Efficiency Standards. New legislation regarding the Landscape Water Use Efficiency Standards was passed on August 30, 2006. AB 1881 requires the Department of Water Resources to update the landscape model ordinance by January 1, 2009. Local agencies will have till January 1, 2010 to adopt the model ordinance or a water efficient landscape ordinance that is as least as effective in conserving water. AB 1881 also requires agencies to require the installation of a separate water meter for landscape purposes for all new retail water services starting January 1, 2008.

The table below summarizes the activity for the quarter for water efficiency programs.

<b>PROGRAM</b>	<b>Quarterly Participants</b>	<b>Estimated Water Savings from Quarterly Participants (CCF/YR)</b>	<b>Total Program Participants (since 1/1/05)</b>
Water-Wise House Call Surveys	46	201	887
Residential High Efficiency Toilet Rebates	6	67	34
Residential Clothes Washer Rebates	110	949	436
Commercial High Efficiency Toilet Installs	2	44	34
Commercial Large Landscape Surveys (ITAP)	5	4,000	22
<b>TOTAL</b>	<b>269</b>	<b>5,261</b>	<b>1,413</b>

### San Francisco Bay Area Integrated Regional Water Management Plan

The Bay Area Integrated Regional Water Management Plan (IRWMP) was completed on November 1, 2006. The IRWMP was developed by a large group of stakeholders and is a very broad plan covering four functional areas: 1) water supply and water quality, 2) wastewater and recycled water, 3) storm water and flood protection, and 3) watershed and ecosystem.

In order to be considered for state construction grant funding, projects must be identified in an IRWMP. The plan must be adopted by participating agencies by December 31, 2006. The Council adopted the plan on November 20, 2006.

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The established Bay Area’s IRWMP’s goals are to:

1. Improve supply reliability
2. Protect and improve hydrologic function
3. Protect public health and property
4. Protect and enhance environmental resources and habitat
5. Protect and improve quality of water resources
6. Promote economic, social, and environmental sustainability

Many objectives under each goal were developed and each functional area was marked as to whether it contributed to each objective. The table below shows the broad range of water management strategies considered in the plan.

Water Management Strategies Considered	
▪ Ecosystem Restoration <sup>a</sup>	▪ Imported Water <sup>b</sup>
▪ Environmental and Habitat Protection and Improvement <sup>a</sup>	▪ Land Use Planning <sup>b</sup>
▪ Water Supply Reliability <sup>a</sup>	▪ Non-point source (NPS) <b>Error! Bookmark not defined.</b> Pollution Control <sup>b</sup>
▪ Flood Management <sup>a</sup>	▪ Surface Storage <sup>b</sup>
▪ Groundwater Management <sup>a</sup>	▪ Watershed Planning <sup>b</sup>
▪ Recreation and Public Access <sup>a</sup>	▪ Water and Wastewater Treatment <sup>b</sup>
▪ Storm Water Capture and Management <sup>a</sup>	▪ Water Transfers <sup>b</sup>
▪ Water Conservation <sup>a</sup>	▪ Interties <sup>c</sup>
▪ Water Quality Protection and Improvement <sup>a</sup>	▪ Infrastructure Reliability <sup>c</sup>
▪ Water Recycling <sup>a</sup>	▪ Regional Cooperation <sup>c</sup>
▪ Wetlands Enhancement and Creation <sup>a</sup>	▪ Education and Outreach <sup>c</sup>
▪ Conjunctive Use <sup>b</sup>	▪ Monitoring and Modeling <sup>c</sup>
▪ Desalination <sup>b</sup>	▪ Groundwater Banking <sup>c</sup>

