City Council Staff Report

Date: April 21, 2010 NEW BUSINESS

Subject: 20-YEAR WASTEWATER CAPITAL REPAIR AND REHABILITATION PLAN, AND WASTEWATER FINANCIAL PLAN AND RATE STUDY

From: David H. Ready, City Manager

Initiated by: Public Works and Engineering Department

SUMMARY

The City initiated preparation of a comprehensive Capital Repair and Rehabilitation Plan, or commonly referred to as a Capital Improvement Plan ("CIP") for the City's wastewater treatment plant ("WWTP"), realizing the need to plan and budget for major capital projects at the WWTP over the next 20 years. In coordination with preparation of the CIP, the City initiated preparation of a comprehensive evaluation of the City's current wastewater rates to determine if these rates will continue to accommodate the on-going operation and maintenance costs for the WWTP, as well as any necessary major capital projects associated with the 20 year CIP.

Included in the 20 year CIP, but previously budgeted and planned as part of prior fiscal year WWTP budgets, are two capital improvement projects: the Digester No. 1 Rehabilitation, City Project No. 08-09; and the Wastewater Treatment Plant Perimeter Security Fence, City Project No. 08-11. The Digester No. 1 Rehabilitation final design has been completed and Veolia has bid the project and has submitted a proposal for its construction; and the Security Perimeter Fence final design has been completed and is ready for City Council approval and authorization to bid.

RECOMMENDATION:

1) Approve the City of Palm Springs Wastewater Treatment Plant Capital Repair and Rehabilitation Plan; and

2) Approve the City of Palm Springs Wastewater Financial Plan and Rate Study; and

3) Authorize staff to proceed with Proposition 218 majority protest noticing, and schedule a Public Hearing for June 16, 2010, to consider the matter of increasing

ITEM NO. 5.B.

sewer service charges in accordance with the Financial Plan and Rate Study; and

4) Authorize the Director of Public Works/City Engineer to issue a Notice to Proceed for Veolia West Operating Services, Inc., in the amount of $2,279,323 for the construction phase of the Digester No. 1 Rehabilitation, City Project No. 08-09, inclusive of a pre-approved 10% construction contingency; and

5) Approve the plans, specifications, and working details for the Wastewater Treatment Plant Perimeter Security Fence, City Project 08-11, and authorize staff to advertise and solicit bids.

STAFF ANALYSIS:

The Wastewater Treatment Process

Wastewater treatment is the process of removing contaminants from wastewater, and can include physical, chemical, and biological processes to remove various contaminants in it. The purpose is to improve the quality of the wastewater to meet certain limitations imposed by the state to produce a waste stream (or "effluent") and a solid waste (or "sludge") suitable for discharge or reuse back into the environment. The treatment process at the City's WWTP involves two stages, called primary and secondary treatment. A third stage, or tertiary treatment, is provided by Desert Water Agency ("DWA") at its off-site reclamation plant near Knott's Soak City water park.

Pre-treatment of wastewater occurs by passing it through the headworks facility where a mechanical bar screen removes larger non-organic materials, such as rags, plastics, and debris; and where an aerated grit basin, consisting of concrete tanks, slow the rate of the wastewater flow to allow sand and grit to settle out of it. As a part of the primary treatment stage, the wastewater that is passed through the headworks facility enters into three large covered rectangular concrete tanks (or "primary clarifiers") where it continues to pass through at a slower rate, allowing heavier solids to settle to the bottom; and where oils, grease and lighter solids (or "scum") float to the surface. The settled solids and floating scum are removed from the wastewater and the remaining liquid (or "primary effluent") passes onto the secondary treatment phase.

Secondary treatment is a process to remove the much smaller particles of dissolved and suspended biological matter within the primary effluent. Secondary treatment at the City's WWTP begins by pumping primary effluent and distributing it around the top of four circular concrete tanks (called "trickling filters") such that it filters down through rock media about 10 feet deep contained within the tanks, over and within which a layer of algae slime grows. The process removes organic compounds within the primary effluent by trickling it over the algae slime which lives by consuming the organic compounds contained in the effluent.

As the algae slime grows into thicker layers on and within the rock media, it eventually grows to a layer too thick to maintain the process, and falls off. These algae growths in the trickling filters enter the wastewater flow and must be further separated by passing it through six open, rectangular tanks (or "secondary clarifiers"). The secondary clarifiers are similar to the primary clarifiers, in that wastewater flow passes through slowly, allowing the solids to be removed from the flow.

It is at this point that the effluent is passed to DWA to its reclamation plant for the third stage of treatment where DWA chlorinates and disinfects the effluent to meet state regulations for re-use as reclaimed water for irrigation purposes. In the 2009 calendar year, the City's WWTP processed 2.095 billion gallons of wastewater, of which 1.415 billion gallons (or 67.5%) was passed to DWA for reclaimed water re-use, and 680 million gallons was discharged into several percolation basins at the WWTP where it was evaporated into the air and percolated into the ground.

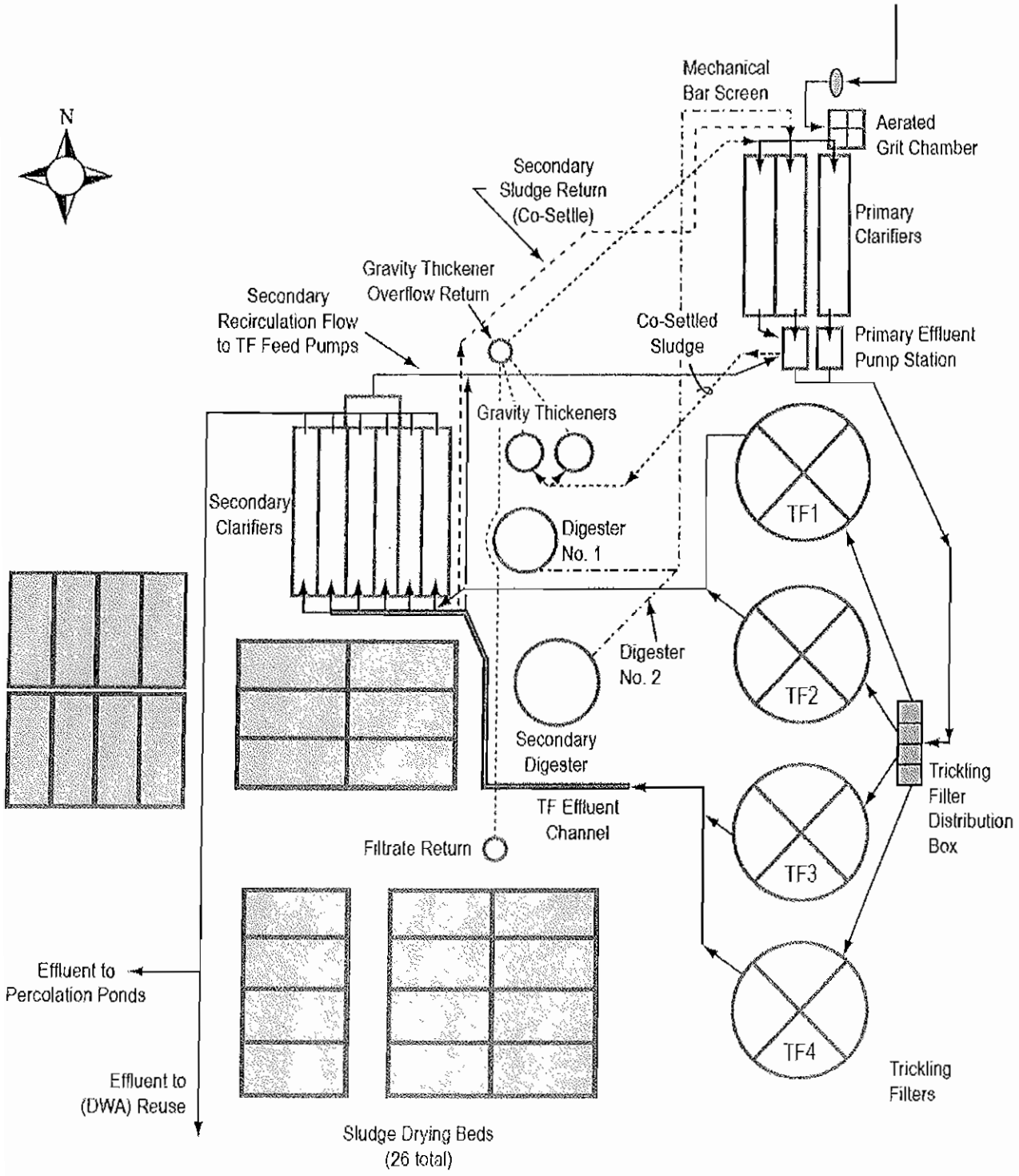
The treatment of solids removed from the wastewater flow from the primary and secondary clarifiers is thickened by a processed called "gravity thickening", and subsequently pumped into one of two anaerobic digesters for final treatment. This process is called anaerobic digestion, and is a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen (similar to how human digestion of food occurs). It is widely used to treat wastewater sludge and organic wastes because it significantly reduces the mass and volume of the original sludge material. Within the anaerobic digesters the solids are heated and mixed for about 20 days to further reduce the solids, where approximately half is converted into a methane and carbon dioxide rich biogas suitable for energy production.

The final treatment process pumps the reduced solids from the anaerobic digesters to 26 open-air drying beds and where it is dried for one to four months (depending upon the time of year – shorter in the summer and longer in the winter). Our desert environment allows sludge to be more thoroughly dried than at other facilities, and the process is capable of producing dried sludge that is defined as Class A "Exceptional Quality" bio-solids suitable for use as a fertilizer, which is hauled to agricultural users for beneficial re-use.

The process described above and used at the City's WWTP can be outlined by the following major processes and equipment, and is generally shown in Figure 1:

- Headworks (mechanical bar screen and aerated grit chamber)
- Primary Clarifiers
- Primary Pump Station
- Trickling Filters
- Secondary Clarifiers
- Gravity Thickeners
- Anaerobic Digesters
- Sludge Drying Beds

Figure 1
Palm Springs Wastewater Treatment Plant Schematic Flow Diagram



20-Year WWTP Capital Repair and Rehabilitation Plan

The original WWTP was constructed in 1960, and is now 50 years old. Major expansion of the WWTP to its current 10.9 million gallon per day ("MGD") capacity was completed in 1983. Since 1983, no significant major capital improvement projects have been implemented at the WWTP, until most recently with completion of a major rehabilitation of one of the two anaerobic digesters in 2008 and construction of a new reclaimed water pump station in 2009.

Operation and maintenance ("O&M") of the City's WWTP is provided for the City through a long term agreement with Veolia Operating Services West, Inc. ("Veolia"). In consultation with Veolia regarding on-going maintenance issues at the WWTP, primarily due to the age of the major mechanical equipment at the WWTP, staff initiated preparation of a comprehensive CIP for the WWTP, realizing the need to focus on major capital projects to replace aging equipment and improve inefficient wastewater treatment processes at the WWTP over the next 20 years.

The focus of this 20-year WWTP CIP is not on increasing the capacity of the WWTP; the current 10.9 MGD capacity has been demonstrated to be adequate for the 20 year horizon. For the 2009 calendar year, wastewater flow into the WWTP was at annual average rate of 5.755 MGD, well below the 10.9 MGD capacity. Assuming a conservative projected future City growth rate of 1,000 people per year, the 10.9 MGD capacity will not be exceeded for over 30 years. The 20-year WWTP CIP considers repair and rehabilitation of the outdated equipment and processes used at the WWTP, and the need to appropriately plan for replacement of the equipment with current technology that will improve the City's ability to efficiently treat wastewater flows.

The CIP has assessed all of the major unit processes at the City's WWTP, and recommends a 20 year program consisting of over 30 projects (some of which may be combined into single projects for better cost efficiencies) estimated to cost $67,000,000. The most critical elements of the WWTP to be addressed in the near-term are:

- **Digester No. 1 Upgrade**

The Wastewater Treatment Plant Primary Digester Rehabilitation, City Project No. 08-09, was previously budgeted and included as part of the WWTP capital improvement program. A major rehabilitation of one of the two anaerobic digesters was completed in 2008, and the second anaerobic digester has been off-line in anticipation of its major replacement work. On December 17, 2008, (and subsequently amended on May 6, 2009), the City Council authorized the final design and bidding phase of the major rehabilitation of the second anaerobic digester, and Veolia has completed the final design and bidding of this project.

Veolia solicited bids from its pre-qualified contractors, and on March 3, 2010, Veolia received the following bids:

1. W. M. Lyles Co.; Fresno, CA: $1,451,011
2. 4-Con Engineering; Riverside, CA: $1,629,000
3. SCW Contracting Corporation; Fallbrook, CA: $1,785,543
4. Brutoco Engineering & Construction; Fontana, CA: $ 1,899,000
5. SSC Construction, Inc.; Corona, CA: $ 2,073,000
6. United Riggers & Erectors, Inc.; Walnut, CA: $ 2,467,250

The engineer's estimate for construction (excluding equipment and materials to be furnished to the contractor) was $ 1,492,859.

It is essential that the City's two digesters operate for efficiency of wastewater treatment and to provide redundancy in the event one digester must be taken offline. Therefore, completing the rehabilitation of this anaerobic digester is the most critical capital project to be completed at the WWTP.

Veolia has submitted a proposal to provide the turn-key construction inspection and administration of this project, which includes separate procurement of specific long-lead items required for this project (specifically, a new redundant digester boiler and associated mechanical equipment). The specific costs included in the Veolia proposal are as follows:

1. Construction (W. M. Lyles Co. and other sub-contracts): $1,563,044
2. Long lead items (boiler and mechanical equipment): $160,865
3. Veolia construction administration/inspection: $174,987
4. General liability insurance: $19,836
5. Mark-Up (12.5%): $215,489
6. Construction contingency (10%): $145,102

Total: $2,279,323

The estimated time and materials for construction inspection and administration ($174,987) represents approximately 11% of the construction cost ($1,563,044), consistent with industry standards. In accordance with the terms of the City's O&M agreement with Veolia, Veolia may apply a mark-up of from 12.5% to 16% on its costs; consistent with this and other recently approved projects, Veolia has applied the lowest mark-up to the City. (Note, the mark-up is not applied to Veolia's construction inspection and administration costs).

Given the complexity of this project, it is recommended that a construction contingency of 10% be authorized.

- **Wastewater Treatment Plant Perimeter Security Fence**

Currently, the wastewater treatment plant has a chain-link fence surrounding its perimeter, which extends approximately 7,500 feet bordered by Demuth Park, the

Tahquitz Creek Golf Course, and Gene Autry Trail. A more secure perimeter fence is required for the wastewater treatment plant. This project has previously been prioritized as a critical project to implement, is currently budgeted as part of the WWTP CIP, and it is recommended that City Council approve the plans and authorize bidding. The item was previously scheduled for City Council consideration at the February 17, 2010, meeting, but action was postponed until the item could be considered as part of the Council's consideration of the 20 year WWTP CIP.

A copy of the February 17, 2010, staff report is attached for reference. The final construction estimate is $600,000 which is significantly below the original budget of $1,700,000 which considered construction of masonry block walls instead of the currently proposed Omega fencing.

- **Electrical System Upgrade**

The existing electrical system within the WWTP is from its original construction in 1960 and has exceeded its design life. The main switchboard equipment was installed in the late 1970's or early 1980's, and although it appears to be in good operating condition, replacement parts are difficult if not impossible to obtain. However, the critical issue with the electrical system is the condition of the existing conduit and conductors extending throughout the WWTP. The risk of electrical failures is high, due in large part to the age of the system and corrosion within the conduits. Pull boxes are open to the ground and conduits are broken, allowing water, rodents, and other factors to continue deteriorating the electrical system. The WWTP can not operate without its electrical system, and there is no redundancy if the electrical system were to fail.

On April 17, 2009, (and subsequently amended on September 2, 2009), the City Council authorized Veolia to proceed with the final design phase for the Wastewater Treatment Plant Electrical System Upgrade, City Project No. 09-03. Design of a complete overhaul of the entire electrical system at the WWTP is underway and should be completed this summer.

The preliminary construction estimate is $3,600,000 and has not been budgeted yet as part of the WWTP CIP.

- **New Headworks**

By its nature of accepting raw sewage, the headworks facility is considered a Class I hazardous facility. It is critical to have reliability and redundancy in the headworks facility due to the corrosive nature of its environment. The City's existing headworks facility is inadequate and does not provide the reliability or redundancy required. The headworks facility is considered in poor condition when compared to headworks facilities at other comparatively sized WWTP's. One significant factor with the headworks facility is the invert elevation into the WWTP; the invert is too high and the slope of the main sewer trunk line into the WWTP is flat causing surcharging within the

sewer line. The invert into the WWTP must be lowered to improve the hydraulics into the WWTP, improving the gravity free-flow movement of wastewater into the headworks facility. As it exists, the surcharging of the main sewer trunk line has the potential to further corrode the headworks facility, cause sewage to back-up, and ultimately if unaddressed, to cause sewage overflows in the streets from upstream sewer manholes, as the volume of wastewater flow into the WWTP increases over the next 20 years.

Another significant factor with the existing headworks facility is the fact that it is not housed within an enclosed building; the headworks facilities are exposed to the air and are located within close proximity to Demuth Park. This is a major contributor to foul odor problems experienced in the area. More importantly, the fact that the headworks facility operation is exposed to the public is visually offensive, with raw sewage materials easily seen by the public at the entrance into the WWTP.

Construction of a complete new, enclosed headworks facility at a lower elevation is required to appropriately address these issues.

The preliminary construction estimate is $5,920,000 (which includes a new building and odor control system) and has not been budgeted yet as part of the WWTP CIP.

- **New Primary Clarifiers**

The existing primary clarifiers are impacted by the surcharging into the WWTP through the headworks facility. The primary clarifiers are actually three separate adjacent long and narrow tanks, with a relatively shallow depth of 6.8 feet. The existing primary clarifiers require constant maintenance, and are inefficient given their shallow depth. Construction of new primary clarifiers will be required in conjunction with construction of a new headworks facility, given the need to lower the invert into the WWTP through the headworks and to allow free flow of the wastewater to the primary clarifiers at a lower elevation. It is recommended that the existing primary clarifiers be replaced with new circular clarifiers with a greater depth, providing for much improved primary treatment of wastewater.

The preliminary construction estimate, including new tanks, sludge pump station, covers and a new odor control system is $9,050,000 and has not been budgeted yet as part of the WWTP CIP.

- **New Primary Effluent Pump Station**

The existing primary effluent pump station has old pumping and mechanical equipment which is unreliable and relatively inefficient, given the age of the pumps. The equipment requires constant maintenance and is reaching the end of its design life. Construction of a new primary effluent pump station will be required in conjunction with construction of a new headworks facility and primary clarifiers, given the need to lower the water surface through the headworks facility and primary clarifiers and to allow free flow of the

wastewater to the primary effluent pump station at a lower elevation. The wastewater flow from the primary effluent pump station is subsequently pumped to the top of the trickling filters as part of the next stage of the wastewater treatment process. A new primary effluent pump station will allow for installation of modern pumping and mechanical equipment, providing improved pumping efficiency and reducing energy requirements and utility costs.

The preliminary construction estimate for the new pump station is $2,910,000 and has not been budgeted yet as part of the WWTP CIP.

- **Secondary Clarifier Upgrade**

The existing secondary clarifiers consist of 6 rectangular tanks that provide the final separation process of small particles of solids from the wastewater, immediately prior to releasing the effluent downstream to percolation ponds or Desert Water Agency for reclamation purposes. The existing secondary clarifier is reaching the end of its design life; the underwater portions of the equipment have corroded and most of the equipment requires replacement. Although not directly required with construction of a new headworks facility and primary clarifiers, a major overhaul and upgrade of the secondary clarifier is recommended to provide for improved efficiency and to eliminate the constant maintenance problems associated with the aging equipment. An overhaul will be necessary to address the corroded portions of the equipment.

The preliminary construction estimate is $2,010,000 and has not been budgeted yet as part of the WWTP CIP.

- **Methane (Biogas) Recovery System and Co-Generation of Electricity**

Currently, the City's WWTP flares 100% of the methane produced by the wastewater treatment process. The methane itself is too "dirty" to use as an alternative to natural gas to operate any pumps, engines or other equipment, and in order to effectively use the methane as an alternative to natural gas, a gas treatment system is required. Additionally, the City's existing gas flare does not meet current South Coast Air Quality Management District ("AQMD") standards and is considered "legal non-conforming" equipment as long as the City makes no improvements to the WWTP that exceeds the capacity of the existing flare. After completing some of the projects recommended in the CIP, it will be necessary to construct a new flare meeting current AQMD standards.

Recovering the methane gas at the WWTP and using it for power co-generation purposes is a sustainable objective the City should meet. As part of this system, it is recommended the City invest in a Fats, Oils and Grease "FOG" receiving station, to take advantage of the local FOG generated by restaurants and capitalize on the FOG's ability to increase the production of methane gas at the WWTP (and thereby increasing the amount of energy produced through co-generation). Accepting FOG also eliminates the practice of disposing it at landfills and composting facilities where the methane is

released to the environment, affecting air quality. However, the capital costs associated with the system are high. On February 3, 2010, the City Council authorized Veolia to proceed with preparation of a FOG Availability Assessment Study, which will determine the availability and volume of FOG with which to appropriately plan for a FOG receiving station.

The Co-Generation System is broken into the following parts:

1. Fuel Cell for Power Co-Generation, estimate: $4,060,000
2. Methane Gas Treatment System, estimate: $2,000,000
3. FOG Receiving Station, estimate: $1,600,000
4. New Gas Flare, estimate: $1,000,000

The preliminary construction estimate for the complete power co-generation system is $8,660,000 and has not been budgeted yet as part of the WWTP CIP.

- **Other Capital Improvements**

The CIP identifies other recommended projects at the WWTP, such as:

New primary signalized access from Gene Autry Trail;
New sludge/septage receiving station;
New domestic water system;
General sitework and asphalt pavement replacement;
Sludge drying bed repairs;
Trickling filter upgrades;
Gravity thickener upgrades;
New administration building;
New sludge centrifuge;
Sewer collection system upsizing

In total, the 20-year CIP identifies $58,000,000 in capital projects at the WWTP and $9,000,000 in future collection system upsizing, for a total capital investment of $67,000,000. The suggested prioritization of capital projects can be modified as the City Council or staff may determine appropriate. Staff has met with the City Council WWTP sub-committee (Mills and Weigel), and is aware of Council's desire to prioritize the capital projects that directly address the generation of odors at the WWTP. The original prioritization of capital projects over the 20-year WWTP CIP is represented in the following Table:

20-Year WWTP Capital Repair and Rehabilitation Plan

Carollo
Engineers...Working Wonders With Water

PALM SPRINGS WWTP
CAPITAL REPAIR AND REPLACEMENT COSTS

DATE : October-09

PROJECT COSTS SUMMARY

BY : TRT

	PROJECT	Priority 1 1-5 Yrs	Priority 2 5-10 Yrs	Priority 3 10-15 Yrs	Priority 4 15-20 Yrs
*	Digester No. 1 Rehabilitation	$1,755,482			
	Redundant Boiler Addition and Gas Piping Repair	$390,000			
*	Plant Reclaimed Water Pump Station Upgrade	$623,686			
*	New Perimeter Security Fence and Gates	$1,000,000			
*	Purchase of Property for Influent Line Easement	$3,000,000			
**	Electrical System Improvements	$3,600,000			
*	Water System Upgrade for Fire Protection	$500,000			
*	East Side Storm Drain Line	$1,500,000			
*	Filtrate Pump Station Upgrade	$500,000			
*	WWTP Facility Plan	$250,000			
*	New Septage Receiving Station	$500,000			
*	New Access Road with Signalized Access from Gene Autry	$500,000			
*	Digester Gas Treatment System	$2,000,000			
	Fuel Cell Purchase and Installation	$4,060,000			
*	New Gas Flare	$1,000,000			
*	FOG Receiving Station	$1,600,000			
	Digester No. 2 Dome Replacement	$1,050,000			
	New Headworks		$5,920,000		
	Two New Circular Primary Clarifiers With Sludge Pump Station		$9,050,000		
	New Primary Effluent Pump Station		$2,910,000		
	Secondary Clarifier Upgrades		$2,010,000		
	General Sitework Pavement Replacement		$720,000		
	Pavement Replacement in Drying Beds 13-18 and 19-26		$710,000		
	Third Digester (Acid or Conventional)			$7,200,000	
	Trickling Filter Upgrades			$1,560,000	
	Gravity Thickener Upgrades			$1,400,000	
	New Administration Building				$1,560,000
	New Sludge Centrifuge				$1,490,000
*	Indian Canyon Drive Collection System Upsize				$2,416,000
*	Palm Canyon Drive Collection System Upsize				$1,804,000
*	Crossley Road Collection System Upsize				$4,414,000
	PRIORITY TOTAL PROJECT COSTS***	$23,829,368	$21,320,000	$10,160,000	$11,684,000
	GRAND TOTAL				$67,000,000

* Projects planned and estimated by the City or Veolia.
** Cost based on Memoradum from Beecher Engineering (March 2008).
*** All costs estimated by Carollo are based on 2008 costs and include 20% for Engineering, Legal and Administration

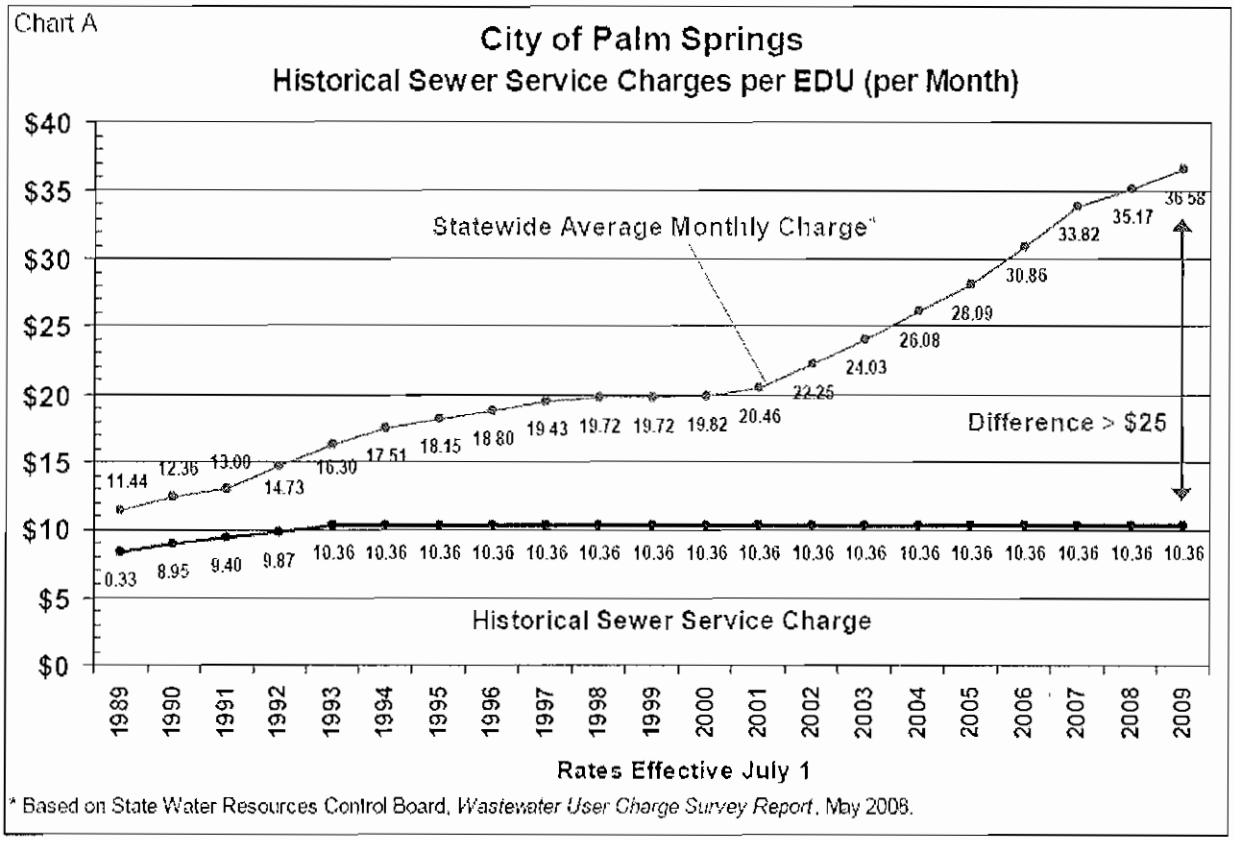
Wastewater Financial Plan and Rate Study

The City's current monthly wastewater rate is $10.36 per equivalent dwelling unit ("EDU") and has not changed since 1993. The following Table shows the City's existing wastewater rate schedule:

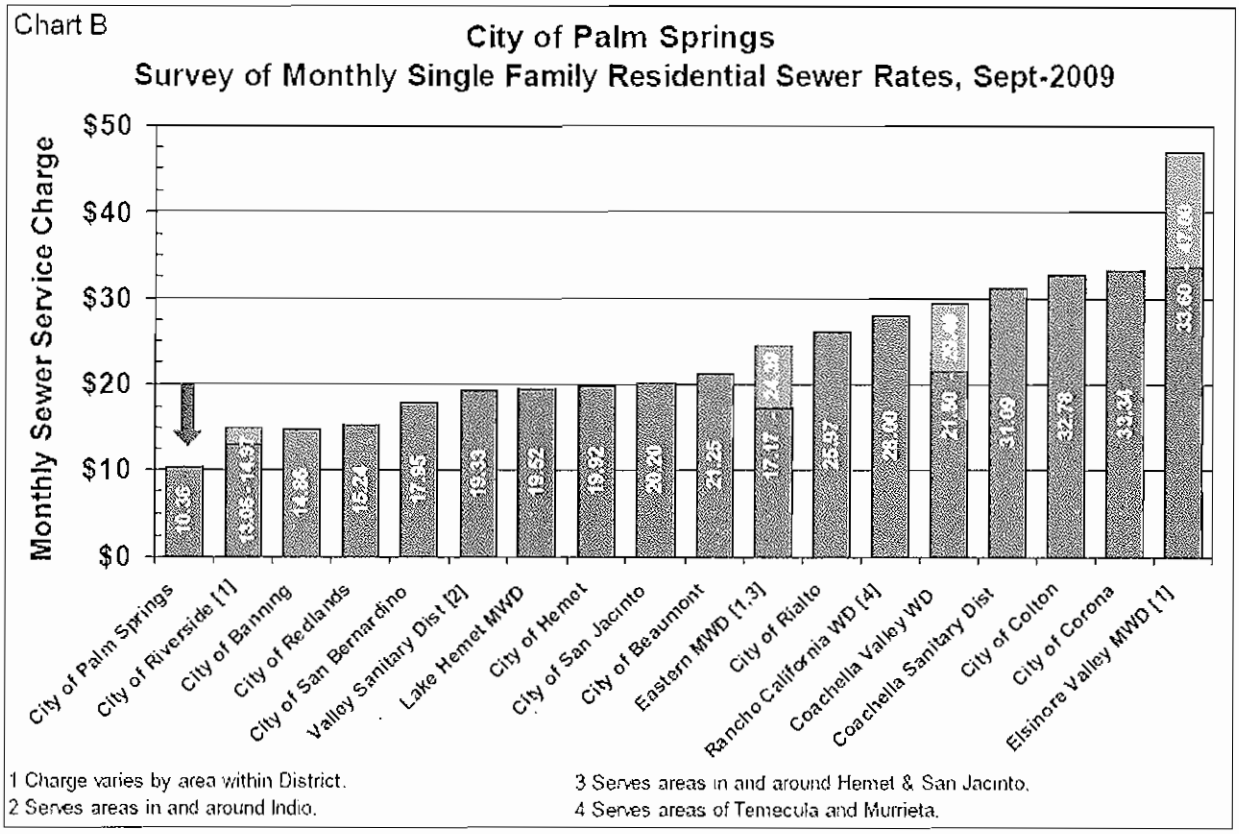
TABLE 1 - SEWER SERVICE CHARGES
Rates Effective Since July 1, 1993

Customer Class	Monthly Charge	
Residential	$10.36	Per unit
Commercial & Industrial	1.02	Per fixture unit
	10.36	Minimum charge
Hotel - Rooms Without Kitchens	10.36	Base charge +
	3.53	Per room
Hotel - Rooms With Kitchens	6.81	Per room
Mobile Home Parks	10.36	Per unit +
	1.02	Per fixture unit
Recreational Vehicle Parks	2.54	Per space +
	1.02	Per fixture unit
Septage Dumping Fee (for loads up to 1,000 gallons)		
Within City limits	35.00	Per load
Outside City limits	70.00	Per load
Properties Adjacent to City		
Rates for customers outside of City limits are 150% of the standard established rates		
Sewer Permit Fee		
For discharging septage at the City's Wastewater Treatment Plant	1,000.00	Per application

The current statewide average monthly wastewater rate is $36.58 per EDU, indicating that the City's wastewater rate ranks among the lowest in the entire state. The following chart shows the City's wastewater rates over the last 20 years with respect to the annual statewide average:



The following chart shows the City's current wastewater rate in comparison to current wastewater rates charged by other agencies within the southern California region:



Excluding any budget for future major capital projects at the WWTP, the current wastewater rate is insufficient to sustain future O&M expenses of the WWTP, escalating utility costs, and other wastewater fund expenses. For the 2008/2009 fiscal year, the wastewater fund had the following revenue and expenditures:

Total Revenue: $6,467,043
Total Expenditures: $6,028,985
Balance: $438,058

The amount of wastewater fund revenue balance remaining at the end of the fiscal year has continued to decrease, limiting the wastewater fund's ability to finance additional increases in on-going O&M costs, or to effectively budget for future capital improvement projects. The following Table shows the revenue and expenditures for the wastewater fund for the previous four fiscal year periods:

TABLE 3 - HISTORICAL WASTEWATER REVENUES & EXPENSES				
	Audited 2005/06	Audited 2006/07	Audited 2007/08	Audited 2008/09
Revenues				
Charges for service	4,726,801	5,193,833	5,069,841	5,523,608
Sewer connection & main charges	1,702,118	2,262,208	937,268	483,204
Interest income & gains/losses	342,598	813,086	789,375	460,231
Total revenues	6,771,517	8,269,127	6,796,484	6,467,043
Expenses				
Contractual operating & other services	2,479,340	3,529,658	3,806,809	4,283,626
Utilities	n/a	n/a	181,565	209,047
Personnel services & administration	29,873	22,188	28,874	104,672
Cash paid for capital aquisitions	383,124	1,106,524	1,804,541	1,431,640
Total expenses	2,892,337	4,658,370	5,821,789	6,028,985
Revenues less expenses	3,879,180	3,610,757	974,695	438,058

Source: Based on Audited Financial Statements.

Although the total wastewater fund revenue balance over the last four fiscal years (as shown in the chart above) is $8,902,690 some of the wastewater fund reserve balance during these and prior fiscal year periods has been budgeted for previously approved WWTP capital projects.

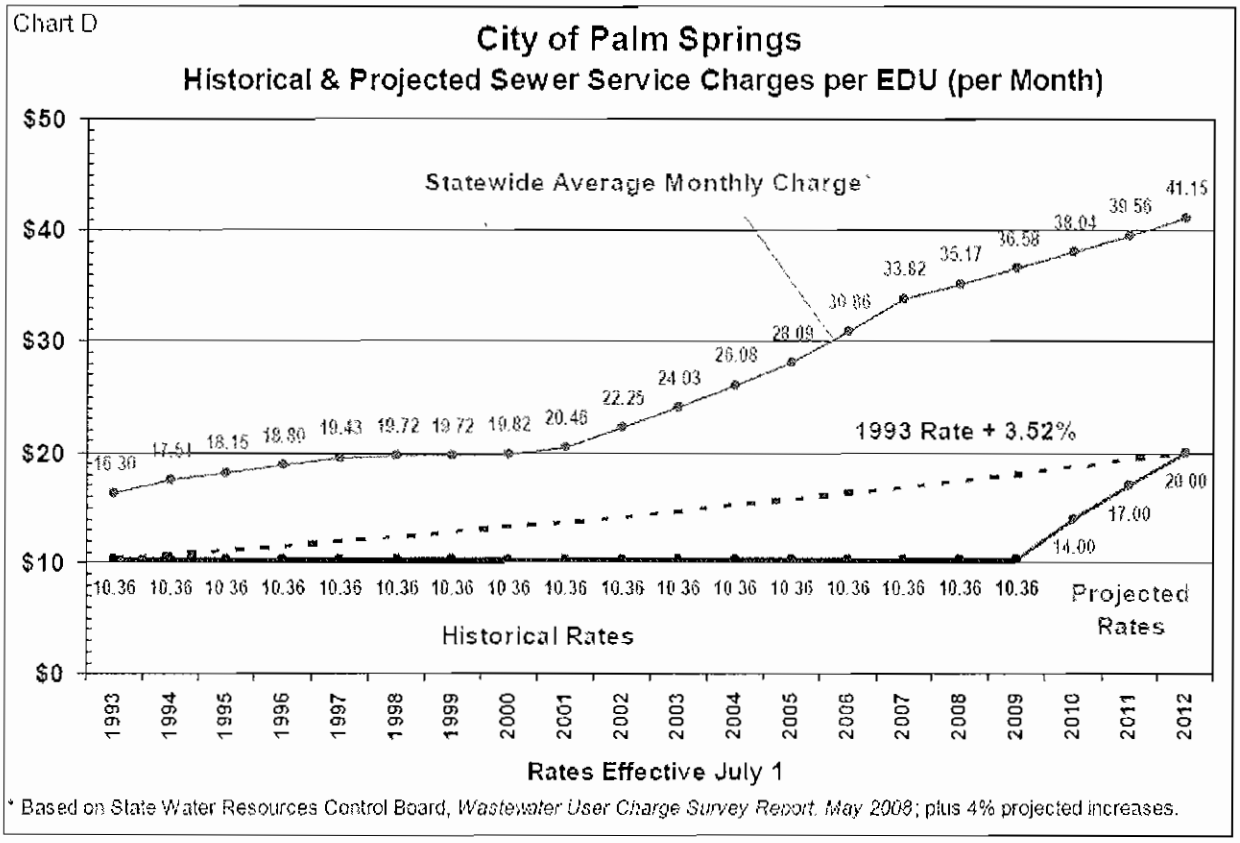
The increase in annual expenditures from the 2005/2006 fiscal year (at $2,892,337) to the 2006/2007 fiscal year (at $4,658,370) was a result of the City's approval on June 21, 2006, of the currently amended and restated agreement with Veolia, where several new programs were added to their contract (FOG control program, stormwater quality program, and sewer system management plan among others) and went into effect July 1, 2006.

