TO: **James L. App, City Manager**

FROM: **Doug Monn, Public Works Director**

SUBJECT: **Integrated Water Resources Plan**

DATE: **May 1, 2007**

NEEDS: For the City Council to consider integrating the City's water resources planning in such a way as to advance City goals to improve water quality, diversify and expand water supplies, reduce groundwater dependence and better manage this natural resource.

FACTS:

1. The City provides water, wastewater, and storm water management services to residences and businesses within the City limits.

2. Water is produced from two groundwater sources – the Salinas River underflow and the Paso Robles Groundwater Basin. Eighteen wells produce approximately 7,500 acre-feet annually and are strained to meet high summertime demand.

3. Salinas River underflow withdrawals are expressly limited by State permit/license. Groundwater basin use is not limited by permit but is subject to competitive pressures, limited safe annual yield, localized water level declines, and diminishing quality.

4. Groundwater is hard and subject to diminishing quality over time. Water treatment is provided at each well head.

5. Additionally, in 2004 the City committed to the delivery of a surface water project that will deliver 4,000 acre-feet per year of untreated water from Lake Nacimiento. Nacimiento deliveries are to begin in 2010 and will bring a softer source of water into the City system.

6. Each day, an average of 2.9 million gallons of used, or waste, water is collected and treated at a central wastewater treatment plant located adjacent to the Salinas River. Treated wastewater is currently disposed into the river.

7. City water, wastewater, and storm water services are regulated by a number of public agencies including:

   - San Luis Obispo County Department of Environmental Health
   - State Water Resources Control Board and the Regional Water Quality Control Board
   - State Department of Fish & Game
   - State Department of Water Resources
   - United States Army Corps of Engineers
   - United States Department of Fish & Wildlife Services
   - United States Environmental Protection Agency

8. County, State, and federal regulations control the quality, in terms of concentrations of certain constituents such as salt, of both consumable and waste water. Constituent limit regulations become increasingly more rigorous and costly to achieve.

9. Development and delivery of water, wastewater, and storm water services are also guided by the City's General Plan, Municipal Code, Urban Water Management Plan, and utility Master Plans.

10. Water demand is projected to increase from an estimated 7,500 acre-feet per year to 15,300 acre-feet per year unless the City succeeds at conserving and recycling water. Increasing water demands and ever more stringent water quality regulations (discharge and drinking) necessitates development of *integrated* water and wastewater management practices and more advanced treatment regimens so that the integrity, quality and quantity of water can be sustained for the long term. New resource management strategies need to include:

    - Identification of specific water quality targets to reliably meet multiple objectives and rigorous requirements for public health, groundwater and Salinas River watershed sustainability, and environmental enhancement; and
    - Definition of water treatment alternatives to achieve water quality targets; and
    - Recognition of recycled wastewater as a resource that can help address seasonal water shortages, promote conservation of drinking water, enhance watershed management, and support environmentally sound treatment and disposal objectives; and
    - Integrated management of surface, ground, river, and recycled water.

ANALYSIS & CONCLUSION: A long-term, reliable supply of good quality water is essential to life, public health, environmental health, and a strong economy. Paso Robles water resources are limited, subject to ever-increasing demands, and at risk of water quality degradation. The management of water supplies, demands, uses, discharge and replenishment must, therefore, be a guiding criterion in public decisions. Accordingly, it is recognized as such in the Economic Strategy.

Paso Robles provides water and wastewater service to over 29,000 people today, increasing to 44,000 by 2025. The City's use of, and discharge to, area waters may affect a broader population. A long-term strategic and integrated management plan to sustain these resources must be developed.

In 2004, the City articulated water resource goals which are:

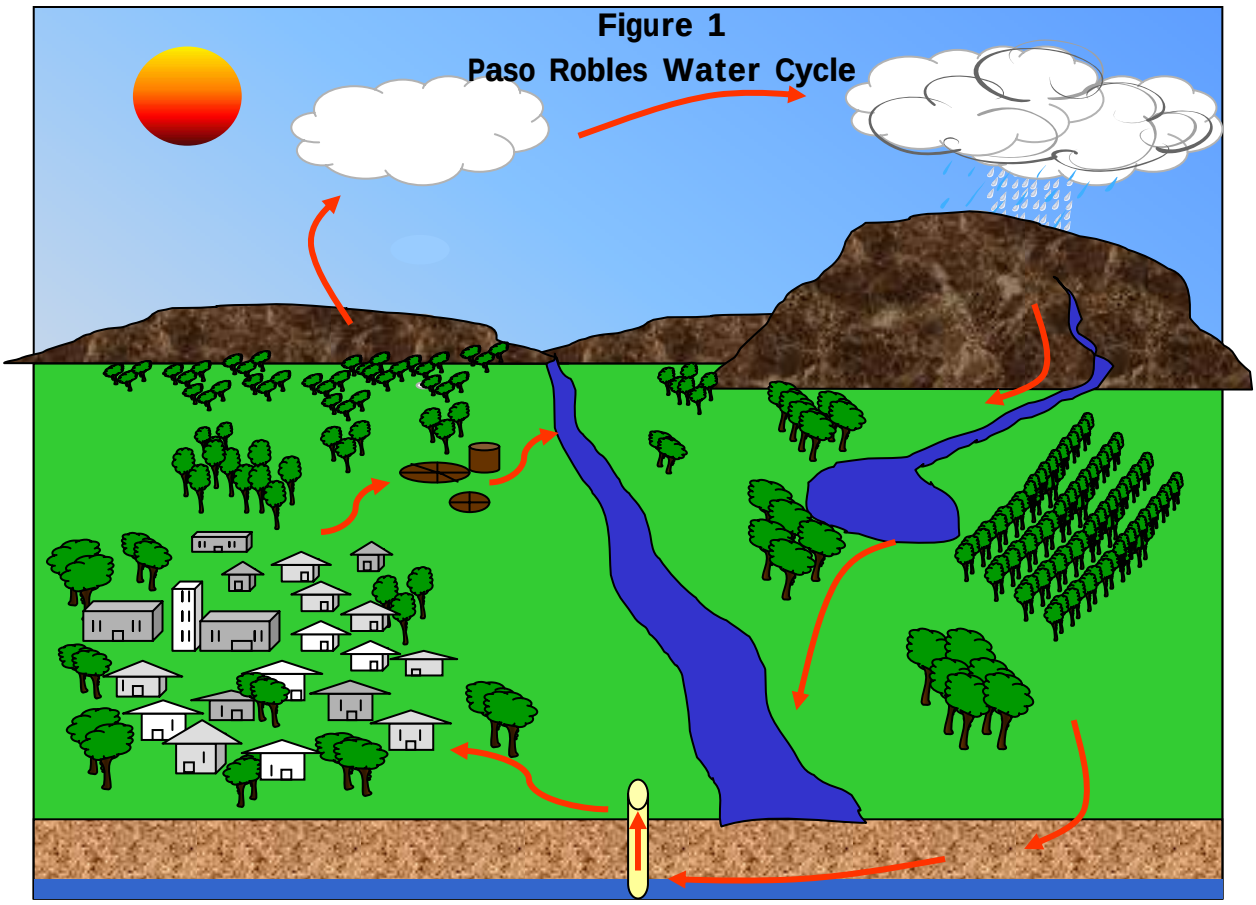
- Improve water quality
- Increase and diversify water resources
- Increase reliability of water supplies
- Reduce groundwater basin dependence
- Reduce salt loading into the basin
- Maintain strong water rights position
- Anticipate regulatory requirements
- Prioritize public works expenditures to meet these goals

Pursuit of these goals required a rethinking of traditional water and wastewater management, as well as examination of current conditions. Thus, the City commissioned engineering and scientific analyses of groundwater, recycled water, source control, and utility master planning. Boyle Engineering Corp. has been the primary author of the resource reports.

The reports reveal that the goals are intertwined, as are the steps the City could take to achieve them. The possibility of creating a self-sustaining water resource portfolio is taking shape, one that would optimize rainfall and storm water management to recharge the thirsty groundwater basin, in which residents would be careful stewards of the quality of waters allowed to drain to the river and the City wastewater system, and in which highly treated wastewater would be recycled back to meet irrigation needs and/or recharge groundwater. Viewing City water resources in this light invites the possibilities of a balanced, effective water management plan that makes the most of the community's utility investment and provides for the community's long-term water needs.

The reports paint a picture of the City's current water resource setting and its potential to advance to a point of integrated water resource use. The Salinas River conveys storm runoff and provides the principal source of recharge to the large Paso Robles Groundwater Basin. With expanding agricultural activity in the river basin and more development, salt levels increase in the river system. As a result, salt levels in the City's water supply have been gradually increasing.

Homeowners and businesses have adjusted to the relatively high mineral content of the well water through the use of softeners and the result has been even higher discharge of salts into the sewer system. Sewage is collected throughout town and treated at the City's wastewater treatment plant, mostly to address organic loading, and treated effluent is discharged back into the Salinas River with heightened salt concentrations; thus the cycle progresses as depicted on **Figure 1**.



For many years, full reliance on well water was accepted, until basin-wide investigations revealed that changing agricultural demands and thriving urban growth would overdraft that supply as early as 2010 if supplemental water were not introduced into the region. Further, freeing up higher mineral content groundwater for uses other than community drinking water strikes a balance with regional water needs and opens the door for exercising the long-held entitlement to higher quality water from Lake Nacimiento.

Starting with water supply, a principal finding of the reports is that potable water demand may more than double over the next 18 years. This demand will require development of new fresh water supplies along with efforts to conserve water and to provide recycled water for non-potable users. Accompanying this increase in water demand would be an impressive investment in infrastructure to deliver more water, faster and to collect the waste stream for treatment back at the wastewater treatment plant. Handling the waste stream will become increasingly difficult and costly if current salt loading trends continue. The City currently deposits treated wastewater that contains over double the salt concentrations as that which is drawn for use from the very same source. Alternatively, the City could deliver improved water quality principally from Lake Nacimiento while simultaneously alerting customers to the salt-concentrating effects of on-site regenerated water softeners along with pretreatment of commercial discharges. Successfully decreasing salt loading in the waste stream would advance the success of recycling treated wastewater, lessen the potential for long-term degradation of underground fresh water sources, bringing us full circle to using recycled water to offset a portion of the increasing demand for potable water supplies.

Principal recommendations have been integrated such that efforts in one area build upon advancement toward the City's water resource goals in another area. Integrated planning of water resources is an investment in self-sustainability that addresses a planning horizon of 50 to 100 years. Compare this to a more traditional community infrastructure approach of building things bigger and acquiring more as the community grows. Allowing advancements in one area of utility planning to sustain long-term benefits in a related water resource area opens the possibility of wise investment in the future. These initiatives are addressed in the report dated February 2007 prepared by TJ Cross Engineers, Inc. entitled "Water Resources Plan Integration and Capital Improvement Program" was commissioned by your Council in October 2006.

The proposed integrated resources plan offers benefits to City residents by ensuring that investments in one utility area build on needs in another area. For example, the introduction of Nacimiento water supply will both improve drinking water quality and significantly reduce groundwater basin dependence. That markedly softer water supply will directly reduce salt loading into the waste stream and encourage elimination of household water softeners. The resulting improvement of treated wastewater quality positions the City to recycle water to offset potable water needs and lessens or avoids degradation of groundwater sources, thereby demonstrating good resource stewardship and maintaining a strong water rights position. This collective integration of water resources represents a well thought-out set of programs that will benefit City residents for decades to come.

