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

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

SUBJECT: **Integrated Water Resources Plan**

DATE: **March 7, 2006**

NEEDS: For the City Council to receive a status report and consider a supplemental wastewater discharge analysis for the Integrated Water Resources Plan.

FACTS:

1. In January 2005 the City Council authorized an amendment to the Boyle Engineering Water and Sewer Master Plan contract. The purpose of the contract amendment was to broaden and integrate planning for the City's water and wastewater resources. The January 4, 2005 staff report is provided as attachment one.

2. Boyle is approximately 95% complete with the Sewer and Water Master Plans and approximately 80% complete with the Integrated Water Resources Plan. Key findings of the Integrated Plan and Master Plans are provided as attachment two.

3. Phase II of the Integrated Plan included three primary Tasks, Groundwater Source Analysis (Task IIA), Nacimiento Water Treatment Plant Evaluation (Task IIB) and Recycled Water Study Task IIC). At the request of the City, the initial scope of Tasks II A & B has been expanded to include conceptual design and cost estimates for facilities that would reduce salt loading into groundwater. The cost estimate for the additional Task IIA and IIB work is $30,000.

4. Task IIC Recycled Water Study – several sites along Hwy 46 East corridor were identified as having the potential for direct reuse of recycled water and groundwater recharge by percolation when recycled water demand might be low. Percolation rates on the eastside are too low to be suitable for this use. Sites located in the southern end of the City are expected to provide percolation rates more suited for recharge. Exploration of the southern site was not included in the original Scope of Work. The cost estimate for the additional Task IIC work (examining southern for percolation sites) is $31,100

5. The January 4, 2005 staff report anticipated that unforeseen conditions/complications might be discovered during the course the Integrated Plan evaluation. Therefore, associated Resolution No. 05-007 appropriated a contingency of approximately $75,000 to cover unforeseen conditions and/or Phase III work.

6. In June 2005, the Council approved a $57,900 contract with Todd Engineering for preparation of the City's Urban Water Management Plan. The UWMP is an adjunct to the Integrated Water Resources Plan and is required by State law. For

practical purposes the UWMP contract was funded out of the $75,000 Integrated Plan contingency funds, leaving approximately $17,000 in the contingency fund.

7. An additional $44,100 is needed to fund the additional Phase II A & II B analysis and the Phase II C fieldwork and analysis ($30,000 + $31,100 – $17,000 = $44,100).

ANALYSIS AND CONCLUSION: The Integrated Water Resources Plan is critical to the City's long-term strategic water resource planning. The Integrated Plan will provide the City with a comprehensive road map on how best to improve water quality, increase and diversify water supplies, increase reliability of water supplies, lessen groundwater basin pumping, reduce salt loading in the basin, safeguard water rights, comply with regulatory mandates, and prioritize investments to achieve these goals. Completion of the additional scope work associated with Tasks II A, B & C will provide a more complete and comprehensive report.

POLICY REFERENCE: Sewer and Water Master Plans, Paso Robles General Plan

FISCAL IMPACT: Recommend appropriating $45,000 from Sewer operations fund 601.910.5224.770 to complete the additional work.

OPTIONS:

a. Adopt Resolution No. 06-xx appropriating $45,000 for and authorizing the City Manager to amend the contract with Boyle Engineering for additional work in Tasks II A & B and Task II C (Recycled water study) as documented in their proposed scope of work attached hereto and included herein by reference.

b. Amend, modify, or reject the above option.

Prepared by:

Bradley E. Hagemann, P.E., Water Resources Manager

Attachments (3)

1) January 4, 2005 Staff Report
2) IWRP Key Findings
3) Resolution

TO: City Council

FROM: James L. App, City Manager

SUBJECT: **Water & Wastewater Resource Management**

DATE: January 4, 2005

NEEDS: For the City Council to consider amending Boyle Engineers' Water & Sewer Master Plan contract to broaden and integrate planning for water and wastewater resources.

FACTS:

1. The City provides water and wastewater services to residences and businesses within City limits.

2. The City relies on water supply from two groundwater sources – the Salinas River underflow and the Paso Robles groundwater basin. Sixteen wells produce approximately 7,500 acre feet per year but are strain to meet high summer water demands.

