BUILDING A NORLD OF DIFFERENCE

CITY OF ESCONDIDO POTABLE REUSE PROGRAM









PRESENTATION OUTLINE

- Background
- Planning Process
- Building a Program

BACKGROUND

ABOUT ESCONDIDO





- Setting the Stage
 - 2006 & 2009 Outfall Assessments
 - 2009 IPR Concepts
 - Water shortages and rates affecting agricultural customers
- Escondido's Potable Reuse Program
 - 2012 Program Manager selected
 - Task 1: Program Feasibility & Financial Assessment
 - Future: Implement Program





PROJECT DRIVER - OUTFALL



PROJECT DRIVER - OUTFALL



THE PLANNING PROCESS

DEVELOPING CONCEPTS AND COSTS

Basis & Flow Allocation Modeling

- How much wastewater do we have?
- How much do we need to offload?
- How much new water do we create?

Concepts

What facilities do we need to build?What are the individual facility costs?

Cost Model

What are the compiled facility costs + financing?What are the major considerations?

Project Refinement

What refinements can be made to optimize costs?What is the action plan for the proposed program?



PLANNING PROCESS SYSTEMS AND KEY QUESTIONS



Where do we have recoverable resources?

Where do we need supplies?

What assets do we have? What markets exist?

FLOW ALLOCATION MODEL PROCESS

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IIIPALS													
				WASTE STREAMS - SO	LIDS	•							
						Flows (med)							
					Sconario	Existing	Existing	2020	2010	2050	42.0		
					Scenario	Existing	w/Planned	2020	2030	2030	40.0 40 Existing		
					Average	1.0	1.0	1.2	1.4	1.5	38.0 38		
THE TITLE IS RECYCLED WATER CUSTOMER TABLE					Winter	1.0	1.0	1.2	1.4	1.5	36.0 34.0 34		
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International Courts		ARG SATE	Ten Hill-Albert	righter.	Winter	3.6	4.8	4.8	4.8	4.8			
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					Scenario	Existing	w/Planned	2020	2030				
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IARRF INFLUENT (PUMP STATION & SD PS77)				Summer	4.5	8.3	8.3	8.3	8.3	00 100 100 100 100 100 100 100 100 100			
	Flows (med)	-			Winter	3.2	4.3	4.3	4.3	4.3			
Reprode	Existing	2020	2020	2010	Storm with Pond	2.9	6.1	6.1	6.1	6.1	boding failing into motioning into the interview		
Scenario	existing w/Planned	2020	2030	2050									
Input Aver Here (no Sony) 12.7 12.7 15.0 17.7 18.6				WASTE STREAMS - TERTIARY						Fill Mill R Sum of hand Sum of hand			
Average	12.7 12.7	15.0	17.7	18.6			Flower (mad)				200 k 10 20 10 10 10 10 10 10 10 10 10 10 10 10 10		
Storm (Dec 2010)	24.5 24.5	27.5	17.7	18.0			Existing				3460 1 1 1 0 7 31 0 Reuse Totals 3460 W 1.41 1.41 3.31 3.87 379 90 1		
ck storm above - pull down of st	torm data below	21.3	33.3	33.7	Scenario	Existing	w/Planned			2050			
Storm (Dec 2010)	24.5 24.5	27.6	22.2	34.7	Average	0.19	0.28	0.28	0.28	0.28			

Wastewater Flows & Storms

25.7

31.1

36.2

Storm (Dec 2010+)

Storm (1969 Best Case)

Storm (1969 Worst Case)

25.7

31.1

36.2

34.4 35.7 39.5 36.8

37.8

41.8

28.6 33.3 37.2

Storm with Pond

Summer

Winter

Storm

0.25

0.18

0.16

0.16

		Flows (mgd)			
	Existing	Existing w/Planned	2020	2030	2050
Average	8.3	6.5	8.6	11.1	11.9
Summer	7.2	3.4	5.5	8.0	8.8
Winter	8.5	7.3	9.5	11.9	12.8
Storm	20.6	19.9	22.7	28.3	30.6
Storm with Pond	21.6	18.4	21.4	27.2	29.6

0.45

0.24

0.20

0.33

0.45

0.24

0.20

0.33

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BLACK & VEATCH

System Flows

2050

13

BUILDING A SUCCESSFUL PROGRAM NPR/AG APPROACH



NPR/AG – WET WEATHER STORAGE



ASSESSING NPR/AG RESULTS

NPR/Ag Concept

Results



BUILDING A SUCCESSFUL PROGRAM POTABLE REUSE



OPTIMIZING THE SOLUTION

Conventional

MBR

Hybrid

	Centralized	Decentralized			
Overtreatment Full Advanced Treatment	Overtreatment RO	Treat to Use	Overtreatment BNR	Treat to Use	
	RO all o	r Portion	BNR all c	r Portion	
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Draft Work Product

OPTIMIZING THE SOLUTION

Conventional

MBR

Hybrid

	Centralized	Decentralized			
Overtreatment Full Advanced Treatment	Overtreatment RO	Treat to Use	Overtreatment BNR	Treat to Use	
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PULLING THE PIECES TOGETHER



PROGRAM RESULTS



BUILDING A SUCCESSFUL PROGRAM PROGRAM PRO FORMA

RESOURCE UTILIZATION

- Diversifies water portfolio
- Generates revenue for the City
- Helps stabilize rates



THE JOURNEY AHEAD HAS TWO PATHS...

Option 1 Outfall Expansion

- \$ Costs all at once
- No Revenue
- No Water Security
- No Rate Benefits



Option 2 Reuse Expansion

- \$ Costs Spread Over Decades
- Generates Revenue
- Provides Water Security
- Provides Rate Benefits

FULL FINANCIAL ANALYSIS – CASH FLOW

- **1.** Which approach is better financially?
- 2. What are the affordability impacts?



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- Dr. Shane Snyder

THANK YOU!



Building a world of difference. Together ELACK & VEATCH