METRO TAC AGENDA
(Technical Advisory Committee to Metro JPA)

TO: Metro TAC Representatives and Metro Commissioners

DATE: Wednesday, April 20, 2011

TIME: 11:00 a.m. to 1:30 p.m.

LOCATION: MWWD, 9192 Topaz Way, (MOCII Auditorium) – Lunch will be provided

PLEASE DISTRIBUTE THIS NOTICE TO METRO COMMISSIONERS AND METRO TAC REPRESENTATIVES

1. Review and Approve MetroTAC Action Minutes for the Meeting of March 16, 2011 **(Attachment)**
2. Metro Commission/JPA Board Meeting Recap (Standing Item)
3. Financial Update (Karyn Keese)
4. Metro Wastewater Update
5. MetroTAC Work Plan (Standing Item) (**Attachment**)
6. Purchase of Chemicals, Supplies and Services for Peroxide Regenerated Iron – Sulfide Control (PRI-SC/PRI-CEPT) (Chris McKinney)
7. MBC Odor Control Facility Upgrades (Idalmiro Manuel da Rosa) (**Attachment)**
8. Recycled Water Master Plan Study
9. Strategic Planning Workshop
10. Review of Items to be Brought Forward to the Metro Commission/Metro JPA Meeting of May 5, 2011
11. Other Business of Metro TAC
12. Adjournment (To the next Regular Meeting, May 18, 2011)

Metro TAC 2011 Meeting Schedule

January 19	May 18	September 21
February 16	June 15	October 19
March 16	July 20	November 16
April 20	August 17	December 21

AGENDA ITEM 1
Attachment

Metro TAC
(Technical Advisory Committee to Metro JPA)

ACTION MINUTES

DATE OF MEETING: March 16, 2011

TIME: 11 AM

LOCATION: MWWD, MOC II, Auditorium

MEETING ATTENDANCE:

Roberto Yano, Chula Vista
Scott Huth, Coronado
Dan Brogadir, County of San Diego
Dennis Davies, El Cajon
Erin Bullers, La Mesa
Greg Humora, La Mesa
Mike James, Lemon Grove
Bob Kennedy, Otay Water District
Augie Caires, Padre Dam MWD
Allen Carlisle, Padre Dam MWD
Al Lau, Padre Dam MWD
Kristen Crane, Poway
Amer Barhoumi, City of San Diego
Lee Ann Jones-Santos, City of San Diego
Peggy Merino, City of San Diego
Edgar Patino, City of San Diego
Jamie Richards, City of San Diego
Ann Sasaki, City of San Diego
Dean Gipson, PBS&J/Atkins
Karyn Keese, PBS&J/Atkins

1. **Review and Approve MetroTAC Action Minutes for the Meeting of February 16, 2011**
   - Minutes were approved

2. **Metro Commission/JPA Board Meeting Recap**
   - Audit presentation should be in a PowerPoint format (not to use the handout) to help speed it along

3. **Financial Update**
   - Presented the PBS&J/Atkins budget change order
   - Ideas where PAs could participate to reduce expenditure include doing the minutes, work plans, etc.
   - General support from the TAC members for the amendment recognizing the work that PBS&J is doing is valuable and that everyone is pretty much at capacity and cannot take on more assignments at this time

ACTION: *Confirm what balance is in the JPA budget to make sure it will cover the amendment*

RECOMMENDATION: *Present to Finance Committee and JPA Board with the inclusion of what is available in the JPA budget*

4. **Metro Wastewater Update**
   - CAFR will be delayed until past May, which will delay Exhibit E update
   - Upcoming MBC odor control project needs a TAC representative on the selection panel: OWD Bob Kennedy next on list

- The City and the PAs held a revenue meeting on 3/3. City is reviewing its position on the issue has an internal meeting planned for 3/17 to determine its solution
- City is looking into how to refund and reallocate monies as a result of PDMWD being double-charges for sludge.
- San Diego City council approved new Bid to Goal contract and update to the contract for water employees contingent on ending the program on 6/30/11

ACTION: ***City to bring midyear update for Metro piece for next TAC***

5. MetroTAC Work Plan (Standing Item)

- Each item was reviewed and updated on the work plan

6. Strategic Planning Workshop

- Workshop will be held on Thursday 5/5/11, from 11 AM to 3 PM at the Coronado Community Center
- All TAC members are requested to promptly return the survey which will be issued in approximately 2 weeks. Everyone will have 10 days to complete the survey. Period is 2011 to 2013
- Strategic workshop Invitations will be sent in early April; invitees include TAC, JPA, Alternates, City of San Diego, IROC Chair
- Key elements
    - Survey results
    - Validate goals/initiative
    - Policies
- Mike Uhrhammer of PDMWD will facilitate the workshop
- The next planning meeting will be on Tuesday, 3/22/11, at PBS&J/Atkins

7. METRO JPA Policy

- Identify and memorialize policies that the Board has taken and endorsed
- Identify items that the Board should take a position on
- Lori Peoples will research minutes for past policies so we can document

8. Recycled Water Study Update

- We discussed the comments from TM #5 that were turned into the City of San Diego
- The PA Options White Paper that summarizes the comments presented in TM #5 was distributed and a high level review of the document was given (emailed to PA's on 3/18/2011)
- TM#8, Revenue and Financials, will be issued for review in late April 2011
- On 4/13 the City will hold a cost allocation workshop to discuss how costs should be divided among the water and sewer rate payers. Those interested in participating in this sub-workgroup should contact SCOTT HUTH. Roberto Yano is interested in participating.
- The next status update meeting will be held on 3/29/2011
- The final draft report will be issued in August 2011

ACTION: ***Invite Marsi Steirer to present an R/W study update to TAC***

9. Transportation Agreement

- Still in progress

10. Review of Items to be Brought Forward to the Metro Commission/Metro JPA Meeting of April 7, 2011

- No items

11. Other Business of Metro TAC

- Note that on April 1, 2011 PBS&J's name will publicly change to Atkins; you can contact people at firstname.lastname@atkinsglobal.com ; the old email addresses will work for some time afterward

12. CLOSED SESSION: Recycle Revenue Issue

13. Adjournment (To the Next Regular Meeting, April 20, 2011)

MetroTAC
Participating Agencies Selection Panel Rotation

Agency	Representative	Selection Panel	Date Assigned
Padre Dam	Neal Brown	IRWMP – Props 50 & 84 Funds	2006
El Cajon	Dennis Davies	Old Rose Canyon Trunk Sewer Relocation	9/12/2007
La Mesa	Greg Humora	As-Needed Piping and Mechanical	11/2007
National City	Joe Smith	MBC Additional Storage Silos	02/2008
Otay Water District	Rod Posada	As-Needed Biological Services 2009-2011	02/2008
Poway	Tom Howard	Feasibility Study for Bond Offerings	02/2008
County of San Diego	Dan Brogadir	Strategic Business Plan Updates	02/2008
Coronado	Scott Huth	Strategic Business Plan Updates	09/2008
Coronado	Scott Huth	As-needed Financial, HR, Training	09/2008
PBS&J	Karyn Keese	As-needed Financial, Alternate HR, Training	09/2008
Otay Water District	Rod Posada	Interviews for Bulkhead Project at the PLWTP	01/2009
Del Mar	David Scherer	Biosolids Project	2009
Padre Dam	Neal Brown	Regional Advisory Committee	On-going
County of San Diego	Dan Brogadir	Large Dia. Pipeline Inspection/Assessment	10/2009
Chula Vista	Roberto Yano	Sewer Flow Monitoring Renewal Contract	12/2009
La Mesa	Greg Humora	Sewer Flow Monitoring Renewal Contract	12/2009
Poway	Tom Howard	Fire Alarm Panels Contract	12/2009
El Cajon	Dennis Davies	MBC Water System Improvements D/B	01/2010
Lemon Grove	Patrick Lund	MWWD Inventory Management Training	07/2010
Chula Vista	Roberto Yano	PUD Strategic Plan Update	08/2010
Del Mar	David Scherer	PUD Strategic Plan Update	08/2010
Coronado	Scott Huth	Allocation of Revenues from South Bay WRP	10/2010
National City	Joe Smith	Colony Hill Water Pipeline D/B	11/23/10
Otay Water District	Rod Posada	Wastewater Plan Update	12/27/10
Otay Water District	Bob Kennedy	MBC Odor Control D/B	3/16/11
Padre Dam	Al Lau		
County of San Diego	Dan Brogadir		
Chula Vista	Roberto Yano		
La Mesa	Greg Humora		
Poway	Tom Howard		
El Cajon	Dennis Davies		
Lemon Grove	Patrick Lund		
Chula Vista	Roberto Yano		
Del Mar	Eric Minicilli		
Coronado	Scott Huth		
National City	Joe Smith		
Otay Water District	Bob Kennedy		

Updated 3/2011

METRO JPA/TAC
Staff Report

Subject Title: Update and Status of PBS&J , an Atkins company, 2011 Contract

Requested Action: Recommend Amendment to PBS&J, and Atkins company, amendment

Recommendations:

Metro TAC:	
IROC:	
Prior Actions: (Committee/Commission, Date, Result)	

Fiscal Impact:

Is this project budgeted? Yes ___ No _X__	
Cost breakdown between Metro & Muni:	N/A
Financial impact of this issue on the Metro JPA:	$22,000

Capital Improvement Program:

New Project? Yes ___ No ___	
Existing Project? Yes ___ No ___ upgrade/addition ___ change ___	

Comments/Analysis:
PBS&J, an Atkins company, provides financial services and engineering support to the Metro JPA and the MetroTAC. During FYE 2011 several projects has arisen for which MetroTAC staff has requested additional support. Specifically, PBS&J staff has been supporting the review and commenting on the City of San Diego's Recycled Water Study which includes attending status update meetings, attending workshops, reviewing technical memoranda, soliciting and compiling comments from the PA's on the technical memoranda, planning and attending strategy meetings with the PA's, and preparing white papers for distribution.

Additionally, the Finance Subcommittee became a permanent committee during this year and PBS&J provides the planning, hosting, minute preparation and follow-up for the sub-committee. These costs have exceeded the planned efforts anticipated at the beginning of this contract year.

Although the additional effort, to date, has remained within the total contract value, there are four month remaining in the contract year and PBS&J is anticipating exceeding the contract limit. Below is a table that summarizes the initial effort per task, the revised efforts, and the amount over or under the planned budget.

		Budget Summary			Adjusted Task Amounts		
Task	Description	Contract	To 2/28/11	Percent	Revised	Percent	Over/ (Under)
1	Routine Engineering	$ 33,019	$ 24,455	74%	$ 28,154	87%	$ (3,699)
2	Exhibit E Audit	$ 19,250	$ 17,972	93%	$ 17,972	100%	$ (1)
3	Budget Review	$ 8,400	$ 350	4%	$ 1,151	30%	$ (801)
4	General MetroTAC Support	$ 18,183	$ 12,804	70%	$ 12,804	100%	$ -
5	Reclaimed Water Master Plan	$ 12,600	$ 41,263	327%	$ 40,126	103%	$ 1,137
6	Resolve Reclaimed Water Revenue Issues	$ 8,400	$ 1,667	20%	$ 3,000	56%	$ (1,333)
7	Reclaimed Water Pricing Study	$ 5,250	$ 272	5%	$ 1,950	14%	$ (1,678)
8	Direct Costs	$ 400	$ 438	109%	$ 438	100%	$ (0)
	OVERALL	$ 105,502	$ 99,220	94%	$ 105,595	94%	$ (6,375)

Based on anticipated remaining work, PBS&J anticipates the remaining effort to be:

Effort	Est. Hours	Est. Amount
Finance meetings (2 meetings)	24	$4,200
TAC meetings (4 meetings)	40	$7,000
JPA meetings (4 meetings)	20	$3,500
Recycled Water Study Review	40	$7,000
Estimated Expenses		$300
Estimated Total	124	$22,000

Based on this estimate, it is anticipated that an additional $15,625 ($22,000 - $6,375) to complete this fiscal year.

Previous TAC/JPA Action:

Additional/Future Action:

City Council Action:

MetroTAC
2010/2011 Work Plan

MetroTAC Items	Description	Subcommittee Member(s)
Advanced Water Purification Demonstration Project	San Diego engaged CDM to design/build/operate the project for the water repurification pilot program. *2/8/11: Equipment to arrive 3/2011; tours will be held when operational (June/July 2011 timeframe)*	Al Lau
Fiscal Items	The Finance committee will continue to monitor and report on the financial issues affecting the Metro System and the charges to the PAs. The debt finance and reserve coverage issues have been resolved. Refunds totaling $12.3 million were sent to most of the PA's.	Greg Humora Scott Huth Karen Jassoy Karyn Keese
Recycled Water Revenue Issue	Per our Regional wastewater Agreement revenues from SBWTP are to be shared with PA's. San Diego has not met the terms of the agreement and there are revenues owed the PA's. 2/2011: Staff is scheduled to meet with San Diego Staff on 3/3/11 to discuss issue. *3/3/11: PA's met with City – City is reviewing*	Scott Huth Scott Tulloch Karyn Keese
Water Reduction - Impacts on Sewer Rates	The MetroTAC wants to evaluate the possible impact to sewer rates and options as water use goes down, and consequently the sewer flows go down, reducing sewer revenues. Sewer strengths are also increasing because of less water to dilute the waste. We are currently monitoring the effects of this. *2/2011:wastewater revenues are declining due to conservation and flow reductions and agencies are re-prioritizing projects to be able to cover annual operations costs*	Eric Minicilli Manny Magaña Karyn Keese
"No Drugs Down the Drain"	The state has initiated a program to reduce pharmaceuticals entering the wastewater flows. There have been a number of collection events within the region. The MetroTAC, working in association with the Southern California Alliance of Publicly-owned Treatment Works (SCAP), will continue to monitor proposed legislation and develop educational tools to be used to further reduce the amount of drugs disposed of into the sanitary sewer system. 8/2010: County Sheriff and Chula Vista have set up locations for people to drop off unwanted medications and drugs. *3/11: TAC to prepare a position for the board to adopt; look for a regional solution; watch requirements to test/control drugs in wastewater*	Greg Humora
Flushable Items that do not Degrade	Several PAs have problems with flushable products, such as personal wipes, that do not degrade and cause blockages. MetroTAC is investigating solutions by other agencies, and a public affairs campaign to raise awareness of the problems caused by flushable products. We are also working with SCAP in their efforts to help formulate state legislation to require manufacturers of products to meet certain criteria prior to labeling them as "flushable." Follow AB2256 and offer support.	Eric Minicilli
Grease Recycling	To reduce fats, oils, and grease (FOG) in the sewer systems, more and more restaurants are being required to collect and dispose of cooking grease. Companies exist that will collect the grease and turn it into energy. MetroTAC is exploring if a regional facility offers cost savings for the PAs. The PAs are also sharing information amongst each other for use in our individual programs. *3/11: get update on local progress and status of grease rendering plant near Coronado bridge*	Eric Minicilli
"Power Tariff"	Power companies are moving to a peak demand pricing scheme which negatively impacts PAs with pump stations and other high energy uses. MetroTAC wants to evaluate the new legislation and regulations, and to identify and implement cost savings efforts for the PAs. (8/2010): John Helminski at the City of San Diego is working on a sustainability project for CoSD *3/11: Prepare a position paper for the JPA board to consider*	Tom Howard Paula de Sousa John Helminski

