SCAP
SOUTHERN CALIFORNIA ALLIANCE OF PUBLICLY OWNED TREATMENT WORKS

REUSE
WASTE
TREATMENT
BRINGING WATER FULL CIRCLE

BIOSOLIDS BIENNIAL TREND SURVEY

2019-2021

DECEMBER 2022

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Acronym and Abbreviations List

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

1 Summary

SCAP wishes to thank the 17 member agencies that took the time and effort to assist with the production of this survey. The response has been exceptional, and it is SCAP's 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 (Wet Tons)	
Annual Average Production: 2019 2020 2021	 1,183,973 1,168,401 1,102,169
Top Three Biosolids Producers	Los Angeles County Sanitation Districts Los Angeles Sanitation & Environment Orange County Sanitation District
Biosolids Program Staffing and Budget	
Range of the Number of FTEs for Biosolids	1 to 7
Range of Biosolids Management Budget	$30,000 to $22,200,000
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	2
Number of Agencies Class B	14
Number of Agencies Sub Class B	1

Table 1 - General Summary (continued)

Tipping Fee Average (Per Ton)	
Composting	$44.03
Deep Well Injection	$7.14
Land Application	$53.52
Mine Reclamation	$48.00
Landfill	$54.56
Drying/Pyrolysis	$27.37
Fertilizer	$0.00
Dried Pellets	$0.00
Technologies	
Common Digestion Technology	Mesophilic Anaerobic Digestion (Staged)
Common Dewatering Technology	Centrifuge
Challenges	
Top Three Challenges	Regulatory Restrictions & New Regulations
	Rising Costs
	Securing Long-Term Biosolids Management Options
Biosolids Strategic Plans	
Number of Agencies with Strategic Plans	7
Number of Agencies without Strategic Plans	10
Food Co-Digestion Projects	
Number of Agencies Started Co-Digestion	4
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	Agency Website
	Other
	Facebook

2 Annual Biosolids Production

This section provides a snapshot of the annual biosolids production in 2019 through 2021. 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 reflects the activities of the member agencies that provided information for that time period. The following figures illustrate the annual biosolids production for 2019-2021.

For the period of 2019 through 2021, the annual biosolids production appears to slightly decrease; approximately one percent from the first year to the second year and approximately five percent from the second year to the third year as illustrated in Figure 1 – Annual Biosolids Production 2019-2021. The annual biosolids production went from 1,183,973 wet tons per year (WTPY) in 2019 to 1,102,169 WTPY in 2021.

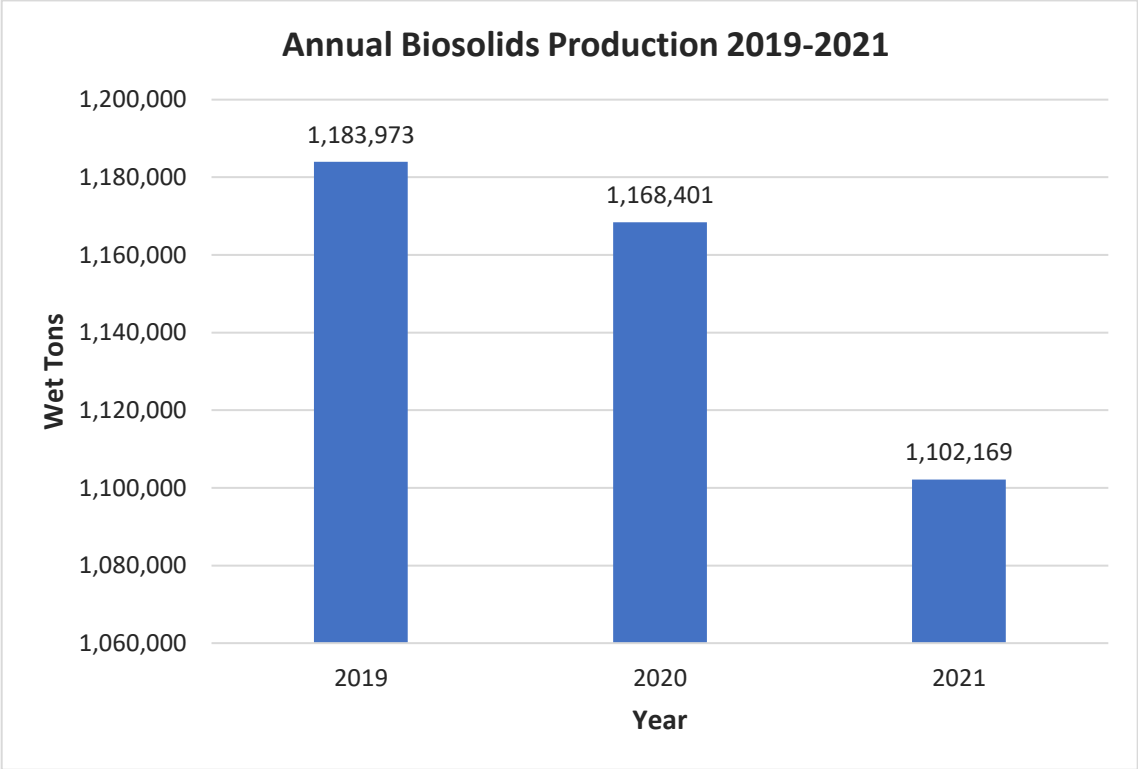
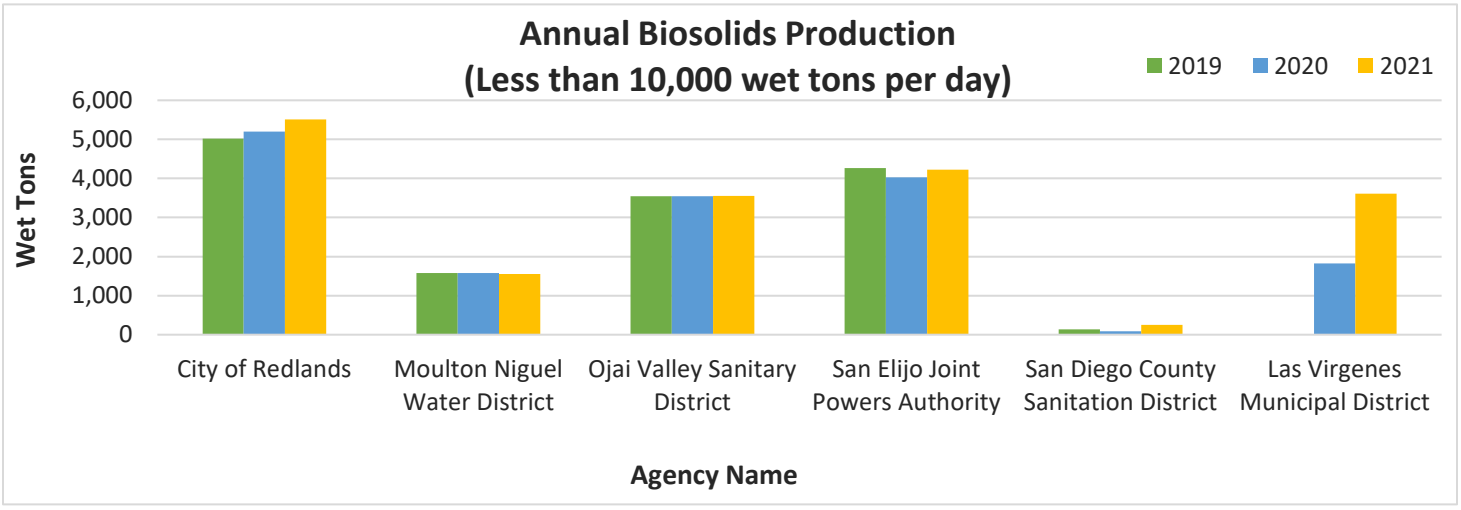


Figure 1 - Annual Biosolids Production 2019-2021



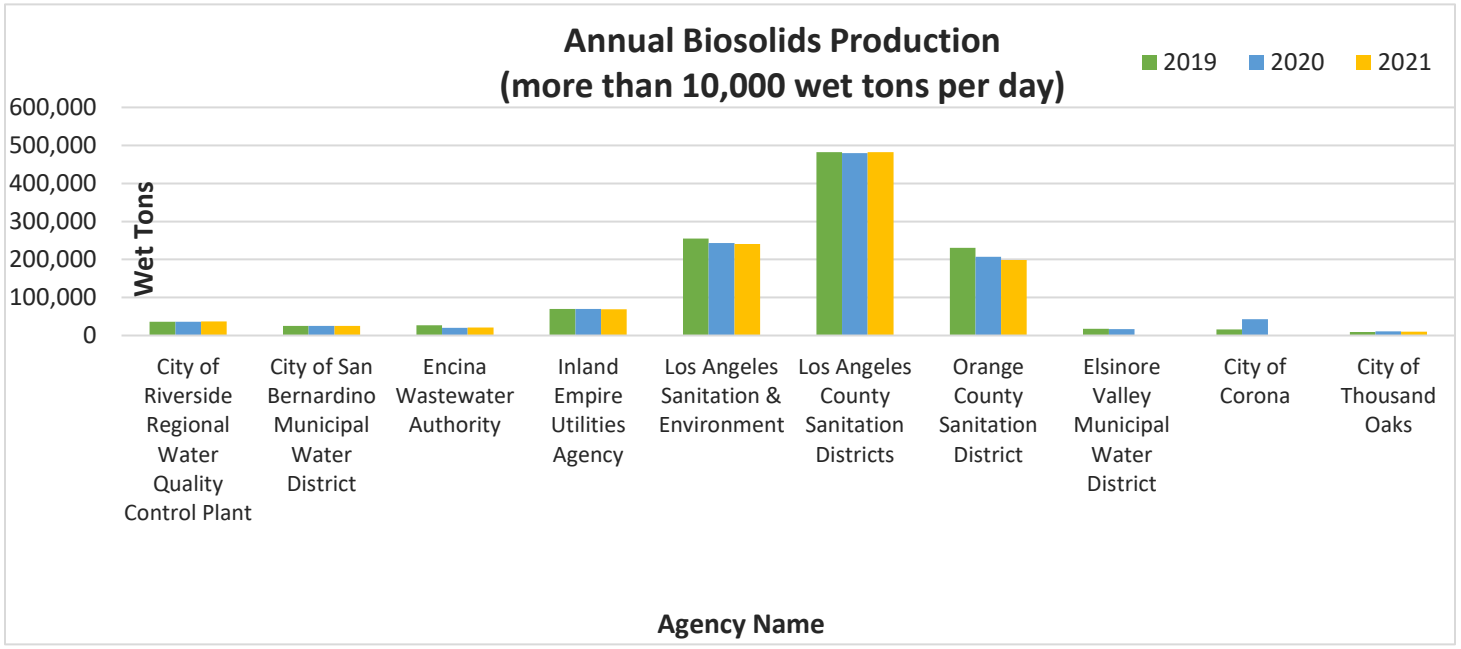


Figure 2 - Annual Biosolids Production

The facilities that produced less than 10,000 WTPY within 2019-2021 are illustrated in Figure 2 – Annual Biosolids Production. The top three biosolids producers were City of Redlands followed by San Elijo Joint Powers Authority and Ojai Valley Sanitary District. For further details, see Appendix A: Agency Information and Budget.

The facilities that produced above 10,000 WTPY within 2019-2021 are illustrated in Figure 2 – Annual Biosolids Production. The top three biosolids producers were Los Angeles County Sanitation Districts, followed by Los Angeles Sanitation & Environment and Orange County Sanitation District. Together these three Publicly Owned Treatment Works (POTWs) make up over 80 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 list the staffing levels and the fiscal budgets for 2019 and 2020 that were provided by the survey respondents.

3.1 Staffing

SCAP members were asked to provide information on the number of staff that have dedicated responsibility to manage the agency's biosolids management program that includes contract management and regulatory compliance. Out of the 17 member agencies that responded, seven agencies have dedicated staff and 10 agencies do not. Table 2 - Agencies With/Without Dedicated Biosolids Staff is given below.