The "Water Resources Plan Integration and Capital Improvement Program" follows this basic sequence:

1. Accept and treat deliveries of Nacimiento Water first.
2. Initiate a water conservation program along with a wastewater source control/pretreatment program to reduce salt loading. Concurrently, implement storm water pollution management strategies.
3. Examine quality parameters of the wastewater effluent to further clarify the degree of treatment needed to provide a marketable recycled water product.
4. Establish a recycled user base and determine the level of treatment needed to supply such recycled water demands.
5. Make a decision to move into the recycled water market.
6. Proceed with design and construction of the upgraded wastewater treatment plant and recycled water delivery system, allowing sufficient time to measure the impact of water conservation and the salts reduction efforts.
7. Revisit the potable water distribution master plan once the recycled water program and conservation programs are up and running.

This sequence sets the stage for long-term water management such that each aspect of the City's water resource portfolio may build on another. Such long-term sustainability has been met with growing interest throughout California. Competition for adequate supplies of water and the increasing cost of expanding our infrastructure has ushered in a new outlook toward water resource integration. Paso Robles sits in the favorable position of having an assemblage of recent water resource reports as a springboard for such sustainable, integrated planning.

POLICY REFERENCE Economic Strategy; Council Goals; Council Directive to Develop an Integrated Water Resource Plan.

FISCAL IMPACT: Council's adoption of the "Water Resources Plan Integration and Capital Improvement Program" sets the framework for public works projects and programs yet to come and is not accompanied by an appropriation of funds at this time.

The proposed 10-year capital improvement plan would be as follows:

FY 07/08 - $14.7 million

Major advancements in this fiscal year would be to progress with the Nacimiento Water Project, including design of the City's treatment plant, and to initiate the water conservation program and Industrial Waste Discharge Ordinance (to set the stage for the recycled water program). For the water system, a set of water reservoir projects and well rehabilitation would be addressed. Sewer projects include various collection and lift station upgrades plus an update of the storm drain master plan. Staffing the water conservation/industrial waste discharge coordinator position is planned this year, too.

FY 08/09 - $25.4 million

Major advancements in this fiscal year include completion of the design of the Nacimiento water treatment plant and measure the initial success of the water conservation and industrial discharger program. Adoption of a water softener

ordinance is slated along with setting a course for the planned wastewater treatment plant upgrade. The Eastside Reservoir construction along with waterline and sewage collection system upgrades are also scheduled for this fiscal year.

FY 09/10 - $25.7 million

Major advancements this fiscal year include initial phases of construction of the Nacimiento water treatment plant and the reclaimed waterline in River Road. The 21st Street Reservoir would also be constructed this year along with various water and sewage collection system upgrades. Water conservation emphasis would shift to commercial, industrial, and institutional accounts.

FY 10/11 - $95.8 million (includes **Nacimiento costs to be financed over 30 years)**

Major advancements in fiscal year 2010/11 would be start-up of the Nacimiento water treatment plant to coincide with deliveries from the lake. Notice that the CIP value for this year is the full Nacimiento Water Project investment, a value that will be spread over a 30-year revenue bond term. Design of the proposed wastewater treatment plant upgrade and recycled water delivery system would be done this year.

FY 11/12 - $43.2 million

Major advancements this fiscal year include construction of the wastewater plant upgrade and recycled water distribution system. Upgrades to the Templeton Interceptor Sewer would be constructed this year, too.

FY 12/13 - $29.7 million

Major advancements in fiscal year 2012/13 include completion of the treatment plant and recycled water delivery systems and major work on the downtown storm drain system. Consideration to a residential ultra low flow toilet replacement program is also proposed.

FYs 13/14 to 16/17 - $9.8 million combined

Capital projects planned in these years are as listed in the tables included in the Appendix to the "Water Resources Plan Integration and Capital Improvement Program" report.

OPTIONS: Amend, modify, or reject the above option.

Prepared by: Christine Halley, Water & Utility Consultant, TJ Cross Engineers, Inc.

Attachments (2)

1) Figure 1 – Paso Robles Water Cycle
2) "Water Resources Plan Integration and Capital Improvement Program" report by TJ Cross Engineers, Inc. dated February 2007.

Water Resources Plan Integration
and
Capital Improvement Program

Prepared for
City of El Paso de Robles

By

February 2007

Bakersfield

T.J. Cross Engineers, Inc. • 200 New Stine Road • Suite 270
Bakersfield, CA 93309 • Phone: 661-831-8782 • Fax: 661-831-5019

Ventura

T.J. Cross Engineers, Inc. • 5450 Telegraph Road • Suite 106
Ventura, CA 93003 • Phone: 805-658-3282 • Fax: 805-658-3283

City of El Paso de Robles
Water Resources Plan Integration and CIP

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City of El Paso de Robles
Water Resources Plan Integration and CIP

Executive Summary

In 2004, the City articulated water resource goals which are:

- Improve water quality
- Increase and diversify water resources
- Increase reliability of water supplies
- Reduce groundwater basin dependence
- Reduce salt loading into the basin and thereby comply with regulatory mandates
- Maintain strong water rights position
- Anticipate regulatory requirements
- Prioritize public works expenditures to meet these goals

Pursuit of these goals required a rethinking of traditional water and wastewater management, as well as examination of current conditions. Thus, the City commissioned eight related water resource reports, evaluating groundwater, recycled water potential, source control, and utility master planning. Boyle Engineering Corp. has been the primary author of the resource reports.

The reports represent a significant effort of evaluating the condition of the City's utility systems and evaluating projects and programs that could advance the City's resource goals. The goals are intertwined, as are the steps the City could take to achieve them. The possibility of creating a self-sustaining water resource portfolio is taking shape, one that would optimize rainfall and storm water management to recharge the thirsty groundwater basin, in which residents would be careful stewards of the quality of waters allowed to drain to the river and the City wastewater system, and in which highly treated wastewater would be recycled back to meet irrigation needs and/or recharge groundwater. Viewing City water resources in this light invites the possibilities of a balanced, effective water management plan that makes the most of the community's utility investment and provides for the community's long-term water needs.

The eight water resource reports paint a picture of the City's current water resource setting and its potential to advance to a point of integrated water resource use. The Salinas River conveys storm runoff and provides the principal source of recharge to the large Paso Robles Groundwater Basin. With expanding agricultural activity in the river basin and more development, salt levels increase in the river system. As a result, salt levels in the City's water supply have been gradually increasing.

Historically, well water has met 100% of City water needs – drawn from wells that pump both deeper groundwater and river underflow. Homeowners and businesses have adjusted to the relatively high mineral content of the well water through the use of softeners and the result has been even higher discharge of salts into the sewer system. Sewage is collected throughout town and treated at the City's wastewater treatment

plant, mostly to address organic loading, and treated effluent is discharged back into the Salinas River with heightened salt concentrations; thus the cycle progresses.

For many years, full reliance on well water was accepted, until basin-wide investigations revealed that changing agricultural demands and thriving urban growth would foreseeably overdraft that supply as early as 2010 if supplemental water were not introduced into the region. Further, freeing up higher mineral content groundwater for uses other than community drinking water strikes a balance with regional water needs and opens the door for exercising the long-held entitlement to higher quality water from Lake Nacimiento.

Further, each step of the City's water use, treatment, and discharge is regulated. First, regulations aimed at control of storm water pollutants are in place with the goal of sound stewardship of the environment as well as protection of drinking water sources. Well extractions of river underflow are limited in quantity and carefully regulated for drinking water quality. Individual dischargers must manage the quality of discharges both to the sewage system and to storm drains and the community wastewater treatment and disposal systems are highly regulated. Each link in the City's water resource chain interconnects with the next and each major component was studied in the various water resource reports.

Starting with water supply, a principal finding of the City's eight water resource reports is that potable water demand may more than double over the next 18 years. This demand will require development of new fresh water supplies along with efforts to conserve water and to provide recycled water for non-potable users. Accompanying this sharp increase in water demand would be an impressive investment in infrastructure to deliver more water, faster and to collect the waste stream for treatment back at the wastewater treatment plant. Handling the waste stream will get increasingly difficult and costly if current salt loading trends continue. The City currently deposits treated wastewater that contains over double the salt concentrations as that which is drawn for use from the very same source. Alternatively, the City could deliver improved water quality principally from Lake Nacimiento while simultaneously alerting customers to the salt-concentrating effects of on-site regenerated water softeners along with pretreatment of commercial discharges. Successfully decreasing salt loading in the waste stream would advance the success of recycling treated wastewater, lessen the potential for long-term degradation of underground fresh water sources, bringing us full circle to using recycled water to offset a portion of the increasing demand for potable water supplies.

The principal recommendations from the water resource reports can be integrated such that efforts in one area build upon advancement toward the City's water resource goals in another area. On the potable water side, the increasing City population could lead to a proportional increase in potable water demand and infrastructure expansion. Much opportunity exists to conserve water, especially in reaching out to large irrigators and possibly making recycled water available to non-potable users. It follows that some capital expenditures could be deferred were conservation to succeed. For example, slowing the pace of water demand could defer total supply capacity, reservoir sizing, and pump station capacity. Following through on the 2005 Urban Water Management

Plan recommendation to staff a water conservation program would advance the City toward this goal.

Further, it was clear in the 2005 Wastewater Treatment Plant Audit that a firm recommendation on the approach to the treatment plant upgrade rests upon the chosen recycling option. The recycling option depends largely on successful salt management, by importation of softer water supply (i.e. Nacimiento deliveries), implementation of the recommended Industrial Waste Discharge Ordinance/Wastewater Pretreatment Program, and restricted use of on-site regenerated domestic softeners.

Integrated planning of water resources is an investment in self-sustainability that addresses a planning horizon of 50 to 100 years. Compare this to a more traditional community infrastructure approach of building things bigger and acquiring more as the community grows. Allowing advancements in one area of utility planning to sustain long-term benefits in a related water resource area opens the possibility of wise investment in the future.

The proposed integrated resources plan offers benefits to City residents by ensuring that investments in one utility area build on needs in another area. For example, the introduction of Nacimiento water supply will both improve drinking water quality and significantly reduce groundwater basin dependence. That markedly softer water supply will directly reduce salt loading into the waste stream and encourage elimination of household water softeners. The resulting improvement of treated wastewater quality positions the City to recycle water to offset potable water needs and lessens or avoids degradation of groundwater sources, thereby demonstrating good resource stewardship and maintaining a strong water rights position. This collective integration of water resources represents a well thought-out set of programs that will benefit City residents for decades to come.

As part of the water resource management, new development standards will be needed to align with the City's goals. Specifically, new standards are needed to better capture storm water and the pollutants that accompany it, to encourage on-site reuse of both storm water and gray water, to discourage the use of self-regenerating softeners, and to conserve and use recycled water.

The accompanying Proposed Capital Improvement Program Budget for FY 2007-08 to FY 2016-17 follows this basic sequence:

1. Accept and treat deliveries of Nacimiento Water first.
2. Initiate a water conservation program along with a wastewater source control/pretreatment program to reduce salt loading. Concurrently, implement the storm water management strategies.
3. Examine quality parameters of the wastewater effluent to further clarify the degree of treatment needed to provide a highly marketable recycled water product.
4. Establish a recycled user base and determine the level of treatment needed to supply such recycled water demands.
5. Make a decision to move into the recycled water market.

6. Proceed with design and construction of the upgraded wastewater treatment plant and recycled water delivery system, allowing sufficient time to measure the impact of water conservation and the salts reduction efforts.
7. Revisit the potable water distribution master plan once the recycled water program and conservation programs are up and running.

This sequence sets the stage for long-term water management such that each aspect of the City's water resource portfolio may build on another. Such long-term sustainability has been met with growing interest throughout California. Competition for adequate supplies of water and the increasing cost of expanding our infrastructure has ushered in a new outlook toward water resource integration. Paso Robles sits in the favorable position of having an assemblage of recent water resource reports as a springboard for such sustainable, integrated planning.

