AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE
TUESDAY, JULY 21, 2020

Due to COVID-19, this meeting will be conducted as a teleconference pursuant to the provisions of the Governor's Executive Orders N-25-20 and N-29-20, which suspend certain requirements of the Ralph M. Brown Act. Members of the public may not attend this meeting in person.

Participation by members of the Committee will be from remote locations. Public access and participation will only be available telephonically/electronically.

To virtually attend the meeting and to be able to view any presentations or additional materials provided at the meeting, please join online via Webex using the link and information below:

Via Web:
https://irwd.my.webex.com/irwd.my/j.php?MTID=m82d0e13a528923f832f06535cd40bdd6

Meeting Number (Access Code): 126 464 8825

Meeting Password; tuY3pQjnE34 (88937756 from phones and video systems

After joining the meeting, in order to ensure all persons can participate and observe the meeting, please select the "Call in" option and use a telephone to access the audio for the meeting by using the call-in information and attendee identification number provided.

As courtesy to the other participants, please mute your phone when you are not speaking.

PLEASE NOTE: Participants joining the meeting will be placed into the Webex lobby when the Committee enters closed session. Participants who remain in the "lobby" will automatically be returned to the open session of the Committee once the closed session has concluded. Participants who join the meeting while the Committee is in closed session will receive a notice that the meeting has been locked. They will be able to join the meeting once the closed session has concluded.

CALL TO ORDER 2:00 p.m.

ATTENDANCE Committee Chair: Doug Reinhart _____
Committee Member: John Withers _____

ALSO PRESENT	Paul Cook _____	Kevin Burton _____	Wendy Chambers _____
	Jose Zepeda _____	Paul Weghorst _____	Cheryl Clary _____
	Rich Mori _____	Eric Akiyoshi _____	Richard Mykitta _____
	Kelly Lew _____	Jim Colston _____	Ken Pfister _____
	Lars Oldewage _____	Malcolm Cortez _____	Scott Toland _____
	John Dayer _____	Bruce Newell _____	Mitch Robinson _____
	Belisario Rios _____	Rich Mori _____	_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the "chat" feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 10:30 a.m. on Tuesday, July 21, 2020.

ALL VOTES SHALL BE TAKEN BY A ROLL CALL VOTE.

COMMUNICATIONS

1. Notes: Burton
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted.
4. Determine which items may be approved without discussion.

INFORMATION

5. MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONSTRUCTION STATUS QUARTERLY REPORT – TOLAND / MORI / BURTON

   Recommendation: Receive and file.

6. IRWD PURCHASING WAREHOUSE STUDY – AGUILAR / JACOBSON / CLARY

   Recommendation: Receive and file.

7. LOWER SAN DIEGO CREEK URBAN RUNOFF STUDY – SWIFT / ZEPEDA/ CHAMBERS

   Recommendation: Receive and file.

OTHER BUSINESS

8. Directors' Comments

9. Adjourn

Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.

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July 21, 2020
Prepared by: S. Toland / R. Mori
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONSTRUCTION STATUS QUARTERLY REPORT

SUMMARY:

Below is the April 2020 through June 2020 quarterly construction status report for the Michelson Water Recycling Plant (MWRP) Biosolids and Energy Recovery Facilities.

BACKGROUND:

Construction of the Biosolids project was awarded to Filanc/Balfour-Beatty Joint Venture (FBB) in March 2013 in the amount of $163,465,940. The Biosolids project will provide biosolids digestion, dewatering, energy production, and on-site sludge drying. The project includes excavation for subsurface structures, installation of foundation piles, three egg-shaped methane digesters, a state-of-the-art odor control system, a biogas conditioning system and power generation using micro-turbines, a fats, oil and grease (FOG) receiving station, and new utility services. These facilities are being constructed on the land north of IRWD's existing Michelson Operations Center, maintenance shops, water quality laboratory, and warehouse.

General Project Information:

The project summary through June 30, 2020 and through Contract Change Order No. 113 is shown below.