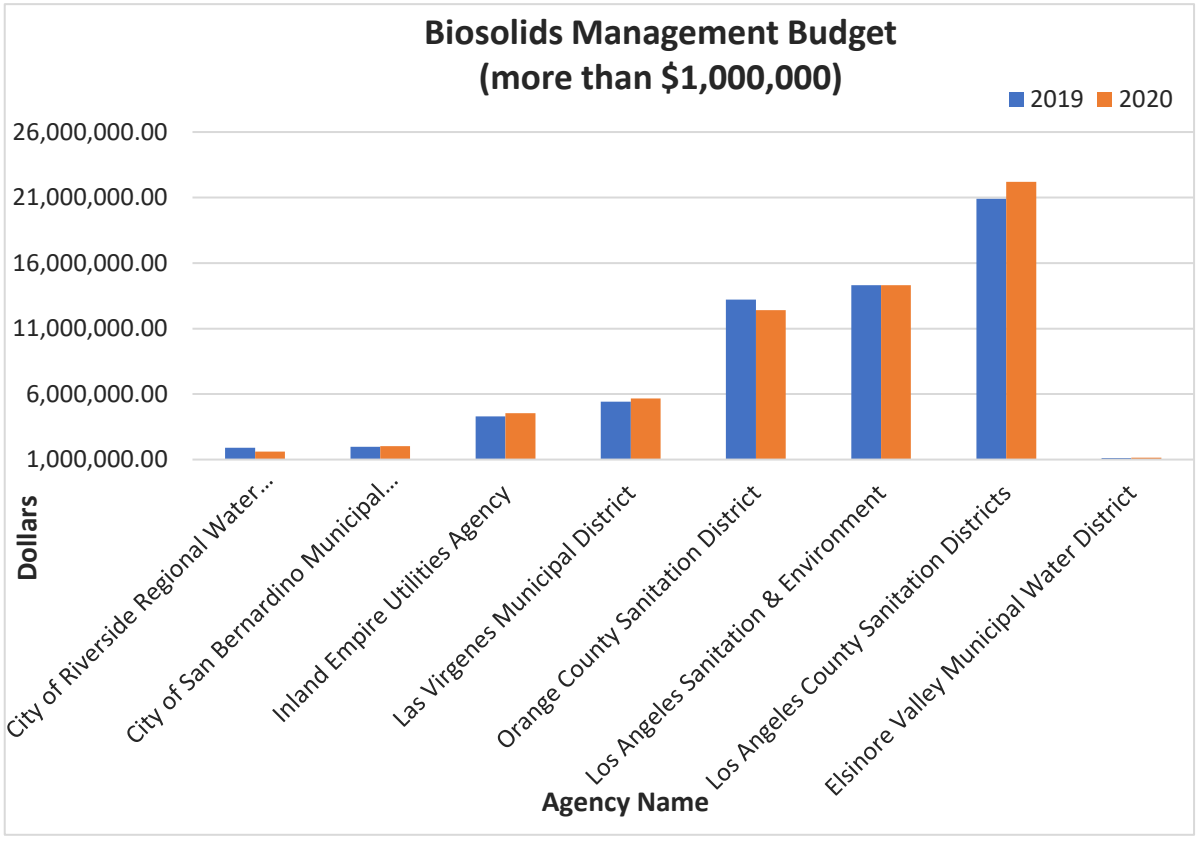
Table 2 - Agencies With/Without Dedicated Biosolids Staff

Yes, the agency has dedicated biosolids staff	Number of staff members*
Encina Wastewater Authority	7
Inland Empire Utilities Agency	2
Los Angeles Sanitation & Environment	4
Los Angeles County Sanitation Districts	4
Las Virgenes Municipal Water District	7
Ventura Water Reclamation	1
Orange County Sanitation District	2
No, the agency does not have dedicated biosolids staff	
City of Redlands	
City of Riverside Regional Water Quality Control Plant	
City of San Bernardino Municipal Water Department	
Moulton Niguel Water District	
Ojai Valley Sanitary District	
City of Corona	
Elsinore Valley Municipal Water District	
San Diego County Sanitation District	
San Elijo Joint Powers Authority	
City of Thousand Oaks	

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 on their annual budget allocated to the management of their biosolids for 2019 and 2020. For ease of illustration, POTWs having an annual biosolids management budget of less than $1,000,000 were grouped together and those with over $1,000,000 were grouped separately. It is important to note that annual budgets may vary depending on the amount of annual biosolids produced, the type and the cost of end-use management options that the agency selects.

Figure 3 – Biosolids Management Budget groups together budgets that were above $1,000,000 and those below $1,000,000. The City of Corona does not have a separate biosolids management budget.



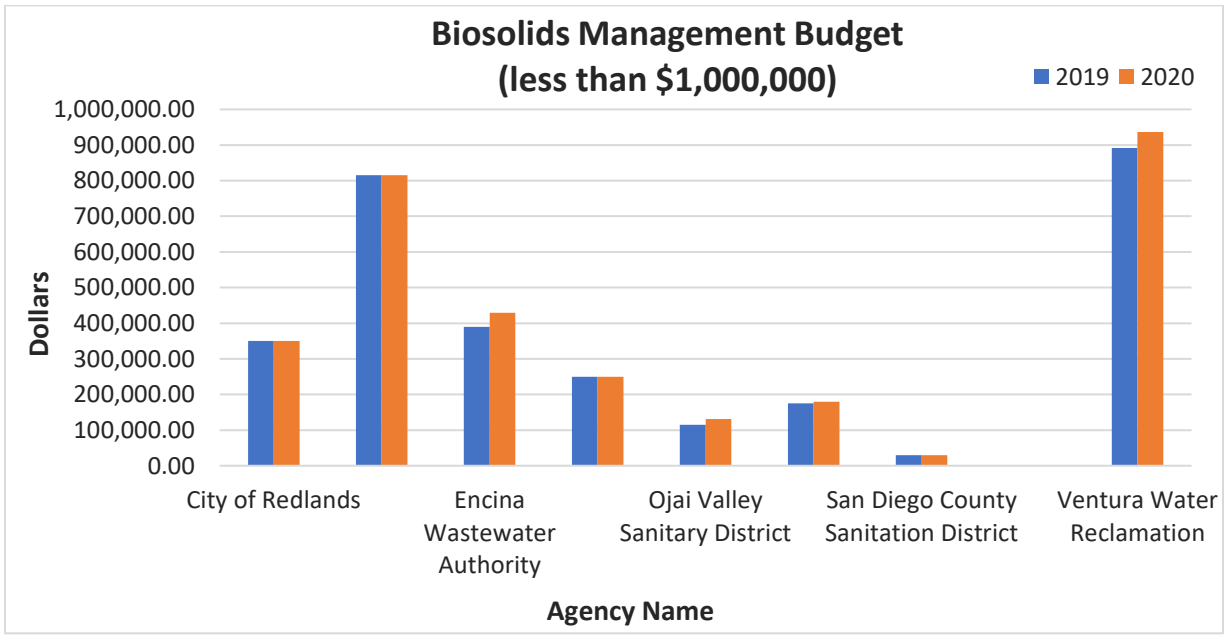


Figure 3 - Biosolids Management Budget

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

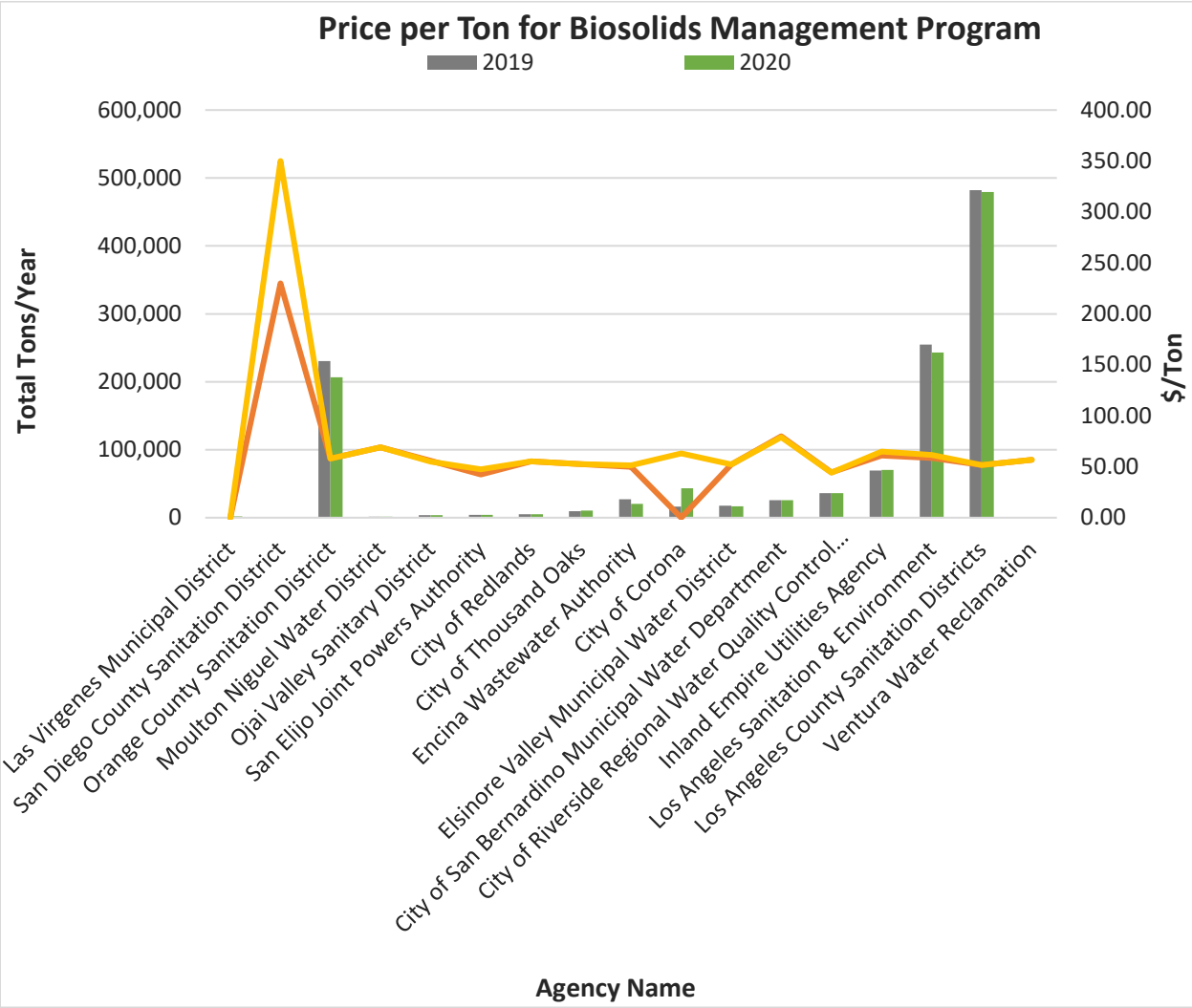


Figure 4 - Annual Biosolids Production and Budget Price per Ton

4 Biosolids Management Options, Management Costs, and Transportation Costs

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

4.1 Biosolids Management Options by Agency 2019-2021

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

The most prevalent end use management option employed was composting; 10 agencies in 2019; 11 agencies in 2020; and 10 agencies in 2021. This was followed by land application by six agencies in 2019, 2020, and 2021. Composting and land application represent by far the most prevalent management options. At the time the data was collected, the 2021 numbers were projections and may not be as accurate a representative sample set as the first two years.