MetroTAC Items	Description	Subcommittee Member(s)
Recycled Water Study	As part of the secondary waiver process, San Diego agreed to perform a recycled water study within the Metro service area. That study is currently underway, and MetroTAC has representatives participating in the working groups. 8/2010: Al Lau and Dean Gipson attended the Coarse Screening Workshop in August 2010. *2/2011: The next Status Update Meeting is 3/29/11; final draft report expected in April 2011*	Scott Huth Al Lau Karyn Keese Jennifer Duffy
Recycled Water Rate Study	San Diego is working on a rate study for pricing recycled water from the South Bay plant and the North City plant. MetroTAC, in addition to individual PAs, have been engaged in this process and have provided comments on drafts San Diego has produced. We are currently waiting for San Diego to promulgate a new draft which addresses the changes we have requested. 8/2010: draft study is expected in September 2010. *2/2011: draft study still not issued*	Karyn Keese Scott Huth
Metro JPA Strategic Initiatives	MetroTAC to develop success measures for the JPA strategic initiatives and suggest a schedule to complete certain items.	Scott Huth Dan Brogadir Karyn Keese
Salt Creek Diversion	9/2010: OWD, Chula Vista and San Diego met to discuss options and who will pay for project; Chula Vista and OWD are reviewing options. 2/2011: OWD and PBS&J reviewed calculations with CoSD staff; San Diego to provide backup data for TAC to review	Roberto Yano Manny Magaña Karyn Keese Rita Bell
Recycled Water Study Cost Allocation	*3/11: CoSD wants to form a small working group to discuss options to allocate PLWTP offset project costs among the water and wastewater rate payers; first meeting 4/13/11*	Scott Huth Roberto Yano Al Lau Karyn Keese
Board Members' Items		
Metro JPA Strategic Plan	*2/2011: committee to meet 2/28/11 to plan for retreat to be held on 5/5/11*	Augie Caires Ernie Ewin Mark Robak
Rate Case Items	San Diego is starting the process for their next five-year rate case. As part of that process, MetroTAC and the Finance Committee will be monitoring the City's proposals as we move forward.	Karyn Keese
Schedule E	MetroTAC and the Finance Committee are active and will monitor this process. Individual items related to Schedule E will come directly to the Board as they develop.	Karen Jassoy Karyn Keese
Future bonding	MetroTAC and the Finance Committee are active and will monitor this process. Individual items related to bonding efforts will come directly to the Board as they develop.	Karen Jassoy Karyn Keese
Changes in water legislation	MetroTAC and the Board should monitor and report on proposed and new legislation or changes in existing legislation that impact wastewater conveyance, treatment, and disposal, including recycled water issues	Paula de Sousa
Role of Metro JPA regarding Recycled Water	As plans for water reuse unfold and projects are identified, Metro JPA's role must be defined with respect to water reuse and impacts to the various regional sewer treatment and conveyance facilities	Scott Huth Dean Gipson
Border Region	Impacts of sewer treatment and disposal along the international border should be monitored and reported to the Board. These issues would directly affect the South Bay plants on both sides of the border.	
IROC Performance Audits	Work with IROC to identify areas to be audited; participate in audit process. 8/2010: provide the top 5 areas to audit by September IROC meeting	Augie Caires

Completed Items	Description	Subcommittee Member(s)
Debt Reserve and Operating Reserve Discussion	In March 2010, the JPA approved recommendations developed by Metro JPA Finance Committee, MetroTAC, and the City of San Diego regarding how the PA's will fund the operating reserve and debt financing. MetroTAC has prepared a policy document to memorialize this agreement. **Project complete: 4/10**	Scott Huth Karyn Keese Doug Wilson
State WDRs & WDR Communications Plan	The Waste Discharge Requirements (WDRs), a statewide requirement that became effective on May 2, 2006, requires all owners of a sewer collection system to prepare a Sewer System Management Plan (SSMP). Agencies' plans have been created. We will continue to work to meet state requirements, taking the opportunity to work together to create efficiencies in producing public outreach literature and implementing public programs. **Project complete: 5/10**	Dennis Davies Patrick Lund
Ocean Maps from Scripps	Schedule a presentation on the Sea Level Rise research by either Dr. Emily Young, San Diego Foundation, or Karen Goodrich, Tijuana River National Estuarine Research Reserve **Project complete: 5/10**	Board Member Item
Secondary Waiver	The City of San Diego received approval from the Coastal Commission and now the Waiver is being processed by the EPA. The new 5 year waiver to operate the Point Loma Wastewater Treatment Plant at advanced primary went into effect August 1, 2010. **Project complete 7/10**	Scott Huth
Lateral Issues	Sewer laterals are owned by the property owners they serve, yet laterals often allow infiltration and roots to the main lines causing maintenance issues. As this is a common problem among PAs, the MetroTAC will gather statistics from national studies and develop solutions. **Efforts closed 3/11**	Tom Howard Joe Smith

FLOW REDUCTIONS TO POINT LOMA WASTEWATER TREATMENT PLANT: OPTIONS OFFERED BY THE PARTICIPATING AGENCIES

March 16, 2011

BACKGROUND

The Participating Agencies (PAs) of the City of San Diego (City) Metropolitan Wastewater System have been active participants in the City's Recycled Water Study. Representatives have attended both the Coarse and Fine Screening Sessions as well as participating in Stakeholder's meetings. Through this participation the PAs have provided comments on alternatives that are expanded on in greater detail within this document. The PAs have also developed an understanding of the technical alternatives being addressed through the screening process as well as the constraints placed on the study, including budget, schedule and stakeholder expectations.

The PAs have reviewed Technical Memoranda 5 (*Recycled Water Demand and Delivery*) and 7 (*Fine Screening Process*). Our discussion led us to prepare this position paper. Although estimated costs have not been presented for the themes developed in TM's #5 and #7, we submit that less costly alternatives exist for the consumer, alternatives that facilitate the expansion of recycled water (indirect potable reuse [IPR] and direct potable reuse [DPR]) usage on a regional basis all the while supporting the study's purpose and approach.

On December 15, 2010, Councilmember Sherri S. Lightner issued a memorandum entitled "Developing a Comprehensive Policy for a Sustainable Water Supply in San Diego." This memorandum presented several guiding principles regarding recycled water development and use, several of which are applicable to the recycled water study. Three of these principles which support development of options not presented in TM#7 include:

- Cohesive elements that are financially and environmentally sound
- Goals which reflect current water treatment, storage, distribution and usage technologies and allow the consideration of new technologies or opportunities
- Identification of ways in which the City can collaborate with other users and agencies in order to improve efficiencies.

To reiterate the purpose and scope of the Recycled Water Study as stated in the introduction to each Technical Memorandum, we include the purpose and scope below.

> *The purpose of the Study is to evaluate non-potable and indirect potable reuse opportunities to meet the City and project stakeholder goals through a 2035 planning horizon. These goals vary, and are not always consistent between stakeholders. The study process aims to address these shared and differing goals by developing various project alternatives, developing associated costs and benefits, and facilitating informed decision making through work sessions and stakeholder update meetings.*
>
> *Developing the projects and the overall plan is based on two fundamental principles summarized below.*
>
> *1) Projects (especially the early phase projects) must have enough technical information to determine that they appear feasible, safe, and provide a valuable*

local water resource. Projects must be defined to the point that comparative costs and benefits can be developed.

2) *The plan must address the PLWTP benefits associated with the environmental community's goal of reducing flows treated at the PLWTP by maximizing the use of recycled water, reducing solids loading into the ocean, and meeting the City and Participating Agency's(PAs) goal of managing Metropolitan Sewer System capital and operations and maintenance (O&M) costs.*

The City's system includes two distinct and independent recycled water systems: the Northern System and the Southern System. Expansion of recycled water uses within both of these systems has the potential to offload the PLWTP. The Study will consider recycling options throughout the City, including projects involving the South Bay Water Reclamation Plant (SBWRP), which can completely offload the PLWTP through the use of the South Bay Ocean Outfall (SBOO). Flows directed to the SBWRP can be reused or discharged through the South Bay Ocean Outfall.

Various approaches exist for how flows are off loaded from PLWTP and how the water is reused. We believe that IPR and DPR remain viable long-term solutions that can provide additional local water supplies. Currently the recycled water study focuses primarily on Alternatives at the North City Water Reclamation Plant (NCWRP), Mission Valley or Pump Station 2 along with the transportation of treated water to San Vicente Reservoir and, to a lesser extent, alternatives that include diverting flow to East County and South Bay. We believe that there are more opportunities that should be explored related to the East County and South Bay area alternatives.

ALTERNATIVES

Working within the parameters presented earlier in this document, the PA's developed three alternatives that offset flows from PLWTP that should have a lower financial impact on the rate payers than the themes presented in TM #7. Although we have not developed costs for these alternatives, they originate from prior work on this study as well as other City and Padre Dam studies that have developed concepts and costs for many of the options. We request that as part of the financial analysis these alternatives be further developed and contrasted where appropriate to other alternatives for North City and South Bay WRP's. Cost estimates could be developed for each individual facility (e.g. cost of AWT pipelines and facilities separate from treatment plant upgrades).

The PA alternatives assume that PLWTP can continue operating as a chemically enhanced advanced primary treatment (CEPT) facility, while the third alternative assumes that that if PLWTP is not able to remain at CEPT after diverting flow that it could be converted to a secondary treatment facility. A summary of the PA alternatives is included in Table 1.

Table 1
Regional Alternatives Based on Ultimate Flows

ALTERNATIVE	NCWRP		PDWRF		SBWRP		PLWWTP	
	CAPACITY (MGD)	AWT (MGD)	CAPACITY (MGD)	AWT (MGD)	CAPACITY (MGD)	AWT (MGD)	CAPACITY (MGD)	TREATMENT LEVEL
A	30	12.1	20	15	45	15	150	CEPT
B	30	0	20	27.1	45	15	150	CEPT
C	30	12.1	20	15	69	15	100	CEPT or SECONDARY

Figures 1, 2 and 3 graphically show the concepts presented in Table 1.

The three alternatives presented in Table 1 and Figure 1, 2 and 3 include the following approaches, arranged by treatment facility, as well as some general concepts.

Point Loma Wastewater Treatment Plant – Currently the operation of PLWTP, as an advanced primary treatment facility, comes very close to meeting the discharge requirements for a secondary treatment facility. Past studies and current monitoring indicates that the discharges do not negatively impact the marine environment. One option is to reduce the flows to PLWTP such that the discharge requirements meet the secondary discharge requirements while staying with CEPT. The City, with the support of the PAs and other stakeholders, would need to work with the regulators to permit the on-going operation of the plant as an advanced primary facility on a permanent basis. These negotiations could be occurring concurrently with the advanced water repurification study and the expected negotiations of regulatory requirements for indirect potable reuse.

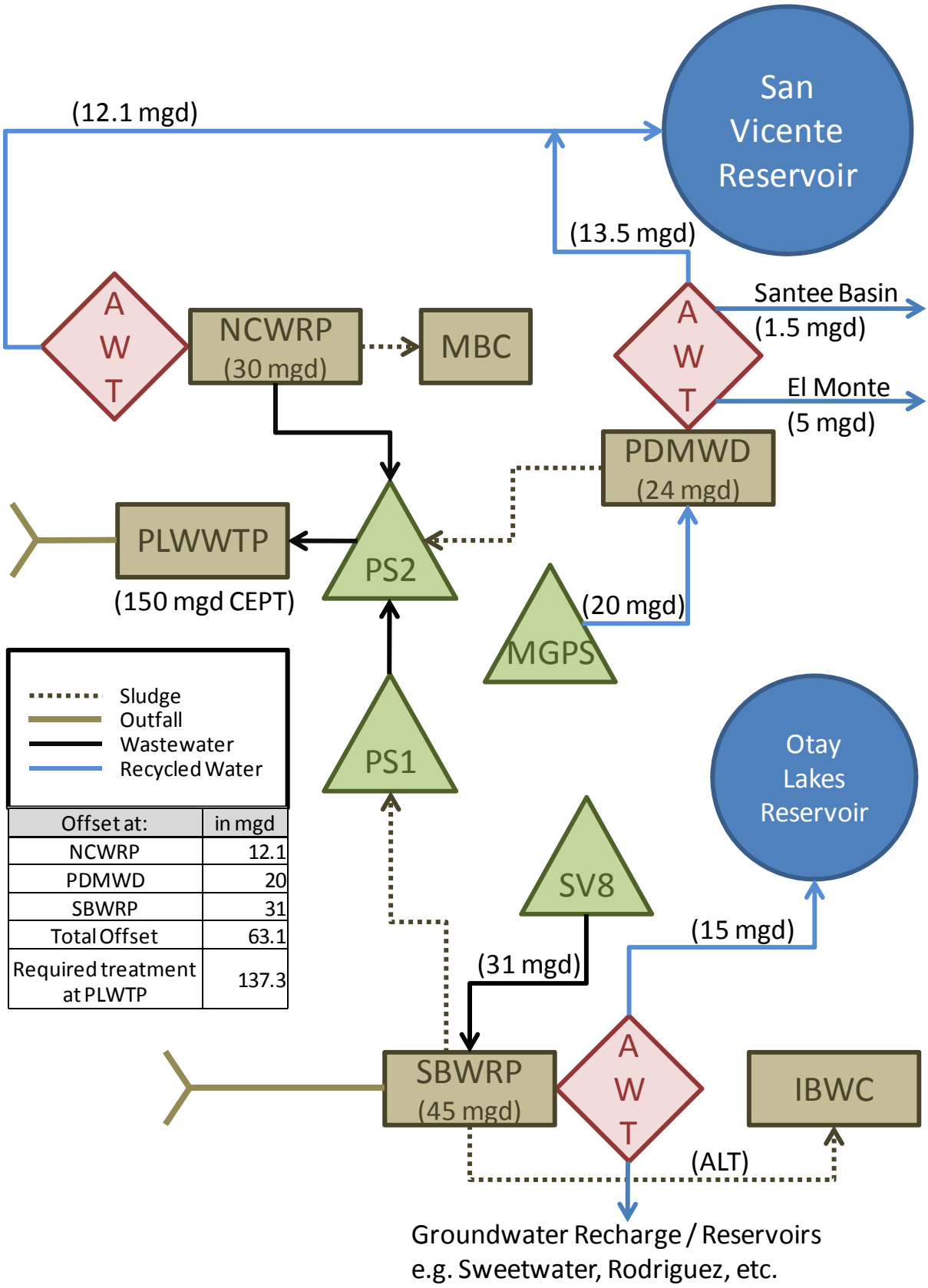
Based on projections in the Recycled Water Study Technical Memoranda, the projected flow to be treated at PLWTP is expected to be 200 mgd (in the year 2035). To achieve a total suspended solids (TSS) mass emission rate for a smaller CEPT facility that would be equivalent to the mass emission rate of a secondary plant at the current PLWTP permitted capacity of 240 mgd, an offset of an average 50 mgd (based on an ultimate capacity of 200 mgd) would be required at PLWTP, depending on the CEPT effluent quality. This results in a maximum allowable average daily dry weather flow (ADDWF) of 150 mgd. PA Alternatives A and B assume that PLWTP can continue as a CEPT facility because both options divert 63 mgd ADDWF at the year 2035, which is greater than the estimated 50 mgd. This results in an ultimate treatment of 137 mgd at PLWTP.

PA Alternative C assumes diverting more flow to further enhance the CEPT process. If PLWTP cannot remain as a CEPT facility the additional flows diverted would allow for PLWTP to be converted to a conventional activated sludge secondary treatment facility that would treat 100 mgd ADDWF. PA Alternative C would divert 101.4 mgd away from PLWTP and meet this threshold.