As of June 30, 2009, the net cash available (unrestricted funds) in the wastewater fund reserve was $5,416,168. Therefore, the wastewater fund does not have sufficient reserves to fund the 20-year WWTP CIP. As seen by the annual revenue and expenditures from prior fiscal years, the wastewater rate will need to be increased to ensure the wastewater fund is appropriately financed to continue funding on-going O&M expenditures, and to fund any of the recommended major capital projects outlined in the 20-year WWTP CIP.

The wastewater financial plan and rate study reviewed the 20-year WWTP CIP and determined that the City can appropriately finance the recommended capital projects, as well as on-going O&M expenditures associated with the WWTP, by initially increasing the current monthly wastewater rate of $10.36 per EDU to $20 per EDU over three years, and subsequently at a rate of approximately $1 per EDU per year to a maximum monthly rate of $35 per EDU by 2028.

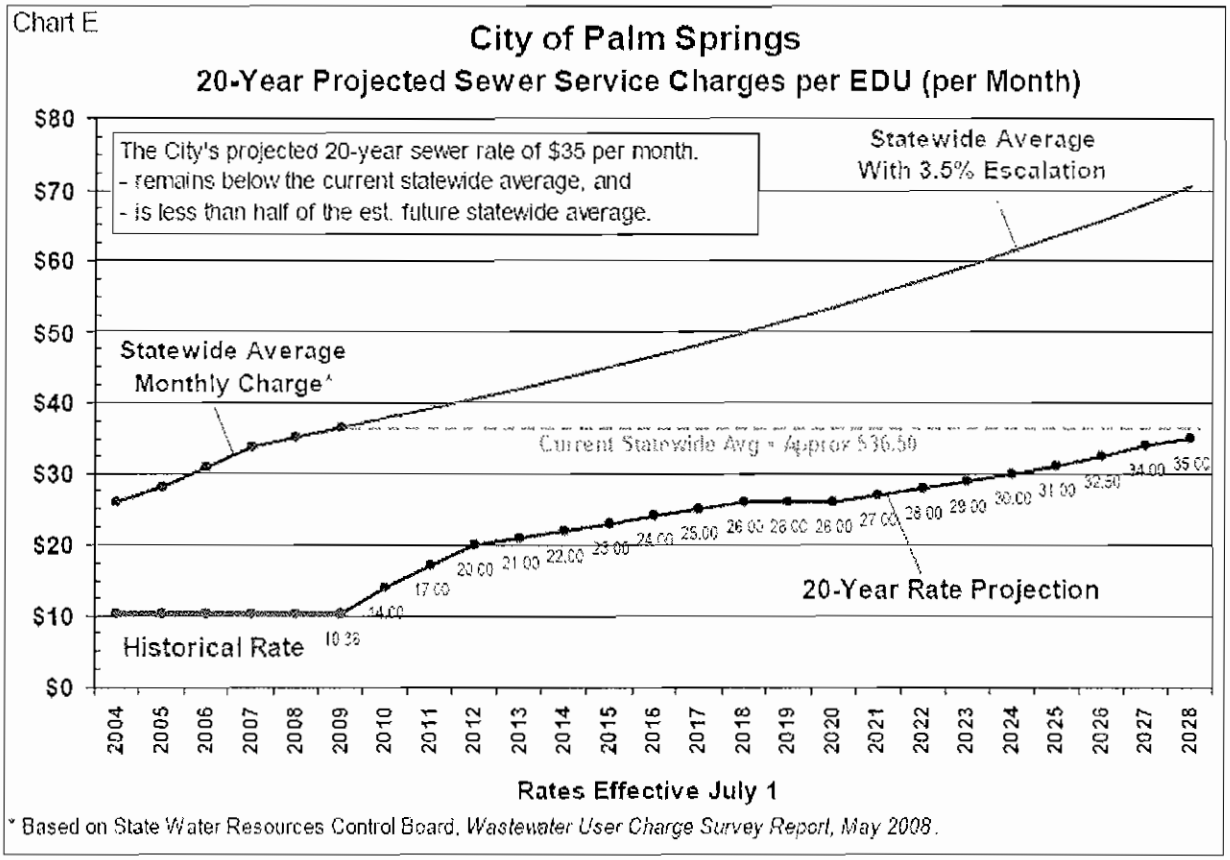
It should be noted that the recommendation to increase the monthly wastewater rate to a maximum of $35 per EDU by 2028 would establish it at a rate in 2028 that is below the 2009 statewide average of $36.58 per EDU. The suggested rate increase would maintain the City's wastewater rates at an amount significantly lower than rates charged by other agencies, and would allow for funding of the 20-year WWTP CIP without the need to incur debt financing. The following chart shows the recommended initial 3-year phase in of the wastewater rate increase in comparison to the annual statewide average:

Chart D



* Based on State Water Resources Control Board, *Wastewater User Charge Survey Report, May 2008*; plus 4% projected increases.

The following chart shows the recommended long-term phase in of the monthly wastewater rate increase to the suggested maximum of $35 per EDU in comparison to the annual statewide average:



The wastewater fund currently carries no debt, and therefore, has no annual debt service payments. To determine how debt servicing might reduce any required wastewater rate increases, the wastewater financial plan analyzed alternative financial projections. The alternative projections assumed $8,000,000 of debt financing to help fund Priority 1 capital needs in the first 5-years, and an additional $10,000,000 of debt financing each 5-year period going forward. The alternative analysis resulted in debt service payments gradually increasing to approximately $3,000,000 per year over the next 15-20 years based on estimated annual debt service of approximately $800,000 per each $10,000,000 of capital projects financed.

The alternative analysis indicates that debt could be strategically used to result in a more gradual phase in of rate increases, especially in the near term. For example, wastewater rates could be gradually increased to a level equal to $20 per month over 5 years, as opposed to over 3 years without any debt financing. However, with debt financing higher rate increases over the longer-term would be required (to a maximum of $38 per EDU by 2028), particularly after completion of the 20-year capital program

when the wastewater fund would need to generate approximately $3,000,000 more per year for annual debt service payments until the debt was gradually paid off. Therefore, the alternative analysis in considering $38,000,000 in debt financing of the $67,000,000 20-year WWTP CIP demonstrated these important facts to consider:

1. The initial increase of wastewater rates from $10.36 per EDU to $20 could be phased-in over 5 years instead of 3 years.
2. Annual debt service payments of $320,000 would begin in 2011, increasing to $3,040,000 by 2025.
3. Monthly wastewater rates would need to increase to $35 per EDU by 2026 to a maximum of $38 per EDU by 2028.

Given the results of the alternative analysis, it is not staff's recommendation that debt financing of the 20-year WWTP CIP be considered strictly as a means of prolonging the initial phase-in of the wastewater rate increase, as it does not appreciably lengthen the period of time, and debt financing ultimately requires a higher wastewater rate in the long term to cover annual debt service payments. It is staff's recommendation that the initial 3-year phase in of monthly wastewater rate increases from $10.36 to $20 per EDU, with additional annual rate increases of approximately $1 per EDU to a maximum of $35 per EDU by 2028 be approved. The following chart specifically identifies the recommended wastewater rate increases for the initial 3-year phase in period:

TABLE 10 - PROJECTED MONTHLY SEWER SERVICE CHARGES

Cusotmer Class	Billing Unit	Effective Date July 1 Current	2010	2011	2012
Residential	Per unit	$10.36	$14.00	$17.00	$20.00
Commercial & Industrial	Per fixture unit	1.02	1.38	1.68	1.98
	Minimum charge	10.36	14.00	17.00	20.00
Hotel - Rooms Without Kitchens	Base charge +	10.36	14.00	17.00	20.00
	Per room	3.53	4.77	5.79	6.81
Hotel - Rooms With Kitchens	Per room	6.81	9.20	11.17	13.14
Mobile Home Parks	Per unit +	10.36	14.00	17.00	20.00
	Per fixture unit	1.02	1.38	1.68	1.98
Recreational Vehicle Parks	Per space +	2.54	3.43	4.17	4.91
	Per fixture unit	1.02	1.38	1.68	1.98
Septage Dumping Fee *For loads up to 1,000 gallons*					
Within City limits	Per load	35.00	47.30	57.44	67.58
Outside City limits	Per load	70.00	94.59	114.86	135.13
Properties Adjacent to City *Rates for customers outside of City limits are 150% of the standard established rates*					
Sewer Permit Fee *For discharging septage at the City's Wastewater Treatment Plant*	Per application	1,000.00	1,351.35	1,640.93	1,930.51

Small annual rate increases of roughly $1 per month per residence or EDU projected for future years.

Subsequent small increases are recommended annually to the maximum of $35 per EDU by 2028, as shown in the following Table:

TABLE 11 - LONG-TERM PROJECTION OF MONTHLY SEWER SERVICE CHARGES

Customer Class	Billing Unit	Monthly Rates Effective July 1 Current	2010	2011	2012	2013	2014	2015	2016	2017	2018
Residential	Per unit	$10.36	$14.00	$17.00	$20.00	$21.00	$22.00	$23.00	$24.00	$25.00	$26.00
Commercial & Industrial	Per fixture unit	1.02	1.38	1.69	1.98	2.08	2.18	2.28	2.38	2.48	2.58
	Minimum charge	10.36	14.00	17.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00
Hotel - Rooms Without Kitchens	Base charge -	10.36	14.00	17.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00
	Per room	3.53	4.77	5.79	6.81	7.15	7.49	7.83	8.17	8.51	8.85
Hotel - Rooms With Kitchens	Per room	6.81	9.20	11.17	13.14	13.80	14.46	15.12	15.78	16.44	17.10
Mobile Home Parks	Per unit +	10.36	14.00	17.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00
	Per fixture unit	1.02	1.38	1.69	1.98	2.08	2.18	2.28	2.38	2.48	2.58
Recreational Vehicle Parks	Per space +	2.54	3.43	4.17	4.91	5.16	5.41	5.66	5.91	6.16	6.41
	Per fixture unit	1.02	1.38	1.68	1.98	2.08	2.18	2.28	2.38	2.48	2.58
Septage Dumping Fee *For loads up to 1,000 gallons*											
Within City limits	Per load	35.00	47.30	57.44	67.58	70.96	74.34	77.72	81.10	84.48	87.86
Outside City limits	Per load	70.00	94.60	114.88	135.16	141.92	148.68	155.44	162.20	168.96	175.72
Properties Adjacent to City *Rates for customers outside of City limits are 150% of the standard established rates*											
Sewer Permit Fee *For discharging septage at the City's Wastewater Treatment Plant*	Per application	1,000.00	1,351.35	1,840.93	1,930.51	2,027.04	2,123.57	2,220.10	2,316.63	2,413.16	2,509.69

Customer Class	Billing Unit	Monthly Rates Effective July 1 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	Per unit	$26.00	$26.00	$27.00	$28.00	$29.00	$30.00	$31.00	$32.50	$34.00	$35.00
Commercial & Industrial	Per fixture unit	2.58	2.58	2.68	2.78	2.88	2.98	3.08	3.23	3.38	3.48
	Minimum charge	26.00	26.00	27.00	28.00	29.00	30.00	31.00	32.50	34.00	35.00
Hotel - Rooms Without Kitchens	Base charge -	26.00	26.00	27.00	28.00	29.00	30.00	31.00	32.50	34.00	35.00
	Per room	8.85	8.85	9.19	9.53	9.87	10.21	10.55	11.08	11.57	11.91
Hotel - Rooms With Kitchens	Per room	17.10	17.10	17.76	18.42	19.08	19.74	20.40	21.39	22.38	23.04
Mobile Home Parks	Per unit -	26.00	26.00	27.00	28.00	29.00	30.00	31.00	32.50	34.00	35.00
	Per fixture unit	2.58	2.58	2.68	2.78	2.88	2.98	3.08	3.23	3.38	3.48
Recreational Vehicle Parks	Per space +	6.41	6.41	6.66	6.91	7.16	7.41	7.66	8.03	8.40	8.65
	Per fixture unit	2.58	2.58	2.68	2.78	2.88	2.98	3.08	3.23	3.38	3.48
Septage Dumping Fee *For loads up to 1,000 gallons*											
Within City limits	Per load	87.86	87.86	91.24	94.62	98.00	101.38	104.76	109.83	114.90	118.28
Outside City limits	Per load	175.72	175.72	182.48	189.24	196.00	202.76	209.52	219.66	229.80	236.56
Properties Adjacent to City *Rates for customers outside of City limits are 150% of the standard established rates*											
Sewer Permit Fee *For discharging septage at the City's Wastewater Treatment Plant*	Per application	2,509.69	2,509.69	2,606.22	2,702.75	2,799.28	2,895.81	2,992.34	3,137.13	3,281.92	3,378.45

Proposition 218

Proposition 218, the "Right to Vote on Taxes Act", was approved by California voters in November 1996 and is codified as Articles XIIIC and XIIID of the California Constitution. Proposition 218 establishes requirements for imposing or increasing property related taxes, assessments, fees and charges. For many years, there was no legal consensus on whether water and sewer rates met the definition of "property related fees". In July 2007, the California Supreme Court essentially confirmed that Proposition 218 applies to water rates. The prevailing legal consensus is that Proposition 218 also applies to wastewater rates.

Proposition 218 establishes certain procedural requirements for adopting rate increases. These requirements include:

- Noticing Requirement: The City must mail a notice of proposed rate increases to all affected property owners. The notice must specify the basis of the fee, the reason for the fee, and the date/time/location of a public rate hearing at which the proposed rates will be considered for adoption.

- Public Hearing: The City must hold a public hearing prior to adopting the proposed rate increases. The public hearing must be held not less than 45 days after the required notices are mailed.

- Rate Increases Subject to Majority Protest: At the public hearing, the proposed rate increases are subject to majority protest. If more than 50% of affected property owners submit written protests against the proposed rate increases, the increases cannot be adopted by the City Council.

Proposition 218 also established a number of substantive requirements that are generally deemed to apply to utility service charges, including:

- Cost of Service - Revenues derived from the fee or charge cannot exceed the funds required to provide the service. In essence, fees cannot exceed the "cost of service".

- Intended Purpose - Revenues derived from the fee or charge can only be used for the purpose for which the fee was imposed.

- Proportional Cost Recovery - The amount of the fee or charge levied on any customer shall not exceed the proportional cost of service attributable to that customer.

- No fee or charge may be imposed for a service unless that service is used by, or immediately available to, the owner of the property. Standby charges shall be

classified as "assessments" which are governed by Section 4 of Article 13D of the California Constitution.

Proposition 218 requires that the City ensure that its wastewater rates reasonably reflect the cost of providing service to each customer. Consistent with this law, it is appropriate for wastewater rates to recover costs for operations, capital needs, debt service, administration, as well as costs related to the prudent long-term operational or financial management of the wastewater enterprise, such as maintaining adequate fund reserves and planning for contingencies.

The wastewater financial plan has analyzed the current wastewater fund revenue and expenditures and has conservatively estimated future revenue, O&M expenditures, and the capital expenditures recommended in the 20-year WWTP CIP. The financial plan recommends the City establish a minimum reserve fund target equal to 50% of annual O&M expenditures plus a $2,000,000 emergency capital reserve. Wastewater fund cash flow projections for the 20-year period are included, and the projections show that by the 2028/2029 fiscal year, with the recommended wastewater rate increases, the wastewater fund is projected to have revenues and expenditures nearly balanced (a deficit of $63,000 on a nearly $20,000,000 annual budget). The cash flow projections included in the wastewater financial plan has appropriately demonstrated the required rates necessary to adequately recover costs, in accordance with the provisions of Proposition 218.

The City collects wastewater rates by levying the charges on the annualized property tax rolls, and it is necessary to have the City's wastewater charges submitted to the Riverside County Assessor by August for the 2010/2011 fiscal year. In order to meet this deadline, it is necessary to schedule a Public Hearing for City Council consideration and adoption of the wastewater rate increases for June 16, 2010, to provide the 45-day advance public notice to all property owners. A draft of the public notice that may be mailed to all property owners is attached to this report.

FISCAL IMPACT:

The wastewater fund does not have sufficient reserves to fund the significant capital improvements at the WWTP that are recommended over the next 20 years. On-going O&M expenditures will soon exceed annual revenue, requiring General Fund subsidy in the absence of any increase to wastewater rates. The wastewater financial plan has demonstrated that the recommended 20-year WWTP CIP (estimated at $67,000,000) may be funded through the adoption of modest increases to the City's current monthly wastewater rate ($10.36 per EDU) over the 20-year period to a maximum rate in 2028 ($35 per EDU) that is less than the statewide average today of $36.58.

Regarding the approval to proceed with the construction phase of the Digester No. 1 Rehabilitation, City Project No. 08-09, sufficient wastewater funds have previously been budgeted and are available in account 420-6800-57023 (Digester Rehab 1).

Regarding the approval to proceed with bidding the Wastewater Treatment Plant Perimeter Security Fence, City Project 08-11, sufficient wastewater funds have previously been budgeted to cover the estimated construction cost and are available in account 420-6800-57025 (Security Fencing).

SUBMITTED:

Prepared by:

Marcus L. Fuller
Assistant Director of Public Works

Recommended by:

David J. Barakian
Director of Public Works/City Engineer

Approved by:

Thomas J. Wilson, Asst. City Manager

David H. Ready, City Manager

Attachments:

1. February 17, 2010, City Council Staff Report
2. City of Palm Springs Wastewater Capital Repair and Rehabilitation Plan
3. City of Palm Springs Wastewater Financial Plan and Rate Study
4. Draft Proposition Public Notice

ATTACHMENT 1
FEBRUARY 17, 2010, CITY COUNCIL STAFF REPORT
WWTP PERIMETER SECURITY FENCE

City Council Staff Report

Date: February 17, 2010 CONSENT CALENDAR

Subject: APPROVAL OF PLANS, SPECIFICATIONS AND ESTIMATE (PS&E) AND AUTHORIZATION TO BID FOR THE WASTEWATER TREATMENT PLANT PERIMETER SECURITY FENCE, CITY PROJECT 08-11

From: David H. Ready, City Manager

Initiated by: Public Works and Engineering Department

SUMMARY

In 2007, the City's consulting engineer for the wastewater treatment plant ("WWTP"), Carollo Engineers, prepared a WWTP Capital Rehabilitation and Repair Plan. The Plan recommended a new perimeter fence and security access gate project to improve the overall security of the WWTP. The construction documents (Plans, Specifications and Estimate) are completed and, in accordance with Section 7.03.040 of the Procurement and Contracting Code the Council is required to approve and adopt plans, specifications and working details, and authorize the bid request for all public projects in excess of $100,000. Approval of this project will allow staff to proceed with this public project, with an estimated cost of approximately $750,000.

RECOMMENDATION:

Approve the plans, specifications, and working details for the Wastewater Treatment Plant Perimeter Security Fence, City Project 08-11, and authorize staff to advertise and solicit bids.

STAFF ANALYSIS:

On April 26, 2007, Carollo Engineers submitted its final WWTP Capital Rehabilitation and Repair Plan. The plan consisted of several capital project recommendations listed with priority rankings. Under the heading of General Sitework Infrastructure, a site perimeter fence and the installation of a security controlled access entrance gate were listed as Priority 2 ranked projects (those projects recommended for completion on a five year schedule). In a subsequent meeting on June 29, 2007, this project was re-prioritized to Priority 1 status by staff, with a goal of initiating the project within one year.

Currently, the wastewater treatment plant has a chain-link fence surrounding its perimeter, which extends approximately 7,500 feet bordered by Demuth Park, the

Tahquitz Creek Golf Course, and Gene Autry Trail. A more secure perimeter fence is required for the wastewater treatment plant.

In coordination with Veolia, the City's WWTP operator, the City retained Randy Purnel Landscape Architect ("RPLA") to prepare the plans and specifications for this project. On June 18, 2008, the City Council authorized a budget amendment to transfer $1.2 Million from wastewater fund reserves into a new capital expenditure account for this project. Although pursuant to the City's Zoning Code this project is exempt from architectural review, at that time the City Council requested that staff submit the proposed perimeter fence plans to the Architectural Advisory Committee ("AAC") for review.

On July 21, 2008, the AAC considered the original perimeter security fence plans prepared by RPLA, and the AAC generally preferred the look of an "Omega" steel wire fence as opposed to a standard wrought iron picket fence. The AAC approved the preliminary plans, with a request to restudy the perimeter of the WWTP along Gene Autry Trail, requesting the plans to include additional perimeter landscaping in addition to the new security fencing.

On August 11, 2008, staff presented the AAC with a revised perimeter security fence plan for the Gene Autry Trail frontage, showing set-back of the perimeter fence by approximately 7 feet from the edge of pavement, with an additional 2'-6" bench behind the fence for additional landscaping area. New landscaping of the entire fill slope down into the percolation basin is proposed as part of this project. A mixture of desert landscape shrubs (century plant, feathery cassia, brittlebush, red yucca, lantana, and Texas ranger), and 12 new shoestring acacia trees are proposed in this area. The AAC approved the revised perimeter security fence plan for the Gene Autry Trail frontage at its August 11, 2008, meeting.

The plans call for removal of all existing chain link fencing along the perimeter of the WWTP and Demuth Park (except for the fencing along the backside of the softball field). Existing planting and shrubs growing in and around the existing chain link fence along the north side of the WWTP between the softball field and the tennis courts will be removed and replaced with new desert landscape shrubs (a mixture of Texas ranger and feathery cassia). The existing plantings along the west side of the WWTP, south of the softball field, will remain in place.

The plans call for removal of all existing chain link fencing along the perimeter of the WWTP and the Tahquitz Creek golf course, however, the new fencing will be installed in a way where the existing plantings along the south side of the WWTP will be protected in place. It should be noted, however, that a portion of the perimeter fencing along this area was recently completed as part of the installation of the new storm drain system outletting into the Tahquitz Creek (City Project 07-15), and it was not possible to protect the existing plantings in that area due to the excavation required for the 80" diameter storm drain facility which extends parallel with the south side of the WWTP along the Tahquitz Creek golf course. A new 8' high Omega fence was installed at that time, and

is representative of the same perimeter security fencing to be installed elsewhere with this project.

The only portion of the WWTP to have new chain link fencing installed as part of this project is internal to the WWTP, extending from the end of Vella Road across the vacant WWTP land, south of the new Household Hazardous Waste Facility, and connecting into the perimeter block wall at the east side of the WWTP, adjacent to the commercial center located on Gene Autry Trail, south of the SCE substation. Installation of chain link fencing in this area is recommended, as ultimate plans for this vacant area of the WWTP are unknown, and the fencing may need to be removed as part of a future project in that area.

The City's operating agreement with Veolia for the WWTP allows Veolia to propose on all capital projects at the WWTP; however, staff recommended that the City solicit bids through its normal procurement process for this project given the relatively simple scope of the project, and the currently competitive bidding environment whereby the lowest bids are possible. However, Veolia will be submitting a proposal to administer and coordinate construction of this project, given the fact that the scope of this project does include installation of security cameras and other sensitive equipment within the WWTP itself, and that two other WWTP capital projects will be under construction at the same time as this project commences construction. Veolia's proposal to provide construction administration and inspection of this project on behalf of the City will be included as part of the City Council's consideration of award of contract, tentatively scheduled for April 7, 2010.

FISCAL IMPACT:
Sufficient funding is available in account 420-6800-57025 (Security Fencing). This project is being funded entirely with wastewater funds; no general funds are being used.

SUBMITTED:

Prepared by:

Marcus L. Fuller
Assistant Director of Public Works

Recommended by:

David J. Barakian
Director of Public Works/City Engineer

Approved by:

Thomas J. Wilson, Asst. City Manager

David H. Ready, City Manager

ATTACHMENT 2
WASTEWATER CAPITAL REPAIR AND REHABILITATION PLAN

CITY OF PALM SPRINGS

WASTEWATER TREATMENT PLANT
CAPITAL REHABILITATION AND REPAIR PLAN

February 2010

16540 TALBERT AVENUE • SUITE 200 EAST • FOUNTAIN VALLEY, CALIFORNIA 92708 • (714) 593-5100 • FAX (714) 593-5101

CITY OF PALM SPRINGS

CAPITAL REHABILITATION AND REPAIR PLAN

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1.0 INTRODUCTION

This report summarizes the capital repair and replacement costs for the major process equipment and infrastructure at the City of Palm Springs Wastewater Treatment Plant (Palm Springs WWTP). The purpose of the report is to provide a long-term financial plan and schedule to maintain the City's wastewater treatment needs, to support the projected population base in the service area, and uphold compliance with current regulatory standards.

Carollo Engineers (Carollo) previously completed an Operational Evaluation (April 2006), which documented the age and general condition of the existing treatment facilities. General priority rankings were assigned to WWTP repairs to define a preliminary schedule for repairs. This report provides a more comprehensive rehabilitation plan based on the rankings determined in the original Operational Evaluation. Cost estimates to repair or replace the major equipment items are provided, along with costs to maintain the infrastructure and integrity of the treatment facilities. Rehabilitation costs are projected and scheduled for short-term and long-term projects, defined in five-year increments for a twenty-year plan.

This report also includes an assessment of the WWTP unit processes to identify components or factors that may limit treatment capacity, cause operational problems, or which may influence compliance with the Waste Discharge Requirements (WDR).

The body of this report is organized into the following sections:

- Existing Treatment Facilities - Summarizes the normal process operations.
- Wastewater Flow and Loading Projections - Defines the expected influent wastewater flow and loading to provide design criteria for WWTP capital improvements planning.
- Regulatory Requirements - Overviews the effluent requirements in the current WDR as established at the time of the original WWTP design. Potential changes in WDR requirements are discussed as related to developments in water quality standards.
- Capacity and Reliability - Evaluates the performance of the existing components to meet the WDR should one unit be out of service for repair or maintenance.
- Capital Improvements Rehabilitation and Repair - Summarizes the age of the existing treatment components, with estimated costs and schedule for replacement or rehabilitation, in order to maintain compliance with the WDR.

2.0 BACKGROUND

The City of Palm Springs utilizes Veolia Water North America (Veolia) for contract operation of the WWTP, which began in September 1999. Veolia and the City routinely define capital improvement and maintenance needs, which are budgeted and scheduled as needed. Maintenance projects are typically limited to the urgent or short-term needs. This report is intended to provide the City with a comprehensive and long-term plan.

To prepare this report, Carollo Engineers has conducted several inspections of treatment facilities between October 2006 and April 2009. Veolia operating personnel were interviewed to discuss WWTP operations, and WWTP operating data and records were compiled for review covering the period from October 2004, through September 2006. The objectives of the capital repair and rehabilitation plan were also discussed with Mr. David Barakian, P.E., Director of Public Works, and Mr. Marcus Fuller, Assistant Director of Public Works.

3.0 EXISTING TREATMENT FACILITIES

This section summarizes the existing treatment facilities and the current mode of operation.

The Palm Springs WWTP was originally constructed in 1960 to treat 4.15 million gallons per day (mgd). Two facility expansions were completed in 1979 and 1983, bringing the total WWTP design capacity to 10.9 mgd for average annual flow. The treatment processes consist of preliminary screening, grit removal, primary clarification, trickling filters, and secondary clarification. Treated effluent is disposed of onsite in percolation ponds or is supplied to Desert Water Agency (DWA) for further treatment to meet reuse standards for off-site irrigation. Biosolids from the treatment process are thickened then stabilized by anaerobic digestion and dried with sludge drying beds before final disposal. The design criteria and summary of unit sizing are provided in Table 1.

The process flow diagram and site plan is shown in Figure 1.

Table 1 Existing Treatment Facilities Capital Repair and Replacement Plan City of Palm Springs WWTP

Average Annual Design Flow (mgd)	10.9
Peak Hour Flow (mgd)	21.8
Mechanical Bar Screen	
Number	1
Channel Width, ft.	6.5
Bar Screen width, ft.	3.2
Clear Spacing, inches	1/2

Table 1 Existing Treatment Facilities Capital Repair and Replacement Plan City of Palm Springs WWTP	
Aerated Grit Chamber	
Number	2
Dimensions (ft.) L x W x D	31x15x10
Volume (cubic feet) each	4,650
Grit Washer	
Number	1
Grit Capacity, ft3/hr	40
Primary Clarifiers	
Number	3
Dimensions (ft.) L x W x D (each)	160x32x6.8
Volume (gal) each	260,420
Trickling Filters	
Number	4
Diameter (ft.) each	140
Depth (ft.) each	9.5
Volume (ft3) each	146,167
Secondary Clarifiers	
Number	6
Dimensions (ft.) L x W x D (each)	2@164x25x11 4@164x25x9.5
Volume (gal) each	2@337,000 4@291,000
Percolation Ponds	
Number	6
Area (acres) total	23.3
Gravity Sludge Thickener	
Number	2
Dimensions (ft.) Dia x D (each)	30x10.5
Volume (gal) each	55,520
Anaerobic Digesters	
Number	2
Dimensions (ft.) Dia x D (each)	
Digester No. 1	65x30
Digester No. 2	85x30
Volume, gals	
Digester No. 1	748,000
Digester No. 2	1,270,000
Sludge Drying Beds	
Number	26
Dimensions (ft) L x W	100x50

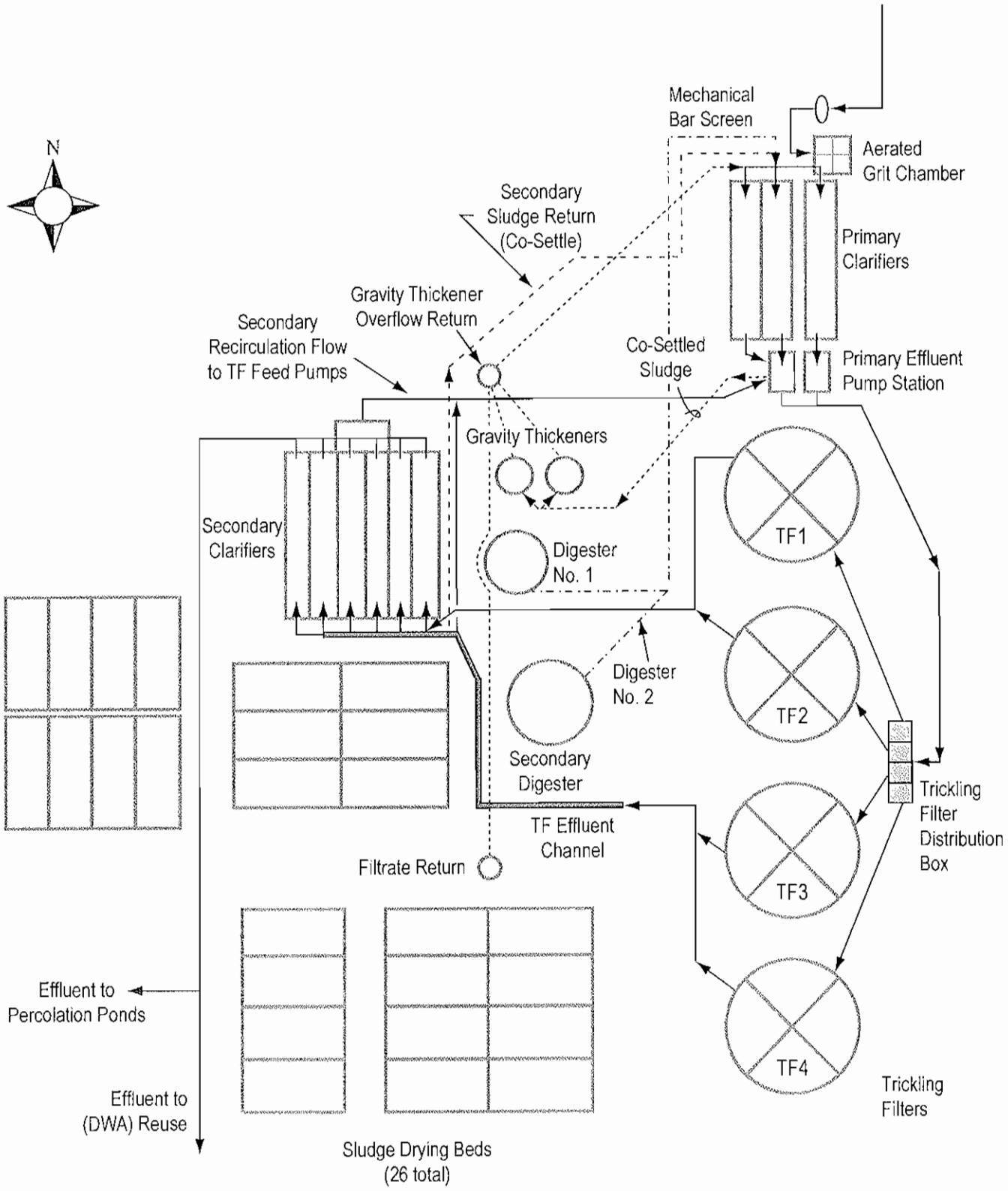

Figure 1
WWTP Flow Schematic
CITY OF PALM SPRINGS
CAPITAL REHABILITATION AND REPAIR PLAN

3.1 Preliminary Treatment

Preliminary treatment to remove rags and other large debris consists of a single mechanical bar screen, with half-inch clear spacing. The collected screenings are discharged to a washing unit to remove organic matter and compact the screenings, which are hauled to a landfill for disposal. A manually cleaned bar rack is provided in a bypass channel. The influent flow is measured through a 36-inch Parshall flume downstream of the screen.

Two aerated grit chambers remove inert sand and grit. One chamber has adequate capacity to treat flow; the second chamber provides redundancy to allow units to be taken off-line for maintenance. Three blowers are provided to supply air to the grit chambers and to the airlift grit pumps. One blower usually operates, with the others as standby. The grit is sent to a classifier for washing to remove organic matter. A screw auger transports the grit to a waste bin, where it is collected and hauled to the landfill.

3.2 Primary Clarifiers

Primary settling includes three rectangular clarifiers; each unit is 160 feet long, 32 feet wide, with 6.8-foot water depth. The original traveling bridge sludge collector mechanisms were removed and replaced with non-metallic chain and flight collectors in 2001, to remove sludge and scum. Due to the long basins, two sets of chains and flights were installed, with the primary sludge draw-off from the middle of the basin.

The primary clarifiers are currently operated in co-settling mode. Sludge from the secondary clarifiers is returned to the old bar-minutor channel downstream of the grit chambers, where it is settled with the raw primary sludge. The combined sludge is pumped from the primary clarifiers to the gravity thickener process. Other side streams routed to the primary clarifiers include digester overflow, thickener overflow, and sludge drying bed filtrate return.

3.3 Primary Effluent Pumping Station

Primary effluent with trickling filter effluent recirculation flow is pumped to the flow distribution box for the trickling filters using one of either two available pump stations. The West primary effluent pump station contains three 200HP, 8,000 gpm pumps with electric motors and variable frequency drives (VFDs). The East pump station contains two natural-gas-fired, engine-driven, 4,800 gpm pumps, which reduce the electrical power consumption. A third, 7,200 gpm redundant pump with an electric motor and VFD is provided with the gas-driven pumps. The primary effluent pump station provides the flexibility and capacity to operate the trickling filters at a hydraulic loading rate up to 250 percent of the current plant influent flow rate. Currently, total pumped flow (primary effluent plus recirculation) is approximately 13 mgd (9,000 gpm), and this has been the operational strategy for the past 20 years. The pumps operate by level control in the primary effluent wet well. Trickling filter effluent is recycled from the effluent channel ahead

of the secondary clarifiers, and is combined with the primary effluent in the primary effluent pump station wet well.

3.4 Trickling Filters

Four tricking filters provide biological secondary treatment. The filters are 140-foot diameter each, with 9.5 foot deep rock media. The hydraulically driven rotary distributors have four arms, two operating during normal flow, with all four arms designed to operate during peak wet weather flows.

Trickling Filter #1 was originally installed in 1960. Trickling Filter #2 was originally 1/2 the height, and was added in the 1979 expansion project, along with updating the original rotary distributor on Trickling Filter #1. Trickling Filters #3 and #4 were added in the 1983 WWTP expansion project, at the same time TF#2 was increased to full-height. The trickling filter rotary distributors were converted to "mast type" units. Filters #3 and #4 were converted in 1997, and Filters #1 and #2 were converted in 2001.

The underdrain in Trickling Filter #1 has forced-air mechanical ventilation, with a fan used to exhaust the head space from the headworks. The remaining three trickling filters have open-air vents for convection.

Effluent from Trickling Filters #1 and #2 is directed to the original secondary clarifiers 1 through 4. The addition of Trickling Filters #3 and #4 required construction of a new channel around the southern side of the anaerobic digesters, to the Secondary Clarifier inlet channel and Secondary Clarifiers #5 and #6. The expanded trickling filter effluent channel was equipped with air diffusers to keep solids in suspension.

A fraction of the trickling filter effluent is diverted from the channel ahead of the secondary clarifiers, to recycle back to the Primary Effluent Pump Station, to maintain the desired trickling filter hydraulic loading rate. Currently, all four truckling filters are in operation, and constant recirculation maintains a steady hydraulic loading to the filters at all times.

3.5 Secondary Clarifiers

The WWTP has six rectangular secondary clarifiers, with each unit 164 feet long, 25 feet wide, and 9.5 to 11 feet water depth. Secondary sludge and scum is removed by traveling bridge collectors. Sludge and scum collection for Clarifiers #1 through #4 is accomplished by traveling bridge collectors using suction lift pumps, mounted on the traveling bridges. Clarifiers #5 and #6 use a bridge collector with squeegees that move the sludge to the south end and dump it into a sump in each clarifier, and pumps remove the sludge from the clarifier sumps. Secondary sludge pumps transfer the solids to either the gravity thickener or back to the headworks. As noted, the secondary solids are currently returned to the headworks to co-settle with the primary solids in the primary clarifiers, but they can also be directed to the gravity thickeners.

3.6 Effluent Disposal

During the winter season, treated secondary effluent is discharged into six (6) percolation ponds, with a total area of approximately 23 acres. Originally, eight percolation ponds were constructed with an area of approximately 33 acres. Approximately 10 acres of the original percolation ponds were removed when the land was developed for a golf course. At all times of the year, but more so during the summer irrigation season, the Desert Water Agency (DWA) diverts treated effluent via a 36-inch line, and reclaims the water for irrigation of a City park, local golf courses, and other open areas. The quantity of water reclaimed varies seasonally from about 40% in winter, up to 100% during some summer months.

3.7 Gravity Thickening

The co-settled primary and secondary sludge from the primary clarifiers is pumped to a gravity thickener to increase the solids concentration. Two gravity thickeners are available, each 30 foot diameter and 10.5 feet deep. One unit is operated, and is adequate for the current solids loading. The second unit is off-line as redundant standby. As elutriation water, secondary effluent is blended with the feed solids to maintain the desired overflow rate from the thickeners.

3.8 Anaerobic Digesters

Thickened solids are pumped to two anaerobic digesters for stabilization. Digester No. 1 has a diameter of 65 feet, with a depth of 30 feet, and has a fixed concrete cover. Digester No. 2 is 85 feet in diameter and 30 feet deep, with a floating gas-holding cover. The digesters are designed to be maintained at 95 degrees, as conventional mesophilic anaerobic digesters. Currently, only Digester No. 2 is heated and mixed, but new heating and mixing systems are currently being designed for Digester No. 1. When the upgrades are complete, both digesters will have pump mixing and spiral heat exchangers.