Notice of Award	April 29, 2013
Contractual Project Completion Date	October 31, 2017
Estimated Project Completion Date	February 2021
Cumulative Time Extension through Change Order No. 113	368 Days
Percentage of Contractual Construction Time Elapsed	159%
Percentage of Total Contract Amount Invoiced	99.6%
Bid Amount	$163,465,940
Total Change Orders	$ 20,976,194 (12.8%)
Total Contract Amount	$184,442,134
Amount Paid	$183,622,313 (99.6%)

All major construction activities are complete, and the project has transitioned to the startup and commissioning phase. Over the past quarter, staff and FBB completed process control system testing of the entire Class B Biosolids anaerobic digestion treatment system including acid phase digesters, methane phase digesters, sludge holding tanks, dewatering centrifuges, dewatering polymer system, ferric chloride feed system, anti-scalant feed systems, and centrate treatment

systems. Primary and waste activated sludge were formally introduced into the treatment system June 27, 2020, and staff has been actively operating the systems since then with support provided by FBB and GEA, the centrifuge manufacturer. As anticipated, several equipment and system controls issues are being identified and addressed as they arise. Staff continues to work closely with FBB and the centrifuge vendor to fine-tune the centrifuge controls system as the sludge is being introduced. During this initial startup/commissioning process, sludge is being introduced to the methane digesters and one acid phase digester on an incremental basis, with sludge initially being introduced for approximately five hours per day. This duration will gradually increase to allow the sludge to mature.

Staff anticipates that the sludge will fully mature by September, after which Class B solids will be produced. Staff also anticipates that biogas generation and unclassified sludge will be produced by September. During that time, the biogas will be delivered to the gas pre-treatment system and ultimately delivered to the flare for combustion. In parallel with these efforts, Andritz continues to perform testing and validation of the sludge dryer systems. Staff anticipates that Andritz will continue its testing over the next several months as sludge is introduced to the system.

The construction trailers that have housed staff and the construction management consultants since the start of the project were disassembled and removed from the site. Staff and the remaining onsite construction management consultants have relocated to Building 90 (adjacent to the trailer location) and will continue to work from this location through completion of startup and commissioning.

Schedule Update:

FBB continues to advance the startup activities for Milestone 3 (fats, oils, and greases, FOG, and conveyance systems), Milestone 6 (gas treatment systems and microturbines), and Milestone 7 (Andritz dryer systems). Andritz returned to the site after being delayed by COVID-19 travel restrictions and completed its preliminary input/output checks and non-witnessed equipment testing activities. Andritz will again return to the site once Class B biosolids are produced to complete its testing program associated with production of Class A biosolids. According to FBB's schedule, startup and commissioning activities for the Class A treatment systems are anticipated to start in November 2020 and finish in February 2021. At that point, the facility will be fully in service and producing Class A biosolids.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – MWRP Biosolids and Energy Recovery Facilities Quarterly Report

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Michelson Water Recycling Plant
Biosolids and Energy Recovery Facilities

Construction Status Quarterly Report through June 30, 2020

Engineering & Operations Committee
July 21, 2020

1

Project Summary

Contractor:	Filanc/Balfour-Beatty
Contract Amount:	$163,465,940
Change Orders to Date (through CCO 113)	$ 20,976,194 (12.8%)
Revised Contract Amount to Date:	$184,442,134
Contractual Calendar Days:	1,646
Additional Days thru Change Orders:	368
Notice of Award:	April 29, 2013
Time Elapsed thru June 30, 2020:	159%
Contractual Completion Date:	October 31, 2017
Balance to Finish (as of June 30, 2020)	$ 819,820
Estimated Project Completion Date	February 2021

Irvine Ranch Water District

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Irvine Ranch WATER DISTRICT

Project Update

- FBB continues to advance testing, startup and commissioning, as well as IRWD staff training. Staff have been trained on the Class B equipment.
- Staff continues to fully support FBB activities both remotely and on site by practicing appropriate social distancing.
- IRWD consultants from Black & Veatch and EI&C Engineering remain on site to support startup and testing.
- Andritz returned to the site to complete its unwitnessed I/O and equipment check-out, pre-startup activities, and updates to programming and HMI screens.
- Andritz will return to the site to complete witness testing of the I/O and equipment, and will sequence its next site visit when Class B biosolids production is achieved.
- IRWD's construction management trailers were removed from the site and remaining onsite staff and consultants have relocated to Building 90.

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Introduction of Sludge

- Primary and Waste Activated Sludge (WAS) were introduced on June 27, 2020.
- Staff is leading the operation of the facilities, with support by FBB, GEA, B&V, and EI&C.
- Sludge is currently being delivered at approximately 4 hours per day as the microbiology develops. Durations will increase daily based on lab results over the next 45-days to achieve full capacity.
- Process and laboratory samples are being collected and analyzed in the new Biosolids laboratory daily during the initial startup/commissioning phase.
- Startup issues, as they arise, are being addressed collectively between FBB and staff.