North City Water Reclamation Plant – Instead of constructing new treatment facilities or conveyance facilities in the northern service area, expand Padre Dam's existing water recycling

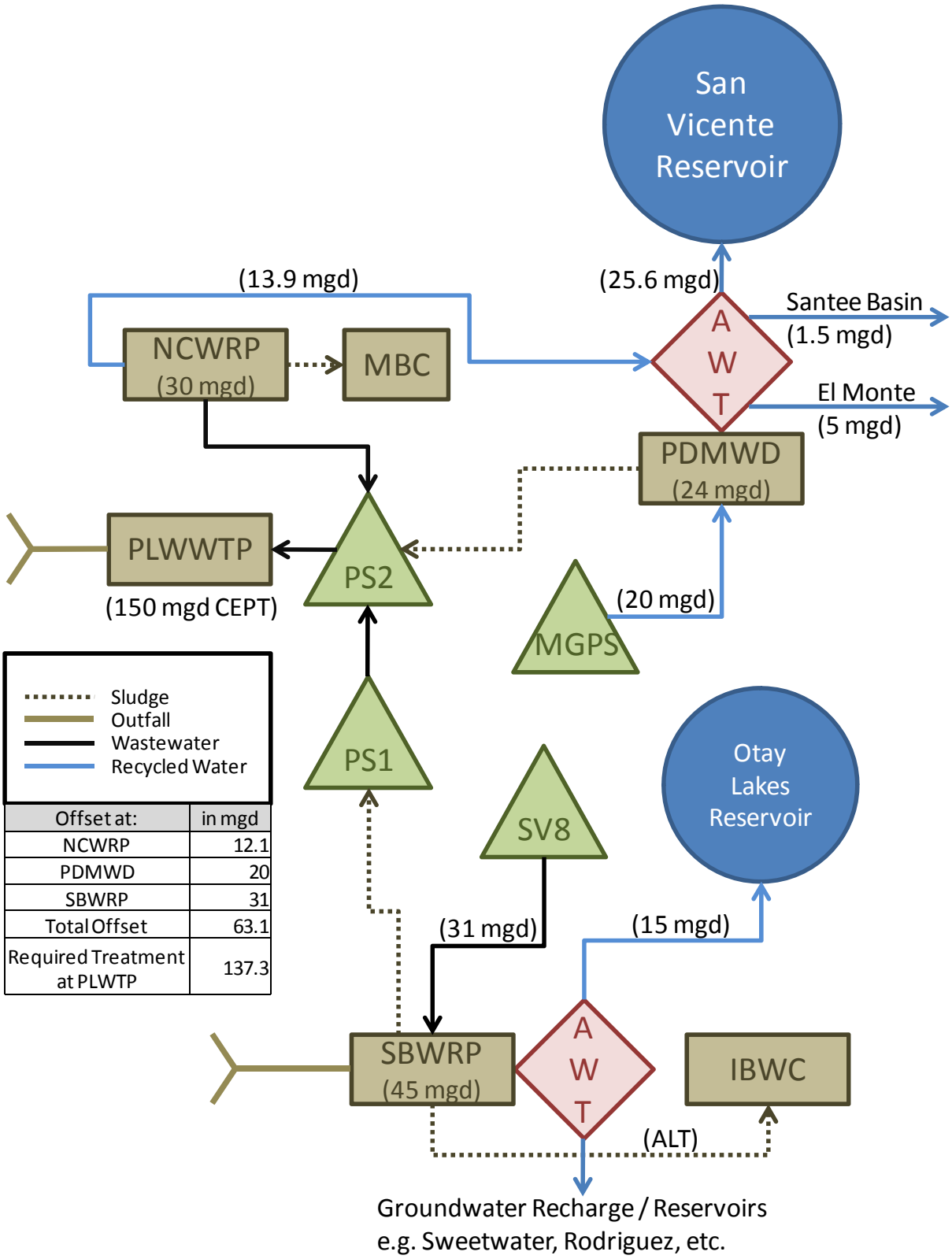
facility (PDWRF) to 20 mgd in appropriate phases utilizing the flows from El Cajon, Lakeside, and Alpine as well as Santee and parts of La Mesa. This would offload PLWTP as well as the East Mission Gorge Interceptor. Having shared City and PA facilities is not a new concept. The City of LA is an active participant in the City's of Burbank's treatment plant.

Figure 1
PA Alternative A Schematic (Based on Ultimate Flows)



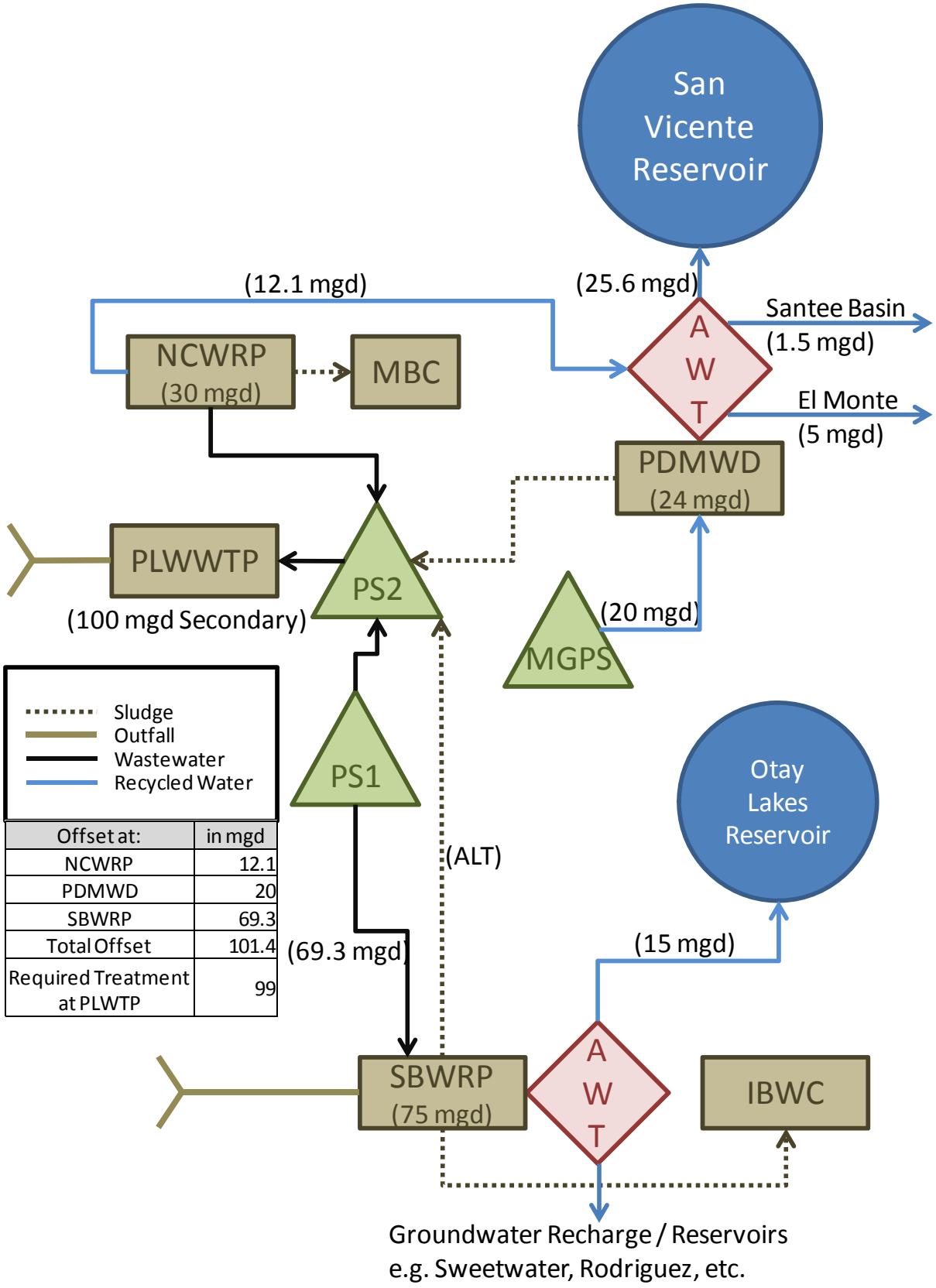
Offset at:	in mgd
NCWRP	12.1
PDMWD	20
SBWRP	31
Total Offset	63.1
Required treatment at PLWTP	137.3

Figure 2
PA Alternative B Schematic (Based on Ultimate Flows)



Offset at:	in mgd
NCWRP	12.1
PDMWD	20
SBWRP	31
Total Offset	63.1
Required Treatment at PLWTP	137.3

Figure 3
PA Alternative C Schematic (Based on Ultimate Flows)



Offset at:	in mgd
NCWRP	12.1
PDMWD	20
SBWRP	69.3
Total Offset	101.4
Required Treatment at PLWTP	99

There is an active, mature market for recycled water and ground water recharge in the East County with permitting already underway. Included in Attachment A is a planning study dated May 17, 2010, presented to the Padre Dam Board of Directors by the District's Engineering Department. It discusses the expansion of the Padre Dam WRF in two phases with the first being to 4.4 mgd.

All three alternatives show siting an AWTF next to the Padre Dam Facilities and sending 15 mgd of treated water to the San Vicente Reservoir as a possible alternative. Padre Dam's facilities are closer to San Vicente and thus the pipeline costs will be reduced. PA Alternative A shows the construction of an AWTF at the NCWRP which would send another 12.1 mgd of treated water to San Vicente. As a cost savings, under PA Alternative B only one AWTF would be constructed at the Padre Dam facilities and the tertiary treated water from NCWRP would be sent there for polishing before being put into the Reservoir.

As an interim measure prior to completion of the IPR facilities, the IPR treated effluent from Padre Dam could be used for ground water recharge and the expansion of the reclaimed water market in the East County.

The sludge from the NCWRP would continue to be treated at MBC and the sludge from the Padre Dam plant would be sent to PS2 and on to PLWTP or treated on-site.

South Bay Water Reclamation Plant – PA Alternatives A and B assume that the South Bay flows are diverted at SV8. This provides for a 31 mgd offload of PLWTP and when combined with other efforts in North City and East County it appears that 63 mgd can be diverted from PLWTP with a potentially lower operational and capital expense than pumping sewage to North City. Diverting flows to SBWRP require upgrading SBWRP from a 15 mgd facility to a 45 mgd facility (PA Alternatives A and B) or a 75 mgd facility (PA Alternative C).

It is our understanding that all of the South Bay alternatives being prepared for the Recycled Water Study include building a sludge pipeline from the SBWRP to PS1 and ultimately to PLWTP. Alternatives to building a sludge pipeline could be explored particularly if sending solids to PLWTP could negatively impact the region's ability to continue operating PLWTP as a CEPT facility. Alternatives that could be explored include but should not be limited to siting solids handling facilities at the SBWRP and/or negotiating with the IBWC to handle the sludge produced by SBWRP. The IBWC currently has an agreement with Mexico for disposal of its sludge which could be economically advantageous to the region. Such an agreement may also facilitate a new market for recycled water to Mexico.

All three South Bay alternatives provide for 15 MGD of AWT treated water delivered to Otay Lakes Reservoir though a pipeline from the SBWRP. Additional alternatives should be explored that could be less costly in treatment and pipeline costs such as ground water recharge of several aquifers including Tijuana River Valley, Spring Valley, and San Diego aquifers. According to a San Diego County Water Authority study by Boyle Engineering, titled *San Diego Formation Aquifer Storage and Recovery Study, Phase 1*, annual extraction capacities for the San Diego formation have been calculated to be between 40,000 AFY to 90,000 AFY. The largest demand for water in the region is right next to the SBWRP in Tijuana. There could be opportunities to explore that could facilitate Metro's service area needs with that of our neighbors and taking advantage of both the SBWRP and IBWC plant in this area. Ground water recharge is a large portion of the successful Orange County Water Agencies project which supplies 500,000 Orange County residents with drinking water annually. In contrast to IPR, the regulations and permitting processes for groundwater recharge are vetted and in place.

The City could begin immediately with the Salt Creek diversion structure to provide the current seasonal recycled water to the South Bay market as the current flow cannot meet peak summer demands. Winter flows could either be used for groundwater recharge or only treated to secondary level. The first diversion appears to take 6 mgd off of PLWTP immediately. The full plan could be phased in over several years including the expansion of the South Bay plant. The City shares South Bay Outfall capacity with the IBWC, and the outfall capacity should adequately accommodate discharges due to failsafe operations at SBWRP.

PA Alternative C diverts the wastewater flows at PS1 (about 70 mgd) and would increase the treatment capacity of SBWRP to 75 mgd. This additional diversion would allow PLWTP's flow rating to be lowered to 100 mgd. Per Table 2-1 in TM #7 this would provide the greatest cost benefit to the PAs and the City if secondary treatment would be required as conventional activated sludge treatment could be used. With the additional treated water from the 75 MGD plant IPR treated water could be sent to reservoirs in the region including, Otay Lakes, Sweetwater, and Rodriguez and ground water aquifer recharge.

SUMMARY AND INTERIM MEASURES

IPR is a desirable outcome and we support its thorough examination in the Recycled Water Study. The study states that IPR will take between a minimum of 8 to 10 years to implement. During this period, alternatives that can be implemented during this period should be considered as cost savings and revenue generating solutions, even if they are interim measures.

By implementing other alternatives sooner than putting IPR into reservoirs, PLWTP flow offsets can occur sooner and additional recycled water could be produced, thereby increasing the use of this precious resource during the planning and construction of the IPR facilities. This would also allow the Region to diversify its water portfolio during this period of time.

An excellent example of diversification is the West Basin Municipal Water District in Carson. The District operates what may be the only water recycling plant in the world that converts wastewater into five different "designer water", each with characteristics suited to the needs of its more that 300 industrial, commercial, and municipal customers[1]. The basic concept is to spend as little as possible to produce the greatest amount of recycled water.

Using this concept the City could start with the lowest cost water to produce which is currently recycled water. We understand the reluctance on the City's part to expand its purple pipe system but recycled water could be sold from the North City and South Bay plants to wholesale customers who have expressed interest in receiving more recycled water.

Negotiations with wholesale entities in the North Service area that are requesting recycled water could be started now. The agreements with wholesale customers could be as simple as providing recycled water until the IPR facilities are in place. In discussions with agencies other than the PAs, we understand that while there is pent-up demand for recycled water purchases, City staff appears reluctant to discuss expanding recycled water services even to existing wholesale customers where no additional capital cost need be incurred by the City. This is disconcerting because recycled water sales are being artificially capped and valuable revenue and CWA/MWD credits are not being realized.

[1] National Geographic, Water for Tomorrow, Volume Two, Number One

In addition, each year the PAs and the City of San Diego's wastewater customers share in the cost of return to sewer flow approximating 18 MGD. Return flows are not only process water and centrate (which we are not objecting to as this always must be discharged) but flows that are treated once at NCWRP and then again at PLWTP. The reduction of these return flows could be a primary focus of the recycled water study as this would automatically reduce flows to PLWTP between 18 to 20 MGD. If more recycled water was produced at NCWRP, these return flows would decrease. Additionally, treatment costs may decrease because the cost to treat flows to tertiary at NCWRP and generating revenue from the commodity is less expensive than treating secondary treated flows discharged from NCWRP to advanced primary quality at PLWTP. By maximizing the sale of recycled water during the planning and construction period for IPR, the existing debt for the optimized system can be defeased more quickly and thus improve bonding capacity for IPR and other identified future capital facilities.

In the South Bay the City could quickly begin creating more recycled water, as well as divert flows from PLWTP, by building either the Salt Creek diversion structure or the CV14 diversion structure to provide the current seasonal recycled water to the South Bay market. The current South Bay flow cannot meet peak summer demands. This would take between 3 to 6 MGD off of PLWTP in the near future.

Once the production of recycled water is maximized at both plants then the least costly alternative(s) should be analyzed. Creative options could be developed and studied to provide for the most cost effective solution for the region while creating new water supplies that will benefit both the City and the region as a whole.

ATTACHMENT A

Engineering Report – Padre Dam Water Recycling Facility Expansion to 4.4 MGD

ENGINEERING REPORT

PADRE DAM WATER RECYCLING FACILITY

EXPANSION TO 4.4 MGD

May 17, 2010

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List of Acronyms

Acronym or Phrase	Meaning
AAD	average annual demand
AF, AFY	acre-feet, acre-feet per year
ARRA	American Reinvestment and Recovery Act
AWT, AWTP	advanced water treatment, advanced water treatment plant
BOR	Department of Interior, Bureau of Reclamation
CEQA	California Environmental Quality Act
CUP	Conditional Use Permit issued by the City of Santee
DHS	Department of Health Services
DWR	California Department of Water Resources
El Monte, EMVRP	El Monte Valley, El Monte Valley Recharge Project
High Rating Study	Feasibility Study for High Rating the Santee Water Reclamation Facility, prepared by Black & Veatch, March 2006.
Helix, HWD	Helix Water District
IPS	Influent Pumping Station
LISA 1, 2	Local Investigations and Studies Assistance program, Phase 1 and Phase 2 respectively. Provides grants from the San Diego County Water Authority.
MBR	Membrane Bioreactor
METRO	City of San Diego Metropolitan Wastewater Department
mgd	million gallons per day
MND	Mitigated Negative Declaration
MWD	Metropolitan Water District of Southern California
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NPV	net present value
Padre Dam, PDMWD	Padre Dam Municipal Water District
PS	pump station
RFP	Request for Proposal
SDCWA	San Diego County Water Authority
Title XVI	Title XVI of the Reclamation Projects Authorization and Adjustment Act of 1992.
Title 22	Title 22 of the California Code of Regulations
WRF	Water Recycling Facility
WSA	Western Service Area - PDMWD
WWTP	Wastewater Treatment Plant

1.0 Introduction

The Padre Dam Municipal Water District (Padre Dam) operates a Water Recycling Facility (WRF) located in the northern portion of the City of Santee, San Diego County, California. The proposed WRF Expansion project would expand the capacity of the existing WRF, which converts wastewater generated within Padre Dam's Western Service Area (WSA) into Title 22 tertiary treated recycled water. The tertiary treated recycled water is then used to maintain the water levels of the Santee Lakes or delivered to customers, who primarily use it for landscape irrigation.