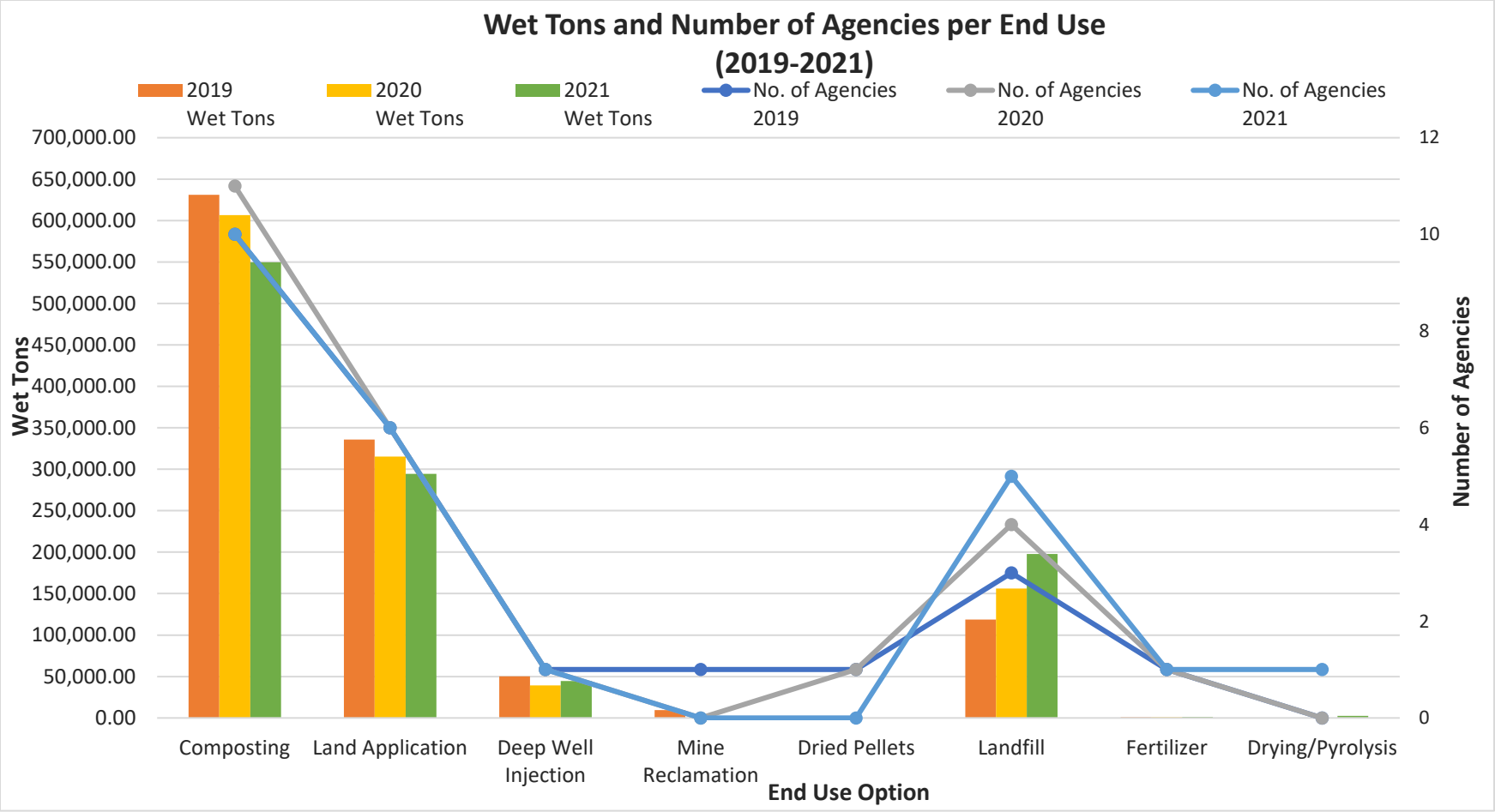


Figure 5 – Wet Tons and Number of Agencies per End Use

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

Among the 17 agencies that responded to the survey, 14 agencies produce Class B biosolids, which is the most common biosolids type. Three agencies produce type Class A-EQ and two agencies produce type Class A biosolids. One agency produces type Sub Class B biosolids.

Biosolids production in wet tons per year is given in Table 3 – Biosolids Produced per Agency, Production Year and Biosolids Class.

Table 3 - Biosolids Produced per Agency, Production Year and Biosolids Class

	2019				2020				2021			
Agency	Class A - EQ	Class A	Class B	Sub Class B	Class A - EQ	Class A	Class B	Sub Class B	Class A - EQ	Class A	Class B	Sub Class B
City of Corona	8,086.81		8,086.81		21,583.24		21,583.24					
City of Redlands			5,018.00				5,196.00				5,506.85	
City of Riverside Regional Water Quality Control Plant			36,263.16				36,263.15				37,000.00	
City of San Bernardino Municipal Water Department			25,261.34				25,261.34				25,261.34	
City of Thousand Oaks			9,589.40				10,541.10				10,000.00	
Elsinore Valley Municipal Water District				17,559.00				16,731.00				
Encina Wastewater Authority	13,756.00		13,756.00		10,104.00		10,104.00		10,488.00		10,488.00	
Inland Empire Utilities Agency			69,441.30				70,096.00				68,593.00	
LA Sanitation & Environment	240,932.62	10,926.00	3,080.00		232,299.82	10,778.22			225,000.00	10,800.00	5,000.00	
Las Virgenes Municipal District		0.00				1,826.00				3,613.00		
Los Angeles County Sanitation Districts			482,156.00				479,537.00				482,129.00	

	2019				2020				2021			
Agency	Class A - EQ	Class A	Class B	Sub Class B	Class A - EQ	Class A	Class B	Sub Class B	Class A - EQ	Class A	Class B	Sub Class B
Moulton Nigel Water District			1,580.00				1,580.00				1,550.00	
Ojai Valley Sanitary District			3,542.00				3,542.00				3,550.00	
Orange County Sanitary District			230,533.00				206,896.00				198,349.00	
San Elijo Joint Powers Authority			4,269.00				4,031.00				4,228.00	
San Diego County Sanitation District			136.00				88.00				253.00	
Ventura Water Reclamation												

4.3 Cost Summary

Table 4 lists the costs of eight biosolids management types. Data from all the responding agencies was combined for each category. The table lists the minimum and the maximum reported along with average of all the reports. Note that the tipping fee includes transportation cost. Costs may vary based on number of factors that include but are not limited to the type of management option, transportation, administration, handling, etc.

Table 4 - Tipping Fees for the Biosolids Management Types from All Agencies

Biosolids Management Type	Tipping Fee ($/ton) per Contractor			Transportation Cost ($/ton) per Contractor		
	Min	Max	Average	Min	Max	Average
Composting	$23.78	$77.69	$44.03	$5.87	$63.69	$36.97
Deep Well Injection	$6.95	$7.30	$7.14	$62.83	$78.28	$68.19
Dried Pellets	$0.00	$0.00	$0.00	varies	varies	varies
Drying/Pyrolysis	$27.37	$27.37	$27.37	$27.89	$27.89	$27.89
Fertilizer	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Land Application	$47.00	$77.69	$53.52	$39.95	$60.19	$50.58
Landfill	$40.91	$70.00	$54.56	$69.00	$69.00	$69.00
Mine Reclamation	$48.00	$48.00	$48.00	$0.00	$0.00	$0.00

5 Travel Range and Description of Biosolids Management Destinations

Hauling can be one of the major factors that impacts the overall biosolids management cost. Travel ranges vary among agencies. The range reported is from 9 miles to 351 miles (Arizona). Figure 6 - Map of Locations of Biosolids Management and Table 5 - Location of the Various Management Operations provide information on the common hauling destinations for the agencies.

Figure 6 - Map of Locations of Biosolids Management

Table 5 - Location of the Various Management Operations

Management Options	Destination
Composting	Kern County, CA
	San Bernardino County, CA
	Lost Hills, CA
	Caledonia, WI
	Helendale, CA
	Riverside County, CA
	Arizona
	Los Angeles, CA
	Ventura County, CA
	Rancho Cucamonga, CA
	Salome, AZ
	San Bernardino, CA
Deep Well Injection	Los Angeles, CA

Management Options	Destination
Dried Pellets	Arizona
Drying/Pyrolysis	Helendale, CA
Fertilizer	California
	Arizona
Land Application	Kern County, CA
	Riverside County, CA
	Arizona
	Yuma County, AZ
Landfill	San Diego, CA
	Lost Hills, CA
Mine Reclamation	Kern County, 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 the SCAP member agencies that provided information for this survey.

Table 6 – List of Biosolids Management Vendors

Composting
Denali Water Solutions
GIC Transport
Inland Empire Regional Composting Authority
Libert Compost
New Earth USA
Nursery Products
Synagro
Loads hauled by staff
Deep Well Injection
Denali
GeoEnvironment
Dried Pellets
Nutrients PLUS

Land Application
Ag tech, LLC; Denali Water Solutions
Denali Water Solutions
Responsible Biosolids Management
Tule Ranch
Landfill
County of San Diego
Holloway Environmental
Mine Reclamation
Holloway Environmental
Drying/Pyrolysis
Synagro – Nursery Products
Fertilizer
Various

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 responding agency over the past three years. The first section describes the biosolids digestion technologies used by various agencies. The second section describes the quality and quantity of biosolids produced by these digestion technologies over the past three years, 2019 to 2021. 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 done by eleven agencies, thermophilic anaerobic digestion done by two agencies, and aerobic digestion done by one agency. One agency used another 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.

Table 7 – Biosolids Digestion Technologies

Mesophilic Anaerobic Digestion
City of Corona
City of Redlands
City of Riverside Regional Water Quality Control Plant
City of San Bernardino Municipal Water Department
City of Thousand Oaks
Encina Wastewater Authority
Inland Empire Utilities Agency
Las Virgenes Municipal District
Los Angeles County Sanitation Districts
Moulton Niguel Water District
Orange County Sanitation District
San Elijo Joint Powers Authority
Thermophilic Anaerobic Digestion
Inland Empire Utilities Agency
Los Angeles Sanitation & Environment
Aerobic Digestion
San Diego County Sanitation District
No Digestion
Ojai Valley Sanitary District

6.2 Biosolids Quality and Volumes 2019-2021

Agencies are regulated under 40 CFR Part 503 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 that are available for these biosolids. Local laws and ordinances also impact the availability and options in their geographic jurisdiction. There are new laws and regulations, such as SB 1383, that mandate a 40 percent reduction in methane emissions by 2030 from a 2013 baseline and a 75 percent organic diversion from landfills (including biosolids) by 2025 from a 2014 baseline. However, minimal landfill disposal is permitted where there are treatment issues or weather conditions requiring landfill disposal.

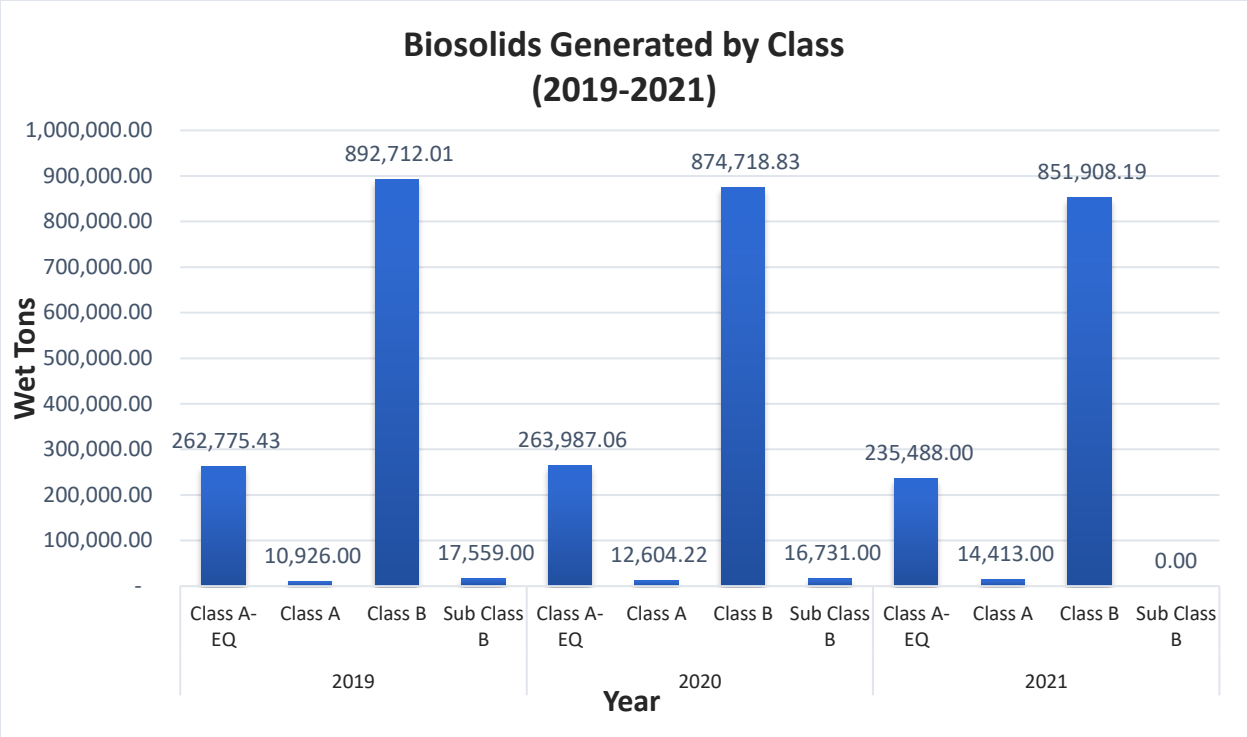


Figure 7 – Amount of Biosolids Generated by Class (Wet Tons)

6.3 Biosolids Dewatering Technology

The three biosolids dewatering technologies that are primarily used are the centrifuge, direct dryer, and filter press. A variety of companies manufacture dewatering technologies.