Two natural outcomes of this integration work should be a utility rate study and a staffing assessment. While neither effort is included in this base scope of services, the City may want TJCross to provide more information for use in these future efforts. For example, a cash flow tabulation to accompany the 10-year CIP would be an important element of a rate study. Let's discuss this as the integration progresses to determine if this would be of value to the City.

Christine M. Halley, PE
Water & Utilities Consultant
TJ Cross Engineers

I. Water Resource Plans

a. Introduction

Beginning three years ago, the City commissioned various water resource reports, evaluating groundwater supply, recycled water potential, source control, infrastructure master planning, and other topics. Boyle Engineering Corp. has been the primary author of the resource reports, working in close communication with the City's oversight team, including TJ Cross Engineers.

The reports represent a significant effort of evaluating the condition of the City's utility systems and evaluating projects and programs that could advance the City's resource goals. Each report contains recommendations and, in most cases, estimated costs to carry out those recommendations. As a result, we know much more about the condition of the City's utility systems and a vision of a self-perpetuating, balanced water resource picture is taking shape. This report is an integration of the various water resource reports into a single document containing a prioritized program to carry out the recommendations.

TJ Cross has worked with City staff to develop an integrated and prioritized capital improvement program that takes into consideration both available funding and staffing levels. This document is intended for use each year in establishing the utility capital improvement program (CIP) budgets and for future rate studies.

We started by assembling key recommendations from each of the eight water resource reports and setting priorities/sequence to those recommendations. The preliminary priority list was based on logical steps to meet the City's resource goals. Next, we worked with City staff to include operations staff suggestions and to agree upon a reasonable pace of utility projects and programs, following this scope of work outline:

- Assemble key recommendations from each of the following water resource reports and set initial priorities/sequence to those recommendations:
    - *Water Source Evaluation* dated September 2006 prepared by Boyle Engineering Corp.
    - *Recycled Water Study Update* dated September 2006 prepared by Boyle Engineering Corp.
    - *Wastewater Pretreatment/Source Control Memorandum* dated October 2005 prepared by Boyle Engineering Corp.
    - *Potable Water Distribution System Master Plan* prepared by Boyle Engineering Corp., revised draft dated June 2006.
    - *Sewer Collection System Master Plan* prepared by Boyle Engineering Corp., draft dated June 2006.
    - *2005 Urban Water Management Plan* prepared by Todd Engineers. draft dated March 2006.
    - *Storm Water Management Plan* prepared by URS in December 2004
    - *Wastewater Treatment Plant Audit* dated September 2005 prepared by Boyle Engineering Corp.

The Storm Drain Master Plan is in progress and expected to be completed in early 2007.

- Meet with water and wastewater operations staff to discuss system needs in addition to those addressed in the reports listed above. These needs may fall into the categories of safety issues, deferred maintenance, regulatory compliance, major scheduled maintenance, and routine component upgrades.

- Meet with the City to review initial plan for sequencing the water resource recommendations. Review alternative approaches to establishing a pace of completing the projects and recommendations. Approaches may range from maintaining an even pace of capital expenditures, to consideration of the number of projects in planning, design, or construction at a given time, to varying levels of reliance on consultant support. Consult with City financing staff to discuss revenue needs and financing considerations affecting capital improvements. Discuss the preferred method to sequencing capital improvements and adjust the sequence accordingly.

- Consider staffing impacts of completing the recommended capital projects and utility programs. Address staffing in terms of the effect on the pace of getting programs in place and projects in operation. Meet to discuss staffing assumptions that should go into the recommended CIP.

- Based on the sequencing and pace of improvements at a given staff level discussed above, prepare a recommended integrated capital improvements program. Emphasize improvements over, say, a 10-year period. The CIP is to be accompanied by a narrative describing the logic behind the program and will be in a format that could be referenced during future year's budget cycles.

The following documents the recommended CIP resulting from this effort.

b. Referenced Plans

Eight water resource reports comprise the basis for this CIP. These are:

Storm Water Management Plan prepared by URS in December 2004 - The scope of the *Storm Water Management Plan* includes compliance with the State of California Phase II Storm Water Management Plan regulations, defining strategies and guidelines for protection of water quality and reduction of pollutant discharges from within the City. Key recommendations are 1) extend a public information program to alert the public to the benefits of storm water management; 2) encourage public participation and involvement in urban pollution awareness; 3) detect and eliminate illicit discharges; 4) adhere to a construction site storm water control program; 5) manage post construction storm water; and 6) prevent pollution by encouraging good housekeeping.

Subsequent to the publication of the Storm Water Management Plan, the Regional Water Quality Control Board approved the Phase II Storm Water Management Plan in January 2005 and requires the City to implement measures over the five-year permit cycle. The City's first annual report was submitted in September 2006, followed by a

Notice of Violation from the Regional Water Quality Control Board indicating that the City needs to increase efforts and better track implementation of the plan.

Wastewater Treatment Plant Audit dated September 2005 prepared by Boyle Engineering Corp. - The scope of the *Wastewater Treatment Plant Audit* includes an operations review and staffing evaluation along with a treatment process analysis and solids handling analysis. The addition of the California Toxics Rule parameters to the City's waste discharge permit in May 2004 prompted in part this audit. A variety of treatment plant upgrade approaches are discussed depending on the City's pursuit of a recycled water program. Options for recycled water (discussed in more detail in the 2006 *Recycled Water Study Update)* include reuse for irrigation, groundwater recharge, or continued river discharge and Boyle recommends that the City determine its reuse plan and allow that plan to drive the necessary plant upgrades. Key recommendations of the audit are 1) the existing plant has sufficient hydraulic capacity to meet projected future flow; 2) a series of capital projects are recommended to address process capacity limitations especially in the area of handling organic loading at buildout; 3) four alternative approaches to treatment plant upgrades are presented, depending on the chosen reuse option. The City's chosen direction on water reuse will drive the necessary treatment process upgrades.

Since the publication of the treatment plant audit, the City conducted quarterly analyses of chronic toxicity levels in treated effluent. Prior to 2007, only acute toxicity testing was required. The chronic testing revealed that excess ammonia in the City's effluent is resulting in unacceptably high toxicity levels. Operations staff have already taken measures to reduce ammonia including increased recirculation rates, the addition of ferric chloride at the headworks, and frequent pumping of sludge from the primaries. However, ammonia levels remain high and the addition of a nitrification process is likely needed to reliably bring the plant into compliance. A nitrification process, or tertiary treatment, would be a significant upgrade to the plant that would align nicely with treated water quality needs in support of recycling water. Consultation with the Regional Water Quality Board staff on this compliance point in light of the long-term plan for the plant upgrade is underway.

Wastewater Pretreatment/Source Control Memorandum dated October 2005 prepared by Boyle Engineering Corp. - The scope of the *Wastewater Pretreatment/Source Control Program* includes examination of potable water, influent, and effluent water quality to determine whether a source control or pretreatment program would benefit salt loading and discharge limits. The memorandum also discussed "problem contaminants" that appear likely to cause discharge violations. No discernable trends of increasing salt levels as a result of the City's discharge were revealed in the river underflow. The suspected major contributors of salts and other minerals into the effluent stream are relatively hard well water, regeneration of household water softeners, and industrial dischargers. Key recommendations are 1) supplement community water supply with softer, lower total dissolved solids, Nacimiento supplies; 2) restrict the use of on-site regenerated water softeners via an ordinance; 3) preferentially use wells with lower salt concentrations; and 4) implement the City's existing Industrial Waste Discharge Ordinance. There is also a suggestion that well water be desalted to reduce salt loading into the waste stream.

2005 Urban Water Management Plan prepared by Todd Engineers, draft dated March 2006 - The scope of the *Urban Water Management Plan* includes documentation of the City's sources of water supply and demands, presents a contingency plan for water shortages, and supports efficient use of the City's existing water supplies through water conservation. The plan identifies groundwater and river underflow, both extracted by wells, as the City's current water supply and two upcoming sources of supplemental water; Nacimiento and recycled water. Key findings are 1) the City has capacity to withstand a drought like that of 1987-91 but with little margin of safety; 2) pursue a staffed water conservation program to reduce water production costs and defer capital costs; and 3) include tiered water pricing and large landscaper outreach as main components of the conservation program.

Potable Water Distribution System Master Plan prepared by Boyle Engineering Corp., revised draft dated June 2006 - The scope of the master plan includes evaluation of the water distribution system to meet current and projected City demands at a build-out population of 44,000 people. The report analyzed water demands and projected an increase from current potable water demand of approximately 7,500 acre-feet per year to 15,300 acre-feet per year at General Plan build-out. No adjustments for water conservation or demand offsets resulting from recycled water availability were taken into account. A computer model of the water distribution system was prepared to simulate water distribution throughout the existing pipelines and to forecast system expansions to meet increasing water demand. Key recommendations are 1) three of the five existing booster stations need additional capacity to meet existing and build-out demands; 2) existing water storage tanks in the three primary zones are well-sized to meet existing demands but all will need augmented to reliably meet build-out demands; and 3) more distribution capacity is needed throughout the city to meet customer and fire flow demands. Nearly 9 miles of pipe improvements are recommended to correct existing system deficiencies with an additional 14.5 miles recommended to provide water service at build-out. These figures exclude smaller distribution lines that will be needed on internal collector streets.

Sewer Collection System Master Plan prepared by Boyle Engineering Corp., draft dated June 2006 - The scope of the *Sewer Collection System Master Plan* includes a flow metering and data analysis phase followed by a collection system capacity analysis and capital improvement recommendations. The report states a current average daily sewage flow of 2.87 MGD increasing to 5.03 MGD at build-out. The build-out projection was extrapolated from the 15,300 AFY projected water demand. A computer model of the collection system was prepared with calculated flows compared to lift station flow records and flow metering data collected during 2005. Key recommendations are 1) four of the City's 15 sewage lift stations need additional capacity to pass the peak hourly flow at build-out; 2) new collectors are needed in four major expansion areas; and 3) larger collectors are needed to reliably handle peak flows now and at build-out.

Water Source Evaluation dated September 2006 prepared by Boyle Engineering Corp. – The scope of the *Water Source Evaluation* includes an evaluation of the proposed Nacimiento water treatment plant and a well field assessment prepared by Fugro West Inc. in 2005. Supply characteristics such as volume from each major source

and overall water quality characteristics were also addressed. This report described the City's water demand pattern, quantifying seasonal swings in demand and included projections for "build-out" water needs of the community. It went on to describe alternative means of meeting increasing water demand such as increased groundwater pumping, water conservation and recycling, and Lake Nacimiento deliveries. The *Water Source Evaluation* evaluates means of blending treated Nacimiento deliveries with other water sources and considers the merits of desalting groundwater to achieve a better, more uniform water quality to City customers. Key recommendations are 1) to treat Lake Nacimiento water using a 6 million gallon per day (MGD) membrane filtration plant located at the Thunderbird Well Field near Theatre Drive and Highway 101; 2) to double the City's Nacimiento entitlement to 8,000 acre-feet per year (AFY); and 3) to desalt the City's well supply to meet the City's water quality goals over the long term.

