



# Climate Change Disclosure in Municipal Offerings

The Municipal Securities Disclosure Series, Part I

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**Background.** Climate change is among the hottest current discussion topics in municipal securities disclosure. Recently, regulators in the Office of Municipal Securities of the Securities and Exchange Commission (SEC) have repeatedly and publicly expressed concerns about the adequacy of municipal offering disclosures relating to climate change. This should not be surprising, given the prevalence, profile, and significant expense of increasingly frequent major storms—not to mention requirements for corporate registrants to include line-item disclosures on this topic in their SEC filings.

The adequacy of disclosure is assessed based upon a standard of materiality. Courts have found that information is material to investors if there is a substantial likelihood that a reasonable investor would consider it important in making an investment decision. In assessing whether *omitted* information (more relevant to this topic) would have been material, courts consider whether there is a substantial likelihood that the disclosure of the omitted information would have been viewed by a reasonable investor as having significantly altered the total mix of information available. The “total mix of information” includes information known or reasonably available to investors, including information reported in the press, published reports by private experts or public officials, or information otherwise available in the public domain. Materiality may depend on the range of damage or harm that could result from the risks, including increased operating costs associated with mitigation strategies (operational changes, additional personnel, training, third-party consultants, etc.), repairs to damaged facilities, legal risks and litigation expense, lost revenue, increased insurance premiums, reputational harm, reduced competitiveness, or changes in the market value of public debt securities.

The lack of robust, consistent disclosure on climate change in municipal offerings may be attributable to several factors, including a lack of certainty of the potential impacts of climate change, a misunderstanding of the issue by the individuals who prepare disclosures, expected time frames for the realization of impacts from long-term climate change relative to the final maturity of the offered bonds, disbelief in the existence of climate change, the location of financed facilities, and expectations of future mitigation strategies. These and other factors, whether accurate or not, have resulted in widespread inconsistency and a lack of urgency in obligated parties’ approaches to disclosure. The recently published Fourth U.S. National Climate Assessment (<https://www.globalchange.gov/nca4>), however, highlights the increasing need for robust disclosures of risks and mitigation measures relating to climate change. For comparison, attached is an example of a robust climate change disclosure by a corporate registrant in Exhibit A.

Further, disclosure that fails to provide more than a generic discussion of climate change awareness would likely fall short of properly disclosing relevant information to allow investors to assess risks and mitigation strategies. Proper disclosure should provide specific descriptions of (1) known impacts and identified risks of climate change relating to the obligated party's own facts and circumstances and (2) specific adaptation strategies planned or undertaken to manage the same. Such disclosures would provide investors with available information to formulate a risk profile and assess the extent to which disclosed adaptation strategies would actually address the perceived risks.

Disclosures on risks usually take two complementary forms: (1) risk matters/investment considerations and (2) management discussion of mitigation strategies to reduce those risks. These are two different types of disclosures, but issuers and underwriters should consider them in tandem to fully convey to prospective investors the likelihood and potential magnitude of the risks, as well as the nature and efficacy of the responses undertaken by an issuer to address the perceived risks. Investors will want to assess the adequacy (and reasonableness) of the disclosure for the level of risk and the nature and quality of the management capabilities and efforts of the issuer.

Below are recent examples of elements of climate change disclosures identified from a diverse sampling of public debt offerings around the country. These examples have been selected to present different risks and specific elements of climate change disclosure. Taken together, they serve to highlight various disclosures that market participants should consider in drafting their own disclosure of climate change risks and mitigation strategies.

**Elements of Climate Change Risk, Adaptation, and Resiliency Disclosure.** The type and adequacy of climate change risk and mitigation disclosures will invariably depend on the facts and circumstances of the individual credit. Certain specific risks (e.g., drought, flood, wildfires, seismic activity, and tsunami inundation) may apply to some credits but not others, often due to location. Below are examples of effective climate risk disclosures identified from some recent offerings.

### ***Floods***

*Catastrophic Flooding.* Catastrophic flooding is an increasingly common risk due to climate change. Below is an example of a disclosure of the risk of catastrophic flooding and the mitigation efforts already implemented (at considerable expense) by the City of New Orleans (post-Katrina). Note that the City discloses the risk that its mitigation measures may not be effective to prevent another significant flooding event.