Currently, the WRF is having difficulty meeting recycled water demands during the summer months and in some years have had to supplement the recycled water system using a District-owned groundwater well. During the summer peak months, the Santee Lakes have also experienced water quality issues because they draw replenishment water from the oxidation ponds. The water in the oxidation pond, in general, is of lower quality because of water age. As the ponds empty, the water quality may degrade to a point to cause low dissolved oxygen level and resulting in adverse impacts to aquatic life in the lakes.

The purpose of this engineering report is to serve as a briefing document for Padre Dam staff, management team, and Board of Directors to facilitate making a decision to proceed with design of an expansion of the WRF to 4.4 mgd.

This document has been updated from the March 24, 2010 by modifying the financial analysis to reflect a reduced cost to treat wastewater at METRO due to sludge over-billing and reduced loading of suspended solids and chemical oxygen demand due to incorporation of In-Pipe Technology. The financial analysis was also updated to reflect the most recent estimates of the future rates for the sale of recycled water.

1.1 WRF Expansion Objectives

The objectives of the proposed project include:

1. Increase production of recycled water thereby providing an alternative source to reduce the use of potable water for irrigation. This would be accomplished by expanding the capacity of the existing WRF from 2.0 million gallons per day (mgd) to 4.4 mgd by installing additional conventional treatment facilities.
2. Maintain a high quality of treated water in order to meet regulatory standards for live stream discharge and continuing to meet water quality objectives for the Santee Lakes Recreational Facility.
3. Evaluate the potential to install an Advanced Water Treatment Plant (AWTP) on-site to send highly treated recycled water to a groundwater recharge and reclamation project such as Helix's El Monte Valley Recharge project (EMVRP).

1.2 Background

Padre Dam provides wastewater treatment and recycled water production services at its WRF located at the northerly end of the Santee Lakes. The original WRF was constructed in the early 1950's by the Santee County Water District for the purpose of providing sewer treatment to local development. In the early 1960's, the Department of Health approved the use of the lakes for recreation and fishing. A new water recycling facility was constructed in 1968, which was upgraded and expanded to its current form in 1997. The 1997 expansion included construction of a system of distribution pipelines within the City of Santee to supply recycled water to individual customers for landscape irrigation.

The existing WRF is a scalping plant (does not have the ability to treat solids) with a permitted treatment capacity of 2.0 mgd. The remainder of the wastewater generated in the WSA is treated at the City of San Diego Metropolitan Wastewater Department's (METRO) Point Loma Wastewater Treatment Plant (WWTP). The WRF produces tertiary treated recycled water that meets the requirements for reuse as specified in Title 22 of the California Code of Regulations. The recycled water is currently delivered to over 200 customers, mostly within the City of Santee, and is used primarily for irrigating landscape for schools, street medians, and other commercial and residential users.

1.3 Relevant Studies

Previous and concurrent studies performed with regard to expanding the WRF are summarized below:

- Feasibility Study for High Rating the Santee Water Reclamation Facility, Black & Veatch, March 2006. This study evaluated expansion of the plant from 2 mgd to one of the following capacities: 2.7 mgd, 4.0 mgd or 5.4 mgd. This study concentrated on serving recycled water customers within the Padre Dam service area and did not consider providing Advanced Water Treatment (AWT) for water sent to the El Monte Valley Recharge Project (EMVRP).
- El Monte Valley Recharge Project Feasibility Study - Helix completed this study in April 2006. The study evaluated the general feasibility of using advanced treated water for aquifer recharge.
- Feasibility Study for Padre Dam WRF Expansion as it relates to serving recycled water demand (Title 22 water) and providing AWT water for the EMVRP. A draft report has been completed showing options and costs for expanding the WRF to 4.4 mgd in Phase 1, then to 10 mgd in Phase 2.
- Draft Financial Feasibility Study for Padre Dam WRF Expansion as it relates to serving recycled water demand (Title 22 water) and providing AWT water for the EMVRP. A draft final report has been completed to evaluate financial feasibility to expand the WRF utilizing (1) Net Present Value, (2) Break-Even Analysis, and (3) Return on Investment methods.
- Draft Feasibility Study for Seasonal Storage.
- Draft Feasibility Study for Santee Lakes Water Quality Modeling Study.
- Draft Influent Flow Equalization Evaluation Study.
- Draft Headworks Evaluation Study.
- Draft UV Disinfection Alternative Evaluation
- Other National Pollutant Discharge Elimination System (NPDES) permit related studies.

2.0 Project Description

The first phase of the WRF expansion (from 2.0 to 4.4 mgd) would allow additional recycled water to be provided to the customers within the Padre Dam's WSA, which would reduce overall potable water use consumption within the District. Additionally, the first phase of the WRF expansion would have an option to include an AWTP that includes micro-filtration, reverse osmosis and advanced oxidation processes to produce highly purified water suitable for use in an indirect potable reuse project, such as the EMVRP proposed by the Helix Water District.

In addition to the AWTP, the engineering documents, partially funded by the LISA Grant Funding Program addressed the potential for a future Phase II expansion which could increase the capacity from 4.4 to 10.0 mgd if the EMVRP is proved capable of taking addition advanced treated water from the WRF. The proposed expansion from 2.0 to 4.4 mgd would be designed such that it would not preclude this possibility of expansion to 10 mgd.

Currently, the AWTP is an optional expansion task pending on the successful negotiation with Helix on the price of the advanced treated water. The design of the AWTP and pump station

(PS) would not commence unless Helix is committed to purchase the advanced treated water from the District. The costs of conveying the advanced treated water and onsite spreading facilities would be provided by Helix. The lead agency for the environmental review and documentation associated with the EMVRP is Helix.

The first phase of the WRF expansion project will mirror the existing conventional treatment processes at the existing WRF. Utilizing conventional treatment processes to convert wastewater into Title 22 tertiary treated recycled water is the preferred alternative because it is considerably less expansive than utilizing the membrane bio-reactor (MBR) technology. Additionally, Helix prefers conventionally treated water for its EMVRP because it would be more readily accepted by Department of Health Services (DHS). The proposed site plan for this expansion is shown in **Figure 1**.

Major project elements include the following:

1. Pump upsizing at the existing Influent Pump Station (IPS).
2. New headworks facility to remove grit and rags (either near the influent pump station or at the WRF).
3. Flow equalization basins (included in environmental documents, but not planned for design or construction as recent construction of the Cottonwood Diversion should prove that flow equalization basins at the WRF are not needed).
4. New primary clarifiers.
5. Addition of aeration/mixing equipment to Train 2 of the existing Bardenpho basins.
6. New secondary clarifier.
7. New tertiary flocculation sedimentation facility.
8. New tertiary biological polishing filters.
9. New chlorine contact basin and/or disinfection facility.
10. New AWT Facility, if an agreement is reached with Helix.

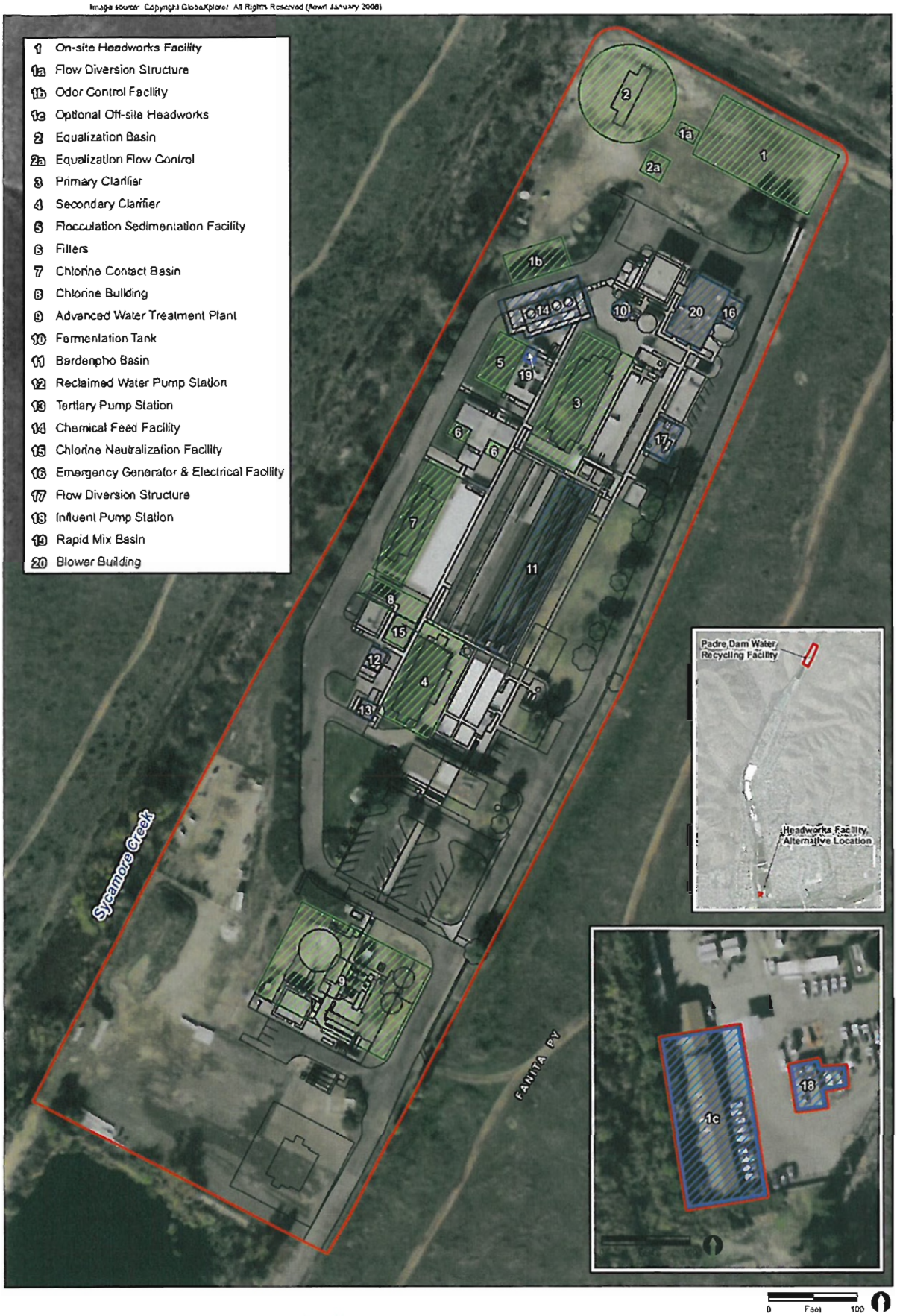

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FIGURE 1
Site Plan – Conventional Treatment Alternative

3.0 Recycled Water Demand

3.1 Current and Future Demand Projection

Currently the demand for recycled water includes the Santee Lakes/Ponds and irrigation users. The lake and ponds have been receiving approximately 1 mgd average annual demand (AAD) which includes consumptive use and discharges to Sycamore Creek (flushing). The Santee Lakes demand could be higher if Padre Dam chooses to enhance the lakes' water quality. The current AAD recycled water demands are approximately 0.8 mgd. Increased recycled demand is anticipated in the following categories of users:

TABLE 1
SUMMARY OF ADDITIONAL RECYCLED WATER USERS

Identified Customers by Category	AAD Identified (mgd)	Cumulative Additional AAD Demand
A. Future Customers Near Existing Recycled Water Lines	0.088	0.088
B. Existing Customers Using Potable Water for Irrigation, located near Existing RW Lines	0.092	0.180
C. Future Customers Serviced with $1.3M of New RW Lines	0.178	0.358
D. Carlton Oaks Golf Course 6 Months of Winter Flow	0.370	0.728
E. Customers Requiring More Extensive Facilities to Serve or Timing of Development is Highly Questionable.	1.178	1.906
F. Willowbrook Golf Course.	0.500	2.41

A detailed list of users in each category is presented in **Table 2.**

User categories are further defined as follows:

> **Category A - Future Customers Near Existing Water Lines.** These developments are currently planned or recently connected to the system and are located adjacent to existing recycled waterlines. Use of recycled water can be accomplished at little or no cost to Padre Dam. Three customers listed in this category were connected to the system in 2009: (1) Market Place at Santee, (2) Speer Field and (3) Forrester Creek Irrigation System.

TABLE 2
Potential New Recycled Water Customer Sorted by Availability of Facilities

ID #	Name of Potential New Customer / Developer	Estimated Time Online (Year)	Projected Average Usage (GPD)	Projected Average Usage (Ac-ft / YR)	Notes
A. Customers Near Existing Recycled Water Lines					
3	Riverwalk	2010	8,035	9.0	(1)
4	Santee Elementary School (MG Site)	2015	3,839	4.3	(1)
5	Caltrans Route 52	2012	6,071	6.8	(1)
9	Las Brisas	2010	982	1.1	(1)
11	Town Center Community Park Phase 2 - Sports Park	2010	14,373	16.1	(1)
13	Mission View Estates	2011	6,720	7.5	(1)
14	West Hills and Mast Commerical	2015	5,760	6.5	(1)
16	Chet Harriett Elementary	2010	8,160	9.1	(1)
21	WalMart Expansion	2011	960	1.1	(1)
25	Cajon Park Elementary - Ball Fields	2012	14,880	16.7	(1)
34	Marketplace @ Santee	2009	7,200	8.1	(1)
35	Weld Blvd Commerical Dev.	2015	4,320	4.8	(1)
36	Speer Field	2009	3,360	3.8	(1)
37	Marrokal	2011	2,400	2.7	(1)
40	Forrester Creek Irrigation System	2009	0	0.0	(1)
	Santee Street Cleaning	2011	714	0.8	(1)
	Sub-Total		88,000	98	
B. Existing Irrigation Users Using Potable Water, Loctated Near Existing RW Lines			92,000	103	
C. Customers Serviced by $1.3M WL Construction Project					
1	Edgemoor Business Park	2011	6,785	7.6	(2)
2	Edgemoor Hospital	2010	7,945	8.9	(2)
10	Sycamore Landfill	2010	119,985	134.4	(2)
15	Carlton Oaks School	2015	7,200	8.1	(2)
18	Sycamore Canyon Elementary	2015	5,280	5.9	(2)
19	Carlton Hills School	2009	12,000	13.4	(2)
20	Las Colinas	2013	14,400	16.1	(2)
31	County - Condos - Cottonwood West	2015	4,320	4.8	(2)
	Sub-Total		178,000	199	
	Sub-Total Categories A thru C		358,000	400	
D. Carlton Oaks Country Club (6 months of winter demand)					
7	Carlton Oaks Country Club (6 months of winter demand)	2011	370,000	414	
E. Customers Requiring Extensive Facilities to Service or Timing of Development is Highly Questionable.					
	Existing Irrigation Users Using Potable Water		307,996	345	(3)
6	Castle Rock	2015	74,098	83.0	(3)
8	Fanita Ranch	2025	699,017	783.0	(3)
12	Olsen Group Condos (N3)	2015	960	1.1	(3)
17	Christ the King Church - Mesa Rd	2010	1,920	2.2	(3)
22	Hill Creek Elementary	2015	14,880	16.7	(3)
23	Meadowrun	2015	4,800	5.4	(3)
24	Hillside Meadow	2015	11,520	12.9	(3)
26	Mast Business Park - Near Riverford Road	2015	3,360	3.8	(3)
27	Riverside Dr. Business Park	2015	9,120	10.2	(3)
29	Cuyamaca Development 1 (North of Silver Country Est.)	2015	6,240	7.0	(3)
30	Cuyamaca Development 2 (North of Silver Country Est.)	2015	12,960	14.5	(3)
32	County - Condos - Cottonwood East	2015	4,320	4.8	(3)
33	Drive-in Commerical Development	2015	4,320	4.8	(3)
38	Mission Villa Estates	2011	480	0.5	(3)
39	Cajon Speedway	2015	21,600	24.2	(3)
	Sub-Total		1,178,000	1319	
F. Willowbrook Golf Course					
28	Willowbrook Golf Course	2025	500,000	560.0	(3)
	Total		2,406,000	2,693	

Used 15% of total project acreage to determine irrigated area of unknown subdivisions.
Assumed 10,000 sq feet = 480 gpd for drought tolerant planting
Assumed 5,000 sq feet = 480 gpd for turf

Notes: (1) Customers Near Existing Recycled Water Lines
(2) Customers Serviced by $1.3M WL Construction Project
(3) Customers Requiring Extensive Facilities to Service or Timing of Development is Highly Questionable.