Recycled Water Study Update dated September 2006 prepared by Boyle Engineering Corp. - The scope of the *Recycled Water Study Update* includes review and update of a user survey to identify potential users of recycled water, to conceptually lay out a conveyance system to supply recycled water to sets of potential users, to examine potentially suitable sites for groundwater recharge, and to assess pumping and winter storage requirements. One key finding was that a successful source control program that measurably reduces salt loading into the wastewater stream is necessary to both meeting waste discharge requirements and to render recycled wastewater desirable by end users. The report went on to document the wide variation in summertime water demand relative to wastewater flows, an indication of a high irrigation demand off of the potable water system. Five recycled water program alternatives were examined – continued discharge to the Salinas River without reclamation, piping recycled water to users along the Highway 46 corridor, piping to the Salinas River corridor, enhancing wastewater treatment with continued river discharge, and a hybrid approach. Estimated costs of the alternative programs ranged from $22.5 to $61.2 million with widely varying degrees of advancing the City's water resource goals. Boyle's key recommendations from the *Recycled Water Study Update* are 1) to perform further percolation tests at two locations; 2) to evaluate irrigation-related water quality parameters in plant effluent to better establish its suitability as recycled water; 3) determine the level of salt reduction resulting from a successful source control program; and 4) contact potential users regarding the possible use of recycled water. Following these steps, the City may pursue a hybrid recycled water program whereby some recycled water would be delivered for irrigation reuse, some for groundwater recharge along the river, and some seasonally discharged to the river.

c. Principal Findings and Recommendations

The eight reports listed above paint a picture of the City's current water resources setting and make findings regarding the status of each resource. Starting with water supply, a principal finding is that potable water demand will more than double over the next 18 years as efforts are made to conserve water and to provide recycled water for non-potable users. Keeping pace with this sharp increase in water demand would require a significant investment in infrastructure to deliver more water, faster and to collect the waste stream for subsequent treatment. Handling the waste stream will get increasingly difficult and costly if current salt loading trends and regulations continue.

Alternatively, the City could deliver improved water quality principally from the Nacimiento Project while simultaneously alerting customers to the effects of on-site regenerated water softeners. Successfully decreasing salt loading in the waste stream would advance the success of reclaiming treated wastewater, bringing us full circle to using recycled water to offset a portion of the increasing demand for potable water supplies.

It is this author's opinion that the principal recommendations from the water resource reports can be integrated such that efforts in one area build upon advancement toward the City's water resource goals in another area. There exists an opportunity to proceed with a self-sustaining water system that recognizes storm water's role in groundwater and river water quality, that values decreased salt and toxin loading into the waste stream, that welcomes highly treated wastewater for irrigation, and that views potable water as a precious resource to be conserved and used wisely.

For example, the State of California Phase II Storm Water Management Plan regulations are aimed at reduction of pollutant discharge into storm water. Strategies include public outreach, land use policies aligned with pollutant reduction, and regular reporting of measurable indicators pertaining to storm water management. Pollutant reduction relates to the City goal of improving water quality.

On the potable water side, the increasing City population could lead to a proportional increase in potable water demand and infrastructure expansion. Much opportunity exists to conserve water, especially in reaching out to large irrigators and possibly making recycled water available to non-potable users. While the biggest driver of waterline sizing is fire flow, reduced irrigation demand, especially over a defined corridor, could result in smaller pipes or defer the timing of necessary upgrades. Smaller water tanks could result and the need for increased water supply could be slowed. In other words, some capital expenditures could be deferred were conservation to succeed.

Further, it was clear in the 2005 Wastewater Treatment Plant Audit that a firm recommendation on the approach to the treatment plant upgrade rests upon the chosen reuse option. The reuse option depends largely on successful salt management, by importation of softer water supply (i.e. Nacimiento deliveries), implementation of the recommended Industrial Waste Discharge Ordinance, and restricted use of on-site regenerated domestic softeners. More recently, successfully lowering acute and chronic toxicity levels (ammonia) must be addressed in the planned plant upgrade.

These broader aspects of water resource integration were considered in tailoring a capital improvement program for the City. This is discussed further in the Plan Integration section of this report.

d. Utility Operations

The capital projects recommended in the water resource reports comprise part of the City's water infrastructure needs. Planning must also address utility operations needs pertaining to safety, deferred maintenance, regulatory compliance, and buildings and

grounds. Meetings with City utility operations staff took place in early November 2006 and their key suggestions for capital projects are listed below.

Suggestions from the operator meetings mentioned above were:

1. Several water system maintenance programs are being phased in, as vacant positions are filled and new employees trained. For example, in Spring 2006 (for the first time since 2001) all fire hydrants in the system were exercised and the system completely flushed. Other preventative maintenance programs that should be implemented as staffing allows includes: a valve exercise program, and air-vacuum release valve maintenance programs. Similarly, there is a need for a regular meter replacement program for residential meters, possibly enacting a remote-read system for more efficient meter reading. Large meters, too, should be on a regular calibration program.

2. Reservoir and well access roads need re-graded and paved with minor fencing improvements. Consider paving around wellheads as a sanitary step.
3. Booster station upgrades were addressed in the 2006 Draft Master Plan. Orchard Bungalow (a hydro pneumatic system) may need variable frequency drives, acknowledging that its long-term operation depends on potential expansion of Chandler Ranch.
4. Portable generators are needed to operate wells and booster stations when power is interrupted. Two 500 kva generators are needed to supplement the one, existing portable generator.[1]
5. 21st Street Water Reservoir was built circa 1980 and is due for replacement. Among other issues, the roof is in bad shape.
6. Mobile geographic information system access would benefit operators. Lap tops tied to the latest GIS mapping would aid in line locating and other emergency response.
7. Tank coating should be budgeted for, say, two tanks over the next decade. Tanks are regularly inspected inside and out and are not cathodically protected.[2]
8. Replace trench shoring jacks and shields compliant with current OSHA safety regulations.
9. Water yard is populated by old buildings that are not compliant with current building codes. Plan is to house water operations staff at the proposed Nacimiento Treatment Plant.
10. Larger buildings to adequately store liquid chlorine volumes are needed at some well sites to store the recommended two-week volume.[3]

Wastewater operators had submitted two previous sets of suggested capital projects dated April 2006, the status of which is:

[1] Another approach would be to equip each well with a backup generator.
[2] Ongoing observation of tank condition would be an indicator as to whether cathodic protection is warranted.
[3] Alternatively, could consider an alternate disinfectant at the wells. Either way, City would have to maintain a chlorine residual throughout the system so some form of chlorine feed would remain necessary.

- Partially enclose three sides of sludge press area – Confirmed still needed.[4]
- Paint two old digesters – Still needed.
- Retrofit the recirculation room valves – Still needed.
- Replace pipe, valves, and braces on grit chambers plus associated concrete work – Still needed.

Other wastewater projects suggested during our discussion are:

1. Convert to sodium hypochlorite in lieu of continued use of 1-ton gaseous chlorine cylinders.
2. Improve plant head works to reduce the need for manual cleaning.
3. Demolish old facilities at abandoned CYA treatment plant. (Lower priority.)
4. Interceptor Reaches 7 and 8 upgrade to be done concurrent with Nacimiento Water pipeline construction.
5. Consider overflow tanks at Lift Station No. 4 and other locations for longer response time in the event of a power loss.[5]
6. West side sewer line rehabilitation and manhole rehabilitation.
7. Upgrade the clarifier by replacing the trickling filter arm and center column mechanism. Consider a motor drive for consistent RPMs. The feed arm to the center column is suspected of leaking.[6]
8. Provide redundant sludge pumps.
9. Adjust the weirs on the primary clarifier that are out-of-plumb since the San Simeon earthquake.
10. Rehabilitate the grit chambers.
11. Lift station rehabilitation[7]. Provide more capacity in the Mesa Lift Station by replacing rails, pumps, and motors. Higher priority; can no longer get repair parts. The capacity of the Riverbank and Beechwood Lift Stations is adequate, however can no longer get repair parts. Consider a proprietary specification for lift stations, following City procurement guidelines for such an approach. This would result in like equipment at various lift stations, even if they are not all upgraded at one time by the same contractor.
12. Access roads around sludge beds need resurfacing.
13. Pave around the chlorine basin.
14. Provide sanitary shower/locker room for operators. Existing buildings lack such facilities and are not in compliance with current building codes.

[4] All listed projects are predicated upon which treatment plant upgrade or replacement approach is undertaken. See alternative approaches as outlined in Boyle reports dated 2005 and 2006.
[5] Another option, although not discussed at our meeting, would be to provide natural gas fueled generators at each lift station.
[6] The media may also need replaced to address the ammonia problem.
[7] Out to bid in December 2006.

15. Improve lab such that on-site analysis of constituents at various points in the treatment process may be performed. May need certified exhaust hood.

These suggestions have also been integrated into the 10-year capital improvement program as appropriate. It is clear that an overall plan for the wastewater plant upgrade and the associated recycled water program is needed before major capital investments are made at the plant. This is reflected in the program described herein.

e. Advancing Toward City Goals

Recommendations as presented in individual reports focus for the most part on the focused scope of each report. They are conservative in that they do not necessarily take into account factors addressed in other water resource reports. For example, the 2005 Urban Water Management Plan recommends implementation of a water conservation program however the reduced demands resulting from such a program are not counted in the 2006 Potable Water Distribution Master Plan. Neither is the reduced potable demand resulting from a successful recycling program. In order for one to take on the task of integrating and prioritizing these sets of recommendations, one must trace which steps help advance the City toward their stated water resource goals. These are:

- Improve water quality
- Increase and diversify water resources
- Increase reliability of water supplies
- Reduce groundwater basin dependence
- Reduce salt loading into the basin and thereby comply with regulatory mandates
- Maintain strong water rights position
- Anticipate regulatory requirements
- Prioritize public works expenditures to meet these goals

Considering this set of water resource goals, the principal findings and recommendations from the eight water resource reports that advances the City toward these goals include the Wastewater Pretreatment/Source Control Program focused on reduced salt loading into the waste stream. Further, carrying forward with the recommendations from the Recycled Water Study Update to establish a recycled water user base would advance the City toward reduced groundwater basin dependence and a stronger water rights position. The sequencing of specific recommendations is addressed later.

II. Plan Integration

a. Sources of Funding

Water system operations are funded by an enterprise fund whose revenue comes primarily from water rates and connection fees. Wastewater operations is also an enterprise fund whose revenue comes from rates and connection fees. Funding for a recycled water program has yet to be established and could come in part from user fees

and be considered part of both the sewer and water enterprise funds. Implementation of the storm water management program is funded through the City's general fund.

Funding for capital projects comes from accumulated reserves, revenue bond financing, and some assessment districts. Private developers construct a portion of the City's infrastructure as a condition of development approval and must eventually be maintained by the City resulting in additional staff and maintenance costs. The City also qualifies for some grant funding, however this makes up a small portion of capital project funding.

b. Staffing and the Pace of Implementation

Several levels of staffing are impacted by capital projects. The implementation of programs such as the recommended water conservation, pretreatment, recycled water, and storm water management require administrative and technical staff support. Capital projects such as the Nacimiento treatment plant will impact engineering and construction inspection staff as well as financial and administrative staff. Properly certified operations staff should be on board during design and construction of this 6 MGD plant. Once operational, operations and maintenance of the Nacimiento treatment plant will continue to impact water system maintenance workers and supervisory staff.

This year, the $1.7 million wastewater treatment plant budget is supported by three wastewater treatment plant operators and one chief plant operator. The $650,000 wastewater collection system budget is supported by four wastewater collection system maintenance workers. The $3 million water system budget is supported by eight water system maintenance workers, four administrative staff, and one water division superintendent. A specific budget has not been established for the storm water compliance measures. All of these utility activities are overseen by one water resource manager, one capital projects engineer, and one public works director.

The utility responsibilities that these men and women carry directly relate to community health and safety issues. Adherence to drinking water standards, satisfying sufficient fire flows, and proper treatment and disposal of wastewater comprise basic building blocks of sanitary/safety conditions within a given community.

Keeping pace with operations of a growing city infrastructure will require additional operations and maintenance staff, especially to perform the preventative maintenance that is recommended to extend the useful life of system components. A properly staffed utility system that addresses preventative maintenance, new construction, and emergency response will extend the useful life of valuable City assets.

