



June 23, 2017

California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
Email: Climate@Resources.ca.gov

Re: California Association of Sanitation Agencies Comments on the DRAFT REPORT Safeguarding California Plan: 2017 Update - California's Climate Adaptation Strategy

To Whom It May Concern:

The California Association of Sanitation Agencies (CASA) appreciates the opportunity to comment on the *Draft Safeguarding California Plan: 2017 Update - California's Climate Adaptation Strategy* (Draft Update).

CASA is an association of local agencies that represent more than ninety percent (90%) of the sewered population of California, engaged in advancing the recycling of wastewater into usable water, as well as the generation and reuse of renewable energy, biosolids, and other valuable resources. Through these efforts we help create a clean and sustainable environment for Californians within an integrated water management framework. Our members are focused on helping the State achieve its 2030 mandates and goals (also referred to as the Governor's Five Pillars and consistent with the Under2 Coalition objectives), which include:

- Reducing short-lived climate pollutant (SLCP) emissions
- Effectively diverting organic waste from landfills
- Providing 50 percent of the State's energy needs from renewable sources
- Reducing carbon intensity of transportation fuel used in the State
- Increasing soil carbon and carbon sequestration under the Healthy Soils Initiative and Forest Carbon Plan

Our comments are provided below for your consideration - beginning with comments specific to the wastewater sector, followed by comments per economic sector identified in the Draft Update.

Wastewater

As noted on the previous version, the Draft Update fails to emphasize the vulnerability of wastewater infrastructure to impacts of climate change and the overall value of the wastewater sector to the resilience of communities under a changing climate (being significant renewable energy providers, low carbon fuel providers, suppliers of a marketable renewable organic fertilizer/soil amendment product, and suppliers of a sustainable, drought-proof water supply) – there is brief mention of wastewater in only two sections, the Ocean and Coast and Water sections. **CASA strongly recommends that the Water section of the Draft Update be re-titled as "Water/Wastewater" recognizing the vital public service municipal wastewater treatment plants serve and that they will be heavily impacted by climate change.**

Predictions for increasing climate change bring with it the possibility of many effects, including:

- Sea level rise and storm surge impacts
- Increased extreme precipitation events
- Increased drought conditions
- Reduced wastewater flows as a result of increasingly restrictive indoor water uses

Each of these can have dramatic impacts on the operation of treatment plants that can increase energy requirements due to enhanced treatment needs and potentially require very expensive capital improvements to adapt to these changes. Reduced wastewater flows as a result of increased indoor water

conservation can have significant corrosive impacts on pipelines as well, potentially causing premature aging and accelerated repair and replacement schedules.

Sea level rise and storm surge impacts. Treatment plants are generally located at the low point in each watershed to make efficient use of gravity for conveyance purposes. This means that in coastal areas, wastewater facilities are often located near the coast or an estuary, and may have an ocean or bay outfall with a direct hydraulic connection to the facility. Even in the case of inland locations, treatment facilities and the outfalls are often found within river valleys and floodplains. As sea level rises and storm surges increase:

- Facility outfalls may need to be elevated or may require pumping in order to discharge.
- Inundation of facilities, including higher coastal groundwater levels causes more inflow of brackish or salty water that in turn requires higher volumes or treatment levels (and makes water recycling more energy intensive).
- Increased inland flooding events will put critical infrastructure and services at risk of failure.
- Accelerated deterioration of sea walls that protect coastal properties from erosion may put treatment plants at risk of land subsidence.