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Irvine Ranch WATER DISTRICT

Remaining Milestones

Milestone 2 (Thickening Facilities), Milestone 4 (Digestion Facilities), and Milestone 5 (Class B Biosolids Facilities) Commissioning – Into August 2020

- Sludge initially introduced 4 hours/day, gradually increasing
- Estimated duration for digested sludge to mature is 45 days
- Biogas starts to form at about 20 days
- Gas pre-treatment and flare after biogas production stabilizes

Milestone 6 (Final Gas Treatment & Microturbines) Commissioning – Aug./Sep. 2020

Milestone 7 (Heat Dryer) Commissioning – Nov. 2020 thru Jan. 2021

Milestone 3 (FOG) Commissioning – Floating/non-critical. FBB is anticipating within the next few weeks.

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Consultant Summary

Consultant	Scope	Purchase Order		Variance		Total Authorization	Total Invoice to Date	Percent of Total
		No.	Amount	Total No.	Amount			
Arcadis - US	Construction Nispection & Management	609917, 604606, 512366	$ 2,931,368.00	3	$ 3,461,066.00	$ 6,392,434.00	$ 5,814,997.57	91%
Black & Veatch	Engineer of Record	609918, 600700, 514248	$ 12,509,031.00	8	$ 11,881,634.00	$ 24,390,665.00	$ 22,760,331.15	93%
EI&C	SCADA Testing	609963, 600246, 518742	$ 2,074,867.00	3	$ 1,693,320.00	$ 3,768,187.00	$ 3,232,470.00	86%
TOTAL:			$ 17,515,266.00	14	$ 17,036,020.00	$ 34,551,286.00	$ 31,807,798.72	92%

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Sludge Processing and Sampling

Irvine Ranch Water District 7

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Sludge Processing and Training

Irvine Ranch Water District 8

8

Irvine Ranch WATER DISTRICT

Sample Analysis

9

Odor Control System

10

Gas Treatment, Microturbines, Flare

11

IRWD CM Trailers Decommissioned

12

July 21, 2020
Prepared by: A. Aguilar
Submitted by: R. Jacobson / C. Clary
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

IRWD PURCHASING WAREHOUSE STUDY

SUMMARY:

IRWD's Purchasing Department area and adjacent warehouse facility were constructed in 1994. The District and its operations have grown significantly since then, including the construction and expansion of multiple water and sewage treatment facilities. Based on an increase in warehousing and storage needs for IRWD's inventory, staff retained consultant Whitman, Requardt & Associates, LLP (WRA) to perform a warehouse study and develop alternative concept solutions to meet the District's current and future inventory management requirements. At the Committee meeting, staff will present the alternatives developed in this study.

BACKGROUND:

In 1994, IRWD's Purchasing warehouse had an active inventory value of approximately $750,000, and consisted of approximately 800 inventory items located in one central warehouse and adjacent storage yard. During the Michelson Plant Phase 1 expansion, the Purchasing warehouse mezzanine was converted to Michelson Operations office space. During construction of the Biosolids and Energy Recovery Facility, approximately 5,000 square feet of the warehouse yard was converted to use as an access road and parking for IRWD employees.

Purchasing now manages an inventory value of approximately $9.3 million that consists of over 4,000 items. Inventory is stored in multiple locations including the original warehouse, various buildings and storage containers at the Michelson Operations facility, and at the Baker Plant. The additional material storage facilities currently utilized were not designed for inventory storage and are not efficient due to multiple locations and storage requirements for certain inventory items. A map showing the Purchasing warehouse and storage yard, as well as additional storage locations at the Michelson Operations facility, is provided as Exhibit "A".

Warehouse Study:

Based on the significant increase in warehouse/storage demands for IRWD inventory, staff retained WRA to perform a warehouse study and to develop alternative concepts to meet IRWD's current and future inventory management needs. WRA's Warehouse Study provides four conceptual warehouse and storage solutions. The alternative solutions were developed based on input from multiple departments, as well as an inspection of current IRWD facilities and an analysis of current and future inventory storage data. The concepts range from adding a simple canopy structure at the storage yard to construction of a new Purchasing and warehouse complex. The executive summary from WRA's Warehouse Study is provided as Exhibit "B". At the Committee meeting, staff will provide a PowerPoint presentation to review each of the alternatives and estimated costs and potential benefits included in the study.