Table 8 – Dewatering Technologies shows the products used by different agencies and how many agencies use a particular product.

Figure 8 – Dewatering Technologies used by SCAP Agencies graphically shows the breakdown of dewatering technologies used by all SCAP agencies. Centrifuges are the most common dewatering system used by 52 percent of facilities, followed by filter presses used by 24 percent. The less common dewatering technologies including the direct dryer that is used by 8 percent of facilities.

Table 8 – Dewatering Technologies

Centrifuge	**13**
Alfa Laval	8
Centrisys Centrifuge System	2
GEA Westfalia	1
Humboldt	1
Other	1
Direct Dryer	**2**
US Filter	1
Andritz	1
Filter Press	**6**
Ashbrook	5
Ritterhaus & Blecher	1
Screw Press	**2**
Huber	1
FKC	1
Drying Bed	**2**
FKC	1
Other	1

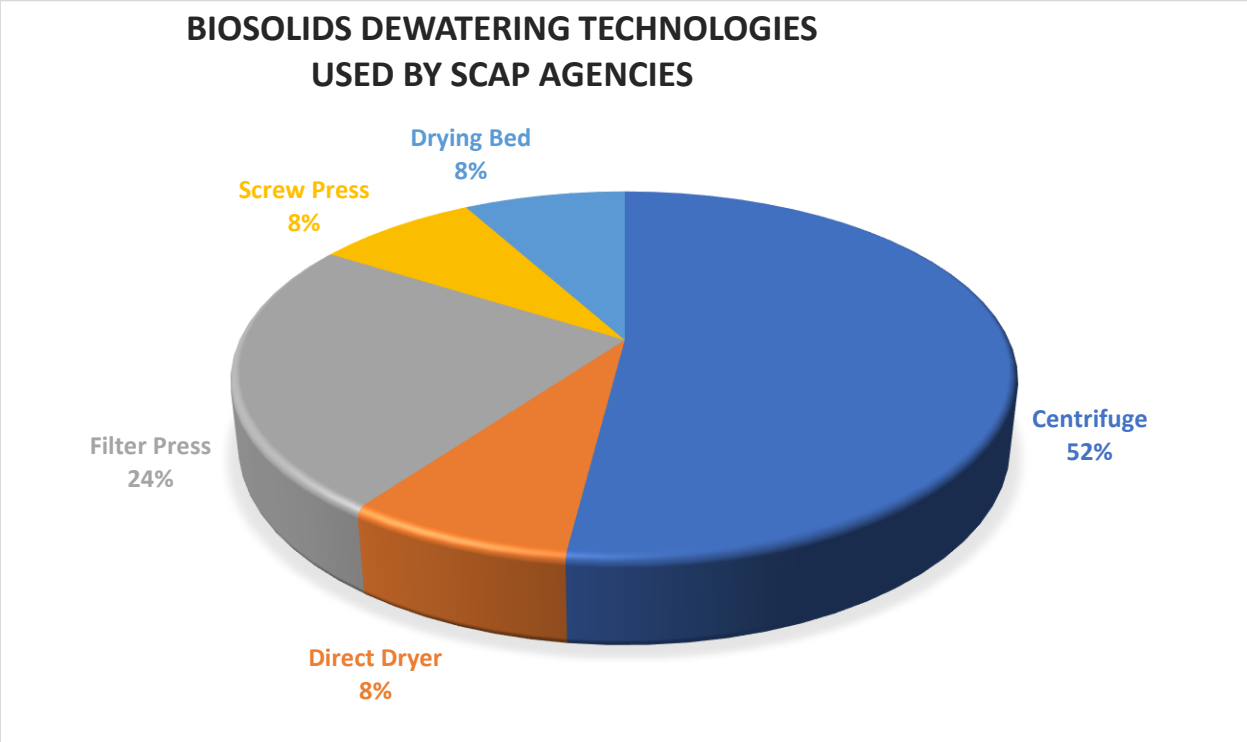


Figure 8 - Dewatering Technologies used by SCAP Agencies

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 depend on the dewatering method used as well as the requirements needed for the post-processing use, such as land application. Class A – EQ ranges from 25 to 93.4% solids; Class A ranges from 2 to 23% solids; Class B ranges from 13 to 90% solids; and Sub Class B ranges from 1 to 18% percent solids.

Table 9 - Percent Solids by Agency and Facility

Method	Class A-EQ		Class A		Class B		Sub Class B	
	Min	Max	Min	Max	Min	Max	Min	Max
Centrifuge								
City of Corona					15.0%	18.0%		
City of Redlands					17.6%	20.0%		
City of Riverside Regional Water Quality Control Plant						16.4%		
City of San Bernardino Municipal Water Department						21.0%		
Encina Wastewater Authority						22.7%		
Inland Empire Utilities Agency						23.0%		
Las Virgenes Municipal District				23.0%				
Los Angeles County Sanitation Districts					16.0%	29.0%		
Los Angeles Sanitation and Environment	25.0%	26.0%				26.0%		
Moulton Niguel Water District						21.0%		
Orange County Sanitation District					24.0%	27.0%		
Filter Press								
City of San Bernardino Municipal Water Department						21.0%		
Elsinore Valley Municipal Water District							1%	18%
Inland Empire Utilities Agency					15.0%			
Los Angeles County Sanitation Districts					18.0%	19.0%		
Ojai Valley Sanitary District					13.0%	15.0%		
San Elijo Joint Powers Authority					20.0%	22.0%		
Deep Well Injection								
Los Angeles County Sanitation Districts				2.0%				
Direct Dryer								
City of Corona		92.0%						
Encina Wastewater Authority		93.4%						
Drying Bed								
San Diego County Sanitation District					40.0%	90.0%		
Screw Press								
City of Riverside Regional Water Quality Control Plant						16.0%		
Screw Press/Drying Bed								
City of Thousand Oaks					37.0%	50.0%		

7 Challenges

The severity of challenges differs between individual wastewater agencies 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 seven categories of challenges on a scale of High, Medium, Low, or Not a 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 "Regulatory Restrictions & New Regulations". Listed below is the order of prioritization based on the data:

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

Table 10 - Count of Each Rating per Priority Area

Priority	High	Medium	Low	Not a Priority
Rising Costs	10	5	2	0
Public Perception/Relations	2	8	7	0
Finding Low Cost Local Biosolids Management Options	7	3	7	0
Securing Long-Term Biosolids Management Options	9	5	3	0
Space for Drying Operations	1	2	7	7
Regulatory Restrictions & New Regulations	11	3	3	0
Wet Weather Impeding Drying Operations	1	2	4	10

8 Strategic Planning

Strategic planning is critical to POTWs agencies to ensure they can maintain their 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 2019- 2020 FY and the next five years, as well as a look into what agencies are marketing their biosolids products.

8.1 Number of Agencies that have a Biosolids Master Plan

Seven of the SCAP agencies have a Biosolids Master Plan and 10 agencies responded that they did not have a Biosolids Master Plan. Interestingly, the agencies that indicated they did have a Biosolids Master Plan in place were not necessarily the agencies with more biosolids dedicated staff. Two of the agencies that indicated they did have a Biosolids Master Plan in place were agencies without any biosolids dedicated staff.

Table 11 - Agencies With or Without Biosolids Master Plan

Agencies With a Biosolids Master Plan	Agencies Without a Biosolids Master Plan
City of Riverside Regional Water Quality Control Plant	City of Corona
Encina Wastewater Authority	City of Redlands
Inland Empire Utilities Agency	City of San Bernardino Municipal Water Department
Las Virgenes Municipal District	City of Thousand Oaks
Orange County Sanitation District	Moulton Niguel Water District
Elsinore Valley Municipal Water District	Ojai Valley Sanitary District
Los Angeles County Sanitation Districts	San Elijo Joint Powers Authority
	San Diego County Sanitation District
	Los Angeles Sanitation & Environment
	Ventura Water Reclamation

8.2 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 and one agency producing fertilizer pellets.

Table 12 - Agencies that Directly Market a Product

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

8.3 Organics Management

Due to recent pressures regarding waste management, California has introduced new regulations regarding organic diversion and management, such as SB 1383. This regulation calls for a 50% Clean/Renewable Electrical Energy by 2026; 60% by 2030; and 100% by 2045. These energy goals have led agencies to evolve their current biosolids handling operations, introduce new technology, and update past practices to meet the standards laid out in the regulations. These practices might include reduction in use of landfills 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 will improve biogas production. Biogas 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.

8.4 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. Many agencies are already diverting biosolids. If they treat and reuse them beneficially, that counts towards their diversion requirements. If the agencies do not already have diversion programs, the agencies have found that biosolids can be one of the easiest organic products to develop for a diversion program because 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, in anaerobic digestion generates a reusable product. This 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.

Five agencies stated that there will be difficulty in securing organic feedstock for co-digestion. Four agencies have already started using co-digestion and two of the four agencies are in the process of installing additional digestion capacity to facilitate co-digestion. Four agencies are in the installation stage of co-digestion projects. Table 13 - Response to Organics Diversion Regulations lists the activities of the agencies.

Table 13 - 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 (ie AB 1826 or SB 1383)?
City of Corona	No
City of Redlands	No
Ojai Valley Sanitary District	No
Elsinore Valley Municipal Water District	No
Las Virgenes Municipal District	No
Moulton Niguel Water District	No
San Elijo Joint Powers Authority	No
City of Riverside Regional Water Quality Control Plant	Yes. Installing additional digestion capacity to facilitate co-digestion
City of San Bernardino Municipal Water Department	Yes. Difficulty to secure organic feedstock for co-digestion
City of Thousand Oaks	Yes. Completing contracts for accepting additional organic waste. City has just signed a long term contract with a new solid waste hauler that will be responsible for collecting and managing food waste from residents and businesses.
Encina Wastewater Authority	Yes. Installing additional digestion capacity to facilitate co-digestion. Potential to rehabilitate abandoned digesters to accommodate extra organics
Inland Empire Utilities Agency	Yes. Difficulty to secure organic feedstock for co-digestion
Orange County Sanitation District	Yes. Difficulty to secure organic feedstock for co-digestion. Installing an organics co-digestion receiving facility
San Diego County Sanitation District	Yes. Difficulty to secure organic feedstock for co-digestion. Installing an organics co-digestion receiving facility
Ventura Water Reclamation	Yes. Difficulty to secure organic feedstock for co-digestion. Installing an organics co-digestion receiving facility
Los Angeles County Sanitation Districts	Yes. Installing an organics co-digestion receiving facility; Receiving infrastructure has been installed. In response to AB 1383, the Districts may aim to achieve 75% biosolids diversion which would allow jurisdictions to purchase RNG from our Joint Plant facility and receive credit under SB 1383.
Los Angeles Sanitation & Environment	Yes, there will be changes due to emerging organic diversion regulations

8.5 Agencies Co-Digesting, Tons, Feedstock Contractor, Agency Tipping Fee

Four agencies have integrated co-digestion into their wastewater operations. The feed stock used by these agencies includes Anaerobically Digestible Material (ADM), food waste, FOG, brewery waste, or a combination of these feed stocks. The incoming amounts of the various feedstocks varied greatly from 10,000 to 429,479 wet tons. FOG and Brewery Waste tended to be the smallest feedstocks in comparison to food waste. The tipping costs vary from as little as $0.015 per gallon to $27.00 per ton of feedstock waste.

