SCAP
SOUTHERN CALIFORNIA ALLIANCE OF PUBLICLY OWNED TREATMENT WORKS

REUSE
BRINGING WATER FULL CIRCLE
WASTE
TREATMENT

BIOSOLIDS BIENNIAL TREND SURVEY

2016-2018

DECEMBER 2019

Page intentionally left blank

Table of Contents

List of Tables

List of Figures

Authors and Contributors

Name	Title	Agency/Association
Christina Jones	Environmental Engineer	LA Sanitation and Environment
Sarah "Kate" Melberg	Environmental Engineering Associate I	LA Sanitation and Environment
Tom Meregillano	Senior Regulatory Specialist	Orange County Sanitation District

Acronym and Abbreviations List

ADM	Anaerobically Digestible Material	**POTWs**	Publicly Owned Treatment Works
FOG	Fats, Oil and Grease	**SCAP**	Southern California Alliance of POTWs
JWPCP	Joint Water Pollution Control Plant	**WTPY**	Wet Tons Per Year

1. Summary

SCAP wishes to thank the 25 member agencies that took the time and effort to assist with the production of this survey. The response has been exceptional, and it is our sincere hope that the information provided will be useful to SCAP members for future biosolids management planning and will provide the basis for a comprehensive statewide report.

The intent of this survey is to identify current industry trends for the following elements:

- Biosolids Production
- Dewatering Technologies
- Biosolids Management Technologies and Destinations
- Biosolids Management Costs and Transportation Rates
- Agency Challenges
- Co-digestion and Food Waste Data
- Agencies Future Biosolids Management Plans
- Marketing and Media Practices

The following is a general summary of our findings:

Table 1 - General Summary

Biosolids Production	
Annual Average Production: 2016 2017 2018	 1,485,553 1,467,946 1,465,496
Top Three Biosolids Producers	Los Angeles County Sanitation District Orange County Sanitation District LA Sanitation & Environment
Biosolids Program Staffing and Budget	
Range of the Number of FTEs for Biosolids	1 to 40
Range of Biosolids Management Budget	<$100,000 to $25,000,000
End Use Options	
Top Two End Use Options	Composting and Land application
Biosolids Quality	
Number of Agencies Class A - EQ	3
Number of Agencies Class A	3
Number of Agencies Class B	20
Number of Agencies Sub Class B	5

Table 1 - General Summary (continued)

Tipping Fee Average	
Alt Daily Cover Landfill	$46.01
Composting	$54.49
Deep Well Injection	$76.00
Direct Burial to Landfill	$42.60
Fertilizer	$10.00
Land Application	$41.82
Mine Reclamation	$48.00
Soil Blending	$45.63
Technologies	
Common Digestion Technology	Mesophilic Anaerobic Digestion (Staged)
Common Dewatering Technology	Centrifuge
Challenges	
Top Three Challenges	Finding Low Cost Local Biosolids Management Options (most often noted as high priority)
	Securing Long-Term Biosolids Management Options
	Rising Costs
Biosolids Strategic Plans	
Number of Agencies with Strategic Plans	11
Number of Agencies without Strategic Plans	14
Food Co-Digestion Projects	
Number of Agencies Started Co-Digestion	6
Number of Agencies that are in the Planning and Design Stages of Co-Digestion	3
Social Media Communication	
Top Three Social Media Platforms Used by Agencies	Website
	Facebook
	Twitter

2. Annual Biosolids Production

This section provides a snapshot of the annual biosolids production in 2016 through 2018. It is important to note that the information provided is not intended to be a direct comparison of previous SCAP biennial surveys since each survey is based on a reflection of member agencies that provided information at that time period. The following figures illustrate the annual biosolids production for 2016-2018.

For the period of 2016 through 2018, the annual biosolids production appears to be a slight decrease of approximately one percent over the three years illustrated in Figure 1 - Annual Biosolids Production 2016-2018. The annual biosolids production went from 1,485,553 wet tons per year (WTPY) in 2016 to 1,465,496 WTPY in 2018.

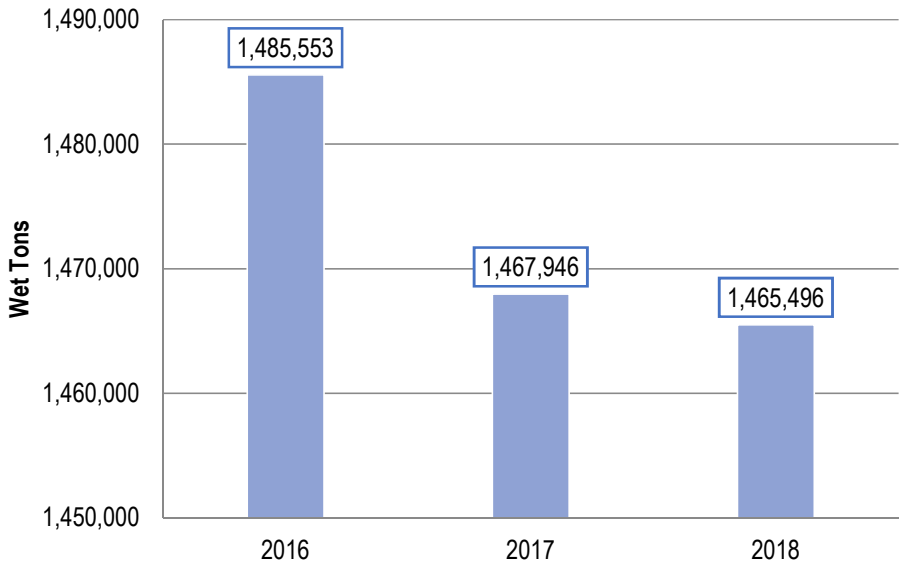


Figure 1 - Annual Biosolids Production 2016-2018

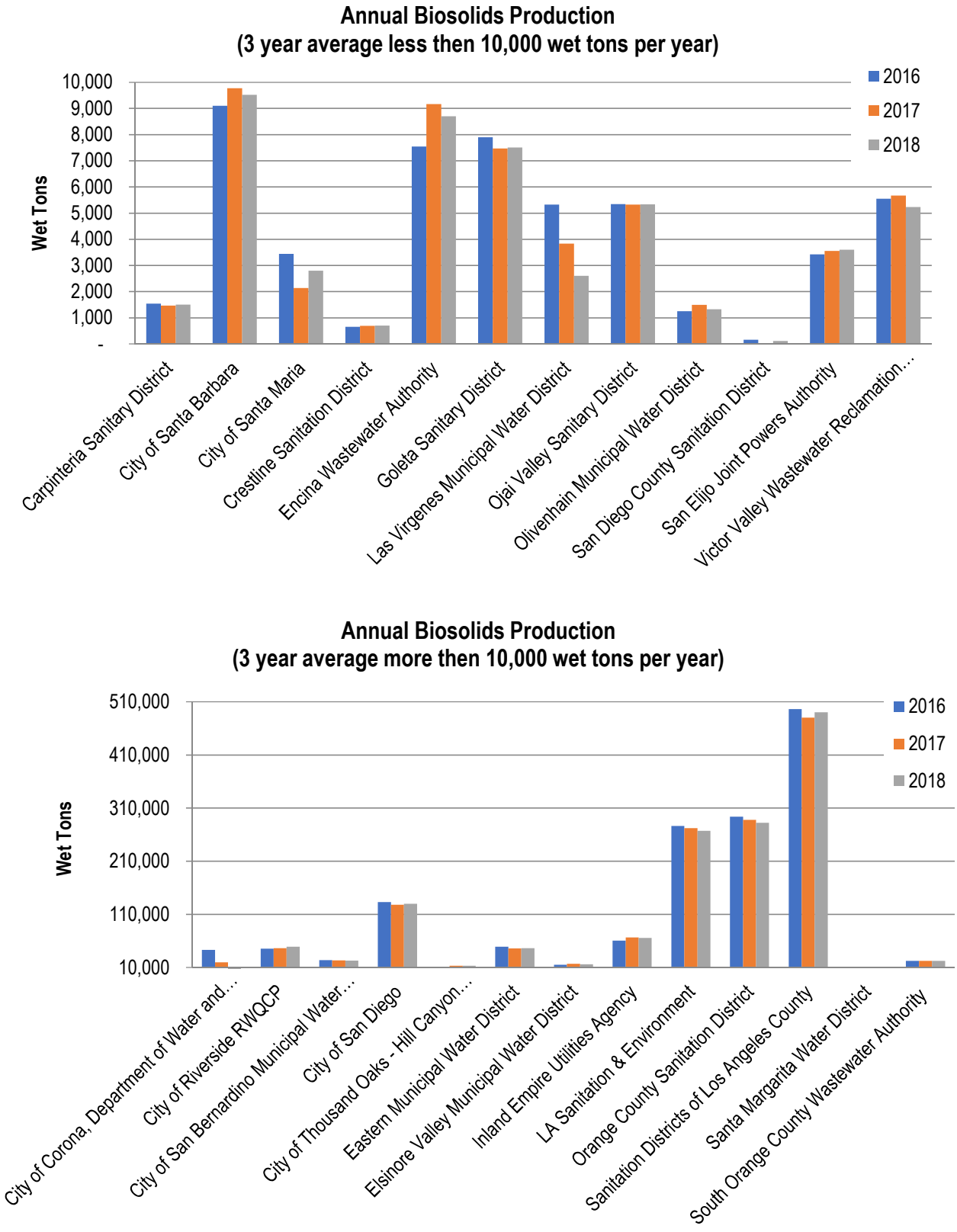


Figure 2 - Annual Biosolids Production

For facilities that produced less than 10,000 WTPY within 2016-2018 as illustrated in Figure 2 - Annual Biosolids Production, the top three biosolids producers are City of Santa Barbara followed by Encina Wastewater Authority and Goleta Sanitary District. For further details, see Appendix A: Agency Information and Budget.

For facilities that produced above 10,000 WTPY within 2016-2018 as illustrated in Figure 2 - Annual Biosolids Production, the top three biosolids producers are Los Angeles County Sanitation District, followed by Orange County Sanitation District and City of Los Angeles. Together these three Publically Owned Treatment Works (POTWs) make up over 70 percent of total annual production. For further details, see Appendix A: Agency Information and Budget.

3. Biosolids Program Staffing and Budget

The intent of this section is to capture the staffing levels and the fiscal budgets for 2017 and 2018 from survey respondents.

3.1. Staffing

SCAP members were asked to provide information on the number of staff that have the dedicated responsibility to manage the agency biosolids management program which includes contract management and regulatory compliance. Out of the 25 member agencies that responded, nine agencies have dedicated staff and 16 agencies do not as referenced in Table 2 - Agencies with/without Dedicated Biosolids Staff below.

Table 2 - Agencies with/without Dedicated Biosolids Staff

Yes, the agency has dedicated biosolids staff	Number of staff members*
City of San Diego	40
Encina Wastewater Authority	11
Inland Empire Utilities Agency	1
LA Sanitation & Environment	4
Las Virgenes Municipal Water District	7
Ojai Valley Sanitary District	4
Orange County Sanitation District	2
Sanitation Districts of Los Angeles County	4
Victor Valley Wastewater Reclamation Authority	4
No, the agency does not have dedicated biosolids staff	
Carpinteria Sanitary District	
City of Corona, Department of Water and Power	
City of Riverside RWQCP	
City of San Bernardino Municipal Water Department	
City of Santa Barbara	
City of Santa Maria	
City of Thousand Oaks - Hill Canyon Treatment Plant	
Crestline Sanitation District	
Eastern Municipal Water District	
Elsinore Valley Municipal Water District	
Goleta Sanitary District	
Olivenhain Municipal Water District	
San Diego County Sanitation District	
San Elijo Joint Powers Authority	
Santa Margarita Water District	
South Orange County Wastewater Authority	

*May include operational staff

3.2. Biosolids Program Management Budget

A large portion of a POTW's annual budget is biosolids management. SCAP members were asked to provide information of their annual budgeted allocated for the management of their biosolids for 2017 and 2018. For ease of illustration, POTWs were grouped by facilities having an annual biosolids management budget of less than $1 million and the other over $1 million. It is important to note that annual budgets may vary depending on the amount of annual biosolids produced and the type and cost of end-use management options an agency selects. To more clearly describe management budgets for all survey respondents Figure 3 - Biosolids Management Budget groups together budget above or below $1 million.