Next Steps:

Based on discussions and input from the Committee, staff plans to retain a consultant to provide conceptual design(s) and cost estimates for the preferred alternatives. Once completed, staff will provide an update to the Committee.

FISCAL IMPACTS:

Undetermined at this time.

EVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Map of Purchasing Warehouse Locations
Exhibit "B" – Warehouse Study Executive Summary

Michelson Water Reclamation Plant

Warehouse Locations

Legend

1. Purchasing Warehouse
2. Purchasing Yard
3. Building 55
4. Building 140
5. Metal Building

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Warehouse Study

Irvine Ranch Water District

Irvine, CA

2020.01.27

Contract No. 55062

FINAL REPORT

EXECUTIVE SUMMARY

The Irvine Ranch Water District (IRWD) Purchasing Department is located at 3512 Michelson Drive in facilities that were constructed in the 1994. The District operations have changed significantly since 1994 and have grown to include the annexation of other independent districts, the establishment of additional internal operations groups and the construction of additional treatment processes such as the new Bio-Solids plant. Each of these changes has increased warehousing and storage requirements for the District.

The District has recently reorganized the warehousing/inventory program and added millions of dollars of inventory to the responsibility of the Purchasing Department staff. This inventory is primarily related to asset management and is in the Maximo Inventory System.

The combination of all the above factors has taxed the Department beyond its physical capacity and has resulted in the purchase and use of storage containers as well as the use of other department facilities to house materials. The Department has determined a need to review the overall storage requirements and configurations to address the perceived capacity issues.

Whitman, Requardt & Associates, LLP (WRA) was contracted to perform a warehouse study and to develop concept solutions to meet the current and future storage requirements of the District. This report is the result of that study.

PROGRAMMING

WRA developed a program of requirements based on interviews, data reviewed and its experience with warehousing operations. The future projected program requirements are provided in the Table below.

Summary of Program Requirements

Purchasing	*existing available*	Space Needs 2024 *building*	*covered*	*exterior*
Administration/Staff Areas*	1,904	2,422	0	0
Warehousing/Material Storage		19,926	0	1,840
Current Warehouse	5,616			
Storage Containers	3,800			
Building 54**	975			
Building 55**	4,170			
Building 140	800			
Metal Building***	5,500			
Yard Areas	36,537	0	960	40,680
		22,348	960	42,520
Totals	**59,302**			**65,828**

* Current Office existing available includes walls and circulation - 2024 projected requirement includes additional circulation which may be necessary if functions are relocated

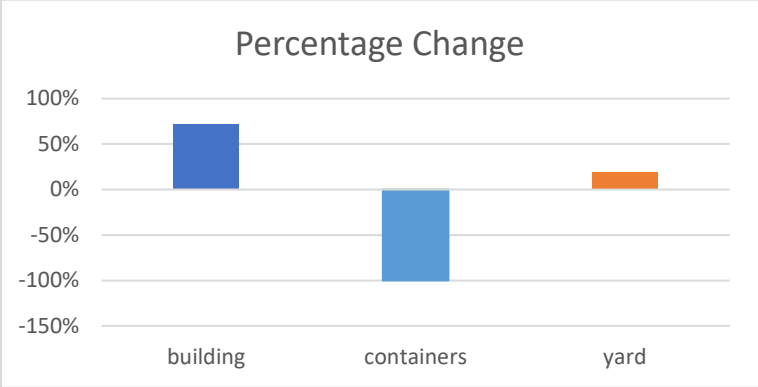
**Portion of building utilized by Purchasing/Warehouse

*** Metal building recently turned over to Purchasing - not currently in use as Purchasing function

The projected programmatic requirements for the Department include approximately 2,400 square feet of offices and personnel space, 20,000 square feet of interior storage, 1,000 square feet of covered

storage and 43,000 square feet of yard storage. The percentage change/growth reflected in these numbers is illustrated in the graph below. WRA has minimized the growth in square footage by recommending changes in storage methods. This is reflected in the concept solutions developed.

Percentage increase in storage requirements



The change in building requirement is increased due to the reduction of containers. It is highly recommended that IRWD remove the majority of containers and place containerized materials in structures.