Table 14 - Agencies Co-Digesting: Feedstock, Contractor, and Tipping Fee

Agency, Contractor, and Feedstock for Organics Diversion	2019	2020	2021
City of Riverside Regional Water Quality Control Plant			
Feedstock	Food Waste	ADM	ADM
Contractor	Burrtec	SMC	SMC
Tipping Fee ($/ton)	Experimental	Experimental	Experimental
City of Thousand Oaks			
Feedstock	FOG	FOG	FOG, Brewery waste
Contractor	Various Haulers	Buron's Pumping, Alpha Pumping, Coastal ByProducts, Envirotech Pumping	Liquid Environmental Solutions, Stone Brewing
Tipping Fee ($/ton)	$0.07/gal	$0.07/gal	$0.045/gal screened FOG $0.09/gal raw FOG $0.015/gal brewery waste
Encina Wastewater Authority			
Feedstock	FOG, Brewery waste	FOG, Brewery waste	FOG, Brewery waste
Contractor	Liquid Environmental Solutions, Stone Brewing	Liquid Environmental Solutions, Stone Brewing	Liquid Environmental Solutions, Stone Brewing
Tipping Fee ($/ton)	$0.045/gal screened FOG $0.09/gal raw FOG $0.015/gal brewery waste	$0.045/gal screened FOG $0.09/gal raw FOG $0.015/gal brewery waste	$0.045/gal screened FOG $0.09/gal raw FOG $0.015/gal brewery waste
Los Angeles County Sanitation Districts			
Feedstock	Food Waste	Food Waste	Food Waste
Contractor	Multiple	Multiple	Multiple
Tipping Fee ($/ton)	$20/ton	$25/ton	$27/ton

9 Social Media

Social media is becoming a primary form of communication and these platforms are now being utilized by wastewater agencies to provide information to the public regarding their operations and programs such as biosolids. Table 15 - Agencies Using Social Media lists the results of the survey. The agencies are primarily using websites and Facebook.

Several agencies do not use social media to promote their biosolids programs only; instead use social media for agency programs as a whole. Ten agencies used more traditional forms of communication such as an agency managed website as well as newspapers or other print media to provide information to the public about their biosolids programs. Several of the agencies that have started using social media platforms such as Facebook and Instagram for outreach continue using the more traditional methods of communication as well. Four agencies use other social media that include external websites to keep the public informed.

9.1 Number of Agencies Utilize Social Media and What Type

Table 15 - Agencies Using Social Media

Agency Name	Agency Website	Facebook	Instagram	Newspaper	Other
City of Corona					
City of Redlands					
City of Riverside Regional Water Quality Control Plant					
City of San Bernardino Municipal Water Department					
City of Thousand Oaks	✓				
Encina Wastewater Authority	✓	✓			
Inland Empire Utilities Agency	✓	✓			✓
Las Virgenes Municipal District	✓				

Moulton Niguel Water District	✓				
Ojai Valley Sanitary District	✓				
Orange County Sanitation District	✓	✓	✓	✓	✓
San Elijo Joint Powers Authority					✓
San Diego County Sanitation District					
Los Angeles County Sanitation Districts	✓				✓
Los Angeles Sanitation & Environment	✓			✓	
Ventura Water Reclamation	✓				
Elsinore Valley Municipal Water District					

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	2019	2020
City of Corona	Melissa Estrada, Operations Analyst, Maraville@coronaca.gov	2019	8086.81 wet tons	Class A-EQ	No	Melissa Estrada, Operations Analyst, Maraville@coronaca.gov 951-736-2479	No dedicated Biosolids Management	No dedicated Biosolids Management
			8086.81 wet tons	Class B				
		2020	21583.24 wet tons	Class A-EQ				
			21583.24 wet tons	Class B				
City of Redlands	Shannon Simmers, Regulatory Compliance Officer, ssimmers@cityofredlands.org	2019	5018.00 wet tons	Class B	No	Shannon Simmers, Regulatory Compliance Officer ssimmers@cityofredllands.org 909-557-6298		
		2020	5196.00 wet tons	Class B		Joseph Hamburger, jhamburger@cityofredlands.org	$350,000.00	$350,000.00
City of Riverside Regional Water Quality Control Plant	Bobby Gustafson, Wastewater Resource Analyst bgustafson@riversideca.gov	2019	36263.15 wet tons	Class B	No	Gilbert Perez, Operations Manager, giperez@riversideca.gov, 951.351.6276		
		2020	36263.16 wet tons	Class B				
		2021	37000.00 wet tons	Class B			$1,905,198.00	$1,601,812.66
City of San Bernardino Municipal Water Department	Marissa Flores-Acosta, Environmental Manager, marissa.flores@sbmwd.org	2019	25621.34 wet tons	Class B	No	Marissa Flores-Acosta, Environmental Manager, marissa.flores@sbmwd.org, 909.453.6023		
		2020	25621.34 wet tons	Class B				
		2021		Class B			$1,967,310.00	$2,016,480.00

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	2019	2020
			25621.34 wet tons			Joe Hanford, Water Reclamation Superintendent, joseph.hanford@sbmwd.org, 909.453.6223		
City of Thousand Oaks	Santos Marquez, Laboratory Supervisor, smarquez@toaks.org	2019	9589.40 wet tons	Class B	No	Santos Marquez, Laboratory Supervisor, smarquez@toaks.org, 805.491.8123	$815,000.00	$815,000.00
		2020	10541.10 wet tons	Class B		Tim Mooney		
		2021	10000.0 wet tons	Class B				
Encina Wastewater Authority	Joe Cipollini, Resource Recovery Manager, jcipollini@encinajpa.com	2019	13756 wet tons	Class A-EQ	Yes, 7	Doug Campbell, Director of Environmental Compliance, doug@encinajpa.com, 760-438-3941 x 3600	$389,500.00	$429,400.00
			13756 wet tons	Class B		Joe Cipollini, Resource Recovery Manager, jcipollini@encinajpa.com, 760.268.8831		
		2020	10104.00 wet tons	Class A-EQ				
			10104.00 wet tons	Class B				
		2021	10488.00 wet tons	Class A-EQ				
			10488.00 wet tons	Class B				
Inland Empire Utilities Agency	Jeff Ziegenbein, Manager of Regional Compost Authority, jziegenb@ieua.org, 909-993-1981	2019 (RP1)	42782.47 wet tons	Class B	Yes, 2	Jeff Ziegenbein, Manager. jziegenb@ieua.org 909-993-1981	$4,300,000.00	$4,550,000.00
		2019 (RP2)	26658.83 wet tons	Class B		Michael Dias, Ops Supervisor. mdias@ieua.org		

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	2019	2020
		2020 (RP1)	42322.00 wet tons	Class B				
		2020 (RP2)	27774.00 wet tons	Class B				
		2021 (RP1)	42073 wet tons	Class B				
		2021 (RP2)	26520 wet tons	Class B				
Las Virgenes Municipal District	Kourtney Hayne, Management, khayne@lvmwd.com, (818) 251-2321	2019	0.00 wet tons	Class A	Yes, 7	Robert Robins, rrobins@lvmwd.com, (818) 251-2266		
		2020	1826.00 wet tons	Class A				
		2021	3613.00 wet tons	Class A			$5,415,512.00	$5,670,112.00
Moulton Niguel Water District	Sara Boyer, Regulatory Compliance Coordinator, sboyer@mnwd.com, 949-416-4863	2019	1580.00 wet tons	Class B	No	N/A		
		2020	1580.00 wet tons	Class B				
		2021	1550.00 wet tons	Class B			$250,000.00	$250,000.00
Ojai Valley Sanitary District	Bradshaw Pruitt, WWTP Supervisor, bradshaw.pruitt@ojaisan.org,805.646.5548	2019	3542.00 wet tons	Class B	No, Ran by Plant Managers	Bradshaw Pruitt, WWTP Supervisor, bradshaw.pruitt@ojaisan.org,805.646.5548		
		2020	3542.00 wet tons	Class B				
		2021	3550.00 wet tons	Class B			$115,400.00	$131,350.00

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	2019	2020
Orange County Sanitation District	Deirdre Bingman, Principal Environmental Specialist, dbingman@ocsan.gov, 714-593-7459	2019 (Plant No. 1)	122070.00 wet tons	Class B	Yes, 2	Deirdre Bingman, Principal Environmental Specialist, dbingman@ocsan.gov, 714-593-7459	$13,200,000.00	$12,400,000.00
		2019 (Plant No. 2)	108463.00 wet tons	Class B				
		2020 (Plant No. 1)	137608.00 wet tons	Class B				
		2020 (Plant No. 2)	69288.00 wet tons	Class B				
		2021 (Plant No. 1)	138978.00 wet tons	Class B				
		2021 (Plant No. 2)	59371.00 wet tons	Class B				
San Elijo Joint Powers Authority	Christopher Trees, Director of Operations, treesc@sejpa.org, 7607536203	2019	4269.00 wet tons	Class B	No	Christopher Trees, Director of Operations, treesc@sejpa.org, 7607536203	$175,000.00	$180,000.00
		2020	4031.00 wet tons	Class B				
		2021	4228.00 wet tons	Class B				
San Diego County Sanitation District	Daniel Brogadir, Program Manager, Daniel.Brogadir@sdcounty.ca.gov, (858) 694-2714	2019	136.00 wet tons	Class B	No	Lance Gayer, Facilities Operation Supervisor, lance.gayer@sdcounty.ca.gov, (858) 248-5237	$30,000.00	$30,000.00
		2020	88.00 wet tons	Class B				
		2021	253.00 wet tons	Class B				
Los Angeles Sanitation & Environment	Neel Patel, Env. Inspector, neel.patel@lacity.org, 310-648-5362	2019 (Hyperion)	240932.62 wet tons	Class A-EQ	Yes, 4	Emmanuel Alloh, Env. Engineer, emmanuel.alloh@lacity.org 310-648-5211	$14,300,000.00	$14,300,000.00
			3080.00 wet tons	Class B				
		2019 (Terminal Island)	10926.00 wet tons	Class 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	2019	2020
		2020 (Hyperion)	232299.82 wet tons	Class A-EQ				
		2020 (Terminal Island)	10778.22 wet tons	Class A				
		2021 (Hyperion)	225000.00 wet tons	Class A-EQ				
			5000.00 wet tons	Class B				
		2021 (Terminal Island)	10800.00 wet tons	Class A				
Los Angeles County Sanitation Districts	Matthew Hutton, Civil Engineer, matthewhutton@lacsd.org	2019 (Joint Water Pollution Control Plant)	433335.00 wet tons	Class B	Yes, 4	Matt Bao, Supervising Engineer, Biosolids Management Group, mbao@lacsd.org, 562-908-4288, ext 2824	$20,900,000.00	$22,200,000.00
		2019 (Valencia Water Reclamation Plant)	25363.00 wet tons	Class B				
		2019 (Palmdale Water Reclamation Plant)	10069.00 wet tons	Class B				
		2019 (Lancaster Water Reclamation Plant)	13389.00 wet tons	Class B				
		2020 (Joint Water	429479.00 wet tons	Class B				

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	2019	2020
		Pollution Control Plant)						
		2020 (Valencia Water Reclamation Plant)	25554.00 wet tons	Class B				
		2020 (Palmdale Water Reclamation Plant)	9291.00 wet tons	Class B				
		2020 (Lancaster Water Reclamation Plant)	15213.00 wet tons	Class B				
		2021 (Joint Water Pollution Control Plant)	429874.00 wet tons	Class B				
		2021 (Valencia Water Reclamation Plant)	28922.00 wet tons	Class B				
		2021 (Palmdale Water Reclamation Plant)	9472.00 wet tons	Class B				