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

4. Groundwater is hard, locally affected by selected constituents, and subject to diminishing quality. Water treatment is provided at each wellhead.

5. The City recently committed to the Nacimiento Lake surface water project, which will deliver 4,000 acre feet per year of relatively high quality, raw (untreated) water beginning in approximately 2009/10.

6. Approximately 2,900,000 gallons per day (3,300 acre feet per year) of wastewater is collected, treated, and disposed from a central plant located adjacent to the Salinas River.

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

   - San Luis Obispo County Department of Environmental Health
   - Regional Water Quality Control Board
   - State Department of Fish and Game
   - State Department of Health Services
   - State Department of Water Resources
   - State Water Resources Control Board
   - U.S. Army Corp of Engineers
   - U.S. Department of Fish & Wildlife
   - U.S. Environmental Protection Agency

8. County, State and Federal regulations control the quality (concentrations of salts and specific constituents) of water supply sources and wastewater. Regulatory limits on specific constituent concentrations are increasingly rigorous.

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

10. Increasing water demands and ever-tightening regulations on both water and wastewater quality necessitate development of *integrated* water and wastewater management practices and more advanced treatment regimens. New management strategies need to include:

    - Identification of specific water quality targets to meet multiple objectives and rigorous requirements for public health, groundwater, 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, water conservation, groundwater basin supply, watershed enhancement, and environmentally sound wastewater treatment and disposal objectives; and

    - Development of integrated management of surface water, groundwater, recycled water and river resources, so that the integrity, quality, and supply of these unified resources can be sustained for the long term.

ANALYSIS & CONCLUSION: A long-term, reliable supply of good quality water is essential to life, public health, environment, business, 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.

Paso Robles provides water and wastewater service to over 27,000 people today, increasing to over 40,000 by 2025. The City's use of, and discharge to, area waters may affect even more. A long-term strategic and integrated management plan to sustain these resources and services must be developed.

Boyle Engineers is currently preparing the City's water and wastewater master plans, as well as a wastewater treatment plant operations audit. Their work should be expanded to integrate water and wastewater planning so that the City may amplify and galvanize its efforts to:

- Improve water quality;
- Increase & diversify water supplies;
- Increase reliability of water supplies;
- Lessen groundwater basin pumping;
- Reduce salt loading into groundwater;
- Anticipate and comply with regulatory mandates;
- Safeguard water rights; and
- Prioritize expenditures to achieve these goals.

Integrating water and wastewater master planning will fuse water source development, treatment, reclamation, disposal, use, and reuse together as a complete water cycle/system management effort. The integrated plan would be comprised of a wide range of strategies, programs and projects. Boyle Engineers is currently developing some of the plan's components:

- Sewer Master Plan update.
- Water Master Plan update.
- NPDES Wastewater Discharge Permit.
- Wastewater Treatment Plant Operational Audit.
- Water Storage Tank Site Evaluation, Design and Development.

Additional features needed to both fulfill current obligations and permits, and effect integrated water cycle/system management planning include development of:

- Nacimiento, groundwater, and wastewater treatment alternatives;
- Groundwater source analysis (well field operations and recharge options);
- Recycled Water Study update and demand analysis;
- Wastewater Pretreatment/Source Control Program;
- Salt Reduction program update; and
- Prioritized capital improvements program, schedule and cash flow analysis.

Given the complexity and broad scope of such an effort, it is prudent to take advantage of Boyle Engineer's comprehensive knowledge of, and involvement with, the City's water and wastewater systems, operations, regulatory challenges, and the Nacimiento Water Project. Accordingly, Boyle Engineers was asked to develop a supplemental proposal to integrate the City's water and wastewater master planning. Their proposal (attached) takes advantage of the work already under contract/development, and incorporates and integrates all of the features listed above.

An integrated plan will provide an approach which unifies water cycle, demand, treatment, use, discharge and replenishment management to ensure adequate, sustainable, diverse, and quality water supplies for the long-term. It is an effort vital to the community's future.

POLICY REFERENCE: California Urban Water Management Planning Act; California Toxics Rule; Paso Robles General Plan, Municipal Code, Urban Water Management Plan, Water Master Plan, & Sewer Master Plan.

FISCAL IMPACT: $400,000 to be appropriated from the Water and Sewer Funds.