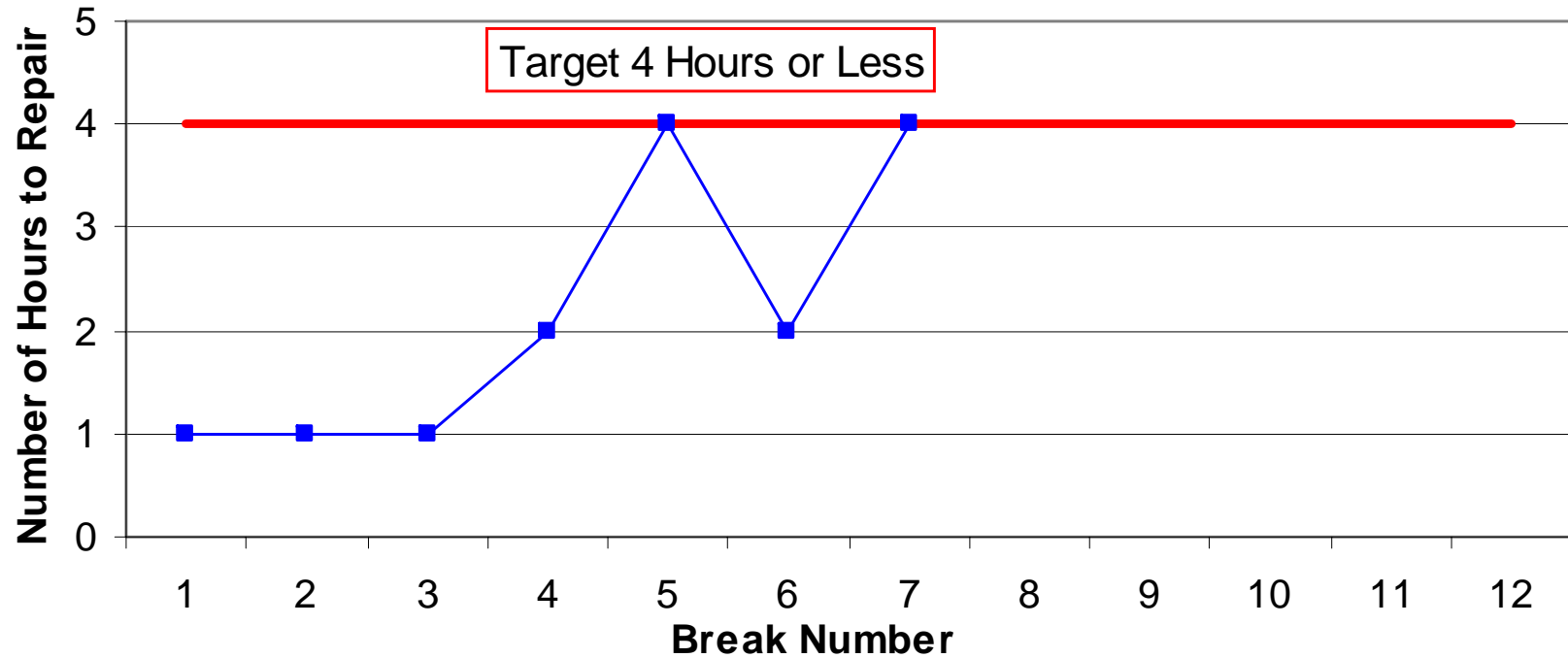
Palo Alto’s recycled water project is included in the plan and, therefore, will be eligible for state construction grant funding.

### VI. Operating Measures

The four attached charts describe water utility operating measures for the first quarter of FY 06-07 (July through September 2006):

- Water System O&M - Mainline Leak Repairs
- Water Main Leaks by Type of Pipe
- Water Main Shutdowns and Customers Affected
- Unplanned Water Service Disruption