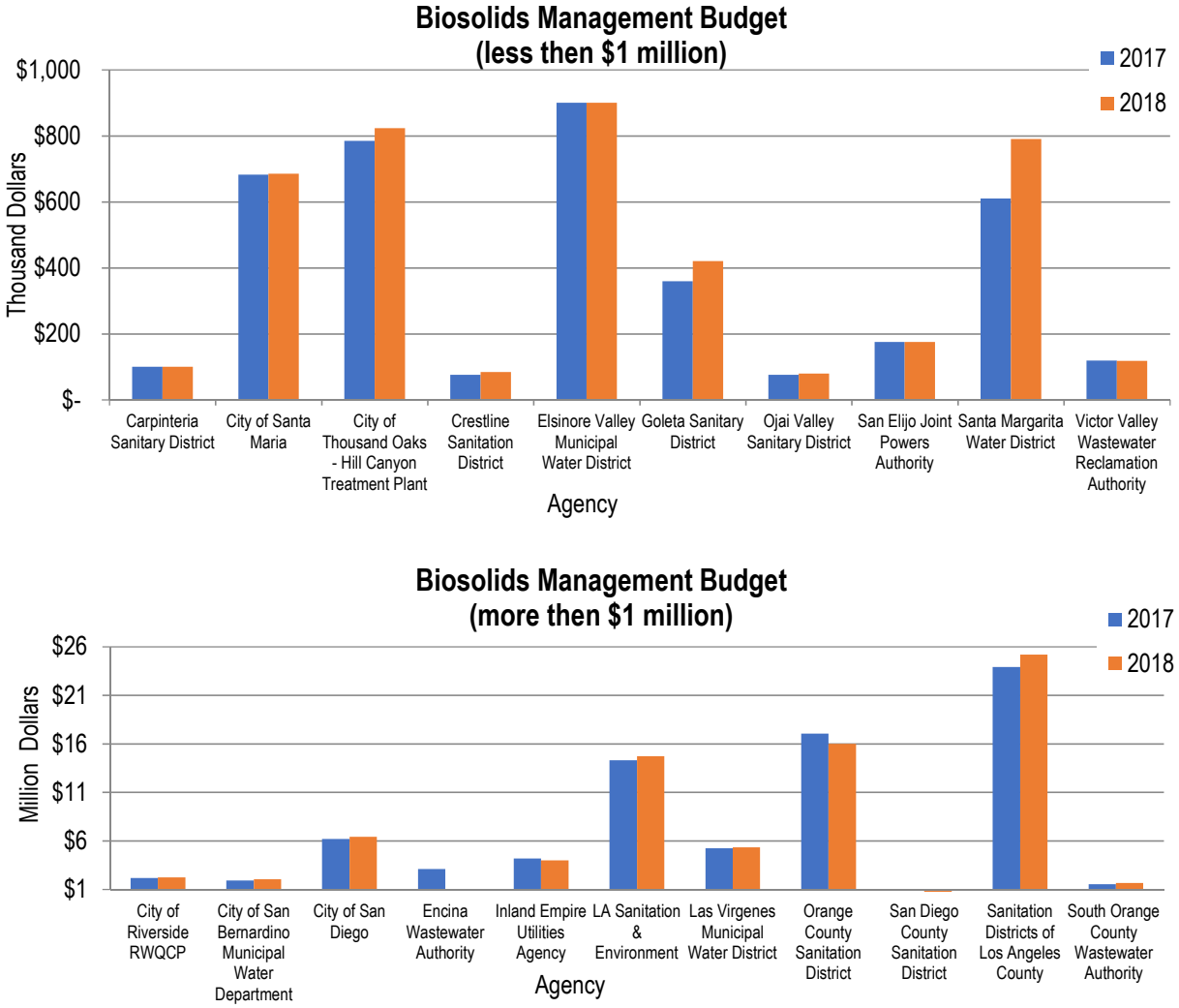


Figure 3 - Biosolids Management Budget

It should be noted that City of Santa Barbara, Eastern Municipal Water District, Olivenhain Municipal Water District, and City of Corona, Department of Water and Power do not have a separate budget for biosolids management.

Figure 4 - Annual Biosolids Production and Budget Price per Ton illustrates the relationship between wet tons of biosolids produced and calculated price per ton based on survey responses.

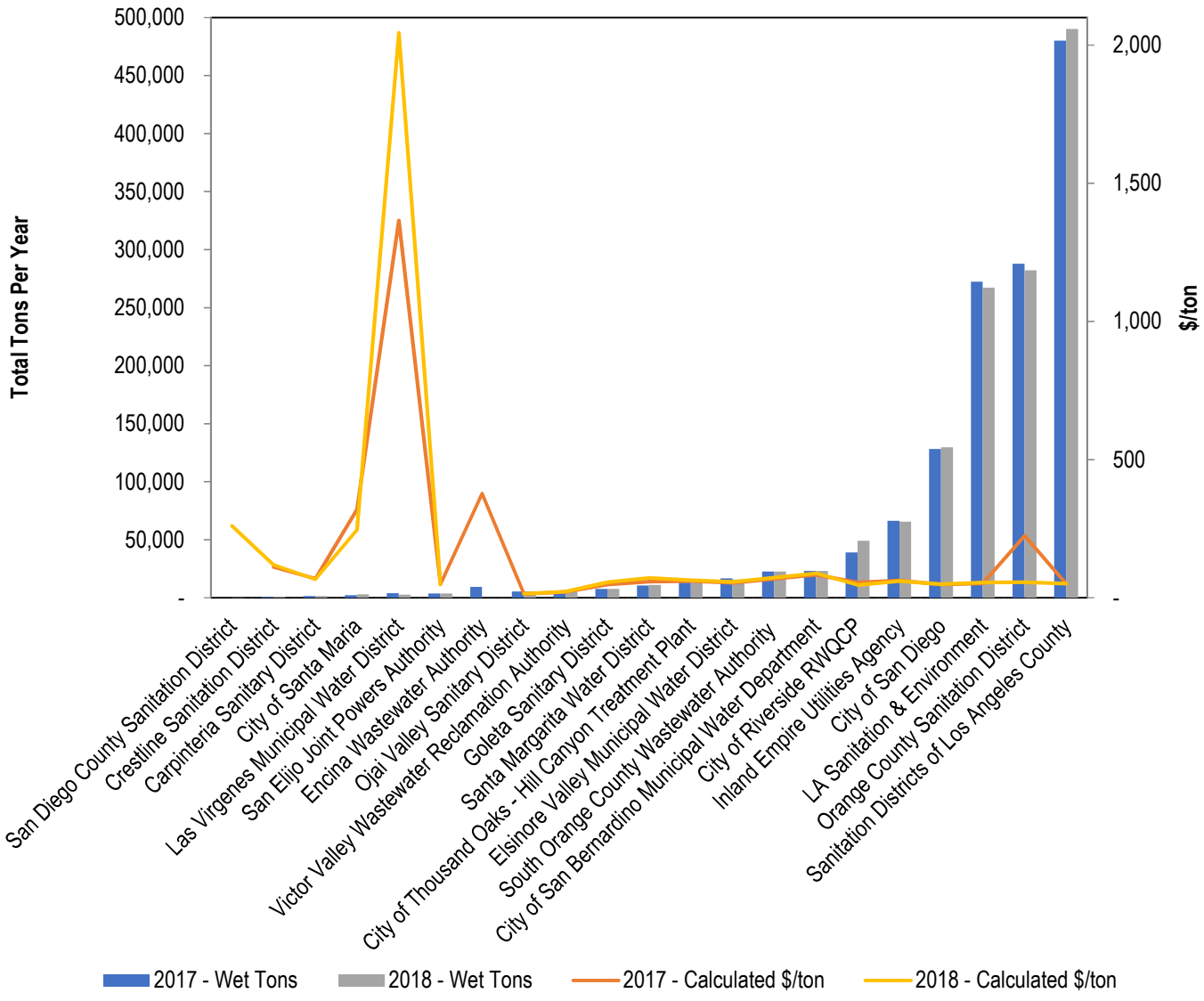


Figure 4 - Annual Biosolids Production and Budget Price per Ton

4. Biosolids Management Options, Management Cost, and Transportation Cost

This section provides information on the type of biosolids management options utilized, management costs, and associated transportation costs provided by SCAP member agencies that responded to the survey.

4.1. Biosolids Management Options by Agency 2016-2017

Results of the survey pertaining to the types of end use management options utilized by agencies are reported in graphically in Figure 5 - Wet Tons and Number of Agencies per End Use.

The most prevalent end use management option employed by SCAP member agencies that responded to the survey is composting with 15 agencies in 2016 and 13 agencies in 2017. This is followed by land application with nine agencies in 2016 and eight agencies in 2017. Composting and land application represent by far the most prevalent management options. At the time the data was collected 2018 was a projection only and therefore is not included in the following graph.

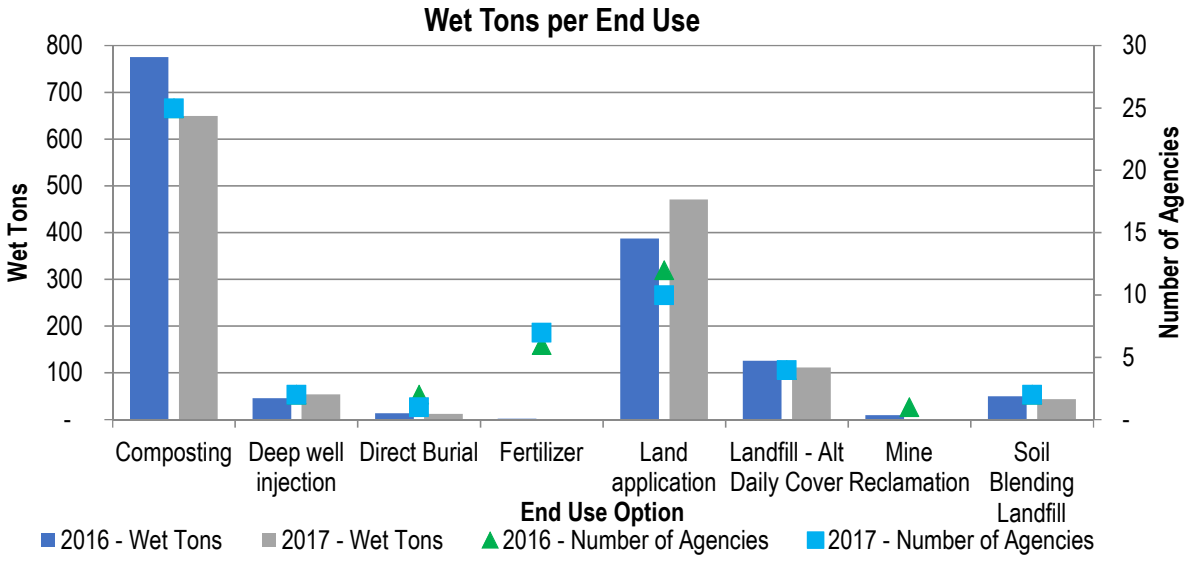


Figure 5 - Wet Tons and Number of Agencies per End Use

Page intentionally left blank

4.2. Biosolids Management Options by Agency, Total Volume, and Biosolids Type

Among the 25 agencies that responded to the survey, 19 agencies produced Class B biosolids which is shown to be the most common biosolids type. Five (5) agencies produced Class A-EQ and Class A biosolids types.

Table 3 - Breakdown per Agency and Year of Tons and Quality of Biosolids Produced

Agency	2016					2017				2018			
	Class A - EQ	Class A	Other	Class B	Sub Class B	Class A	Class A - EQ	Class B	Sub Class B	Class A	Class A - EQ	Class B	Sub Class B
Carpinteria Sanitary District					1,538				1,461				1,500
City of Corona, Department of Water and Power	39,164			3,686			15,971	3,577			2,174		
City of Riverside RWQCP				30,466	14,777			38,847	7,327			49,073	
City of San Bernardino Municipal Water Department				23,650				23,115				23,000	
City of San Diego				132,974				128,012				129,546	
City of Santa Barbara				9,096				9,768				9,515	
City of Santa Maria				3,443				2,136				2,800	
City of Thousand Oaks - Hill Canyon Treatment Plant				9,258				13,051				13,000	
Crestline Sanitation District				648				687				700	
Eastern Municipal Water District				49,131				45,948				46,000	
Elsinore Valley Municipal Water District					15,077				16,713				15,693
Encina Wastewater Authority	6,638			903			6,212	2,950			8,698		
Goleta Sanitary District				7,894				7,464				7,500	

Agency	2016					2017				2018			
	Class A - EQ	Class A	Other	Class B	Sub Class B	Class A	Class A - EQ	Class B	Sub Class B	Class A	Class A - EQ	Class B	Sub Class B
Inland Empire Utilities Agency				60,453				66,314				65,500	
LA Sanitation & Environment	276,086						272,165				267,100		
Las Virgenes Municipal Water District		5,326				3,830				2,600			
Ojai Valley Sanitary District				5,343				5,325				5,335	
Olivenhain Municipal Water District				1,245				1,488				1,322	
Orange County Sanitation District				293,891				287,697				282,000	
San Diego County Sanitation District				153				77				115	
San Elijo Joint Powers Authority				3,424				3,548				3,600	
Sanitation Districts of Los Angeles County				496,234				479,996				490,000	
Santa Margarita Water District				10,300				10,400				11,000	
South Orange County Wastewater Authority					22,500				22,500				22,500
Victor Valley Wastewater Reclamation Authority		5,547				5,669				5,225			

4.3. Cost Summary

The following information is a cost range of eight biosolids management types along with average cost. Note that the tipping fee range includes transportation cost. Cost may vary based on number of factors which include but not limited to the type of management option, transportation, administration, handling, etc.