Phases I & II of the supplemental work are estimated at $300,000. Phase III costs will be determined following completion of the preceding phases, but are expected to be approximately $40-70,000. Additionally, it is possible that new, unforeseen conditions/complications will be discovered in the course of the evaluation necessitating additional work and associated costs. Accordingly, a budget of $400,000 is sought to provide for these contingencies.

Until such time as the nature and extent of study outcome is determined, 50% of the cost will come from Water, and 50% from Sewer, resources - both retained earnings and impact fees.

The impact fee, or new development, shares will be equivalent to the cost allocations for preparation of the sewer and water master plans, 90% and 39%, respectively. This will necessitate a future minor increase in both the sewer and water impact fees. For sewer, the increase would be $35 per residential unit and $10 for water. A connection fee resolution will be presented for action at a future date.

OPTIONS:

a. **Adopt Resolution No. 05-xx appropriating $400,000 for, and authorizing the City Manager to amend the contract with, Boyle Engineers to prepare an Integrated Water & Wastewater Master Plan.**

b. **Amend, modify, or reject the above option.**

Attachments: Resolution
Proposal

RESOLUTION NO. 05-007

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES APPROPRIATING $400,000 FOR, AND AUTHORIZING THE CITY MANAGER TO AMEND THE CONTRACT WITH, BOYLE ENGINEERS TO PREPARE AN INTEGRATED WATER & WASTEWATER MASTER PLAN

WHEREAS, the City has contracted for 4,000 acre feet of raw (untreated) water from the Nacimiento Water project annually; and

WHEREAS, raw water must be treated before distributed for human consumption and use; and

WHEREAS, certain City wells are indicating levels of undesirable constituents that may require more rigorous treatment and/or blending than currently provided; and

WHEREAS; area ground and Salinas River water indicates high levels of salts; and

WHEREAS, water once used must be treated before being discharged; and

WHEREAS, reuse of water is a viable means of supplementing supply; and

WHEREAS, Boyle Engineers has been, and is currently, assisting the City with fresh and waste water matters; and

WHEREAS, Boyle Engineers is currently under contract to update the City's Water and Sewer Master Plans; and

WHEREAS, increasing water demands and ever-tightening regulations on both water and wastewater quality necessitate development of integrated water and wastewater system planning; and

WHEREAS, development of a comprehensive water cycle/system management effort and infrastructure plan will aid in the prioritization, and maximize the value, of utility investments.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of El Paso de Robles to:

1. Appropriate $400,000 as follows:

Water Development Impact Fee Fund	$ 78,000	220-910-5224-770
Water Operations Fund	$122,000	600-910-5224-770
Sewer Development Impact Fee Fund	$180,000	221-910-5224-770
Sewer Operations Fund	$20,000	601-910-5224-770

2. Authorize the City Manager to amend the contract with Boyle Engineers to prepare an Integrated Water & Wastewater Master Plan as documented in their proposed scope of work attached hereto and included herein by reference.

3. As soon as practical, prepare and present appropriate sewer and water development impact (connection) fee increase actions for Council consideration.

PASSED AND ADOPTED by the City Council of the City of El Paso de Robles this 4th day of January 2005 by the following vote:

AYES: Heggarty, Nemeth, Picanco, Strong, and Mecham
NOES: None
ABSTAIN: None
ABSENT: None

Frank R. Mecham, Mayor

ATTEST:

Sharilyn M. Ryan, Deputy City Clerk

IWRP Key Findings/Conclusions

Phase I

- Maintenance expenses are relatively low – 3% of operating expenses for water – 4% for wastewater
- Adequate funds are being set aside in a depreciation fund to replace water and wastewater facilities.
- Water Rights Review –
    - City has requested a Salinas River Water Permit (4600AFY, 8CFS) extension thru December 2006; and
    - City is on track to perfect license for 4600AFY, 8CFS within the next 3 years.