#### ***Levees and Flood Protection***

*Coastal Louisiana, including the City, is susceptible to hurricanes wherein winds and flooding have from time to time caused significant damage, particularly in the case of Hurricane Katrina.*

*Subsequent to Hurricane Katrina, the U.S. Army Corps of Engineers has undertaken a project consisting of the planning, design and construction of a flood protection system for the Metropolitan New Orleans Area. The flood protection system includes improved levees and floodwalls and temporary and permanent floodgates. Construction has been completed on several portions of the flood protection system improvements, and construction has commenced on others. Substantially all proposed*

*flood protection system improvements have been completed at a total cost of approximately \$14 billion. Notwithstanding the foregoing, the City can give no assurance that the proposed flood protection system improvements will prevent wind damage and flooding resulting from future significant weather events.*

*Disclosure of Past Events.* If the credit has already suffered a material loss associated with climate change, this example from Toms River, New Jersey, which incurred significant impacts from Super Storm Sandy, may be helpful. This example highlights the underwriting concern that flood risk may not only relate to facility operational risk, but also directly affect assessed property valuations and, therefore, the general revenue tax base.

### ***SUPER STORM SANDY AND ITS AFTERMATH***

*On October 29, 2012, Super Storm Sandy, then a Category 1 post-tropical cyclone, struck the Atlantic Coast of the State. The resulting storm surge and winds caused catastrophic damage to many coastal and riverfront communities, as well as widespread physical damage (including loss of electrical power and other utilities) throughout the State of New Jersey. In the days following the storm, most schools and businesses—and many roads, bridges and public transportation systems—were closed. The full extent of the damage caused by Super Storm Sandy exceeded \$55 billion. In January of 2013, Congress approved legislation to provide over \$60 billion in assistance to communities affected by Sandy.*

*The Township sustained substantial damage from both wind and storm surge. Portions of the Township located on the Atlantic Ocean barrier island sustained catastrophic damage. Mainland portions of the Township (particularly along the Barnegat Bay waterfront) also sustained substantial flooding during and after the storm. Much of the Township lost electrical power, and transportation was disrupted. The nearby barrier island communities of Seaside Heights, Seaside Park, Mantoloking, and Lavallette, among others, also sustained catastrophic damage. Electric power has been restored to the mainland and gas and electric service has been restored to 99% of the Barrier Island.*

*Certain expenses related to debris removal, emergency protective measures, repairs and reconstruction of roads, bridges, utility systems and governmental buildings, and restoration of parks are eligible for financial assistance from the Federal Emergency Management Agency (“FEMA”). FEMA established a presence in the area, and sufficient federal funding is available to meet all valid claims. Some expenses are reimbursable at a level of 100% while others are only reimbursable at 90%. Some expenses which must be paid over an extended period of time after the storm may not be reimbursable. New Jersey State law permits local governmental entities to borrow to pay for certain extraordinary expenses caused by natural disasters such as Super Storm Sandy.*

*Final estimates of the economic impact of Super Storm Sandy are as follows:*

### ***Assessment of Damage to Township-Owned Facilities***

*Estimated damage assessment of all Township-owned facilities and infrastructure on the barrier island and the mainland to address the damage caused to those facilities, including roads, the storm sewer systems, bulkheads, township-owned buildings that sustained damage, the dunes/beach areas, and the boardwalk is \$24 million.*

### ***Debris Removal and Disposal***

*On Friday November 16, 2012, the Township approved a shared services agreement with Ocean County (the "County") for debris removal and monitoring of debris removal for costs through May 22, 2013. All costs associated with debris removal from November 17, 2012 forward were borne by the County and the County sought and received FEMA reimbursement for those costs. Debris removal costs borne by the Township prior to that date were approximately \$3 million.*

*On November 16, 2012, the Township adopted a Special Emergency Resolution under the NJ Local Budget Law declaring a special emergency in the amount of \$35,000,000, to provide the authorization to make appropriations and issue special emergency notes to pay for certain of the aforementioned expenses. Under the Local Budget Law, the Township is required to reduce its appropriation over a period of not more than 5 years in equal annual amounts. On December 27, 2012, the Township issued a \$24,671,700 Special Emergency Note ("2012 SEN") which matured on December 27, 2013. On December 27, 2013, the Township issued a \$22,737,360 Special Emergency Note ("2013 SEN") which matured on December 26, 2014, for the purpose of refinancing \$19,737,360 of the 2012 SEN and issuing \$3,000,000 in additional funding. On December 19, 2014 the Township issued a \$17,203,020 Special Emergency Note ("2014 SEN") for the purpose of refinancing \$17,203,020 of the 2013 SEN. On December 18, 2015, the Township issued a \$6,668,680 Special Emergency Note ("2015 SEN") for the purpose of refinancing \$6,668,680 of the 2014 SEN. The Township utilized FEMA reimbursements to retire a portion of the 2015 SEN maturing on December 16, 2016.*