Category B - Existing Customers Using Potable Water for Irrigation, Located Near Existing Recycled Water Lines. These users have separate meters for their domestic (in-house) use and their outside irrigation use. They are currently using potable water for both their domestic and outdoor irrigation uses. The demand for this category of user is well documented and is based on existing meter records. There will be some cost of retrofitting the existing irrigation system from using potable water to recycled water. The average cost of the conversion to recycled water is estimated to be $17,500 per user.

Category C - Future Customers Serviced with $1.3 Million of New Recycled Waterlines. Customers in this category are not adjacent to existing recycled lines but can be reached for fewer construction dollars per unit of demand than customers in Categories E and F and therefore represent a quicker return on the investment. Included in this Category is the Sycamore Landfill which represents the largest user (67 percent of the total demand for Category B).

Category D - Carlton Oaks Country Club. The golf course currently irrigates with groundwater using on-site wells. During peak summer demands, low groundwater levels are causing production rate problems for the golf course. The golf course is interested in using recycled water during the winter months to keep their groundwater in reserve for use during the peak summer months. However, the golf course is only interested in using recycled water if the District adopts a seasonal discount for recycled water. For planning purposes, it is assumed that the golf course would use one half of their typical water use during the winter months.

Category E - Customers Requiring More Extensive Facilities to Serve or Timing of Development is Highly Questionable. The two largest users in this category are the Castlerock and Fanita Ranch developments and have had a history of delays and setbacks. These two users comprise approximately 89 percent of the total demand in this category.

Category F - Willowbrook Golf Course. Willowbrook Golf Course is an existing nine hole course located in the easterly portion of Padre Dam's Western Service area. The current source of water used for golf course irrigation is either well water similar to Carlton Oaks Golf Course or potable water from Lakeside Water District The golf course does lie within Padre Dam's Western Service area for sewer service and therefore could potentially be served using recycled water produced by Padre Dam.

Process water needed for treatment process for the Cable Ski Park is not included in the numbers above because the magnitude of this demand has not yet been determined. It will be several years before the Cable Ski Park demand will be realized.

3.2 Seasonal Variation of Recycled Water Demands and Seasonal Storage

Recycled water demands vary considerably during the year with the summer months having higher demand than the winter months. Should peak summer demands exceed the plant recycled water production capacity, the shortage of water must come from any combination of seasonal storage, well water and/or potable water. Monthly variation in recycled water for each demand category is presented in Attachment A.

An analysis was performed to show the seasonal storage needs for each demand category. It was assumed that no water was supplied by either Padre Dam's well or the potable water system. Tables located in Attachment A show the amount of seasonal storage required for each of the demand categories and different treatment plant sizes.

If the treatment plant is not expanded, there would be a need to expand the existing seasonal storage by approximately 63 MG just to keep up with existing demand and not supplement with well or potable water. One of the major reasons the additional storage is needed is to provide flushing of the lakes during the summer months (0.35 mgd flushing).

If the WRF were highrated to 2.7 mgd influent capacity, Category A customers could be served without addition to seasonal storage. Category B could be served with an addition of only 14 MG. To serve Category C, 43 MG of storage would need to be constructed.

With a 4.4 mgd influent treatment plant, additional seasonal storage would not be necessary until Category E was added.

4.0 El Monte Valley Groundwater Recharge Mining and River Restoration Project

In April 2006, Helix completed a study that analyzed the possibility of utilizing highly purified recycled water to recharge a groundwater basin in El Monte Valley. This project was to have the dual benefit of raising the groundwater level to support habitat restoration and then extracting groundwater to provide new raw water to supply the R.M. Levy Water Treatment Plant. This project could have numerous benefits to the local community including creating a recreational area for local residents, restoring natural habitat, improving the water quality in the El Monte Groundwater Basin, and expanding the local water portfolio by providing a new water supply.

The study examined the overall feasibility of the project including: 1) potential treatment processes needed to purify water prior to entering the groundwater basin; 2) the potential yield of the groundwater basin; 3) strategies for raising the groundwater table; 4) pipeline alignments from purified water sources to the El Monte Valley; and 5) funding opportunities for the project. Based on the preliminary modeling performed to date, it appears that, with careful management, the basin can support over 5,000 acre-feet per year (AFY) of recharge and extraction during normal operation.

Padre Dam was approached as the preferred source of the recycled water. Staff participated in reviewing and providing feedback throughout the study, and simultaneously analyzed the feasibility of providing 5,000 acre-feet per year of advanced treated recycled water (approximately 4.5 mgd). This would be a year-round demand and opportunity to treat and dispose of all wastewater generated within the District. Padre Dam would even need to import wastewater from the County Sanitation District to meet the ultimate demand.

The project would require Padre Dam to expand the WRF to 8 to 10 mgd in order to provide the 4.5 mgd of advanced treated recycled water in addition to providing Title 22 treated recycled water to our existing customers and the lakes. Additional advanced treatment facilities would need to be constructed to provide microfiltration, reverse osmosis, advanced oxidation utilizing hydrogen peroxide and ultraviolet radiation, and lime for pH adjustment. A purified water pipeline approximately 12 miles long from the WRF to the El Monte groundwater basin would also have to be constructed. Facilities would also be needed to convey more raw wastewater flow to the treatment plant including diversion structures, wastewater collection and influent pump station upgrades. Spreading grounds and extraction wells would also have to be constructed in the El Monte Valley to provide the groundwater recharge and collect the new raw water.

Helix's Feasibility Study for the El Monte Valley Recharge Project estimated that the total project cost would range between $64M and $153M, with a large part of that cost needed to expand the WRF and construct advanced treatment facilities. Part of this cost was anticipated to be funded by the sale of sand that would be mined from the El Monte Valley during the river restoration and in combination of selling treatment capacity at the Point Loma WWTP. There

is also a great potential for grant funding and regional participation that has caused Padre Dam and Helix to continue to pursue this opportunity.

The proposed WRF expansion to 4.4 mgd (tertiary) proposed will generate 2 mgd (2,240 AFY) of advanced treated water and will be constructed in a configuration that will allow a further expansion to 10 mgd and upgrade to advanced treatment in a subsequent phase. When complete, the ultimate benefits of these combined projects will include 4.5 mgd (5,000) AFY of advanced treated water for the El Monte Project and a reduction in the amount of future capacity upgrades that will be necessary at the Point Loma WWTP.

Table 3 shows the demands anticipated for the EMVRP. The project is currently estimated to have a maximum hydraulic capacity of 4.5 mgd (5,000 AFY). Helix has planned three phases for the EMVRP. This is shown in graphical form in **Attachment B**. Each phase has a different blend of AWT to raw water. In Phase 1, the Department of Health will only allow the AWT water to be 25 percent of the total flow sent to the aquifer and the DHS will limit the hydraulic detention time to one year (or 1.125 mgd of AWT water). The other 75 percent would most likely be raw water supplied by Helix. Once the hydraulics prove there is more than a six month travel time and no short-circuiting in the aquifer, then the percentage of AWT water can be increased with Health Department approval.

There will be seasonal variation associated with the amount of AWT water that Padre Dam can send to the EMVRP. **Table 3** shows the variations in flow that a plant expansion to 4.4 mgd influent could send to the EMVRP. As shown in the table, as more categories of demand are added within the District, less AWT water is available. The expansion to 4.4 mgd can provide up to 2.37 mgd during the winter months for all of the demand except Categories E and F. For Categories E and F, the summer demands for Title 22 water customers is so high that the AWT water available falls to zero. The average AWT water available when Categories E and F are added would not be acceptable for the EMVRP project.

TABLE 3
AWT Water Available to the EMVRP
4.4 mgd Treatment Plant
Total Lake/Pond Demand Including Flushing = 1.00 mgd
Lake/Pond Consumptive Use = 0.65 mgd, Flushing = 0.35 mgd

A. EMVRP AWT WATER USE NEEDS

Maximum Hydraulic Capacity Currently Estimated for the EMVRP = 4.5 mgd (5,000 AF/Yr)

	Ratio of AWT Water to Raw Water (Blend)						
	50%	60%	70%	75%	80%	90%	100%
AWT Flow MGD	2.25	2.7	3.15	3.375	3.6	4.05	4.5

B. WRF PRODUCTION - 4.4 MGD Influent

	EXISTING DEMAND			CATEGORY A - Demand by Existing WL's			CATEGORY B - Potable Irrg Users Near (E) WL's			CATEGORY C - Demand by $1.3M of new WL's		
	Min	Max	Ave	Min	Max	Ave	Min	Max	Ave	Min	Max	Ave
Raw Influent	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
% Loss Thru Conventional Treatment	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Title 22 Output	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96
PD Demands	0.92	2.65	1.79	0.97	2.79	1.88	1.03	2.94	1.97	1.17	3.15	2.15
Remaining RW	3.04	1.31	2.17	2.99	1.17	2.08	2.93	1.02	1.99	2.79	0.81	1.81
% Loss Thru Advanced Treatment	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
AWT Output	**2.58**	**1.11**	**1.84**	**2.54**	**0.99**	**1.77**	**2.49**	**0.87**	**1.69**	**2.37**	**0.69**	**1.54**

	CATEGORY D - Carlton Oaks Golf Course			CATEGORY E - Highly Questionable Demand			CATEGORY F - Willowbrook Golf Course		
	Min	Max	Ave	Min	Max	Ave	Min	Max	Ave
Raw Influent	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
% Loss Thru Conventional Treatment	10%	10%	10%	10%	10%	10%	10%	10%	10%
Title 22 Output	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96
PD Demands	1.17	3.15	2.51	1.86	5.05	3.69	2.48	5.77	4.19
Remaining RW	2.79	0.81	1.45	2.1	-1.09	0.27	1.48	-1.81	-0.23
% Loss Thru Advanced Treatment	15%	15%	15%	15%	15%	15%	15%	15%	15%
AWT Output	**2.37**	**0.69**	**1.23**	**1.79**	**-0.93**	**0.23**	**1.26**	**-1.54**	**-0.20**

5.0 Project Costs

Following is a summary of the construction cost estimates from the High Rating Study and the LISA 1 Study.

Summary of Construction Costs

Capacity	Mid Range Construction Cost (Million Dollars)	Comments
2.7 MGD Expansion		
WRF	$8	Would require significant seasonal storage to meet yearly demand. No water sent to El Monte. Less flexibility to manage flow and demands.
4.4 MGD Expansion		
WRF	$22	Conventional process uses current treatment process. No seasonal storage required unless Fanita Ranch is developed. Provide maximum flexibility to manage flow.
AWT	$16	Provides El Monte 2 mgd initially, 1.0 mgd at build-out.
10 MGD Expansion		
WRF	$82	Requires significant infrastructure to get raw wastewater to the WRF. May need to negotiate with the City of El Cajon or the County of San Diego to sell treatment capacity. Requires redundant treatment trains and solid handling processes to be independent from the METRO system.
AWT	$14	To Serve 4.5 mgd to El Monte

A summary of project costs is shown in **Table 4**. The shaded area in the table shows the design cost for the expansion associated with grant. Costs total $4.0M with ARRA grant money totaling $1.0M.

Planning level construction costs for plant expansion options and/or additional seasonal storage is presented in **Table 5**.

6.0 Funding Sources

SDCWA LISA Grants. The LISA program was established by SDCWA in 2007 to provide funding to facilitate studies and investigations of local water supply opportunities. The overall goal of the LISA program is to fund local groundwater, desalination, and water recycling studies, and investigations which would lead to new local water supply or increased dry-year water supplies.

Helix Water District Participation. Helix has tentatively agreed to reimburse Padre Dam the cost of the design of the AWTP should Helix not proceed with the EMVRP.

TABLE 4
PADRE DAM WRF EXPANSION
SUMMARY OF FUNDING CURRENTLY SECURED

Work Description	Pre-Construction Cost	Title 16 Grant Funding	ARRA Funding Through the Bureau of Rec	Grant Funds from SDCWA	Prop 50 Grant (1)	Percent Grant
NON-CONSTRUCTION ACTIVITIES & COTTONWOOD DIVERSION						
WRF High Rating Study	$250,000	$62,500	$0	$75,000		
LISA Study, Phase 1	$150,000	$37,500	$0	$70,000		
LISA Study, Phase 2						
Dudek/RECON Consultants - Environmental CEQA Permitting						
Mitigated Negative Declaration for a 4 mgd Plant Expansion	$154,940	$38,735	$0	$47,671		
Black & Veatch - Engineering Studies/Support						
BV Project Management	$12,710	$0	$3,177	$3,911		
Study of Additional Recycled Water Demand	$46,930	$0	$11,733	$14,439		
Influent Flow Equalization (4 mgd and 10 mgd)	$32,980	$0	$8,245	$10,147		
Effluent Management Options Including Seasonal Storage	$71,870	$0	$17,968	$22,113		
Santee Lakes Water Quality	$46,850	$0	$11,713	$14,415		
Engineering Support for CEQA Process	$120,000	$0	$30,000	$36,921		
NPDES Permitting	$226,780	$0	$56,750	$69,775		
Coordination with Regulators	$13,430	$0	$3,357	$4,132		
Financial Feasibility Technical Memorandum	$20,930	$0	$5,233	$6,440		
Sub-total for Black & Veatch	$592,480	$0	$148,174	$182,292		
Padre Dam Management	$70,000	$0	$17,500	$21,537		
Total LISA Grant Phase 2	$817,420	$38,735	$165,674	$251,500		
ADDITIONAL WORK REQUESTED FOR DESIGN						
Direct Project Administration Cost	$325,300	$0	$163,625	$0		
Contractural						
Surveys	$30,000	$0	$7,500	$0		
Geotechnical	$50,000	$0	$12,500	$0		
Preliminary Design	$1,080,000	$0	$223,550	$0		
Detailed Design	$2,520,000	$0	$941,250	$0		
Minus Grant Adjustments			-$347,100			
Sub-total for Additional Requested Work	$4,005,300	$0	$1,001,325	$0	$3,000,000	
Sub-Total Non-Construction Activities	$5,222,720	$138,735	$1,167,000	$397,000	$3,000,000	90%
Cottonwood Diversion Structure & Pipeline Replacement	$904,000	$200,000	$0	$0	$0	
Sub-Total Non-Construction Activities & Cottonwood Creek	$6,126,720	$338,735	$1,167,000	$397,000	$3,000,000	80%
CONSTRUCTION ACTIVITIES - PLANT EXPANSION TO 4.4 MGD - Includes a Phase 1 AWT						
Construction Management & Eng During Constr.	$9,180,800					
Construction	$38,000,000					
Sub-Total Constr, Activities - Plant Expansion to 4.4 mgd (2)	$47,180,800				$0	0%

Note. (1) Prop. 50 grant is for $3M, you have to spent about $4.3M before you get reimburse for the next $3M.
(2) Total only shows grants secured to date It is anticipated that a 25% Bureau of Reclamation Grant will be secured for the Plant Construction Phase
(3) Construction Cost Excludes $1.3 M of new Pipelines and Conversions to RW

ADDITIONAL WORK REQUESTED FOR DESIGN	Total Costs	Conventional Cost	AWT & PS Cost	BOR Grant
Direct Project Administration Cost	$325,300	$182,168	$143,132	$163,625
Contractural				
Surveys	$30,000	$16,800	$13,200	$7,500
Geotechnical	$50,000	$28,000	$22,000	$12,500
Preliminary Design	$1,080,000	$604,800	$475,200	$223,550
Detailed Design	$2,520,000	$1,411,200	$1,108,800	$941,250
Minus Grant Adjustments	$0		$0	-$347,100
Sub-total for Additional Requested Work	$4,005,300	$2,242,968	$1,762,332	$1,001,325

Total Design Cost $3,003,975 With BOR Grant
Design Cost Conventional WWTP $1,682,226 With BOR Grant
Current Budget for Design $2,100,000 W/O AWT

Table 5
Planning Level Construction Costs for Plant Expansion and/or Additional Seasonal Storage

Demand Scenario Description	Plant Title 22 Influent Capacity (MGD)	Plant Title 22 Production Capacity (MGD)	Additional Seasonal Storage Required (MG)	Plant Expansion Construction Cost (Mid Range)	Seasonal Storage Construction Cost (Mid Range)	Total Construction Cost (Mid Range)
Existing Irrigation & Lake Demand	2.0	1.8	63	$0	$19.5M	$19.5M
Category A - New Demand Next to Existing RW Lines	2.7 4.4	2.4 4.0	0 0	$8.0M $20.2M	$0 $0	$8.0M $20.2M
Category B – Convert Potable Irrigation Demands to RW	2.7 4.4	2.4 4.0	14 0	$8.0M $20.2M	$4.3M $0	$12.3M $20.2M
Category C – Demand with $1.3M Pipelines	2.7 4.4	2.4 4.0	43 0	$8.0M $20.2M	$13.3M $0	$21.3M $20.2M
Category D – Carlton Oaks Golf Course	4.4	4.0	0	$20.2M	$0	$20.2M
Category E – Fanita Ranch and Other High Risk Demands	4.4 5.1	4.0 4.6	83 0	$20.2M Not Estimated	$25.7M $0	$45.9M Not Estimated
Category F – Willowbrook Golf Course	4.7 5.8	4.2 5.2	154 0	Not Estimated Not Estimated	$47.7M $0	Not Estimated Not Estimated

1. Construction costs for WRF expansion to 4.4 MGD (Influent Capacity) were estimated based on adding 10% incremental cost to the estimated costs for WRF expansion to 4.0 MGD (Influent Capacity).
2. Construction costs for seasonal storage include costs for 0.5 mile of 12-inch pipeline and a 4 MGD pump station.