CONCEPT SOLUTIONS

Four concept solutions were developed to meet the future programmatic requirements. The solutions ranged from a *"No Construction Solution"* to a *"Total New Construction Solution"*. Each solution, except for the total new construction option, utilizes some combination of available current storage facilities. The site plan below delineates all available buildings considered in these options.

Buildings Considered in Concept Solutions

The following tables provide details of each solution. The first provides the Concept solution descriptions, elements, definition of construction elements, resulting occupancies and cost opinion. The second table lists the positive and negative impacts of implementing the solution. The full table in larger format is provided in Appendix B.

Concept Solution Comparison Matrix

Comparative Category	**Concept Solution**			
	One	**Two**	**Three**	**Four**
Description	Reuse of all existing spaces (except Building 54) and the addition of the space in the metal building to meet the requirements of the program.	Reuse of most existing spaces and the addition of spaces necessary to meet the requirements of the program. Construction of a warehouse addition.	Reuse warehouse as is and construct a new cold storage building	Construct a new Purchasing/ Warehouse complex
New Construction				
Warehouse Expansion	N	Y - 4313 s.f.	N	Y - 22348 s.f.
Canopy Covers	Y - 960 s.f.	Y - 960 s.f.	Y - 960 s.f.	Y - 960 s.f.
Cold Storage Building	N/A	N/A	Y - 14310 s.f.	N/A
Possible Renovation				
Warehouse	N	N	N	N/A
Building 54	N	N	N	N/A
Building 55	N	N	N	N/A
Building 140	N	N	N	N/A
Metal Building	Y - 5500 s.f.	Y - 5500 s.f.	N	N/A
Resulting Building Occupancy				
Purchasing Office	Purchasing - 2440 s.f.	Purchasing - 2440 s.f.	Purchasing - 2440 s.f.	Other - 2440 s.f.
Warehouse	Purchasing - 5616 s.f.	Purchasing - 5616 s.f.	Purchasing - 5616 s.f.	Other - 5616 s.f.
Building 54	Operations - 2000 s.f.	Operations - 2000 s.f.	Operations - 2000 s.f.	Operations - 2000 s.f.
Building 55	Purchasing - 4170 s.f.	Operations - 5500 s.f.	Operations - 5500 s.f.	Operations - 5500 s.f.
Building 140	Purchasing - 800 s.f.	Purchasing - 800 s.f.	Operations - 800 s.f.	Operations - 800 s.f.
Metal Building	Purchasing - 5500 s.f.	Purchasing - 5500 s.f.	Operations - 5500 s.f.	Operations - 5500 s.f.
New Storage Building	N/A	N/A	Purchasing 14310 s.f.	N/A
Cost Opinion	$182,000	$1,268,876	$3,391,920	

Comparison Matrix – Solution Implementation Impacts

Comparative Category	Concept Solution			
	One	**Two**	**Three**	**Four**
Positive Impacts	• No new construction • Better use of General Inventory space	• New construction limited to warehouse expansion (4313 s.f.) • Better use of General Inventory space • Reorganization of materials to co-locate most daily use material items • Better circulation to/from daily use materials • Staff in closer proximity to daily issue materials	• Better use of General Inventory space • Better circulation to/from daily use materials • Staff in closer proximity to daily issue materials • Decreased impact of delivery vehicles upon site circulation • Materials more readily accessible to end users • Increased ability to create staging areas for planned material orders • Large volumes of space freed for use by other Departments	• The release of approximately 8,000 square feet of building in the main Operations Building to be used for other purposes • Release of over 4,100 square feet of space in Building 55 to other departments • Release of almost 1,000 square feet of space in Building 54 to other Departments • Release of 5,500 square feet in the metal building to other Departments • Release of 800 square feet of space in Building 140 to other Departments • Operational cost savings by having all warehousing functions in a single location • Better site circulation to and from warehousing
Negative Impacts	• All non-warehouse spaces are poorly suited for material storage (height, width, and/or depth) – reorganization of materials will ease constraints but not eliminate them • Circulation to non-warehouse spaces is very difficult	• All non-warehouse spaces are poorly suited for material storage (height, width, and/or depth) – reorganization of materials will ease constraints but not eliminate them • Circulation to non-warehouse spaces is very difficult • Major new construction - increased capital cost • Will need to retain containers	• Materials located in multiple facilities • General Inventory items located in two facilities - requiring staff to move between two facilities • New Cold Storage Building construction - increased capital cost • Will need to retain containers	• Possible impact to future plant expansions • Capital cost

The Study Team has not prepared a recommended Concept Solution at the request of the Purchasing Department. The above matrix and the total of this report are intended to be tools for use by the Purchasing Department and IRWD management to determine a recommended solution that best serves its operation philosophies and projected future use of all buildings and site at the Michelson Drive complex.