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	2019	2020
		2021 (Lancaster Water Reclamation Plant)	13861.00 wet tons	Class B				
Ventura Water Reclamation	Vincent Ines, Wastewater Resource Analyst, Vines@cityofventura.ca.gov,805-677-4133				Yes, 1	Melody Ray, Operations Manager contact@libertyrecyc.com,(661)-797-2914	$892,005.00	$936,605.00
Elsinore Valley Municipal Water District	Sudhir Mohleji, Senior Civil Engineer, smohleji@evmwd.net, 951-674-3146/x 8347	2019	17559.00 wet tons	Sub Class B	No	Jessie Arrelano, Wastewater Operations Manager, jarellano@evmwd.net, tel:+1 951-674-3146 x 8310		
		2020	16731.00 wet tons	Sub Class B			$1,112,000.00	$1,135,000.00

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)
City of Corona	WRF 1	Mesophilic anaerobic digestion (single stage)	Class A-EQ	92%	Direct Dryer	US Filter
			Class B	15%	centrifuge	Alfa Laval
City of Redlands	Redlands WWRF	Mesophilic anaerobic digestion (single stage)	Class B	18.0%	centrifuge	Alfa Laval
City of Riverside Regional Water Quality Control Plant	Regional Water Quality Control Plant	Mesophilic anaerobic digestion (single stage)	Class B	16%	Screw Press	Huber
City of San Bernardino Municipal Water Department	Water Reclamation Facility (WRP)	Mesophilic anaerobic digestion (single stage)	Class B	21.00%	Filter Press	Ashbrook Corporation
City of Thousand Oaks	Hill Canyon Treatment Plant (HCTP)	Mesophilic anaerobic digestion (single stage)	Class B	50.00%	Screw Press/Drying Beds	FKC
Encina Wastewater Authority	Encina WPCF	Mesophilic anaerobic digestion (single stage)	Class A-EQ	93.40%	Direct Dryer	Andritz
			Class B	22.70%	Centrifuge	Alfa Laval
Inland Empire Utilities Agency	RP1	Thermophilic anaerobic digestion	Class B	23.00%	Centrifuge	Alfa Laval
	RP2	Mesophilic anaerobic digestion (single stage)	Class B	15.00%	Filter Press	Ashbrook Corporation

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)
Las Virgenes Municipal District	Rancho Las Virgenes	Mesophilic anaerobic digestion (single stage)	Class A	23.00%	Centrifuge	Alfa Laval
Moulton Niguel Water District	Plant 3A	Mesophilic anaerobic digestion (single stage)	Class B	21.00%	Centrifuge	
Ojai Valley Sanitary District	Ojai Valley Sanitary District Wastewater Treatment Plant	No digestion	Class B	13-15%	Filter Press	Ashbrook Corporation
Orange County Sanitation District	Plant No. 1	Mesophilic anaerobic digestion (single stage)	Class B	24.00%	Centrifuge	GEA Westfalia
	Plant No. 2	Mesophilic anaerobic digestion (single stage)	Class B	27.00%	Centrifuge	Alfa Laval
San Elijo Joint Powers Authority	San Elijo Water Campus	Mesophilic anaerobic digestion (single stage)	Class B	20.00%	Filter Press	Ashbrook Winklepress
San Diego County Sanitation District	Julian Wastewater Treatment Plant	Other: Aerobic Digestion	Class B	40-90%	Drying Bed	None
Los Angeles Sanitation & Environment	Hyperion	Thermophilic anaerobic digestion	Class A-EQ	26%	Centrifuge	Alfa Laval
		Thermophilic anaerobic digestion	Class B	26%	Centrifuge	Alfa Laval
	Terminal Island	Thermophilic anaerobic digestion	Class A	2%	Deep Well Injection	

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)
Los County Sanitation Districts	Joint Water Pollution Control Plant	Mesophilic anaerobic digestion (single stage)	Class B	29%	Centrifuge	Alfa Laval
	Valencia Water Reclamation Plant	Mesophilic anaerobic digestion (single stage)	Class B	18%	Filter Press	Rittershaus & Blecher
	Palmdale Water Reclamtion Plant	Mesophilic anaerobic digestion (single stage)	Class B	20%	Centrifuge	Humboldt
	Lancaster Water Reclamation Plant	Mesophilic anaerobic digestion (single stage)	Class B	17%	Centrifuge	Humboldt
Elsinore Valley Municipal Water District	Regional Water Reclamation Facility	None	Sub Class B	18.00%	Filter Press	Ashbrook
	Horsethief Canyon Water Reclamation Facility	N/A	N/A	1%	None	N/A

Appendix C: 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 Corona	2019	Dried Pellets	1834.79	Nutrients PLUS	Arizona	351.0 miles	$0 per ton	varies based on fuel surcharge formula
		Composting	6252.02	Synagro	California and Arizona	73.0 miles, 236.0 miles	$49.80 per ton; $59.10 per ton	varies based on fuel surcharge formula
	2020	Dried Pellets	79.52	Nutrients PLUS	Arizona	351.0 miles	$0 per ton	varies based on fuel surcharge formula
		Composting	21503.72	Synagro	California and Arizona	73.0 miles, 236.0 miles	$59.10 per ton; $52.80 per ton	varies based on fuel surcharge formula
City of Redlands	2019	Composting	5018.00	Synagro	SB County, CA and La Paz County AZ	77.0 miles, 211.0 miles	$0 per ton	$55.25
	2020	Composting	5196.00	Synagro	Riverside, CA and Arizona	77.0 miles, 211.0 miles	$0 per ton	$55.25
	2021	Composting	5506.85	Synagro	SB County, CA and La Paz County AZ	77.0 miles, 211.0 miles	$0 per ton	$55.25
City of Riverside Regional Water Quality Control Plant	2019	Land Application	20263.29	Denali Water Solutions	Yuma, AZ	220.0 miles	$0 per ton	$39.95
		Composting	22631.44	Denali Water Solutions	San Bernardino, CA	90.0 miles	$0 per ton	$44.95
	2020	Land Application	17913.00	Denali Water Solutions	Yuma, AZ	220.0 miles	$0 per ton	$39.95
		Composting	18349.00	Denali Water Solutions	San Bernardino, CA	90.0 miles	$0 per ton	$44.95
	2021	Land Application	18500.00	Denali Water Solutions	Yuma, AZ	220.0 miles	$0 per ton	$39.95
		Composting	18500.00	Denali Water Solutions	San Bernardino, CA	90.0 miles	$0 per ton	$44.95

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 Bernardino Municipal Water Department	2019	Composting	24514.23	SynagroNursery Products	San Bernardino County, CA	68.9 miles	$44.73 per ton	$0
	2020	Composting	25621.34	SynagroNursery Products	San Bernardino County, CA	68.9 miles	$46.19 per ton	$0
	2021	Composting	25067.79	SynagroNursery Products	San Bernardino County, CA	68.9 miles	$47.07 per ton	$0
City of Thousand Oaks	2019	Mine Reclamation	9589.40	Holloway	Kern/CA	150.0 miles	$48.00 per ton	$0
	2020	Composting	10500.00	Synagro (composter), GIC (hauler)	Kern County, California or San Bernardino, California	125.0 miles or 130.0 miles	$52.46 per ton	$0
	2021	Composting	10000.00	GIC Transport	Kern/CA	150.0 miles	$52.46 per ton	$0
Encina Wastewater Authority	2019	Land Application	11738.00	Ag tech, LLC; Denali Water Solutions	Yuma County, Az,	240.0 miles	$47 per ton Agtech; $51.50 per ton Denali	$0
		Fertilizer	1018.00	Various	CA, AZ	Various	$0 per ton	$0
	2020	Land Application	9053.00	Denali Water Solutions	Yuma County, AZ, Riverside County, CA	240.0 miles	$51.5 per ton	$0
		Fertilizer	989.00	Various	CA, AZ	Various	$0 per ton	$0
		Landfill	63.00	Holloway	CA	235.0 miles	$0 per ton	$0
	2021	Land application	9126.00	Denali Water Solutions	Yuma County, Az, Riverside County, CA	240.0 miles	$51.50 per ton	$0
		Fertilizer	1362.00	various	CA, AZ	Various	$0 per ton	$0
		Landfill	0.00	N/A	N/A	0 miles	$0 per ton	$0
Inland Empire Utilities Agency	2019 (RP1)	Composting	42758.00	Inland Empire Regional Composting Authority	Rancho Cucamonga, CA	9.2 miles	$56 per ton	$5.87 per ton

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)
	2020 (RP1)	Composting	42322.00	Inland Empire Regional Composting Authority	Rancho Cucamonga, CA	9.2 miles	$57 per ton	$5.87 per ton
	2021 (RP1)	Composting	42300.00	Inland Empire Regional Composting Authority	Rancho Cucamonga, CA	9.2 miles	$58 per ton	$6.48 per ton
	2019 (RP2)	Composting	26659.00	Inland Empire Regional Composting Authority	Rancho Cucamonga, CA	19.9 miles	$56 per ton	$7.32 per ton
	2020 (RP2)	Composting	27774.00	Inland Empire Regional Composting Authority	Rancho Cucamonga, CA	19.9 miles	$57 per ton	$7.32 per ton
	2021 (RP2)	Composting	28000.00	Inland Empire Regional Composting Authority	Rancho Cucamonga, CA	19.9 miles	$58 per ton	$7.95 per ton
Las Virgenes Municipal District	2019	Composting	0.00	New Earth USA	Wisconsin	156.0 miles	$0 per ton	$63.69 per ton
	2020	Composting	1826.00	None	Los Angeles and Ventura County	0 miles	$0 per ton	$0 per ton
	2021	Composting	3613.00	None	Los Angeles and Ventura County	0 miles	$0 per ton	$0 per ton
Moulton Niguel Water District	2019	Landfill	1580.00	Holloway Environmental	Lost Hills, California	197.0 miles	$0 per ton	$0 per ton
	2020	Landfill	1580.00	Holloway Environmental	Lost Hills, California	197.0 miles	$0 per ton	$69 per ton
	2021	Landfill	1580.00	Holloway Environmental	Lost Hills, California	197.0 miles	$0 per ton	$0 per ton

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)
Ojai Valley Sanitary District	2019	Composting	2363.00	Libert Compost	Lost Hills, California	134.0 miles	$0 per ton	$49.94 per ton
	2020	Composting	2363.00	Libert Compost	Lost Hills, California	134.0 miles	$0 per ton	$49.94 per ton
	2021	Composting	2363.00	Libert Compost	Lost Hills, California	134.0 miles	$0 per ton	$49.94 per ton
Orange County Sanitation District	2019 (Plant No. 1)	Land application	11245.76	Tule Ranch/Ag Tech	Yuma County, AZ	265.0 miles	$0 per ton	$59.81 per ton
		Composting	79269.17	Synagro - Nursey Products	Helendale, CA	134.0 miles	$27.37 per ton	$27.70 per ton
		Composting	852.00	Synagro - Arizona Soils	Salome, AZ	263.0 miles	$23.78 per ton	$41.17 per ton
		Composting	30703.00	Liberty Compost	Lost Hills, CA	193.0 miles	$26.29 per ton	$28.50 per ton
	2019 (Plant No. 2)	Land Application	79847.00	Tule Ranch/Ag Tech	Yuma County, AZ	265.0 miles	$0 per ton	$59.81 per ton
		Composting	5775.49	Synagro - Nursey Products	Helendale, CA	134.0 miles	$27.37 per ton	$27.70 per ton
		Composting	2281.45	Synagro - Arizona Soils	Salome, AZ	263.0 miles	$23.78 per ton	$41.17 per ton
		Composting	10537.00	Liberty Compost	Lost Hills, CA	193.0 miles	$26.29 per ton	$32.05 per ton
		Composting	10022.00	Inland Empire Regional Composting	Rancho Cucamonga, CA	48.0 miles	$58.00 per ton	$16.25 per ton
	2020 (Plant No. 1)	Land application	24801.00	Tule Ranch/Ag Tech	Yuma County, AZ	265.0 miles	$0 per ton	$57.71 per ton
		Composting	75409.82	Synagro - Nusery Products	Helendale, CA	134.0 miles	$27.37 per ton	$26.67 per ton
		Composting	880.10	Synagro - Arizona Soils	Salome, AZ	263.0 miles	$23.78 per ton	$46.29 per ton
		Composting	3119.52	Synagro - South Kern Compost	Taft, CA	147.0 miles	$23.78 per ton	$26.67 per ton