Bureau of Reclamation. Padre Dam has received funding commitments from the Department of Interior, Bureau of Reclamation (BOR), which is authorized to allocate up to $126M pursuant to Title XVI of the Reclamation Projects Authorization and Adjustment Act of 1992. The act authorized BOR to participate in the construction of five recycling projects, three of which were located in Southern California -- the San Diego Area Water Reclamation Program, Los Angeles Area Water Reclamation and Reuse Project, and the San Gabriel Basin Demonstration Project. Padre Dam's WRF expansion is part of the original San Diego Area Water Reclamation Program. Padre Dam's current allocation of the Title XVI funding authorizes up to 25 percent of the cost of planning, design, and construction of the first phase of the WRF expansion project. To be eligible for Title XVI funds, a water reclamation and reuse project must meet the specific BOR requirements under the National Environmental Policy Act (NEPA) and must also comply with State Revolving Fund requirements.

American Reinvestment and Recovery Act. Additionally, Padre Dam has received funding from the American Reinvestment and Recovery Act (ARRA) through the BOR, Title XVI program. The grant is for 25 percent of the design portion of the WRF expansion. The ARRA funding allowed the BOR to disburse grant funding to projects more quickly and lessened dependence on future congressional appropriations. However, all ARRA funded projects must be completed by November 2010.

State of California Proposition 50 Grant. Padre Dam has received a $3M grant from the State of California through Proposition 50 administered by the Department of Water Resources (DWR). Additionally, Helix has received $2.5M from the State of California through Proposition 50 for the EMVRP. The Districts are required to spend 10 percent of total project costs before grant monies are disbursed by DWR through SDCWA.

Rates. The price of conventionally treated recycled water is 90 percent of potable. It is anticipated that the largest future users, such as the Carlton Oaks Golf Course, would not buy recycled water unless it is set at a lower price. For advanced treated water, Helix would pay a negotiated cost, currently estimated in the range of $800 to $950 per AF.

Rebates from MWD and SDCWA. MWD is paying $250 per AF and SDCWA is paying $200 per AF. It is assumed Padre Dam will receive all $450 per AF incentive.

Demand Offsets. Facilities that may qualify to be paid for by the demand offset program include the proposed $2.5M construction of pipelines and the cost to convert existing irrigation users to recycled water.

7.0 Financial Feasibility Analysis

Black & Veatch prepared a financial feasibility analysis of various scenarios. The analysis of each scenario included the following elements:

1. Net present worth analysis for each alternative, with project costs and revenues taken over a 50-year period.
2. Sensitivity analysis to determine which factors had the most effect on the present value of an alternative.
3. Breakeven analysis to determine the minimum revenues from rates and new customers necessary to balance the cost of the WRF expansion.
4. Extent of the minimum distribution system necessary to bring in the breakeven revenues.
5. Impact on Rates.

The feasibility analysis is summarized in the following sections. The full analysis is currently being finalized by Black & Veatch in a memorandum titled Financial Feasibility Study for PDWRF Expansion.

7.1 Net Present Worth Analysis

A net present worth analysis was performed to compare the following three alternatives:

1. Baseline Case. This is a "Do Nothing" alternative where the WRF continues to produce 2 mgd.
2. Expansion to 4.4 mgd, Conventional Treatment. No advanced treated water would be produced for Helix.
3. Expansion to 4.4 mgd with AWT. The 4.4 mgd expansion adds advanced treatment of water for the Helix Groundwater Recharge Project.

A positive net present value (NPV) means that recycled revenues and savings from the project outweigh the cost. The value of all costs and revenues (future and present) are compared in present day dollars. If the NPV is positive, the project revenues are greater than the costs.

Options for the analysis were:

- Sale of METRO Capacity. Income to the District was assumed to be $10,000 per mgd with 1.26 mgd to be sold in Phase 1, and 3.03 mgd in Phase 2.
- Point Loma Conversion to Secondary Treatment. Cost was assumed to be $3,125,000 per mgd treated.
- Sale Price for AWT Water. The required sale price was calculated in the breakeven analysis to be in the range of $800 to $950 per AF.
- Reduced Water Sales. Assumed Fanita Ranch and Willowbrook Golf Course never develop and that the Carlton Oaks Country Club only uses half of their demand for the six winter months.

The rate scenario used in the NPV analysis assumed the base option of keeping the WRF at 2 mgd and that conversion to secondary treatment at Point Loma would happen. Net present values for the other expansion options were then calculated using the same rate increases. Over a 50 year period, wastewater rates would increase a total of 535 percent if Point Loma coverts to secondary. Recycled water rates were held to 383 percent for both cases over the 50 year period. The rate increases on a yearly basis are shown in **Attachment C**.

Table 6 summarizes the NPV of various alternatives. All the 4.4 mgd expansion alternatives have a positive value except the option where Helix would get the incentives from SDCWA and MWD.

This analysis has been updated by modifying the financial analysis to reflect a reduced cost to treat wastewater at METRO due to sludge over-billing and reduced loading of suspended solids and chemical oxygen demand due to incorporation of In-Pipe Technology. The financial analysis was also updated to reflect the most recent estimates of the future rates for the sale of recycled water.

7.2 Sensitivity Analysis

A sensitivity analysis was performed to identify which factors had the greatest effect on NPV. The most significant variables were:

- Sale of METRO Capacity.
- Sale of AWT water.
- Point Loma WWTP conversion to secondary treatment.
- Which agency receives MWD and SDCWA rebates.

TABLE 6

Summary of Total Cash Flow NPVs for PDWRF Phase 1 Expansion (Relative to Baseline Condition)

Phase 1 Expansion without AWT[2]

Conservative Demand Assumption?

PLWWTP Conversion?	Yes[1]	No
Yes	Box 1 $37M	Box 3 $38M
No	Box 2 $11M	Box 4 $11M

Phase 1 Expansion with AWT[2]

Assumes No PLWWTP Conversion
AWT Water to EMVRP?

CWA/MWD Credits	Best Case[3]	Worst Case[4]
PD	Box 5 $33M	Box 7 $7M
Helix	Box 6 $3M	Box 8 -$12M

Notes:

1. Conservative Demand assumes that irrigation Categories A through D are served and Fanita Ranch and Willow Brook Golf Course never develop. Expansion to 4.0 mgd is assumed with the Conservative Demand assumption; expansion to 4.4 is assumed with the non-conservative assumption.
2. Value represents incremental increase in NPV from Baseline case.
3. Best case assumes annual average of 1.84 mgd of advanced treated water to El Monte with minimal recycled water to Padre Dam (existing irrigation users of 0.79 mgd and 1.00 mgd to the Lakes/Ponds).
4. Worst case assumes annual average of 1.23 mgd of advanced treated water to El Monte with Padre Dam to serve irrigation Categories A through D and provide 1.0 mgd to the Lakes/Ponds.

7.3 Breakeven Analysis

A breakeven analysis was performed assuming no conversion to secondary treatment at Point Loma, no participation by Helix, and no revenue from the El Monte Valley Recharge Project. A reduced rate structure was used for large water users during the winter months.

The analysis for expansion to 4.4 mgd shows that if Categories A, B and C are served, approximately 30 acre-feet per year would need to be sold to the Carlton Oakes Golf Course. For the Golf Course this is less than half of their winter demands.

HWD is taking the El Monte Project before their Board on May 19th to present the current project costs. Included in their financial assumptions are that Padre Dam would receive the CWA and MWD incentives of $200 and $250 respectively for water produce and that Helix would purchase the AWT water from Padre Dam at a price between $800 to $950/acre-foot. An additional assumption is that this price to purchase is in 2010 dollars and would increase by 5 percent per year thereafter. Padre Dam's break even analysis showed that a water sale rate within this range would be financially feasible.

8.0 Regulatory Issues

8.1 California Environmental Quality Act (CEQA)

RECON Environmental is currently preparing the environmental documentation necessary to proceed with construction of expansion to 4.4 mgd. It has recommended that a Mitigated Negative Declaration (MND) be the instrument to be used to meet CEQA and NEPA requirements. NEPA requirements also need to be met to receive Title 16 Federal Grant money from the Bureau Reclamation.

The following environmental studies are being prepared by RECON in support of the CEQA and NEPA documentations:

- Air Quality Technical Report
- Biological Resources Study/Burrowing Owl Survey
- Cultural Resources Study
- Paleontological Resources Letter Report
- Public Safety Memorandum
- Hydrology and Water Quality Technical Report
- Noise Technical Study

The MND will also evaluate the environmental impacts associated with expansion of the WRF utilizing either the membrane bioreactor technology or mirroring the existing conventional treatment process. All documentation necessary to meet environmental requirements is planned to be brought before the Board for approval in April of 2010.

8.2 Regional Water Quality Control Board Discharge Requirements

It is believed that obtaining new NPDES permit for expansion to 4.4 mgd is achievable as the approach would be similar to the recently acquired NPDES permit for the 2 mgd plant. Discharge to Sycamore Creek would be limited to 2 mgd with the same yearly mass loadings for nitrogen and phosphorous held to 1.0 and 0.1 mg/l respectively. If it is anticipated that the

WRF would treat flows in excess of the permit amount, raw sewage flow would simply not be treated at the WRF and would be sent to the Point Loma Treatment Plant for treatment.

8.3 State Department of Health Requirements

Padre Dam will need to revise the Waste Discharge Requirement for Land Application issued by the State DHS.

8.4 City of Santee Conditional Use Permit

Sale of water outside Padre Dam's service area could affect the conditions of the current Conditional Use Permit (CUP), issued by the City of Santee. The permit requires Padre Dam to serve the recycled water demands of users within the City of Santee first. This condition of the CUP could affect sale of water to Helix for the El Monte Valley Recharge Project. Use of recycled water outside Padre Dam's service area needs to be coordinated with the City of Santee.

The existing Conditional Use Permit (CUP) requires the WRF to limit odors at the property line for future development in the area. The proposed design will meet the CUP requirements.

9.0 Schedule

In order to completing the design by the end of November of 2010 and thus receiving ARRA funding, the schedule for implementing the expansion of the WRF, subject to Board approval is as follows:

Task	Schedule
Board Consideration and approval of issuing design RFP	May, 2010
Issue Design RFP	May, 2010
Award Design Contract	June, 2010
60% Design Workshop	August, 2010
Complete Design	November, 2010

10.0 Recommendations

This agenda item requests Board approval to proceed with design of the 4.4 mgd expansion, completing the design by the end of November 2010, and thus receive ARRA funding.

Padre Dam was awarded an ARRA grant of $1,001,325, or approximately 25 percent of the design costs. An important element of the grant is that the design must be completed by November 30, 2010.

A summary of design costs is shown in **Table 7**. Costs total $4,005,300 with ARRA grant money totaling $1,001,325. Padre Dam would not proceed with design of the AWT portion of the design until we receive a commitment from Helix that if El Monte does not proceed, Helix would pay for the cost of the AWT and pump station design. Design of the AWT and pump station is estimated to be $1,762,332. Therefore, Padre Dam's estimated cost for the design = $4,005,300 - $1,001,325 = $3,003,975 (including the AWT and pump station). The current budget for design is $2,400,000 (excluding AWT and pump station). Therefore, we have sufficient funds budgeted.

TABLE 7
SUMMARY OF DESIGN COSTS

ADDITIONAL WORK REQUESTED FOR DESIGN	Total Costs	Conventional Cost	AWT & PS Cost	BOR Grant
Direct Project Administration Cost	$ 325,300	$ 182,168	$ 143,132	$ 163,625
Contractural				
Surveys	$ 30,000	$ 16,800	$ 13,200	$ 7,500
Geotechnical	$ 50,000	$ 28,000	$ 22,000	$ 12,500
Preliminary Design	$ 1,080,000	$ 604,800	$ 475,200	$ 223,550
Detailed Design	$ 2,520,000	$ 1,411,200	$ 1,108,800	$ 941,250
Minus Grant Adjustments	$ -		$ -	$ (347,100)
Sub-total for Additional Requested Work	$ 4,005,300	$ 2,242,968	$ 1,762,332	$ 1,001,325