Table 4 - Total Tipping Fees for the Management Types Utilized by All Agencies

	Tipping fee ($/ton) per contractor			Transportation cost ($/ton) per contractor		
	Min	Max	Average	Min	Max	Average
Composting	29.41	80.62	54.49	6.00	42.13	26.90
Deep well injection	76.00	76.00	76.00	7.53	7.74	7.64
Direct Burial	37.49	50.95	42.60			
Fertilizer	10.00	10.00	10.00	10.00	10.00	10.00
Land application	8.50	54.50	41.82	39.00	45.00	42.00
Landfill - Alt Daily Cover	37.90	61.00	46.01	13.75	13.75	13.75
Mine Reclamation	48.00	48.00	48.00			
Soil Blending Landfill	44.99	46.27	45.63	8.63	8.63	8.63

5. Travel Range and Description of Biosolids Management Destinations

Hauling can be one of the major factors that may impact the overall biosolids management cost. Travel ranges vary among agencies. In general range is from eight miles to 431 miles (Arizona). The following Figure 6 - Map of Biosolids Management and Table 5 - Location of the Various Management Operations provide information of the common hauling destination for the agencies.

Figure 6 - Map of Biosolids Management

Table 5 - Location of the Various Management Operations

Management Options	Destination
Composting	Calabasas, CA
	Helendale, CA
	Hinkley CA
	Kern County, CA
	Kings, CA
	La Paz, AZ
	Rancho Cucamonga, CA
	San Bernardino County, CA
	Santa Barbara, CA
	Santa Maria, CA
	Taft, CA
	Ventura County, CA
	Vicksburg, AZ
Deep well injection	Los Angeles, CA

Management Options	Destination
Direct Burial	Orange County, CA
	San Diego, CA
Fertilizer	Fresno, CA
	Los Angeles, CA
	Maricopa, AZ
	Orange, CA
	Pima, AZ
	San Diego, CA
	San Joaquin, CA
	Ventura, CA
Land Application	Kern, CA
	Maricopa County, AZ
	Merced, CA
	Orange County, CA
Landfill - Alt Daily Cover	Yuma, AZ
	San Diego, CA
Mine Reclamation	San Juan Capistrano, CA
Soil Blending Landfill	Bakersfield, CA
	Kern, CA
	Santa Barbara, CA

5.1. List of Biosolids Management Vendors

The following Table 6 - List of Biosolids Management Vendors provides a list of biosolids management vendors that provide services to SCAP member agencies that have provided information to the survey.

Table 6 - List of Biosolids Management Vendors

Composting
Denali Water Solutions, LLC
Engel and Gray
GIC Transport
IERCA
IERCF
Inland Empire Regional Composting Authority
Liberty Compost, Inc.
Liberty Farms
Nursery Products
NutrientsPLUS
On-Site composting
Synagro
Terra Trucking
Tulare Lake Compost
Loads hauled by staff
Deep well injection
Denali Water Solutions, LLC
GeoEnvironmental Technologies
Direct Burial
Orange County Waste and Recycling
San Diego Landfill System
Fertilizer
Ag Tech, LLC
CPS Inc
Denali Water Solutions, LLC
Grownmore
NutrientsPLUS

Land application
Ag Tech, LLC
American Organics
Atlas
Denali Water Solutions, LLC
Responsible Biosolids Mgmt
San Diego Landfill System
Solid Green
Tule Ranch
Landfill - Alt Daily Cover
County of San Diego
Denali Water Solutions, LLC
Orange County Waste and Recycling
San Diego Landfill System
Mine Reclamation
Gabriel I. Cruz Transport
Soil Blending Landfill
City of Santa Maria
Holloway Environmental

6. Wastewater Treatment Facility – Solids Handling

The following section summarizes the wide variety of technologies utilized by Southern California POTWs in their sludge handling processes and the range in the quality and quantity of the biosolids produced by each agency over the past three years. First, this section describes the biosolids digestion technologies used by various agencies. The quality and quantity of biosolids produced by these digestion technologies over the past three years, 2016 to 2018, are demonstrated. Finally, dewatering technologies are explored including the brands of dewatering technology purchased, as well as the types of dewatering processes used at each agency and the resulting percent solids produced by these processes.

6.1. Biosolids Digestion Technologies

The digestion process of solids can be done in a few different methods, generally involving anaerobic digestion. The most common technologies used by SCAP agencies include mesophilic anaerobic digestion (staged) done by eleven agencies, mesophilic anaerobic digestion (acid/gas phased) done by four agencies, and thermophilic anaerobic digestion done by four agencies. Eight agencies used other digestion technologies besides the three previously mentioned. Agencies often prefer to invest in staged mesophilic anaerobic digestion processes as the digestion phase is broken into steps and at each stage the conditions can be manipulated to optimize operations including producing higher quality biosolids as well as greater gas production. However, these systems tend to be more expensive to operate and manage than single-staged systems and require more intricate piping requirements. Thermophilic digestion or retrofitting a mesophilic digestion process with a thermophilic stage is preferred as it produces Class A biosolids. In addition to the higher quality biosolids produced, the biosolids have a lower odor than those created during mesophilic anaerobic digestion. (https://www.epa.gov/sites/production/files/2018-11/documents/multistage-anaerobic-digestion-factsheet.pdf) See Table 7 - Biosolids Digestion Technologies for more information.

Table 7 - Biosolids Digestion Technologies

Mesophilic Anaerobic Digestion (acid/gas phased)
1. City of Corona, Department of Water and Power
2. Eastern Municipal Water District
3. Encina Wastewater Authority
4. Santa Margarita Water District

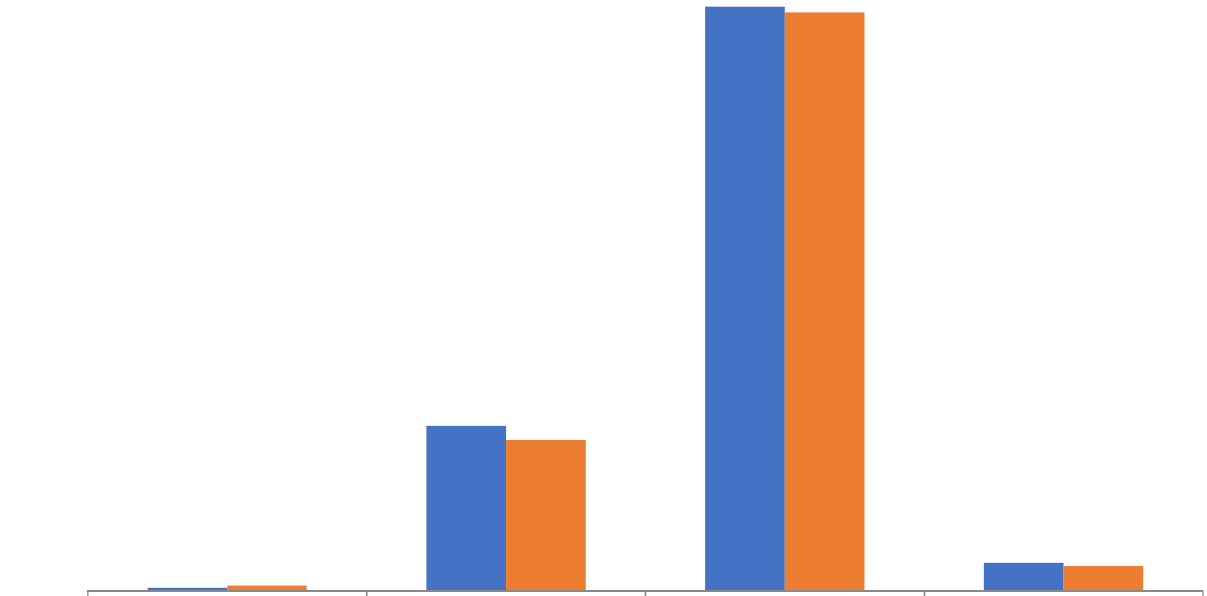
Mesophilic Anaerobic Digestion (staged)
1. City of Riverside RWQCP
2. City of San Bernardino Municipal Water Department
3. City of Santa Barbara
4. City of Thousand Oaks - Hill Canyon Treatment Plant
5. Eastern Municipal Water District
6. Goleta Sanitary District
7. Las Virgenes Municipal Water District
8. Orange County Sanitation District
9. San Elijo Joint Powers Authority
10. Sanitation Districts of Los Angeles County
11. Victor Valley Wastewater Reclamation Authority

Thermophilic Anaerobic Digestion
1. City of San Diego
2. City of Santa Maria
3. Inland Empire Utilities Agency
4. LA Sanitation & Environment

Other
1. Carpinteria Sanitary District
2. Crestline Sanitation District
3. Elsinore Valley Municipal Water District
4. Inland Empire Utilities Agency
5. Ojai Valley Sanitary District
6. Olivenhain Municipal Water District
7. San Diego County Sanitation District
8. South Orange County Wastewater Authority

6.2. Biosolids Quality and Volumes 2016-2018

Regulated under 40 CFR Part 503, Agencies are regulated to produce biosolids that are classified as either Sub Class B, Class B, Class A, or Class A – Excellent Quality (EQ) based on their level of treatment. The quality of treatment determines the beneficial uses of these biosolids. Local laws and ordinances also impacts availability and options per geographic jurisdiction. With the implementation of new laws and regulations, such as SB 1383 which mandates 50 percent organic waste diversion from landfills (based on 2014 levels) by 2020, the management options of landfill disposal and blending for landfill alternative daily cover will be phased out. Minimal landfill disposal may still occur sporadically in cases of treatment issues or weather conditions.



	Class A	Class A - EQ	Class B	Sub Class B
2016	5,326	321,888	1,142,191	53,892
2017	9,499	294,348	1,130,400	48,001

Figure 7 - Amount of Biosolids Generated by Class (Wet Tons)

Figure 7 - Amount of Biosolids Generated by Class (Wet Tons) illustrates the total amount of each class of biosolids generated in 2016 and 2017 by all agencies.

6.3. Biosolids Dewatering Technology

Five Biosolids Dewatering Technologies are primarily used for solids handling including centrifuge, direct dryer, drying bed, filter press, and indirect dryer. A variety of companies manufacture dewatering technologies. Table 8 - Dewatering Technologies shows the products used by different agencies. The agencies utilize many of the same products for their treatment processes. Table 9 - Percent Solids by Agency and Facility demonstrates the breakdown of dewatering technologies used by all SCAP agencies. Centrifuges are the most common dewatering system used by 43 percent of facilities, followed by Filter Presses used by 37 percent. The less common dewatering technologies include drying beds—used by eight percent of facilities, “other” dewatering technologies—used by six percent, and indirect and direct drying dewatering—both used by three percent of facilities.

Table 8 - Dewatering Technologies

Centrifuge	18
Alfa Laval	7
Andritz	2
Centrisys	5
Humboldt	4
Direct Dryer	**1**
Andritz	1
Filter Press	**13**
Ashbrook	9
Envirex	1
Huber	1
Rittershaus & Blecher	1
Winkle Press	1

Indirect Dryer	1
Andritz	1
Other	**2**
FKC	1
Huber	1

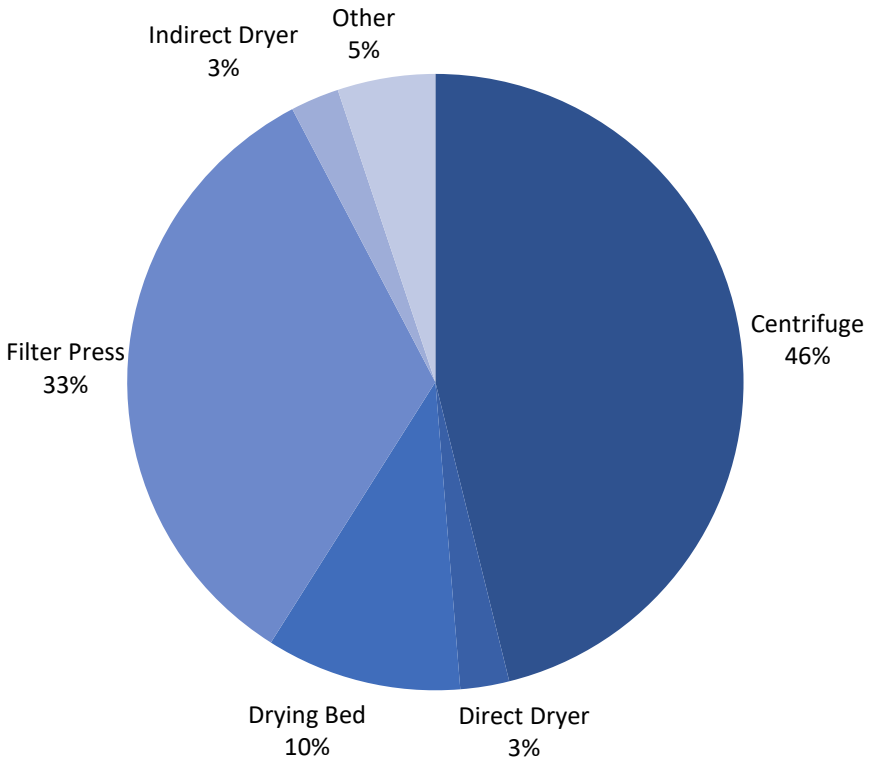


Figure 8 - Dewatering Technologies used by SCAP Agencies

6.4. Percent Solids by Facility and Type of Biosolids

Table 9 - Percent Solids by Agency and Facility presents the percent solids produced by each facility and categorized by the Class of biosolids they produce. The percent solids depends on the dewatering method used as well as the requirements needed for the post-

processing use, such as land application. Class A – EQ 26 – 92 percent solids, Class A ranges from 15 – 95 percent solids, Class B ranges from 6 – 90 percent solid, and Other quality ranges from 17 – 25 percent solids. Based on data collected Class A products created using drying beds in the desert were found to be driest at 95 percent solids. Conversely, the wettest product was found to be a Class B product created using drying beds were at only six percent solids.