The Study Team does recommend that the District take the following next steps to further the decision process and implementation of much needed additional space.

1. Evaluate the four Concept Solutions and choose an option, or develop a hybrid option, that best reflects the future operational philosophy of the Purchasing Department and IRWD.
2. Determine a schedule for implementation of the recommended solution.
3. Determine whether design will be completed in-house or by consultant.
4. If by consultant: contract with an Architectural firm to complete 30 percent design and cost estimating including site surveys (if necessary) and geotechnical services.
5. If within budget at the end of 30 percent design advance the project through construction.

July 21, 2020
Prepared by: I. Swift
Submitted by: J. Zepeda / W. Chambers
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

LOWER SAN DIEGO CREEK URBAN RUNOFF STUDY

SUMMARY:

IRWD has participated in the study of a project to capture and treat dry weather flow downstream of the San Joaquin Marsh intake by collecting and pumping this runoff into the San Joaquin Marsh for treatment. Potential benefits of the project include further watershed water quality improvements, additional sources of water for the Marsh, and additional nitrogen and phosphorus credits to offset potential emergency diversions from the Michelson Water Recycling Plant (MWRP) and/or Sand Canyon Reservoir into the Newport Bay Watershed. At the Committee meeting, staff will present an update on the Lower San Diego Creek Urban Runoff Study.

BACKGROUND:

In 2017, IRWD was approached by the Orange County Transportation Authority seeking guidance on potential projects relating to water quality improvements in the San Diego Creek watershed using Measure M funding. At the time, several conceptual projects were presented but no formal projects were created. In 2018, the District added a target activity to its Strategic Plan under Strategic Goal 9, *Maximize Watershed Protection*, to include a project to capture and treat dry weather flow downstream of the Marsh intake by pumping runoff into the Marsh for treatment. Goals for the project included:

- Further treat and clean-up urban runoff in the San Diego Creek watershed;
- Secure additional sources of water for the Marsh; and
- Allow IRWD to accumulate additional credits for nitrogen and phosphorus removal for potential emergency diversion to San Diego Creek.

IRWD retained an engineering consulting firm to evaluate the various options for capturing urban runoff from tributaries downstream of the San Joaquin Marsh intake. The findings of this evaluation were ranked in a feasibility study in July 2019. The study indicated the highest flows into San Diego Creek downstream of the Marsh intake should be targeted as they received no treatment before entering the Newport Bay. These included Sand Canyon Creek, the UC Irvine storm drain and Bonita Canyon Creek. The study also assessed diverting these flows to either MWRP or to Orange County Sanitation District as an alternate form of treatment.

The feasibility study determined that the only cost effective and potentially beneficial option was to divert flows to the Marsh. The study indicated that diverting flows from Bonita Canyon Creek would be cost prohibitive and significantly extend the project timeline due to environmental permitting related to its location in the coastal zone.

In addition to watershed improvements and increased flows diverted to the Marsh, this diversion project would allow IRWD to accumulate credits for nitrogen and phosphorus offsets as a result of an emergency discharge from MWRP or Sand Canyon Reservoir per the conditions of the District's NPDES permit. The amount of additional credits would depend on the scale of the project.

Following completion of the feasibility study, IRWD contacted its coalition partners, which include the City of Irvine, UCI, OC Public Works/Watersheds, and OC Parks, to work collaboratively to seek funding for a unified project that would mutually benefit all agencies. Since December 2019 this coalition, led by OC Watersheds, retained two consulting firms to develop partnership agreements and pursue funding. The next major milestone for the project is to finalize an agreement to outline agency involvement and determine which flows would be treated and routed, as well as agency cost-sharing calculations.

At the Committee meeting, staff will present an update on Lower San Diego Creek Urban Runoff Study. A draft of the PowerPoint to be used for this presentation is provided as Exhibit "A".

FISCAL IMPACTS:

Funds for the feasibility study were included in the Fiscal Year 2018-19 budget.

ENVIRONMENTAL COMPLIANCE:

Any project which results from this study would be subject to the California Environmental Quality Act (CEQA).