At this point, the author observes that sets of routine water and sewer system maintenance are being deferred due to lack of adequate staffing. Examples of this are routine valve exercising, air-vac valve maintenance, and meter replacement for the water system, and routine sewer pipe jetting and mechanism maintenance at the wastewater plant. It is also apparent that as the utility systems expand and become more complex (such as the construction of more sophisticated treatment plants and the addition of a new surface water supply), more utility workers will be needed to sustain the current level of service that residents have come to expect.

Establishing a proper staffing level requires analysis for each system, an undertaking that extends beyond the scope of this integration effort. The City might look to such organizations as the American Water Works Association for well-researched guidelines for water treatment plant and distribution system staffing. The federal Environmental Protection Agency has long published guidelines for wastewater treatment and collection system staffing, as has the CWEA. One approach would be to compare the City's utility staffing plan with these published guidelines.

III. 10-Year Capital Improvement Program

a. Sequenced Recommendations

Recommended projects and programs that align with these declared City water resource goals were given priority:

- Improve water quality
- Increase and diversify water resources
- Increase reliability of water supplies
- Reduce groundwater basin dependence
- Reduce salt loading into the basin and thereby comply with regulatory mandates
- Maintain strong water rights position
- Anticipate regulatory requirements
- Prioritize public works expenditures to meet these goals

For example, Nacimiento deliveries would advance the City toward all of its water resource goals. The Wastewater Pretreatment/Source Control Program would reduce salt loading into the waste stream. Further, carrying forward with the recommendations from the Recycled Water Study Update to establish a recycled water user base would advance the City toward reduced groundwater basin dependence and a stronger water rights position. From there, decisions pertaining to the wastewater treatment plant upgrade aligned with the recycled water user base would follow. The Urban Water Management Plan recommendations for a water conservation program would increase reliability of water supplies and reduce groundwater dependence and should be given priority. The Water Source Evaluation recommendations pertaining to increased Nacimiento deliveries and well water desalting could be re-evaluated based on the success of the Pretreatment/Source Control Program, the recycled water program, and the water conservation program.

Meanwhile, there is a set of proposed capital projects that addresses existing process problems or safety issues. These are not necessarily tied to advancing a specific water resource goal but are needed to maintain an adequately operating public works system. These were prioritized based on the need to meet permit requirements, extend the useful life of equipment, and to protect public and worker safety.

The pipeline, pump, and storage tank recommendations from the Potable Water Distribution and Sewer Collection System Master Plans depict system expansion to keep pace with the City's adopted General Plan. The pace of these capital projects will largely be driven by the pace of development in particular areas of town and not necessarily by advancement toward the City water resource goals. The Potable Water Distribution

Master Plan would be impacted by successful water conservation and by operation of a recycled water delivery system. For this reason, the Potable Water Distribution Master Plan should be re-evaluated after advancements have been made on both fronts.

City staff considered the improvements recommended as part of the sewer and potable water master plans and estimated the percent allocation to new development for each project. Priority was given to construction of master plan projects that are needed to satisfy the needs of existing customers. Projects with greater allocations to new development were scheduled later in the 10-year period and projects allocated 100% to new development were assumed to be built by developers and are not included in the accompanying table.

The attached Proposed Capital Improvement Program Budget for FY 2007-08 to FY 2016-17 follows this basic sequence:

1. Accept and treat deliveries of Nacimiento Water first.
2. Initiate a water conservation program along with a wastewater source control/water softener ordinance to reduce salt loading and to comply with toxicity limits at the wastewater treatment plant.
3. Examine quality parameters of the wastewater effluent to further clarify the degree of treatment needed to reclaim such wastewater. Require installation of "purple pipe" per State Dept. of Health Services standards for anticipated delivery of recycled water.
4. Establish a recycled user base and determine the level of treatment needed to supply such recycled water demands. Address compliance with ammonia levels, too, in the contemplated plant upgrade.
5. Proceed with design and construction of the upgraded wastewater treatment plant and recycled water delivery system, allowing sufficient time to measure the impact of water conservation and the salts reduction efforts.
6. Revisit the potable water distribution master plan once the recycled water program and conservation programs are up and running.

You will see that proposed improvements at the wastewater treatment plant require discussion in light of the planned plant upgrade. Recent ammonia excursions are under examination by City staff and the Regional Water Quality Board and consultation with that regulator will influence the timing of process upgrades at the plant. In other words, we need to determine which projects should be done now or held until the planned upgrade in 2011-13.

b. Anticipated Inflation

The estimated project costs presented in the various water resource reports are stated in then-current dollars. In other words, cost estimates published in a report dated 2004 represent 2004 dollars. Good financial planning suggests that an inflationary adjustment should be taken into account to more realistically forecast actual project costs at the planned year of construction.

Construction costs have varied widely in recent years, pacing at alarmingly high inflation rates. Much of this was attributed to sharp increases in the price of steel, fuel, and labor rates. Fortunately, pricing trends in public works projects on the West Coast have been stabilizing over the past 18 months or so.

The approach used to bring cost estimates from older reports to current dollars was to reference the Engineering News Record 20-City Construction Cost Index as an adjustment for inflation. For example, the December 2006 CCI is 7887.62. The estimated total project cost for the proposed disinfection improvements at the City's wastewater treatment plant was estimated at $8,957,000 in September 2005.[8] Adjusted to current dollars, this project is now estimated to cost:

2005 cost estimate x current CCI/2005 CCI $8,957,000 x 7887.62/7467.8 = $9,460,000

An additional inflationary adjustment was also made for projects planned in years ahead. Much has been published regarding anticipated cost trends, recognizing that many factors will affect how actual construction costs will vary. For budgeting purposes, an inflationary rate of 5-6% per year seems reasonable for the Central Coast of California. Therefore, an inflation rate of 5.5% per year was applied as follows:

For a project scheduled for construction in 2012, 2012 cost = current cost estimate x 5.5% inflation rate x 5 years

These inflationary adjustments are reflected in the accompanying CIP tables.

c. Capital Improvement Program

In summary, the proposed CIP budget follows the following general sequence. An itemized breakdown may be found in the attached Appendix section.

FY 07/08 - $14.7 million

Major advancements in this fiscal year would be to progress with the Nacimiento Water Project, including design of the City's treatment plant, and to initiate the water conservation program and Industrial Waste Discharge Ordinance to set the stage for the recycled water program. For the water system, a set of water reservoir projects and well rehabilitation would be addressed. Sewer projects include various collection and lift station upgrades plus an update of the storm drain master plan. Staffing the water conservation/industrial waste discharge coordinator position is planned this year, too.

FY 08/09 - $25.4 million

Major advancements in this fiscal year include completion of the design of the Nacimiento water treatment plant and measure the initial success of the water conservation and industrial discharger program. Adoption of a water softener

[8] Source: "Wastewater Treatment Plant Audit" for the City of el Paso de Robles by Boyle Engineering Corp. dated September 2005, page ES-5.

ordinance is slated for this year along with setting a course for the planned wastewater treatment plant upgrade. The Eastside Reservoir construction along with waterline and sewage collection system upgrades are also scheduled for this fiscal year.

FY 09/10 - $25.7 million

Major advancements this fiscal year would include initial phases of construction of the Nacimiento water treatment plant and the reclaimed waterline in River Road. The 21st Street Reservoir would also be constructed this year along with various water and sewage collection system upgrades. Water conservation emphasis would shift to commercial, industrial, and institutional accounts.

FY 10/11 - $95.8 million (Nacimiento costs to be financed over 30 years)

Major advancements in fiscal year 2010/11 would be start-up of the Nacimiento water treatment plant to coincide with deliveries from the lake. Notice that the CIP value for this year is the full Nacimiento Water Project investment, a value that will be spread over a 30-year revenue bond term. Design of the proposed wastewater treatment plant upgrade and recycled water delivery system would be done this year.

FY 11/12 - $43.2 million

Major advancements this fiscal year would include construction of the wastewater plant upgrade and recycled water distribution system. Upgrades to the Templeton Interceptor Sewer would be constructed this year, too.

FY 12/13 - $29.7 million

Major advancements in fiscal year 2012/13 would include completion of the treatment plant and recycled water delivery systems and major work on the downtown storm drain system. Consideration to a residential ultra low flow toilet replacement program is also proposed.

FYs 13/14 to 16/17 - $9.8 million combined

Capital projects planned in these years are as listed in the tables included in the Appendix.

The Proposed CIP Budget is included in the Appendix, showing the sequence of recommended projects spread over the upcoming 10 fiscal years. The first table groups the recommended projects by sequence so that one may see how the various projects are integrated. The second table lists projects by enterprise fund (wastewater, water, storm drain, etc.).

* * *

Appendix Materials

City of El Paso de Robles
2007 Water Resources Plan Integration
TJC P#06461; CMHalley; 2-19-07

PROPOSED C.I.P. BUDGET
Integrated, by Fiscal Year
FY 2007-08 to 2016-17

Inflationary adjustment for Dec 2006 cost basis = *5.50%* *per year*

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
				1	2	3	4	5	6	7	8	9		
	Major Advancements >>> by Fiscal Year >>>			*Initiate water conservation program and Indus Waste Discharge Ordinance to set the stage for plant upgrade. Progress w/ Nacimiento Project.*	*Complete design of Nacimiento treatment plant. Measure initial success of conservation and industrial dischargers. Adopt softener ordinance.*	*Construct Nacimiento plant and concurrent recycled waterlines. Finalize plans for WWTP upgrade and recycled water program.*	*Bond issuance for Nacimiento Supply plus design of WWTP plant upgrade and recycled water delivery system.*	*Construct WWTP plant upgrade along with distribution lines. Initial Nacimiento deliveries.*	*Complete plant construction and start-up delivery system*	*Continued emphasis on water conservation and recycled water delivery. Major work on downtown storm drain system.*				
1	Nacimiento Water Design/Construction Phase	W	ALL	$1,735,500	$1,735,500									$3,471,000
2	Design and construct Nacimiento Water Treatment Plant, 6 MGD membrane filtration plant, located at Thunderbird well field	W	ALL	$1,500,000		$5,565,125	$9,393,931	$619,412						$17,078,468
3	Install reclaimed waterline concurrent with Nacimiento waterline	RW	RELIAB, GW DEP	$500,000		$5,565,125	$2,935,603							$9,000,728
4	Sherwood Well arsenic treatment system (2 at $1 million each)	W	WQ, RELIAB	$2,042,721										$2,042,721
5	21st Street Reservoir construction	W	INF	$500,000	$527,500	$5,565,125								$6,592,625
6	Water Tanks - regular program of coating repairs	W	INF	$20,000	$21,100	$22,261	$23,485	$24,776	$26,139	$27,577	$29,094	$30,694	$32,382	$257,507
7	Acquire water tank sites, Vina Robles, Chandler, S. Vine	W	INF	$1,500,000										$1,500,000
8	New Well #11 installation	W	RELIAB	$500,000										$500,000
9	Osborne Well #14 rehabilitation	W	RELIAB	$102,136										$102,136
10	Sherwood Well #19 rehabilitation	W	RELIAB	$102,136										$102,136
11	Annual well rehabilitation	W	RELIAB	$200,000	$211,000	$222,605	$234,848	$247,765	$261,392	$275,769	$290,936	$306,937	$323,819	$2,575,071
12	W14 - 8" waterline in Highland Park Zone from West 12th St to 17th St	W	INF	$321,729										$321,729
13	Water Meters - ongoing meter replacement program and conversion to automatic meter reading devices	W	RELIAB	$400,000	$21,100	$22,261	$23,485	$24,776	$26,139	$27,577	$29,094	$30,694	$32,382	$637,507
14	Templeton Interceptor Sewer Upgrades	WW	INF	$500,000		$556,513	$1,174,241	$6,194,123	$6,534,800					$14,959,677
15	A1, SE1, SE2 - Sewer service expansion to Northern Airport Area	WW	INF	$204,272			$3,597,971	$3,795,860	$2,402,779					$10,000,882
16	Upgrade Lift Station No. 4	WW	INF	$255,340										$255,340
17	Rehab various existing mains on West Side and elsewhere	WW	INF	$600,000	$738,500									$1,338,500
18	Lift station rehabilitation to upgrade obsolete pumps, rails, and motors and to provide longer response time	WW	INF	$200,000	$211,000		$234,848		$261,392		$290,936		$323,819	$1,521,995
19	Rehab/replace old manholes	WW	INF	$300,000		$333,908		$371,647		$413,653		$460,406		$1,879,614
20	W2 - 8th Street and Pine Sewer Mains	WW	INF	$168,524										$168,524
21	W3 - 36th Street Sewer Service Area	WW	INF	$214,486										$214,486
22	W4 - 2nd Street Sewage Collector	WW	INF	$77,623										$77,623