*As a result of widespread damage to private property resulting from Super Storm Sandy, the Township Tax Assessor proactively reduced the assessments for properties that sustained damage from Super Storm Sandy. These adjustments reduced the overall valuation base for 2013 by \$2.025 billion as shown below. Additionally, prior to Super Storm Sandy, the Township began a reassessment of all properties and completed the reassessment by April 15, 2013, which encompassed all properties. In 2013, there were a total of 566 tax appeals filed including properties in the storm-damaged areas and properties outside of the storm-damaged areas. Final County Tax Board judgements resulted in overall reductions in the assessed valuation base of \$33,777,000, translating into refunds of approximately \$686,700 and NJ State Tax Court decisions and judgements*

resulted in overall reductions in the form of refunds/credits of approximately \$750,000. The Township applied for and received approval from the NJ Local Finance Board on November 13, 2013, to issue tax appeal refunding Notes which have since been paid off by the Township.

The damage to the assessed valuation base attributable to Super Storm Sandy is as follows:

Barrier Island (\$1,743,890,200)

Mainland (\$ 281,992,900)

**Total Reduction (\$2,025,883,100)**

The reduction due to Super Storm Sandy represented 12.41% of the ratable base. Since that time, the Township has experienced a recovery of a large portion of the ratable base. Since 2013, the Township experienced a recovery of \$1.25 billion of the total ratable base that was damaged by Sandy which represents a “recovery” of greater than 60% of the properties that were damaged. Currently, as of 10/1/16, the recovery is continuing at a more rapid pace as evidenced by the following statistics reflecting the rebuilding of homes in the Sandy damaged areas. The figures show that 77% of the properties that were “substantially damaged” (i.e. damage greater than 50% of the value of the property) have either been reconstructed or are in the process of being reconstructed:

<b><i>Sandy Damaged Properties ONLY</i></b>	<b><i>Approved</i></b>	<b><i>Completed</i></b>	<b><i>Completed</i></b>
<i>Demolition Permits</i>	2035	1970	96.81%
<i>New Home Permits</i>	1834	1387	75.63%
<i>Elevation Permits</i>	1112	692	62.23%
<b><i>Substantially Damaged Homes”</i></b>	<b>3795</b>	<b>2946</b>	<b>77.63%</b>

It is estimated that it will take an additional 3 years to fully recover from the damage sustained from Super Storm Sandy.

As further evidence of the ongoing recovery process, the number of tax appeals for Sandy damaged properties have continued to decrease steadily since 2013. The Tax Assessor completed a reassessment as of April 1, 2014 which has aided in the recovery process noted previously. Additionally, tax collection rates have been very good with a rate of 97.66% in 2013, 97.81% in 2014 and 97.88% in 2015.

The Township received additional aid in the form of a \$5 million FEMA Community Disaster Loan in 2013. In addition, the Township applied for and received federal funding in the form of Community Development Block Grant Essential Services funding (CDBG ESG) in 2013 of \$15.5 million, \$10,095,291 in 2014, and \$7,673,000 in 2015. In 2013, the Tax Levy for Municipal Purposes went down by over \$5 million.