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Lower San Diego Creek Urban Runoff Study PowerPoint Presentation

Lower San Diego Creek Urban Runoff Study

Engineering and Operations Committee
July 21, 2020

1

Presentation Agenda

- Background / Project Scope
- Project Goals
- Concept Project
- Funding Sources
- Next Steps

2

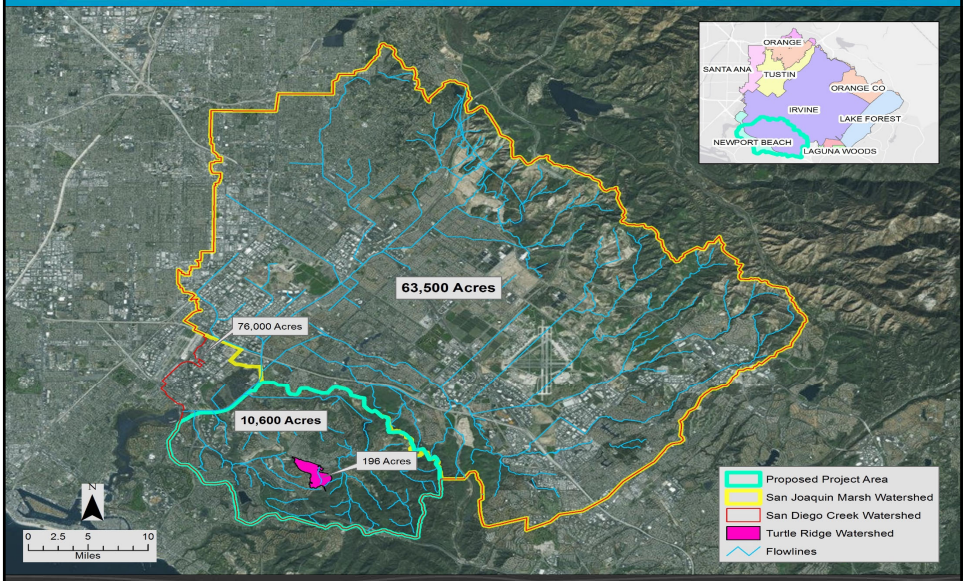
Irvine Ranch WATER DISTRICT

Strategic Goal – Target Activity

9.	**Maximize watershed protection**
	E. *Align IRWD's feasibility study project to capture and treat urban runoff flows downstream from the San Joaquin Marsh utilizing funding from Measure M with County and UCI*

3

Proposed Sub-Watershed Area



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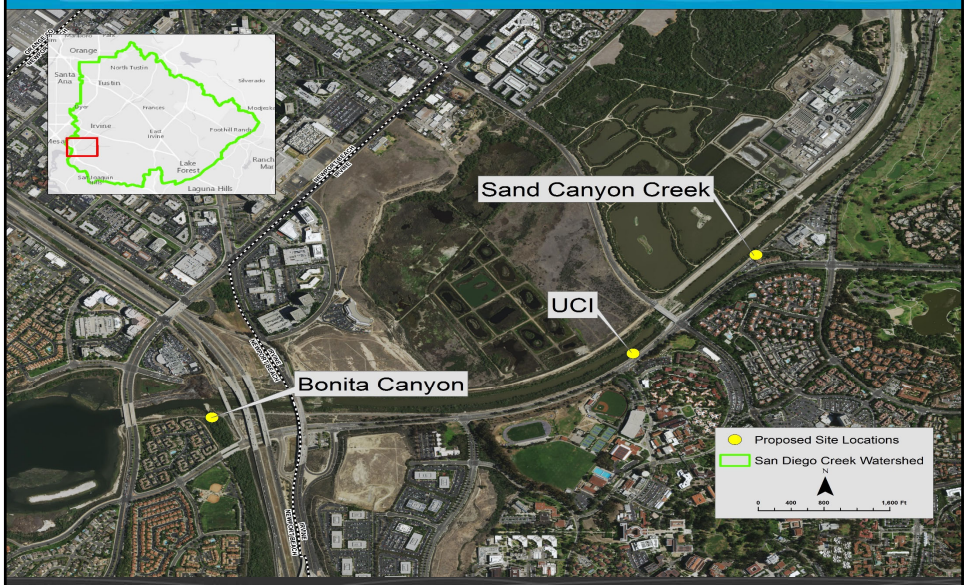
Irvine Ranch WATER DISTRICT