ATTACHMENT A

SYSTEM DEMAND

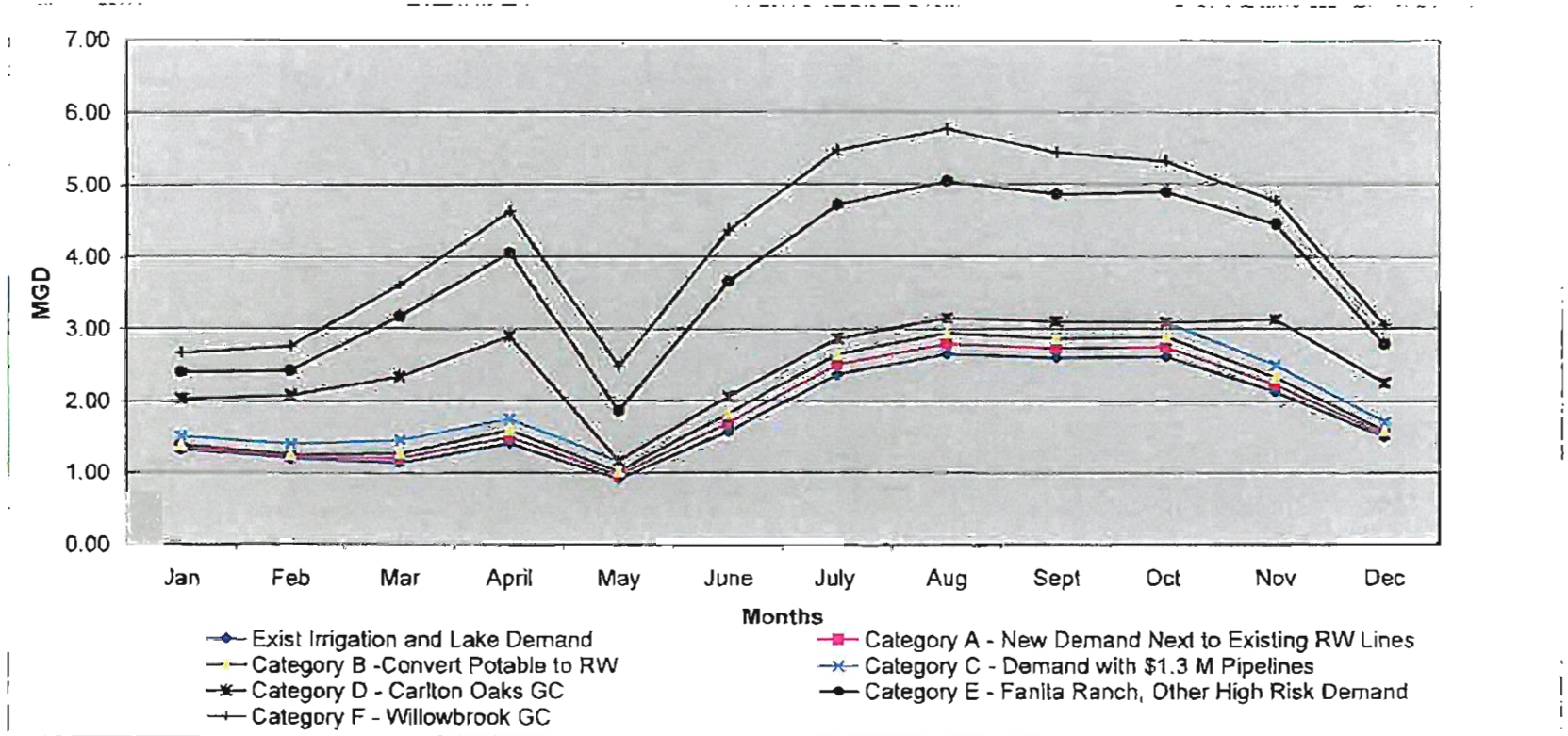
AND

SEASONAL STORAGE

Demands Based on Categories A through F

Month	Days per Month	Percent of Total Demand	Existing Recycled Water Demand	Potential Category "A" Customer	Potential Category "B" Customer	Potential Category "C" Customer	Carlton Oaks GC (Winter) Category "D"	Potential Category "E" Customer	Potential Category "F" Customer	Ultimate Total Irrig. Demand	Total Lake Demand (Consumptive Use + Flushing)	Exist RW Demand Plus Total Lake Demand	Ultimate Total Irrig + Lake Demands	Lake Consumptive Use (High)	Discharge to Sycamore Creek, Lake Flushing
Jan	31	2.7%	0.25	0.03	0.03	0.12	0.52	0.37	0.26	1.57	1.09	1.34	2.66	0.74	0.35
Feb	28	2.2%	0.23	0.03	0.03	0.15	0.67	0.34	0.34	1.78	0.98	1.21	2.76	0.83	0.35
Mar	31	6.1%	0.56	0.06	0.07	0.19	0.87	0.84	0.44	3.03	0.58	1.14	3.61	0.23	0.35
April	30	8.1%	0.78	0.09	0.09	0.18	1.14	1.18	0.57	3.98	0.64	1.42	4.62	0.29	0.35
May	31	5.0%	0.45	0.05	0.05	0.15	0.00	0.69	0.62	2.02	0.46	0.92	2.48	0.11	0.35
June	30	11.2%	1.07	0.12	0.12	0.23	0.00	1.60	0.71	3.85	0.51	1.58	4.37	0.18	0.35
July	31	13.4%	1.25	0.14	0.15	0.21	0.00	1.86	0.78	4.35	1.12	2.37	5.47	0.77	0.35
Aug	31	13.7%	1.27	0.14	0.15	0.21	0.00	1.90	0.72	4.39	1.38	2.65	5.77	1.03	0.35
Sept	30	12.2%	1.18	0.13	0.14	0.24	0.00	1.75	0.58	4.02	1.42	2.60	5.44	1.07	0.35
Oct	31	12.9%	1.20	0.13	0.14	0.20	0.00	1.79	0.42	3.90	1.41	2.61	5.31	1.06	0.35
Nov	30	9.2%	0.88	0.10	0.10	0.18	0.64	1.31	0.32	3.51	1.25	2.13	4.76	0.90	0.35
Dec	31	3.8%	0.36	0.04	0.04	0.12	0.54	0.53	0.27	1.90	1.15	1.51	3.05	0.80	0.35
Yearly Average		100%	0.79	0.09	0.09	0.18	0.37	1.18	0.50	3.19	1.00	1.79	4.19	0.65	0.35
				0.09		0.06									
											Min	0.92			
											Max	2.65			

	Existing Demand + Total Lake Demand +					
	Potential Category "A" Customer	Potential Category "B" Customer	Potential Category "C" Customer	Carlton Oaks GC (Winter) Category "D"	Potential Category "E" Customer	Potential Category "F" Customer
	1.38	1.39	1.51	2.03	2.40	2.66
	1.23	1.28	1.40	2.08	2.42	2.76
	1.21	1.27	1.48	2.33	3.17	3.61
	1.50	1.59	1.75	2.89	4.05	4.62
	0.97	1.03	1.17	1.17	1.86	2.48
	1.70	1.83	2.06	2.06	3.68	4.37
	2.51	2.65	2.86	2.86	4.72	5.47
	2.79	2.94	3.15	3.15	5.05	5.77
	2.73	2.86	3.10	3.10	4.86	5.44
	2.75	2.89	3.09	3.09	4.89	5.31
	2.23	2.33	2.48	3.13	4.44	4.76
	1.55	1.59	1.71	2.25	2.78	3.05
	1.88	1.97	2.15	2.51	3.89	4.19
Min	0.97	1.03	1.17	1.17	1.86	2.48
Max	2.79	2.94	3.15	3.15	5.05	5.77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MGD
Jan
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
Months
Exist Irrigation and Lake Demand
Category A - New Demand Next to Existing RW Lines
Category B -Convert Potable to RW
Category C - Demand with $1.3 M Pipelines
Category D - Carlton Oaks GC
Category E - Fanita Ranch, Other High Risk Demand
Category F - Willowbrook GC

Demand Scenarios and Treatment Plant and Seasonal Storage Needs

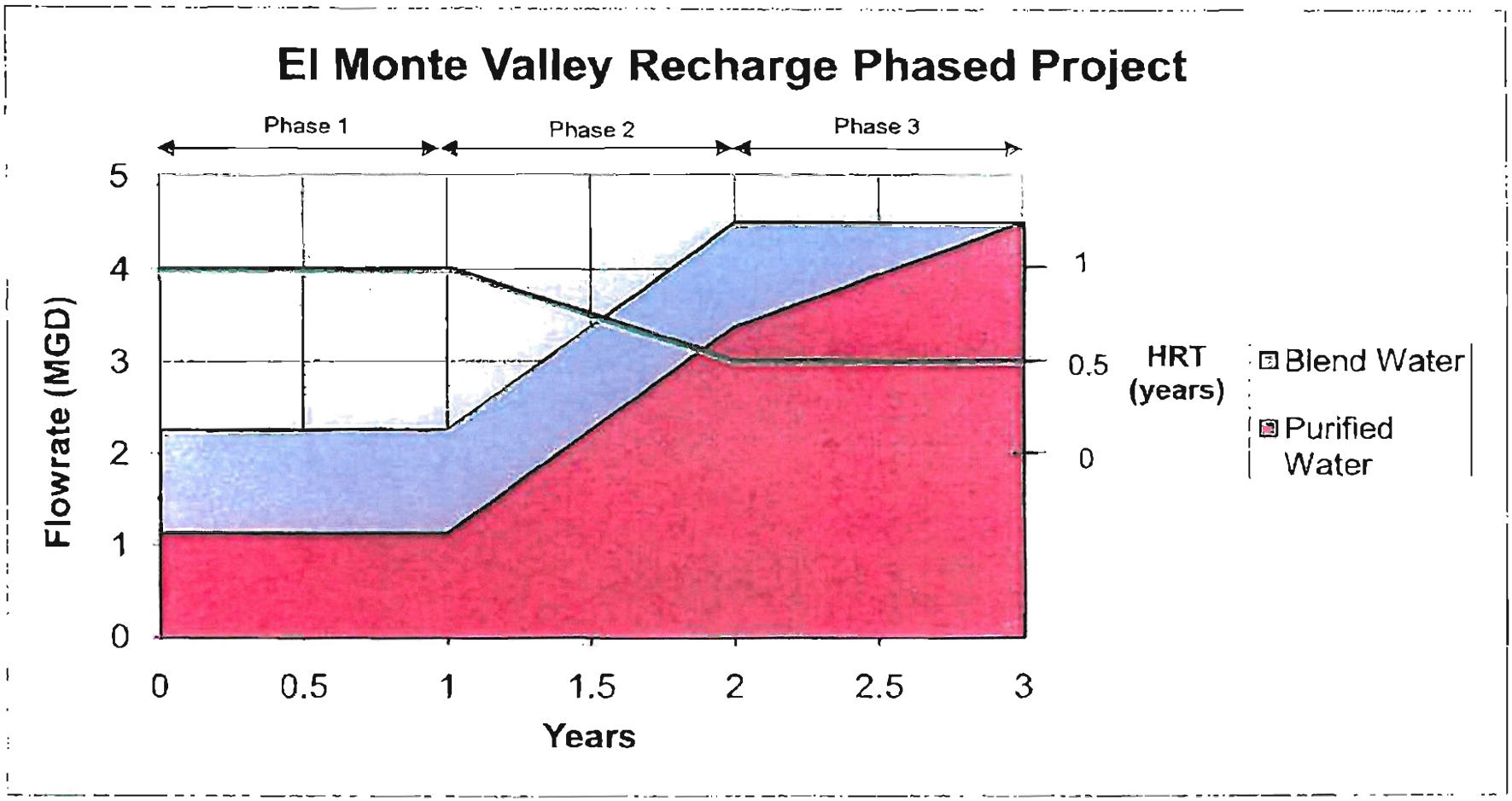
Demand Scenario Description	Total Average Annual Demand[1] (MGD)	Peak Summer Month Demand (MGD)	Plant Title 22 Influent Capacity (MGD)	Plant Title 22 Production Capacity[2] (MGD)	Total Seasonal Storage Required[3] (MG)	Existing Seasonal Storage (MG)	Additional Seasonal Storage Required (MG)
Existing Irrigation & Lake Demand	1.79	2.65	2.0	1.8	103	40	63
Category A - New Demand Next to Existing RW Lines	1.88	2.79	2.7 4.4	2.4 4.0	36 0	40 40	0 0
Category B – Convert Potable Irrigation Demands to RW	1.97	2.94	2.7 4.4	2.4 4.0	54 0	40 40	14 0
Category C – Demand with $1.3M Pipelines	2.15	3.15	2.7 4.4	2.4 4.0	83 0	40 40	43 0
Category D – Carlton Oaks Golf Course	2.51	3.15	4.4	4.0	0	40	0
Category E – Fanita Ranch and Other High Risk Demands	3.69	5.05	4.4 5.1[4]	4.0 4.6	123 34	40 40	83 0
Category F – Willowbrook Golf Course	4.19	5.77	4.7[5] 5.8[4]	4.2 5.2	194 37	40 40	154 0

1. Includes existing demand for recycled water customers and lakes. Includes total lake demand of 1.0 mgd, which is evapotranspiration plus flushing.
2. Assumes approximately 10% water loss through the plant due to sludge, evaporation, and other losses.
3. Assumes no potable or raw water supplementation.
4. Minimum influent plant capacity required to meet the peak summer month demand without requiring additional seasonal storage.
5. Minimum influent plant capacity required to meet the annual average demand.

ATTACHMENT B

EL MONTE VALLEY RECHARGE

PHASED PROJECT


El Monte Valley Recharge Phased Project
Phase 1
Phase 2
Phase 3
Flowrate (MGD)
5
4
3
2
1
0
0
0.5
1
1.5
2
2.5
3
Years
1
0.5
0
HRT
(years)
Blend Water
Purified
Water

ATTACHMENT C

RATE INCREASES

WITH NO EXPANSION AND

WITH POINT LOMA CONVERSION TO

SECONDARY

ATTACHMENT C

BASE OPTION (No Expansion)
RATES NEEDE WITH POINT LOMA CONVERSION TO SECONARY

Fiscal Year Ending June 30,	Baseline Case			
	Wastewater		Recycled Water	
	Annual	Cumulative	Annual	Cumulative
	%	%	%	%
2010	5.0%	5.0%	16.2%	0.0%
2011	5.0%	10.3%	10.3%	10.3%
2012	5.0%	15.8%	9.2%	20.4%
2013	5.0%	21.6%	3.0%	24.1%
2014	5.0%	27.6%	3.0%	27.8%
2015	5.0%	34.0%	3.0%	31.6%
2016	5.0%	40.7%	3.0%	35.6%
2017	5.0%	47.7%	3.0%	39.6%
2018	5.0%	55.1%	3.0%	43.8%
2019	5.0%	62.9%	3.0%	48.1%
2020	5.0%	71.0%	3.0%	52.6%
2021	5.0%	79.6%	3.0%	57.2%
2022	5.0%	88.6%	3.0%	61.9%
2023	5.0%	98.0%	3.0%	66.7%
2024	3.0%	103.9%	3.0%	71.7%
2025	3.0%	110.1%	3.0%	76.9%
2026	3.0%	116.4%	3.0%	82.2%
2027	3.0%	122.8%	3.0%	87.7%
2028	3.0%	129.5%	3.0%	93.3%
2029	3.0%	136.4%	3.0%	99.1%
2030	2.0%	141.1%	3.0%	105.1%
2031	2.0%	146.0%	3.0%	111.2%
2032	3.0%	153.3%	3.0%	117.5%
2033	3.0%	160.9%	3.0%	124.1%
2034	3.5%	170.1%	3.0%	130.8%
2035	3.5%	179.5%	3.0%	137.7%
2036	3.5%	189.3%	3.0%	144.8%
2037	3.5%	199.4%	3.0%	152.2%
2038	3.5%	209.9%	3.0%	159.8%
2039	3.0%	219.2%	3.0%	167.5%
2040	3.0%	228.8%	3.0%	175.6%
2041	3.0%	238.7%	3.0%	183.8%
2042	3.5%	250.5%	3.0%	192.4%
2043	3.5%	262.8%	3.0%	201.1%
2044	3.5%	275.5%	3.0%	210.2%
2045	3.5%	288.6%	3.0%	219.5%
2046	3.0%	300.3%	3.0%	229.1%
2047	3.0%	312.3%	3.0%	238.9%
2048	4.0%	328.8%	3.0%	249.1%
2049	4.0%	345.9%	3.0%	259.6%
2050	5.0%	368.2%	3.0%	270.4%
2051	5.0%	391.6%	3.0%	281.5%
2052	5.0%	416.2%	3.0%	292.9%
2053	3.0%	431.7%	3.0%	304.7%
2054	3.0%	447.7%	3.0%	316.8%
2055	3.0%	464.1%	3.0%	329.3%
2056	3.0%	481.0%	3.0%	342.2%
2057	3.0%	498.4%	3.0%	355.5%
2058	3.0%	516.4%	3.0%	369.1%
2059	3.0%	534.9%	3.0%	383.2%

WRF Expansion Data Sheet
Job No. 205051
December 3, 2011

Phase 1 Expansion to 4.4 mgd

Engineering, Construction Management and Construction Cost (mid cost)

Through Title 22	$26 million
AWT & Pump Station	$20 million
Total	**$46 million**

Schedule

Environmental	March 2010 thru June 2011
Design	June 2010 thru Sept 2011
Construction	July 2012 thru July 2014

Phase 2 Expansion to 10 mgd

Construction Cost (mid cost)

Through Title 22	$100 million
AWT & Pump Station	$ 13 million
Total	**$113 million**

Schedule

Environmental	March 2015 thru June 2016
Design	June 2015 thru Sept 2017
Construction	July 2018 thru July 2020

Grants Funding

Currently Grants received to date =		$ 603,000
Grants in progress		
Prop 50	=	$ 3,000,000
Bureau of Reclamation (25% of Phase 1 Constr)	=	$11,000,000
Total	**=**	**$14,603,000**