Table 9 - Percent Solids by Agency and Facility

	Class A		Class A - EQ		Class B		Other	
	Min	Max	Min	Max	Min	Max	Min	Max
Centrifuge								
City of Riverside RWQCP					16%	16%		
City of San Bernardino Municipal Water Department					22%	22%		
City of San Diego					28%	28%		
Eastern Municipal Water District					21%	25%		
Encina Wastewater Authority					21%	21%		
Inland Empire Utilities Agency					24%	24%		
LA Sanitation & Environment			26%	26%				
Las Virgenes Municipal Water District	22%	26%						
Sanitation Districts of Los Angeles County					17%	29%		
Santa Margarita Water District					22%	22%		
South Orange County Wastewater Authority							25%	25%
Direct Dryer								
City of Corona, Department of Water and Power			92%	92%				
Drying Bed								
City of Santa Maria					6%	6%		
San Diego County Sanitation District					40%	90%		
Victor Valley Wastewater Reclamation Authority	95%	95%						
Filter Press								
City of Santa Barbara					19%	19%		
Crestline Sanitation District					30%	30%		
Eastern Municipal Water District					20%	20%		
Elsinore Valley Municipal Water District							18%	18%
Goleta Sanitary District					17%	17%		
Inland Empire Utilities Agency					15%	15%		
Ojai Valley Sanitary District	15%	15%						
Olivenhain Municipal Water District					17%	17%		
Orange County Sanitation District					18%	20%		
San Elijo Joint Powers Authority					20%	20%		
Sanitation Districts of Los Angeles County					20%	20%		
Carpinteria Sanitary District							17%	17%
Indirect Dryer								
Encina Wastewater Authority			90%	90%				
Other								
City of Thousand Oaks - Hill Canyon Treatment Plant					18%	18%		
Santa Margarita Water District					18%	18%		

7. Challenges

The severity of challenges differs from each individual wastewater agency depending on operations and resources available to meet the current and future needs of the plants. This section shows the highest and lowest priority challenges that each agency faces.

7.1. Challenges Based on Priority

The agencies were asked to rank 7 categories of challenges on a scale from 0 to 5, 0 indicating not applicable, 1 indicates unimportant, and 5 indicates a high priority. Table 10 - Count of Each Rating per Priority Area provides the data on each agency rated each challenge. Overall the challenge that was rated as a high priority most often was “Finding Low Cost Local Biosolids Management Options”. This is the order of prioritization based on the data:

1. Finding Low Cost Local Biosolids Management Options (most often noted as high priority)
2. Securing Long-Term Biosolids Management Options
3. Rising Costs
3. Regulatory Restrictions & New Regulations
4. Public Perception/Relations
5. Wet Weather Impeding Drying Operations
6. Space for Drying Operations (least often noted as high priority)

Table 10 - Count of Each Rating per Priority Area

	Rating (5-most important to 1-unimportant)					
Priority:	**1**	**2**	**3**	**4**	**5**	**n/a**
Space for Drying Operations	6	5	2	2	2	8
Securing Long-Term Biosolids Management Options	0	0	3	8	11	3
Finding Low Cost Local Biosolids Management Options	0	2	4	5	12	2
Public Perception/Relations	1	4	5	6	7	2
Rising Costs	0	3	7	3	10	2

8. Strategic Planning

Strategic planning is critical to POTWs agencies to ensure they are able to maintain the current needs and meet the future needs of their community with regards to treating wastewater and processing solids. The following section summarizes the agencies strategic planning efforts including which agencies have Master Plans for their biosolids programs, the anticipated biosolids management for the upcoming 2018-2019 FY and the next five years, as well as a look in to what agencies are marketing their biosolids products.

8.1. Number of Agencies that have a Biosolids Master Plan

11 of the SCAP agencies have a Biosolids Master Plan, 14 agencies responded with not having a Biosolids Master Plan. Interestingly the agencies which indicated they did have a Biosolids Master Plan in place were not necessarily those agencies with more biosolids dedicated staff. Agencies with less than ten biosolids committed employees were equally as likely to have a biosolids master plan.

Table 11 - Agencies With or Without Biosolids Master Plan

Agencies With a Biosolids Master Plan	Agencies Without a Biosolids Master Plan
1. City of Riverside RWQCP 2. City of San Diego 3. Eastern Municipal Water District 4. Elsinore Valley Municipal Water District 5. Encina Wastewater Authority 6. Inland Empire Utilities Agency 7. Las Virgenes Municipal Water District 8. Orange County Sanitation District 9. South Orange County Wastewater Authority 10. Victor Valley Wastewater Reclamation Authority 11. Carpinteria Sanitary District	1. City of Corona, Department of Water and Power 2. City of San Bernardino Municipal Water Department 3. City of Santa Barbara 4. City of Santa Maria 5. City of Thousand Oaks - Hill Canyon Treatment Plant 6. Crestline Sanitation District 7. Goleta Sanitary District 8. LA Sanitation & Environment 9. Ojai Valley Sanitary District 10. Olivenhain Municipal Water District 11. San Diego County Sanitation District 12. San Elijo Joint Powers Authority 13. Sanitation Districts of Los Angeles County 14. Santa Margarita Water District

8.2. Agencies Plan for Biosolids Management 2018-2019 and in Five Years

Agencies reported their expected biosolids management plans for the upcoming 2018-2019 year as well as their management for the next five years. Composting and Land Application are expected to be the most common practices both the 2018-2019 year and the next five years. However, the number of agencies using composting or land application will also be utilized by fewer agencies in the next five years (four agencies, five agencies respectively). This changed could be due to several triggers for example the outcome of regulations for SB 1383 Short Lived Climate Pollutants, ordinances and bans that prohibit certain reuse options, or other financial constraints. It should be noted that due to the way the question was asked the data in Table 12 - Summary of Plans for Biosolids Program might be misleading. The question for what was done in 2018/2019 was clear however the question for future plans did not necessarily require the agency to include the same information. Therefore in order to find out each individual agency's answer to this question please refer to the data in the appendices.

Table 12 - Summary of Plans for Biosolids Program

	2018/2019	Future
Compost	17	12
Landfill	6	4
Land Application	9	5
Deep Well Injection	1	1

8.3. Number of Agencies Directly Marketing Biosolids Products

Currently, some POTWs generate marketable products. The most popular product created is compost, with three agencies producing compost. One agency produces fertilizer pellets and one does soil blending.

Table 13 - Agencies that Directly Market a Product

	Compost	Fertilizer pellets	Soil Blending	Renewable Energy Pellets	Biofuels	Biochar	Other
Encina Wastewater Authority	No	Yes	No	No	No	No	No
Inland Empire Utilities Agency	Yes	No	Yes	No	No	No	No
Las Virgenes Municipal Water District	Yes	No	No	No	No	No	No
Sanitation Districts of Los Angeles County	Yes	No	No	No	No	No	No

8.4. Organics Management

Due to recent pressures regarding waste management, California has introduced new regulations regarding organic diversion and management, such as SB 1383 which calls for a 50 percent reduction in statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent decrease by 2025. As a result, this has led to agencies evolving their current biosolids handling operations, introducing new technology, and updating past practices to meet the standards laid out in the regulations. This might include reduction is use of landfill, or increasing land application and co-digestion both of which might require a change in solids digestion. Co-Digestion is an emerging technology that incorporates food waste, fats, oil and grease (FOG), and process waste from breweries and wineries. Many agencies have started or are beginning to incorporate Co-digestion due to SB 1383. Integrating food waste can be an affordable way to divert organic materials from landfills and uses infrastructure already in place to process the materials. In addition, the waste is beneficial to the wastewater agencies as blending solids from the wastewater stream with feedstock which would improve biogas production that can be used by the agency, used as a low carbon vehicle fuel or sold to power companies.

The following section discusses what agencies have done and are planning to do in response to the new regulations.

8.5. Agencies Response to Future Due to Current Regulations

New regulations regarding increased and improved recycling and waste management are impacting wastewater agencies and their end use of solids. As mentioned in the previous section, a major piece of legislation, SB 1383, has quickly approaching deadlines requiring the need for organics diversion from landfills. Many cities are using biosolids as a primary focus for organic diversion, as many agencies are already diverting them if they treat and reuse them beneficially, which counts towards their diversion requirements. If the agencies do not already have diversion programs, agencies have found that biosolids are one of one of the easiest organic products to develop a diversion program for as it is a consistent waste stream that once treated can be utilized in a variety of ways besides being landfilled. In addition, co-digestion, which incorporates food waste and other organic matter into anaerobic digesters to generate the reusable product, has become a priority for many agencies in California, as it allows agencies to produce more biosolids and biofuels while reducing the amount of waste going to landfills. Three agencies stated that they are in the planning and design stages of co-digestion projects, and six agencies have already started doing co-digestion (Table 14 - Response to Organics Diversion Regulations).

Table 14 - Response to Organics Diversion Regulations

Name of Agency	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e. AB 1826 or SB 1383)
Carpinteria Sanitary District	No
City of Corona, Department of Water and Power	No
City of San Diego	No
City of Santa Barbara	No
City of Santa Maria	No
City of Thousand Oaks - Hill Canyon Treatment Plant	No
Crestline Sanitation District	No
Elsinore Valley Municipal Water District	No
Las Virgenes Municipal Water District	No
Ojai Valley Sanitary District	No
Olivenhain Municipal Water District	No
San Diego County Sanitation District	No
San Elijo Joint Powers Authority	No
Santa Margarita Water District	No
South Orange County Wastewater Authority	No
Victor Valley Wastewater Reclamation Authority	No, we are already excepting food waste which assists in enhancing methane production
City of San Bernardino Municipal Water Department	Possibly, SBMWD might consider accepting food waste and grease slurry to increase biogas production. Future Feedstock: FOG, Food waste
City of Riverside RWQCP	Yes
Eastern Municipal Water District	Yes
Encina Wastewater Authority	Yes
Goleta Sanitary District	Yes, will evaluate with Lystek pilot project
Inland Empire Utilities Agency	Yes, We are exploring the possibility of incorporating clean food waste into one of our POTWs
LA Sanitation & Environment	Yes, a centralized food waste processing facility is in the works and expected to send processed waste to Hyperion as early as 2022 for co-digestion. Future Feedstock: FOG, Food waste.
Orange County Sanitation District	Yes, in the design phase to construct an organic food waste receiving station for co-digestion. Future Feedstock: Food waste
Sanitation Districts of Los Angeles County	Yes, increasing food waste recycling at JWPCP

8.6. Agencies Co-Digesting, Tons, Feedstock Contractor, Agency Tipping Fee

Six agencies have integrated co-digestion into their wastewater operations. The feed stock used by these agencies included Anaerobically Digestible Material (ADM), food waste, FOG, brewery waste, or a combination of these feed stocks. The incoming amounts of the various feed stock varied greatly from 44 wet tons to 10,500 wet tons. This wide range of incoming feed stock is most likely due to digester capacity and feed stock availability. Food waste tended to be the smallest feed stock in comparison to FOG and ADM. The tipping costs vary from as little as $0.04 to $17.00 per ton.