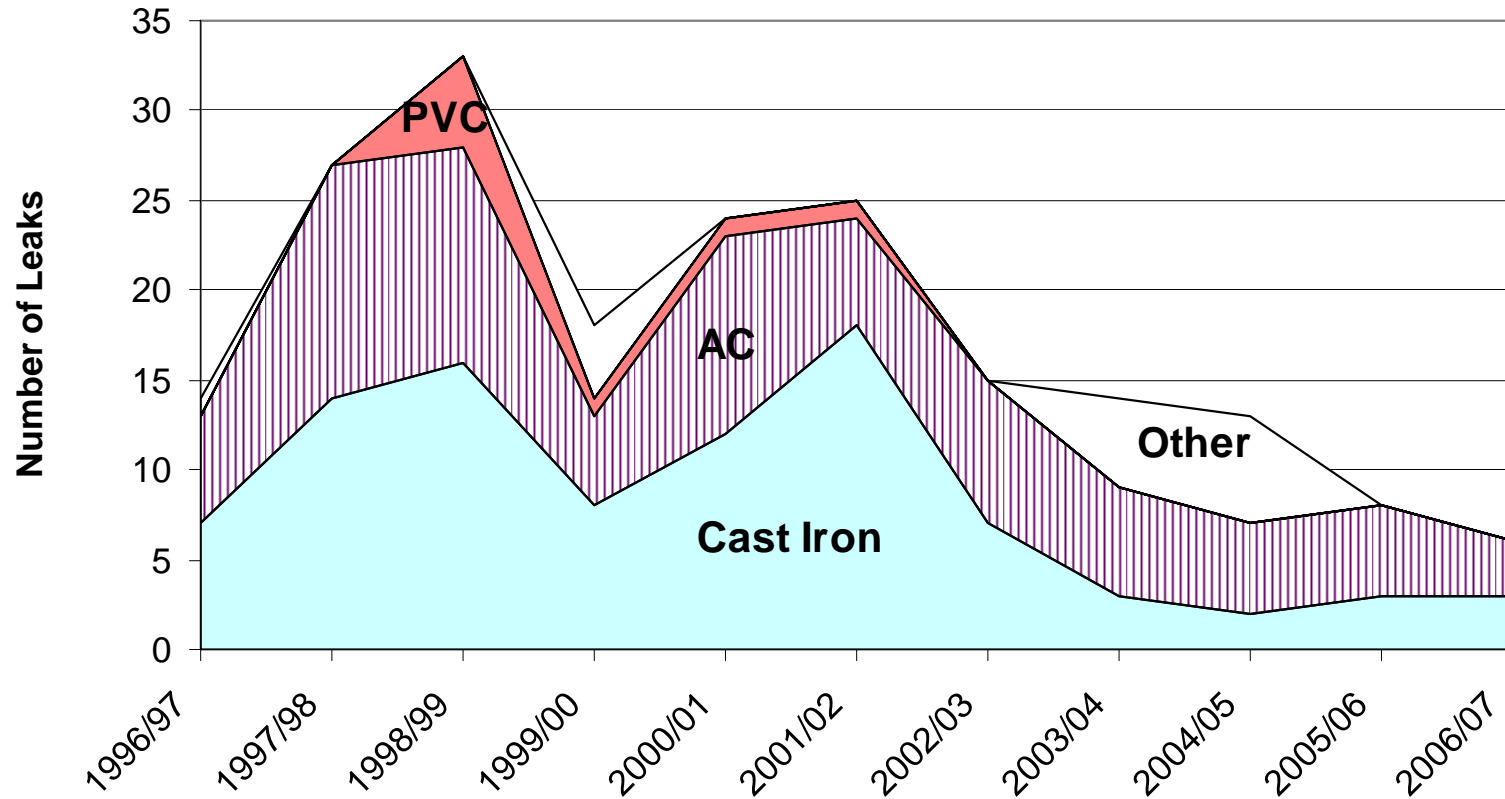
## Water System O&M Mainline Leak Repairs FY 06-07 (as of September 2006)