3.9 Sludge Drying

The WWTP includes 26 sludge drying beds, 100 feet long by 50 feet wide. One bed is used to dry debris from the city's street sweeping operation. The other remaining beds are filled with liquid digested sludge from the anaerobic digesters, on a rotating basis. Drainage gates on each drying bed can decant part of the free liquids off the beds, accelerating the drying time. The beds can also be periodically turned to mix and expose the wet solids to the air, for more thorough drying. However, currently the beds are not turned, but the solids are typically retained on the beds ranging from 30 to 120 days, until solar drying achieves approximately 65 percent solids. The moist solids are then transferred with a front-end loader to a sludge storage area, where they are mechanically turned and mixed to expose them to the air, which is a practice that has been effective at accelerating the drying time to achieve up to 90 percent solids.

A mechanical belt filter press is also available on site, adjacent to the solids stockpile area. The belt filter press is used during winter weather or at times when the beds are full.

3.10 Digester Gas Utilization

Digester gas is collected from both digesters and is piped for beneficial use in a number of locations. However, digester gas use is limited to the boiler for digester heating, but is not currently used for this purpose due to moisture content of the gas, which is damaging to the boiler. Excess gas is flared. Palm Springs has engine-driven pumps and a reciprocating gas engine, which could also potentially use digester gas, but are not permitted by AQMD, so now operate on natural gas. The City also has two micro turbines, which also operate on natural gas, but these are not currently in use. The City and Veolia have plans to reduce the plant's electrical energy requirements, through the use of a gas treatment system and fuel cell for electrical generation, as addressed later in this report.

3.11 Odor Control

The headworks odor control system consists of an exhaust fan, which pulls air off the influent sewer, the influent channels, and grit chambers and blows it into the bottom of the #1 trickling filter. In addition, a misting odor control system applies a masking agent in the area of the screening bin and grit classifier. The primary clarifier odor control system consists of venting off-gases through an activated carbon scrubber. The gravity thickener tanks are also covered, with mechanical ventilation to the bottom of the #1 trickling filter.

3.12 Electrical Power Distribution System

The plant's electrical power distribution system includes a main utility power service switchboard, a diesel engine standby generator, and other electrical equipment in the Maintenance Building, as well as underground duct banks and other motor control centers and equipment throughout the plant. An inspection of the existing electrical system was conducted, and descriptions of existing equipment, as well as recommendations for repair and replacement are detailed in a separate report. The report is included as "Appendix B - Electrical Power Distribution System Evaluation." The appendix also includes a technical memorandum dated March 2008, which updates portions of the original electrical report. Recommendations from this appendix are included in the cost summary tables presented later in this report.

4.0 WASTEWATER FLOW AND LOADING

The WWTP operating data were reviewed from October 2004, through September 2006. The influent wastewater characteristics and flow are summarized in this section, which serves as the basis for evaluation of the WWTP capacity and reliability criteria. Future flow projections are also made to compare the WWTP design parameters to the expected operating conditions at build-out in the service area.

4.1 Service Area Population, Wastewater Flow and Loading

Discussions with the City of Palm Springs identified that the WWTP is currently serving an estimated population of approximately 46,000, and City staff provided annual growth estimates as a range of 500 to 1,000 new residents per year.

The City identified 32,500 total accounts from both residential and commercial customers, which are billed as 39,300 equivalent dwelling units (EDU) (Bartel Wells Associates, 2005). The typical flow contribution from one EDU was calculated as 162 gallons per day, using the annual average wastewater flow data from 2004 to 2006. The current estimated population of 46,000 equates to 1.2 people per EDU, and the average flow contribution is 138 gallons per capita day (gpcd).

The Palm Springs WWTP influent flow and wastewater concentrations are summarized in Table 2, compiled from Veolia operating records from 2004 to 2006. The table also presents the Waste Discharge Permit (WDR) capacity and the original treatment plant design criteria, as given to Carollo in an attachment to the 2005 Veolia operating agreement.

Table 2 Wastewater Characteristics
Capital Repair and Replacement Plan
City of Palm Springs Wastewater Treatment Plant

Parameter	WWTP Design Criteria	WDR Permit Capacity	2004 to 2006 Operating Data
Wastewater Influent Flow (mgd)			
Annual Average	10.9	10.9	6.37
Max Month			7.00
Max Day			7.85
Min Day			5.24
Peak Hour	21.8	16.7	13 (estimated)
Wastewater Influent Concentrations			
Biochemical Oxygen Demand (BOD), lb/day (mg/L)			
Average	20,000 (227)		11,400 (215)
Max Month			16,400 (280)
Max Day			21,400 (370)
Min Day			3,500 (70)
Total Suspended Solids (TSS), lb/day (mg/L)			
Average	21,500 (236)		12,800 (240)
Max Month			20,433 (350)
Max Day			28,200 (510)
Min Day			3,500 (70)

4.2 Projected Flows

For build-out in the service area, the expected population is 94,195. Using the calculated per capita flow contribution of 138 gpcd, average annual influent flow may reach 13.0 mgd. The City should check customer records and available population data, to monitor the per capita flow contribution. The calculated flow at ultimate build-out will likely exceed the current design capacity of the WWTP at 10.9 mgd. However, at a projected growth rate of only 1,000 people per year (or 138,000 gal/yr), the 10.9 mgd capacity value will not be exceeded for approximately 33 years, or the year 2039.

The City has initiated a flow study with Veolia to document the conditions in the collection system. Historical flow records were approaching 8.5 mgd. However, over the last five years, flows decreased to 6.5 mgd. Influent flow meters were checked and calibrated. At this time, it has been determined that the lower flow rates are the results of recent conversions to water-saving plumbing fixtures. Veolia will continue to conduct additional flow monitoring and investigations of the collection system condition.

4.3 Solids Flows and Loading

Veolia monitors the flow of liquid sludge pumped from the gravity thickeners to the anaerobic digesters. The solids handling data recorded from 2004 to 2006 are summarized in Table 3.

Table 3 Solids Production and Digester Loading Characteristics
Capital Repair and Replacement Plan
City of Palm Springs Wastewater Treatment Plant

Parameter	Annual Average	Max Month
Current Solids Production		
Sludge Flow (gal/day)	69,600	110,500
Total Solids (%)	3.5	5.3
Volatile Solids (%)	67	78
Total Dry Solids (lbs/day)	20,320	48,620
Solids Flow Projections for 10.9 mgd WWTP Design Capacity		
Sludge Flow (gal/day)	108,400	172,100
Total Solids (%)	3.5	5.3
Volatile Solids (%)	67	78
Total Dry Solids (lbs/day)	31,520	76,030

The projected volume of liquid sludge and the projected solids loading are reviewed against the design criteria in subsequent section of this report.

5.0 REGULATORY REVIEW

Current and potential new regulatory requirements were reviewed to determine what the near-term effect could be on the Palm Springs WWTP operation. The following is a discussion of specific regulatory requirements that apply to the current wastewater treatment and disposal at the facility.

5.1 Discharge Permit Requirements

The Palm Springs WWTP has a Waste Discharge Requirement (WDR) permit from the California Regional Water Quality Control Board (RWQCB) that was originally issued in 1993 (93-076 / 7A330114012). The general schedule to reissue the WDR was expected in 2003, but the update has not been completed by the RWQCB. During the summer months, the majority of the effluent is accepted by the Desert Water Agency (DWA) and used as a source of reclaimed effluent for irrigation of golf courses. DWA takes some effluent from the plant 365 days per year. They supply several golf courses and take water as necessary to keep their reservoirs full. During summer months (and warm months), the demand for this water is high, and demand decreases during the winter. Likewise, some water goes to the percolation ponds all year, but the amount to percolation changes based on demand for reclaimed water. As DWA expands its reclaimed water system and increases the number of reclaimed water customers, it is expected that nearly 100 percent of the effluent could be accepted by DWA for water re-use during the entire year, and the need for percolation ponds for discharge of effluent will be greatly minimized. The requirements for treated effluent discharged into the percolation ponds, as defined by the WDR are listed in Table 4.

Table 4 Treated Effluent Waste Discharge Requirements
Capital Repair and Replacement Plan
City of Palm Springs WWTP

	Monthly Average	Monthly Maximum
Biochemical Oxygen Demand (BOD_5)	30 mg/L	45 mg/L
Total Suspended Solids (TSS)	30 mg/L	45 mg/L
Settleable Matter	0.3 mL/L	0.5 mL/L
	Annual Average	
Total Dissolved Solids (TDS)	No more than 400 mg/L greater than the level in the water supply	
Sulfate	90 mg/L	
Chlorides	70 mg/L	
Fluoride	1.2 mg/L	

Since the effluent from the Palm Springs WWTP is not discharged directly to surface waters, the requirements of the Federal Clean Water Act (CWA), 40 CFT, Section 303(d), or the California Toxics Rule, do not apply.

5.2 Potential Future Discharge Permit Requirements

The existing WWTP processes are not designed to remove Ammonia (NH_3-N) and Nitrate (NO_3-N) nitrogen compounds. Nitrogen compounds, in high flows and concentrations, potentially may contaminate the groundwater. Nitrate is a parameter specifically listed in the Federal drinking water standards. The RWQCB may add removal of nitrogen compounds in future WDR permits, although a significant schedule for compliance would also likely be included. The City investigated potential changes in the WWTP and the associated costs, to remove NH_3-N and NO_3-N, in an earlier report (Montgomery Watson, 1995). As a follow-on to this report, approximate costs for implementing nutrient removal were re-visited to analyze impacts to this plan.

Four conceptual alternatives for nitrification and denitrification were briefly evaluated, including options to improve nitrification in the existing trickling filters, versus addition of aeration basins or nitrifying/denitrifying filters. Costs for these alternatives ranged from approximately $25 million to $35 million to meet a total nitrogen limit of 10 mg/L for a treatment capacity of 10.9 mgd. Since these costs are an order of magnitude higher than other estimated costs for rehabilitation, and since the requirement to remove nutrients will likely be dependent on many currently-undefined factors such as load allocations or potential mass-based credits for effluent sent to reclamation, these speculative costs are not included in the overall capital cost estimates presented later in this plan.

Likewise, effluent limits for total dissolved solids could be more restrictive in the future. Regulators of other groundwater basins in California have imposed limits on salts discharged to the aquifer, resulting in implementation of costly desalination technologies. However, some municipalities have attempted to limit dissolved solids through source control methods or have focused on removing the salts when taking the water from the aquifer through advanced potable water treatment. It is not yet clear what direction will be taken for the groundwater quality within the Colorado River basin, and salt management studies and any new regulations are likely several years away. Therefore, costs for advanced treatment or source control methods are deemed beyond the scope of this plan and are not included in the cost estimates presented herein.

5.3 Biosolids Disposal Requirements

Biosolids generated through the treatment process must be stabilized, at a minimum, in accordance with the Environmental Protection Agency (EPA) criteria, Title 40, Code of Federal Regulation, (CFR), Part 503, and criteria as adopted by the State under the General Order, State Water Resources Control Board, Water Quality Order No. 2000-10-D WQ. The ultimate disposal of the biosolids must also comply with the specific County Ordinances at the point of final reuse or disposal. The biosolids rules, in general, define the final quality of biosolids in terms of conservative pollutants that may accumulate in the environment, and potential pathogens.

The Palm Springs WWTP anaerobic digesters provide initial stabilization of the organic solids. Dewatering and further drying of the solids in the sludge drying beds continues to provide treatment, which typically qualifies the biosolids as "exceptional quality" and Class A, provided they meet analytical testing requirements specified in 40 CFR 503.

6.0 UNIT PROCESS CAPACITY AND RELIABILITY

The individual unit processes at the Palm Springs WWTP are reviewed in this section to assess the capacity and the ability to comply with the WDR. The capacity-limiting process is identified, and the reliability and available redundancy in each part of the WWTP is reviewed. In other words, the overall performance of the WWTP is examined, considering that tanks or components might be taken out of service for maintenance or repairs.

6.1 Headworks and Preliminary Treatment

The headworks area is a hazardous and corrosive environment. As such, the National Fire Protection Association (NFPA), Article 820, defines the headworks area as Class I hazard, from the potential of explosive gasses in the raw sewage. Equipment must operate with a high degree of reliability, under the abrasive and corrosive exposure of the raw wastewater. Operational problems with the headworks equipment may cause raw sewage to back-up in the collection system, flooding the customers or causing contamination from system overflows. In addition, poorly operating headworks equipment will increase the wear and maintenance requirements in the WWTP.

In general, compared to other headworks facilities at similar-sized municipal wastewater treatment plants in California, the Palm Springs WWTP headworks is in relatively poor condition. The design of the main sewer line connecting the collection system to the headworks has a low slope and appears to be surcharged, rather than free-flowing. This condition allows solids to settle in the line, which creates potential flow restrictions and anaerobic conditions, generating odors and causing corrosion of the headworks' concrete. If there is any blockage at the screen in the headworks, this condition worsens. In addition to the issues associated with low velocities, the headworks' screen and grit facilities are a source of odors and create a visual nuisance. The screenings and grit bins are open to the atmosphere and in close proximity to the tennis courts at Demuth Park (across the narrow driveway). At times during the hot summer months, the odors from the headworks area are severe. In addition, the screenings compactor and the grit classifier discharges are open and visible from the park or driveway, so the debris, rags, and plastic, mixed with fecal matter can be seen discharging to the waste bins, which is visually offensive. Ideally, the headworks facility at a WWTP in close proximity to public areas should be entirely enclosed in a building with odor scrubbing or have covered channels with the screening and grit handling equipment and storage bins enclosed. The following paragraphs further evaluate the equipment at the headworks, and later in this plan (Section 7.4.2); alternatives for upgrading or replacing the headworks are discussed.

6.1.1 Bar Screen Equipment

The headworks at the Palm Springs WWTP are configured with a single mechanical bar screen, which must operate continuously. Screenings removed from the influent sewage are discharged into a single washer and compactor unit. When the mechanical screen or the screenings compactor requires service, a manual bar rack in a bypass channel is used to remove the large debris. When extended or unplanned service is required on the mechanical screen or the screenings compactor, operations staff must manually clear the accumulated debris. Operator response is critical, and constant attention is required to keep the manual bar screen clean to avoid a backup or potential overflow of raw sewage. Since the WWTP is not normally staffed over the full 24 hours, additional staff must immediately respond to mechanical screen breakdowns to clean the manual bar rack.

The mechanical bar screen has clear openings of 1/2-inch, compared to 1-inch openings on the manual bar rack. When the mechanical bar screen is out of service, the manual bar rack allows significantly more debris to pass through, which ultimately increases maintenance in the WWTP primary clarifiers, trickling filters, sludge pumping facilities, and digesters. During the site visit for this report, several screening panels were also observed to be missing on the mechanical screen, which lets additional debris pass into the WWTP. The missing screen panels should be replaced as soon as possible. However, even with regular maintenance, rags and other similar material get past the existing mechanical screen. Replacement of the unit should be evaluated to alleviate these problems.

Screenings must be cleaned and dewatered until there are no free liquids, to be acceptable for disposal at the landfill. Screenings removed by the manual bar screen, without the washer compactor, will not likely be permitted at the landfill. Therefore, the screenings from the manual bar rack must be sent to the sludge drying beds to partially drain, prior to disposal. This displaces a sludge drying bed, which is needed for biosolids handling. Raw sewage screenings on a drying bed will also create a significant odor source.

The available open space at the headworks is very limited, with portions of the headworks constructed under the WWTP entrance roadway adjacent to a City park. Addition of a second mechanical bar screen would require relocation of existing tennis courts within the adjacent City-owned park to widen the plant entrance driveway to allow for construction of a new mechanical bar screen.

Addition of two new mechanical bar screens with a second washer compactor is recommended to improve the overall screenings removal efficiency and simplify long-term WWTP maintenance. A second mechanical screen improves safety of operating personnel, eliminating the need to work in a hazardous confined space and reduces the potential of unplanned emergency beak-downs. Also, addition of a redundant washer compactor will produce screenings that are acceptable for disposal at the landfill, eliminating the need to occupy a sludge drying bed with wet screenings. Sludge drying beds, discussed later in this section, are critical for solids handling capacity. Alternatives for improvements to the

headworks area are discussed later in Section 7.0, Capital Rehabilitation and Repair Requirements.

6.1.2 Aerated Grit Basins

The WWTP includes two aerated grit chambers, with one basin normally in service at the present flow rates. Three positive displacement blowers are available to supply the air for mixing. The configuration of the tankage and the equipment provides adequate redundancy. Repairs to one grit basin's airlift pumps and one blower are under way, and should be completed as soon as possible to maintain grit system reliability.

6.2 Primary Treatment

Two important factors must be considered when evaluating the efficiency and performance of the primary clarifiers. First, the tanks were constructed with a relatively shallow water depth of only 6.8 feet, and surface loading rates typically are reduced in shallow tanks to provide sufficient hydraulic retention time to settle the sludge. Second, the current process operation mode returns the secondary sludge to co-settle in the primary settling tanks. While co-settling has several process benefits, it also increases the total solids loading to the primary clarifiers. The primary clarifiers must be operated at a lower hydraulic loading rate, to provide longer retention time to allow the light secondary solids to settle.

Even though the above conditions inhibit the process somewhat, the primary clarifier performance appears to be within acceptable operating ranges under most current flows. However, during peak flow and loading periods, TSS removal efficiency appears to decline significantly, which in turn increases the loading to the trickling filters. This has contributed to increasing the plant's overall solids inventory on some occasions, resulting in nearly violating the plant's effluent monthly average and monthly maximum TSS limits. Operations staff should monitor primary clarifier TSS removal as loadings continue to increase, and re-assess or discontinue the co-settling mode of operation in the future.

In addition, when one unit is taken out of service, the primary clarifier surface loading rate is above the recommended values for the loading range of combined primary and secondary sludge. Under conditions when a primary clarifier must be taken out of service, the duration should be minimized, or chemical addition used to maintain clarifier removal efficiency. If the secondary solids are directed to the gravity thickener instead of co-settling, the primary clarifiers could potentially be successfully operated at current surface loading rates. However, since their installation in 2001, all three primary clarifier "chain and flight" sludge removal mechanisms have been taken out of service for extensive adjustments and repairs on approximately five separate occasions each. This level of service reliability is considered very poor for a process of this type. Since there are only three clarifiers, a higher level of reliability is recommended to reduce the risk of violating the plant's effluent TSS limits during peak solids loading periods. Due to the age, depth, and poor reliability of the clarifier mechanisms, the addition of new, deeper primary clarifiers with more reliable circular

mechanisms should be further evaluated. If the plant's headworks is to be replaced with a headworks at a lower water surface (to resolve the issues caused by the flat, surcharged influent sewer), new primary clarifiers and a new primary effluent lift station will also be required, at a lower elevation, in order to accommodate the new hydraulic grade line requirements. This alternative is discussed further in Section 7.0.

The Palm Springs WWTP also accepts septage from commercial haulers serving the surrounding area. Initial estimates reported approximately 300,000 gallons per month of septage received at the headworks. Septage deliveries are recorded, but no samples are taken. However, the septage haulers also discharge upstream of the influent sampler, so the septage load is included with the influent BOD and TSS monitoring. The septage load may impact the primary clarifiers and overall WWTP performance when the facilities are operating at the design loading capacity. A separate septage receiving station is recommended to provide side-stream screening, monitoring, and potentially de-gritting and flow equalization, to minimize impact on the WWTP.

6.3 Primary Effluent Pumping Station

The WWTP has two, fully redundant primary effluent pump stations to lift flows up to the trickling filters, which provides a high degree of redundancy and flexibility for operations. However, these pumps and related equipment require frequent maintenance and are reaching the end of their anticipated useful lives.

The primary effluent pumps are solids-handling pumps, typically used in raw sewage applications. A higher efficiency pump may be available for this continuous, high volume application, to reduce power demand from the electric motor driven pumps, and gas consumption with the engine-driven pumps. As these pumps reach the end of their effective life and are ready for replacement, a higher efficiency pump should be considered to improve efficiency. Together with the headworks and primary clarifier improvements, a new primary effluent pump station is further considered in Section 7.0.

6.4 Secondary Treatment

The capacity and redundancy of the trickling filters and the secondary clarifiers are reviewed in this section to assess the ability to meet the WDR under current and future flow conditions.

6.4.1 Trickling Filters

6.4.1.1 Organic Loading

The Palm Springs WWTP is currently loaded at approximately 58 percent of the design organic loading capacity, and normally achieves excellent effluent quality. Effluent BOD concentrations average less than 10 mg/L, well within the WDR requirements of 30 mg/L.

Trickling filter performance at the design flow of 10.9 mgd was evaluated in a desk-top evaluation to predict the effluent quality. The trickling filters were constructed with multiple units and with sufficient depth of rock media to accommodate the future flow and loading at the design criteria, according to standard performance model equations. Trickling filter performance was also checked with one unit out of service. The four existing trickling filters appear to provide adequate capacity for future flows and the range of loading conditions, with operational flexibility to allow for one unit to be taken off-line for service.

6.4.1.2 Hydraulic Loading

The rotary distributors for the trickling filter are hydraulically driven, propelled by the flow from the distribution nozzles. Several nozzles are placed on the leading side of the arm to slow down the rotation to the desired speed. The hydraulic loading rate is designed to maintain uniform thickness of biomass on the media. If the trickling filters are dosed below the recommended rates, the media and the underdrain can plug, severely impacting removal efficiency and performance.

The primary effluent pumps operate on variable frequency drives, maintaining a reasonably constant 13-mgd pumping rate to the trickling filters. Trickling filter effluent is recycled to the primary effluent wet well, to maintain constant flow. The percentage of trickling filter effluent recycled varies over the diurnal flow range, to makeup the constant flow pumped to the trickling filter. During low flow periods, recycle is high, and at peak hour flows, recycle is lower. The current mode of operation maintains approximately 200 percent dosing rate on the trickling filters. In other words, average trickling filter recycle matches the average daily influent sewage flow. At the current flow rates of 6.5 mgd, the trickling filters are dosed at a constant pumping rate of approximately 13 mgd.

The trickling filter rotary distributors were installed at different times, and are somewhat different in design. While, all distributors have four arms, Trickling Filters 3 and 4 have two-stage arms. The primary arms operate at all flows. The secondary arms have internal baffles in the center column that activate at higher flows. Despite the constant pumping rate, the different arms have slight imbalances in the hydraulic loading rates. During the on-site inspection for this report, the difference in flow between the primary and secondary distributor arms could be observed. In addition, different rotational speed of the distributors was noted on each of the four filters. The speed variance was found to be approximately 25 percent between the different filters. Based on the current flow and loadings at the WWTP, this variance is not critical, and effluent quality is generally within the WDR requirements. However, in the future when the WWTP reaches higher loading, the different hydraulic loading rates may become more pronounced and produce more noticeable differences in removal efficiency.

Technology development with rotary distributors has discovered that a slower rotation provides a higher instantaneous dosing rate. The ability to control dosing, with high flows for brief periods during the day, improves the biomass growth on the media and optimizes

removal efficiency of the trickling filters. Upgrading the trickling filters with new rotary distributors will balance the loading between and within the trickling filters and is further considered in Section 7.0.

6.4.1.3 Snail Removal

Rock media trickling filters inherently grow snails, which can accumulate in excessive amounts if mitigating measures are not taken. Veolia periodically cleans snails that accumulate in the trickling filter effluent channel using the sewer cleaning vacuum truck. If the accumulated snails are not removed from the effluent channel, they may pass throughout the entire WWTP. Snail shells will fill the secondary clarifiers and, since the secondary solids are co-settled, will also fill the primary clarifiers. The snail shells are inert, which ultimately end up in the anaerobic digesters, displacing tank volume required for anaerobic digestion. The abrasive snail shells increase the wear on pumps and compound the work required to clean tanks. Veolia has experienced these issues with the snail shells over the past several years. Minor process adjustments can be made to impact the growth of snails. However, the most effective method is to add a treatment stage to physically collect and remove the shells. The existing secondary sludge line to the gravity thickeners could potentially be modified to add a snail removal stage. The snails are removed using a grit classifier, where the shells are dewatered and hauled to the landfill. This improvement is recommended as a future upgrade.

6.4.2 Secondary Clarifiers

The six rectangular secondary clarifiers appear to have adequate capacity for the current range of flows. Effluent quality typically has TSS concentrations less than 10 mg/L. However, during periods of high influent loading or insufficient solids treatment, TSS concentrations have increased to the 20 to 30 mg/L range.

The traveling bridge sludge collection mechanisms work in pairs. Tanks are typically taken out of service two at a time for inspection and maintenance seasonally, during low flow periods. When the WWTP reaches the design build-out flows, the secondary clarifiers will remain in the acceptable loading ranges when two units are removed from service. The secondary clarifiers appear to offer adequate capacity and flexibility for the future flows. However, the existing underwater portions of the mechanisms are corroded, the sludge pumps and piping need replacement, and the scum skimming is non-functional, so excessive floating debris and duck weed present a maintenance issue. Replacement of these mechanisms and associated sludge and scum handling systems is recommended and discussed in Section 7.0.

6.5 Solids Handling

This section reviews the capacity and redundancy available in the solids handling components of the WWTP. The City's goal is to produce Class A Biosolids, providing the long retention time and dry solids in accordance with EPA, 40 CFR, Part 503, and the

California General Order (No. 2000-10-D WQ). Class A biosolids have the least restrictions for final disposal or reuse and have simplified monitoring requirements, compared to Class B biosolids.

6.5.1 Gravity Thickeners

The co-settled sludge from the primary clarifiers is pumped to the gravity thickeners to increase the solids concentration ahead of anaerobic digestion. Currently, piping to both thickeners carries combined primary and secondary sludge. However, a project is currently underway to reconfigure the piping to allow discharge of separate flow streams to the thickeners to allow flexibility in operation.

One thickener is normally in service. The second thickener serves as an off-line standby, and loading on the gravity thickeners is well within recommended design guidelines under the current flows.

In the future, when the WWTP reaches the design loading, two gravity thickeners will be required. If a thickener must be taken out of service, the solids loading to one tank will exceed the recommended rates. With one thickener in operation, thinner dilute sludge pumped to the anaerobic digesters might degrade the solids stabilization process. Routine thickener maintenance during low-flow periods should, therefore, be scheduled to minimize the time that tanks are taken out of service. As a backup, chemicals can be added to the thickeners to enhance performance when one tank is online. Other thickening alternatives can also be considered, such as a gravity belt thickener, to provide additional capacity and redundancy for operational flexibility.

6.5.2 Anaerobic Digesters

The anaerobic digesters provide an initial degree of solids stabilization prior to sending the digested sludge to the drying beds. The digested sludge dries and dewaters faster than raw sludge and has less odor. In general, the EPA criteria require a 15-day hydraulic retention time in the conventional mesophilic digesters at 95 degrees Fahrenheit. At the current flows, approximately 30 days of hydraulic retention time is provided. At the design flow with both digesters in service, 19 days of hydraulic retention time is provided, which meets the EPA criteria. If a digester must be taken out of service, hydraulic retention time will be reduced to between 12 to 7 days, depending which tank requires maintenance or cleaning and also depending on the time of year (summer sludge flows are lowest).

The sludge drying beds, and subsequent wind-row storage, achieve the Class A stabilization criteria for the final disposal of the biosolids. Either of the anaerobic digesters can be taken out of service for cleaning or maintenance during the summer months, when ambient temperatures can dry the solids within 30 days, without impacting the final quality of the biosolids.

6.5.3 Biosolids Dewatering

Veolia reports that one drying bed can receive approximately 50,000 gallons of digested sludge, filling the bed 14-inches deep, which is currently done two to three times per week at the present WWTP flows. The slide gates on the drying beds allow for decanting of approximately 40-50 percent of the bed volume to decrease the drying time. Assuming 25 beds are in use (one bed is used for street cleaning debris), the drying beds could be filled on an 18-day rotation. At the projected design capacity, beds will be filled on a 12-day rotation.

Veolia prefers to use the sludge drying beds for dewatering due to simplicity and low cost. The capacity and flexibility of the drying beds is affected by operation at the plant's other unit processes. Digester and thickener operations can be modified to produce thicker sludge and help reduce drying time on the beds. The Belt Filter Press (BFP) is available to provide backup dewatering capacity during the winter months or if the beds become full. The BFP is not preferred under the present WWTP loading conditions, because it produces cake (or dewatered "biosolids") at 20 percent solids, which must be handled further to get it to the exceptional quality level produced by the drying beds. Although the BFP requires significantly more operator attention, with electrical power and chemical costs, it is a viable backup alternative for dewatering biosolids when flows reach the design capacity. The BFP has the capacity to dewater 70,000 gallons per day, in an 8-hour shift, which is approximately 140 percent of the capacity provided by the drying beds. However, direct disposal of the 20 percent solids cake will be more costly than the current method of disposal for the very dry cake produced by the drying beds. Several alternatives exist for disposal of this type of material (such as contracted long-distance hauling or privatized composting), and comparison of these alternatives should be conducted in the future as the need arises. Using the combination of BFP and drying beds, the plant's capacity to dewater biosolids appears adequate for projected future buildout flows.

6.6 Effluent Disposal

The original design of the WWTP provided eight percolation ponds over 33 acres. In the 1990s, the City removed approximately 10 acres of percolation ponds as part of its construction of a new public golf course within the adjacent Palm Canyon Wash and Tahquitz Creek, and these ponds are no longer available for effluent disposal. The capacity of the percolation ponds is further discussed in the next section.

DWA has been reclaiming the majority of the City's effluent in the summer months, so the percolation ponds are very lightly used during that period. Throughout the winter months, DWA demand drops; therefore, the City diverts some flow to the percolation ponds for the winter effluent disposal. Recently, DWA demand for effluent has been increasing as their market for recycled water expands. Ultimately, the City expects that all of the WWTP effluent will be sent to DWA year-round. However, the timing of increased demand is uncertain.

6.7 Summary of WWTP Capacity Limiting Unit Process

The mechanical bar screen in the headworks has had issues with rags and other items passing the screen, and it has no mechanical redundancy. It may be difficult to keep up with the design flows using the manual bar rack provided for a bypass; therefore, replacing the current screen and adding a redundant mechanical bar screen and washer/compactor is recommended.

The primary and secondary treatment components appear to have adequate capacity and redundancy to allow units to be taken out of service. The primary clarifiers will have the highest loading rate at the design flow when one unit is taken out of service and appear to be the capacity-limiting process when the plant's solids inventory is high. The City and Veolia should monitor effluent quality and overall WWTP performance in the current operational mode of co-settling the secondary sludge in the primary clarifiers. There is adequate capacity in the secondary clarifiers to separately handle the light secondary solids; however, returning secondary sludge, thickener overflow, and digester overflow streams currently impact the efficiency and performance of the primary clarifiers. The primary clarifiers will operate better if loaded with only primary sludge at the design capacity of the WWTP.

The solids handling components of the WWTP have less capacity and flexibility. The loading rates on the gravity thickeners may be exceeded or the minimum 15-day hydraulic retention time of the anaerobic digesters may not be met if one tank is taken out of service for an extended period. Fortunately, the sludge drying beds and sludge storage area provides sufficient flexibility to meet the regulatory standards for sludge disposal, so construction of additional thickeners or digesters is not required. However, the current projects for improving the thickener feed and digester heating and mixing systems are critical for solids processing reliability.

The WWTP design criteria are compared to current and projected flows in Table 5. The acceptable ranges of design criteria and loadings are listed for comparison of current capacities.

As the table indicates, at the design-loading rate (15.2 gpd/sf), the original design capacity of the effluent percolation ponds far exceeds current and future estimated hydraulic loading to the ponds (4.88 to 7.44 gpd/sf). In addition, the demand for reclaimed water has also increased and will likely continue to increase, thereby further reducing the required disposal volume to the ponds. It appears that with significant diversion of effluent to reclamation, the hydraulic capacity of the ponds will likely be adequate for many more years.

Table 5 Summary of Design Criteria - Unit Process Capacity and Reliability
Capital Repair and Replacement Plan
City of Palm Springs WWTP

Current Maximum Month Average Day Flow		**7.0**	**mgd**			
Current Peak Hour Flow		**14.0**	**mgd**			
Projected Maximum Month Average Day Flow		**10.9**	**mgd**			
Projected Peak Hour Flow		**21.8**	**mgd**			
UNIT PROCESS	**DESIGN CRITERIA**	**UNITS**	**CRITERIA/LIMIT**	**CURRENT LOADING (ALL UNITS IN SERVICE)**	**PROJECTED LOADING AT BUILDOUT (ALL UNITS IN SERVICE)**	**PROJECTED LOADING AT BUILDOUT (ONE UNIT OUT OF SERVICE)**
AERATED GRIT						
(1)	Avg. Detention Time	min	**5**	14	9	5
	Peak Detention Time	min	**2**	7	5	2
PRIMARY CLARIFIERS						
(2)	Avg. Detention Time	min	**120**	161	103	69
	Peak Detention Time	min	**90**	80	52	34
	Avg. Surface Loading	gal/ft^2/day	**600 - 800**	456	710	1,064
	Peak Surface Loading	gal/ft^2/day	**1200 - 1700**	911	1,419	2,129
TRICKLING FILTERS						
(3)	Hydraulic Loading	gal/ft^2/day	**354**	114	177	236
	Organic Loading	lb BOD/1000ft^3/day	**23**	8	12	17
SECONDARY CLARIFIERS						
(4)	Avg. Detention Time	min	**120**	360	231	154
	Peak Detention Time	min	**90**	180	115	77
	Avg. Surface Loading	gal/ft^2/day	**600**	285	443	665
	Peak Surface Loading	gal/ft^2/day	**1200**	569	886	1,329
EFFLUENT PERCOLATION PONDS						
	Design Percolation Rate	Gpd/ft^2	**15.2**			
	Maximum Loading Rate	ac-ft/yr		5,480	8,346	
	Loading of 23 Acres	Gpd/ft^2		4.88	7.44	
		minimum	maximum	average		
	Total Monthly Flow (mg)	37.5	146.8	79.3		
	Ave Daily Loading (gpd/sf)	1.21	4.88	2.64		
SOLIDS FLOW AND LOADING TO ANAEROBIC DIGESTERS						
Current Flow						
Average Liquid Sludge to Digesters		**69,600**	**gal/day**	**20,316**	**lb/day**	
Total Solids Concentration (Ave)		**3.5%**				
Projected Flow (at 10.9 mgd WWTP Flow Design Capacity)						
Average Liquid Sludge to Digesters		**108,377**	**gal/day**	**31,635**	**lb/day**	
SOLIDS HANDLING UNIT PROCESS	**DESIGN CRITERIA**	**UNITS**	**CRITERIA / LIMIT**	**CURRENT LOADING (ALL UNITS IN SERVICE)**	**PROJECTED LOADING AT BUILDOUT (ALL UNITS IN SERVICE)**	**PROJECTED LOADING AT BUILDOUT (ONE UNIT OUT OF SERVICE)**
GRAVITY THICKENERS						
(5)	Solids Loading Rate	lb TS/ft^2/day	**20**	14	22	45
ANAEROBIC DIGESTORS						
(6)	Solids Loading Rate	lb VSS/1000 ft^3/day	**100-300**	59	91	145
	Solids Retention Time	day	**15-20**	29	19	12

Notes:
1. Metcalf & Eddy, 2nd Ed, p 327
2. Metcalf & Eddy, 2nd Ed, p 338
3. Metcalf & Eddy, 2nd Ed, p 535
4. Metcalf & Eddy, 2nd Ed, p 514
5. USEPA Design Manual Solids Stabilization Manual
6. Metcalf & Eddy, 4th Ed, p 1513

7.0 CAPITAL REHABILITATION AND REPAIR REQUIREMENTS

This section provides a summary of the capital rehabilitation and repair requirements for the Palm Springs WWTP, as estimated over the next 20 years. The repairs are presented in the order of the most urgent priorities first, defined within an initial five-year period. The medium and long-term requirements are listed in 10, 15, and 20-year timed periods accordingly.

Replacement of the major process equipment addresses the age of the asset, the time in operation, the service conditions, and the maintenance history. Equipment costs presented herein are the present value for full replacement. At the time of replacement, as identified by the priority, the equipment is assumed to be at the end of the effective life with no appreciable salvage value.

If equipment is no longer manufactured or maintenance parts no longer available, replacement costs were based on providing the upgraded equipment models currently available. Similarly, replacement costs also cover modernized equipment that has been developed through advancements in treatment technologies since the time of the original design and construction. Equipment replacement costs represent the best available technology, currently accepted as the standard of the industry.

Process improvement costs to add capacity or redundancy that were identified in the previous section of this report are listed in the schedule of projects.

Repair and replacement costs also cover the associated WWTP infrastructure, which includes concrete rehabilitation and coating requirements. General cost factors are included for expected rehabilitation needs in the connected piping systems, mechanical systems (heating, ventilating, and air conditioning), as well as electrical power components, and control systems. Costs for infrastructure rehabilitation will restore all facilities, dose to the as-new condition.

Cost factors to maintain the grounds, such as roadway pavement, sidewalks, and general building maintenance, are estimated. Also, general assumptions for site security measures, such as fencing and controlled access gates, are listed in the cost estimates.

7.1 Wastewater Collection System

The scope of this report did not cover the repair or rehabilitation needs in the wastewater collection system or the off-site pumping stations. General line item estimates provided by the City are included as a "place holder" for general budgeting, which should be investigated and defined in detail by City staff or others. Collection system rehabilitation typically requires detailed investigation of the sewers and pumping stations. Veolia and the City also identify collection system repairs on an as-needed basis.

7.2 Priority Ranking

Carollo Engineers conducted an evaluation of the Palm Springs WWTP in the Operational Evaluation Report in April 2006. An initial on-site survey was conducted at the time, reviewing plant maintenance reports, preventative maintenance records, and work-order records. A priority ranking order was developed based on the age and condition of the major process equipment. A numerical value of 1 through 4 was assigned to each component. This report uses the same numerical values as the Operational Evaluation Report to assign priorities to the repairs, which corresponded to the following criteria:

Priority 1: ***Immediate Needs***. Equipment in this category is not operable or is clearly operating in a poor condition. Major work is required with replacement of the majority of the equipment. Work should be conducted as soon as possible, to keep in compliance with WDR requirements or to protect the health and safety of the public and WWTP personnel. In addition, projects required to meet other immediate needs, such as energy recovery or fire protection, are included in this priority, as identified by the City or Veolia.

Priority 2: ***Marginal Condition***. Equipment in this category may or may not be operable or it may be running in a marginal condition. These components have been in operation for the majority of the expected service life and can be considered well worn. Some degree of rehabilitation or repair is needed to regain full operability or to reach full efficiency. Repair or replacement items in this category are considered to be necessary within a 5- to 10-year period to maintain treatment efficiency.

Priority 3: ***Adequate Condition***. Within this category, equipment is operational and is efficiently serving its intended function; however, the components show early signs of wear. Following prescribed maintenance procedures should hold the operability in the foreseeable future. Repair or replacement items in this category should be planned for completion within a 10- to 15-year period.