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
23	W5 - 5th Street Sewage Collector	WW	INF	$77,623										$77,623
24	E2 - Commerce Way and Scott St Sewage Collection	WW	INF	$1,012,168										$1,012,168
25	E5 - Commerce Way Sewage Collection	WW	INF	$406,501										$406,501
26	E6 - Commerce Way and Santa Bella Sewage Diversion to consolidate influence of Chandler Ranch	WW	INF	$43,919										$43,919
27	Update the 1976 Drainage Master Plan and map the storm drain system with target outfalls identified.	SD	WQ	$300,000										$300,000
28	Drainage facilities at 4th and Spring	SD	INF	$500,000										$500,000
29	Downtown storm drain system improvements	SD	INF						$500,000	$1,000,000	$500,000			$2,000,000
30	Melody Basin/park study	SD	WQ	$300,000	$200,000									$500,000
31	Install a vented hood at the wastewater lab.	WW	INF	$30,974										$30,974
32	Consider equipping the wastewater lab to conduct on-site MPN tests.	WW	INF	$12,389										$12,389
33	Ladera Reservoir siting study, design, and construction	W	INF		$3,165,000									$3,165,000
34	Install filtration systems at Sherwood #6 and Ronconi Wells	W			$4,747,500									
35	Install new 5.3 MG East Side Tank	W	INF		$10,550,000									$10,550,000
36	E2 - 8" and 10" waterline from Admore Rd to Gilead Lane	W	INF		$405,153									$405,153
37	E4 - 12" waterline in Miller Ct from Lombardo Ct to end of cul-de-sac	W	INF		$130,382									$130,382
38	W13 - 8" waterline in 15th St from Terrace Hill Dr to Hillcrest Dr	W	INF		$85,125									$85,125
39	W16 - install fire pump at Highland Park Booster Station along with 8" waterline	W	INF		$237,058									$237,058
40	W17 - 12" waterline in Nacimiento Lake Dr and Fairview Ave	W	INF		$425,626									$425,626
41	E3 - Turtle Creek Rd and Commerce Way Sewage Collection	WW	INF		$323,261									$323,261
42	E4 - Linne Rd Sewage Collection	WW	INF		$409,463									$409,463
43	Video tape the entire sewage collection system over next 3-5 years to assess system condition	WW	INF		$211,000	$278,256	$293,560							$782,817
44	LS11 - Lift station capacity expansion	WW	INF		$275,849									$275,849
45	Construct an emergency by-pass around the bar screens.	WW	INF	Reevaluate in light of planned 2011-12 plant upgrade	$36,554									$36,554
46	Convert the scum pump for use as a dedicated primary sludge pump on one clarifier and equip the scum well with a vertical chopper pump	WW	INF		$122,734									$122,734
47	Upgrade controls for recirculation stations with ultrasonic level indicators.	WW	INF		$9,083									$9,083
48	Consider installation of grit removal on the secondary trickling filter pumps if snail shell volume warrants.	WW	INF		$12,362									$12,362
49	Examine the influent piping to the secondary trickling filters and repair as-needed.	WW	INF	lanned ade	$25,920									$25,920

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
50	Rehabilitate the distribution arms in secondary trickling filters Nos. 1 and 2 and consider motor-drives for all distribution assemblies.	WW	INF	Reevaluate in light of p 2011-12 plant upgra	$208,803									$208,803
51	Sand and paint secondary distribution arms (Nos. 1, 2, 3, 4)	WW	INF		$47,078									$47,078
52	Raise the walls of the trickling filters to mitigate wind blown wastewater.	WW	INF		$9,748									$9,748
53	Add 6 chlorine residual analyzers	WW	INF		$127,165									$127,165
54	W4 - 10" waterline in 36th St from Spring St to WWTP	W	INF			$394,470								$394,470
55	W5 - 8" waterline in 22nd St from Oak St to Spring St	W	INF			$71,618								$71,618
56	W6 - 10" waterline in 22nd St from Olive St to Oak St	W	INF			$143,237								$143,237
57	W10 - 8" waterline in Olive St from 19th St to 23rd St	W	INF			$277,379								$277,379
58	W11 - 8" waterline in James St to Cherry St	W	INF			$53,430								$53,430
59	W12 - 16" waterline in Chestnut St from 12th St to 11th St	W	INF			$143,237								$143,237
60	W15 - install fire pump at 12th Street Booster Station	W	INF			$2,557,800								$2,557,800
61	FE3 - 16" waterline in Olsen/Beechwood from Creston Rd to Linne Rd	W	INF			$1,647,223	$2,399,847							$4,047,070
62	T1 1 - Templeton Interceptor near LS #1	WW	INF			$31,830								$31,830
63	SE3 - Sewer service expansion to Paso Robles Blvd area	WW	INF			$579,768								$579,768
64	T1 2 - North River Rd trunk sewers (concurrent w/ Nacimiento pipeline)	WW	INF			$1,534,111	$1,618,487							$3,152,599
65	*Alt 2 - Irrigation reuse along Hwy 46 corridor*	*RW*	*RELIAB, GW DEP*	*CHOOSE ONE*	*$48,438,000*									$48,438,000
66	*Alt 3 - Groundwater recharge along Salinas corridor, Site G*	*RW*	*RELIAB, GW DEP*		*$37,008,000*									$37,008,000
67	*Alt 4 - Enhance treatment and continue river discharge, activated sludge*	*RW*	*RELIAB, GW DEP*		*$23,789,000*			*Plant construction and delivery system design*	*Plant start-up and delivery system construction*					$23,789,000
68	*Alt 5 - Hybrid strategy, with seasonal river discharge*	*RW*	*RELIAB, GW DEP*		*$49,118,000*		*Plant design*							$49,118,000
69	Budgetary projection for WWTP upgrade after recycling decision	RW	*RELIAB, GW DEP*				$4,696,966	$26,015,318	$19,604,400					$50,316,683
70	Nacimiento Water delivery costs	W	ALL				$63,860,000							$63,860,000
71	W3 - 8" waterline in 32nd St from Park St to Pine St	W	INF				$56,368							$56,368
72	W7 - 10" waterline in 24th St and Riverside Ave	W	INF				$346,605							$346,605
73	W8 - 8" waterline in Oak St from 4th St to 7th St	W	INF				$217,078							$217,078
74	W9 - 8" waterline in 2nd St from Vine St to Orcutt Rd	W	INF				$207,483							$207,483
75	FE2 - 12", 16", and 24" waterline in Chandler Ranch from Gilead Ln to N/o Hwy 46	W	INF				$2,396,849	$2,528,675						$4,925,524
76	E1 - Creston Rd Sewage Collection	WW	INF				$642,838							$642,838
77	Study high maintenance sewer areas to identify and correct the problems	WW	INF				$46,970							$46,970
78	T1 3 - South River Rd trunk sewers (concurrent w/ Nacimiento pipeline)	WW	INF				$1,164,543	$1,228,593						$2,393,137

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
79	Install influent flow meter	WW	INF				$204,169							$204,169
80	E5 - 12" waterline in Tractor St from Oakwood St to Combine St	W	INF					$328,975						$328,975
81	W1 - 12" waterline in Spring St from 24th St to 36th St	W	INF					$1,471,528						$1,471,528
82	W2 - 8" waterline in Oak St from 30th to 32nd St	W	INF					$301,138						$301,138
83	W18 - 14" waterline in Pine St, 23rd St, and Spring St	W	INF							$970,316				$970,316
84	FE6 - 16" waterline in Linne Rd from Airport Rd to Tract 2526	W	INF							$1,013,973				$1,013,973
85	W6 - Eastside Influent Trunk Sewer	WW	INF							$160,546				$160,546
86	Adopt a well water desalting program including high recovery of raw and treated water.	W	WQ, SALT RED										$3,307,358	$3,307,358
	Totals =			**$14,628,042**	**$25,230,564**	**$25,565,279**	**$95,770,175**	**$43,152,588**	**$29,617,042**	**$3,889,409**	**$1,140,059**	**$828,731**	**$4,019,759**	**$239,094,149**
	Project highlights				*Naci WTP and local pipeline construction*	*Naci local pipeline and Templeton sewer*	*Naci capital investment; WWTP design; Temp sewer*	*WWTP and recycled deliv system constr*	*WWTP and recycled deliv system constr*					

[1] W = Water; WW = Wastewater; SD = Storm Drain;

[2] WQ = improve water quality; SALT RED = reduce basin salt loading; W RTS = maintain strong water rights; RELIAB = increase water supply reliability; GW DEP = reduce groundwater dependence; ALL = advances all major goals. INF = other infrastructure projects to meet existing customer needs and projected development.

[3] Total Project Costs have both been adjusted to current dollars using ENR 20 Cities Construction Cost Indexes and adjusted for inflation at the rate shown.

Other Major Programs to Implement Recommendations and New Development Standards:													
Water conservation coordinator w/ public information programs and school education programs	W	WQ, SALT RED	$55,000	$56,650	$58,350	$60,100	$61,903	$63,760	$65,673	$67,643	$69,672	$71,763	$630,513
Restrict use of self-regenerating household water softeners via an ordinance	w	WQ, SALT RED		$40,000									$40,000
Residential ultra low flush toilet replacement program	W	RELIAB, GW DEP						$9,933					$9,933
Implement an Industrial Waste Discharge Ordinance	WW	WQ, SALT RED	$25,000										$25,000
Large landscape water conservation programs	W	RELIAB		$26,375	$7,791	$8,220	$8,672	$6,535	$6,894	$7,273	$7,673	$8,095	$87,529
Water conservation programs for commercial, industrial and institutional accounts	W	RELIAB, GW DEP			$100,061								$100,061
Implement the storm water management program	SD	WQ, RELIAB	(Annual costs to be determined)										$0
Require provisions for accepting recycled water in new developments	RW	RELIAB, GW DEP		$30,000									$30,000
Totals Inc. Major Program Costs =			**$14,708,042**	**$25,383,589**	**$25,731,481**	**$95,838,495**	**$43,223,163**	**$29,697,270**	**$3,961,976**	**$1,214,975**	**$906,077**	**$4,099,617**	**$240,017,185**

City of El Paso de Robles
2007 Water Resources Plan Integration
TJC P#06461; CMHalley; 2-19-07