**100% services restored in 4 hours or less**

**Total No. of breaks: 8  
Avg. Hrs. to Repair: 2.1**

**Water Main Leaks by Type of Pipe  
Material Failure Only (FY 06-07 as of September 2006)**

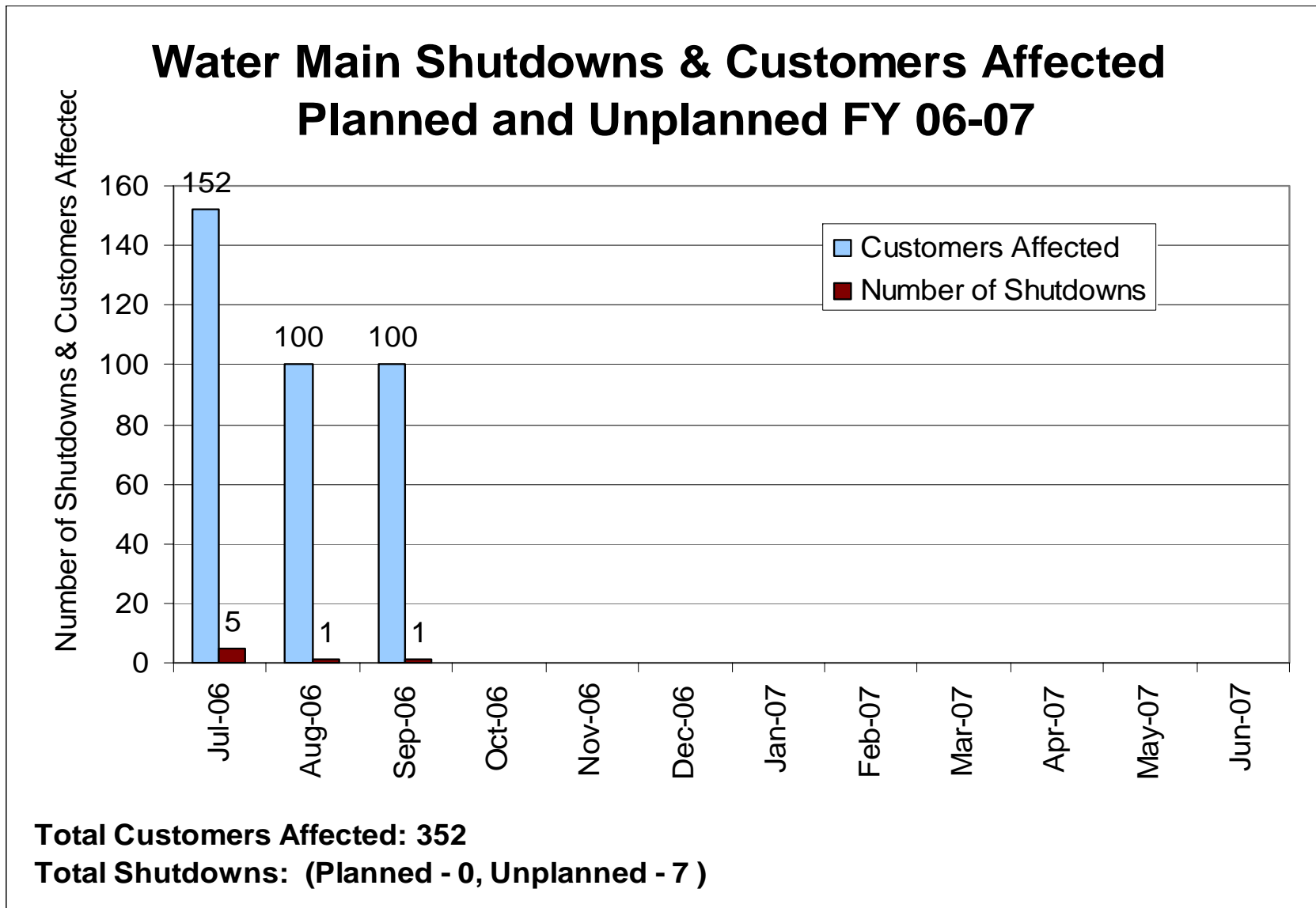


**Miles of CI: 59.1 (31%)**  
**Miles of PVC: 22.1 (5%)**

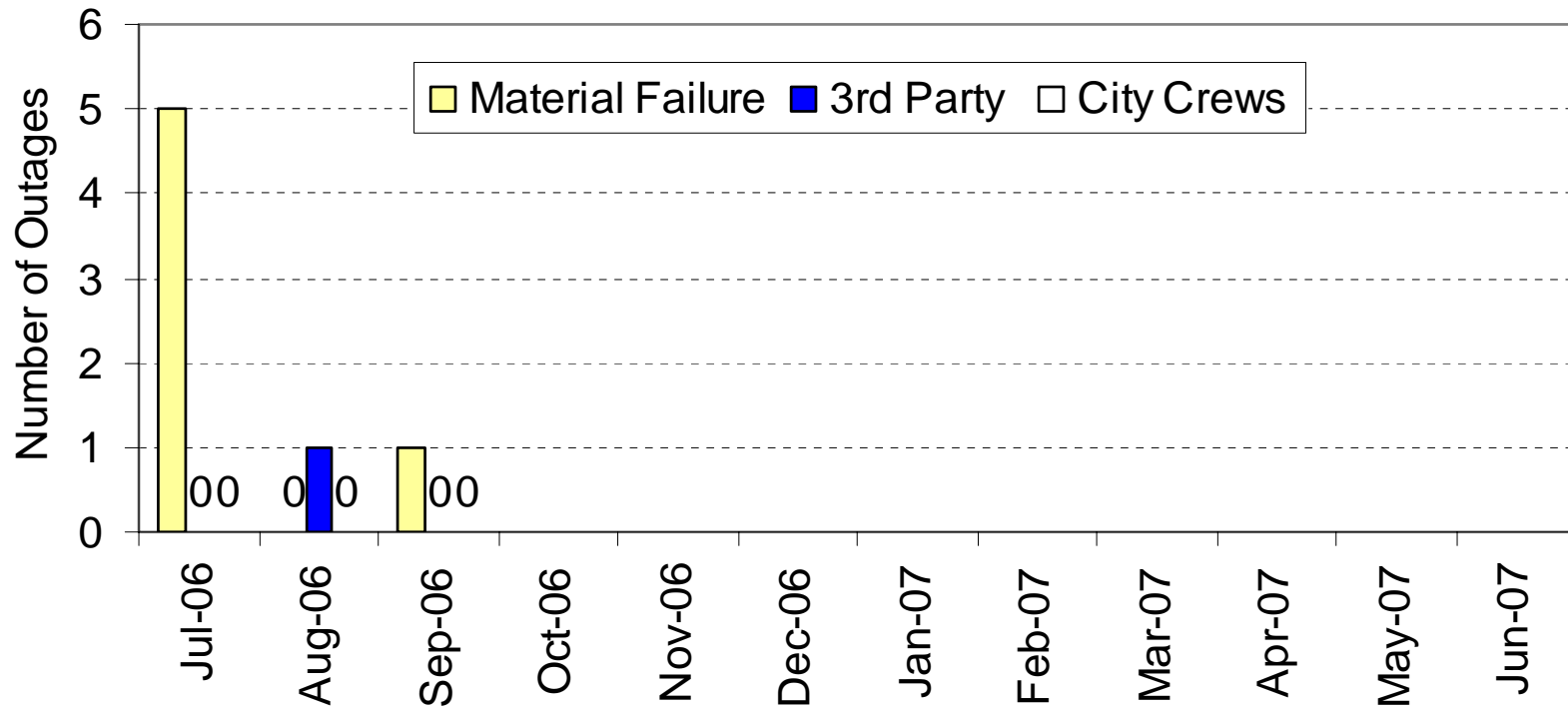
**Miles of AC: 124.3 (56%)**  
**Miles of CCP: 17.3 (8%)**

**Total Miles of Main: 226**

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## Unplanned Water Disruptions By Cause/Main Lines Only



**Total Material Defect: 6**  
**Total 3rd Party: 1**

**Total City Crews: 0**  
**Total Disruptions: 6**