Phase II

Nacimiento Water Treatment Evaluation

- Thunderbird Wellfield identified as preferred site
- Evaluated 3 treatment alternatives
- Membrane treatment recommended (Quality and $)
- Disinfection alternatives evaluated
- Plant layouts, blending strategy and resultant water quality have been identified
- Initial plant size 6.6 MGD

Groudwater Source Assessment

- Existing wells are theoretically capable of providing for summer drought conditions (assuming no operational problems or supply deficiencies)
- Utilize Salinas River underflow wells to maximum of allowed 4600 AFY
- Spread underflow pumping along river reach

Wastewater Pretreatment/Source Control

Reduction of TDS, sodium, chloride, toxic contaminants and sulfate concentrations are needed to consistently meet effluent limitations. Reductions can be obtained by:

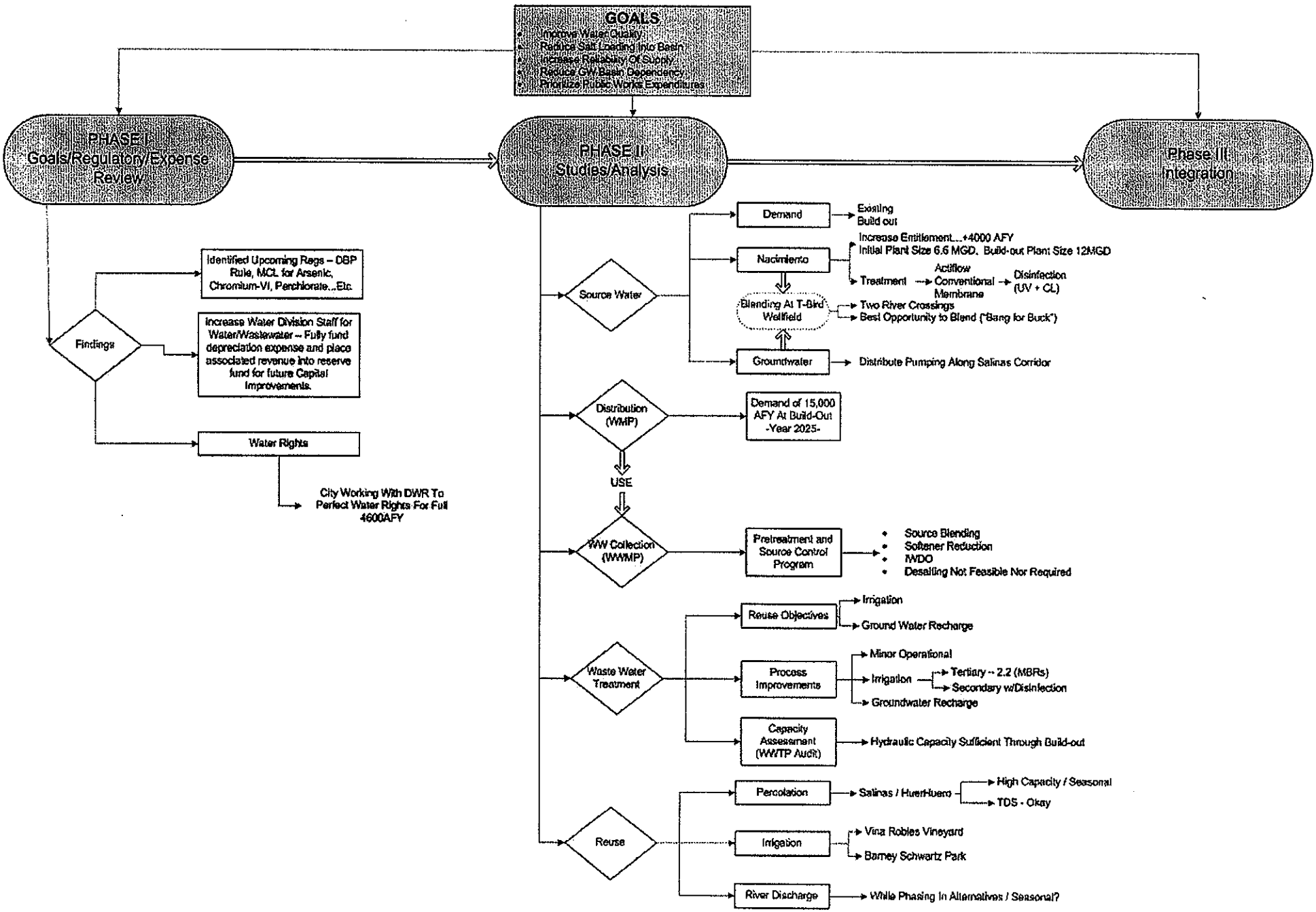
- Implementing an Industrial Waste Discharge Ordinance;
- Restricting use of on-site regenerated water softeners via an ordinance
- Using Lake Nacimiento water; and
- Recycling treated wastewater

Recycled Water Study Update

- Initially identified Hwy. 46 E. corridor as preferred corridor for reuse and GW recharge
- Performed environmental screening for 4 potential recharge sites
- Identified two interested high use recycled water users
- Soils analyses ruled out East Side groundwater recharge sites.