Table 15 - Agencies Co-Digesting: Volume and Tipping Fee

Agency, Contractor Feedstock for Organics Diversion	Total Wet Tons	Tipping Fee ($/tons)
City of Riverside RWQCP		
Contractor: SMC		
Feedstock: ADM	1,515	
Contractor: Burrtec		
Feedstock: Food waste	44	
City of Santa Barbara		
Contractor: Marborg Industries		
Feedstock: FOG	3,645	$12.00
City of Thousand Oaks - Hill Canyon Treatment Plant		
Contractor: 1		
Feedstock: Food waste from processing facilities	100	$0.04
Contractor: 5		
Feedstock: FOG	260	$0.07
Encina Wastewater Authority		
Contractor: Liquid Environmental Solutions		
Feedstock: FOG	10,500	$10.80
Contractor: Stone Brewery		
Feedstock: Brewery waste	9,793	$3.60
Sanitation Districts of Los Angeles County		
Contractors: Waste Management; Insinkerator; Burrtec; Puente Hills MRF		
Feedstock: Food waste	110	$17.00
Victor Valley Wastewater Reclamation Authority		
Contractors: SMC, Co-West		
Feedstock: Food waste	3,412	$0.04
Contractor: Alpha Omega		
Feedstock: FOG	350	$0.04

9. Social Media

As social media is becoming a primary form of communication, these platforms are now being utilized by wastewater agencies to provide information to the public regarding their operations and programs such as biosolids (see Table 16 - Agencies Using Social Media). Agencies are primarily using Facebook, Twitter, and YouTube (see Figure 9 - Number of Agencies Using Social Media for Biosolids Outreach). A number of agencies do not use social media to promote their biosolids programs but instead use social media for agency programs as a whole. Six agencies were found to use more traditional forms of communication to provide the public on information their biosolids programs for example newspapers or paper media, newsletters, and presenting at community outreach events. Many of the agencies that have started using social media platforms for outreach continue using the more traditional methods of communication as well.

9.1. Number of Agencies Utilize Social Media and What Type

Table 16 - Agencies Using Social Media

	Community outreach events	Facebook	Newsletter	Newspaper/ Paper Media	Twitter	Website	YouTube
City of San Diego		yes			yes	yes	yes
City of Santa Barbara						yes	
City of Thousand Oaks						yes	
Encina Wastewater Authority	yes	yes				yes	
Goleta Sanitary District	yes					yes	
Inland Empire Utilities Agency		yes		yes	yes	yes	
Las Virgenes Municipal Water District		yes		yes		yes	
Ojai Valley Sanitary District			yes			yes	
Orange County Sanitation District		yes			yes	yes	yes
Sanitation Districts of Los Angeles County		yes					
South Orange County Wastewater Authority						yes	
Victor Valley Wastewater Reclamation Authority		yes		yes		yes	

Table 16 - Agencies Using Social Media (continued)

No	Community outreach events	Facebook	Newsletter	Newspaper/ Paper Media	Twitter	Website	YouTube
Carpinteria Sanitary District		yes				yes	
City of Corona, Department of Water and Power							
City of Riverside RWQCP							
City of Santa Maria							
Crestline Sanitation District						yes	
Eastern Municipal Water District						yes	
Elsinore Valley Municipal Water District							
Olivenhain Municipal Water District		yes			yes	yes	yes
San Diego County Sanitation District							
San Elijo Joint Powers Authority						yes	
Santa Margarita Water District		yes			yes	yes	yes
Grand Total	2	10	1	3	5	17	4

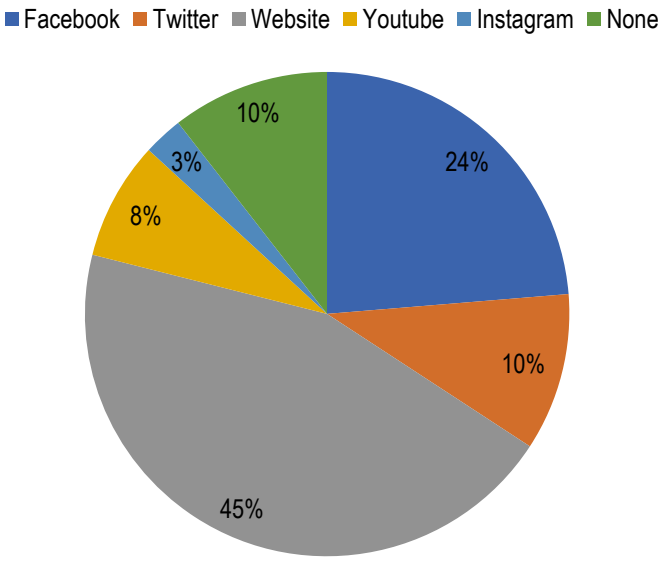


Figure 9 - Number of Agencies Using Social Media for Biosolids Outreach

Page intentionally left blank

Appendix A: Agency Information and Budget

		Wet Tons & Quality			Dedicated Staff		Agency Budget	
Name of Agency	**Name of respondent, position title**	**Year Produced**	**Wet Tons Produced**	**Biosolids quality:**	**Dedicated biosolids staff? If yes how many?**	**Name, title, email and phone number for your agency's designated biosolids contact**	**2017**	**2018**
Carpinteria Sanitary District	Mark Rogers, Treatment Supervisor markr@carpsan.com	2016	1538.3	Sub Class B	No	Mark Rogers 1-805-684-7214 x18	$100,000.00	$100,000.00
		2017	1461	Sub Class B				
		2018	1500	Sub Class B				
City of Corona, Department of Water and Power	Melissa Estrada-Maravilla, Melissa.estrada-maravilla@coronaca.gov	2016	3685.82	Class B	No	Melissa Estrada-Maravilla, melissa.estrada-maravilla@coronaca.gov, 951-736-2479	Biosolids budget is not separate than rest of water reclamation budget	Biosolids budget is not separate than rest of water reclamation budget
			39163.5	Class A - EQ				
		2017	3576.59	Class B				
			15971.4	Class A - EQ				
		2018	2173.913043	Class A - EQ, Class B				
City of Riverside RWQCP	Bobby Gustafson Wastewater Resource Analyst bgustafson@ riversideca.gov	2016	30466.2	Class B	No	Glibert Perez, WW Operations Manager, giperez@riversideca.gov, 951-288-4516	$2,168,987.00	$2,241,000.00
			14776.6	Sub Class B				
		2017	38847.3	Class B				
			7327.3	Sub Class B				
		2018	49073.26	Class B, Sub Class B				
City of San Bernardino Municipal Water Department	Marissa Flores-Acosta Environmental Supervisor marissa.flores@sbmwd.org	2016	23650	Class B	No	Joseph Hanford, WR Operations Superintendent, joseph.hanford@sbmwd.org , 909-453-6223	$1,924,500.00	$2,042,450.00
		2017	23114.5	Class B				
		2018	23000	Class B				
City of San Diego	Richard Pitchford, Plant Superintendent Rpitchford@sandiego.gov	2016	132974	Class B	Yes, 40	Richard Pitchford, Superintendent, Rpitchford@sandiego.gov 858-614-5509	$6,200,000.00	$6,400,000.00
		2017	128012	Class B				
		2018	129546	Class B				
City of Santa Barbara	Thomas Welche, WWTP Chief Operator twelche@santabarbaraca.gov	2016	9095.5	Class B	No	Thomas Welche, WWTP Chief Operator, TWelche@SantaBarbaraCA.gov, 805-568-1002		
		2017	9768.3	Class B				
		2018	9514.8	Class B				

Appendix A: Agency Information and Budget

		Wet Tons & Quality			Dedicated Staff		Agency Budget	
Name of Agency	**Name of respondent, position title**	**Year Produced**	**Wet Tons Produced**	**Biosolids quality:**	**Dedicated biosolids staff? If yes how many?**	**Name, title, email and phone number for your agency's designated biosolids contact**	**2017**	**2018**
City of Santa Maria	Shannon Sweeney, Water Resources Managerssweeney@cityofsantamaria.org	2016	3443	Class B	No	Shannon Sweeney, ssweeney@cityfsantamaria.org, 805-925-0951, x7416	$682,487.00	$685,288.00
		2017	2136	Class B				
		2018	2800	Class B				
City of Thousand Oaks - Hill Canyon Treatment Plant	Santos Marquez, Laboratory Supervisor smarquez@toaks.org	2016	9257.6	Class B	No	N/A	$785,000.00	$823,469.00
		2017	13051.4	Class B				
		2018	13000	Class B				
Crestline Sanitation District	Ron Scriven, Operations Manager rscriven@crestlinesanitation.com	2016	648	Class B	No	Lewis Curty, Owner, 909-798-1278	$76,032.39	$83,635.63
		2017	687	Class B				
		2018	700	Class B				
Eastern Municipal Water District	Jim Schain, Sr. Environmental Analyst schainj@emwd.org	2016	49131.37	Class B	No, Biosolids management is a collaborative effort	Jim Schain, Sr. Environmental Analyst, schainj@emwd.org, 951-928-3777 ext. 6202	N/A	N/A
		2017	45948.13	Class B				
		2018	46000	Class B				
Elsinore Valley Municipal Water District	Sudhir Mohleji smohleji@evmwd.net	2016	15077	Sub Class B	No	NA	$900,000.00	$900,000.00
		2017	16713	Sub Class B				
		2018	15693	Sub Class B				
Encina Wastewater Authority	Joe Cipollini, Resource Recovery Managerjcipollini@encinajpa.com	2016	6638	Class A - EQ	Yes, 11	Joe Cipollini, Resource Recovery Manager, 760-268-8831	$1,454,182.00	$1,626,185.00
		2016	903	Class B				
		2017	6212	Class A - EQ				
		2017	2950	Class B				
		2018	8697.7	Class A - EQ, Class B				
Goleta Sanitary District	Lena Cox, Laboratory Manager lcox@goletasanitary.org	2016	7894	Class B	No	Steve Wagner, General Manager, swagner@goletasanitary.org 805-967-4519	$358,875.00	$420,000.00
		2017	7464	Class B				
		2018	7500	Class B				

Appendix A: Agency Information and Budget

		Wet Tons & Quality			Dedicated Staff		Agency Budget	
Name of Agency	**Name of respondent, position title**	**Year Produced**	**Wet Tons Produced**	**Biosolids quality:**	**Dedicated biosolids staff? If yes how many?**	**Name, title, email and phone number for your agency's designated biosolids contact**	**2017**	**2018**
Inland Empire Utilities Agency	Jeff Ziegenbein, Manager of Regional Compost Authority jziegenb@ieua.org	2016	60453	Class B	Yes, 11	Jeff Ziegenbein, Manager of Regional Compost Authority jziegenb@ieua.org, 909-993-1981	$4,163,812.00	$3,971,842.00
		2017	66314	Class B				
		2018	65500	Class B				
LA Sanitation & Environment	Stephen Ortega stephen.ortega@lacity.org	2016	276086	Class A - EQ	Yes, 4	Emmanuel Alloh, Env. Engineer, emmanuel.alloh@lacity.org, 310-648-5211	$14,300,000.00	$14,700,000.00
		2017	272165	Class A - EQ				
		2018	267100	Class A - EQ				
Las Virgenes Municipal Water District	Veronica Hurtado, Management Analyst llvhurtado@lvmwd.com	2016	5326	Class A	Yes, 7	Brett Dingman, Water Reclamation Manager, bdingman@lvmwd.com, 818-251-2330	$5,229,907.00	$5,315,862.00
		2017	3830	Class A				
		2018	2600	Class A				
Ojai Valley Sanitary District	Jeff Palmer jeff.palmer@ojaisan.org	2016	5343	Class B	Yes, 4	Bradshaw Pruitt, Plant Supervisor, bradshaw.pruitt@ojaisan.org 805-646-5548	$76,000.00	$79,000.00
		2017	5325	Class B				
		2018	5335	Class B				
Oliivenhain Municipal Water District	Water Reclamation Facilities Supervisor jonkka@olivenhain.com	2016	1244.87	Class B	No	Gabe Hernandez	No separate budget for Biosolids	No separate budget for Biosolids
		2017	1488.1	Class B				
		2018	1322.13	Class B				
Orange County Sanitation District	Senior Regulatory Specialist tmeregillano@ocsd.com	2016	293891	Class B	Yes, 2	Deirdre Bingman, Principal Env. Specialist, dbingman@ocsd.com, 714-593-7459	$17,000,000.00	$16,000,000.00
		2017	287697	Class B				
		2018	282000	Class B				
San Diego County Sanitation District	Kyehee Kim, DPW Unit Manager kyehee.kim@sdcounty.ca.gov	2016	153	Class B	No	Jim Dohrer, Facilities Supervisor, 858-204-1648	$30,000.00	$30,000.00
		2017	77	Class B				
		2018	115	Class B				