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)
		Composting	33398.00	Liberty Compost	Lost Hills, CA	193.0 miles	$26.29 per ton	$30.52 per ton
	2020 (Plant No. 2)	Land application	54512.23	Tule Ranch/Ag Tech	Yuma County, AZ	265.0 miles	$0 per ton	$57.71 per ton
		Composting	700.00	Synagro - Arizona Soils	Salome, AZ	263.0 miles	$23.78 per ton	$46.29 per ton
		Composting	6771.75	Liberty Compost	Lost Hills, CA	193.0 miles	$26.29 per ton	$30.52 per ton
		Composting	7303.86	Inland Empire Regional Composting	Rancho Cucamonga, CA	48.0 miles	$58.00 per ton	$15.83 per ton
	2021 (Plant No. 1)	Land application	28000.00	Tule Ranch/Ag Tech	Yuma County, AZ	265.0 miles	$0 per ton	$60.19 per ton
		Composting	50000.00	Synagro - Nusery Products	Helendale, CA	134.0 miles	$27.37 per ton	$27.89 per ton
		Composting	19016.30	Synagro - South Kern Compost	Taft, CA	147.0 miles	$23.78 per ton	$27.89 per ton
		Composting	30000.00	Liberty Compost	Lost Hills, CA	193.0 miles	$26.29 per ton	$32.33 per ton
		Drying/Pyrolysis	18000.00	Synagro - Nusery Products	Helendale, CA	134.0 miles	$27.37 per ton	$27.89 per ton
	2021 (Plant No. 2)	Land application	40000.00	Tule Ranch/Ag Tech	Yuma County, AZ	265.0 miles	$0 per ton	$60.19 per ton
		Composting	600.00	Liberty Compost	Lost Hills, CA	193.0 miles	$26.29 per ton	$32.33 per ton
		Composting	8000.00	Inland Empire Regional Composting	Rancho Cucamonga, CA	48.0 miles	$58.00 per ton	$16.60 per ton
San Elijo	2019	Land application	4269.00	Denali, Ag Tech	Yuma, AZ	300.0 miles	$47.5 per ton	$0 per ton
	2020	Land application	4031.00	Denali	Yuma, AZ	300.0 miles	$47.5 per ton	$0 per ton

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)
	2021	Land application	4000.00	Denali	Yuma, AZ	300.0 miles	$47.5 per ton	$0 per ton
San Diego County Sanitation District	2019	Landfill	0.00	County of San Diego	San Diego, CA	34.0 miles	$70.00 per ton	$0 per ton
	2020	Landfill	0.00	County of San Diego	San Diego, CA	34.0 miles	$70.00 per ton	$0 per ton
	2021	Landfill	9.00	County of San Diego	San Diego, CA	34.0 miles	$70.00 per ton	$0 per ton
Los Angeles Sanitation & Environment	2019 (Hyperion)	Land application	165736.40	RBM, Denali Water Solutions	Kern County, CA, Riverside County, CA, Arizona	118.0 miles, 250.0 miles, 270.0 miles	$0 per ton	$40.59 per ton, $51.25 per ton
		Composting	39126.33	Denali Water Solutions, Nursery Products	Kern County, CA. San Bernardino, CA.	118.0 miles, 148.0 miles	$0 per ton	$57.25 per ton, $58.03 per ton
		Deep well injection	39150.04	Denali, GeoEnvironment	Los Angeles, CA	23.0 miles	$6.95 per ton	$68.50 per ton
	2019 (Terminal Island)	Deep well injection	10926.00	GeoEnvironment	Los Angeles, CA	0.0 miles	$0 per ton	$0 per ton
	2020 (Hyperion)	Land application	170444.03	RBM, Denali Water Solutions	Kern County, CA, Riverside County, CA, Arizona	118.0 miles, 250.0 miles, 270.0 miles	$0 per ton	$40.59 per ton, $51.25 per ton
		Composting	33415.58	Denali Water Solutions, Nursery Products	Kern County, CA. San Bernardino, CA.	118.0 miles, 148.0 miles	$0 per ton	$57.25 per ton, $58.03 per ton
		Deep well injection	28440.21	GeoEnvironment	Los Angeles, CA	23.0 miles	$7.16 per ton	$68.50 per ton
	2020 (Terminal Island)	Deep well injection	10778.22	GeoEnvironment	Los Angeles, CA	0.0 miles	$0 per ton	$78.28 per ton

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)
	2021 (Hyperion)	Land application	161000.00	RBM, Denali Water Solutions	Kern County, CA, Riverside County, CA, Arizona	118.0 miles, 250.0 miles, 270.0 miles	$0 per ton	$45.95 per ton, $53.84 per ton
		Composting	34500.00	Denali Water Solutions, Nursery Products	Kern County, CA, Riverside County, CA, Arizona	118.0 miles, 148.0 miles	$0 per ton	$60.15 per ton, $60.97 per ton
		Deep well injection	34500.00	GeoEnvironment	Los Angeles, CA	23.0 miles	$7.30 per ton	$62.83 per ton
	2021 (Terminal Island)	Deep well injection	10000.00	GeoEnvironment	Los Angeles, CA	0.0 miles	$0 per ton	$62.83 per ton
		Composting	200.00	Denali Water Solutions, Nursery Products	Kern County, CA, San Bernardino, CA	145.0 miles, 173.0 miles	$0 per ton	$62.83 per ton
Los Angeles County Sanitation Districts	2019 (Joint Water Pollution Control Plant)	Composting	298930.36	Synagro (SKIC), Synagro (Nursery Products), Liberty, Inland Empire Regional Composting Authority, Tulare Lake Compost	Synagro (SKIC): Kern, CA Synagro (Nursery Products): San Bernardino, CA Liberty: Kern, CA Inland Empire Regional Composting Authority: San Bernardino, CA Tulare Lake Compost: Kings, CA	Synagro (SKIC): 126 Synagro (Nursery Products): 111 Liberty: 169 Inland Empire Regional Composting Authority: 58 Tulare Lake Compost: Kings, CA: 189	Synagro (SKIC): $45.51 per ton (includes transport) Synagro (Nursery Products): $45.51 per ton (includes transport) Liberty: $57.50 per ton (includes transport) Inland Empire Regional Composting Authority:	$0 per ton

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)
							$56.00 per ton (excludes transport) Tulare Lake Compost: N/A	
		Land Application	42766.34	Denali	Yuma, AZ	276.0 miles	$54.92 per ton (includes transport)	$0 per ton
		Landfill	91638.25	Holloway	Kern, CA	168.0 miles	$48.41 per ton (includes transport)	$0 per ton
	2019 (Valencia Water Reclamation Plant)	Landfill	25363.00	Holloway	Kern, CA	115.0 miles	$41.01 (includes transport)	$0 per ton
	2019 (Palmdale Water Reclamation Plant)	Composting	10069.00	Synagro (SKIC), Synagro (Nursery Products)	Synagro (SKIC): Kern, CA Synagro (Nursery Products): San Bernardino, CA	Synagro (SKIC): 101 Synagro (Nursery Products): 60	Synagro (SKIC): $45.50 (includes transport) Synagro (Nursery Products): $45.50 (includes transport)	$0 per ton
	2019 (Lancaster Water Reclamation Plant)	Composting	13389.00	Synagro (SKIC), Synagro (Nursery Products)	Synagro (SKIC): Kern, CA Synagro (Nursery Products): San Bernardino, CA	Synagro (SKIC): 86 Synagro (Nursery Products): 54	Synagro (SKIC): $45.52 (includes transport) Synagro	$0 per ton

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)
							(Nursery Products): $45.51 (includes transport)	
	2020 (Joint Water Pollution Control Plant)	Composting	265544.02	Synagro (SKIC), Synagro (Nursery Products), Inland Empire Regional Composting Authority, Tulare Lake Compost	Synagro (SKIC): Kern, CA Synagro (Nursery Products): San Bernardino, CA Inland Empire Regional Composting Authority: San Bernardino, CA Tulare Lake Compost: Kings, CA	Synagro (SKIC): 126 Synagro (Nursery Products): 111 Inland Empire Regional Composting Authority: 58 Tulare Lake Compost: Kings, CA: 189	Synagro (SKIC): $45.65 (includes transport) Synagro (Nursery Products): $45.41 (includes transport) Inland Empire Regional Composting Authority: $56.51 (excludes transport) Tulare Lake Compost: N/A	$0 per ton
		Land Application	34423.57	Denali	Yuma, AZ	276.0 miles	$54.88 per ton (includes transport)	$0 per ton
		Landfill	129050.53	Holloway	Kern, CA	168.0 miles	$48.36 per ton (includes transport)	$0 per ton

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)
	2020 (Valencia Water Reclamation Plant)	Landfill	25554.47	Holloway	Kern, CA	115.0 miles	$40.91 per ton (includes transport)	$0 per ton
	2020 (Palmdale Water Reclamation Plant)	Composting	9291.00	Synagro (Nursery Products)	Synagro (Nursery Products): San Bernardino, CA	60.0 miles	$45.46 per ton (includes transport)	$0 per ton
	2020 (Lancaster Water Reclamation Plant)	Composting	15213.00	Synagro (Nursery Products)	Synagro (Nursery Products): San Bernardino, CA	54.0 miles	$45.75 per ton (includes transport)	$0 per ton
	2021 (Joint Water Pollution Control Plant)	Composting	234623.27	Denali, Rialto Bioenergy Facility (during startup of pyrolysis facility,all biosolids have been dried to Class A and land applied	Yuma, AZ and Tacna, AZ (Denali) San Bernardino, CA (Rialto Bioenergy Facility)	Yuma, CA: 276.0 miles, Tacna, CA: 321.0 miles, San Bernardino, CA: 69.3 miles	Denali sites: $57.28 per ton (includes transport) Rialto Bioenergy Facility: $77.69 (includes transport)	$0 per ton
		Land Application	30184.15	Denali, Rialto Bioenergy Facility (during startup of pyrolysis facility,all biosolids have been dried to Class A and land applied	Yuma, AZ and Tacna, AZ (Denali) San Bernardino, CA (Rialto Bioenergy Facility)	Yuma, CA: 276.0 miles, Tacna, CA: 321.0 miles, San Bernardino, CA: 69.3 miles	Denali sites: $57.28 per ton (includes transport) Rialto Bioenergy Facility: $77.69 (includes transport)	$0 per ton

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)
		Landfill	165066.58	Holloway, Burrtec Salton City Landfill	Kern, CA (Holloway), Imperial, CA (Salton City Landfil)	Kern, CA: 168.0 miles, Imperial, CA: 165.0 miles	Holloway: $49.64 per ton (includes transport), Burrtec: $65.54 per ton (includes transport)	$0 per ton
	2021 (Valencia Water Reclamation Plant)	Landfill	28922.00	Holloway	Kern, CA	115.0 miles	$41.74 per ton (includes transport)	$0 per ton
	2021 (Palmdale Water Reclamation Plant)	Composting	9472.00	Synagro (SKIC), Synagro (Nursery Products)	Synagro (SKIC): Kern, CA Synagro (Nursery Products): San Bernardino, CA	Synagro (SKIC): 101 Synagro (Nursery Products): 60	$47.36 per ton (includes transport)	$0 per ton
	2021 (Lancaster Water Reclamation Plant)	Composting	13861.00	Synagro (SKIC), Synagro (Nursery Products)	Synagro (SKIC): Kern, CA Synagro (Nursery Products): San Bernardino, CA	Synagro (SKIC): 86 Synagro (Nursery Products): 54	$48.50 per ton (includes transport)	$0 per ton

Appendix D: Agency Challenges and Priorities

	Rate each challenge based on the priority to your agency								Planning		
Name of Agency	Rising Cost	Public Perceptions/Relation	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?	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e., AB 1826 or SB 1383)?	How is your agency preparing for Chemical of Emerging Concerns (PFAS, PFOS, Fire Retardants, Microplastics) in biosolids?
City of Corona	High	Medium	High	High	Low	High	Medium	N/a	No	No Changes	Have sampled for PFAS and compared results. Following regulations to understand future options for biosolids management
City of Redlands	High	Low	High	Medium	Low	Medium	Low	No	No	Not at this time	Sampling and monitoring regulations
City of Riverside Regional Water Quality Control Plant	High	Low	Low	Medium	Not a priority	High	Not a priority		Yes	Installing additional digestion capacity to facilitate co-digestion	Following regulatory sampling requirements as directed. Wait and see strategy.