Increased extreme precipitation events. In many circumstances, wastewater collection systems are already stressed when managing wet weather flows. In a changing climate, we expect further increases in extreme storm events and more frequent peak wet weather flows, further stressing this critical infrastructure. Flood protection adaptation measures such as levees and seawalls will be needed to stem both rising seas and floods associated with increased and extreme precipitation and runoff. Extreme storm events and overall precipitation increases will also require wet weather program enhancements like stormwater capture and reuse. As cities begin to comply with stringent stormwater regulations, many wastewater treatment agencies are increasing efforts to capture and treat stormwater. Wet weather events within the last five years in places like Colorado, the New York Metropolitan area, and Texas appear to be a portent of the climate-modified environment we face. Extreme storms can result in water inflow that exceeds the current capacity of much of our wastewater infrastructure, meaning we will need to invest significantly in upgrading systems to prevent sewage overflows and potential impacts to public health. Thus, wastewater agencies will acutely experience the effects of storm events attributable to climate change.

Increased drought conditions. Conversely, worsening drought conditions could have a two-fold impact on wastewater treatment plants. First, drought may alter water quality upstream of natural surface waters, limiting the watershed's ability to receive treated wastewater, thus leading to potential discharge violations. This watershed impairment could lead to the need for enhanced treatment, most often requiring significant plant modifications and greater energy usage. In lieu of increased treatment requirements, temporary discharge permit relief should be sought with the appropriate regulatory authorities, in recognition of the need for critical water resources.

Second, drought-stricken regions may opt to reduce their dependence on imported water by recycling their wastewater instead of discharging (possibly wasting) that flow to local streams or the ocean. Recycled water use (inclusive of potable reuse) is a fundamental strategy in the Governor's Water Action Plan and should be identified as such in the Draft Update. Additionally, we recommend that the Draft Update recognize that increases in indoor water conservation may have negative impacts on wastewater systems and recycling/reuse.

Cost to the Wastewater Sector

CASA and National Association of Clean Water Agencies (NACWA) have testified to the United States Congress that *existing* infrastructure demands on wastewater agencies are estimated to exceed \$298 billion over the next 20 years.¹ Additionally, the American Society of Civil Engineers (ASCE) recently assigned an overall grade of "C" to California's infrastructure ("C+" for wastewater) with an annual shortfall of \$65 billion. These amounts do not consider the additional costs to rectify climate change impacts.

¹ "Clean Watersheds Needs Survey 2008: Report to Congress." USEPA, May 2010.

In 2009, NACWA and the Association of Metropolitan Water Agencies (AMWA) studied the impacts and challenges the wastewater sector expects to encounter in the coming years (including impacts of climate change), and the projected costs of meeting those challenges. The report projects nationwide costs for water and wastewater climate adaptation needs could range from one-half to one trillion dollars through 2050. Of this, the total estimated cost to adapt wastewater systems to climate change across the U.S. is between \$123 billion and \$252 billion, **above and beyond** existing wastewater system infrastructure upgrade, renewal, and replacement needs.² Please note that this analysis did not take into consideration the potential accelerated deterioration of wastewater systems as a result of water conservation mandates. The State's first efforts should be to prioritize water supply options that are protective of wastewater and recycling systems (i.e., integrate water and wastewater life cycle analyses) and address the unmet existing infrastructure needs that place the State at further risk to climate change impacts.

The Wastewater Sector Contributes to the Overall Resilience of Communities

As summarized above, climate change will acutely impact wastewater treatment facilities and infrastructure on a number of fronts, and the wastewater sector has multiple ways in which it can contribute toward a more resilient water supply for the State and nation. In addition, the wastewater sector has various opportunities across the ten sectors identified in the Draft Update. These opportunities can contribute toward multiple 2020, 2030, and 2050 mandates and goals under AB 32 and SB 32. However, there are challenges or barriers that prevent publicly owned treatment works (POTWs) from fully contributing towards each. CASA has developed the following comments by sector for CNRA's consideration.

Agricultural

CASA supports the adaptive activities identified to protect California agriculture from the impacts of climate change, including developing management strategies that reduce climate risks to agriculture (e.g., the Healthy Soils Initiative) and to water (e.g., enhanced flood management, outdoor water use efficiency, and regional groundwater management).