*With the assistance provided by the NJ Department of Community Affairs through the CDBG ESG program, the Township has been able to adopt and implement a statutory cash basis budget as required by law for all budget years since Sandy (2013, 2014, 2015 and 2016).*

*As described, on March 12, 2013, the Township amended the Sandy Resolution (\$10,000,000 of which had been cancelled at year-end) to increase the appropriation by \$21,000,000 to \$46,000,000 (\$10,000,000 of which is for capital projects). The Township issued an \$11,000,000 Special Emergency Note on June 26, 2013 which was subject to the same FEMA reimbursement and pay down requirements as described above. On June 24, 2014, the Township issued a \$2,100,000 special Emergency Note, reflecting the required payment of \$2.2 million and the cancellation of \$6.7 million due to decreased expenses relating to demolition and easement costs. On June 16, 2015 the Township issued a \$1,575,000 Special Emergency Note, reflecting the required payment of \$525,000. On June 21, 2016 the Township issued \$1,050,000 Special Emergency Notes reflecting a required pay down of \$525,000.*

*On April 23, 2013, the Township adopted a bond ordinance in the amount of \$38 million to finance various capital expenditures and repairs associated with Super Storm Sandy (which included \$10,000,000 of the new special emergency appropriation referenced above). The Township issued a \$17,000,000 Bond Anticipation Note on June 26, 2013 and refinanced said amount with the issuance of a \$14,915,000 Bond Anticipation Note on June 24, 2014 and a \$13,909,200 Bond Anticipation Note on June 16, 2015. On June 21, 2016 the Township issued a \$15,217,622 Bond Anticipation Note to refund \$11,467,622 of such maturing notes, and to finance \$3,750,000 in additional costs. The pay downs were made from insurance proceeds received by the Township. Under the Local Bond Law, bond anticipation notes may be rolled over annually without principal pay down prior to the third anniversary of original issuance. Certain of such capital expenditures and repairs are also eligible for FEMA reimbursement, which would reduce any rollovers.*

*Dam Safety.* A separate risk related to flooding is dam and reservoir integrity and overflow. When flooding occurs, officials may make an intentional decision to allow it to occur in certain locations to spare others, as happened with the Barker Reservoir adjacent to a suburb of Houston during Hurricane Harvey in 2017. Emergency water releases over spillways may also threaten downstream communities, as occurred with the Oroville Dam in California in 2017. Due to the aging of our national infrastructure and owner neglect, many jurisdictions have begun to assess dam safety, including classifying dams by their level of repair and risk of failure (likelihood and magnitude). An underwriter's analysis should include the sufficiency of insurance to mitigate these risks. Below is an example of disclosure from a development district in Colorado concerning the risk of catastrophic dam failure, classification of dam condition, and related development risks.

*Dams.* Both Bristlecone Lake and Pinon Lake, which border portions of the Development, have been classified as "significant hazard dams" by the Colorado Department of Water Resources. This classification relates to the damage that could be

*caused to life and property in the event of a dam failure. Significant hazard dams are those where failure of the dam would cause extensive property damage but is not expected to cause loss of human life. No assurances can be given as to whether such conditions associated with such dams will impact any portion of the Development and the effect, if any, that the existence of such dams might have on the Development achieving the anticipated absorption schedules set forth herein. The existence of the dams could have an adverse effect, among other matters, on the availability of property insurance.*

*Disclosure of Mitigation Efforts.* It is important for municipalities to plan for climate change and proactively seek methods to *mitigate* perceived material risks. The City of Seattle has created a task force to analyze climate change impacts on the City. A recent offering document includes a disclosure on climate change.

### ***Climate Change***

*Climate change has affected and is projected to continue to affect the water cycle and hydrology, which will have varying implications for drinking water, stormwater, and wastewater utilities. The SPU Climate Resiliency Group (the “CRG”), which is located within the Office of Utilities Services, leads and directs SPU’s corporate-wide response to climate change. The CRG’s program addresses three main categories: conducting research to assess how climate change can affect SPU’s interests, developing collaborative partnerships and influencing policy, and building institutional capacity in order to develop adaptation and mitigation strategies that can be incorporated into SPU operations, capital planning, and overall decision-making processes.*

*SPU’s initial work on climate change focused on assessing how climate change will affect drinking water supply. That continues to be a sustained focus of SPU, but the work has also broadened to include drainage and wastewater issues. SPU has assessed the exposure of SPU assets to sea level rise along the marine shoreline of the City, and has modeled the combined effects of sea level rise with extreme precipitation events. SPU is currently extending that work to identify precipitation thresholds and associated capacity constraints in the non-tidally influenced sewer network. SPU is also exploring the development of “climate-perturbed” intensity, duration, and frequency curves. The completed and planned analysis will be reflected in guidance documents that can inform capital investment decisions through SPU’s asset management process.*