Agency Challenges and Priorities

	Rate each challenge based on the priority to your agency								Planning		
Name of Agency	Rising Cost	Public Perceptions/Relation	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?	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e., AB 1826 or SB 1383)?	How is your agency preparing for Chemical of Emerging Concerns (PFAS, PFOS, Fire Retardants, Microplastics) in biosolids?
City of San Bernardino Municipal Water Department	High	Medium	High	High	Low	High	Low	Emerging constituents in biosolids; aging infrastructure	No	Difficulty to secure organic feedstock for co-digestion	Presently we are monitoring for CECs and data will be incorporated into future Biosolids Master Plan.

Agency Challenges and Priorities

	Rate each challenge based on the priority to your agency								Planning		
Name of Agency	Rising Cost	Public Perceptions/Relation	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?	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e., AB 1826 or SB 1383)?	How is your agency preparing for Chemical of Emerging Concerns (PFAS, PFOS, Fire Retardants, Microplastics) in biosolids?
City of Thousand Oaks	Medium	High	High	High	Low	High	Not a priority	Yes, finding new, affordable technologies to better manage biosolids	No	Completing contracts for accepting additional organic waste; City has just signed a long term contract with a new solid waste hauler that will be responsible for collecting and managing food waste from residents and businesses. Treatment plant is not available at this time for food waste acceptance but may be requested to in the future.	Per State mandate, we are currently participating in quarterly sample events to establish baseline loadings of PFAS/PFOS constituents. Staff also keeping up to date with new technologies that could possibly handle the CECs. Currently, biosolids are being composted

Agency Challenges and Priorities

	Rate each challenge based on the priority to your agency								Planning		
Name of Agency	Rising Cost	Public Perceptions/Relation	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?	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e., AB 1826 or SB 1383)?	How is your agency preparing for Chemical of Emerging Concerns (PFAS, PFOS, Fire Retardants, Microplastics) in biosolids?
Encina Wastewater Authority	Low	Medium	Medium	High	Low	Low	Not a priority	No	Yes	Installing additional digestion capacity to facilitate co-digestion; Potential to rehabilitate abandoned digesters to accommodate extra organics	Currently testing for PFAS
Inland Empire Utilities Agency	Medium	Low	Low	Low	Not a priority	High	Low	No	Yes	Difficulty to secure organic feedstock for co-digestion	Monitoring national and state responses to CECs, especially PFAS.
Las Virgenes Municipal District	High	Medium	High	Low	Not a priority	High	Not a priority	No	Yes	No Changes	N/A
Moulton Niguel Water District	Medium	Low	Medium	Medium	Not a priority	Medium	Not a priority	No	No	No Changes	Keeping up with new research and regulations

Agency Challenges and Priorities

	Rate each challenge based on the priority to your agency								Planning		
Name of Agency	Rising Cost	Public Perceptions/Relation	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?	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e., AB 1826 or SB 1383)?	How is your agency preparing for Chemical of Emerging Concerns (PFAS, PFOS, Fire Retardants, Microplastics) in biosolids?
Ojai Valley Sanitary District	Low	Low	Low	Low	Low	High	Not a priority	No	No	Nothing on the horizon for us.	PFAS sampling in Progress
Orange County Sanitation District	Medium	Medium	Medium	Medium	Not a priority	High	Not a priority	Technologies to address new potential regulations	Yes	Installing an organics co-digestion receiving facility; Difficulty to secure organic feedstock for co-digestion	Sampling and analysis, State Order, demonstration with Rialto Bioenergy Facility's pyrolysis unit.
San Elijo Joint Powers Authority	High	Medium	Low	High	Not a priority	High	Not a priority	Climate Change and Sustainability	No	No Changes	Testing to determine the extent of the issue
San Diego County Sanitation District	High	Low	Low	Medium	High	Low	High	Yes, concerned about staffing and shortage	No	Difficulty to secure organic feedstock for co-digestion	No immediate action on this matter

Agency Challenges and Priorities

	Rate each challenge based on the priority to your agency								Planning		
Name of Agency	Rising Cost	Public Perceptions/Relation	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?	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e., AB 1826 or SB 1383)?	How is your agency preparing for Chemical of Emerging Concerns (PFAS, PFOS, Fire Retardants, Microplastics) in biosolids?
Los Angeles Sanitation & Environment	High	High	High	High	Not a priority	High	Not a priority	No	No	Yes there will be changes due to emerging organic diversion regulations	No immediate action on this matter
Los Angeles County Sanitation Districts	Medium	Medium	High	High	Low	Medium	Low	Maximizing beneficial reuse opportunities within cost constraints	Yes	Installing an organics co-digestion receiving facility; Receiving infrastructure has been installed. In response to AB 1383, the Districts may aim to achieve 75% biosolids diversion which would allow jurisdictions to purchase	Engaging with peers and monitoring research on the topic.

Agency Challenges and Priorities

	Rate each challenge based on the priority to your agency								Planning		
Name of Agency	Rising Cost	Public Perceptions/Relation	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?	Does your agency foresee any changes in your operations based on emerging organic (food waste) diversion regulations (i.e., AB 1826 or SB 1383)?	How is your agency preparing for Chemical of Emerging Concerns (PFAS, PFOS, Fire Retardants, Microplastics) in biosolids?
										RNG from our Joint Plant facility and receive credit under SB 1383.	
Ventura Water Reclamation	High	Medium	Low	High	Medium	Low	Medium	Yes, concerned about hiring stuff	No	Difficulty to secure organic feedstock for co-digestion	biosolids sampling for PFAS/PFOS
Elsinore Valley Municipal Water District	High	Low	Low	High	Medium	High	Not a priority	No	Yes	No Changes	Monitoring & staying updated on changing regulations.

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)
City of Corona	No	No	No	No	No	No	No	N/A
City of Redlands	No	No	No	No	No	No	No	N/A
City of Riverside Regional Water Quality Control Plant	No	No	No	No	No	No	No	N/A
City of San Bernardino Municipal Water Department	No	No	No	No	No	No	No	N/A
City of Thousand Oaks	No	No	No	No	No	No	No	N/A
Encina Wastewater Authority	No	Yes	No	No	No	No	No	California
Inland Empire Utilities Agency	Yes	No	No	No	No	No	No	Multiple Counties in Southern California
Las Virgenes Municipal District	Yes	No	No	No	No	No	No	Los Angeles County, California
Moulton Niguel Water District	No	No	No	No	No	No	No	N/A
Ojai Valley Sanitary District	No	No	No	No	No	No	No	N/A
Orange County Sanitation District	No	No	No	No	No	No	No	N/A
San Elijo Joint Powers Authority	No	No	No	No	No	No	No	N/A
San Diego County Sanitation District	No	No	No	No	No	No	No	N/A
Los Angeles Sanitation & Environment	No	No	No	No	No	No	No	N/A

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)
Los Angeles County Sanitation Districts	Yes	No	No	No	No	No	No	Various areas by different contractors

Appendix F: Organics Diversion

Name of Agency	Organics Diversion						
	Any changes planned to this facility and/or solids digestion?	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
City of Corona	Continue as is	No	None	None	21583.24 wet tons	N/A	N/A
City of Redlands	Continue as is	No	None	None	5506.85 wet tons	N/A	N/A
City of Riverside Regional Water Quality Control Plant	Rehabilitation of 5th digerster to accommodate increased food waste	Yes	Food Waste	Food waste	37000.00 wet tons	Burrtec	Currently experimental, tipping fee study completed in DRAFT
City of San Bernardino Municipal Water Department	Future changes contingent on results of Biosolids Master Plan that is in progress	No	None	None	25621.34 wet tons	N/A	N/A
City of Thousand Oaks	Continue as is	Yes	FOG, brewery waste	FOG, brewery waste	10000.0 wet tons	Liquid Environmental Solutions, Stone Brewing, Buron's Pumping, Alpha Pumping, Coastal Byproducts, Envirotech Pumping	$.045/gallon screened FOG, $.09/gallon raw FOG, $.015/gallon brewery waste

Organics Diversion

Name of Agency	Organics Diversion						
	Any changes planned to this facility and/or solids digestion?	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
Encina Wastewater Authority	Continue as is	Yes	FOG, brewery waste	FOG, brewery waste	10488.00 wet tons	Liquid Environmental Solutions, Stone Brewing	$.045/gallon screened FOG, $.09/gallon raw FOG, $.015/gallon brewery waste
Inland Empire Utilities Agency (RP1)	Continue as is	No	None	None	42073.00 wet tons	N/A	N/A
Inland Empire Utilities Agency (RP2)	Decommissioning. Piping to new solids facility in 2025.	No	None	None	26520.00 wet tons	N/A	N/A
Las Virgenes Municipal District	Continue as is	No	None	None	3613.00 wet tons	N/A	N/A
Moulton Niguel Water District	Continue as is	No	None	None	1550.00 wet tons	N/A	N/A
Ojai Valley Sanitary District	Continue as is	No	None	None	3550.00 wet tons	N/A	N/A
Orange County Sanitation District (Plant No. 1)	Continue as is	No	None	None	370.00 wet tons	N/A	N/A
Orange County Sanitation District (Plant No. 2)	Continue as is	No	Food Waste	Food Waste	160.00 wet tons	Unknown	Unknown
San Elijo Joint Powers Authority	Continue as is	No	None	None	4228.00 wet tons	N/A	N/A
San Diego County Sanitation District	Belt Filter Press in 5 years	No	None	None	253.00 wet tons	N/A	N/A
Los Angeles Sanitation & Environment (Hyperion)	Continue as is	No	None	None	230000.00 wet tons	N/A	N/A

Organics Diversion

Name of Agency	Organics Diversion						
	Any changes planned to this facility and/or solids digestion?	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
Los Angeles Sanitation & Environment (Terminal Island)	Continue as is	No	None	None	10800.00 wet tons	N/A	N/A
Los Angeles County Sanitation Districts (Joint Water Pollution Control Plant)	Continue as is	Yes	Food Waste	Food Waste	429479.00 wet tons	Multiple	$25/ton
Los Angeles County Sanitation Districts (Valencia Water Reclamation Plant)	Continue as is	No	None	None	25554.00 wet tons	N/A	N/A
Los Angeles County Sanitation Districts (Palmdale Water Reclamation Plant)	Continue as is	No	None	None	9291.00 wet tons	N/A	N/A
Los Angeles County Sanitation Districts (Lancaster Water Reclamation Plant)	Continue as is	No	None	None	15213.00 wet tons	N/A	N/A

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?	If your agency does not use social media, how do you publicize your biosolids program?
City of Corona	No	None	None
City of Redlands	No	None	None
City of Riverside Regional Water Quality Control Plant	No	None	None
City of San Bernardino Municipal Water Department	No	None	None
City of Thousand Oaks	Yes	Agency Managed Website	None
Encina Wastewater Authority	Yes	Facebook	None
Inland Empire Utilities Agency	Yes	Agency Managed Website	None
Las Virgenes Municipal District	Yes	Agency Managed Website	None
Moulton Niguel Water District	Yes	Agency Managed Website	None
Ojai Valley Sanitary District	Yes	Agency Managed Website	None
Orange County Sanitation District	Yes	Agency Managed Website, External Website, Facebook, Instagram,	Newspaper or other print media
San Elijo Joint Powers Authority	Yes	External Website	None
San Diego County Sanitation District	No	None	None
Los Angeles Sanitation & Environment	Yes	Agency Managed Website	Newspaper or other print media
Los Angeles County Sanitation Districts	Yes	Agency Managed Website, other social media	None
Ventura Water Reclamation	Yes	Agency Managed Website	None
Elsinore Valley Municipal Water District	No	None	None