Appendix A: Agency Information and Budget

		Wet Tons & Quality			Dedicated Staff		Agency Budget	
Name of Agency	**Name of respondent, position title**	**Year Produced**	**Wet Tons Produced**	**Biosolids quality:**	**Dedicated biosolids staff? If yes how many?**	**Name, title, email and phone number for your agency's designated biosolids contact**	**2017**	**2018**
San Elijo Joint Powers Authority	Christopher Trees, Director of Operations treesc@sejpa.org	2016	3424	Class B	No	Christopher Trees, Director of Operations, treesc@sejpa.org, 760-753-6203	$175,000.00	$175,000.00
		2017	3548	Class B				
		2018	3600	Class B				
Sanitation Districts of Los Angeles County	Tom C. Fang, senior engineer tfang@lacsd.org	2016	496234	Class B	Yes, 4	Matt Bao, supervising engineer, mbao@lacsd.org, 562-908-4288x2824	$23,904,767.00	$25,189,806.00
		2017	479996	Class B				
		2018	490000	Class B				
Santa Margarita Water District	Ron Johnson, Chief Plant Operatorronj@smwd.com	2016	10300	Class B	No	Ron Johnson, CPO, 949-459-6678	$610,000.00	$790,000.00
		2017	10400	Class B				
		2018	11000	Class B				
South Orange County Wastewater Authority	James Leslie Burror Director of Operations jburror@cox.net	2016	22500	Sub Class B	No	Jim Burror, Director of Operations, jburror@socwa.com 949-234-5402	$1,541,000.00	$1,639,000.00
		2017	22500	Sub Class B				
		2018	22500	Sub Class B				
Victor Valley Wastewater Reclamation Authority	Operations and Maintenance Manager edavis@vvwra.com	2016	5547	Class A, Other	Yes, 4	Miguel Mendoza, Senior Operator (mmendoza@vvwra.com) Eric Schweizer, Senior Operator (eschweizer@vvwra.com) Travis Prine, Operator (tprine@vvwra.com) Charles Trammel, Utility Worker 1 (ctrammel@vvwra.com)	$119,000.00	$118,000.00
		2017	5669	Class A				
		2018	5225	Class A				

Appendix B: Facility with Dewatering Information per Agency

Facility and Dewatering Information						
Name of Agency	**Facility name #1**	**Solids digestion technology**	**Biosolids quality:**	**% solids**	**Dewatering Process**	**Dewatering equipment manufacturer(s)**
Carpinteria Sanitary District	Carpinteria Sanitary District Wastewater Treatment Plant	Other	Other	17%	Filter Press	Envirex
City of Corona, Department of Water and Power	Water Reclamation Facility No. 1	Mesophilic anaerobic digestion (acid/gas phased)	Class A - EQ	92%	Direct Dryer	Andritz Belt Press
City of Riverside RWQCP	City of Riverside Regional Water Quality Control Plant	Mesophilic anaerobic digestion (staged)	Class B	16%	Centrifuge	Centrisys
City of San Bernardino Municipal Water Department	City of San Bernardino Water Reclamation Facility	Mesophilic anaerobic digestion (staged)	Class B	22%	Centrifuge	Centrisys Centrifuge Systems
City of San Diego	Metro Biosolids Center	Thermophilic anaerobic digestion	Class B	28%	Centrifuge	Alfa Laval
City of Santa Barbara	El Estero WWTP	Mesophilic anaerobic digestion (staged)	Class B	18.8%	Filter Press	Ashbrook Winklepress
City of Santa Maria	City of Santa Maria wastewater treatment plant	Thermophilic anaerobic digestion	Class B	6%	Drying Bed	N/A
City of Thousand Oaks - Hill Canyon Treatment Plant	Hill Canyon Treatment Plant	Mesophilic anaerobic digestion (staged)	Class B	17.50%	Other	FKC
Crestline Sanitation District	Huston Creek WWTP	Other	Class B	30.00%	Filter Press	Winkle Press
Eastern Municipal Water District	San Jacinto Valley	Mesophilic anaerobic digestion (staged)	Class B	24.99%	Centrifuge	Centrisys
	Perris Valley RWRF	Mesophilic anaerobic digestion (staged)	Class B	20.02%	Filter Press	Ashbrook
	Temecula Valley RWRF	Mesophilic anaerobic digestion (staged)	Class B	20.95%	Centrifuge	Centrisys
	Moreno Valley RWRF	Mesophilic anaerobic digestion (acid/gas phased)	Class B	21.38%	Centrifuge	Centrisys
Elsinore Valley Municipal Water District	Regional Water Reclamation Facility	Other	Other	18.00%	Filter Press	Ashbrook

Appendix B: Facility with Dewatering Information per Agency

Facility and Dewatering Information						
Name of Agency	**Facility name #1**	**Solids digestion technology**	**Biosolids quality:**	**% solids**	**Dewatering Process**	**Dewatering equipment manufacturer(s)**
Encina Wastewater Authority	Encina Water Pollution Control Facility	Mesophilic anaerobic digestion (acid/gas phased)	Class A - EQ	90.00%	Indirect Dryer	Andritz
	Encina Water Pollution Control Facility	Mesophilic anaerobic digestion (acid/gas phased)	Class B	21.00%	Centrifuge	Alfa laval
Goleta Sanitary District	Goleta Sanitary District	Mesophilic anaerobic digestion (staged)	Class B	17.30%	Filter Press	Huber
Inland Empire Utilities Agency	RP-1	Thermophilic anaerobic digestion	Class B	24.00%	Centrifuge	Alfa Laval
	RP-2	Other	Class B	15.00%	Filter Press	Ashbrook
LA Sanitation & Environment	Hyperion Water Reclamation Plant	Thermophilic anaerobic digestion	Class A - EQ	26.00%	Centrifuge	Alpha Laval
	Terminal Island Water Reclamation Plant	Thermophilic anaerobic digestion	Class A - EQ			
Las Virgenes Municipal Water District	Tapia Water Reclamation Facility	Mesophilic anaerobic digestion (staged)	Class A	24.00%	Centrifuge	Alfa LaVal
Ojai Valley Sanitary District	Ojai Valley Sanitary District Wastewater Treatment Plant	Other	Class A	15.00%	Filter Press	Ashbrook
Olivenhain Municipal Water District	4S Water Reclamation Facility	Other	Class B	17.00%	Filter Press	Ashbrook
Orange County Sanitation District	Plant No. 1 Fountain Valley	Mesophilic anaerobic digestion (staged)	Class B	18.00%	Filter Press	Ashbrook-Simon-Hartley Winkle Presses
	Plant No. 2 Huntington Beach	Mesophilic anaerobic digestion (staged)	Class B	20.00%	Filter Press	Ashbrook-Simon-Hartley Winkle Presses
San Diego County Sanitation District	Julian Water Pollution Control Facility	Other	Class B	65.00%	Drying Bed	N/A
San Elijo Joint Powers Authority	San Elijo Water Reclamation Facility	Mesophilic anaerobic digestion (staged)	Class B	20.00%	Filter Press	Ashbrook

Appendix B: Facility with Dewatering Information per Agency

Facility and Dewatering Information						
Name of Agency	**Facility name #1**	**Solids digestion technology**	**Biosolids quality:**	**% solids**	**Dewatering Process**	**Dewatering equipment manufacturer(s)**
Sanitation Districts of Los Angeles County	Joint Water Pollution Control Plant (JWPCP)	Mesophilic anaerobic digestion (staged)	Class B	29.00%	Centrifuge	Alfa-Laval; Andritz
	Valencia Water Reclamation Plant (VWRP)	Mesophilic anaerobic digestion (staged)	Class B	20.00%	Filter Press	Rittershaus & Blecher
	Palmdale Water Reclamation Plant (PWRP)	Mesophilic anaerobic digestion (staged)	Class B	20.00%	Centrifuge	Humboldt
	Lancaster Water Reclamation Plant (LWRP)	Mesophilic anaerobic digestion (staged)	Class B	19.50%	Centrifuge	Humboldt
Santa Margarita Water District	Chiquita Water Reclamation Plant	Mesophilic anaerobic digestion (acid/gas phased)	Class B	18.00%	Other	Huber
	SMWD/MNWD Plant 3A	Mesophilic anaerobic digestion (acid/gas phased)	Class B	22.00%	Centrifuge	Andritz
South Orange County Wastewater Authority	JB Latham	Other	Other	25.00%	Centrifuge	Andritz
Victor Valley Wastewater Reclamation Authority	Victor Valley Wastewater Reclamation Authority	Mesophilic anaerobic digestion (staged)	Class A	95.00%	Drying Bed	N/A

Appendix C: Management Options and Costs per Agency

Management Options and Costs per Agency								
Name of Agency	**Year Sent**	**Reuse Option**	**Wet Tons**	**Contractors per end use option:**	**Location/Destination (county and state)**	**Miles traveled one-way**	**Tipping fee ($/ton)**	**Transportation cost ($/ton)**
Carpinteria Sanitary District	2017	Composting	1,461.00	Engel and Gray	Santa Maria, CA	65	63.35	0.00
City of Corona, Department of Water and Power	2017	Land Application	1,929.90	Denali ; Solid Green; NutrientsPLUS	AZ; Orange County, CA; Maricopa County, AZ	244 ; 30 (facility) ; 350 (facility)	48.99 0 0	0 0 0
		Composting	3,051.42	Nursery Products	San Bernardino County, CA	72	49.8	0.00
City of Riverside RWQCP	2016	Land Application	17,049.84	Denali Water Solutions, LLC	Yuma, AZ	284	41.4	0.00
		Composting	24,646.78	Denali Water Solutions, LLC	Nursery Products, Hinkley CA	87	39.95	0.00
	2017	Land Application	29,720.77	Denali Water Solutions, LLC	Yuma, AZ	219 -284	41.4	0.00
		Composting	18,121.96	Denali Water Solutions, LLC	Nursery Products, Hinkley, CA	87	39.95	0.00
City of San Bernardino Municipal Water Department	2016	Composting	23,650.00	Nursery Products	Helendale, CA (San Bernardino County)	87.9	n/a	42.00
	2017	Composting	23,114.50	Nursery Products	Helendale, CA (San Bernardino County)	87.9	n/a	42.00
City of San Diego	2016	Land Application	6,493.00	San Diego Landfill System	Yuma AZ	250	47.79	0.00
	2016	Direct Burial	5,608.00	San Diego Landfill system	San Diego, CA	30	37.49	0.00

Appendix C: Management Options and Costs per Agency

Management Options and Costs per Agency								
Name of Agency	**Year Sent**	**Reuse Option**	**Wet Tons**	**Contractors per end use option:**	**Location/Destination (county and state)**	**Miles traveled one-way**	**Tipping fee ($/ton)**	**Transportation cost ($/ton)**
City of San Diego (Continued)	2016	Landfill – Alt Daily Cover	120,873.00	San Diego Landfill System	San Diego, CA	30	46.7	0.00
	2017	Land Application	7,675.00	San Diego Landfill System	Yuma, AZ	200	47.79	0.00
	2017	Direct Burial	12,155.00	San Diego Landfill System	San Diego, CA	30	39.36	0.00
	2017	Landfill - Alt Daily Cover	108,181.00	San Diego Landfill System	San Diego, CA	30	47.79	0.00
City of Santa Barbara	2016	Composting	9,095.50	Engel & Gray; Liberty Farms	Santa Barbara, CA; Kern, CA	70; 150	46.63; 52	0, 0
City of Santa Maria	2016	Composting	2,424.00	Engel & Gray	Santa Barbara, CA	0	29.41	0.00
	2016	Soil Blending Landfill	1,093.00	City of Santa Maria	Santa Barbara, CA	8	0	8.63
	2017	Composting	1,646.00	Engel & Gray	Santa Barbara, CA	0	29.41	0.00
	2017	Soil Blending Landfill	581.00	City of Santa Maria	Santa Barbara, CA	8	0	8.63
City of Thousand Oaks - Hill Canyon Treatment Plant	2016	Mine Reclamation	9,257.60	Gabriel I. Cruz Transport	Bakersfield, CA	116	48	0.00
Crestline Sanitation District	2016	Composting	648.00	Loads hauled by staff;	One Stop San Bernardino California	45	55	$17.50
Eastern Municipal Water District	2017	Land Application	45,948.13	Tule Ranch/AG Tech	Yuma, AZ	250	N/A	$45/Ton (plus fuel surcharge)

Appendix C: Management Options and Costs per Agency

Management Options and Costs per Agency								
Name of Agency	**Year Sent**	**Reuse Option**	**Wet Tons**	**Contractors per end use option:**	**Location/Destination (county and state)**	**Miles traveled one-way**	**Tipping fee ($/ton)**	**Transportation cost ($/ton)**
Elsinore Valley Municipal Water District	2016	Composting	15,076.00	Synagro; Synagro	Kern County, CA; Kern County, CA	200; 200	$80.62 (2016): $48.60 (2017)	
Encina Wastewater Authority	2016	Land Application	6,042.50	Denali Water Solution; Agtech LLC	Yuma, AZ	220	52; 8.5	0; 39
	2016	Fertilizer	1,498.40	Agtech LLC; Denali Water Solution; CPS inc; Growmore; Nutrient Plus	CA: San Diego, Los Angeles, Ventura, Orange, San Joaquin, AZ: Maricopa	53; 305; 75; 130; 27; 400	$10; 0; 0; 0; 0; 0	0.00
	2017	Land Application	8,430.50	Agtech LLC	Yuma, AZ	220	8.5	39.00
	2017	Fertilizer	734.50	Agtech, LLC; CPS Incf; Growmore; Nutrient Plus	CA: San Diego, Orange, Fresno, Los Angeles, Ventura, AZ: Maricopa, Pima,	53; 305; 431; 57; 308; 75; 130	10; 0; 0; 0; 0; 0; 0	
Goleta Sanitary District	2016	Composting	7,894.00	Liberty Composting	Kern, CA	179	30	25.00
Inland Empire Utilities Agency	2016	Composting	60,453.00	Inland Empire Regional Composting Authority	Rancho Cucamonga, CA	13	55	6.00
LA Sanitation & Environment	2016	Land Application	162,537.00	Responsible Biosolids Mgmt; Denali Water Solutions	Kern, CA; Yuma, AZ; Merced, CA	118; 300; 298	43.02; 52.89; 52.89	0; 0; 0
	2016	Composting	68,315.00	Denali Water Solutions; Nursery Products	Kern, CA & San Bernardino, CA; San Bernardino, CA; San Bernardino, CA	118 & 148; 148; 148	60.11 & 74.61; 30.24; 30.24	0; 26.45; 42.13