10/25/2005

AIWRP – Project Update



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Brad Hagemann, P.E.
Water Resources Manager
CITY OF PASO ROBLES
1000 Spring Street
Paso Robles, CA 93446

February 23, 2006

AIWRP - Budget Revision Request

Boyle Engineering Corporation (Boyle) is requesting a budget revision for the performance of additional and out of scope work items described below. These tasks will be performed under the AIWRP agreements dated January 19, 2005.

	Current Authorization	Amount Being Requested
Water Source Evaluation		**$30,000**
Ground Water Source Assessment	$49,600	
Nacimiento Treatment Evaluation	$70,966	
Recycled Water Study		
Evaluate Additional Sites		
CPT Screening of Sites F&G		**$31,100**
Total		**$61,100**

Water Source Evaluation

At the City's request, Boyle evaluated the cost and possible treatment methods that would result in wastewater effluent salt levels being lowered to levels currently found in the City's groundwater. This effort included the following:

- ☐ Conceptual design flow diagrams for conventional reverse osmosis (w/o concentrate recovery)
- ☐ Conceptual design flow diagrams for advanced reverse osmosis (w/ concentrate recovery)
- ☐ Multiple surface and RO treated well water blending scenarios for existing, interim and build-out demands (a total of 18 scenarios were evaluated)
- ☐ Water quality (TDS and hardness) was estimated for all 18 scenarios
- ☐ Conceptual level construction and O&M costs opinions were prepared for the 18 scenarios

Recycled Water Study

Several sites along the Highway 46 West corridor were identified as possessing the greatest percolation potential for the construction of wastewater disposal ponds. This ongoing investigation is revealing that the most promising sites along the 46 West corridor have percolation rates too low to be considered suitable for this use. Additional sites located in southern end of the City, near the Thunderbird Well Field, are expected to provide percolation rates more suited for recharge, and may provide the added benefit direct recovery opportunities. The two sites combined contain roughly 142 usable acres. Boyle proposes performing a CPT screening level investigation of these sites to determine their suitability for percolation ponds. Before proceeding with preliminary plans or property acquisition, additional field work and testing will be required. The additional field work and testing should include subsurface drilling, laboratory testing, and flow modeling to determine actual percolation rates and residence time. This data will be necessary to size the ponds and assess the potential for interaction with the Thunderbird well field.

Compensation for Boyle's services as described in the above Work Tasks will be made on a time and materials basis and will not to be exceeded without written authorization by the City. If this budget revision request meets your approval, please sign below to authorize this work.

Boyle Engineering Corporation

Christopher Makel, PE
Project Manager

Brad Hagemann, PE
Water Resources Manager

BK-B99-197-01/SLO

RESOLUTION NO. 06-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES APPROPRIATING $45,000 FOR AND AUTHORIZING THE CITY MANAGER TO AMEND THE INTEGRATED WATER AND WASTEWATER MASTER PLAN CONTRACT WITH BOYLE ENGINEERING

WHEREAS, the City entered into a contract with Boyle Engineering to prepare an Integrated Water and Wastewater Master Plan; and

WHEREAS, City staff anticipated that unforeseen conditions/complications might be discovered during the course of the Integrated Plan; and

WHEREAS, City staff has identified additional field work and analysis that should be accomplished to provide a comprehensive plan.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Paso Robles to:

1. Appropriate $45,000 as follows:

Water Operations Fund	$25,000	600-910-5224-770
Sewer Operations Fund,	$20,000	601-910-5224-770

2. Authorize the City Manager to amend the contract with Boyle Engineers to include additional scope items as documented in their proposed budget revision.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 7th day of March 2006 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Frank R. Mecham, Mayor

ATTEST:

_____
Cathy David, Deputy City Clerk