PROPOSED C.I.P. BUDGET
by Utility Area
FY 2007-08 to 2016-17

Inflationary adjustment for Dec 2006 cost basis = *5.50%* *per year*

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
	Recycled Water Projects:													
1	Install reclaimed waterline concurrent with Nacimiento waterline	RW	RELIAB, GW DEP	$500,000		$5,565,125	$2,935,603							$9,000,728
2	*Alt 2 - Irrigation reuse along Hwy 46 corridor*	*RW*	*RELIAB, GW DEP*	*CHOOSE ONE*	*$48,438,000*		*Plant design*	*Plant construction and delivery system design*	*Plant start-up and delivery system construction*					$48,438,000
3	*Alt 3 - Groundwater recharge along Salinas corridor, Site G*	*RW*	*RELIAB, GW DEP*		*$37,008,000*									$37,008,000
4	*Alt 4 - Enhance treatment and continue river discharge, activated sludge*	*RW*	*RELIAB, GW DEP*		*$23,789,000*									$23,789,000
5	*Alt 5 - Hybrid strategy, with seasonal river discharge*	*RW*	*RELIAB, GW DEP*		*$49,118,000*									$49,118,000
6	Budgetary projection for WWTP upgrade after recycling decision	RW	*RELIAB, GW DEP*				$4,696,966	$26,015,318	$19,604,400					$50,316,683
7	**Storm Drain Projects:**													
8	Update the 1976 Drainage Master Plan and map the storm drain system with target outfalls identified.	SD	WQ	$300,000										$300,000
9	Drainage facilities at 4th and Spring	SD	INF	$500,000										$500,000
10	Downtown storm drain system improvements	SD	INF						$500,000	$1,000,000	$500,000			$2,000,000
11	Melody Basin/park study	SD	WQ	$300,000	$200,000									$500,000
12	**Water Projects:**													
13	New Well #11 installation	W	RELIAB	$500,000										$500,000
14	Nacimiento Water Design/Construction Phase	W	ALL	$1,735,500	$1,735,500									$3,471,000
15	Design and construct Nacimiento Water Treatment Plant, 6 MGD membrane filtration plant, located at Thunderbird well field	W	ALL	$1,500,000		$5,565,125	$9,393,931	$619,412						$17,078,468
16	Sherwood Well arsenic treatment system (2 at $1 million each)	W	WQ, RELIAB	$2,042,721										$2,042,721
17	Install filtration system at Sherwood #6 and Ronconi Wells	W			$4,747,500									
18	Osborne Well #14 rehabilitation	W	RELIAB	$102,136										$102,136
19	Sherwood Well #19 rehabilitation	W	RELIAB	$102,136										$102,136
20	Annual well rehabilitation	W	RELIAB	$200,000	$211,000	$222,605	$234,848	$247,765	$261,392	$275,769	$290,936	$306,937	$323,819	$2,575,071
21	W14 - 8" waterline in Highland Park Zone from West 12th St to 17th St	W	INF	$321,729										$321,729
22	21st Street Reservoir construction	W	INF	$500,000	$527,500	$5,565,125								$6,592,625
23	Water Tanks - regular program of coating repairs	W	INF	$20,000	$21,100	$22,261	$23,485	$24,776	$26,139	$27,577	$29,094	$30,694	$32,382	$257,507
24	Water Meters - ongoing meter replacement program and conversion to automatic meter reading devices	W	RELIAB	$400,000	$21,100	$22,261	$23,485	$24,776	$26,139	$27,577	$29,094	$30,694	$32,382	$637,507
25	Acquire water tank sites, Vina Robles, Chandler, S. Vine	W	INF	$1,500,000										$1,500,000
26	Install new 5.3 MG East Side Tank	W	INF		$10,550,000									$10,550,000

February 2007

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
27	Ladera Reservoir siting study, design, and construction	W	INF		$3,165,000									$3,165,000
28	E2 - 8" and 10" waterline from Admore Rd to Gilead Lane	W	INF		$405,153									$405,153
29	E4 - 12" waterline in Miller Ct from Lombardo Ct to end of cul-de-sac	W	INF		$130,382									$130,382
30	W13 - 8" waterline in 15th St from Terrace Hill Dr to Hillcrest Dr	W	INF		$85,125									$85,125
31	W16 - install fire pump at Highland Park Booster Station along with 8" waterline	W	INF		$237,058									$237,058
32	W17 - 12" waterline in Nacimiento Lake Dr and Fairview Ave	W	INF		$425,626									$425,626
33	W4 - 10" waterline in 36th St from Spring St to WWTP	W	INF			$394,470								$394,470
34	W5 - 8" waterline in 22nd St from Oak St to Spring St	W	INF			$71,618								$71,618
35	W6 - 10" waterline in 22nd St from Olive St to Oak St	W	INF			$143,237								$143,237
36	W10 - 8" waterline in Olive St from 19th St to 23rd St	W	INF			$277,379								$277,379
37	W11 - 8" waterline in James St to Cherry St	W	INF			$53,430								$53,430
38	W12 - 16" waterline in Chestnut St from 12th St to 11th St	W	INF			$143,237								$143,237
39	W15 - install fire pump at 12th Street Booster Station	W	INF			$2,557,800								$2,557,800
40	FE3 - 16" waterline in Olsen/Beechwood from Creston Rd to Linne Rd	W	INF			$1,647,223	$2,399,847							$4,047,070
41	Nacimiento Water delivery costs	W	ALL				$63,860,000							$63,860,000
42	W3 - 8" waterline in 32nd St from Park St to Pine St	W	INF				$56,368							$56,368
43	W7 - 10" waterline in 24th St and Riverside Ave	W	INF				$346,605							$346,605
44	W8 - 8" waterline in Oak St from 4th St to 7th St	W	INF				$217,078							$217,078
45	W9 - 8" waterline in 2nd St from Vine St to Orcutt Rd	W	INF				$207,483							$207,483
46	FE2 - 12", 16", and 24" waterline in Chandler Ranch from Gilead Ln to N/o Hwy 46	W	INF				$2,396,849	$2,528,675						$4,925,524
47	E5 - 12" waterline in Tractor St from Oakwood St to Combine St	W	INF					$328,975						$328,975
48	W1 - 12" waterline in Spring St from 24th St to 36th St	W	INF					$1,471,528						$1,471,528
49	W2 - 8" waterline in Oak St from 30th to 32nd St	W	INF					$301,138						$301,138
50	W18 - 14" waterline in Pine St, 23rd St, and Spring St	W	INF							$970,316				$970,316
51	FE6 - 16" waterline in Linne Rd from Airport Rd to Tract 2526	W	INF							$1,013,973				$1,013,973
52	Adopt a well water desalting program including high recovery of raw and treated water.	W	WQ, SALT RED										$3,307,358	$3,307,358

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
53	**Wastewater Projects:**													
54	Templeton Interceptor Sewer Upgrades	WW	INF	$500,000		$556,513	$1,174,241	$6,194,123	$6,534,800					$14,959,677
55	A1, SE1, SE2 - Sewer service expansion to Northern Airport Area	WW	INF	$204,272			$3,597,971	$3,795,860	$2,402,779					$10,000,882
56	Upgrade Lift Station No. 4	WW	INF	$255,340										$255,340
57	Rehab various existing mains on West Side and elsewhere	WW	INF	$600,000	$738,500									$1,338,500
58	Lift station rehabilitation to upgrade obsolete pumps, rails, and motors and to provide longer response time	WW	INF	$200,000	$211,000		$234,848		$261,392		$290,936		$323,819	$1,521,995
59	Rehab/replace old manholes	WW	INF	$300,000		$333,908		$371,647		$413,653		$460,406		$1,879,614
60	W2 - 8th Street and Pine Sewer Mains	WW	INF	$168,524										$168,524
61	W3 - 36th Street Sewer Service Area	WW	INF	$214,486										$214,486
62	W4 - 2nd Street Sewage Collector	WW	INF	$77,623										$77,623
63	W5 - 5th Street Sewage Collector	WW	INF	$77,623										$77,623
64	E2 - Commerce Way and Scott St Sewage Collection	WW	INF	$1,012,168										$1,012,168
65	E5 - Commerce Way Sewage Collection	WW	INF	$406,501										$406,501
66	E6 - Commerce Way and Santa Bella Sewage Diversion to consolidate influence of Chandler Ranch	WW	INF	$43,919										$43,919
67	Install a vented hood at the wastewater lab.	WW	INF	$30,974										$30,974
68	Consider equipping the wastewater lab to conduct on-site MPN tests.	WW	INF	$12,389										$12,389
69	E3 - Turtle Creek Rd and Commerce Way Sewage Collection	WW	INF		$323,261									$323,261
70	E4 - Linne Rd Sewage Collection	WW	INF		$409,463									$409,463
71	Video tape the entire sewage collection system over next 3-5 years to assess system condition	WW	INF		$211,000	$278,256	$293,560							$782,817
72	LS11 - Lift station capacity expansion	WW	INF		$275,849									$275,849
73	Construct an emergency by-pass around the bar screens.	WW	INF	Reevaluate in light of planned 2011-12 plant upgrade	$36,554									$36,554
74	Convert the scum pump for use as a dedicated primary sludge pump on one clarifier and equip the scum well with a vertical chopper pump	WW	INF		$122,734									$122,734
75	Upgrade controls for recirculation stations with ultrasonic level indicators.	WW	INF		$9,083									$9,083
76	Consider installation of grit removal on the secondary trickling filter pumps if snail shell volume warrants.	WW	INF		$12,362									$12,362
77	Examine the influent piping to the secondary trickling filters and repair as-needed.	WW	INF	Reevaluate in light of planned 2011-12 plant upgrade	$25,920									$25,920

	Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
78	Rehabilitate the distribution arms in secondary trickling filters Nos. 1 and 2 and consider motor-drives for all distribution assemblies.	WW	INF		$208,803									$208,803
79	Sand and paint secondary distribution arms (Nos. 1, 2, 3, 4)	WW	INF		$47,078									$47,078
80	Raise the walls of the trickling filters to mitigate wind blown wastewater.	WW	INF		$9,748									$9,748
81	Add 6 chlorine residual analyzers	WW	INF		$127,165									$127,165
82	T1 1 - Templeton Interceptor near LS #1	WW	INF			$31,830								$31,830
83	SE3 - Sewer service expansion to Paso Robles Blvd area	WW	INF			$579,768								$579,768
84	T1 2 - North River Rd trunk sewers (concurrent w/ Nacimiento pipeline)	WW	INF			$1,534,111	$1,618,487							$3,152,599
85	E1 - Creston Rd Sewage Collection	WW	INF				$642,838							$642,838
86	Study high maintenance sewer areas to identify and correct the problems	WW	INF				$46,970							$46,970
87	T1 3 - South River Rd trunk sewers (concurrent w/ Nacimiento pipeline)	WW	INF				$1,164,543	$1,228,593						$2,393,137
88	Install influent flow meter	WW	INF				$204,169							$204,169
89	W6 - Eastside Influent Trunk Sewer	WW	INF							$160,546				$160,546
	Totals =			**$14,628,042**	**$25,230,564**	**$25,565,279**	**$95,770,175**	**$43,152,588**	**$29,617,042**	**$3,889,409**	**$1,140,059**	**$828,731**	**$4,019,759**	**$239,094,149**
	Project highlights				*Naci WTP and local pipeline construction*	*Naci local pipeline and Templeton sewer*	*Naci capital investment; WWTP design; Temp sewer*	*WWTP and recycled deliv system constr*	*WWTP and recycled deliv system constr*					

[1] W = Water; WW = Wastewater; SD = Storm Drain;

[2] WQ = improve water quality; SALT RED = reduce basin salt loading; W RTS = maintain strong water rights; RELIAB = increase water supply reliability; GW DEP = reduce groundwater dependence; ALL = advances all major goals. INF = other infrastructure projects to meet existing customer needs and projected development.

[3] Total Project Costs have both been adjusted to current dollars using ENR 20 Cities Construction Cost Indexes and adjusted for inflation at the rate shown.