Priority 4: ***Good Condition.*** At this category, equipment is operable and/or running and efficiently serving its intended function. The component shows little sign of wear, and ongoing preventive maintenance should retain a high level of operability for the foreseeable future. Repair or replacement items in this category should be planned for beyond 15 years.

In addition to the equipment components, the WWTP infrastructure repair and replacement needs for the structural, mechanical, and electrical components were evaluated and ranked according to the same order.

7.3 Cost Estimating

The cost estimates in the report assume that construction projects will be solicited through contract bidding documents, and an independent general contractor will complete the work. Projects are organized according to the priority, grouped into process areas, assuming that all related work for structural rehabilitation, equipment replacement, mechanical, electrical,

and instrumentation work will be done concurrently. Cost factors totaling 20 percent are included for engineering design, for legal and administration, and for engineering inspection during construction.

The equipment costs provided in this report were obtained from equipment manufacturers, based on replacement costs in 2009 dollars. Equipment line items are reported as total project costs, which include factors for delivery, taxes, and general contractor installation, with associated subcontractors for mechanical and electrical accessories for a complete and operational system.

Costs for the infrastructure rehabilitation were estimated following Carollo Engineers unit cost database. Costs for the related civil work, concrete, structural steel, and all related divisions were estimated. Reported costs represent materials and installation for a completed system.

All costs in this report are in 2009 dollars. To account for inflation and for reference to future cost escalation, estimates can be indexed to the ENR CCI[1] of 9811, January 2009, Los Angeles location factor.

7.4 Priority Findings and Recommendations

The repair and replacement requirements are presented in this section in the order of priority, from the most urgent and short-term requirements (*Priority 1*) to the long-term replacement needs (*Priority 4*). Where estimated or recommended by Carollo, a general description and overview of each repair or replacement project is provided.

The projects identified under each priority are listed with estimated costs in Tables 6 through 9.

Details of the cost estimates for the findings and recommendations are included in Appendix A.

7.4.1 Priority 1 Recommendations

In the Operational Evaluation Report (April 2006), there are no urgent repairs (*Priority 1*) identified for the process areas of the plant. However, more recent investigations at the plant during 2008 and 2009 have identified several process-related upgrades and major electrical upgrades considered to be Priority 1 projects or projects urgently needed to ensure reliability of the treatment system. In addition, several projects are identified by the City to improve the plant's overall energy efficiency.

For the process areas of the plant, the City and Veolia have routinely been completing the most important capital repair and replacement projects. Major capital improvements projects already identified and budgeted by the City, to be completed by Veolia are not

[1] Construction Cost Index (CCI) published by Engineering News Record (ENR).

developed in this study. However, the estimated costs for these projects have been provided by the City or Veolia and are included in Table 6 as Priority 1 capital projects. These urgent projects for the plant's process areas include:

- Digester No. 1 (65-foot diameter) interior coating, heating, and mixing upgrade.
- Redundant boiler and gas system repairs (per separate Carollo Technical Memo, dated June 2009).
- Belt press filtrate pump station upgrade.
- Plant reclaimed water pump station upgrade.
- Digester gas treatment system.
- Fuel cell purchase and installation.
- New gas flare.
- Digester No. 2 dome replacement.

In addition to process upgrades, the following civil or collection system projects have also been identified by the City as urgent, and are included in the Priority 1 cost estimate:

- New Perimeter Security Fence and Gates.
- Purchase of Property for Influent Line Easement.
- Water System Upgrade for Fire Protection.
- East Side Storm Drain Line.
- New Septage Receiving Station.
- New FOG Receiving Station.
- New Access Road and Signal.
- WWTP Facility Plan (for detailed planning implementation of Priority 2 projects).

The Priority 1 repairs recommended for the electrical distribution system are described in the "Immediate Time Frame" section of Appendix B - Electrical Power Distribution System Evaluation and the amended letter report from Beecher Engineering, dated March 2008.

Table 6 Priority 1 - Capital Repair and Replacement Projects
Capital Repair and Replacement Plan
City of Palm Springs WWTP

PROJECT	PRIORITY 1 (1- to 5-Year Projects)	ESTIMATED PROJECT COST [1]
Digester 1 Upgrade*	Replace gas compressors with external pumped mixing system, replace digester heat exchanger, and upgrade digester accessories. Repair cracks in digester roof, rehabilitate and coat internal concrete, patch external concrete.	$1,800,000
Boiler and Gas Piping Repair	Add redundant hot water boiler and replace plugged and corroded digester gas piping between digesters and flare.	$390,000
Plant Reclaimed Water Pump Station Upgrade*	Replace pump motors, power, and control systems, and add variable frequency drives (VFDs) to the pumps for speed control to match demand and limit starting and stopping of the pumps. Replace the discharge header and valves with new equipment.	$650,000
New Perimeter Security Fence and Gates*	Replace fence with new barbed-wire chain link fence. Replace gates with card-access controlled motorized gates.	$1,000,000
Purchase of Property for Influent Line Easement*	Purchase real estate adjacent to headworks for influent line easement.	$3,000,000
Electrical System Improvements[2]	Replace incoming power service and switchgear with new service and consolidate metering. Replace failing duct banks with new electrical duct bank system. Replace obsolete MCCs with new MCC equipment. (see Appendix B for details of electrical upgrades)	$3,600,000
Water System Upgrade for Fire Protection*	Add new potable water line onto the plant site for improved flow capacity for fire protection.	$500,000
East Side Storm Drain Line*	Add storm drain line on east side of plant site to convey storm water from area north of plant to drainage channel on south side.	$1,500,000
Filtrate Pump Station Upgrade*	Upgrade or replace the small submersible pump station used to pump belt press filtrate and drying bed decant water back to the plant headworks.	$500,000
WWTP Facility Plan*	Complete a facility plan developing and defining the process improvements planned as Priority 2 projects, including the new headworks, primary clarifiers, primary effluent pump station, and odor control facilities, as well as potential future projects.	$250,000
Septage Receiving Station*	Add septage receiving station to monitor and screen septage from hauling trucks.	$500,000
Access Road*	Add asphalt access road with traffic signal to allow access to the plant property from Gene Autry Trail in the southeast corner of the plant site.	$500,000

Table 6 Priority 1 - Capital Repair and Replacement Projects
Capital Repair and Replacement Plan
City of Palm Springs WWTP

PROJECT	PRIORITY 1 (1- to 5-Year Projects)	ESTIMATED PROJECT COST [1]
Digester Gas Treatment System*	Install new biogas treatment system to remove hydrogen sulfides, slogans and other impurities from the digester gas, so that it can be used in the boilers and fuel cell without corrosion issues.	$2,000,000
Fuel Cell	Install fuel cell near existing digesters to convert methane gas from digester process and gas treatment system to electrical power.	$4,060,000
Gas Flare*	Add new larger capacity flare to replace existing waste gas flare.	$1,000,000
FOG Receiving Station	Receiving station to accept FOG and food waste from local haulers. Includes receiving station, storage vessels and pumping equipment to pump liquid waste to anaerobic digestion process.	$1,600,000
Digester No. 2 Dome Replacement	Replace floating steel digester dome with new coated steel dome. Replace digester gas piping and accessories connected to dome.	$1,050,000
	Priority 1 Projects Total	**$23,900,000**

Notes:
(1) Refer to Appendix A for details of Estimated Project Costs.
(2) Refer to Appendix B for details of electrical system improvements.
* Projects planned and estimated by the City or by Veolia

7.4.2 Priority 2 Recommendations

The headworks area is a highly corrosive environment, and equipment is subject to rapid wear. The mechanical bar screen currently in operation was installed in 2001 and is in relatively good condition, although it allows some rags and stringy materials to pass. In addition to the mechanical screen, there is a manually cleaned bar rack, but no redundant mechanical screen. This arrangement is unusual for a plant of this size. Considering the current state of the screening equipment, the treatment plant will operate more efficiently with less risk of overflows and with improved health and safety conditions for the staff, if the bypass manual bar rack is replaced with a redundant mechanical bar screen and screenings compactor. With a redundant mechanical bar screen, one unit will always be in operation with the second unit as a redundant standby. Further, replacing the existing mechanical screen, and having two new mechanical bar screens will significantly improve the ability to perform routine maintenance on the units and will significantly improve reliability of the headworks and reduce pass-through of rags and other debris which cause problems downstream.

The concrete and steel cover plates in the influent channel and the headworks area show signs of corrosion. Although some of this corrosion may have been caused by pre-chlorination (a process no longer practiced at the WWTP), repairs should be conducted to restore the concrete. If concrete corrosion is not addressed, it can reach the internal concrete reinforcing and require extensive costs for repair. Also, corrosion of cover plates and gratings poses a safety hazard. Further, due to the proximity of the headwords to the park, serious consideration should be given to covering the unsightly headworks equipment and dumpsters and containing and treating the strong foul odors from the screening and grit removal processes.

As an alternative to expanding and repairing the existing headworks, the alternative of constructing a new headworks to replace the existing headworks should be further evaluated. This option would also address the issues presented by the flat sewer line bringing influent flow to the plant. This line is surcharged with very slow flow through the last three manholes as it enters the plant, which allows solids to settle and increases odors and corrosion. The City has suggested the addition of a new line to increase the slope. A new headworks can also accommodate such a change. The new headworks alternative was recommended in the 1995 JMM Report and would provide for better odor control and easier maintenance than expanding the existing headworks. Table 7 includes the cost of a new headworks, based on new structures for flow metering, screening and grit removal, and a new building to house the screening and grit washing and handling equipment. Odor control for the new headworks, including covers, fans and a new bulk-media biofilter for the foul air is also included in the cost estimate.

Similar to the plant's headworks, the existing rectangular primary clarifiers and their chain-and-flight mechanisms require frequent maintenance. The primary clarifiers, due to their

relatively shallow design are also the process that limits the plant's overall solids removal capacity. When a primary clarifier is out of service, a frequent condition due to the poor reliability of the mechanisms, the overflow rates in the remaining clarifiers inhibit the settling of solids. Veolia has had recent issues with controlling the solids blankets in these clarifiers. With poor removal rates, solids carried downstream to the trickling filters and secondary clarifiers have resulted in upsets that send high concentrations of solids to Desert Water Agency's off-site filtration plant and to the percolation ponds. Discharging these solids has nearly violated the plant's waste discharge requirements for average and maximum monthly TSS on several occasions.

Due to the critical nature of the primary clarifiers' contribution to solids removal and overall treatment efficiency, construction of new, deeper primary clarifiers with more reliable circular mechanisms was investigated. When the hydraulics of the existing headworks and primary effluent lift station is considered, the addition of a new headworks and primary clarifiers will also likely require the addition of a new primary effluent lift station to pump the primary effluent from the new lower primary clarifiers to the existing trickling filter splitting structure. The new primary effluent pump station would also offer the opportunity to install new, more efficient pumps. This pump station represents the highest use of energy at the plant, therefore significant improvements to efficiency would reduce the plant's overall power consumption.

Table 7 includes costs for a new treatment train, consisting of headworks, two circular primary clarifiers with sludge pump station and odor control, and a new primary effluent lift station. The costs are planning-level costs, estimated based on other recent, similar projects bid and constructed in California. It is assumed that details of the new treatment train will be further developed and defined in a site facility plan, which will consider space requirements, soil conditions, potential future construction needs, etc.

Table 7 also includes the cost of rehabilitation of the submerged portions of the secondary clarifier mechanisms and the sludge pumps and piping located on these mechanisms. According to plant staff, the existing mechanisms are experiencing accelerated corrosion at and below the water surface, and the pumps and piping are corroded in places and require frequent maintenance. Similar travelling bridge mechanisms are still available from major equipment manufacturers and upgrade of these clarifier mechanisms should be considered to improve overall treatment reliability.

Other miscellaneous infrastructure improvements included as Priority 2 include pavement replacement around the site, and paving the drying beds that remain un-paved.

Table 7 Priority 2 - Capital Repair and Replacement Projects
Capital Repair and Replacement Plan
City of Palm Springs WWTP

PROJECT	PRIORITY 2 (5- to 10 Year Planning Period Projects)	ESTIMATED PROJECT COST [1]
New Headworks	New structure for flow metering, screening and grit removal. New building for grit classification, storage and screenings washing, compacting and bin storage. Odor control covers, fans and ducting and bulk media biofilter for odor scrubbing.	$5,920,000
Circular Primary Clarifiers	Two new circular primary clarifiers (90-foot diameter) with circular clarifier mechanism, new primary sludge pump station. Odor control covers, fans and ducting and bulk media biofilter for odor scrubbing.	$9,050,000
Primary Effluent Pump Station	New primary effluent pump station with vertical turbine, mixed flow pumps and, covered and scrubbed wet well area. New yard piping and tie-ins with existing trickling filter splitter structure.	$2,910,000
Secondary Clarifier Upgrades	Replace travelling bridge mechanisms and sludge pumps.	$2,010,000
General Site Pavement Replacement	Pavement replacement project for all plant roadway and parking area pavement.	$720,000
Pave Drying Beds	Add asphalt pavement to the floor of drying beds 13-18 and 19-26, to replace the existing sand bottoms in the beds.	$710,000
	Priority 2 Projects Total	**$21,320,000**

Notes:
(1) Refer to Appendix A for details of Estimated Project Costs.

7.4.3 Priority 3 Recommendations

Priority 3 projects include projects slated for construction in the period between 10 years and 15 years from the date of this report, and are included in Table 8. To increase digester capacity to correspond to increased loading, if the proposed FOG receiving program is successful and expanded, a new digester is also included in the planning costs. This digester could be a third conventional digester or could be a smaller, acid-phase digester, with associated heating and mixing systems.

In this same time frame, replacement of some of the plant's remaining mechanical equipment is planned. The gravity thickener mechanisms should be scheduled for replacement at this time. The thickeners, like the digesters, are subject to wear and corrosion. Maintenance should be completed during the period ahead of the scheduled replacement to ensure the equipment lasts. The thickener tanks were observed to have protective coatings on the concrete. The condition of the coatings and signs of corrosion should be investigated further. At the time of the thickener mechanism replacement, addition of the trickling filter snail removal system (from the secondary sludge) should also be considered further.

Similarly, the trickling filter mechanisms will have reached the end of their expected useful lives within 10 to 15 years and are scheduled for replacement. Replacement costs include new motorized trickling filter mechanisms, to allow speed control for improved flushing capabilities in the trickling filters.

7.4.4 Priority 4 Recommendations

The projects listed in this category cover items that appear to be in sound operating condition, but they can be expected to be at the end of the effective service life in approximately 15 to 20 years.

The existing belt filter press that is used for solids dewatering is in relatively sound condition and is expected to last for 15 years or more with proper maintenance. Addition of a centrifuge or screw press for additional dewatering capability under an outdoor canopy will likely be required in the 15- to 20-year period, and costs are included in Table 9 for this addition.

Also included in the Priority 4 projects are a new Administration Building at the treatment plant and three new collection system upsizing projects, as identified by the Sanitary Sewer System Master Plan Update adopted by the City Council on July 15, 2009.

Table 8 Priority 3 - Capital Repair and Replacement Projects
Capital Repair and Replacement Plan
City of Palm Springs WWTP

PROJECT	PRIORITY 3 (10- 15-Year Planning Period Projects)	ESTIMATED PROJECT COST [1]
Third Digester	Add third digester with new heating and mixing building and new digested sludge transfer pump station. Includes new gas storage and treatment system, yard piping and site improvements.	$7,200,000
Trickling Filter Upgrades	Replace the plant's four trickling filter mechanisms with new mechanisms.	$1,560,000
Gravity Thickener Upgrades	Replace and coat collector mechanisms in gravity thickeners 1 and 2. Replace thickened sludge pumps. Repair internal concrete coatings, repair cover support beams, and cover plates.	$1,400,000
	Priority 3 Projects Total	**$10,160,000**

Notes:
(1) Refer to Appendix A for details of Estimated Project Costs.

Table 9 Long Term Capital Repair and Replacement Projects
Capital Repair and Replacement Plan
City of Palm Springs WWTP

PROJECT	PRIORITY 4 (Long Term Planning Period)	ESTIMATED PROJECT COST [1]
Administration Building	Demolish existing administration building and replace with new 3000 SF building, including new control room and SCADA workstations.	$1,560,000
Sludge Centrifuge	Add new sludge centrifuge in the vicinity of the existing sludge dewatering belt press. Cost assumes centrifuge will be installed in a similar outdoor installation with weather canopy and no equipment is required to convey digested sludge or dewatered cake.	$1,490,000
Indian Canyon Drive Collection System Upsize*	Upsize existing gravity sewer per City's Collection System Master Plan.	$2,416,000
Palm Canyon Drive Collection System Upsize*	Upsize existing gravity sewer per City's Collection System Master Plan.	$1,804,000
Crossley Collection System Upsize*	Upsize existing gravity sewer per City's Collection System Master Plan.	$4,414,000
	Priority 4 Projects Total	**$11,684,000**

Notes:
(1) Refer to Appendix A for details of Estimated Project Costs.
* Projects planned and estimated by the City or by Veolia

8.0 SUMMARY AND RECOMMENDATIONS

Portions of the City of Palm Springs WWTP are 46 years old. The facilities are currently operating well and meeting the effluent standards in the WDR permit. However, the end of the expected service life is in the foreseeable future for much of the process equipment and the infrastructure. This report provides a general plan to schedule and budget future WWTP repair and rehabilitation requirements so the assets can continue to provide useful service for the next 20 to 30 years. While Veolia Water practices preventative maintenance to ensure the longevity of the infrastructure and plant equipment, these assets are now approaching the time when extensive rehabilitation and replacement will be required.

The overall plan and cost estimates for the short-term and long-term repair requirements are summarized in Table 10.

Table 10 Summary – Capital Repair and Replacement Costs
Capital Repair and Replacement Plan
City of Palm Springs WWTP

Project	Priority 1 (1-5 years)	Priority 2 (5-10 years)	Priority 3 (10-15 years)	Priority 4 (15-20 years)
Digester No. 1 Rehabilitation	$1,800,000			
Redundant Boiler Addition and Gas Piping Repair	$390,000			
Plant Reclaimed Water Pump Station Upgrade	$650,886			
New Perimeter Security Fence and Gates	$1,000,000			
Purchase of Property for Influence Line Easement	$3,000,000			
Electrical System Improvements	$3,600,000			
Water System Upgrade for Fire Protection	$500,000			
East Side Storm Drain Line	$1,500,000			
Filtrate Pump Station Upgrade	$500,000			
WWTP Facility Plan	$250,000			
New Septage Receiving Station	$500,000			
New Access Road with Signalized Access from Gene Autry	$500,000			
Digester Gas Treatment System	$2,000,000			
Fuel Cell Purchase and Installation	$4,060,000			
New Gas Flare	$1,000,000			
FOG Receiving Station	$1,600,000			
Digester No. 2 Dome Replacement	$1,050,000			
New Headworks		$5,920,000		
Two New Circular Primary Clarifiers with Sludge Pump Station		$9,050,000		
New Primary Effluent Pump Station		$2,910,000		
Secondary Clarifier Upgrades		$2,010,000		
General Sitework Pavement Replacement		$720,000		
Pavement Replacement in Drying Beds 13-18 and 19-26		$710,000		
Third Digester (Acid or Conventional)			$7,200,000	
Trickling Filter Upgrades			$1,560,000	
Gravity Thickener Upgrades			$1,400,000	
New Administration Building				$1,560,000
New Sludge Centrifuge				$1,490,000
Indian Canyon Drive Collection System Upsize				$2,416,000
Palm Canyon Drive Collection System Upsize				$1,804,000
Crossley Road Collection System Upsize				$4,414,000
PRIORITY TOTAL PROJECT COSTS	**$23,900,000**	**$21,320,000**	**$10,160,000**	**$11,684,000**

APPENDIX A – COST ESTIMATES

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PALM SPRINGS WWTP
CAPITAL REPAIR AND REPLACEMENT COSTS

DATE : October-09

PROJECT COSTS SUMMARY

BY : TRT

PROJECT	Priority 1 1-5 Yrs	Priority 2 5-10 Yrs	Priority 3 10-15 Yrs	Priority 4 15-20 Yrs
* Digester No. 1 Rehabilitation	$1,755,482			
Redundant Boiler Addition and Gas Piping Repair	$390,000			
* Plant Reclaimed Water Pump Station Upgrade	$623,886			
* New Perimeter Security Fence and Gates	$1,000,000			
* Purchase of Property for Influent Line Easement	$3,000,000			
** Electrical System Improvements	$3,600,000			
* Water System Upgrade for Fire Protection	$500,000			
* East Side Storm Drain Line	$1,500,000			
* Filtrate Pump Station Upgrade	$500,000			
* WWTP Facility Plan	$250,000			
* New Septage Receiving Station	$500,000			
* New Access Road with Signalized Access from Gene Autry	$500,000			
* Digester Gas Treatment System	$2,000,000			
Fuel Cell Purchase and Installation	$4,060,000			
* New Gas Flare	$1,000,000			
* FOG Receiving Station	$1,600,000			
Digester No. 2 Dome Replacement	$1,050,000			
New Headworks		$5,920,000		
Two New Circular Primary Clarifiers With Sludge Pump Station		$9,050,000		
New Primary Effluent Pump Station		$2,910,000		
Secondary Clarifier Upgrades		$2,010,000		
General Sitework Pavement Replacement		$720,000		
Pavement Replacement in Drying Beds 13-18 and 19-26		$710,000		
Third Digester (Acid or Conventional)			$7,200,000	
Trickling Filter Upgrades			$1,560,000	
Gravity Thickener Upgrades			$1,400,000	
New Administration Building				$1,560,000
New Sludge Centrifuge				$1,490,000
* Indian Canyon Drive Collection System Upsize				$2,416,000
* Palm Canyon Drive Collection System Upsize				$1,804,000
* Crossley Road Collection System Upsize				$4,414,000
PRIORITY TOTAL PROJECT COSTS* **	**$23,829,368**	**$21,320,000**	**$10,160,000**	**$11,684,000**
GRAND TOTAL				**$67,000,000**

* Projects planned and estimated by the City or Veolia.

** Cost based on Memoradum from Beecher Engineering (March 2008).

*** All costs estimated by Carollo are based on 2008 costs and include 20% for Engineering, Legal and Administration.

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PALM SPRINGS WWTP
CAPITAL REPAIR AND REPLACEMENT COSTS

DATE : October-09

PRIORITY 1 PROJECTS - 1-5 YEAR SCHEDULE

BY : TRT

DESCRIPTION	QTY.	UNIT	UNIT PRICE	INSTALL ADJ.	TOTAL
BOILER AND PIPING UPGRADES					
New Boiler	1	LS	$120,000	1.30	$156,000
Engine and Equipment Demolition	1	LS	$20,000	1.00	$20,000
New Circulation Pump, Power and Controls	1	LS	$25,000	1.00	$25,000
Hot Water Piping Upgrades	1	LS	$25,000	1.00	$25,000
Gas Piping Replacement and Upgrades	1	LS	$25,000	1.00	$25,000
Subtotal					$251,000
PROJECT TOTAL**				**1.56**	**$390,000**
DIGESTER GAS TREATMENT SYSTEM[1]	1	LS	$2,000,000	1.00	$2,000,000
PROJECT TOTAL***					**$2,000,000**
FUEL CELL PURCHASE AND INSTALLATION[2]	1	LS	$2,600,000	1.56	$4,060,000
PROJECT TOTAL**					**$4,060,000**
FOG AND FOOD WASTE RECEIVING STATION[3]	1	LS	$1,600,000	1.00	$1,600,000
PROJECT TOTAL***					**$1,600,000**
DIGESTER NO. 2 DOME REPLACEMENT					
Clean digester	1	LS	$30,000	1.00	$30,000
Demolish existing dome	1	LS	$50,000	1.00	$50,000
Dome and connected equipment	1	LS	$410,000	1.30	$533,000
Coating	1	LS	$60,000	1.00	$60,000
Subtotal					$673,000
PROJECT TOTAL**				**1.56**	**$1,050,000**
TOTAL PRIORITY 1 PROJECT COSTS ESTIMATED BY CAROLLO					**$9,100,000**

[1]Based on estimate of $1.7 million from Veolia, plus allowance for redundancy
[2]Based on 2008 Carollo fuel cell project - total project costs for WWTP fuel cell
[3]Based on estimate by Veolia of similar system in Florida

**Project Totals based on Carollo's cost estimating database include 30% Estimating Contingency plus 20% for E.L.A.
***Project Totals based on planning costs provided by the City or Veolia are assumed to include contigencies and E.L.A.

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PALM SPRINGS WWTP
CAPITAL REPAIR AND REPLACEMENT COSTS

DATE : October-09

PRIORITY 2 PROJECTS - 5-10 YEAR SCHEDULE

BY : TRT

DESCRIPTION	QTY.	UNIT	UNIT PRICE	INSTALL ADJ.	TOTAL
NEW HEADWORKS[1]					
Headworks Structure	1	LS	$3,500,000	1.00	$3,500,000
Screenings/Grit Building	1	LS	$640,000	1.00	$640,000
Connecting Piping	1	LS	$130,000	1.00	$130,000
Odor Control Fans/Piping	1	LS	$310,000	1.00	$310,000
Electrical	1	LS	$350,000	1.00	$350,000
Subtotal					$4,930,000
PROJECT TOTAL*				**1.2**	**$5,920,000**
TWO NEW CIRCULAR PRIMARY CLARIFIERS WITH SLUDGE PUMP STATION[1]					
Primary Clarifier Structure	2	LS	$2,100,000	1.00	$4,200,000
Primary Clarifier Mechanism	2	LS	$280,000	1.00	$560,000
Primary Clarifier Covers	2	LS	$375,000	1.00	$750,000
Odor Control Fans/Piping	1	LS	$310,000	1.00	$310,000
Odor Control Scrubber (for Headworks also)	1	LS	$825,000	1.00	$825,000
Sludge Pump Station	1	LS	$410,000	1.00	$410,000
Sludge Pumps / Piping	1	LS	$250,000	1.00	$250,000
Electrical	1	LS	$240,000	1.00	$240,000
Subtotal					$7,545,000
PROJECT TOTAL*				**1.2**	**$9,050,000**
NEW PRIMARY EFFLUENT PUMP STATION					
Primary Effluent Pump Station	1	LS	$630,000	1.00	$630,000
Vertical Turbine Pumps	4	EA	$120,000	1.30	$624,000
Piping	1	LS	$300,000	1.00	$300,000
Electrical	1	LS	$310,000	1.00	$310,000
Subtotal					$1,864,000
PROJECT TOTAL**				**1.56**	**$2,910,000**
SECONDARY CLARIFIER UPGRADES					
Demolition	1	LS	$90,000	1.00	$90,000
Travelling Bridge Collectors	3	EA	$180,000	1.50	$810,000
Electrical	1	LS	$340,000	1.00	$340,000
Leak Repairs in Gallery and Piping	1	LS	$50,000	1.00	$50,000
Subtotal					$1,290,000
PROJECT TOTAL**				**1.56**	**$2,010,000**

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PALM SPRINGS WWTP
CAPITAL REPAIR AND REPLACEMENT COSTS

DATE : October-09

PRIORITY 2 PROJECTS - 5-10 YEAR SCHEDULE

BY : TRT

DESCRIPTION	QTY.	UNIT	UNIT PRICE	INSTALL ADJ.	TOTAL
GENERAL SITEWORK PAVEMENT REPLACEMENT					
Entire WWTP Road Area	71000	SF	$6.5	1.00	$461,500
Subtotal					$461,500
PROJECT TOTAL**				**1.56**	**$720,000**
PAVING DRYING BEDS					
Pave 14 Drying Beds	70000	SF	$6.5	1.00	$455,000
Subtotal					$455,000
PROJECT TOTAL**				**1.56**	**$710,000**
TOTAL PRIORITY 2 PROJECT COSTS					**$21,320,000**

[1]Based on prices from projects bid in California in 2007/2008

*Project Totals based on recent bid costs include 20% for Engineering, Legal and Administration
**Project Totals based on Carollo's cost estimating database include 30% Estimating Contingency plus 20% for E.L.A.

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PALM SPRINGS WWTP
CAPITAL REPAIR AND REPLACEMENT COSTS

DATE : October-09

PRIORITY 3 PROJECTS - 10-15 YEAR SCHEDULE

BY : TRT

DESCRIPTION	QTY.	UNIT	UNIT PRICE	INSTALL ADJ.	TOTAL
THIRD DIGESTER (Acid or Conventional)[1]	1	LS	$6,000,000	1.00	$6,000,000
Subtotal					$6,000,000
PROJECT TOTAL*				**1.2**	**$7,200,000**
TRICKLING FILTER UPGRADES					
Replace Rotary Distributor Mechanisms	4	EA	$160,000	1.30	$832,000
Rehabilitate Concrete and Center Column bases	4	EA	$30,000	1.00	$120,000
Miscellaneous Items	1	LS	$50,000	1.00	$50,000
Subtotal					$1,002,000
PROJECT TOTAL**				**1.56**	**$1,560,000**
GRAVITY THICKENER UPGRADES					
Replace Sludge Collector Mechanisms	2	EA	$110,000	1.30	$286,000
Replace Thickened Sludge Pumps	4	EA	$50,000	1.00	$200,000
Rehabilitate Concrete/New Covers	1	LS	$380,000	1.00	$380,000
Miscellaneous Items	1	LS	$30,000	1.00	$30,000
Subtotal					$896,000
PROJECT TOTAL**				**1.56**	**$1,400,000**
TOTAL PRIORITY 3 PROJECT COSTS					**$10,160,000**

[1]Based on prices from projects bid in California in 2007/2008

*Project Totals based on recent bid costs include 20% for Engineering, Legal and Administration
**Project Totals based on Carollo's cost estimating database include 30% Estimating Contingency plus 20% for E.L.A.

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PALM SPRINGS WWTP
CAPITAL REPAIR AND REPLACEMENT COSTS

DATE : Oclober-09

PRIORITY 4 PROJECTS - 15-20 YEAR SCHEDULE

BY : TRT

DESCRIPTION	QTY.	UNIT	UNIT PRICE	INSTALL ADJ.	TOTAL
NEW SLUDGE CENTRIFUGE					
Centrifuge Pad and Sun Cover	1	LS	$200,000	1.00	$200,000
Centrifuge Equipment	1	LS	$450,000	1.20	$540,000
Conveyor	1	LS	$90,000	1.30	$117,000
Misc. Mechanical & Electrical	1	LS	$100,000	1.00	$100,000
Subtotal					$957,000
PROJECT TOTAL**				**1.56**	**$1,490,000**
NEW ADMINISTRATION BUILDING					
Demolition	1	LS	$50,000	1.00	$50,000
New building	3000	SF	$300	1.00	$900,000
Misc. Mechanical & Electrical	1	LS	$50,000	1.00	$50,000
Subtotal					$1,000,000
PROJECT TOTAL**				**1.56**	**$1,560,000**
INDIAN CANYON DR COLLECTION SYSTEM UPSIZE[1]	1	LS	$2,416,000	1.00	$2,416,000
PROJECT TOTAL***					**$2,416,000**
PALM CANYON DR COLLECTION SYSTEM UPSIZE[1]	1	LS	$1,804,000	1.00	$1,804,000
PROJECT TOTAL***					**$1,804,000**
CROSSLEY ROAD COLLECTION SYSTEM UPSIZE[1]	1	LS	$4,414,000	1.00	$4,414,000
PROJECT TOTAL***					**$4,414,000**
TOTAL PRIORITY 4 PROJECT COSTS					**$11,684,000**

[1]Project priority, costs and details to be confirmed by the City

**Project Totals based on Carollo's cost estimating database include 30% Estimating Contingency plus 20% for E.L.A.
***Project Totals based on planning costs provided by the City or Veolia are assumed to include contigencies and E.L.A.

APPENDIX B – ELECTRICAL POWER DISTRIBUTION SYSTEM EVALUATION

City of Palm Springs

Wastewater Treatment Plant

Electrical Power Distribution System Evaluation

FINAL REPORT

April 2007

PURPOSE

On October 26, 2006, the City of Palm Springs Wastewater Treatment Plant was visited to determine the condition of the existing electrical power distribution equipment and infrastructure. The purpose of this report is to summarize these conditions and provide recommendations for immediate repair and replacement along with future repair and replacement within the next 5, 10, 15 and 20 year time frames.

INSPECTION SUMMARY (BY AREA)

Administration Building

The existing Administration Building includes an electrical room which houses the original plant Square D main switchboard. The gear has been in service since approximately 1960. Directly to the left of the main switchboard equipment is a Square D Model 4 motor control section, manufactured in the late 1970's/early 1980's.

Based on discussions with Staff, there are no significant maintenance problems with either the switchboard or motor control center equipment located in this area. Visually, both pieces of equipment appear to be in good condition and no evidence of corrosion or deterioration is visually evident. Due to the age of the equipment, particularly the switchboard, replacement parts may be difficult to obtain in the future if a failure occurs. Replacement of switchboard components, such as a circuit breaker, will likely require a field retrofit of the internal compartment mounting frame to accommodate the installation of a modern molded case circuit breaker.

Directly across and facing the switchboard and motor control center equipment are a heating furnace and hot water heater. This mechanical equipment includes water and natural gas connections, which are not permitted to occupy electrical rooms based on present day National Electrical Code (NEC) requirements. Since the facility was likely constructed prior to any such NEC constraints, there is no immediate requirement to retrofit the installation at this time. Any future replacement or addition of electrical equipment within this room, however, will require that present-day NEC requirements be considered.

Within the electrical room, there are various locations where subsequent electrical installations are blocking ready access to the switchboard equipment. These subsequent installations appear to have been installed recently and are in violation of NEC clearance requirements for the switchboard equipment.

The switchboard includes a utility power metering section which appears to have been the original plant main incoming section. During subsequent plant expansion work, the main utility service metering was relocated to another area within the plant. The utility meter socket in this switchboard is exposed and there are unused openings in the compartment front door.

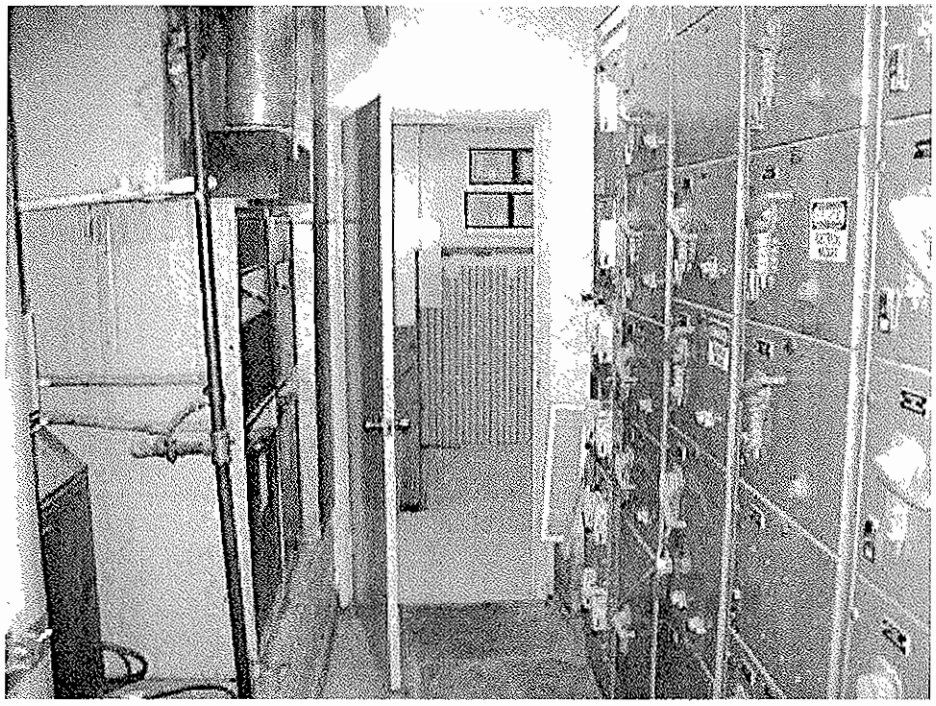

Figure 1 – Furnace and Water Heater in Administration Bldg. Electrical Room

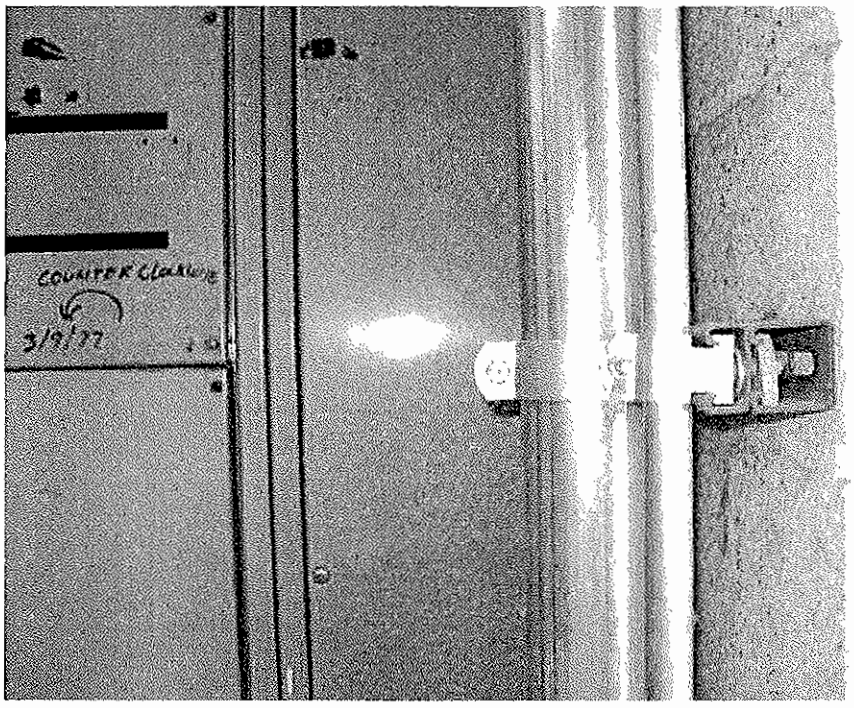

Figure 2 – Switchboard Front Access Interference in Administration Bldg.

Figure 3 – Exposed Meter Soeket and Unused Openings in Administration Bldg. Switchboard

Headworks

A NEMA 3R, Westinghouse Five Star outdoor motor control center is located in the Headworks Area (manufactured in 1982). Staff has reported that there are no signifieant maintenance problems with the motor control center equipment. The equipment appears to be in good condition based on visual inspection.

Clearance between the front of the motor control center and blower equipment does not meet NEC requirements. Full opening of a motor control center enclosure door is impeded by the blower equipment housekeeping pad.

Figure 4 – Headworks Motor Control Center Door Interference

West Secondary Pump Station Variable Frequency Drive Building

The equipment consists of two General Electric variable frequency drives, operated in conjunction with motor contactors to allow for "switching" of the two drives over three pumps. The drive and contactor system was installed in 1982.