Appendix C: Management Options and Costs per Agency

Management Options and Costs per Agency								
Name of Agency	**Year Sent**	**Reuse Option**	**Wet Tons**	**Contractors per end use option:**	**Location/Destination (county and state)**	**Miles traveled one-way**	**Tipping fee ($/ton)**	**Transportation cost ($/ton)**
LA Sanitation & Environment (Continued)	2016	Deep Well Injection	45,234.00	Denali Water Solutions; GeoEnvironmental Technologies	Los Angeles, CA; Los Angeles, CA	23; 0	0; 76.00	7.53; 0
	2017	Land Application	193,147.00	Responsible Biosolids Mgmt.; Denali Water Solutions	Kern, CA; Yuma, AZ	118; 300	40.80; 53.75	0; 0
	2017	Composting	25,431.00	Denali Water Solutions	Kern, CA; San Bernardino, CA	118; 148	61.80; 61.80	0; 0
	2017	Deep Well Injection	53,587.00	Denali Water Solutions; GeoEnvironmental Technologies	Los Angeles, CA; Los Angeles, CA	23; 0	0; 76.00	7.74; 0
Las Virgenes Municipal Water District	2016	Composting	5,326.00	Not Applicable	Calabasas, CA (Free compost giveaway to customers of LVMWD)	Not Applicable	Not Applicable (Commercial loading is $8/yd, compost is free)	Not Applicable
	2017	Composting	3,830.00	Not Applicable				
Ojai Valley Sanitary District	2016	Composting	1,854.00	Liberty Compost, Inc.	Kern County, CA	169	49.94	0.00
	2017	Composting	1,856.00	Liberty Compost, Inc.	Kern County, CA	169	49.94	0.00
	2016	Composting	3,489.00	On-Site Composting	Ventura County, CA	0	0	0.00
	2017	Composting	3,469.00	On-Site composting	Ventura County, CA	0	0	0.00
Olivenhain Municipal Water District	2016	Land Application	1,244.87	Atlas	Yuma, AZ	200	12	45.00
Orange County Sanitation District	2016	Land Application	140,828.00	Tule Ranch	Yuma, AZ	278	54.5	0.00
	2016	Composting	145,072.00	Synagro, Inland Empire Regional Composting Authority, Liberty Compost	Synagro (Kern, CA; La Paz, AZ; San Bernardino, CA); IERCA (San Bernardino); Liberty Compost (Kern, CA)	Synagro(176, 359, 130); IERCA (49); Liberty Compost (199)	Synagro ($76.40, $58.80, $48.90); IERCA ($72.95); Liberty Compost ($54.79)	0.00
	2016	Direct Burial	7,991.00	Orange County Waste and Recycling	Orange County, CA	35	50.95	0.00

Appendix C: Management Options and Costs per Agency

Management Options and Costs per Agency								
Name of Agency	**Year Sent**	**Reuse Option**	**Wet Tons**	**Contractors per end use option:**	**Location/Destination (county and state)**	**Miles traveled one-way**	**Tipping fee ($/ton)**	**Transportation cost ($/ton)**
Orange County Sanitation District (Continued)	2017	Composting	155,408.00	Synagro, IERCA, Liberty Compost	Synagro (San Bernardino, CA); IERCA (San Bernardino, CA); Liberty Compost (Kern, CA)	Synagro (130); IERCA (49); Liberty Compost (199)	Synagro ($48.90); IERCA ($72.95); Liberty Compost ($54.79)	0.00
	2017	Land Application	132,289.00	Tule Ranch	Yuma, AZ	278	54.5	0.00
San Diego County Sanitation District	2016	Landfill – Alt Daily Cover	10.00	County of San Diego	San Diego, CA	34	61	N/A
	2017	Landfill – Alt Daily Cover	5.00	County of San Diego	San Diego, CA	34	61	N/A
San Elijo Joint Powers Authority	2016	Land Application	3,424.00	Ag Tech, LLC	Yuma, AZ	200	47.5	0.00
Sanitation Districts of Los Angeles County	2016	Composting	401,365.00	Liberty Composting;	Kern, CA;	172 (JWCP) 118 (Valencia)	49.26 (JWCP), 43.61 (Valencia)	0
				Synagro-SKIC;	Kern, CA;	144 (JWCP)	71.15 (JWCP)	0
				Nursery Products (NP);	San Bernardino, CA;	144(JWCP), 71(Lancaster), 88 (Palmdale)	46.76 (JWCP), 42.40 (Lancaster), 42.80 (Palmdale)	0
				IERCF;	San Bernardino, CA	61(JWCP)	54.50 (JWCP)	12.83
				Tulare Lake Compost (TLC)	Kings, CA	190(JWCP)	n/a (JWCP)	34.2
		Land Application	46,676.00	Denali Water Solutions	Yuma, AZ	310	44.18	0.00
		Soil Blending Landfill	48,193.00	Holloway Environmental	Kern, CA	168	44.99	0.00
	2017	Composting	385,553.00	Liberty Composting;	Kern, CA;	172 (JWCP), 118 (Valencia)	51.60 (JWCP), 46.07 (Valencia)	0.00
				Synagro-SKIC;	Kern, CA;	144 (JWCP)	56.59 (JWCP)	0.00

Appendix C: Management Options and Costs per Agency

Management Options and Costs per Agency								
Name of Agency	**Year Sent**	**Reuse Option**	**Wet Tons**	**Contractors per end use option:**	**Location/Destination (county and state)**	**Miles traveled one-way**	**Tipping fee ($/ton)**	**Transportation cost ($/ton)**
Sanitation Districts of Los Angeles County (Continued)				Synagro-Nursery Products (NP);	San Bernardino, CA;	144(JWCP), 71(Lancaster), 88 (Palmdale)	48.21 (JWCP), 45.33 (Lancaster), 44.38 (Palmdale)	0.00
				IERCF;	San Bernardino, CA	61(JWCP)	56.00 (JWCP)	12.31
				Tulare Lake Compost (TLC)	Kings, CA	190(JWCP)	n/a (JWCP)	35.26
		Land Application	51,687.00	Denali Water Solutions	Yuma, AZ	310	49.82	0.00
		Soil Blending Landfill	42,756.00	Holloway Environmental	Kern, CA	168	46.27	0.00
Santa Margarita Water District (continues on next page)	2016	Landfill – Alt Daily Cover	4,400.00	OCWR; Denali Trucking	San Juan Capistrano, CA; San Juan Capistrano, CA	10; 20	37.90 37.90	13.75
		Composting	6,000.00	GIC Trucking/South Kern Industrial; Terra Trucking/Nursery Products	South Kern Industrial Taft, CA; Nursery Products Helendale, CA	175 150	78.83 61.00	0 0
Santa Margarita Water District (continued from previous page	2017	Landfill – Alt Daily Cover	2,800.00	OCWR; Denali Trucking	San Juan Capistrano, CA; San Juan Capistrano, CA	10; 20	37.90 37.90	0 13.75
		Composting	7,700.00	Terra Trucking; GIC Transport	Helendale, CA; Vicksburg, AZ; Taft, CA	150; 273 175	61.00 61.00 70.00	0 0 0
South Orange County Wastewater Authority	2017	Composting	18,600.00	Synagro	San Bernardino, CA	150	56	0.00
Victor Valley Wastewater Reclamation Authority	2016	Land Application	2,938.00	American Organics	N/A	N/A	N/A	N/A

Appendix D: Agency Challenges and Priorities

Rate each challenge based on the priority to your agency									Planning		
Name of Agency	Rising Costs	Public Perception/ Relations	Finding Low Cost Local Biosolids Management Options	Securing Long-Term Biosolids Management Options	Space for Drying Operations	Regulatory Restrictions & New Regulations	Wet Weather Impeding Drying Operations	Other	Bio-solids master plan?	What does your agency plan to do with their biosolids in 2018 and 2019	What does your agency plan to do with solids digestion and biosolids in 5 years?
Carpinteria Sanitary District	3	4	5	4	1	3	1		Yes	Continue as is	Continue as is
City of Corona, Department of Water and Power	5	4	5	4	n/a	5	4		No	Our agency plans to continue to do the same as 2017. Dry pellets will be sold/hauled away to be used for land-application or to be blended with other material to be used as fertilizer	Our agency plans to continue to do the same as 2017. Dry pellets will be sold/hauled away to be used for land-application or to be blended with other material to be used as fertilizer
City of Riverside RWQCP	5	2	5	5	4	4	1		Yes	Same as 2017	Potential Class A options
City of San Bernardino Municipal Water Department	5	2	3	4	n/a	4	n/a		No	Continue mesophilic anaerobic digestions and utilization of contractor for hauling and composting	Continue current practice
City of San Diego	3	4	3	3	1	5	1		Yes	Continue with current disposal options	look at new technologies and continue with current methods

Appendix D: Agency Challenges and Priorities

Rate each challenge based on the priority to your agency									Planning		
Name of Agency	Rising Costs	Public Perception/ Relations	Finding Low Cost Local Biosolids Management Options	Securing Long-Term Biosolids Management Options	Space for Drying Operations	Regulatory Restrictions & New Regulations	Wet Weather Impeding Drying Operations	Other	Bio-solids master plan?	What does your agency plan to do with their biosolids in 2018 and 2019	What does your agency plan to do with solids digestion and biosolids in 5 years?
City of Santa Barbara	3	2	4	4	n/a	n/a	n/a		No	Maintain our current biosolids management strategy.	Maintain our current biosolids management strategy.
City of Santa Maria	2	1	2	4	2	5	3		No	same as in previous years	same as in previous years
City of Thousand Oaks - Hill Canyon Treatment Plant	2	4	5	5	2	5	5		No	Continue with current operations while exploring other options and investigating new technologies	Whatever is most fiscally responsible under regulatory framework at that time.
Crestline Sanitation District	3	3	4	5	1	3	1		No	Same	Same
Eastern Municipal Water District	5	5	5	5	n/a	5	n/a		Yes	Same as previous years	Same as previous years
Elsinore Valley Municipal Water District	4	4	5	5	n/a	3	1		Yes	Haul offsite for composting	Haul offsite for composting
Encina Wastewater Authority	3	3	3	4	3	3	1		Yes	Land Application and Fertilizer Use	Same
Goleta Sanitary District	5	5	5	5	5	5	2		No	Same as past along with a Lystek pilot project on site. Evaluating long term management strategy	Currently being evaluated and a master plan is being developed.

Appendix D: Agency Challenges and Priorities

Rate each challenge based on the priority to your agency									Planning		
Name of Agency	Rising Costs	Public Perception/ Relations	Finding Low Cost Local Biosolids Management Options	Securing Long-Term Biosolids Management Options	Space for Drying Operations	Regulatory Restrictions & New Regulations	Wet Weather Impeding Drying Operations	Other	Bio-solids master plan?	What does your agency plan to do with their biosolids in 2018 and 2019	What does your agency plan to do with solids digestion and biosolids in 5 years?
Inland Empire Utilities Agency	2	2	2	n/a	2	3	2	Securing sustainable markets for end product: Compost	Yes	Send to our composting facility	Upgrade to 100% centrifuge and continue to send all to our composting facility
LA Sanitation & Environment	4	4	4	4	1	4	1		No	LA Sanitation will continue with land application, composting and deep well injection.	Co-digestion is expected to be running at Hyperion by 2022. The current end use options will likely remain unchanged.
Las Virgenes Municipal Water District	5	3	3	3	n/a	5	n/a		Yes	Continue compost operations	Continue compost operations
Ojai Valley Sanitary District	n/a	n/a	n/a	n/a	n/a	n/a	4		No	Compost On-Site April Thru October and have Biosolids hauled to Liberty Compost Inc. during the winter months.	No solids digestion. Biosolids same as above question
Olivenhain Municipal Water District	3	3	4	3	1	4	1		No	Continue to send Biosolids to Yuma	Unknown at this point, would like to investigate moving to Class A

Appendix D: Agency Challenges and Priorities

Rate each challenge based on the priority to your agency									Planning		
Name of Agency	Rising Costs	Public Perception/ Relations	Finding Low Cost Local Biosolids Management Options	Securing Long-Term Biosolids Management Options	Space for Drying Operations	Regulatory Restrictions & New Regulations	Wet Weather Impeding Drying Operations	Other	Bio-solids master plan?	What does your agency plan to do with their biosolids in 2018 and 2019	What does your agency plan to do with solids digestion and biosolids in 5 years?
Orange County Sanitation District	5	5	5	5	3	5	n/a		Yes	Continue to utilize composting and land application biosolids management options and begin initial information gathering on soil blending opportunities.	Begin design work on new Temperature Phased Anaerobic Digestion system for Plant No. 1 to produce Class A biosolids.
San Diego County Sanitation District	n/a	n/a	n/a	n/a	4	n/a	5		No	Landfill	Belt Filter Press
San Elijo Joint Powers Authority	4	5	5	5	2	5	1		No	Produce Class B and truck to Yuma, AZ	Biosolids improvement study is underway. Likely recommendation will be to provide primary sludge thickening and to replace the belt filter presses with either screw presses or centrifuge dewatering equipment
Sanitation Districts of Los Angeles County	5	5	5	5	2	4	2		No	Maintain and utilize a diversified portfolio of management/reuse providers, both third party and self-owned.	No major change planned. Explore additional technologies and providers (contractors) for composting and land application.