Other Funding

State Revolving Fund Loan – Low Interest
Prop 84

AGENDA ITEM 5
Attachment

MetroTAC
2010/2011 Work Plan

MetroTAC Items	Description	Subcommittee Member(s)
Lateral Issues	Sewer laterals are owned by the property owners they serve, yet laterals often allow infiltration and roots to the main lines causing maintenance issues. As this is a common problem among PAs, the MetroTAC will gather statistics from national studies and develop solutions.	Tom Howard Joe Smith
Advanced Water Purification Demonstration Project	San Diego engaged CDM to design/build/operate the project for the water repurification pilot program. *2/8/11: Equipment to arrive 3/2011; tours will be held when operational (June/July 2011 timeframe)*	Al Lau
Fiscal Items	The Finance committee will continue to monitor and report on the financial issues affecting the Metro System and the charges to the PAs. The debt finance and reserve coverage issues have been resolved. Refunds totaling $12.3 million were sent to most of the PA's.	Greg Humora Scott Huth Karen Jassoy Karyn Keese
Recycled Water Revenue Issue	Per our Regional wastewater Agreement revenues from SBWTP are to be shared with PA's. San Diego has not met the terms of the agreement and there are revenues owed the PA's. *2/2011: Staff is scheduled to meet with San Diego Staff on 3/3/11 to discuss issue.*	Scott Huth Scott Tulloch Karyn Keese
Water Reduction - Impacts on Sewer Rates	The MetroTAC wants to evaluate the possible impact to sewer rates and options as water use goes down, and consequently the sewer flows go down, reducing sewer revenues. Sewer strengths are also increasing because of less water to dilute the waste. We are currently monitoring the effects of this. *2/2011:wastewater revenues are declining due to conservation and flow reductions and agencies are re-prioritizing projects to be able to cover annual operations costs*	Eric Minicilli Manny Magaña Karyn Keese
"No Drugs Down the Drain"	The state has initiated a program to reduce pharmaceuticals entering the wastewater flows. There have been a number of collection events within the region. The MetroTAC, working in association with the Southern California Alliance of Publicly-owned Treatment Works (SCAP), will continue to monitor proposed legislation and develop educational tools to be used to further reduce the amount of drugs disposed of into the sanitary sewer system. 8/2010: County Sheriff and Chula Vista have set up locations for people to drop off unwanted medications and drugs.	Greg Humora Dean Gipson
Flushable Items that do not Degrade	Several PAs have problems with flushable products, such as personal wipes, that do not degrade and cause blockages. MetroTAC is investigating solutions by other agencies, and a public affairs campaign to raise awareness of the problems caused by flushable products. We are also working with SCAP in their efforts to help formulate state legislation to require manufacturers of products to meet certain criteria prior to labeling them as "flushable." Follow AB2256 and offer support.	Eric Minicilli Dean Gipson
Grease Recycling	To reduce fats, oils, and grease (FOG) in the sewer systems, more and more restaurants are being required to collect and dispose of cooking grease. Companies exist that will collect the grease and turn it into energy. MetroTAC is exploring if a regional facility offers cost savings for the PAs. The PAs are also sharing information amongst each other for use in our individual programs.	Eric Minicilli Dean Gipson
"Power Tariff"	Power companies are moving to a peak demand pricing scheme which negatively impacts PAs with pump stations and other high energy uses. MetroTAC wants to evaluate the new legislation and regulations, and to identify and implement cost savings efforts for the PAs. (8/2010): John Helminski at the City of San Diego is working on a sustainability project for CoSD	Tom Howard Paula de Sousa

MetroTAC Items	Description	Subcommittee Member(s)
Recycled Water Study	As part of the secondary waiver process, San Diego agreed to perform a recycled water study within the Metro service area. That study is currently underway, and MetroTAC has representatives participating in the working groups. 8/2010: Al Lau and Dean Gipson attended the Coarse Screening Workshop in August 2010. *2/2011: The next Status Update Meeting is 3/29/11; final draft report expected in April 2011*	Scott Huth Al Lau Dean Gipson
Recycled Water Rate Study	San Diego is working on a rate study for pricing recycled water from the South Bay plant and the North City plant. MetroTAC, in addition to individual PAs, have been engaged in this process and have provided comments on drafts San Diego has produced. We are currently waiting for San Diego to promulgate a new draft which addresses the changes we have requested. 8/2010: draft study is expected in September 2010. *2/2011: draft study still not issued*	Karyn Keese Scott Huth
Metro JPA Strategic Initiatives	MetroTAC to develop success measures for the JPA strategic initiatives and suggest a schedule to complete certain items.	Scott Huth Dan Brogadir Dean Gipson
Salt Creek Diversion	9/2010: OWD, Chula Vista and San Diego met to discuss options and who will pay for project; Chula Vista and OWD are reviewing options. *2/2011: OWD and PBS&J reviewed calculations with CoSD staff; San Diego to provide backup data for TAC to review*	Roberto Yano Manny Magaña Karyn Keese
Board Members' Items		
Metro JPA Strategic Plan	*2/2011: committee to meet 2/28/11 to plan for retreat to be held on 5/5/11*	Augie Caires Ernie Ewin Mark Robak
Rate Case Items	San Diego is starting the process for their next five-year rate case. As part of that process, MetroTAC and the Finance Committee will be monitoring the City's proposals as we move forward.	Karyn Keese
Schedule E	MetroTAC and the Finance Committee are active and will monitor this process. Individual items related to Schedule E will come directly to the Board as they develop.	Karen Jassoy Karyn Keese
Future bonding	MetroTAC and the Finance Committee are active and will monitor this process. Individual items related to bonding efforts will come directly to the Board as they develop.	Karen Jassoy Karyn Keese
Changes in water legislation	MetroTAC and the Board should monitor and report on proposed and new legislation or changes in existing legislation that impact wastewater conveyance, treatment, and disposal, including recycled water issues	Paula de Sousa
Role of Metro JPA regarding Recycled Water	As plans for water reuse unfold and projects are identified, Metro JPA's role must be defined with respect to water reuse and impacts to the various regional sewer treatment and conveyance facilities	Scott Huth Dean Gipson
Border Region	Impacts of sewer treatment and disposal along the international border should be monitored and reported to the Board. These issues would directly affect the South Bay plants on both sides of the border.	
IROC Performance Audits	Work with IROC to identify areas to be audited; participate in audit process. 8/2010: provide the top 5 areas to audit by September IROC meeting	Augie Caires

Completed Items	Description	Subcommittee Member(s)
Debt Reserve and Operating Reserve Discussion	In March 2010, the JPA approved recommendations developed by Metro JPA Finance Committee, MetroTAC, and the City of San Diego regarding how the PA's will fund the operating reserve and debt financing. MetroTAC has prepared a policy document to memorialize this agreement. **Project complete: 4/10**	Scott Huth Karyn Keese
State WDRs & WDR Communications Plan	The Waste Discharge Requirements (WDRs), a statewide requirement that became effective on May 2, 2006, requires all owners of a sewer collection system to prepare a Sewer System Management Plan (SSMP). Agencies' plans have been created. We will continue to work to meet state requirements, taking the opportunity to work together to create efficiencies in producing public outreach literature and implementing public programs. **Project complete: 5/10**	Dennis Davies Patrick Lund
Ocean Maps from Scripps	Schedule a presentation on the Sea Level Rise research by either Dr. Emily Young, San Diego Foundation, or Karen Goodrich, Tijuana River National Estuarine Research Reserve **Project complete: 5/10**	Board Member Item
Secondary Waiver	The City of San Diego received approval from the Coastal Commission and now the Waiver is being processed by the EPA. The new 5 year waiver to operate the Point Loma Wastewater Treatment Plant at advanced primary went into effect August 1, 2010. **Project complete 7/10**	Scott Huth

AGENDA ITEM 7
Attachment

METRO JPA/TAC
Staff Report

Subject Title: MBC Odor Control Facility Upgrade

Requested Action: Recommendation from TAC Committee to the Metro Commission to select and award a Consultant Engineering firm to prepare the construction documents.

Recommendations:

Metro TAC:	Present to JPA for approval of the design.
IROC:	N/A- This project is included in the approved Metro CIP budget and does not require IROC review
Prior Actions: (Committee/Commission, Date, Result)	Not applicable

Fiscal Impact:

Is this project budgeted? Yes _X__ No ___	
Cost breakdown between Metro & Muni:	100% Metro
Financial impact of this issue on the Metro JPA:	33.5% of $5,200,000.00 = $1,742,000.00

Capital Improvement Program:

New Project? Yes _X__ No ___	
Existing Project? Yes ___ No _X__ upgrade/addition ___ change ___	

Comments/Analysis:

Previous TAC/JPA Action: NA

Additional/Future Action: Present it to NR&C prior to City Council

City Council Action: Present it to City Council for authorization to Advertise and Award for construction.

CITY OF SAN DIEGO
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT

Project Name: MBC ODOR CONTROL FACILITY UPGRADE, (WBS# S-00323)

Name of Project Presenter: Idalmiro Manuel da Rosa, Project Manager

Project Background:

The City of San Diego's Public Utilities Department operates the Metro Biosolids Center (MBC), a regional biosolids processing facility located adjacent to the City's Miramar Landfill in Kearny Mesa. MBC consists of anaerobic digestion, solids thickening and dewatering, and waste energy cogeneration processes. Foul air from the plant's process areas is collectively ducted, treated, and exhausted by two (2) Odor Control Systems, (OCS).

The primary OCS is in the Chemical Building (Area 6) treats the foul air from the pre- and post-digestion processes. Post-digestion was designed to extract 16,000 cfm of foul air from the Dewatered Biosolids Storage Building (Area 86), the Centrifuge Building (Area 76), and the Digester Complex (Area 80). Pre-digestion was designed to extract 36,000 cfm from the Grit Removal Facility (Area 76), the Centrifuge Building (Area 76), and the Receiving Tank Complex (Area73). The Odor Control Facility (Area 60) consists of three (3) three-stage odor control scrubber trains. Foul air from the post-digestion processes is sent to the first-stage ammonia scrubbers, after which it is combined with incoming foul air from the pre-digestion processes. The combined foul air stream is then sent to the second-stage hypochlorite scrubbers and finally to the third-stage activated carbon scrubbers before being released to the atmosphere.

The second OCS was designed to extract 9,000 cfm of foul air from the wetwells in the Wastewater Pump Station (Area 94). Similarly to the Area 60 OCS, the foul air is treated in a three-stage odor control system before being discharged to the atmosphere.

The odor control and ventilation systems for the various MBC processing areas were constructed under different contract packages, hampering the ability of these systems to be balanced as a whole. Because of this, neither post-digestion nor pre-digestion systems in Area 60 are able to operate at their designed air flow capacities. This results in inadequate foul air collections and prevents the development of negative air pressure in the process units and buildings. Ineffective capture of foul air at Truck Loading Area (Area 86) has also resulted in fugitive emissions from process vessels, occasionally making some work areas unpleasant and causing odors to linger in some outdoor locations at the MBC site.

Access Platforms to major components in elevated areas of the OCS of Area 60 and 94 were never provided making it Operation and Maintenance (O&M) access unsafe.

The selection of a Professional Engineering Firm for Design and Construction Assistance with the Odor Control System Upgrade at MBC is thru a competitive selection process.

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¶
The mechanical equipment associated with the storage silos and truck loading operations is over 10 years old with a typical useful life of 10-15 years. Currently, at least one silo is out of service for repairs 2 to 14 days each month. There have been recent increases in the frequency of repairs to the associated equipment which indica ... [1]

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Project Description

The Project requires the following consultant design and construction support services in Areas 60, 73, 76, 86, 80, and 94:

- Provide O&M access platforms/catwalks to the overhead equipment and control instruments in Areas 60 and 94.
- Readjust fan speeds, upsize motors, and modify existing ductwork as required to comply with the required airflow capacities.
- In Area 76 Separate the Grit/Screenings Removal facility into a general ventilation area and foul air collection area. Revise the system to comply with each of the areas ventilation requirements.
- In Area 86, design foul air collection "fume hood" at each of the two truck loadout areas/lanes (including emergency loadout areas), increase airflow capacities, and modify ductwork accordantly.
- Balance the OCS airflows.
- Modify the Distributed control System (DCS) control strategy to ensure that sufficient foul air is being collected from the odor sources and treated.

Cost:

The costs associated with this project are as following:

Administration	$ 470,000.00
Design Costs	$ 680.000.00
Construction	$3,600,000.00
Contingency	$ 450,000.00
Total Projected Costs	$5,200,000.00

The Administration costs includes the planning costs incurred to date for in-house planning, preparation and process for the competitive selection, and future administrative support.

The funding will come from the MBC Odor Control Upgrade Facility WBS # S-00323, Sewer Fund 41509.

Schedule:

The schedule for MBC Odor Control Facility Upgrade is as follows:

Design Selection and Agreement Process	June 2011 - September 2011
Design	October 2011- October 2012
Advertise and Award for Construction	November 2012 – July 2013
NTP for Construction	August 2013
Construction Complete	January 2015

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The biosolids from the Point Loma Wastewater Treatment Plant (PLWTP) and the North City Water Reclamation Plant (NCWRP) are dewatered and transferred to a Biosolids Storage and Loading Facility (Area 86) which houses eight (8) storage silos and two (2) truck loading bays. These dewatering, storage and truck loading operations are core plant functions which are critical to system wide operations and the inability to maintain these operations at a capacity level that matches or exceeds process demands will result in permit compliance issues.

The mechanical equipment associated with the storage silos and truck loading operations is over 10 years old with a typical useful life of 10-15 years. Currently, at least one silo is out of service for repairs 2 to 14 days each month. There have been recent increases in the frequency of repairs to the associated equipment which indicates that the equipment is nearing the end of its useful life. In order to restore reliability to these critical biosolids storage and truck loading processes and maintain capacity levels necessary to avoid causing spills, a mechanical equipment replacement and silo retrofit project must be implemented within the next five years.

In order to replace the associated equipment and to retrofit the silos each silo will be out of service for approximately 75-90 days, due to silo and equipment access issues. It is expected that it will take two years to complete the work associated with silo retrofit and equipment replacement. As a result, this represents a two year period during which MBC will only have 7 silos available for use. During this time it it is reasonable to expect that there may be several events which could cause one of the remaining original silos to break down, thereby leaving only 6 silos in service.

When all 8 silos are in-service, MBC has sufficient storage to avoid weekend loading operations and, therefore, loads trucks five days a week. With only 7 silos in-service, it is necessary for MBC to load trucks on Saturdays. With only 6 silos in-service, MBC would need to load out seven days a week; however, this is not possible because of the lack of available disposal destinations for the biosolids on Sundays. Additionally, pre-loading of trucks on Sundays for disposal on Mondays would result in other problems as MBC has no truck storage building with the necessary odor control facilities.
Given the aforementioned circumstances, there is a very real possibility that only 6 silos would be in service for several periods during the two year silo equipment replacement and retrofit project. Inability to load out biosolids seven days a week will ultimately culminate in MBC not having the available capacity to meet biosolids processing demands. The net result is a higher risk of biosolids or sewage spills and failures to meet National Pollutant Discharge Elimination System (NPDES) permit requirements at MBC or PLWTP. Therefore, it is recommended that we proceed with the design of the

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two (2) new additional silos, including all associated mechanical equipment, be provided prior to implementing the silo equipment replacement and retrofit project.

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or Professional Design Consultant Services for Design and Construction Assistance Services for the

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- Installation of new Area-86 Silos Nos. 9 and 10 including all appurtenant equipment (silo cake feeders, conveyors, cake pumps, and hydraulic systems);
- Installation of new cake piping, valves, foul air ducting, dampers and auxiliary piping connecting the new silos to the existing silo systems;
- Installation of all structural foundations and supports including access stairs, ladders, platforms, catwalks, lifting equipment and safety tie-offs for the new silo systems;
- Installation of all electrical equipment, wiring/conduits and all control/instrument devices and systems compatible with MBC's Distributed Control System (DCS).

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6,600,000.00

Construction Management $ 750,000.00

Page 2: [10] Comment [A1] **AKS** **10/8/2008 10:46:00 AM**

There is nothing in this writeup that discusses the selection of a design consultant and the cost of the design contract. This paragraph is confusing because I can't tell what was spent to date and what is future cost. Also why is planning and preparation of the RFP not part of the Administration cost. Isn't that all City labor costs?

Page 2: [11] Deleted **dpcadmin** **10/8/2008 1:22:00 PM**

The design costs incurred to date were for in-house Planning and preparation and process ~~of~~[A1] ~~the Request For Proposal (RFP)~~ for Professional Design Consultant Services for Design and Construction Assistance Services for the Additional Biosolids Storage Silos (no. 9 and 10) at the Metropolitan Biosolids Center for the City of San Diego.

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Metropolitan Biosolids Center Main CIP'S (

Page 2: [13] Comment [A2] **AKS** **10/8/2008 10:47:00 AM**

The writeup states that it will take two years to complete construction. Why the difference.