Staff has reported that maintenance problems associated with the drive equipment are rare, primarily due to the infrequent use of the equipment. According to Staff, power costs for operating the equipment are significant and use of the East Secondary Pump Station engine-driven pumps is the normal operating condition for the facility.

The variable frequency drive equipment appears to be in good condition based on visual inspection and the interior of the room is clean. The drive system is installed along one wall of the building, with the opposite wall set up for future installation of an identical drive line-up. This is evidenced by conduit stub-ups along the opposite wall floor.

The drive system technology is outdated and replacement parts for internal power and control electronics will likely require custom fabrication. Should a circuit board failure occur, replacement lead time will likely cause the equipment to be out of service for an extended period of time. Costs associated with custom-fabrication of internal electronic parts and circuit boards are unknown but will likely be significant.

The motor contactor switching compartment contains various motor contactors mounted on a common backplane within a single cabinet. Since all three of the pumps obtain primary power from this cabinet, a single failure within the compartment may prevent operation of all three West Secondary Pump Station pumps.

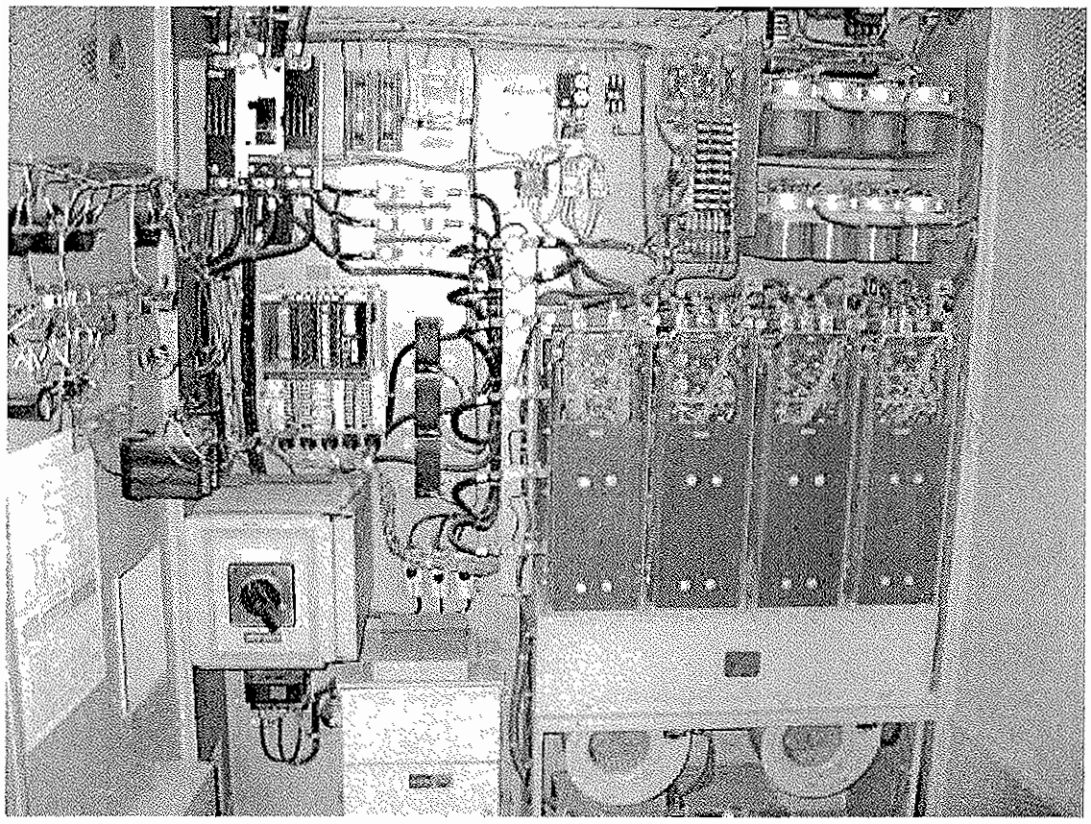

Figure 5 – West Secondary Pump Station Variable Frequency Drive

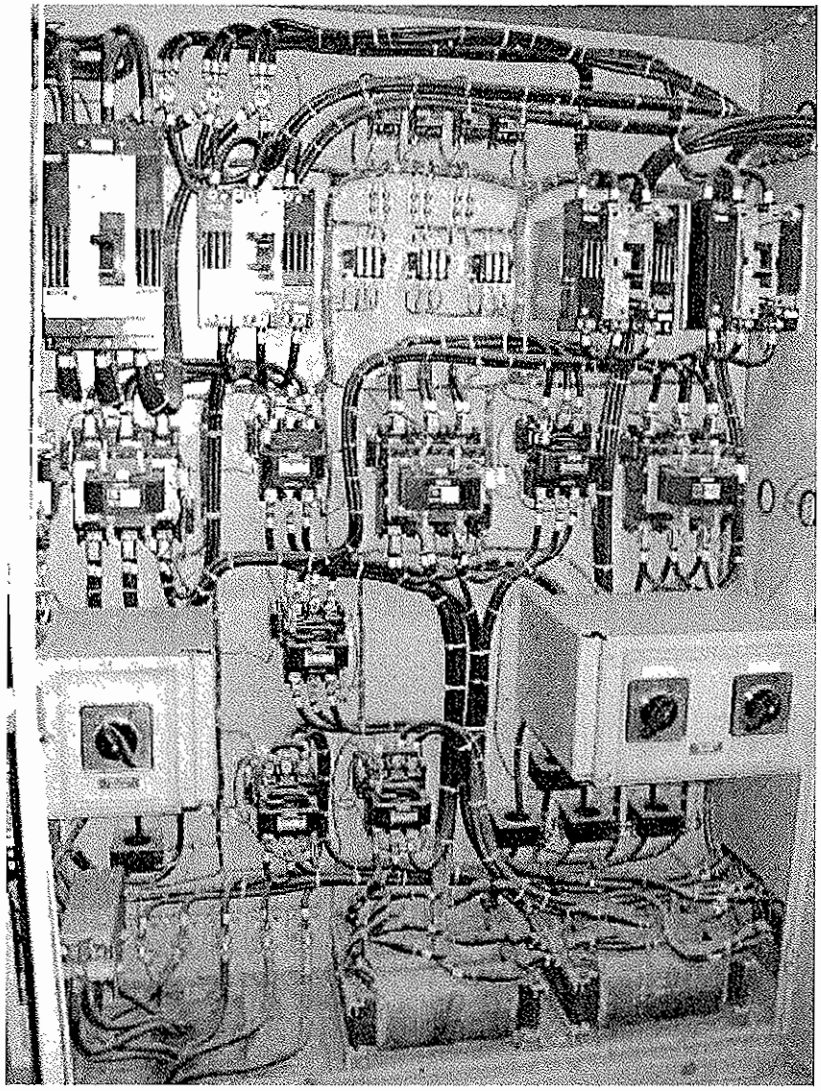

Figure 6 – West Secondary Pump Station Motor Contactor "Switching" Compartment

Maintenance Building

The main utility power service switchboard is located in this building. The main switchboard is rated for 1600 amperes at 480 volts, Square D "Power Style" (manufactured in 1978). Connected to the main switchboard is an ASCO automatic transfer switch with a 285kW Caterpillar diesel engine-driven standby generator. Also connected to the main switchboard is a gas engine cogeneration unit which is located in the Energy Recovery Building. The standby source feed from the automatic transfer switch is configured to only provide standby power to motor control center "IMCC", also

located within the Maintenance Building. The cogeneration source is configured for a "buy/sell" power agreement with Southern California Edison. Presently, the cogeneration unit is not operational, due to AQMD concerns, and according to Staff, no plans currently exist to re-commission the cogeneration system.

The power distribution equipment located in this area appears to be in good condition based on visual inspection and Staff have not encountered any major maintenance issues other than parts availability for motor control center "#1MCC". The motor control center is a Square D, Model 4. Staff has reported that compartment plug-in units are not readily available and experience has shown that only used replacement parts are commercially available.

Figure 7 – Main Service Switchboard at Maintenance Building

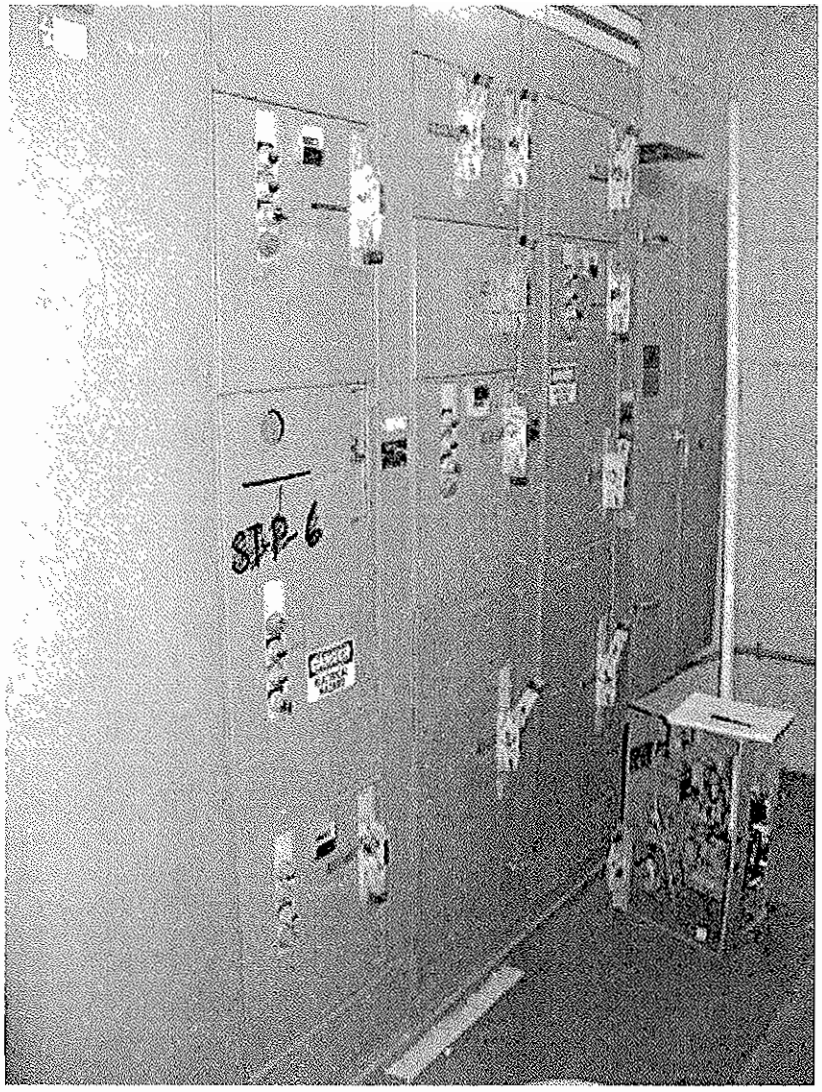

Figure 8 – Motor Control Center "#1MCC" at Maintenance Building

Solids Equipment Motor Control Center Room

The motor control center in this room is a Westinghouse Five Star (manufactured in 1982). The motor control center is in good condition based on visual inspection and no significant maintenance problems have been reported by Staff.

High pressure sodium lighting fixtures are currently installed within this room. The lighting level is quite low and the light quality is poor due to the H.I.D. lamps.

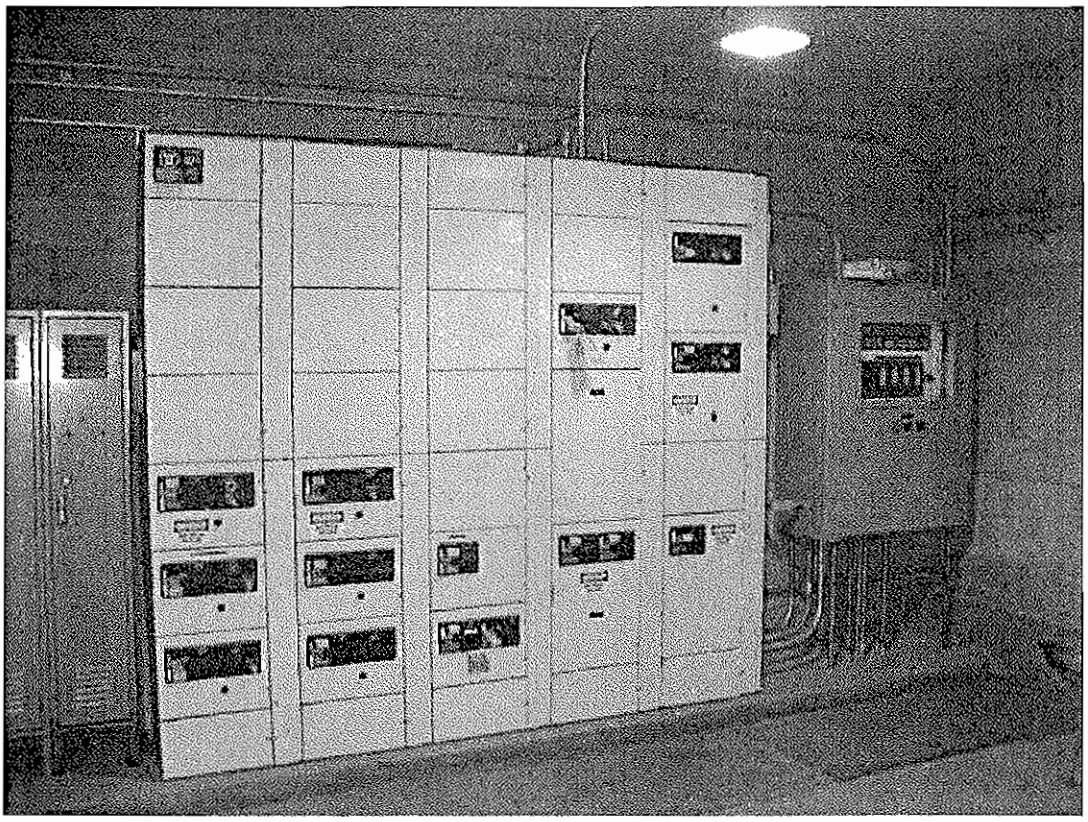

Figure 9 – Solids Equipment Motor Control Center

Seeondary Gallery

There are two motor control centers located within this area; one in the "upper" level of the gallery and one in the "lower" level of the gallery (2MCC-A).

The "upper" level motor control center is a Square D Model 4 (manufactured in 1978) and is housed in a NEMA 3R enclosure. The equipment is in good condition based on visual inspection with the exception of the lower portion of the enclosure. There is evidence of minor flooding within the area around the equipment which has caused significant rusting of the equipment exterior around the bottom. The motor control center is missing wireway covers along the top. Also, the monorail in the area is routed through the dedicated front access space for the motor control (based on National Electrical Code clearance requirements).

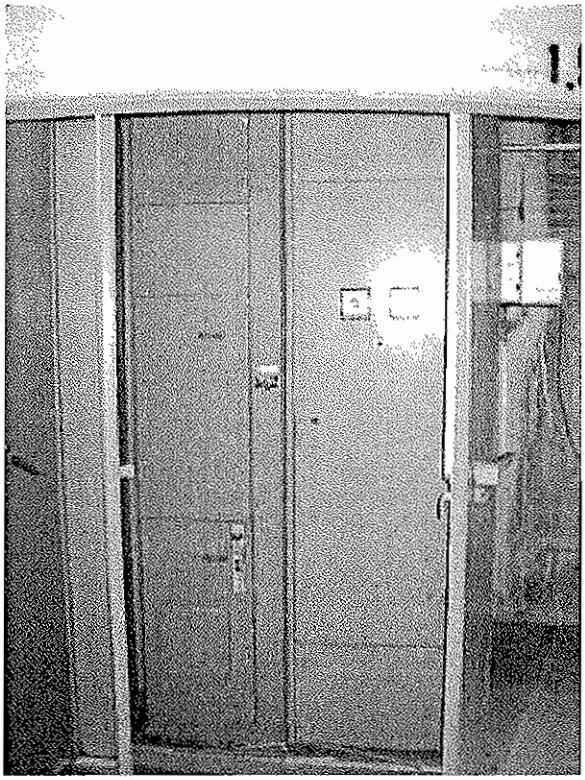

Figure 10 – Secondary Gallery "Upper" Level Motor Control Center

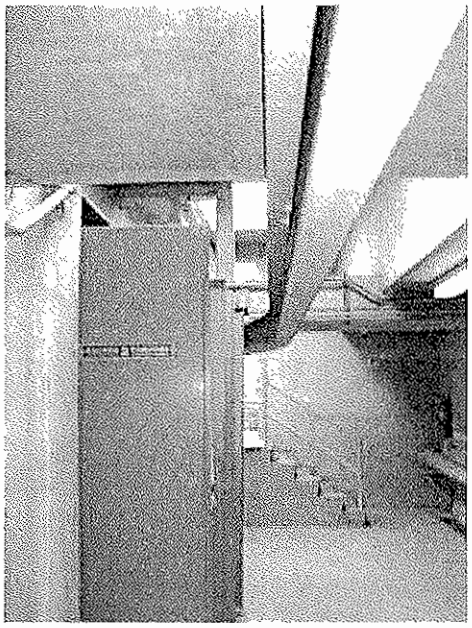

Figure 11 – Secondary Gallery "Upper" Level Motor Control Center Monorail Conflict

The "lower" level motor control center (2MCC-A) is a Westinghouse Five Star (manufactured in 1982). The exterior enclosure has drip marks which appear to be originating from leaks around an overhead access hatch. The moisture from this overhead leak is beginning to cause corrosion of the motor control center enclosure and top-mounted entrance conduits.

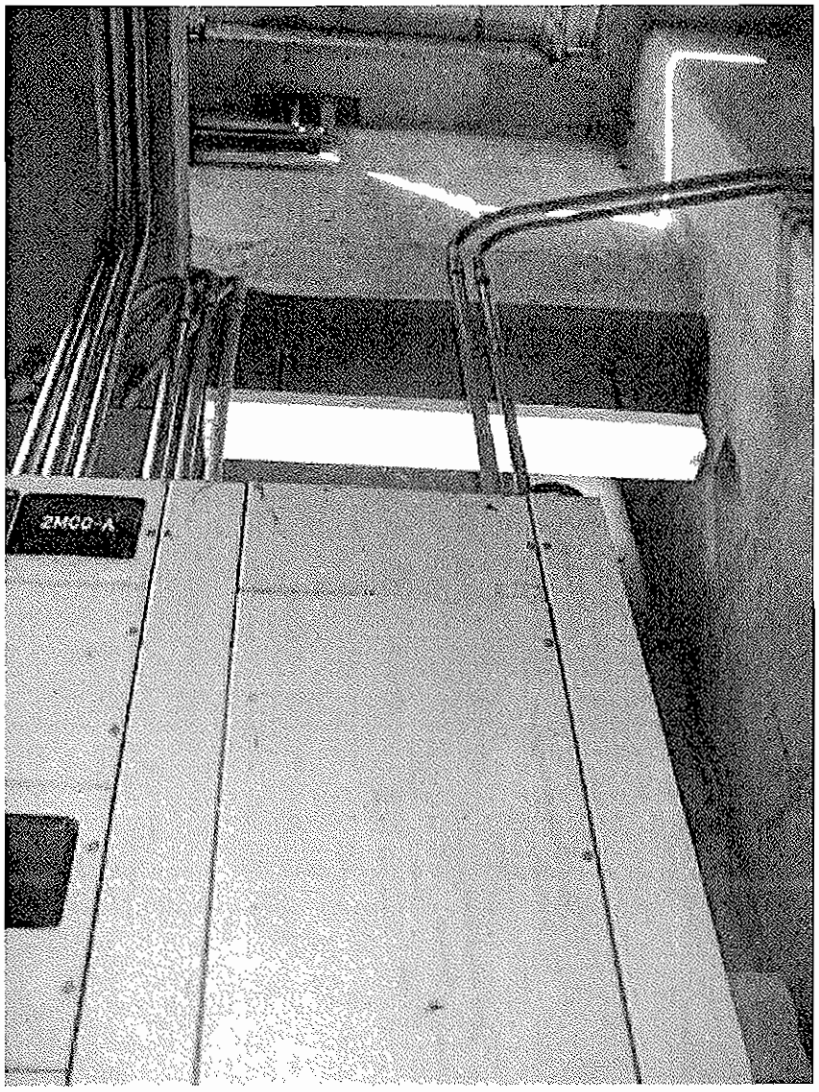

Figure 12 – Secondary Gallery "2MCC-A" Overhead Leak Evidence

Energy Recovery Building

There are several pieces of electrical power distribution equipment located in this area including an RSE-Sierra outdoor metering switchboard, Caterpillar G398, 225kW gas engine-driven generator and two motor control centers (MCC-B-E and MCC-B), both Westinghouse Five Star (manufactured in 1982).

According to Staff, the cogeneration system has not been operational for some time and no plans exist to re-commission the system. The cogeneration engine and outdoor metering switchboard appear to be in good visual condition.

There is an existing storage cage located directly in front of the motor control center equipment which violates National Electrical Code clearance requirements. Also, there is aftercooler gas piping located within the same room as the motor control centers. NFPA 820 requires that any room which contains gas handling equipment be classified as a Hazardous Location. Electrical equipment located within a Hazardous Location is required to be housed in a NEMA 7 enclosure and be fitted with EYS conduit seals for all conduits entering/exiting the Hazardous Location. The existing motor control centers have NEMA 1 enclosures, which are not suitable for installation in a Hazardous Location.

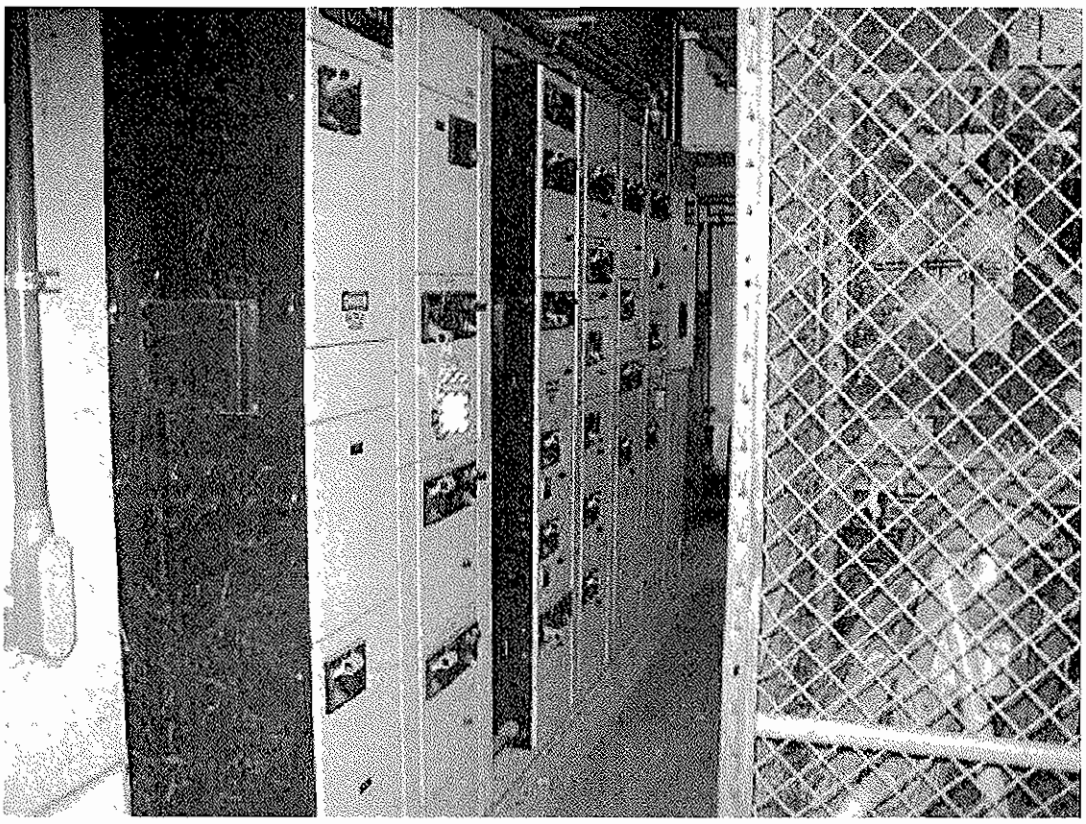

Figure 13 – Energy Recovery Building Front Access Space Conflict

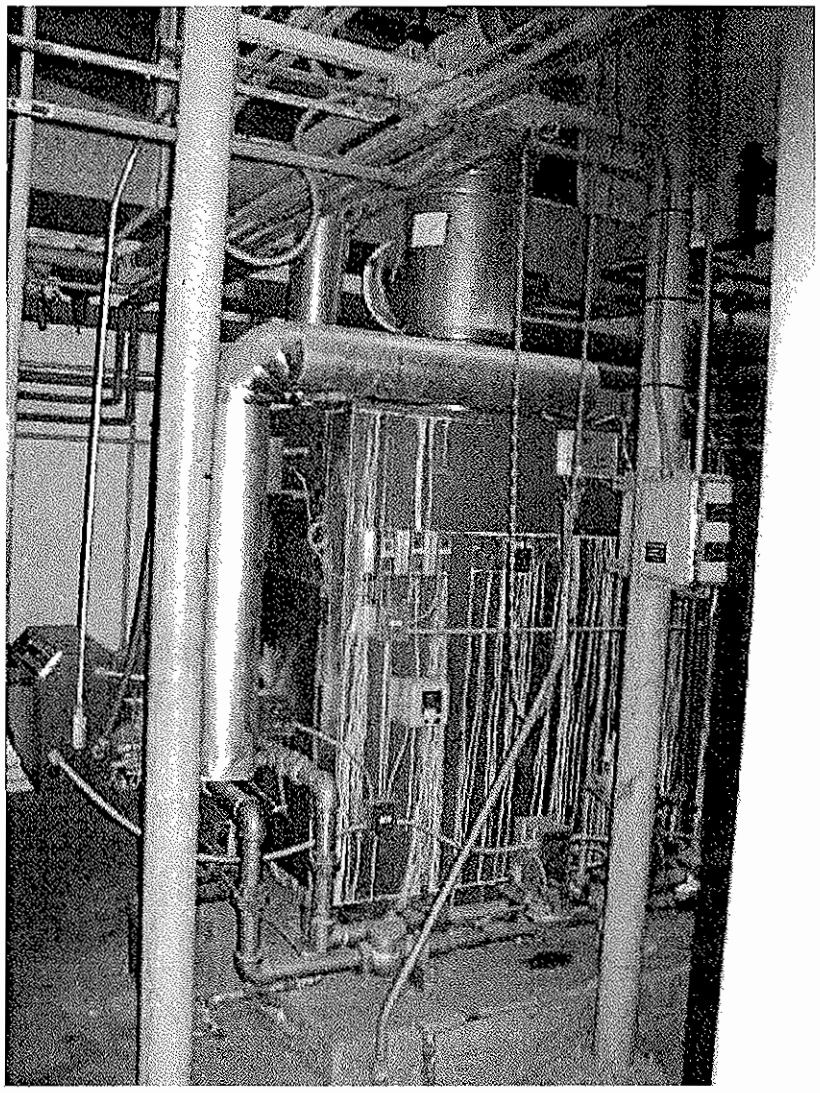

Figure 14 – Energy Recovery Building Gas Handling Equipment

East Secondary Pump Station

The East Secondary Pump Station includes motor control center "3MCC-A" which consists of both Westinghouse Five Star (manufactured in 1982) and Square D Model 4 (manufactured in 1978) equipment. The motor control center equipment has significant internal and external corrosion caused by water intrusion from top mounted conduits.

Staff have installed an internal plastic shield in the far right motor control center PLC compartment to mitigate failures from water intrusion.

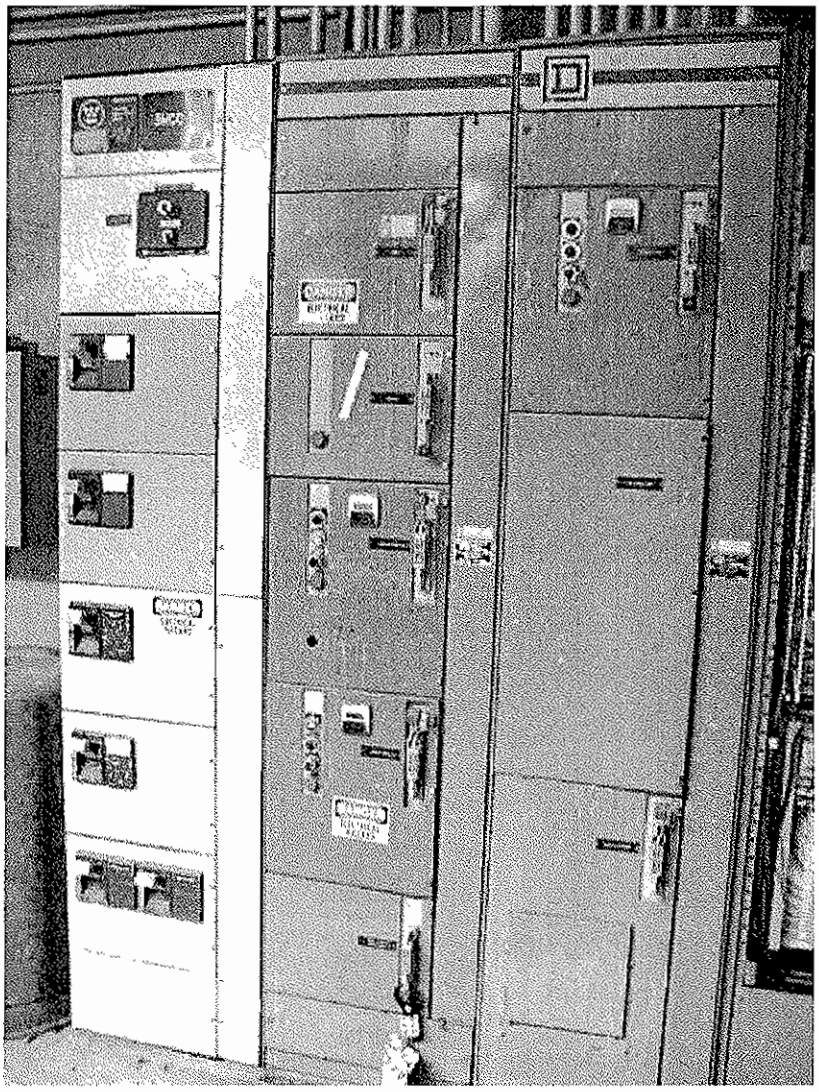

Figure 15 – "3MCC-A" Located in the East Secondary Pump Station

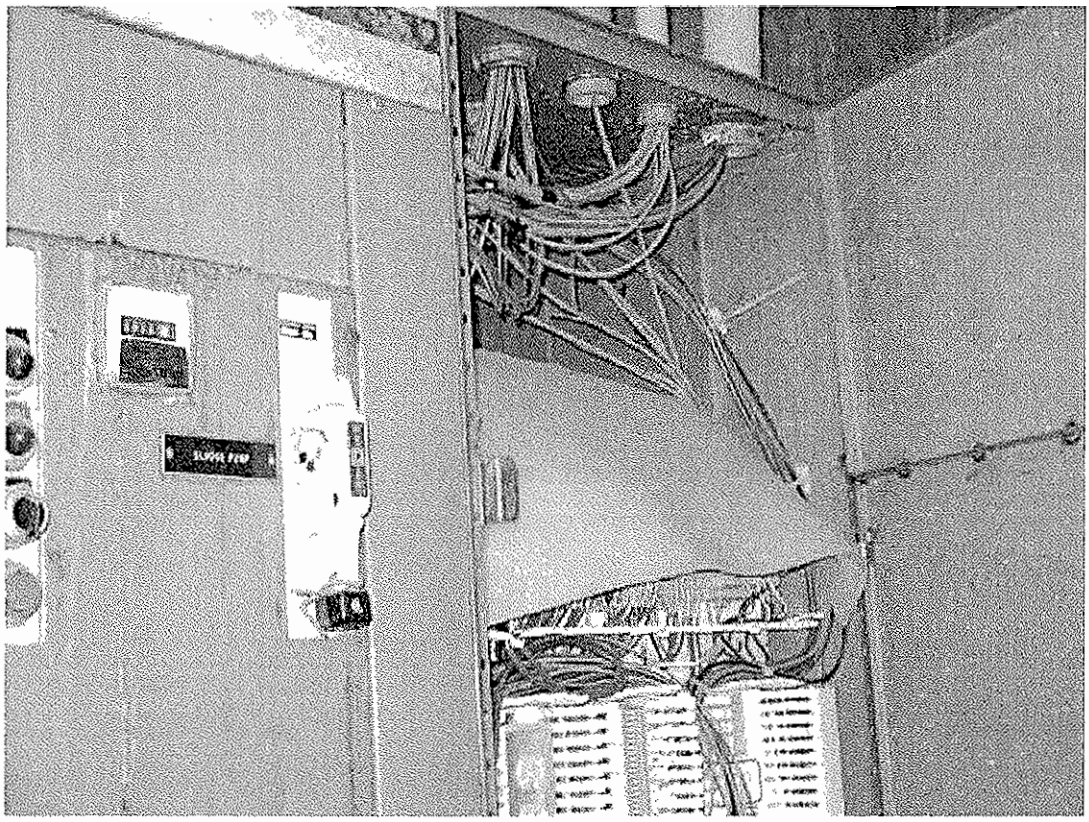

Figure 16 – "3MCC-A" PLC Compartment Water Intrusion Shield

Underground Electrical Ductbank System

Reoccurring conductor failures within the existing underground electrical ductbank system were reported by Staff. In most repair situations, wholesale removal of the failed conductors was not possible due to the conductors being "frozen" within the underground conduit system. This lead to the installation of a conductor "patch" to replace the failed portion of the conductor run, with wire nut splices utilized within the existing underground pullboxes. Pullboxes which were inspected are relatively small with the internal space significantly crowded with existing conductors and cable. Staff reported that there have been multiple underground wiring failures addressed within the past year of facility operation.

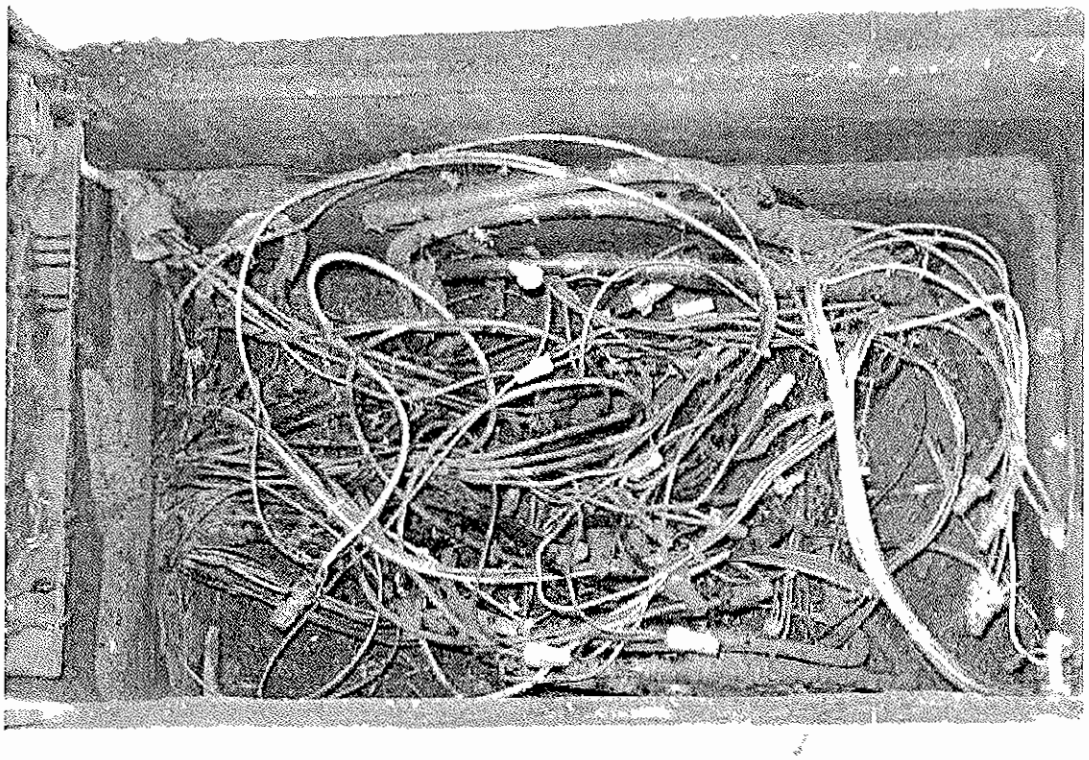

Figure 17 – Underground Ductbank System Pullbox Interior

Repair and Replacement Recommendations

Immediate Time Frame

1. Install cover on unused utility metering socket at Administration Building switchboard.
2. Install plugs and covers for all unused motor control center and switchboard door compartment openings for entire facility.
3. Add seal to access hatch located directly above "2MCC-A" to prevent water leaking on top of motor control center equipment.
4. Obtain spare bucket plug-in units for Square D Model 4 motor control center equipment to facilitate future repairs and maintenance. Staff has reported that these plug-in units are only commercially available as refurbished, used equipment.
5. Install missing wireway covers on "Upper" level motor control center within Secondary Gallery.

6. Modify routing of conduits which enter the top of the East Secondary Pump Station motor control center. It is recommended that these conduits be re-routed to the side of the motor control center with an open bottom pullbox to allow for water drainage before entering the motor control center.
7. Retain the services of an electrical testing firm to perform comprehensive testing of all existing power distribution equipment (i.e. motor control centers and switchboards, existing grounding system and conductors. Testing activities should be specified to follow NETA recommendations.

Five-Year Time Frame

1. Modify the blower pad location at the Headworks to comply with National Electrical Code clearance requirements and allow full opening of the motor control center enclosure doors.
2. Wholesale replacement of the underground electrical ductbank and wiring system. It is recommended that alternative ductbank routes be designed to allow for concurrent operation of the existing underground ductbanks with the newly installed ductbanks to minimize impacts to plant operation.
3. Replace variable frequency drive and switching equipment at the West Secondary Pump Station Variable Frequency Drive Building with modern variable frequency drive equipment. It is recommended that dedicated variable frequency drives be provided for each of the West Secondary Lift Pumps. (This project should be coordinated with supplying emergency standby power to the West Secondary Pump Station. A detailed study of standby power requirements and availability should be conducted, but such a study was beyond the scope of this evaluation).
4. Replace existing high pressure sodium lighting fixtures with fluorescent fixtures in Solids Equipment Motor Control Center Room.
5. Relocate storage cage within Energy Recovery Building to comply with National Electrical Code front clearance requirements for electrical equipment.
6. Install gas detection equipment with interior and exterior alarm horns and lights at the Energy Recovery Building. Presently, the use of NEMA 1 motor control centers is "grandfathered" in since NFPA 820 was adopted as a code well after the initial construction of the facility. The use of gas detection and alarming is recommended as a personnel safeguard but is not required by code unless significant modifications are made to the area.