Primary San Diego Creek Inlets



Irvine Ranch Water District 5

5

Project Goals / Benefits

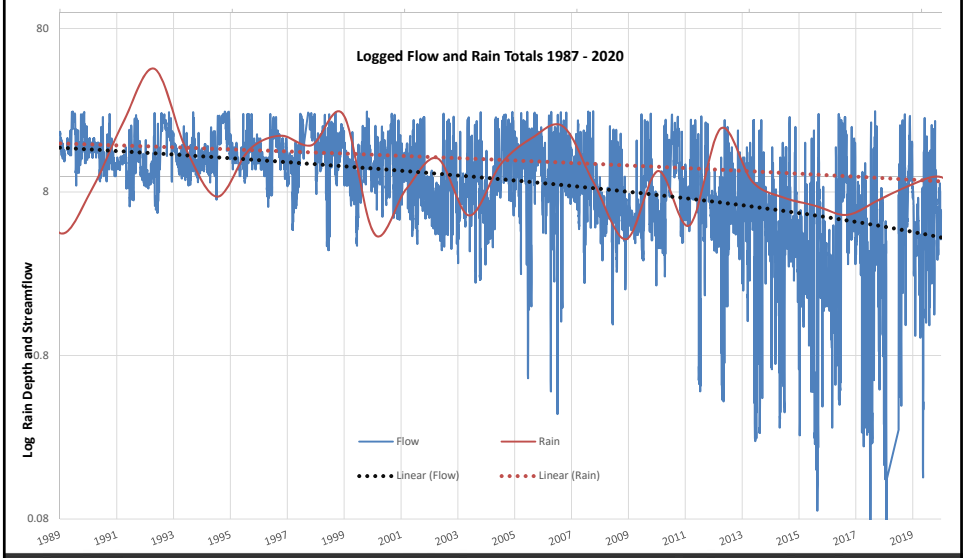
- Nutrient removal to further water quality improvements in the San Diego Creek watershed
- Additional source(s) of water for San Joaquin Marsh due to declining flows in San Diego Creek
- Accumulate additional nutrient removal (TN/TP) credits for MWRP emergency diversion

Irvine Ranch Water District 6

6

Irvine Ranch WATER DISTRICT

San Diego Creek Dry Weather Flow and Rainfall



Estimated Nutrient Removal Credits for MWRP

Credits for nitrogen and phosphorus removal would be used for:

- Sand Canyon Reservoir Overflows
- MWRP Emergency Diversions

Duration of Flow from MWRP	Approximate Nitrogen Load/Offset (lbs)
7 days	12,000 / 18,000
14 days	24,000 / 36,000
30 days	51,000 / 76,500
60 days	102,000 / 153,000
90 days	153,000 / 229,500
Current Credit Total	**280,000**

Duration of Flow from MWRP	Approximate Phosphorus Load/Offset (lbs)
7 days	595 / 892
14 days	1,190 / 1,785
30 days	2,550 / 3,825
60 days	5,100 / 7,650
90 days	7,650 / 11,475
Current Credit Total	**16,005**

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General Concept of Project: Mason Park

Part II – Potential Elements

- UCI Campus Mesa Court Field
- UCI drainage capture
- Underground storage tank(s)
- Pump station configuration

- Force main across Campus Drive bridge
- Splitting of flows to UCI Marsh & San Joaquin Marsh
- Additional treatment
- Conveyance of flows from San Joaquin Marsh to UCI Marsh

Grant Funding Opportunities

Proposition 1 Stormwater Funding

- Stormwater Resource Plan integration requirement
- Match Funds: 50%
- Timeframe: TBD (Maybe Early Summer 2020)

Proposition 68 Ocean Protection Council

- Match Funds: Priority will be given to projects that leverage private, federal, or local funding or produce the greatest public benefit.
- Timeframe: May-September 2020

Other funding

- OCTA Tier 2
- Coastal Conservancy
- Climate resiliency funding
- Future IRWM
- Others

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Next Steps

- Develop revisions to Project Agreement – Fall of 2020
- Develop project Technical Memorandum – Fall of 2020
- Next Meeting with potential project partners to discuss:
  - Project Technical Memorandum
  - Revised Project Agreement
- Integrate project into Stormwater Resource Plan
- Finalize Project Agreement
- Develop conceptual designs (30% level)
- Pursue grant funding

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