Other Major Programs to Implement Recommendations and New Development Standards:													
Water conservation coordinator w/ public information programs and school education programs	W	WQ, SALT RED	$55,000	$56,650	$58,350	$60,100	$61,903	$63,760	$65,673	$67,643	$69,672	$71,763	$630,513
Restrict use of self-regenerating household water softeners via an ordinance	w	WQ, SALT RED		$40,000									$40,000
Residential ultra low flush toilet replacement program	W	RELIAB, GW DEP						$9,933					$9,933
Implement an Industrial Waste Discharge Ordinance	WW	WQ, SALT RED	$25,000										$25,000
Large landscape water conservation programs	W	RELIAB		$26,375	$7,791	$8,220	$8,672	$6,535	$6,894	$7,273	$7,673	$8,095	$87,529
Water conservation programs for commercial, industrial and institutional accounts	W	RELIAB, GW DEP			$100,061								$100,061
Implement the storm water management program	SD	WQ, RELIAB	(Annual costs to be determined)										$0
Require provisions for accepting recycled water in new developments	RW	RELIAB, GW DEP		$30,000									$30,000
Totals Inc. Major Program Costs =			**$14,708,042**	**$25,383,589**	**$25,731,481**	**$95,838,495**	**$43,223,163**	**$29,697,270**	**$3,961,976**	**$1,214,975**	**$906,077**	**$4,099,617**	**$240,017,185**

City of el Paso de Robles
2007 Water Resources Plan Integration
Projects Lacking Cost Estimates

Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
Projects Lacking Cost Estimates and Evaluation in Light of Planned WWTP Upgrade													
Partially enclose three sides of sludge press area	WW						not stated						$0
Paint two old digesters	WW					not stated							$0
Retrofit the recirculation room valves	WW				not stated								$0
Replace pipe, valves, and braces on grit chambers plus associated concrete work	WW			not stated									$0
Convert to sodium hypochlorite in lieu of gaseous chlorine	WW			not stated									$0
Demolish old facilities at CYA plant	WW											not stated	$0
Resurface access roads around sludge beds	WW				not stated								$0
Pave around the chlorine basin	WW		not stated										$0
Provide sanitary shower/locker room for operators	WW							defer to plant upgrade					$0
Reservoir and well access road paving and fencing improvements	W					not stated							$0
Orchard Bungalow booster station VFD installation	W		not stated										$0
Additional 500 kva portable generator	W		not stated										$0
Mobile geographic information system access for operators	W			not stated									$0
Water tank recoating (one tank every other year)	W			not stated		not stated		not stated		not stated		not stated	$0
OSHA compliant trench shoring jacks and shields	W		not stated										$0
Larger liquid chlorine storage buildings at well sites	W		not stated	not stated									$0
Evaluate irrigation-related water quality parameters of treated plant effluent.	RW		Not CIP										$0
Determine water quality impact of Pretreatment and Source Control Program on viability of reclaiming wastewater.	RW				Not CIP								$0
Double the City's Nacimiento entitlement to 8,000 AFY	W										not stated		$0
Restrict use of self-regenerating household water softeners via an ordinance	RW		not CIP										$0
Preferentially use wells with lower salt levels	W		Not CIP										$0
Implement an Industrial Waste Discharge Ordinance	WW		Not CIP										$0
Water Tanks - internal cathodic protection	W												$0
Valves, hydrants, and air-vacs - annual exercise program	W												$0
Pressure Reducing Valves - regular service program	W												$0

City of el Paso de Robles
2007 Water Resources Plan Integration
Projects Lacking Cost Estimates

Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
Global Information System - semi-annual updates to illustrate new water piping, valves, etc.	W												$0
Water metering with commodity rates	W												$0
Water conservation pricing	W												$0
Install chlorine gas containment and emergency scrubbing system or discontinue use of 1-ton gaseous chlorine cylinders by converting to sodium hypochlorite for disinfection.	WW			not stated									$0
Provide flow proportional control of ferric chloride feed system at the wastewater treatment plant.	WW		Re-evaluate all in light of planned 2011-13 WWTP upgrade	not stated									$0
Replace existing bar screens with smaller openings and equipped with a screenings washer and compactor. Also, provide a reliable timer for the screen rake, consider a level sensor.	WW			not stated									$0
Repair the concrete and exposed equipment above the waterline in the grit chambers.	WW		Re-evaluate all in light of planned 2011-13 WWTP upgrade	not stated									$0
Relocate the grit blower into a sound-dampened enclosure. Provide a second blower for redundancy.	WW			not stated									$0
Adjust ferric chloride feed based on a jar test series.	WW			not stated									$0
Evaluate operating levels and wetwell design of the secondary trickling filter pump station. Repipe as needed.	WW			not stated									$0
Replace the inboard effluent launders in clarifiers Nos. 3 and 4 with perimeter launders and weir baffles to reduce the potential for short-circuiting.	WW			not stated									$0
Investigate the feasibility of installing surface skimmers on clarifiers Nos. 2, 3, and 4.	WW			not stated									$0
Consider discontinuing use of clarifier No. 1.	WW			not stated									$0
Consider routing secondary sludge line in to the primary influent.	WW			not stated									$0
Confirm the wier sizes and chlorine contact basin volumes.	WW			not stated									$0
Install gates or valves to allow isolation of each chlorine contact basin.	WW			not stated									$0

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Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	TOTAL PROJECT COST[3]
Consider dechlorination to ensure effluent chlorine limits as stated in the waste discharge permit.	WW		Re-evaluate all in light of planned 2011-13 WWTP upgrade	not stated									$0
Provide a back-up system for operating the chlorinator if the level indicator fails.	WW			not stated									$0
Improve the mixing and/or dissolved oxygen transfer at the polishing ponds to reduce algae growth.	WW			not stated									$0
Line the polishing pond banks for weed control.	WW			not stated									$0
Consider accepting additional sludge at the wastewater plant.	WW			not stated									$0
Construct an additional lined sludge bed to allow decanting and improve sludge drying.	WW			not stated									$0
Consider operating all 3 digesters as mixed digesters and use a holding tank/mechanical dewatering for solids.	WW			not stated									$0
For reclaimed water options, install 2 vortex grit chambers, grit classifiers, and screen conveyors to replace or flow parallel to the existing grit removal facilities.	RW			Costs included in '06 Recyc. Water Update.									$0
For reclaimed water options, add scum skimmers, scum pump stations, and Stamford density baffles to each of the 3 primary sedimentation basins.	RW			Costs included in '06 Recyc. Water Update.									$0
For reuse as restricted irrigation, add a third chlorine contact basin and replace the 1-ton gaseous chlorine cylinders with sodium hypochlorite generation.	RW			Costs included in '06 Recyc. Water Update.									$0
For broader reuse options, add a third chlorine contact basin, replace the gaseous chlorine facilities with sodium hypochlorite, and add sand filtration process units.	RW			Costs included in '06 Recyc. Water Update.									$0
For broader reuse options, construct a membrane biological reactor and disinfection.	RW			Costs included in '06 Recyc. Water Update.									$0
For broader reuse options, use the existing primary trickling filters as roughing trickling filters and use an aeration basin for conventional plug flow.	RW			Costs included in '06 Recyc. Water Update.									$0

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Add tertiary treatment to the selected disinfection approach by installing a flash mixing storage tank to flocculate colloidal particles followed by a membrane or sand filtration step. Include sodium hypochlorite or UV radiation as a final disinfection s	RW		Re-evaluate all in light of planned 2011-13 WWTP upgrade	Costs included in '06 Recyc. Water Update.									$0
For some tertiary treatment processes, provide return activated sludge/waste activated sludge pumps and handling facilities. For this option, provide lined sludge drying beds.	RW			Costs included in '06 Recyc. Water Update.									$0
Add a central control and monitoring system to the wastewater treatment plant	WW			not stated									$0
Consider an upgrade to the standby diesel fuel generator a the wastewater treatment plant sized to run the entire plant.	WW		not stated										$0

[1] Source: City of Paso Robles Water Resources Plan Integration and Capital Improvement Program by TJ Cross Engineers, November 2006.
Assumed inflation rate =
[2] W = Water, WW = Wastewater, RW = Recycled Water, SD = Storm Drain
[3] Source??

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Project[1]	Group[1]	Goal Advancement[2]	FY 2007-08	FY 2008-09	FY 2009-10
Storm Water Management Program - Recommended Sequence of Events. Not Capital Projects.					
Adopt-a-Street program with annual surveys and a stated goal of +25% participation as compared to 2004 levels	SD				
Maintain a web page to educate the public about water quality issues and track web page hits. Invite comments on the web page and respond accordingly.	SD			Develop an illegal dumping an illicit connections brochure for distribution to anyone cited for illegal dumping.	SD
Distribute brochures or fact sheets to residents to educate them on ways to decrease impact on storm water runoff. Include construction contractors and local businesses and conduct site inspections to determine the degree of measure implementation.	SD			Draft a new illicit discharge ordinance to address non storm water discharges.	SD
Provide a storm water hotline number to get more information on quality issues, motor oil disposal, etc. and track the number of calls.	SD			Record the number of projects permitted and constructed requiring a Grading Permit each year. Achieve 100%	SD
Mark each storm drain with "Don't Dump - Drains to River" and track the percent of total so marked each year.	SD			Record annual number of enforcement actions at construction sites and at conditioned projects along with	SD
City to participate in local events and distribute materials about water quality. Track the number of events and brochures distributed.	SD			Provide all City construction staff with construction best management practices brochures for distribution to	SD
Hold three public meetings over 5 years to present the Storm Water Management Plan to officials and the public.	SD			Annually inspect all completed runoff structures to ensure proper maintenance.	SD
Prepare a "stock presentation" about storm water management, tailor and present it to community groups regularly. Present to City staff and encourage creative ideas for improving water quality.	SD			Evaluate all City-funded projects for adherence to and proper maintenance of storm water best management practices.	SD
Organize volunteer creek clean-up events and present results of storm water sampling in an annual report.	SD			Track at least three innovative projects that protect/improve water quality.	SD
Implement a reporting system for public complaints regarding illicit discharges, hazardous wastes, liquid waste, spills, etc. that could pollute water. Respond to such complaints within 24 hours.	SD			Track the number of permit applications that are returned or rejected.	SD
Revise "Engineering Standard Details and Specifications" to address best management practices in more detail.	SD			Randomly conduct semi-annual inspections to verify contractor adherence to landscape maintenance, street	SD
Revise the Grading Ordinance to include specific requirements for certain development types.	SD			Increase awareness about waste management by including IWMA's web site in	SD
Update the General Plan to include appropriate storm water management design standards.	SD			Develop a single fact sheet to address treatment control or structural control of storm	SD
Inspect targeted outfalls twice yearly to ensure abatement of violations. Complete such inspections within two years.	SD			Conduct quarterly or annual City employee training on responsibilities pertaining to storm water management.	SD

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Master Plan Piping Recommendations
To be Constructed by Developers*

E1 - 16" and 24" waterline in Airport Area from Golden Hills Rd to Airport Facility	W		$8,085,000
E3 - 10" waterline from Santa Fe Ave to Sherwood Rd	W		$92,000
FE4 - 12" and 16" waterline in perimeter of Airport Area	W		$8,240,000
W1 - Riverside Interceptor	WW		$643,000
W7 - 12th Street Sewage Collector betweeen Vine and Olive	WW		$44,000
LS1 - Lift station capacity expansion	WW		$1,560,000
LS3 - Lift station capacity expansion	WW		$316,000
LS12 - Lift station capacity expansion	WW		$780,000
Total =			**$19,760,000**

* Noted as 100% allocated to future users on Public Works Dept water and sewer impact fee lists.