Beyond Five-Year Time Frame

1. Relocate mechanical equipment (i.e. water heater and furnace) out of the electrical room at the Administration Building.
2. Simplify the power distribution system by removing all power distribution equipment associated with the non-operational cogeneration system. This is

recommended to save long-term maintenance costs and enhance system reliability by removing unused portions of the power system. This recommendation is only valid provided that a long-term decision is made to not commission the existing cogeneration system equipment.

3. Relocate the monorail at the Secondary Gallery to comply with National Electrical Code clearance requirements for electrical equipment.

Technical Memorandum

2008 Digester No.1 Improvements Project

Electrical Power Distribution System Analysis

Prepared for:

City of Palm Springs
March 2008

Prepared by:
Beecher Engineering
and Carollo Engineers

1.0 Purpose

The purpose of this memorandum is to evaluate electrical load connection alternatives for new digested sludge mixing and recirculation pumping equipment included as part of the "2008 Digester No.1 Improvements Project". As part of this memorandum, existing electrical power distribution equipment identified in the "Electrical Power Distribution System Evaluation Report" (April 2007) shall be evaluated for replacement provided that a replacement "opportunity" exists as part of this project.

2.0 Projected New Electrical Load Requirements

The following new electrical loads are anticipated for the "2008 Digester No.1 Improvements Project":

- Digester No.1 Mixing Pump – 60 hp
- Digester No.1 Recirculation Pump – 5 hp

3.0 Existing Electrical System Tie-In Analysis

Existing motor control center MCC-D is located in the Thickened Sludge Pumping Station, which is located directly to the north of existing Digester No.1. With regard to new conduit feeder lengths, this existing motor control center is a logical choice for connection of the new Digester No.1 equipment due to its proximity to Digester No.1. Additionally, as stated in the "Electrical Power Distribution System Evaluation Report", MCC-D is in relatively good condition and replacement parts are still commercially available from Eaton Cutler-Hammer.

With regard to electrical capacity, existing motor control center MCC-D currently has the following estimated connected load:

Existing Connected Load	Load	Full-Load Amps
Collector	1/2 hp	1 ampere
Collector	1/2 hp	1 ampere
Sump Pump	3/4 hp	1.4 amperes
Sump Pump	3/4 hp	1.4 amperes
Thickened Sludge Pump	7-1/2 hp	11 amperes
Thickened Sludge Pump	7-1/2 hp	11 amperes
Thickened Sludge Pump	15 hp	11 amperes
Thickener Scum Pump LCP	7-1/2 hp	11 amperes
Panelboard	10 kVA	12 amperes
Make-up Water Pump	5 hp	7.6 amperes
Make-up Water Pump	5 hp	7.6 amperes
Make-up Water Pump	5 hp	7.6 amperes
TOTAL ESTIMATED CONNECTED LOAD	65 kVA	78 amperes

Assuming that the new Digester No.1 equipment loads are connected to this motor control center, the estimated total connected load will be 130 kVA. Based on 2008 National Electrical Code requirements, the feeder supplying motor control center MCC-D shall be capable of supplying 125% of the largest motor full-load amperes (FLA) plus the sum of all other electrical motors and loads connected to the motor control center. The main motor control center feeder required ampere rating is calculated as follows:

Largest Motor FLA (Digester No.1 Mixing Pump)	77 amperes
125% of Largest Motor FLA	96.2 amperes
Sum of Existing Motor FLAs	78 amperes
Added Digester No.1 Recirculation Pump FLA	7.6 amperes
TOTAL MAIN FEEDER AMPACITY RATING	**182** amperes

The existing main circuit breaker rating at MCC-D is 225 amperes. The upstream feeder circuit breaker for this motor control center (located at 1MCC-West in the Maintenance Building), however, has a rating of 175 amperes. Per IEEE Standard 1015 (i.e. "Blue Book"), molded-case circuit breakers shall be rated to supply a continuous load not in excess of 80% of the circuit breaker rating. Thus, the maximum continuous load that can be supplied by MCC-D is 80% of 175 amperes or 140 amperes.

Therefore, assuming that all of the existing and new electrical loads at MCC-D can simultaneously operate, the existing electrical system infrastructure is not adequately sized to support connection of the new Digester No.1 electrical loads at MCC-D.

During a recent meeting with Operations personnel, the following "maximum demand" load constraints were discussed for existing MCC-D:

- The existing 15 hp Thickened Sludge Pump is abandoned and will likely be replaced by a new 7-1/2 hp pump to match the other two.
- Two (2) Thickened Sludge Pumps can simultaneously operate with the planned third pump serving as a standby.
- Only one (1) Make-up Water Pump operates at any given time.
- The Thickener Scum Pump LCP has two (2) 7-1/2 hp pumps connected, of which only one (1) operates at any given time (i.e. Lead/Standby configuration).
- The existing panelboard is relatively "lightly" loaded. It was agreed that a load factor of 5kVA is adequate.

Based on this discussion, the following existing equipment "maximum demand" load was calculated for MCC-D:

Existing Connected Load	Load	Full-Load Amps
Collector	1/2 hp	1 ampere
Collector	1/2 hp	1 ampere
Sump Pump	3/4 hp	1.4 amperes
Sump Pump	3/4 hp	1.4 amperes
Thickened Sludge Pump	7-1/2 hp	11 amperes
Thickened Sludge Pump	7-1/2 hp	11 amperes
Thickener Scum Pump LCP	7-1/2 hp	11 amperes
Panelboard	5 kVA	6 amperes
Make-up Water Pump	5 hp	7.6 amperes
TOTAL ESTIMATED CONNECTED LOAD	**35 kVA**	**42 amperes**

Adding the new Digester No.1 equipment loads to MCC-D yields a "maximum demand" load of 100 kVA. The "maximum demand" ampacity for MCC-D is calculated as follows:

Largest Motor FLA (Digester No.1 Mixing Pump)	77 amperes
125% of Largest Motor FLA	96.2 amperes
Sum of Existing Motor FLAs	42 amperes
Added Digester No.1 Recirculation Pump FLA	7.6 amperes
TOTAL MAIN FEEDER AMPACITY RATING	**146 amperes**

Thus, including only the "maximum demand" load still yields a calculated total ampacity value for the MCC-D main feeder which exceeds the upstream 175 ampere main circuit breaker rating (i.e. 80% x 175A=140A).

Therefore, in order to utilize existing motor control center MCC-D for connection of the new Digester No.1 electrical loads, the main feeder conductors and underground conduits serving MCC-D and upstream feeder circuit breaker at existing 1MCC-West will need to be upgraded.

Currently there is a 600 ampere automatic transfer switch (ATS) feeding 1MCC-West, which is also rated 600 amperes. In order to determine if the new Digester No.1 equipment can be connected to MCC-D (which is fed from 1MCC-West), a "clamp-on" current meter should be connected to the main feeder between the existing ATS and 1MCC-West with maximum demand load connected to 1MCC-West operating. While performing this measurement, existing Digester No.1 gas compressor equipment which will be eliminated as part of the Digester No.1 upgrade work should be kept "off". This measurement will provide an accurate reading on the amount of amperage drawn by 1MCC-West during "maximum loading" conditions, minus the existing Digester No.1 gas compressor equipment that will be eliminated. In order for 1MCC-West to handle connection of the new Digester No.1 equipment (via

MCC-D), this reading cannot exceed 376 amperes (i.e. 600A x 80% = 480A; 480A – 104A for new Digester No.1 equipment = 376A). If the measured value during this test exceeds 376 amperes then 1MCC-West will need to be replaced.

As stated in the "Electrical Power Distribution System Evaluation Report", 1MCC is Square D Model 4 equipment, which is obsolete. Staff has reported that replacement parts for this motor control center are not commercially available. Thus, in order to increase the size of the feeder circuit breaker serving MCC-D, field-retrofitting of the existing 1MCC equipment with modern circuit breaker equipment and associated hardware will likely be required.

4.0 Electrical System Upgrade Alternatives

Based on the analysis above, connection of the new Digester No.1 electrical loads to the existing electrical system is not recommended unless some degree of existing equipment modification is performed. Proposed below are four alternatives for upgrading the existing plant electrical distribution system:

Alternative 1: Utilize (E)MCC-D with Field-Retrofitting of (E)1MCC-West

This alternative will include the following elements:

- Replace existing MCC-D main underground feeder conductors and conduit from 1MCC-West
- Field retrofit existing 1MCC-West feeder circuit breaker feeding MCC-D with a minimum 225 ampere rated feeder circuit breaker; this breaker will be a "modern" circuit breaker, "field-fitted" to work in the obsolete 1MCC-West equipment
- Addition of new starter equipment at MCC-D for new Digester No.1 electrical loads

This alternative includes the "minimum" level of upgrade required for connection of the new Digester No.1 equipment. It should be understood, however, that the existing 1MCC-West equipment is beyond its useful service life and will likely require wholesale replacement in the near future (i.e. less than five years). Thus, modification to the MCC-D feeder breaker and underground conductors and conduit will likely be a "short term" upgrade that will only be utilized until 1MCC-West is replaced.

Alternative 2: Utilize (E)MCC-D in Conjunction with New 1MCC (East and West)

This alternative will include the following elements:

- Replace existing MCC-D main underground feeder conductors and conduit from 1MCC-West
- Replace existing 1MCC-East and 1MCC-West with new motor control center equipment
- Addition of new starter equipment at MCC-D for new Digester No.1 electrical loads

This alternative takes advantage of a replacement "opportunity" for the obsolete 1MCC-East and 1MCC-West equipment. Rather than incur the likely "throw away" cost for retrofitting existing 1MCC-West to provide adequate power supply to existing MCC-D, a wholesale replacement of the 1MCC-East and 1MCC-West equipment would be implemented.

Alternative 3: Partial Plant Electrical System Upgrade

This alternative includes replacement of all existing electrical system distribution equipment which is currently beyond its useful service life (i.e. Square D and RSE Sierra equipment for which replacement parts are no longer available). Below is a list of the equipment identified for replacement as part of this alternative:

- Main Service Switchboard (located in Maintenance Bldg)
- 1MCC-East and 1MCC-West (located in Maintenance Bldg)
- 2MCC (located in Secondary Clarifier Gallery)
- 3MCC (located in Secondary Pump Station)
- 4MCC (located in Administration Bldg)
- Existing 1MCC Automatic Transfer Switch
- Existing 285kW Diesel Standby Generator

Included with this replacement will be new underground electrical ductbanks, which will be constructed to replace existing underground electrical ductbanks.

Alternative 4: Complete Plant Electrical System Upgrade

This alternative includes replacement of all existing electrical system distribution equipment. This includes the equipment listed in "Alternative 3" plus the following Westinghouse "Five Star" motor control center equipment, which was manufactured in 1982:

- MCC-A (located at Headworks)
- MCC-B (located at Energy Recovery Bldg)
- MCC-B-E (located at Energy Recovery Bldg)
- MCC-D (located at Thickened Sludge Pump Station)
- 2MCC-A (located in Secondary Clarifier Gallery)
- Variable Frequency Drives (located in Secondary Pump Station)

Although replacement parts are still commercially available for these motor control centers, the equipment has been in service for 26 years and is approaching the end of its useful service life. It is anticipated that within five years, new replacement parts for this equipment will no longer be commercially available.

Included with this replacement will be new underground electrical ductbanks, which will be constructed to completely replace existing underground electrical ductbanks.

5.0 Cost Estimates

Planning-level cost estimates for the four (4) alternatives, based on recent similar work at other facilities, are presented below:

Alternative 1: Utilize (E)MCC-D with Field-Retrofitting of (E)1MCC-West	
Replacement of Existing MCC-D Main Feeder/Conduit:	$50,000
Field-Replacement of Existing 1MCC-West Feeder Breaker:	$15,000
Addition of New Starter Equipment at MCC-D:	$10,000
Contingency	$25,000
TOTAL ESTIMATED COST – Alternative 1:	**$100,000**

Alternative 2: Utilize (E)MCC-D in Conjunction with New 1MCC (East and West)	
Replacement of Existing MCC-D Main Feeder/Conduit:	$50,000
Field-Replacement of Existing 1MCC-West Feeder Breaker:	$15,000
Addition of New Starter Equipment at MCC-D:	$10,000
Provide New 1MCC	$100,000
Contingency	$55,000
TOTAL ESTIMATED COST – Alternative 2:	**$230,000**

Alternative 3: Partial Plant Electrical System Upgrade	
Provide New Main Switchboard and ATS:	$100,000
Provide New 800kW Standby Generator:	$400,000
Provide New 1MCC:	$100,000
Provide New 2MCC:	$60,000
Provide New 3MCC:	$60,000
Provide New 4MCC:	$60,000
Provide New Underground Ductbanks:	$600,000
Addition of New Starter Equipment at MCC-D:	$10,000
Contingency:	$400,000
TOTAL ESTIMATED COST – Alternative 3:	**$1,790,000**

Alternative 4: Complete Plant Electrical System Upgrade	
Provide New Main Switchboard and ATS:	$100,000
Provide New 800kW Standby Generator:	$400,000
Provide New 1MCC:	$100,000
Provide New 2MCC:	$60,000
Provide New 3MCC:	$60,000
Provide New 4MCC:	$60,000
Provide New MCC-A:	$60,000
Provide New MCC-B:	$80,000
Provide New MCC-B-E:	$40,000
Provide New MCC-D:	$60,000
Provide New 2MCC-A:	$40,000
Provide New Secondary PS VFDs:	$400,000
Provide New Underground Ductbanks:	$700,000
Contingency:	$600,000
TOTAL ESTIMATED COST – Alternative 4:	**$2,760,000**

6.0 Recommendations

As the cost estimates indicate, there is a large gap between the estimated cost for the "minimum" upgrade effort proposed in "Alternative 1" versus the long-term upgrade proposed in "Alternative 4". Assuming that continued operation of the Treatment Plant is planned for at least ten or more years, the upgrade effort proposed in "Alternative 4" is likely inevitable due to the age of the existing electrical system equipment, whether the upgrades are implemented during one project or over a series of projects.

The only benefit to implementing the "Alternative 4" upgrades in a series of multiple projects is to lessen the immediate impact on capital improvement funding sources. By phasing the projects over time, capital improvement budget planning can be spread over a longer time period.

However, from a constructability and overall cost standpoint, there are benefits to implementing all of the electrical system upgrades as part of a single project. Some of the benefits include:

- All new equipment will be from a single manufacturer, making long-term maintenance and part replacement more efficient and cost-effective.
- The entire plant electrical power distribution system can be comprehensively master-planned, reducing the risk of "throw away" work during subsequent projects due to unforeseen process upgrades, expansions and field conditions.
- Enhanced plant electrical reliability is achieved in the shortest time frame since all equipment and interconnections will be new.

Based on the age and condition of the existing electrical system equipment and underground wiring, coupled with the benefits stated above, "Alternative 4" is recommended.

Alternatively, planning and design of the comprehensive system upgrades could be undertaken and portions of the work phased as budgeting allows. However, this approach may cost more over the long-term and would not realize the benefits listed above.

ATTACHMENT 3
WASTEWATER FINANCIAL PLAN AND RATE STUDY

City of Palm Springs



Wastewater Financial Plan and Rate Study

February 13, 2010

BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS

BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS

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February 13, 2010

City of Palm Springs
3200 East Tahquitz Canyon Way
Palm Springs, CA 92263

Attn: Marcus Fuller, Assistant Director of Public Works/Assistant City Engineer

Re: Wastewater Financial Plan & Rate Study

Bartle Wells Associates is pleased to submit the attached Wastewater Financial Plan & Rate Study. The study develops a financial plan and rate recommendations supporting the long-term operating and capital needs of the City's sewer enterprise.

The City's sewer rates have not been increased since 1993 and remain among the lowest in the state with a residential rate equal to $10.36 per month, less than one-third of the California statewide average. However, the wastewater enterprise faces substantial financial challenges going forward, particularly related to the capital needs of the City's aging wastewater treatment facilities. A recently completed engineering evaluation of the City's wastewater treatment plant by Carollo Engineers identifies $67 million of capital repair and replacement projects needed over the next 20 years including $45 million of high priority projects needed in the next 10 years.

Cash flow projections developed in the report indicate the need to phase in sewer rate increases over the next three years to a level of $20 per month per home, followed by small annual rate adjustments of roughly $1 per month in subsequent years to a future monthly rate of $35 in 20 years. After the initial three-year phase-in, the small future annual rate adjustments are needed to keep revenues in line with cost inflation and provide funding to complete the 20-year wastewater capital improvement program.

The proposed rate increases are designed to recover the City's costs of providing sewer service, including funding necessary improvements to the City's aging wastewater treatment plant, while maintaining long-term financial health. With the proposed rates increases, the City's projected 20-year rate of $35 per month per home will a) remain below the *current* statewide average of approximately $36.50, and b) remain below half of the estimated future statewide average.

I enjoyed working with the City on this assignment and appreciate the input and cooperation received from City staff throughout the project.

Very truly yours,

BARTLE WELLS ASSOCIATES

Alex T. Handlers, CIPFA
Vice President

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EXECUTIVE SUMMARY

Background & Objectives

The City of Palm Springs is a full-service City located approximately 110 miles east of Los Angeles in Riverside County, California. The City has a 2009 population of 47,600 and has experienced 12% growth over the last decade.

The City provides wastewater service residential and commercial accounts within the City and adjacent areas. The City's wastewater utility is a self-supporting enterprise that is funded primarily by revenues derived from sewer service charges. The City's sewer rates have not been increased since 1993 and are among the lowest in the state. The City's current residential rate of $124.32 per year ($10.36 per month) is less than one-third of the California statewide average.

A recently-completed engineering evaluation of the City's aging wastewater treatment plant by Carollo Engineers identifies $67 million (current $) of capital repair and replacement projects needed over the next 20 years, including over $45 million (current $) of high-priority projects needed within the next 10 years. In order to proactively address these substantial capital needs, the City retained Bartle Wells Associates to develop a long-term financial plan and rate recommendations supporting the City's sewer enterprise operating and capital programs. Basic objectives of our study include:

- Conduct an independent review of the City's sewer rates and finances
- Evaluate financing alternatives for capital improvement needs;
- Develop long-range cash flow projections identifying the long-term operating and capital revenue requirements of the wastewater system;
- Recommend sewer rate increases needed to recover the cost of providing service and maintain the sewer enterprise's long-term financial health;
- Phase in necessary rate adjustments over time, to minimize the annual impact on ratepayers;
- Assist the City with the Proposition 218 rate-increase process and rate implementation.

Summary of Findings & Recommendations

The wastewater enterprise has accumulated significant fund reserves while maintaining low rates, partially due to a high level of connection fee revenues collected in recent history coupled with a comparatively lower level of capital expenditures. However, the wastewater enterprise faces a number of financial challenges that are driving the need for rate increases including:

- **Capital Needs** - As noted above, a recently-completed engineering evaluation of the City's aging wastewater treatment plant by Carollo Engineers identifies $67 million (current $) of capital repair and replacement projects needed over the next 20 years. These projects include over $45 million (current $) of high-priority improvements needed over the next 10 years. The City has already funded about $5 million of these projects leaving approximately $62 million of remaining capital needs. Accounting for 3% annual construction cost inflation and including a minimal amount for collection system improvements, the City is facing average annual capital expenditures in the $5 million range over the next decade. Based on the 2009 Budget, wastewater enterprise revenues currently generate less than $1 million per year leaving a major annual funding shortfall.
- **Operating Cost-Inflation** - The City's wastewater operating and maintenance costs have increased over the years. In particular costs for contractual operations with Veolia, which

represent almost 75% of total operating and maintenance costs, have increased significantly in recent years. The City has also experienced increased costs for utilities, vehicle maintenance, insurance, and other expenses. The City also faces potential new operating requirements related to new or upgraded equipment and facilities that will be constructed as part of the capital improvement program.

- **Reimbursement for City-Provided Wastewater Support Services** - The City provides a range of services required for the operation and administration of the wastewater system. These services include financial management, engineering, administration, legal, billing, customer service, planning and inspection, and other support functions. The City has not been fully recovering these operating costs from the wastewater enterprise due to historical interpretation of Section 205(c) of the City's Municipal Code which states: *The City may not collect for its own general fund in-lieu taxes, fees or charges from the Department of Transportation, Wastewater Division for administration or any other purposes.*

  It is our opinion that the intent of the language was to prevent the City from using the wastewater enterprise to subsidize other non-wastewater-related General Fund operations, as a number of other California cities had done, particularly via in-lieu fees prior to the passage of Proposition 218 in November 1996. It is also our opinion that City's General Fund is entitled to reimbursement for all costs incurred in support of the wastewater enterprise and that any such interfund transfer is a direct reimbursement, and is not an in-lieu tax, fee, or charge.

Financial & Rate Projections

Long-term cash flow projections were developed to evaluate the wastewater enterprise's financial position over the next 20 years and project rate increases needed to support the enterprise's long-term operating and capital needs. The financial projections are based on the City's 2009/10 Budget and a number of assumptions detailed in the report. Because the City's wastewater capital needs are spread over the next 10-20 years, the base case projections are designed to fund all projects on a pay-as-you-go basis.

The cash flow projections indicate the need for rate increases over the next three years as summarized below. The rate increases are phased in over three years to minimize the annual impact on ratepayers. With the projected rate increases the City's rates are expected to remain in the lower-to-middle range of regional agencies and will be roughly half of the California statewide average.

3-YEAR RESIDENTIAL SEWER RATE PROJECTION			
Current Rate	Projected Rates Effective July 1		
Per EDU	2010	2011	2012
$10.36	$14.00	$17.00	$20.00

Small annual rate adjustments of roughly $1 per month projected for future years.

The projections also indicate the need for small annual rate increases every year thereafter to a) keep revenues in line with cost inflation, and b) provide adequate funding for wastewater system capital needs over the next 20 years. Based on the financial projections, after the initial phase-in of rate increases over the next three years, the City's monthly residential sewer rate would gradually increase by roughly $1 per month each year to a monthly rate of approximately $35 in 20 years.

Debt Financing

Alternative financial projections were developed to evaluate if debt financing could mitigate the level of rate increases. The alternative projections assumed $8 million of debt financing to help fund Priority 1 capital needs in the first 5-years, and an additional $10 million of debt financing each 5-year period going forward. This would result in debt service payments gradually escalating to roughly $3 million per year over the next 15-20 years.

The analysis indicates that debt could be strategically used to result in a more gradual phase in of rate increases, especially in the near term. For example, sewer rates could be gradually increased to a level equal to $20 per month over 5 years, as opposed to over 3 years if capital improvements are funded entirely on a pay-as-you-go basis. At the same time, debt would also result in the need for higher rate increases over the longer-term, particularly after completion of the 20-year capital program when the City would need to generate about $3 million more per year for debt service until debt was gradually retired.

If the City opts to pursue debt financing to help fund a portion of its capital program, it is recommended the City maximize the use of state-subsidized funding programs such as the Clean Water State Revolving Fund Loans (SRF Loans). The SRF Loan program currently offers 20-year loans with interest rates in the 2.5% range. Under the program, the first debt service payment is not due until one year after the loan-funded project is complete. If conventional financing is ever used, the City should evaluate the cost-effectiveness of using bonds, Certificates of Participation, or bank loans to determine the lowest-cost option.

Minimum Fund Reserve Target

This report recommends that the City adopt a minimum fund reserve target for the wastewater enterprise equal to a) 50% of annual operating and maintenance costs, plus b) $2 million for emergency capital repairs. Fund reserves provide a financial cushion for dealing with a) emergencies, b) unanticipated expenses, and c) mismatches in the timing between revenues and expenses. It is important for agencies that recover sewer billings on the tax rolls to maintain adequate reserves to fund operations for the time between the semi-annual payments from the County. It is acceptable for reserves to drop below the target level on a temporary basis provided action is taken to achieve the target over the longer run.

1 WASTEWATER RATE STUDY

1.1 Background & Objectives

The City of Palm Springs is a full-service City located approximately 110 miles east of Los Angeles in Riverside County, California. The City has a 2009 population of 47,600 and has experienced 12% growth over the last decade.

The City provides wastewater service to residential and commercial accounts within the City and adjacent areas. The City's wastewater utility is a self-supporting enterprise that is funded primarily by revenues derived from sewer service charges. The City's sewer rates have not been increased since 1993 and are among the lowest in the state. The City's current residential rate of $10.36 per month is less than one-third of the California statewide average.

A recently-completed engineering evaluation of the City's aging wastewater treatment plant by Carollo Engineers identifies $67 million of capital repair and replacement projects needed over the next 20 years, including over $45 million of high-priority projects needed in the next 10 years. In order to proactively address these substantial financial requirements, the City retained Bartle Wells Associates to develop a long-term financial plan and rate recommendations supporting the operating and capital needs of the City's sewer enterprise. Basic objectives of our study include:

- Conduct an independent review of the City's sewer rates and finances
- Evaluate financing alternatives for capital improvement needs;
- Develop long-range cash flow projections identifying the long-term operating and capital revenue requirements of the wastewater system;
- Recommend sewer rate increases needed to recover the cost of providing service and maintain the sewer enterprise's long-term financial health;
- Phase in necessary rate adjustments over time, to minimize the annual impact on ratepayers;
- Assist the City with the Proposition 218 rate-increase process and rate implementation.

1.2 Wastewater System

The City's wastewater system includes roughly 230 miles of sewer pipelines, five pump stations, and a wastewater treatment plant. The treatment plant is permitted at 10.9 million gallons per day (mgd) of average dry weather flow (ADWF) capacity. Current wastewater flows are estimated at 6.5 mgd based on inflows at the treatment plant.

The City owns the wastewater system and contracts out operations to Veolia West Operating Services, Inc. ("Veolia"), previously named Veolia Water North America Operating Services, Inc. Historically, the City began contracting out operations in 1999 to US Filter Operating Services, Inc., which was acquired by Veolia in 2004. Veolia operates and maintains the City's wastewater collection system and treatment plant. The City provides financial and operational oversight and is responsible for coordinating engineering studies and implementation of the wastewater capital improvement program.

1.3 Current Wastewater Rates

Table 1 shows a schedule of current sewer service charges. The City charges for sewer service based on each customer's estimated wastewater discharge as denoted by equivalent dwelling units or EDUs.

An EDU is a standardized unit of measurement that represents the wastewater flow and loadings generated by a typical residential customer. All residential dwelling units are assigned 1 EDU and pay the same annual service charge.

The current rate per residence or EDU is $124.32 per year, equivalent to a monthly rate of $10.36. The City's sewer rates are among the lowest in the state and are less than one-third of the California statewide average. Customers located outside City boundaries pay rates that are 150% of inside-City rates.

Commercial and industrial customers are assigned EDUs based on the number of commercial plumbing fixture units per account with 1 EDU equivalent to approximately every 10.2 commercial fixture units. A fixture unit is a measure of flow capacity assigned to various plumbing fixtures, such as sinks and toilets, used in plumbing design. The amount of wastewater generated per commercial plumbing fixture unit is typically much higher, often twice as high, as sewer flow per residential fixture unit. Commercial customers pay a minimum charge equal to 1 EDU.

TABLE 1 - SEWER SERVICE CHARGES
Rates Effective Since July 1, 1993

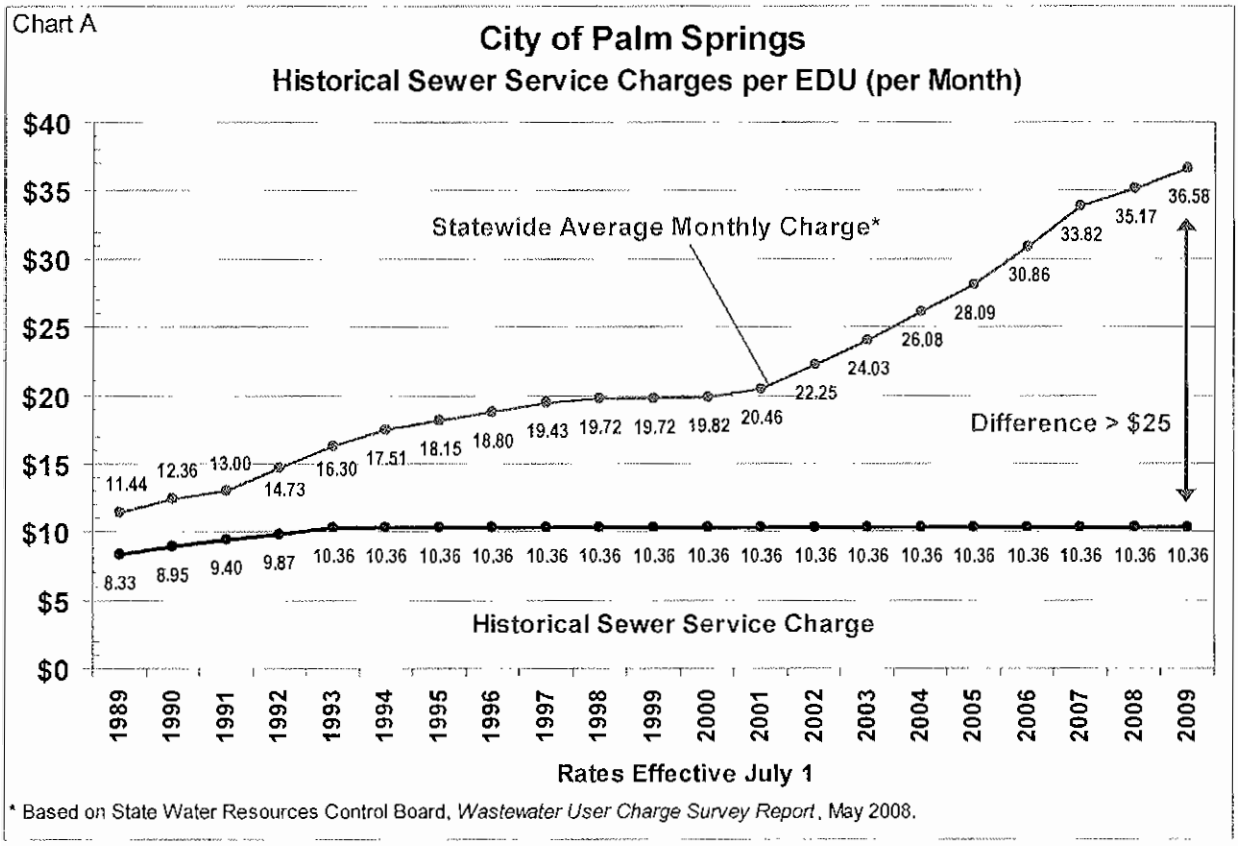
Customer Class	Monthly Charge	
Residential	$10.36	Per unit
Commercial & Industrial	1.02	Per fixture unit
	10.36	Minimum charge
Hotel - Rooms Without Kitchens	10.36	Base charge +
	3.53	Per room
Hotel - Rooms With Kitchens	6.81	Per room
Mobile Home Parks	10.36	Per unit +
	1.02	Per fixture unit
Recreational Vehicle Parks	2.54	Per space +
	1.02	Per fixture unit
Septage Dumping Fee (for loads up to 1,000 gallons)		
Within City limits	35.00	Per load
Outside City limits	70.00	Per load
Properties Adjacent to City		
Rates for customers outside of City limits are 150% of the standard established rates		
Sewer Permit Fee		
For discharging septage at the City's Wastewater Treatment Plant	1,000.00	Per application

1.4 Billing

Most customers are billed for sewer service on the annual property tax rolls collected by Riverside County. The County is on the Teeter Plan and provides the City with 100% of its annual sewer billings, regardless of actual tax delinquencies. Several hundred parcels are billed separately; these properties are owned by tax-exempt or governmental agencies that do not pay property taxes to the County. The operating contract with Veolia was recently expanded to include sewer billing.

1.5 Historical Sewer Rates

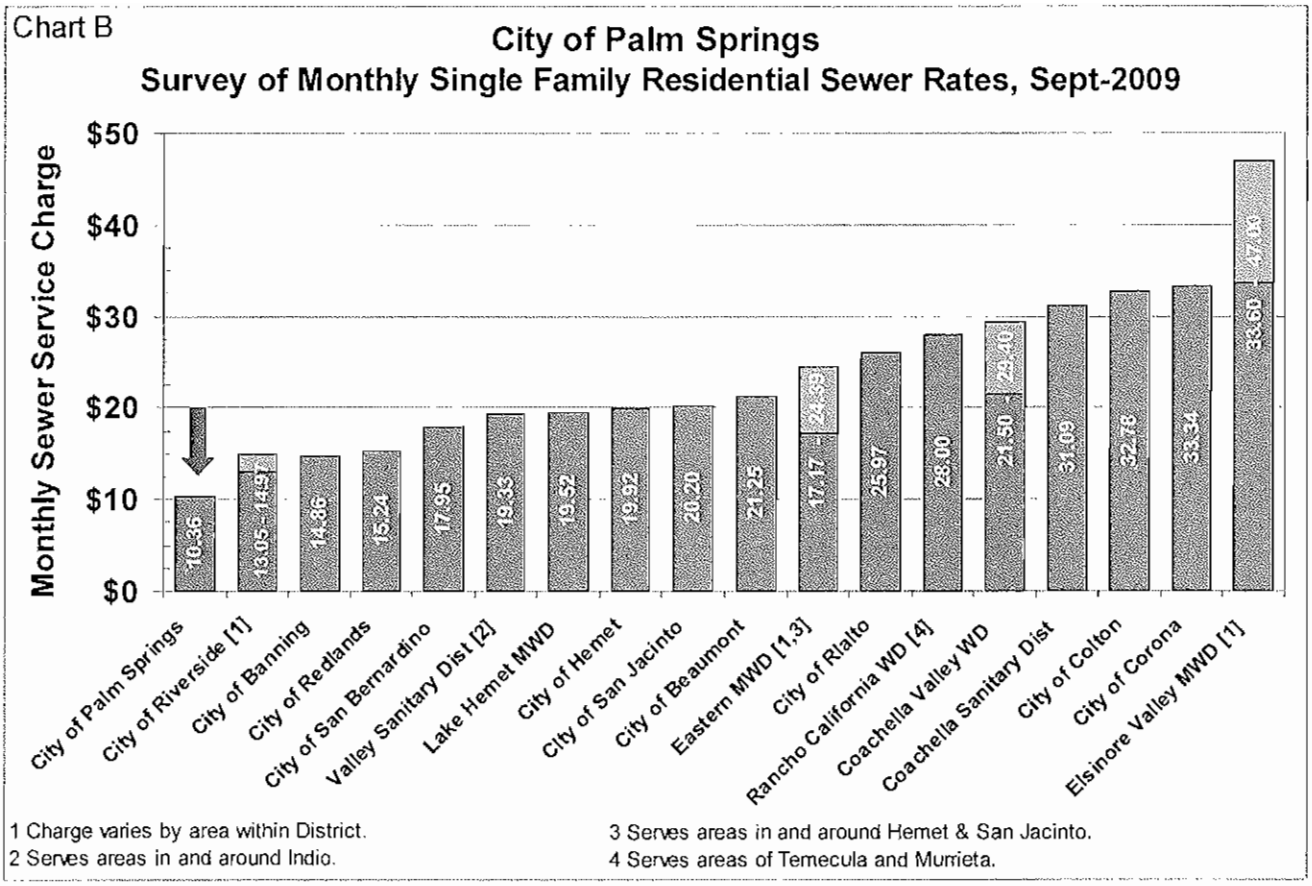
Chart A below shows a 20-year history of the City's sewer rates per residence or EDU. Rates were last adjusted on July 1, 1993 and have not been increased in over 16 years. The chart also compares the City's historical rates to the California statewide average. Due to many years of no rate increases, the City's rates have gradually fallen further and further behind the statewide average; current rates are less than one-third of the statewide average.



1.6 Regional Sewer Rate Survey

As shown on the following chart, the City's residential sewer rate is the lowest of 18 regional agencies surveyed and is less than the half of the regional average, which itself is low compared to other areas of California. The information is presented for informational purposes only and does not necessarily reflect the relative cost-effectiveness of each agency. Rates can vary widely from agency to agency based on a wide range of factors.

Chart B



1 Charge varies by area within District.
2 Serves areas in and around Indio.
3 Serves areas in and around Hemet & San Jacinto.
4 Serves areas of Temecula and Murrieta.

1.7 Wastewater Customers

Table 2 estimates the total number of sewer EDUs billed by the City based on annual sewer service charge revenues divided by the rate per home or EDU. According to the data, the City currently provides sewer service to a little over 43,800 EDUs.

TABLE 2 - ESTIMATED SEWER EDUS BASED ON REVENUES

	2005/06	2006/07	2007/08	2008/09*
Annual sewer service charge revenues	$4,696,544	$4,807,701	$5,023,253	$5,449,473
Annual rate per EDU	$124.32	$124.32	$124.32	$124 32
Estimated sewer billing EDUs	37,778	38,672	40,406	43,834

* Note: The City completed an audit of new sewer connections in 2009 resulting in a nearly 10% increase in sewer revenue as a result of high development activity and construction of new housing over the previous four year period.

The City has a predominantly residential customer base. Based on historical data, residential dwelling units – including single family homes, condominiums, apartments and a limited number of mobile homes – account for roughly 95% of all customers and roughly 80% of total billable EDUs. The City also provides sewer service to roughly 1,100 commercial and industrial customers, and over 130 hotels which have a total of over 7,000 guest rooms.

1.8 Historical Wastewater Enterprise Finances

Table 4 shows a 4-year financial history of the sewer enterprise based on audited financial statements. The table does not include depreciation, which is a non-cash accounting entry. In recent years the wastewater enterprise has run budget surpluses and accrued fund reserves while maintaining low rates. This is partly due to a few temporary financial factors including:

- A high level of development activity and corresponding sewer connection charges recovered in recent years. Development has subsequently slowed.
- Deferral of significant capital improvements in recent years resulting in a level of capital funding that was substantially lower than needed going forward.

TABLE 3 - HISTORICAL WASTEWATER REVENUES & EXPENSES

	Audited 2005/06	Audited 2006/07	Audited 2007/08	Audited 2008/09
Revenues				
Charges for service	4,726,801	5,193,833	5,069,841	5,523,608
Sewer connection & main charges	1,702,118	2,262,208	937,268	483,204
Interest income & gains/losses	342,598	813,086	789,375	460,231
Total revenues	6,771,517	8,269,127	6,796,484	6,467,043
Expenses				
Contractual operating & other services	2,479,340	3,529,658	3,806,809	4,283,626
Utilities	n/a	n/a	181,565	209,047
Personnel services & administration	29,873	22,188	28,874	104,672
Cash paid for capital aquisitions	383,124	1,106,524	1,804,541	1,431,640
Total expenses	2,892,337	4,658,370	5,821,789	6,028,985
Revenues less expenses	3,879,180	3,610,757	974,695	438,058

Source: Based on Audited Financial Statements.