In support of the Healthy Soils Initiative, CASA recommends using a replacement fertilizing/soil amending material that reduces water demand, reduces GHG emissions, sequesters carbon in the soil below, and provides other co-benefits. Specifically, land application of highly treated wastewater solids (biosolids) should be considered as an efficient recycling practice that avoids use of fossil fuel intensive synthetic fertilizer (requiring approximately 0.22 gallons of fossil fuel per pound of inorganic nitrogen), reduces water demand, and sequesters carbon in the soil. Studies have shown that land applied finished compost and other biosolids serve to increase carbon storage in the soil. One of these studies showed that over a 34-year reclamation project, the mean net soil carbon sequestration was 1.73 (0.54-3.05) megagrams of carbon per hectare annually in biosolids amended fields as compared with -0.07 to 0.17 megagrams of carbon per hectare annually in synthetic fertilizer controls, demonstrating a high potential of soil carbon sequestration by the land application of biosolids.³

Energy

CASA supports CNRA's push to diversify the energy supply portfolio. Unfortunately, there was no mention of bioenergy sources (specifically, biogas and sewage sludge) from POTWs.

Increasing the production and use of biogas (bioenergy) at POTWs provides numerous co-benefits, including: (1) reduced GHG emissions through the increased capture and utilization of biogas; (2) increased production of renewable energy displacing fossil fuel use, which helps meet the renewable portfolio standard (RPS) goals under AB 32 and SB 32; (3) avoided landfill methane emissions from decomposition of high-strength waste (e.g., food waste) by diverting that waste to existing anaerobic digesters at POTWs having excess capacity; and (4) production of low carbon intensity fuels designed to meet the low carbon fuel standard (LCFS) under AB 32 and SB 32.

² "Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs," Association of Metropolitan Water Agencies, National Association of Clean Water Agencies, 2009.

In addition, increased energy generation and cogeneration (i.e., combined heat and power - CHP) capacity at POTWs may provide the most reliable (i.e., sustainable) source of distributed generation currently available, with the added benefit that POTWs will always need to be located relatively close to the customers they serve (be a local source of energy). Resource recovery and energy generation activities will generally be conducted onsite at the treatment facilities, making energy generation and distribution at numerous treatment facilities a key component to distributed generation.

We estimate that the wastewater sector has existing excess capacity to co-digest up to 75% of the food waste and fats, oils, and grease (FOG) currently being landfilled. Many POTWs already have anaerobic digestion infrastructure in place, and they are increasingly providing the option to receive hauled-in organic waste (such as FOG and food waste) and anaerobically digesting it. In order to maximize the benefits associated with these activities, CASA is engaged in the rulemaking under SB 1383 and is working with CalRecycle and CARB to develop the necessary incentives, address long-term risks to public agencies, and reduce cost and regulatory (including permitting) barriers to get the necessary equipment for pre-processing hauled-in waste streams to a digestible form, infrastructure for anaerobic digestion, and equipment necessary for processing biogas into a pipeline grade or transportation fuel in place. In addition, we would like to work with CNRA, CARB, and the California Public Utilities Commission (CPUC) in examining interconnection issues, as well as research, development and demonstration of bioenergy and cogeneration technologies.

Forests

CASA supports the effort to improve forest management practices and the capacity of the forest sector to withstand and recover from climate impacts in order to protect the value and continued productivity of forest resources. Protecting forest ecosystems provides many co-benefits, including improved water quality and supply, wildlife habitat, air quality protection, recreation values and more. Benefits should extend to POTWs since the use of biosolids to reclaim fire-ravaged land and to reduce the potential of future fires is a proven but underused strategy (adopted in Santa Ana Regional Water Quality Control Board Emergency Resolution following the Freeway Complex Fires of 2008). To reduce wildfire risk, the State Fire Plan should consider use of biosolids from POTWs as a means for reclaiming fire-ravaged land (carbon sequestration) and fire prevention.