Appendix D: Agency Challenges and Priorities

Rate each challenge based on the priority to your agency									Planning	
Name of Agency	Rising Costs	Public Perception/ Relations	Finding Low Cost Local Biosolids Management Options	Securing Long-Term Biosolids Management Options	Space for Drying Operations	Regulatory Restrictions & New Regulations	Wet Weather Impeding Drying Operations	Other	Bio-solids master plan?	What does your agency plan to do with their biosolids in 2018 and 2019	What does your agency plan to do with solids digestion and biosolids in 5 years?
Santa Margarita Water District	5	5	4	5	n/a	3	n/a		No	Landfill and compost	Drying and energy recovery
South Orange County Wastewater Authority	3	3	5	4	1	4	1		Yes	Continue composting and landfilling	No change
Victor Valley Wastewater Reclamation Authority	5	5	5	5	5	5	5		Yes	Find alternative ways of disposal	Find alternatives to dewatering to increase Drying Bed capacity

Appendix E: Product Marketing

	Does your agency directly market biosolids products?							
Name of Agency	**Compost**	**Fertilizer pellets**	**Soil Blending**	**Renewable energy pellets**	**Biofuels**	**Biochar**	**Other**	**If Yes where is the product marketed? (County, State)**
Carpinteria Sanitary District	No	No	No	No	No	No	No	
City of Corona, Department of Water and Power	No	No	No	No	No	No	No	
City of Riverside RWQCP	No	No	No	No	No	No	No	
City of San Bernardino Municipal Water Department	No	No	No	No	No	No	No	
City of San Diego	No	No	No	No	No	No	No	
City of Santa Barbara	No	No	No	No	No	No	No	
City of Santa Maria	No	No	No	No	No	No	No	
City of Thousand Oaks - Hill Canyon Treatment Plant	No	No	No	No	No	No	No	
Crestline Sanitation District	No	No	No	No	No	No	No	
Eastern Municipal Water District	No	No	No	No	No	No	No	
Elsinore Valley Municipal Water District	No	No	No	No	No	No	No	
Encina Wastewater Authority	No	Yes	No	No	No	No	No	San Diego, CA
Goleta Sanitary District	No	No	No	No	No	No	No	
Inland Empire Utilities Agency	Yes	No	Yes	No	No	No	No	CA: San Bernardino, Riverside, Los Angeles, San Diego, Kern, Orange NV: Clark County
LA Sanitation & Environment	No	No	No	No	No	No	No	
Las Virgenes Municipal Water District	Yes	No	No	No	No	No	No	Los Angeles, CA
Ojai Valley Sanitary District	No	No	No	No	No	No	No	
Olivenhain Municipal Water District	No	No	No	No	No	No	No	

Appendix E: Product Marketing

	Does your agency directly market biosolids products?							
Name of Agency	**Compost**	**Fertilizer pellets**	**Soil Blending**	**Renewable energy pellets**	**Biofuels**	**Biochar**	**Other**	**If Yes where is the product marketed? (County, State)**
Orange County Sanitation District	No	No	No	No	No	No	No	
San Diego County Sanitation District	No	No	No	No	No	No	No	
San Elijo Joint Powers Authority	No	No	No	No	No	No	No	
Sanitation Districts of Los Angeles County	Yes	No	No	No	No	No	No	TLC= Kings, CA; IERCF= San Bernardino, Riverside, CA
Santa Margarita Water District	No	No	No	No	No	No	No	
South Orange County Wastewater Authority	No	No	No	No	No	No	No	
Victor Valley Wastewater Reclamation Authority	No	No	No	No	No	No	No	

Appendix F: Organics Diversion

Organics Diversion								
Name of Agency	**Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (ie AB 1826 or SB 1383)**	**Is your agency co-digesting high strength organics with solids to enhance methane production?**	**What type of feedstock for future co-digestion?**	**Type of feedstock**	**Total wet tons**	**Feedstock Contractor**	**Agency tipping fee ($/tons) to receive feedstock**	**if other describe**
Carpinteria Sanitary District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
City of Corona, Department of Water and Power	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
City of Riverside RWQCP	Yes there will be changes due to emerging organic diversion regulations	Yes the agency is co-digesting high strength organics with solids to enhance methane production		ADM Food waste	1515 43.5	SMC Burrtec		Currently under review, ordinance coming in 2019
City of San Bernardino Municipal Water Department	Possibly there might be changes due to emerging organic diversion regulations SBMWD might consider accepting food waste and grease slurry to increase biogas production	Not at this time, but planning to in the future	Future Feedstock: FOG, Food waste					
City of San Diego	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
City of Santa Barbara	No foreseen changes due to emerging organic diversion regulations	Yes the agency is co-digesting high strength organics with solids to enhance methane production		FOG	3645	Marborg Industries	12.00	

Appendix F: Organics Diversion

Organics Diversion								
Name of Agency	**Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (ie AB 1826 or SB 1383)**	**Is your agency co-digesting high strength organics with solids to enhance methane production?**	**What type of feedstock for future co-digestion?**	**Type of feedstock**	**Total wet tons**	**Feedstock Contractor**	**Agency tipping fee ($/tons) to receive feedstock**	**if other describe**
City of Santa Maria	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
City of Thousand Oaks - Hill Canyon Treatment Plant	No foreseen changes due to emerging organic diversion regulations	Yes the agency is co-digesting high strength organics with solids to enhance methane production		Food waste from processing facilities	100	1	$0.04	N/A
				Feedstock: FOG	260	5	$0.07	
Crestline Sanitation District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Eastern Municipal Water District	Yes there will be changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Elsinore Valley Municipal Water District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Encina Wastewater Authority	Yes there will be changes due to emerging organic diversion regulations	Yes the agency is co-digesting high strength organics with solids to enhance methane production		FOG	10500	Liquid Environmental Solution	$10.80	
				Brewery waste	9793	Stone Brewery	$3.60	

Appendix F: Organics Diversion

Organics Diversion								
Name of Agency	**Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (ie AB 1826 or SB 1383)**	**Is your agency co-digesting high strength organics with solids to enhance methane production?**	**What type of feedstock for future co-digestion?**	**Type of feedstock**	**Total wet tons**	**Feedstock Contractor**	**Agency tipping fee ($/tons) to receive feedstock**	**if other describe**
Goleta Sanitary District	Yes there will be changes due to emerging organic diversion regulations will evaluate with Lystek pilot project	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Inland Empire Utilities Agency	Yes there will be changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
	We are exploring the possibility of incorporating clean foodwaste into one of our POTWs.							
LA Sanitation & Environment	Yes there will be changes due to emerging organic diversion regulations	Not at this time, but planning to in the future	Future: FOG, Food waste					
	A centralized food waste processing facility is in the works and expected to send processed waste to Hyperion as early as 2022 for co-digestion.							
Las Virgenes Municipal Water District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Ojai Valley Sanitary District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						

Appendix F: Organics Diversion

Organics Diversion								
Name of Agency	**Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (ie AB 1826 or SB 1383)**	**Is your agency co-digesting high strength organics with solids to enhance methane production?**	**What type of feedstock for future co-digestion?**	**Type of feedstock**	**Total wet tons**	**Feedstock Contractor**	**Agency tipping fee ($/tons) to receive feedstock**	**if other describe**
Olivenhain Municipal Water District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Orange County Sanitation District	Yes there will be changes due to emerging organic diversion regulations in the design phase to construct an organic food waste receiving station for co-digestion	Not at this time, but planning to in the future	Future Feedstock: Food waste					
San Diego County Sanitation District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
San Elijo Joint Powers Authority	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Sanitation Districts of Los Angeles County	Yes there will be changes due to emerging organic diversion regulations increasing food waste recycling at JWPCP	Yes the agency is co-digesting high strength organics with solids to enhance methane production		Food waste	110	Waste Management; Insinkerator; Burrtec; Puente Hills MRF (LACSD)	$17.00	110 tons stated above is diverted tons per day, current
Santa Margarita Water District	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						

Appendix F: Organics Diversion

Organics Diversion								
Name of Agency	**Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (ie AB 1826 or SB 1383)**	**Is your agency co-digesting high strength organics with solids to enhance methane production?**	**What type of feedstock for future co-digestion?**	**Type of feedstock**	**Total wet tons**	**Feedstock Contractor**	**Agency tipping fee ($/tons) to receive feedstock**	**if other describe**
South Orange County Wastewater Authority	No foreseen changes due to emerging organic diversion regulations	No the agency is not co-digesting high strength organics with solids to enhance methane production						
Victor Valley Wastewater Reclamation Authority	No foreseen changes due to emerging organic diversion regulations	Yes the agency is co-digesting high strength organics with solids to enhance methane production		Food waste	3412	SMC, Co-West	$0.04	
	we are already excepting food waste which assists in enhancing methane production			FOG	350	Alpha Omega	$0.04	

Appendix G: Social Media

Social Media				
Name of Agency	**Does your agency utilize social media for biosolids outreach/education**	**Which types of social media does your agency use? (select all that apply)**	**If your agency does not use social media, how do you publicize your biosolids program?**	**Additional comments**
Carpinteria Sanitary District	Yes	Facebook Website	None	
City of Corona, Department of Water and Power	We do not publicize our biosolids program	None	We do not publicize our biosolids program	
City of Riverside RWQCP	No	None	None	
City of San Bernardino Municipal Water Department				
City of San Diego	Yes	Facebook Twitter YouTube Website	We do not publicize our biosolids program	
City of Santa Barbara	Yes	Website	None	
City of Santa Maria	We do not publicize our biosolids program	None	We do not publicize our biosolids program	
City of Thousand Oaks - Hill Canyon Treatment Plant	Yes	Website	N/A	
Crestline Sanitation District	No	Website	None	
Eastern Municipal Water District	We do not publicize our biosolids program	Website	We do not publicize our biosolids program, Biosolids program is mentioned in concept to not actively promoted	
Elsinore Valley Municipal Water District	No	None	N/A	
Encina Wastewater Authority	Yes	Facebook Website Community outreach events	Community outreach events	
Goleta Sanitary District	Yes	Website	Community events and website.	
Inland Empire Utilities Agency	Yes	Facebook Twitter Website	Newspaper/Paper Media	

Appendix G: Social Media

Social Media				
Name of Agency	**Does your agency utilize social media for biosolids outreach/education**	**Which types of social media does your agency use? (select all that apply)**	**If your agency does not use social media, how do you publicize your biosolids program?**	**Additional comments**
LA Sanitation & Environment	Yes	Facebook Twitter Website	Community events and website.	
Las Virgenes Municipal Water District	Yes	Facebook Website	Newspaper/Paper Media	
Ojai Valley Sanitary District	Yes	Website	Newsletter	
Olivenhain Municipal Water District	No	Facebook Twitter YouTube Website	None	
Orange County Sanitation District	Yes	Facebook Twitter YouTube Website	Yes	
San Diego County Sanitation District	No	None	None	Total tons sent to end user in 2016/2017 are based on dry tons, not wet tons. Before sending out to end user, the biosolids produced are dewatered at on-site drying beds to reduce the volume.
San Elijo Joint Powers Authority	We do not publicize our biosolids program	Website	We do not publicize our biosolids program	
Sanitation Districts of Los Angeles County	Yes	Facebook	We do not publicize our biosolids program	
Santa Margarita Water District	We do not publicize our biosolids program	Facebook Twitter YouTube Website	We do not publicize our biosolids program	

Appendix G: Social Media

Social Media				
Name of Agency	**Does your agency utilize social media for biosolids outreach/education**	**Which types of social media does your agency use? (select all that apply)**	**If your agency does not use social media, how do you publicize your biosolids program?**	**Additional comments**
South Orange County Wastewater Authority	Yes	Website	Website	
Victor Valley Wastewater Reclamation Authority	Yes	Facebook Website	Newspaper/Paper Media	