Some notable changes include:

- Sewer service charge revenues have increased by over 15% over the past four years due to a high level of construction activity that resulted in the addition of new EDUs.
- The City has collected a substantial amount of connection fees in recent years, averaging roughly $2 million per year from 2003/04 to 2006/07, a period of high growth. However, the amount of connection fee revenues has significantly declined in the past two years as development activity has slowed. Development is expected to remain at historically low levels in upcoming years as the overall economy affects the demand for new residential and commercial development.
- Operating and maintenance expenses have increased primarily due to a) an amended contract with Veolia that took effect in 2006/07, b) higher costs for utilities and chemicals, which are variable costs that are passed through to the City pursuant to the contract with Veolia, and c) other miscellaneous increases including costs for vehicle maintenance and operation, insurance, and the addition of billing and auditing functions to Veolia's contract.
- Over the past four years, capital expenditures varied from under $400,000 in 2005/06 to $1.8 million in 2007/08, and have averaged about $1.2 million per year. Capital expenditures in recent years have been substantially lower than the levels identified in Carollo Engineers' recent analysis. Revenues generated by current rates will not be adequate to fund the capital needs of the wastewater enterprise.

1.9 Fund Reserves

As shown on Table 5, as of June 30, 2009, the wastewater enterprise had about $5.4 million in net reserves available for operations. This level of operating reserves is equal to approximately one year of operating and maintenance expenses, in line with other financially healthy utility agencies.

Capital reserves on June 30, 2009 included approximately $1.8 million in funds encumbered on previously budgeted capital projects and approximately $6.0 million in reserves designated and budgeted for future capital improvements.

TABLE 4 - FUND RESERVES AS OF JUNE 30, 2009

Cash & Receivables	
Cash	$14,185,387
Accounts Receivable	333,248
Sanitation Accts Receivable	5,825
Accrued Interest Receivable	62,494
Subtotal	14,586,954
Less Accounts Payable & Encumbered or Designated Reserves	
Accounts Payable	1,276,604
Accrued Wages Payable	131
Reserve for Encumbrances[1]	1,845,086
Designated for Future Projects[2]	6,048,965
Subtotal	9,170,786
Net Cash Available for Operations	5,416,168

1 Includes funds reserved for awarded contracts or purchase orders but not expended as of 06/30/09
2 Includes funds budgeted for various capital improvement projects not yet initiated.
Source: Based on information provided by City of Palm Springs Finance Department.

1.10 Minimum Fund Reserve Target

Maintaining adequate fund reserves is an important component of prudent financial management. Fund reserves provide a financial cushion for dealing with a) emergencies, b) unanticipated expenses, and c) mismatches in the timing between revenues and expenses. Agencies that recover sewer billings on the tax rolls need to maintain adequate reserves to fund operations for the time between the semi-annual payments from the County.

It is recommended that the City adopt a minimum fund reserve target for the wastewater enterprise equal to a) 50% of annual operating and maintenance costs, plus b) $2 million for emergency capital repairs. A fund reserve target provides long-term policy guidance for financial planning. It is acceptable for reserves to drop below the target on a temporary basis provided action is taken to achieve the target over the longer run.

1.11 Capital Improvement Plan

A recently-completed engineering evaluation of the City's aging wastewater treatment plant by Carollo Engineers identifies over $67 million (current $) of capital repair and replacement projects needed over the next 20 years, including over $45 million of high-priority projects needed in the next 10 years. These improvements are summarized on Table 6, which breaks out capital costs into 5-year

increments corresponding with the level of priority recommended by Carollo Engineers. The City has already funded about $5.7 million of these projects leaving approximately $62 million of remaining capital needs.

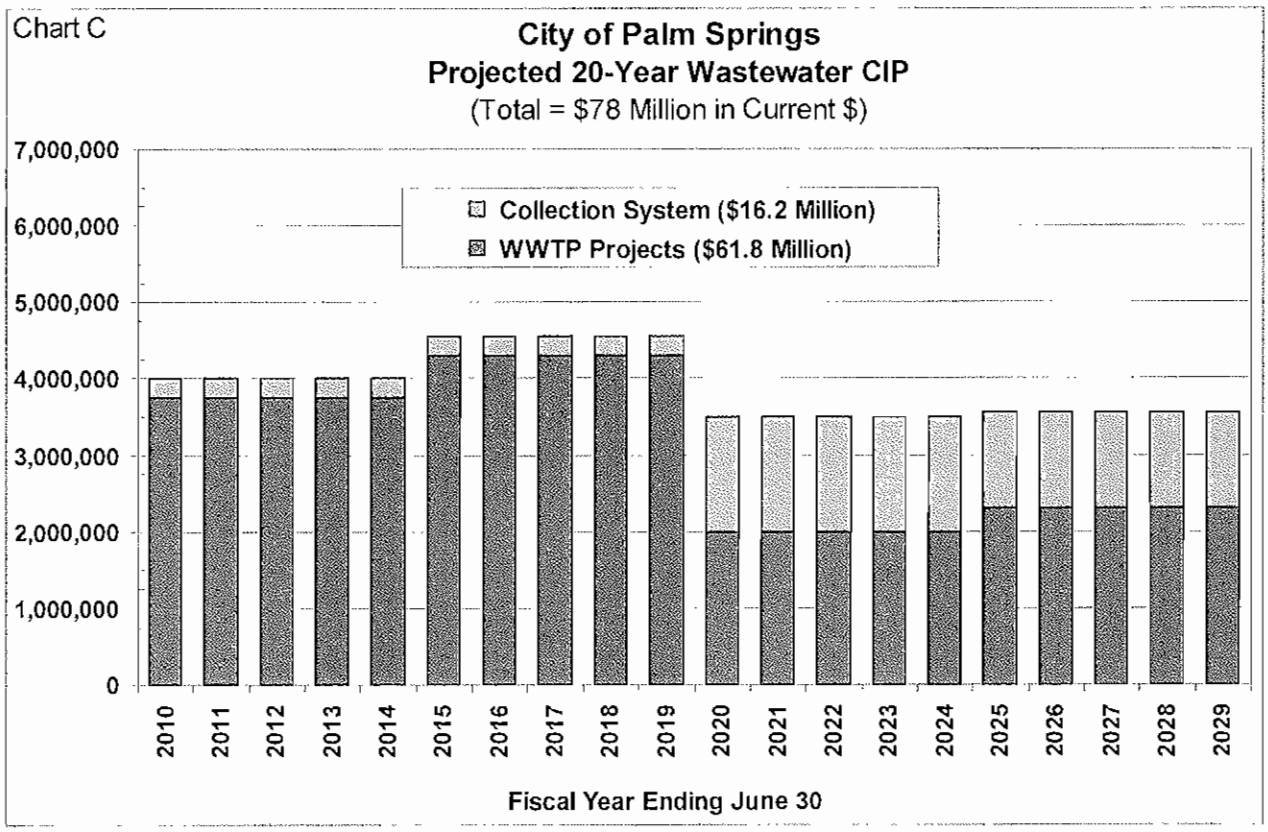
TABLE 5 - WWTP CAPITAL REPAIR & REPLACEMENT COSTS (CURRENT $)

Project Description	Priority 1 1-5 Years	Priority 2 5-10 Years	Priority 3 10-15 Years	Priority 4 15-20 Years
PRIORITY 1				
Digester No. 1 Rehabilitation	$1,800,000	Funds budgeted in 2009/10		
Redundant Boiler Addition and Gas Piping Repair	390,000			
Plant Reclaimed Water Pump Station Upgrade	651,000	Completed in 2009		
New Perimeter Security Fence and Gates	1,000,000	Funds budgeted in 2009/10		
Purchase of Property for Influent Line Easement	3,642,000	Completed in 2008		
Electrical System Improvements	3,600,000			
Water System Upgrade for Fire Protection	500,000			
East Side Storm Drain Line	1,500,000	Completed in 2009		
Filtrate Pump Station Upgrade	500,000			
WWTP Facility Plan	250,000			
New Septage Receiving Station	500,000			
New Access Rd w/ Signalized Access fr Gene Autry	500,000			
Digester Gas Treatment System	2,000,000	$1.0 million included in 2009/10 Budget		
Fuel Cell Purchase and Installation	4,060,000	$3.0 million included in 2009/10 Budget		
New Gas Flare	1,000,000			
FOG Receiving Station	1,600,000			
Digester No. 2 Dome Replacement	1,050,000			
Subtotal	24,543,000			
Less Projects Previously Funded	(5,793,000)			
Remaining Priority 1 Funding Needs	18,750,000			
Priority 1 Average Annual Funding (Remaining)	*3,750,000*			
PRIORITY 2				
New Headworks		$5,920,000		
Two New Circular Primary Clarifiers With Sludge Pump Station		9,050,000		
New Primary Effluent Pump Station		2,910,000		
Secondary Clarifier Upgrades		2,010,000		
General Sitework Pavement Replacement		720,000		
Pavement Replacement in Drying Beds 13-18 and 19-26		710,000		
Subtotal		21,320,000		
Priority 2 Average Annual Funding		*4,264,000*		
Priority 3 Average Annual Funding				
Third Digester (Acid or Conventional)			$7,200,000	
Trickling Filter Upgrades			1,560,000	
Gravity Thickener Upgrades			1,400,000	
Subtotal			10,160,000	
Priority 3 Average Annual Funding			*2,032,000*	
Priority 4 Average Annual Funding				
New Administration Building				$1,560,000
New Sludge Centrifuge				1,490,000
Indian Canyon Drive Collection System Upsize				2,416,000
Palm Canyon Drive Collection System Upsize				1,804,000
Crossley Road Collection System Upsize				4,414,000
Subtotal				11,684,000
Priority 4 Average Annual Funding				*2,336,800*
Subtotal by Priority	24,543,000	21,320,000	10,160,000	11,684,000
Cumulative Total	24,543,000	45,863,000	56,023,000	67,707,000
Cumulative Annual Average	4,909,000	4,586,000	3,735,000	3,385,000

Source: Carollo Engineers; *Palm Springs Wastewater Treatment Plant Capital Repair & Replacement Costs*; Oct-2009.

The City owns approximately 230 miles of sanitary sewer pipelines, some of which were installed over 50 years ago. Although the City has required minimal budgeting for maintenance of its sewer collection system in recent years, it is recommended that the City budget substantially more in future years as various pipelines reach the end of their useful lives. Conservatively if only 1% of the City's sewer collection system requires replacement in any given year, the City will need to replace over 2 miles of pipelines, with an expected cost of $1 - $2 million annually. The financial plan developed in this report assumes the City continues funding collection system repairs and improvements at a low level of $250,000 annually for the next 10 years, as it addresses higher priority capital improvement projects. For long-term planning purposes only, the report also assumes the City increases funding for collection system repairs and replacements to an average of $1.25 to $1.5 million per year during the subsequent decade.

Table 7 on the following page shows a 20-year capital improvement plan (CIP) that includes a) Carollo Engineers' cost estimates for the wastewater treatment plant improvements, plus b) an estimate of costs for future collection system repairs, replacements, and improvements. Table 7 shows costs in current dollars. These costs are shown graphically on Chart C.



For financial planning purposes, Table 8 projects the future cost of projects by escalating current cost estimates at the annual rate of 3% to account for estimated construction cost inflation. With cost inflation, the 20-year CIP totals almost $104 million including approaching $50 million of projects slated for the next 10 years. These cost-inflated amounts are incorporated into the long-term cash flow projections.

TABLE 6 - WASTEWATER SYSTEM 20-YEAR CIP (CURRENT $)										
YEARS 1 - 10	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Wastewater Treatment Plant Improvements[1]										
Priority 1 Projects	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000					
Priority 2 Projects						4,300,000	4,300,000	4,300,000	4,300,000	4,300,000
Collection System Repairs & Replacements[2]										
Capital Improvements	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
Total	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,550,000	4,550,000	4,550,000	4,550,000	4,550,000
Cumulative	*4,000,000*	*8,000,000*	*12,000,000*	*16,000,000*	*20,000,000*	*24,550,000*	*29,100,000*	*33,650,000*	*38,200,000*	*42,750,000*
YEARS 11 - 20	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Wastewater Treatment Plant Improvements[1]										
Priority 3 Projects	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000					
Priority 4 Projects						2,300,000	2,300,000	2,300,000	2,300,000	2,300,000
Collection System Repairs & Replacements[2]										
Capital Improvements	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Total	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,550,000	3,550,000	3,550,000	3,550,000	3,550,000
Cumulative	*3,500,000*	*7,000,000*	*10,500,000*	*14,000,000*	*17,500,000*	*21,050,000*	*24,600,000*	*28,150,000*	*31,700,000*	*35,250,000*

1 Based on Carollo Engineers, *Palm Springs Wastewater Treatment Plant Capital Repair and Replacement Costs*; updated October 2009; assumes average annual expenditures for each 5-year Priority period and excludes previously funded projects.

2 Source: Placeholder estimate.

TABLE 7 - WASTEWATER SYSTEM 20-YEAR CIP (FUTURE $)

YEARS 1 - 10	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Cost Escalator	1.000	1.030	1.061	1.093	1.126	1.159	1.194	1.230	1.267	1.305
Wastewater Treatment Plant Improvements[1]										
Priority 1 Projects	3,750,000	3,863,000	3,978,000	4,098,000	4,221,000					
Priority 2 Projects						4,985,000	5,134,000	5,288,000	5,447,000	5,611,000
Collection System Repairs & Replacements[2]										
Capital Improvements	250,000	258,000	265,000	273,000	281,000	290,000	299,000	307,000	317,000	326,000
Total	4,000,000	4,121,000	4,243,000	4,371,000	4,502,000	5,275,000	5,433,000	5,595,000	5,764,000	5,937,000
Cumulative	*4,000,000*	*8,121,000*	*12,364,000*	*16,735,000*	*21,237,000*	*26,512,000*	*31,945,000*	*37,540,000*	*43,304,000*	*49,241,000*

YEARS 11 - 20	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Cost Escalator	1.344	1.384	1.426	1.469	1.513	1.558	1.605	1.653	1 702	1.754
Wastewater Treatment Plant Improvements[1]										
Priority 3 Projects	2,688,000	2,768,000	2,852,000	2,937,000	3,025,000					
Priority 4 Projects						3,583,000	3,691,000	3,802,000	3,916,000	4,033,000
Collection System Repairs & Replacements[2]										
Capital Improvements	2,016,000	2,076,000	2,139,000	2,203,000	2,269,000	1,947,000	2,006,000	2,066,000	2,128,000	2,192,000
Total	4,704,000	4,844,000	4,991,000	5,140,000	5,294,000	5,530,000	5,697,000	5,868,000	6,044,000	6,225,000
Cumulative	*4,704,000*	*9,548,000*	*14,539,000*	*19,679,000*	*24,973,000*	*30,503,000*	*36,200,000*	*42,068,000*	*48,112,000*	*54,337,000*

1 Based on Carollo Engineers, Palm Springs Wastewater Treatment Plant Capital Repair and Replacement Costs; updated October 2009; assumes average annual expenditures for each 5-year Priority period and excludes previously funded projects.

2 Source: Placeholder estimate.

1.12 Cost Reimbursement for Wastewater Support Services

The City provides a range of services required for the operation and administration of the wastewater system. These services include financial management, engineering, administration, legal, billing, customer service, planning and inspection, and other support functions. The City has been recovering a very limited amount of these operating costs from the wastewater enterprise due to one interpretation of Section 205(c) of the City's Municipal Code which states: *The City may not collect for its own general fund in-lieu taxes, fees or charges from the Department of Transportation, Wastewater Division for administration or any other purposes.*

It is our opinion that the intent of the language was to prevent the City from using the wastewater enterprise to subsidize other non-wastewater-related General Fund operations, as a number of other California cities had done, particularly via in-lieu fees, prior to the passage of Proposition 218 in November 1996. We believe that the City is entitled to reimbursement for actual costs incurred in support of the wastewater enterprise and that any such interfund transfer is a direct reimbursement, and should not be considered an in-lieu tax, fee, or charge. Most Cities in California require their utility enterprises to fully reimburse their General Funds for any costs incurred on behalf of their utilities.

1.13 Cash Flow & Rate Projections

Long-term cash flow projections were developed to project wastewater enterprise revenue requirements and rates over the next 20 years. The financial projections are based on the City's 2009/10 Budget and incorporate a number of slightly conservative assumptions listed on Table 9.

Due to the distribution of capital funding needs over the next 10 to 20 years, the cash flow projections assume all capital projects are funded on a pay-as-you-go basis. Actual capital funding needs may vary from year to year. For example, instead of funding $4 - $5 million of projects every year, the sewer enterprise may need to fund $2 million one year and $7 million the next. The projected rate increases will allow the City to do this assuming fund reserves can be accumulated during years of lower-than-average capital expenditures, and drawn down during years of higher levels of funding.

Table 10 presents 20-year financial and rate projections of the sewer enterprise. The rate projections are designed to fund the wastewater enterprise's operating and capital programs while maintaining minimum fund reserve targets. The projections assume that the sewer enterprise will run deficits through 2011/12, including a planned drawdown of encumbered capital fund reserves, as the City transitions to a higher level of capital improvement funding while rate increases are gradually phased in over three years.

TABLE 8 - CASH FLOW ASSUMPTIONS

GENERAL ASSUMPTIONS

1 Assumes the City bills 43,800 Equivalent Dwelling Units (EDUs) as of July 1, 2009.

2 Growth is projected at 100 new EDUs per year including combined residential and commercial development.

3 Sewer Facility Fees are projected to remain at the current level of $3,000 per EDU.

4 Interest rate on investments projected to gradually increase from 0.75% in 2009/10 to 2% over the following 3 fiscal years.

REVENUE ASSUMPTIONS

1 Sewer service charge revenues for each year are calculated based on the number of existing EDUs at the beginning of the fiscal year, plus one half of new EDUs that connect during the year, multiplied by the projected rate per EDU.

2 Future sewer connection fee revenues are based on the projected number of new EDUs each year multiplied by the fee per EDU.

3 Interest earnings estimated based on beginning fund balances multiplied by the projected annual interest rate.

EXPENSE ASSUMPTIONS

1 Contractual wastewater operating costs are based on the 2009/10 Budget and escalate at the annual rate of 6% (accounting for cost inflation, growth, and new operating and maintenance needs related to capital improvements) for the first 10 years, and 5% for the subsequent 10 years.

2 Insurance expenses based on 2009/10 Budget and escalate at the annual rate of 6%.

3 Other operating and maintenance costs based on 2009/10 Budget and escalate at the annual rate of 4%.

4 Includes $150,000 of direct cost reimbursements to the General Fund beginning 2010/11 for wastewater administration and other services provided by the City in support of the wastewater enterprise. This level of funding is based on the *2004 Citywide Cost Allocation Study*.

5 Projections do not include net savings from new cogeneration facilities; the amount of savings would be relatively minor and could be offset by new equipment and other purchases.

6 WWTP capital improvement expenses based on *Carollo Engineers, Palm Springs Wastewater Treatment Plant Capital Rehabilitation and Repair Plan, October 2009* with 3% cost inflation.

7 Collection system repairs & replacements estimated at $250,000 per year escalating at the annual rate of 3% for the next 10 years. Collection system funding projected to increase to the level of $1.25 - $1.5 million (current $) adjusted for 3% cost inflation in the outer 10 years.

Table 9 - Sewer Enterprise Cash Flow Projections (Years 1 - 10)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Esc.
Monthly Rate per EDU	**$10.36**	**$14.00**	**$17.00**	**$20.00**	**$21.00**	**$22.00**	**$23.00**	**$24.00**	**$25.00**	**$26.00**	
Beginning EDUs	43,800	43,900	44,000	44,100	44,200	44,300	44,400	44,500	44,600	44,700	
New Connections, EDUs	100	100	100	100	100	100	100	100	100	100	
Est. Growth %	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	
Sewer Facility Fee per EDU	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	
Interest Rate	0.75%	1.0%	1.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Beginning Fund Balance	$5,416,000	$5,299,000	$6,557,000	$6,001,000	$6,624,000	$7,338,000	$7,485,000	$7,651,000	$7,811,000	$7,937,000	
+ Reserved for CIP Projects	6,049,000	3,000,000	0	0	0	0	0	0	0	0	
REVENUES											
Sewer Service Charges	5,451,000	7,384,000	8,986,000	10,596,000	11,151,000	11,708,000	12,268,000	12,830,000	13,395,000	13,962,000	
Sewer Connection Fees	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	
Interest Income	86,000	83,000	98,000	120,000	132,000	147,000	150,000	153,000	156,000	159,000	
Other	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	
Total Revenues	5,852,000	7,782,000	9,399,000	11,031,000	11,598,000	12,170,000	12,733,000	13,298,000	13,866,000	14,436,000	
EXPENSES											
Operating & Maintenance											
Contractual Operating Services	3,682,000	3,903,000	4,137,000	4,385,000	4,648,000	4,927,000	5,223,000	5,536,000	5,868,000	6,220,000	6.0%
Personnel Costs	103,000	107,000	111,000	115,000	120,000	125,000	130,000	135,000	140,000	146,000	4.0%
Electricity	230,000	239,000	249,000	259,000	269,000	280,000	291,000	303,000	315,000	328,000	4.0%
Other Contractual Services	150,000	156,000	162,000	168,000	175,000	182,000	189,000	197,000	205,000	213,000	4.0%
Direct Cost Reimb to Gen'l Fund	50,000	150,000	156,000	162,000	168,000	175,000	182,000	189,000	197,000	205,000	4.0%
Insurance	671,000	711,000	754,000	799,000	847,000	898,000	952,000	1,009,000	1,070,000	1,134,000	6.0%
Vehicle Repair & Maintenance	112,000	116,000	121,000	126,000	131,000	136,000	141,000	147,000	153,000	159,000	4.0%
Other Operating Expenses	20,000	21,000	22,000	23,000	24,000	25,000	26,000	27,000	28,000	29,000	4.0%
Subtotal	5,018,000	5,403,000	5,712,000	6,037,000	6,382,000	6,748,000	7,134,000	7,543,000	7,976,000	8,434,000	
Capital/Other Non-Operating			Priority 1 WWTP Projects					Priority 2 WWTP Projects			
WWTP Capital Improvements	701,000	863,000	3,978,000	4,098,000	4,221,000	4,985,000	5,134,000	5,288,000	5,447,000	5,611,000	
Encumbered WWTP Capital Improvements	3,049,000	3,000,000	0	0	0	0	0	0	0	0	
Collection System Repairs/Repls	250,000	258,000	265,000	273,000	281,000	290,000	299,000	307,000	317,000	326,000	
Subtotal	4,000,000	4,121,000	4,243,000	4,371,000	4,502,000	5,275,000	5,433,000	5,595,000	5,764,000	5,937,000	
Total Expenses	9,018,000	9,524,000	9,955,000	10,408,000	10,884,000	12,023,000	12,567,000	13,138,000	13,740,000	14,371,000	
Revenues Less Expenses	(3,166,000)	(1,742,000)	(556,000)	623,000	714,000	147,000	166,000	160,000	126,000	65,000	
Ending Fund Balance	5,299,000	6,557,000	6,001,000	6,624,000	7,338,000	7,485,000	7,651,000	7,811,000	7,937,000	8,002,000	
+ Reserved for CIP Projects	3,000,000	0	0	0	0	0	0	0	0	0	
Minimum Fund Reserve Target											
50% O&M + $2M emergency capital	4,509,000	4,701,500	4,856,000	5,018,500	5,191,000	5,374,000	5,567,000	5,771,500	5,988,000	6,217,000	

Table 9 - Sewer Enterprise Cash Flow Projections (Years 11 - 20)

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Esc.
Monthly Rate per EDU	**$26.00**	**$26.00**	**$27.00**	**$28.00**	**$29.00**	**$30.00**	**$31.00**	**$32.50**	**$34.00**	**$35.00**	
Beginning EDUs	44,800	44,900	45,000	45,100	45,200	45,300	45,400	45,500	45,600	45,700	
New Connections, EDUs	100	100	100	100	100	100	100	100	100	100	
Est. Growth %	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	
Sewer Facility Fee per EDU	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	
Interest Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Beginning Fund Balance	$8,002,000	$8,921,000	$9,316,000	$9,692,000	$10,026,000	$10,293,000	$10,387,000	$10,350,000	$10,425,000	$10,583,000	
+ Reserved for CIP Projects	0	0	0	0	0	0	0	0	0	0	
REVENUES											
Sewer Service Charges	13,993,000	14,024,000	14,596,000	15,170,000	15,747,000	16,326,000	16,907,000	17,765,000	18,625,000	19,215,000	
Sewer Connection Fees	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	
Interest Income	160,000	178,000	186,000	194,000	201,000	206,000	208,000	207,000	209,000	212,000	
Other	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	
Total Revenues	14,468,000	14,517,000	15,097,000	15,679,000	16,263,000	16,847,000	17,430,000	18,287,000	19,149,000	19,742,000	
EXPENSES											
Operating & Maintenance											
Contractual Operating Services	6,531,000	6,858,000	7,201,000	7,561,000	7,939,000	8,336,000	8,753,000	9,191,000	9,651,000	10,134,000	5.0%
Personnel Costs	152,000	158,000	164,000	171,000	178,000	185,000	192,000	200,000	208,000	216,000	4.0%
Electricity	341,000	355,000	369,000	384,000	399,000	415,000	432,000	449,000	467,000	486,000	4.0%
Other Contractual Services	222,000	231,000	240,000	250,000	260,000	270,000	281,000	292,000	304,000	316,000	4.0%
Direct Cost Reimb to Gen'l Fund	213,000	222,000	231,000	240,000	250,000	260,000	270,000	281,000	292,000	304,000	4.0%
Insurance	1,191,000	1,251,000	1,314,000	1,380,000	1,449,000	1,521,000	1,597,000	1,677,000	1,761,000	1,849,000	5.0%
Vehicle Repair & Maintenance	165,000	172,000	179,000	186,000	193,000	201,000	209,000	217,000	226,000	235,000	4.0%
Other Operating Expenses	30,000	31,000	32,000	33,000	34,000	35,000	36,000	37,000	38,000	40,000	4.0%
Subtotal	8,845,000	9,278,000	9,730,000	10,205,000	10,702,000	11,223,000	11,770,000	12,344,000	12,947,000	13,580,000	
Capital/Other Non-Operating			Priority 3 WWTP Projects					Priority 4 WWTP Projects			
WWTP Capital Improvements	2,688,000	2,768,000	2,852,000	2,937,000	3,025,000	3,583,000	3,691,000	3,802,000	3,916,000	4,033,000	
Encumbered WWTP Capital Improvements	0	0	0	0	0	0	0	0	0	0	
Collection System Repairs/Repls	2,016,000	2,076,000	2,139,000	2,203,000	2,269,000	1,947,000	2,006,000	2,066,000	2,128,000	2,192,000	
Subtotal	4,704,000	4,844,000	4,991,000	5,140,000	5,294,000	5,530,000	5,697,000	5,868,000	6,044,000	6,225,000	
Total Expenses	13,549,000	14,122,000	14,721,000	15,345,000	15,996,000	16,753,000	17,467,000	18,212,000	18,991,000	19,805,000	
Revenues Less Expenses	919,000	395,000	376,000	334,000	267,000	94,000	(37,000)	75,000	158,000	(63,000)	
Ending Fund Balance	8,921,000	9,316,000	9,692,000	10,026,000	10,293,000	10,387,000	10,350,000	10,425,000	10,583,000	10,520,000	
+ Reserved for CIP Projects	0	0	0	0	0	0	0	0	0	0	
Minimum Fund Reserve Target											
50% O&M + $2M emergency capital	6,422,500	6,639,000	6,865,000	7,102,500	7,351,000	7 611,500	7,885,000	8,172,000	8 473,500	8,790,000	

The cash flow projections indicate the need for rate increases over the next three years as summarized on Table 10 below. The projections assume across-the-board increases with rates for all customer classes escalating by the same percentage each year. The initial necessary rate increases are phased in over three years to minimize the annual impact on ratepayers. Table 11 on the following page shows a long-term 20-year rate projection.

TABLE 10 - PROJECTED MONTHLY SEWER SERVICE CHARGES

Cusotmer Class	Billing Unit	Effective Date July 1 Current	2010	2011	2012
Residential	Per unit	$10.36	$14.00	$17.00	$20.00
Commercial & Industrial	Per fixture unit	1.02	1.38	1.68	1.98
	Minimum charge	10.36	14.00	17.00	20.00
Hotel - Rooms Without Kitchens	Base charge +	10.36	14.00	17 00	20 00
	Per room	3.53	4.77	5.79	6.81
Hotel - Rooms With Kitchens	Per room	6.81	9.20	11.17	13.14
Mobile Home Parks	Per unit +	10.36	14.00	17.00	20.00
	Per fixture unit	1.02	1.38	1.68	1.98
Recreational Vehicle Parks	Per space +	2.54	3.43	4.17	4.91
	Per fixture unit	1 02	1.38	1 68	1.98
Septage Dumping Fee *For loads up to 1,000 gallons*					
Within City limits	Per load	35.00	47.30	57.44	67.58
Outside City limits	Per load	70.00	94.59	114.86	135.13
Properties Adjacent to City *Rates for customers outside of City limits are 150% of the standard established rates*					
Sewer Permit Fee *For discharging septage at the City's Wastewater Treatment Plant*	Per application	1,000.00	1,351.35	1,640.93	1,930.51

Small annual rate increases of roughly $1 per month per residence or EDU projected for future years.

The projections also indicate the need for small annual rate increases every year thereafter to a) keep revenues in line with cost inflation, and b) provide adequate funding for wastewater system capital needs through completion of the 20-year capital improvement program. Based on the financial projections, after the initial phase-in of rate increases over the next three years, the City's monthly residential sewer rate would gradually increase by roughly $1 per month each year to a monthly rate of approximately $35 in 20 years.

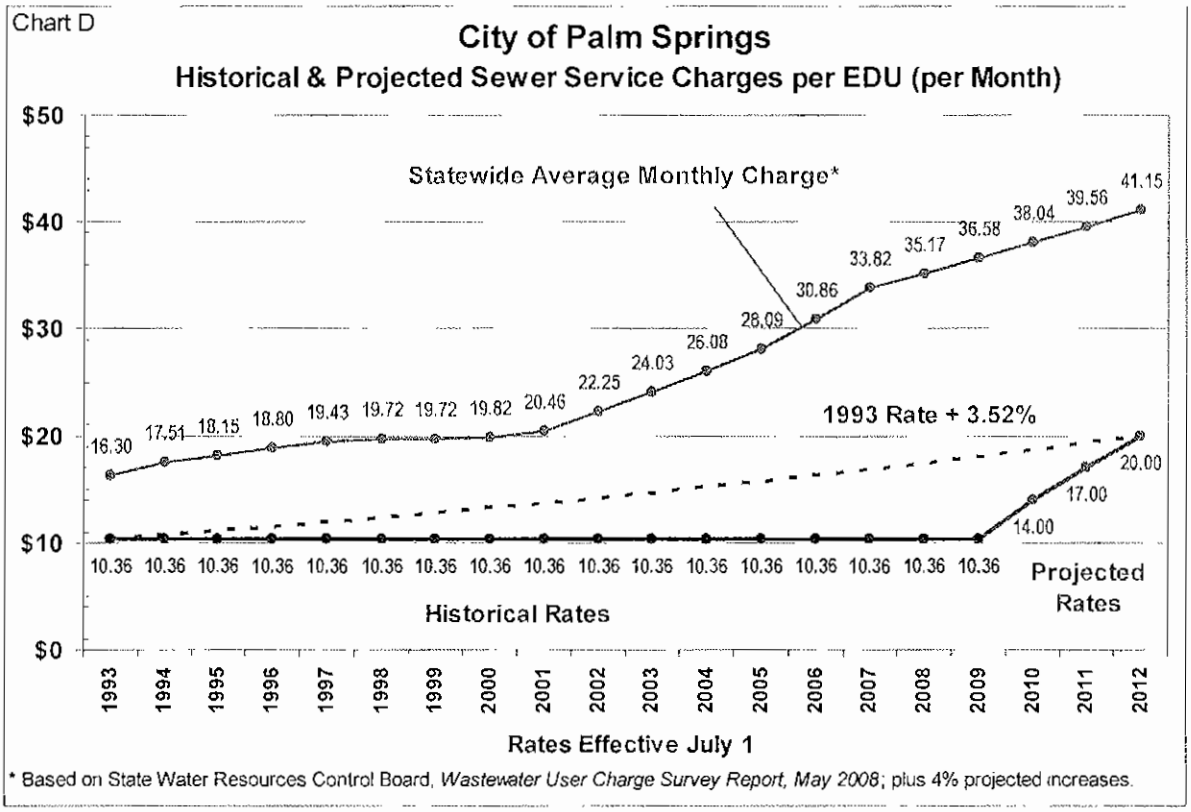
Chart D shows historical monthly sewer rates along with the initial 3-year phase in of rate increases to a level of $20 per month. With the projected rate increases, the City's sewer rates are projected to remain in the lower-to-middle range of regional agencies and will be roughly half of the statewide average. From a longer-term perspective, the projected rate increases over the next three years result in a sewer rate that is equal to the 1993 rate escalated at the annual rate of 3.52%.

Chart E shows a long-term projection of sewer rates. As shown on the chart, the City's 20-year projected sewer rate of $35 per month is lower than the current statewide average and will remain below half of the estimated future statewide average.

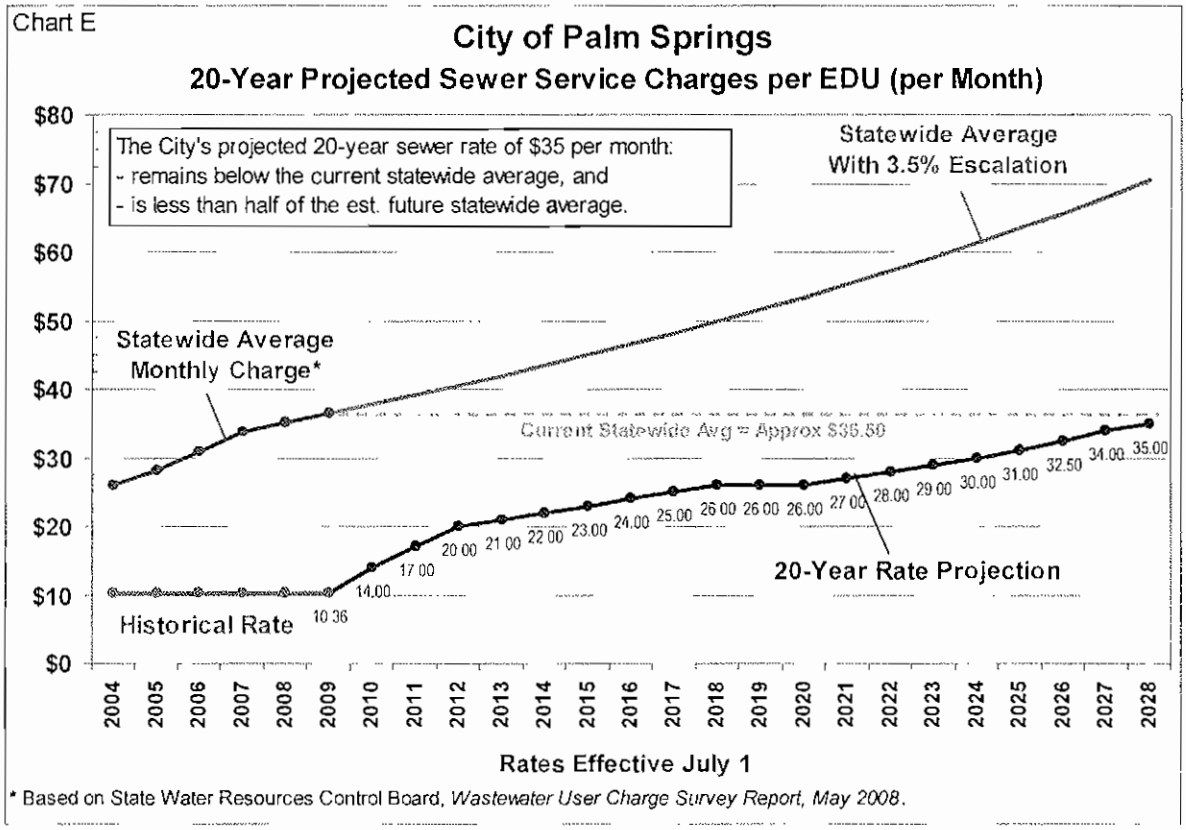
TABLE 11 - LONG-TERM PROJECTION OF MONTHLY SEWER SERVICE CHARGES

Customer Class	Billing Unit	Monthly Rates Effective July 1									
		Current	2010	2011	2012	2013	2014	2015	2016	2017	2018
Residential	Per unit	$10.36	$14.00	$17.00	$20.00	$21.00	$22.00	$23.00	$24.00	$25.00	$26.00
Commercial & Industrial	Per fixture unit	1.02	1.38	1.68	1.98	2.08	2.18	2.28	2.38	2.48	2.58
	Minimum charge	10.36	14.00	17.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00
Hotel - Rooms Without Kitchens	Base charge +	10.36	14.00	17.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00
	Per room	3.53	4.77	5.79	6.81	7.15	7.49	7.83	8.17	8.51	8.85
Hotel - Rooms With Kitchens	Per room	6.81	9.20	11.17	13.14	13.80	14.46	15.12	15.78	16.44	17.10
Mobile Home Parks	Per unit +	10.36	14.00	17.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00
	Per fixture unit	1.02	1.38	1.68	1.98	2.08	2.18	2.28	2.38	2.48	2.58
Recreational Vehicle Parks	Per space +	2.54	3.43	4.17	4.91	5.16	5.41	5.66	5.91	6.16	6.41
	Per fixture unit	1.02	1.38	1.68	1.98	2.08	2.18	2.28	2.38	2.48	2.58
Septage Dumping Fee											
For loads up to 1,000 gallons											
Within City limits	Per load	35.00	47.30	57.44	67.58	70.96	74.34	77.72	81.10	84.48	87.86
Outside City limits	Per load	70.00	94.60	114.88	135.16	141.92	148.68	155.44	162.20	168.96	175.72
Properties Adjacent to City											
Rates for customers outside of City limits are 150% of the standard established rates											
Sewer Permit Fee	Per application	1,000.00	1,351.35	1,640.93	1,930.51	2,027.04	2,123.57	2,220.10	2,316.63	2,413.16	2,509.69
For discharging septage at the City's Wastewater Treatment Plant											

Customer Class	Billing Unit	Monthly Rates Effective July 1									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	Per unit	$26.00	$26.00	$27.00	$28.00	$29.00	$30.00	$31.00	$32.50	$34.00	$35.00
Commercial & Industrial	Per fixture unit	2.58	2.58	2.68	2.78	2.88	2.98	3.08	3.23	3.38	3.48
	Minimum charge	26.00	26.00	27.00	28.00	29.00	30.00	31.00	32.50	34.00	35.00
Hotel - Rooms Without Kitchens	Base charge +	26.00	26.00	27.00	28.00	29.00	30.00	31.00	32.50	34.00	35.00
	Per room	8.85	8.85	9.19	9.53	9.87	10.21	10.55	11.06	11.57	11.91
Hotel - Rooms With Kitchens	Per room	17.10	17.10	17.76	18.42	19.08	19.74	20.40	21.39	22.38	23.04
Mobile Home Parks	Per unit +	26.00	26.00	27.00	28.00	29.00	30.00	31.00	32.50	34.00	35.00
	Per fixture unit	2.58	2.58	2.68	2.78	2.88	2.98	3.08	3.23	3.38	3.48
Recreational Vehicle Parks	Per space +	6.41	6.41	6.66	6.91	7.16	7.41	7.66	8.03	8.40	8.65
	Per fixture unit	2.58	2.58	2.68	2.78	2.88	2.98	3.08	3.23	3.38	3.48
Septage Dumping Fee											
For loads up to 1,000 gallons											
Within City limits	Per load	87.86	87.86	91.24	94.62	98.00	101.38	104.76	109.83	114.90	118.28
Outside City limits	Per load	175.72	175.72	182.48	189.24	196.00	202.76	209.52	219.66	229.80	236.56
Properties Adjacent to City											
Rates for customers outside of City limits are 150% of the standard established rates											
Sewer Permit Fee	Per application	2,509.69	2,509.69	2,606.22	2,702.75	2,799.28	2,895.81	2,992.34	3,137.13	3,281.92	3,376.45
For discharging septage at the City's Wastewater Treatment Plant											



Small annual rate increases of roughly $1 per month per residence or EDU projected for future years.