Transportation

CASA members can support this sector in achieving GHG emissions reduction goals for 2020, 2030, and 2050 under AB 32 and SB 32, as well as RPS and LCFS goals, through production of renewable transportation fuel from wastewater biogas. As part of CNRA's action item to better understand the opportunities associated with alternative energy supplies for vehicles, CASA will continue working with CARB (and would like to coordinate that work with CNRA) to identify opportunities and barriers in installing on-site facilities for direct energy production from biogas and/or conversion of biogas to transportation fuel. Investment in this area will help ensure that wastewater biogas is used to produce ultra-low carbon fuels and clean, renewable electricity instead of flaring (i.e., wasting) a valuable fuel supply.

Water

This section focuses on ways to adapt the State's water resources under changing climatic conditions and providing long-term solutions. As you are aware, California's prolonged drought has had crippling economic impacts in the Central Valley, the nation's most productive agricultural region. Throughout California, the impact of unpredictable precipitation and record-low snowpack levels resulted in unprecedented efforts to reduce water consumption. This is being accomplished through conservation efforts and the development of underused water supply sources such as recycled water and desalination projects. The need for alternative and sustainable local water supply sources will only increase in light of expected climate change impacts.

CASA agrees that diversifying local supplies is key - recycled water (both non-potable and potable reuse) and desalinated water are significantly underused reliable and local water resources that the wastewater sector can provide. Ultimately, sustainable water supply decision-making must be made at the local level since each has unique conditions that must be addressed. Robust planning, however, should include a

review of anticipated impacts to water and wastewater systems as an integrated unit. The two are inherently connected – decisions made by water agencies will impact wastewater conditions.

Conclusions

We agree with CNRA that legislative and regulatory support is needed in order for the wastewater sector to help the State move toward climate resiliency while continuing to fulfill our primary mission to protect human health and the environment. As it states in the Draft Update, “The recommendations in the Safeguarding California Plan are meant to work with existing laws and regulations; however, in order to fully implement actions to prepare for climate risks in California, some laws may need to be amended to better reflect new and changing climate conditions that did not exist when those laws were initially enacted, and new implementing authorities may be needed.”

Again, CASA appreciates the opportunity to provide comments on the Draft Update. Public wastewater agencies can play an important role in delivering climate change solutions. ***The view of wastewater facilities is evolving – from one of being a waste processor to being invaluable resource recovery facilities imperative to our future.*** We want to emphasize the interconnectivity of wastewater systems with water systems and the opportunities of wastewater agencies as being significant renewable energy providers, suppliers of a marketable renewable organic fertilizer/soil amendment product, and suppliers of a sustainable (drought-proof) water supply. In many cases, all that is lacking is the funding to develop the appropriate infrastructure and technological support to make these projects a reality.

Thank you for considering our comments. Please contact me if you have any questions at (925) 705-6404 or via email at sdeslauriers@carollo.com. We look forward to working together as proactive partners on our multitude of shared objectives.

Sincerely,



Sarah A. Deslauriers, P.E.
CASA Climate Change Program Manager

cc: Mary Nichols – Chair, California Air Resources Board
Ryan McCarthy – California Air Resources Board
David Mehl – California Air Resources Board
Cliff Rechtschaffen – California Public Utilities Commission
Martha Guzman-Aceves – California Public Utilities Commission
Jamie Ormond – California Public Utilities Commission
Max Gomberg – State Water Resources Control Board
Scott Smithline – Director, CalRecycle
Howard Levenson – Deputy Director, CalRecycle
Rob Oglesby – California Energy Commission
Ashley Conrad-Saydah – Deputy Director, California Environmental Protection Agency
Jenny Lester Moffitt – Deputy Secretary, California Department of Food and Agriculture
Karen Ross – Secretary, California Department of Food and Agriculture
Julia Levin – Executive Director, Bioenergy Association of California
Bobbi Larson – Executive Director, California Association of Sanitation Agencies
Greg Kester – Director of Renewable Resource Programs, California Association of Sanitation Agencies