1.14 Debt Financing

Alternative financial projections were developed to evaluate if debt financing could mitigate the level of rate increases. The alternative projections assumed $8 million of debt financing to help fund Priority 1 capital needs in the first 5-years, and an additional $10 million of debt financing each 5-year period going forward. This would result in debt service payments gradually escalating to roughly $3 million per year over the next 15-20 years based on estimated annual debt service of approximately $800,000 per each $10 million of projects financed.

The analysis indicates that debt could be strategically used to result in a more gradual phase in of rate increases, especially in the near term. For example, sewer rates could be gradually increased to a level equal to $20 per month over 5 years, as opposed to over 3 years if capital improvements are funded entirely on a pay-as-you-go basis. At the same time, debt would also result in the need for higher rate increases over the longer-term, particularly after completion of the 20-year capital program when the City would need to generate about $3 million more per year for debt service until debt was gradually retired.

If the City ever opts to pursue debt financing to help fund a portion of its capital program, it is recommended the City first pursue the lowest-cost financing options such as the use of state-subsidized funding programs including Clean Water State Revolving Fund Loans (SRF Loans). If conventional financing is ever needed, the City should evaluate the cost-effectiveness of using bonds, Certificates of Participation, or bank loans to determine the lowest-cost option.

A summary of basic sewer-revenue-supported financing options is listed below. Debt financing estimates for SRF Loans and bond/COPs are included in Appendix A.

- **State Revolving Fund (SRF) Loan Program** – The Clean Water State Revolving Fund Loan program administered by the State Water Resources Control Board offers 20-year fixed-rate loans for eligible wastewater projects. The program can currently be used to fund up to $50 million of projects per year. The interest rate is set at roughly one half of the state's general obligation bond rate; current interest rates are approximately 2.5%. Another advantage of the SRF Loan program is that the first debt service payment is not due until one year after the project is completed, giving agencies more time to get their rates in place to support debt repayment. The program does not fund the replacement of facilities that were previously grant-funded. Debt repayment is typically secured by an agency's legal pledge to raise rates and fees as needed to repay debt service.
- **Other Grant & Loan Programs** – There are a number of other state and federal funding programs available to fund projects that meet each program's eligibility requirements. Grants are hard to come by and often only provide a relatively small amount of funding if awarded; wastewater grants are generally only available to small agencies serving economically disadvantaged areas. Most other subsidized loan programs offer interest rates that are higher than the SRF Loan program.
- **Revenue Bonds & COPs**- Revenue bonds and Certificates of Participation (COPs) are the most common types of debt financing used by utility enterprises, such as water and wastewater agencies. Although there are some technical differences between bonds and COPs, both function almost exactly the same from the issuer's standpoint. Debt repayment is secured by an agency's binding legal pledge to raise rates and charges necessary to repay debt and achieve a specified debt service coverage ratio. Revenue bonds and COPs are typically issued with terms of up to 30 years and offer relatively low tax-exempt municipal interest rates. Current interest rates vary by the underlying credit quality of the issuing agency. For financial planning purposes, the average

annual interest rate is estimated at 5.25% for a 25-year revenue bond or COP, and 5% for a 20-year bond.

- **Bank Loans, Private Placements, Leases, & Lines of Credit** – Bank loans, private placements, and leases typically offer slightly higher interest rates than bonds, but also have lower costs of issuance. This generally makes bank loans a cost-effective option for smaller borrowings, historically under $5 million. Currently, only a very limited number of banks are considering making loans with terms extending 15-20 years. Interest rates can vary from month to month. The interest rate for a 20-year bank loan is currently estimated at 5.75%. Short-term bank loans and lines of credit are sometimes used to provide interim financing that will eventually be taken out with long-term debt. For example, agencies with limited fund reserves may use a line of credit to fund project design and preliminary engineering costs prior to issuing long-term bonds when construction bids are received. The legal covenants securing loans and lines of credit are generally similar to those of bonds or COPs.

1.15 Proposition 218

Proposition 218, the "Right to Vote on Taxes Act", was approved by California voters in November 1996 and is codified as Articles XIIIC and XIIID of the California Constitution. Proposition 218 establishes requirements for imposing or increasing property related taxes, assessments, fees and charges. For many years, there was no legal consensus on whether water and sewer rates met the definition of "property relates fees". In July 2007, the California Supreme Court essentially confirmed that Proposition 218 applies to water rates. The prevailing legal consensus is that Proposition 218 also applies to wastewater rates.

Proposition 218 establishes certain procedural requirements for adopting rate increases. These requirements include:

- **Noticing Requirement:** The City must mail a notice of proposed rate increases to all affected property owners. The notice must specify the basis of the fee, the reason for the fee, and the date/time/location of a public rate hearing at which the proposed rates will be considered/adopted.
- **Public Hearing:** The City must hold a public hearing prior to adopting the proposed rate increases. The public hearing must be held not less than 45 days after the required notices are mailed.
- **Rate Increases Subject to Majority Protest:** At the public hearing, the proposed rate increases are subject to majority protest. If more than 50% of affected property owners submit written protests against the proposed rate increases, the increases cannot be adopted.

Proposition 218 also established a number of substantive requirements that are generally deemed to apply to utility service charges, including:

- **Cost of Service** - Revenues derived from the fee or charge cannot exceed the funds required to provide the service. In essence, fees cannot exceed the "cost of service".
- **Intended Purpose** - Revenues derived from the fee or charge can only be used for the purpose for which the fee was imposed.

- **Proportional Cost Recovery** - The amount of the fee or charge levied on any customer shall not exceed the proportional cost of service attributable to that customer.

- No fee or charge may be imposed for a service unless that service is used by, or immediately available to, the owner of the property. Standby charges shall be classified as "assessments" which are governed by Article 13D Section 4.

Proposition 218 requires that the City ensure that its wastewater rates reasonably reflect the cost of providing service to each customer. It is our opinion that rates can recover costs for operations, capital needs, debt service, administration, as well as costs related to the prudent long-term operational or financial management of the utility enterprise, such as maintaining adequate fund reserves and planning for contingencies. While Proposition 218 places a number of limitations on the City's rates, we believe that the City retains substantial latitude to determine actual utility charges provided they do not exceed the cost of providing service.

1.16 AB3030

AB3030, which added Section 53756 to the California Government Code, went into effect on January 1, 2009. The new code clarifies that agencies that provide water, sewer, or refuse collection service may authorize a) automatic rate adjustments for inflation, and/or b) automatic rate pass throughs for wholesale water charge increases. Pursuant to AB3030, these automatic increases cannot exceed five years and must be clearly defined in the Prop. 218 notice, such as by a formula explaining how the adjustment will be calculated. Additionally, notice of any automatic increase must be sent to ratepayers at least 30 days prior to implementation. If applicable, the City should consult with its legal counsel to ensure compliance with all legal requirements including AB3030.

1.17 Multi-Year Rate Increase

In order to minimize the effort and cost of going through the Proposition 218 process year after year, it is recommended that the City pursue a multi-year wastewater rate increase. Ideally, the City can adopt a long-term maximum rate pursuant to the Proposition 218 process. This would give the City flexibility to implement sewer rate adjustments as needed for a number of years.

One option would be a two-pronged approach of adopting:

- The proposed 3-year rate increase that would phase in sewer rates to the equivalent of $20 per month over the next 3 fiscal years; and
- Subsequent future annual rate adjustments not to exceed 5% per year (or alternatively $1 per month) through the maximum monthly rate of $35 per home or EDU, the projected level needed to complete the wastewater system's 20-year capital improvement needs. By adopting a specific 20-year maximum allowable rate, the provisions of AB3030 might not apply and the City may able to gradually adjust future rates pursuant to whatever guidelines it sets provided that rates do not exceed the cost of providing service as mandated by Proposition 218.

At a minimum, the City should consider adopting a 3-year rate increase. Regardless of the multi-year approach used, the City will always maintain the flexibility to collect sewer rates that are below the not-to-exceed levels adopted pursuant to Proposition 218 process.

Appendix A

Financial & Rate Projections with Partial Debt Financing

TABLE A1 - SRF LOAN DEBT SERVICE ESTIMATES PER $10M	
	Standard SRF Loan
SRF Loan Proceeds	$10,000,000
ESTIMATED ANNUAL SRF LOAN PAYMENT	
SRF Loan Amount	
SRF Project Funding[1]	10,000,000
Accrued Interest During Construction[2]	150,000
Accrued Interest for One Year After Project Completion[3]	305,000
Total SRF Loan Amount	10,455,000
Loan Terms	
Term (years)	20
Interest Rate[4,5]	3.00%
Annual SRF Loan Payment	**703,000**
Debt Service Reserve Fund Requirement = Annual Debt Service	

1 Some costs may not be eligible for SRF Loan funding & would require another funding source.
2 Assumes steady gradual drawdown of loan funds over one year.
3 First debt service payment due one year following completion of project.
4 Interest rate estimated for financial planning purposes; actual rate may vary.
5 Annual interest rate as of October 2009 is approximately 2.5%.

TABLE A2 - REVENUE BOND DEBT SERVICE ESTIMATES PER $10M				
Repayment Term		**20 Years**	**25 Years**	**30 Years**
Funding Target		$10,000,000	$10,000,000	$10,000,000
Total Debt Issue		$11,340,000	$11,270,000	$11,240,000
Project Funding		$10,000,000	$10,000,000	$10,000,000
Issuance Costs & Reserve Requirement				
Underwriter Discount	1.00%	$113,400	$112,700	$112,400
Bond Insurance	0.75%	136,500	153,700	174,000
Debt Service Reserve Fund		910,000	819,800	773,400
Issuance Costs		175,000	175,000	175,000
Rounding		5,100	8,800	5,200
Total		1,340,000	1,270,000	1,240,000
Financing Terms				
Term (Years)		20	25	30
Est. Future Interest Rate		5.00%	5.25%	5.50%
Annual Debt Service				
Gross Annual Debt Service		910,000	819,800	773,400
Less Interest on Reserve Fund	3.00%	(27,300)	(24,600)	(23,200)
Net Annual Debt Service		**882,700**	**795,200**	**750,200**

Financing costs and interest rates estimated for financial planning purposes.

Table A3 - Sewer Enterprise Cash Flow Projections with Debt (Years 1 - 10)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Esc.
Monthly Rate per EDU	**$10.36**	**$12.50**	**$14.00**	**$16.00**	**$18.00**	**$20.00**	**$21.00**	**$22.00**	**$23.00**	**$24.00**	
Beginning EDUs	43,800	43,900	44,000	44,100	44,200	44,300	44,400	44,500	44,600	44,700	
New Connections, EDUs	100	100	100	100	100	100	100	100	100	100	
Est. Growth %	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0 2%	
Sewer Facility Fee per EDU	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	
Interest Rate	0.75%	1.0%	1.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Beginning Fund Balance	$5,416,000	$5,299,000	$5,766,000	$5,270,000	$6,217,000	$7,911,000	$5,950,000	$5,912,000	$6,016,000	$6,241,000	
+ Reserved for CIP Projects	6,049,000	3,000,000	0	0	0	0	0	0	0	0	
REVENUES											
Sewer Service Charges	5,451,000	6,593,000	7,400,000	8,477,000	9,558,000	10,644,000	11,201,000	11,761,000	12,323,000	12,888,000	
Sewer Connection Fees	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	
Interest Income	86,000	83,000	86,000	105,000	124,000	158,000	119,000	118,000	120,000	125,000	
Other	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15 000	
Total Revenues	5,852,000	6,991,000	7,801,000	8,897,000	9,997,000	11,117,000	11,635,000	12,194,000	12,758,000	13,328,000	
Debt Proceeds	0	0	8,000,000	0	0	10,000,000	0	0	0	0	
EXPENSES											
Operating & Maintenance											
Contractual Operating Services	3,682,000	3,903,000	4,137,000	4,385,000	4,648,000	4,927,000	5,223,000	5,536,000	5,868,000	6,220,000	6.0%
Personnel Costs	103,000	107,000	111,000	115,000	120,000	125,000	130,000	135,000	140,000	146,000	4.0%
Electricity	230,000	239,000	249,000	259,000	269,000	280,000	291,000	303,000	315,000	328,000	4.0%
Other Contractual Services	150,000	156,000	162,000	168,000	175,000	182,000	189,000	197,000	205,000	213,000	4.0%
Direct Cost Reimb to Gen'l Fund	50,000	150,000	156,000	162,000	168,000	175,000	182,000	189,000	197,000	205,000	4.0%
Insurance	671,000	711,000	754,000	799,000	847,000	898,000	952,000	1,009,000	1,070,000	1,134,000	6.0%
Vehicle Repair & Maintenance	112,000	116,000	121,000	126,000	131,000	136,000	141,000	147,000	153,000	159,000	4.0%
Other Operating Expenses	20,000	21,000	22,000	23,000	24,000	25,000	26,000	27,000	28,000	29,000	4.0%
Subtotal	5,018,000	5,403,000	5,712,000	6,037,000	6,382,000	6,748,000	7,134,000	7,543,000	7,976,000	8,434,000	
Debt Service	0	0	320,000	640,000	640,000	1,040,000	1,440,000	1,440,000	1,440,000	1,440,000	
Capital/Other Non-Operating			Priority 1 WWTP Projects					Priority 2 WWTP Projects			
WWTP Capital Improvements	701,000	863,000	10,000,000	1,000,000	1,000,000	15,000,000	2,800,000	2,800,000	2,800,000	2,800,000	
Encumbered WWTP Capital Improvements	3,049,000	3,000,000	0	0	0	0	0	0	0	0	
Collection System Repairs/Repls	250,000	258,000	265 000	273,000	281,000	290,000	299,000	307,000	317,000	326,000	
Subtotal	4,000,000	4,121,000	10,265,000	1,273,000	1,281,000	15,290,000	3,099,000	3,107,000	3,117,000	3,126,000	
Total Expenses	9,018,000	9,524,000	16,297,000	7,950,000	8,303,000	23,078,000	11,673,000	12,090,000	12,533,000	13,000,000	
Revenues Less Expenses	(3,166,000)	(2,533,000)	(496,000)	947,000	1,694,000	(1,961,000)	(38,000)	104,000	225,000	328,000	
Ending Fund Balance	5,299,000	5,766,000	5,270,000	6,217,000	7,911,000	5,950,000	5,912,000	6,016,000	6,241,000	6,569,000	
+ Reserved for CIP Projects	3,000,000	0	0	0	0	0	0	0	0	0	
Minimum Fund Reserve Target											
50% O&M + $2M emergency capital	4,509,000	4,701,500	4,856,000	5,018,500	5,191,000	5,374,000	5,567,000	5,771,500	5,988,000	6,217,000	
Debt Service Coverage	-	-	6.53	4.47	5.65	4.20	3.13	3.23	3.32	3.40	

Table A3 - Sewer Enterprise Cash Flow Projections with Debt (Years 11 - 20)

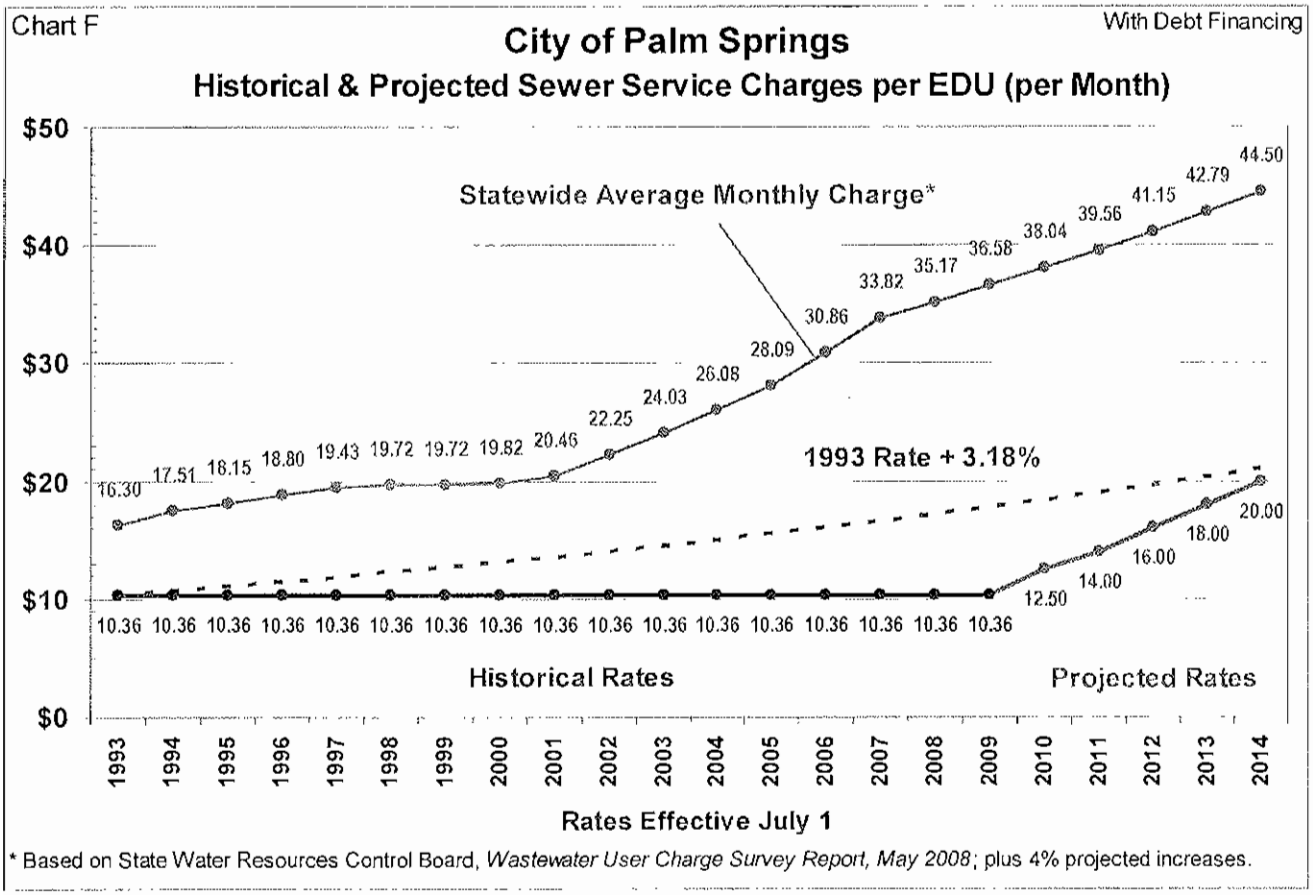
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Esc.
Monthly Rate per EDU	**$25.00**	**$26.00**	**$27.00**	**$28.00**	**$29.00**	**$31.00**	**$33.00**	**$35.00**	**$37.00**	**$38.00**	
Beginning EDUs	44,800	44,900	45,000	45,100	45,200	45,300	45,400	45,500	45,600	45,700	
New Connections, EDUs	100	100	100	100	100	100	100	100	100	100	
Est. Growth %	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	
Sewer Facility Fee per EDU	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	
Interest Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Beginning Fund Balance	$6,569,000	$6,769,000	$6,899,000	$7,089,000	$7,318,000	$7,565,000	$8,091,000	$7,750,000	$7,901,000	$8,528,000	
+ Reserved for CIP Projects	0	0	0	0	0	0	0	0	0	0	
REVENUES											
Sewer Service Charges	13,455,000	14,024,000	14,596,000	15,170,000	15,747,000	16,870,000	17,998,000	19,131,000	20,269,000	20,862,000	
Sewer Connection Fees	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	
Interest Income	131,000	135,000	138,000	142,000	146,000	151,000	162,000	155,000	158,000	171,000	
Other	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	
Total Revenues	13,901,000	14,474,000	15,049,000	15,627,000	16,208,000	17,336,000	18,475,000	19,601,000	20,742,000	21,348,000	
Debt Proceeds	10,000,000	0	0	0	0	10,000,000	0	0	0	0	
EXPENSES											
Operating & Maintenance											
Contractual Operating Services	6,531,000	6,858,000	7,201,000	7,561,000	7,939,000	8,336,000	8,753,000	9,191,000	9,651,000	10,134,000	5.0%
Personnel Costs	152,000	158,000	164,000	171,000	178,000	185,000	192,000	200,000	208,000	216,000	4.0%
Electricity	341,000	355,000	369,000	384,000	399,000	415,000	432,000	449,000	467,000	486,000	4.0%
Other Contractual Services	222,000	231,000	240,000	250,000	260,000	270,000	281,000	292,000	304,000	316,000	4.0%
Direct Cost Reimb to Gen'l Fund	213,000	222,000	231,000	240,000	250,000	260,000	270,000	281,000	292,000	304,000	4.0%
Insurance	1,191,000	1,251,000	1,314,000	1,380,000	1,449,000	1,521,000	1,597,000	1,677,000	1,761,000	1,849,000	5.0%
Vehicle Repair & Maintenance	165,000	172,000	179,000	186,000	193,000	201,000	209,000	217,000	226,000	235,000	4.0%
Other Operating Expenses	30,000	31,000	32,000	33,000	34,000	35,000	36,000	37,000	38,000	40,000	4.0%
Subtotal	8,845,000	9,278,000	9,730,000	10,205,000	10,702,000	11,223,000	11,770,000	12,344,000	12,947,000	13,580,000	
Debt Service	1,840,000	2,240,000	2,240,000	2,240,000	2,240,000	2,640,000	3,040,000	3,040,000	3,040,000	3,040,000	
Capital/Other Non-Operating		Priority 3 WWTP Projects					Priority 4 WWTP Projects				
WWTP Capital Improvements	11,000,000	750,000	750,000	750,000	750,000	11,000,000	2,000,000	2,000,000	2,000,000	2,000,000	
Encumbered WWTP Capital Improvements	0	0	0	0	0	0	0	0	0	0	
Collection System Repairs/Repls	2,016,000	2,076,000	2,139,000	2,203,000	2,269,000	1,947,000	2,006,000	2,066,000	2,128,000	2,192,000	
Subtotal	13,016,000	2,826,000	2,889,000	2,953,000	3,019,000	12,947,000	4,006,000	4,066,000	4,128,000	4,192,000	
Total Expenses	23,701,000	14,344,000	14,859,000	15,398,000	15,961,000	26,810,000	18,816,000	19,450,000	20,115,000	20,812,000	
Revenues Less Expenses	200,000	130,000	190,000	229,000	247,000	526,000	(341,000)	151,000	627,000	536,000	
Ending Fund Balance	6,769,000	6,899,000	7,089,000	7,318,000	7,565,000	8,091,000	7,750,000	7,901,000	8,528,000	9,064,000	
+ Reserved for CIP Projects	0	0	0	0	0	0	0	0	0	0	
Minimum Fund Reserve Target											
50% O&M + $2M emergency capital	6,422,500	6,639,000	6,865,000	7,102,500	7,351,000	7,611,500	7,885,000	8,172,000	8,473,500	8,790,000	
Debt Service Coverage	2.75	2.32	2.37	2.42	2.46	2.32	2.21	2.39	2.56	2.56	

TABLE A4 - PROJECTED MONTHLY SEWER SERVICE CHARGES							
Cusotmer	Billing	Effective Date July 1					
Class	Unit	Current	2010	2011	2012	2013	2014
Residential	Per unit	$10.36	$12.50	$14.00	$16.00	$18 00	$20.00
Commercial & Industrial	Per fixture unit	1.02	1.23	1.38	1.58	1.78	1.98
	Minimum charge	10 36	12.50	14.00	16.00	18.00	20 00
Hotel - Rooms Without Kitchens	Base charge +	10.36	12.50	14.00	16.00	18.00	20.00
	Per room	3.53	4.26	4.77	5.45	6.13	6.81
Hotel - Rooms With Kitchens	Per room	6.81	8.22	9 21	10.53	11.85	13.17
Mobile Home Parks	Per unit +	10.36	12.50	14.00	16.00	18.00	20.00
	Per fixture unit	1.02	1.23	1.38	1.58	1.78	1.98
Recreational Vehicle Parks	Per space +	2.54	3.06	3.43	3.92	4.41	4.90
	Per fixture unit	1.02	1.23	1.38	1.58	1.78	1.98
Septage Dumping Fee							
For loads up to 1,000 gallons							
Within City limits	Per load	35.00	42 23	47.30	54.06	60.82	67.58
Outside City limits	Per load	70.00	84.46	94.60	108.11	121.62	135.13
Properties Adjacent to City							
Rates for customers outside of City limits are 150% of the standard established rates							
Sewer Permit Fee	Per application	1,000.00	1,206.60	1,351.40	1,544.50	1,737.60	1,930.70
For discharging septage at the City's Wastewater Treatment Plant							

Small annual rate increases of roughly $1-$2 per month per residence or EDU projected for future years.

Chart F

With Debt Financing



* Based on State Water Resources Control Board, *Wastewater User Charge Survey Report, May 2008*; plus 4% projected increases.

Small annual rate increases of roughly $1-$2 per month per residence or EDU projected for future years.

TABLE A5 - LONG-TERM PROJECTION OF MONTHLY SEWER SERVICE CHARGES WITH PARTIAL DEBT FINANCING

Customer Class	Billing Unit	Monthly Rates Effective July 1									
		Current	2010	2011	2012	2013	2014	2015	2016	2017	2018
Residential	Per unit	$10.36	$12.50	$14.00	$16.00	$18.00	$20.00	$21.00	$22.00	$23.00	$24.00
Commercial & Industrial	Per fixture unit	1.02	1.23	1.38	1.58	1.78	1.98	2.08	2.18	2.28	2.38
	Minimum charge	10.36	12.50	14.00	16.00	18.00	20.00	21.00	22.00	23.00	24.00
Hotel - Rooms Without Kitchens	Base charge +	10.36	12.50	14.00	16.00	18.00	20.00	21.00	22.00	23.00	24.00
	Per room	3.53	4.26	4.77	5.45	6.13	6.81	7.15	7.49	7.83	8.17
Hotel - Rooms With Kitchens	Per room	6.81	8.22	9.21	10.53	11.85	13.17	13.83	14.49	15.15	15.81
Mobile Home Parks	Per unit +	10.36	12.50	14.00	16.00	18.00	20.00	21.00	22.00	23.00	24.00
	Per fixture unit	1.02	1.23	1.38	1.58	1.78	1.98	2.08	2.18	2.28	2.38
Recreational Vehicle Parks	Per space +	2.54	3.06	3.43	3.92	4.41	4.90	5.15	5.40	5.65	5.90
	Per fixture unit	1.02	1.23	1.38	1.58	1.78	1.98	2.08	2.18	2.28	2.38
Septage Dumping Fee											
For loads up to 1,000 gallons											
Within City limits	Per load	35.00	42.23	47.30	54.06	60.82	67.58	70.96	74.34	77.72	81.10
Outside City limits	Per load	70.00	84.46	94.60	108.12	121.64	135.16	141.92	148.68	155.44	162.20
Properties Adjacent to City											
Rates for customers outside of City limits are 150% of the standard established rates											
Sewer Permit Fee	Per application	1,000.00	1,206.56	1,351.35	1,544.40	1,737.45	1,930.50	2,027.03	2,123.56	2,220.09	2,316.62
For discharging septage at the City's Wastewater Treatment Plant											

Customer Class	Billing Unit	Monthly Rates Effective July 1									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	Per unit	$25.00	$26.00	$27.00	$28.00	$29.00	$31.00	$33.00	$35.00	$37.00	$38.00
Commercial & Industrial	Per fixture unit	2.48	2.58	2.68	2.78	2.88	3.08	3.28	3.48	3.68	3.78
	Minimum charge	25.00	26.00	27.00	28.00	29.00	31.00	33.00	35.00	37.00	38.00
Hotel - Rooms Without Kitchens	Base charge +	25.00	26.00	27.00	28.00	29.00	31.00	33.00	35.00	37.00	38.00
	Per room	8.51	8.85	9.19	9.53	9.87	10.55	11.23	11.91	12.59	12.93
Hotel - Rooms With Kitchens	Per room	16.47	17.13	17.79	18.45	19.11	20.43	21.75	23.07	24.39	25.05
Mobile Home Parks	Per unit +	25.00	26.00	27.00	28.00	29.00	31.00	33.00	35.00	37.00	38.00
	Per fixture unit	2.48	2.58	2.68	2.78	2.88	3.08	3.28	3.48	3.68	3.78
Recreational Vehicle Parks	Per space +	6.15	6.40	6.65	6.90	7.15	7.64	8.13	8.62	9.11	9.36
	Per fixture unit	2.48	2.58	2.68	2.78	2.88	3.08	3.28	3.48	3.68	3.78
Septage Dumping Fee											
For loads up to 1,000 gallons											
Within City limits	Per load	84.48	87.86	91.24	94.62	98.00	104.76	111.52	118.28	125.04	128.42
Outside City limits	Per load	168.96	175.72	182.48	189.24	196.00	209.52	223.04	236.56	250.08	256.84
Properties Adjacent to City											
Rates for customers outside of City limits are 150% of the standard established rates											
Sewer Permit Fee	Per application	2,413.15	2,509.68	2,606.21	2,702.74	2,799.27	2,992.32	3,185.37	3,378.42	3,571.47	3,668.00
For discharging septage at the City's Wastewater Treatment Plant											

ATTACHMENT 4
DRAFT PROPOSITION 218 NOTICE

City of Palm Springs
3200 East Tahquitz Canyon Way
Palm Springs, CA 92262

NOTIFICATION OF PUBLIC HEARING ON PROPOSED SEWER RATE INCREASES

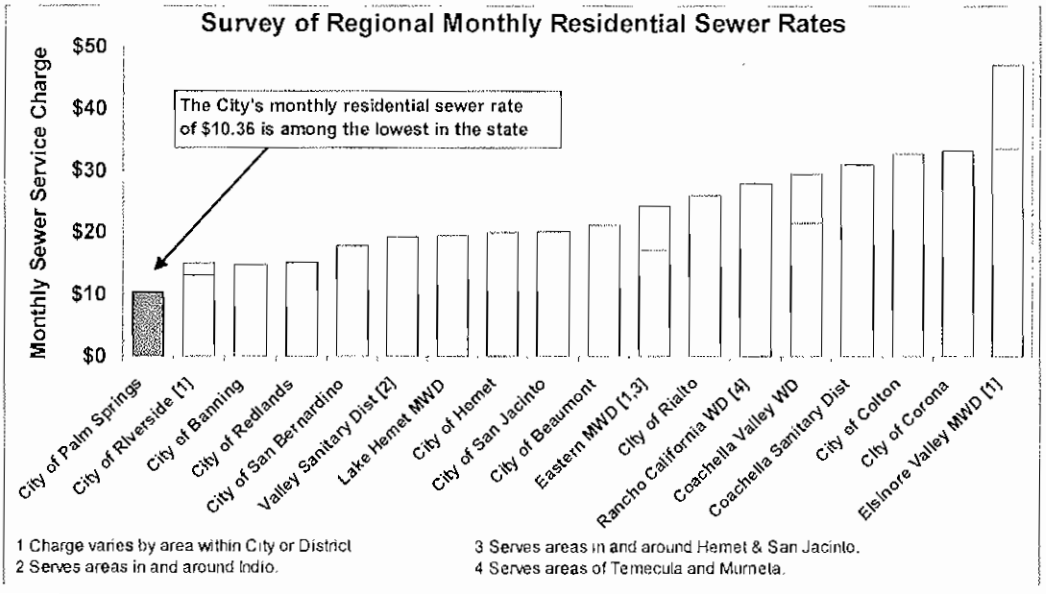
Dear Property Owner,

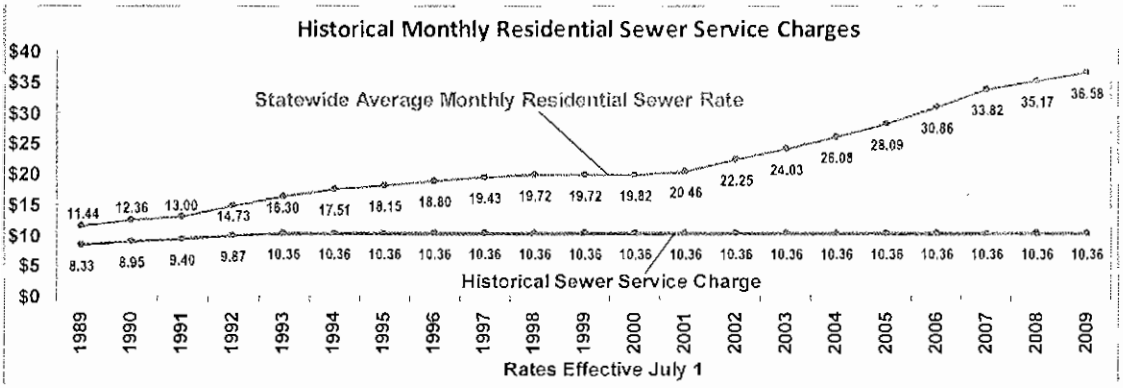
The City of Palm Springs' sewer rates have not been adjusted since 1993 and are currently among the lowest in California. After 17 years of no rate increases, the City is proposing to phase in a series of sewer service charge increases in upcoming years to provide adequate funding for wastewater system operations and critical infrastructure needs. Residential customers currently pay a sewer service charge of $10.36 per month ($124.32 per year), which is less than one-third of the statewide average. This notice provides information on the proposed rate increases, why they are needed, and information about a public hearing on the proposed rates.

WHY RATE INCREASES ARE NEEDED?

The City's wastewater treatment plant was originally built in 1960 and is now 50 years old. A recent engineering study identified the need for substantial rehabilitation of the treatment plant including replacing aging equipment and infrastructure, and improving outdated and inefficient treatment processes. The engineering study identified over $67 million of capital improvements needed over the next 20 years, including over $45 million of high-priority projects needed in the next 10 years.

Additionally, the City's operating and maintenance costs have risen over the past 15 years with no corresponding rate increases. The City's wastewater utility is a self-supporting enterprise funded primarily from sewer service charges. A financial rate study conducted by an independent consultant has demonstrated that the City's current rates will not recover the full cost of providing wastewater service in the near future and can not fund the required capital improvements.





The City's residential sewer rates are currently more than $25 below the California statewide average.

CITY PROPOSING TO PHASE IN SEWER RATE ADJUSTMENTS

The City is proposing to phase in a series of annual sewer service charge increases to provide adequate funding for wastewater system operations and critical infrastructure needs. The first three years of rate increases will bring rates in line with the cost of providing service and provide an appropriate level of annual funding to support rehabilitation of the City's aging wastewater treatment plant. After three years, the City anticipates adopting small annual rate adjustments each year to keep sewer rates aligned with the cost of providing service and provide funding to complete the sewer utility's 20-year capital improvement program. The proposed 20-year maximum sewer rate is $35 per residential dwelling unit or equivalent. Most customers pay for sewer service via charges collected with their semi-annual property tax payments.

Proposed Monthly Sewer Service Charges

Customer Class	Billing Unit	Current	July 1 2010	July 1 2011	July 1 2012	20-Year Maximum
Residential	Per dwelling unit	$10.36	$14.00	$17.00	$20.00	$35.00
Commercial & Industrial	Per fixture unit	1.02	1.38	1.68	1.98	3.48
	Minimum charge	10.36	14.00	17.00	20.00	35.00
Hotel - Rooms Without Kitchens	Base charge +	10.36	14.00	17.00	20.00	35.00
	Per room	3.53	4.77	5.79	6.81	11.91
Hotel - Rooms With Kitchens	Per room	6.81	9.20	11.17	13.14	23.04
Mobile Home Parks	Per unit +	10.36	14.00	17.00	20.00	35.00
	Per fixture unit	1.02	1.38	1.68	1.98	3.48
Recreational Vehicle Parks	Per space +	2.54	3.43	4.17	4.91	8.65
	Per fixture unit	1.02	1.38	1.68	1.98	3.48
Septage Dumping Fee (For loads up to 1,000 gallons)						
Within City limits	Per load	35.00	47.30	57.44	67.58	
Outside City limits	Per load	70.00	94.59	114.86	135.13	118.28

Sewer service charges for customers outside of City limits are 150% of the inside-City rates shown above.
After 2012, the City plans to implement small annual rate increases not-to-exceed the cumulative level of $1 per month per year

With the proposed adjustments, the City's sewer rates will remain low when compared to other regional agencies, with the maximum rate of $35 per residential dwelling unit (20 years from now) remaining less than the current statewide average rate of approximately $36.58 per month.

CITY MAINTAINING FOCUS ON COST-EFFICIENCY

The City remains committed to providing high-quality sewer service as cost-efficiently as possible. The City contracts its wastewater system operations to a private operator and anticipates funding its wastewater capital improvement program on a prudent "pay as you go" basis. The sewer utility currently has no outstanding debt. To help phase in rate increases over the next few years, the City will be using wastewater fund reserves it has accrued for high-priority wastewater capital projects. The City will only implement future rate increases as financially necessary. Pursuant to California law, the City's sewer rates cannot exceed the cost of providing service.

NOTIFICATION OF A PUBLIC HEARING ON PROPOSED RATE INCREASES

The City Council will conduct a Public Hearing on the proposed sewer rate adjustments at 6:00 p.m. on June 16, 2010 at City Hall, 3200 East Tahquitz Canyon Way, Palm Springs, CA 92262. Property owners wishing to protest the proposed sewer rate adjustments may mail or deliver written protests to this address. If written protests against the rate adjustments are submitted by more than 50% of the affected property owners, the proposed sewer rate adjustments will not be adopted. Pursuant to California law, protests must be made in writing and must identify the property owner(s), the property (such as by address or Assessor's Parcel Number), and include the signature of the property owner(s). Written protests must be received prior to the close of the Public Hearing.