*SPU’s current Strategic Business Plan calls for the development of a drainage and wastewater adaptation strategy. Work on the strategy will start in 2016 and will provide an overall strategic framework for how SPU will adapt the Drainage and Wastewater System and services to a changing climate. See “Strategic Business Plan.”*

### ***Emergency Operations Plan***

*The City maintains an integrated emergency management system in which all hazards are considered in a central planning structure. See “The City of Seattle—*



*Emergency Management and Preparedness.” In addition, SPU has both a Continuity of Operations Plan and an Urban Flood Response Plan.*

### ***Drought Risk***

Climate change is not just about flooding and storm events. In many parts of the country, rising temperatures, long-term drought, and wildfires (discussed further below) pose a much more significant threat to bondholders.

Below is a risk disclosure from a Rocky Mountain–area municipal water revenue bond deal in which drought, rather than flooding, was the material risk. However, the issuer had not yet been able to fully ascertain the impacts of climate change on its revenue base.

***Climate Change.** Planning for climate change in the State and its impact on the operations of the District Facilities is particularly challenging. The State’s climate is exceedingly variable and projections of future conditions range significantly. While projections in the State indicate rising average temperatures, precipitation projections are much less clear and often contradictory. Seasonally, winter precipitation is not projected to decrease, although some spring and fall precipitation could fall in the form of rain instead of snow and snowpack lifespan may change as the climate warms. Other potential impacts include changes in the length, intensity, and frequency of droughts and floods; evaporation, evapotranspiration and sublimation patterns; soil moisture, groundwater levels; and watershed changes from forest fires, dust-on-snow deposits, and vegetation composition. Such changes may lead to lower supply and higher demand for water. The financial impact of the climate change is not yet known and therefore its future impact on Net Revenues cannot be quantified reliably at this time.*

Below is an example of drought disclosure in which the connection between drought conditions, water rationing, and system revenue is identified.

***Drought.** Periodically, the State experiences drought conditions. The District has a strong focus on water conservation as further described in “THE SYSTEM.” Any reduction in the amount of water sold by the District, including reductions resulting from conservation measures or drought response, could reduce Net Revenues in the future. Although the District may increase rates and charges without restriction in response to lower usage (and may be required to do so to satisfy the rate maintenance covenant of the Bond Resolution), it is not possible to predict at this time whether any rate increases can or will be implemented in time to pay debt service on the Bonds in any given fiscal year.*

In the example below, the drought disclosure also focuses on applicable interstate agreements, which govern—and, in some cases, limit—water withdrawals from shared water sources.

***Drought Conditions.** The amount of available water depends on many factors, including water quality, economics, delivery system restrictions and maintenance of adequate carry-over storage for droughts. As with all other water providers, the City’s*

*water supply is subject to environmental conditions resulting from the semi-arid climate of the State, and the water supply is impacted by drought from time to time. In addition, the amount of water available for use under water rights owned by the City may be limited by the operation of Colorado's water rights administration system, also known as the prior appropriation doctrine, which allocates the use of water to users in accordance with the seniority of their water rights. Accordingly, in times of drought, the City's water rights could be curtailed, which could result in less water availability. Additionally, Colorado is a party to numerous Interstate Compacts and United States Supreme Court decrees that apportion water deliveries to Colorado's neighboring states from the seven river basins of Colorado. In times of drought, interstate delivery obligations could limit the amount of water available for use in Colorado. Despite drought conditions affecting certain other western states (excluding Colorado), the City's water supply has not been curtailed to meet any obligations existing under any Interstate Compacts in 2014 or thus far in 2015.*

*In times of drought in Colorado, the City's drought response strategy establishes a progressive response to worsening drought conditions. The Council will consider a range of hydrologic indicators such as snowpack, precipitation and stream flow which consequently determine the reservoirs' storage levels. In addition, the Council will consider other factors such as political, social and economic conditions to determine appropriate drought response actions. The City maintains a strategic water reserve of 7,400 acre-feet that is designed to sustain the System through a continuous four-year drought. Specific drought response actions are aimed at increasing water supplies and reducing water use.*

## **Wildfires**

Other natural disasters may pose particular risks to certain municipalities, especially wildfires in arid and semiarid areas.

Below is an example of a very specific wildfire risk disclosure from a large Colorado development district offering. The disclosure includes a discussion of the magnitude of the wildfire risk, including examples of past wildfires within the district.

**Wildfire.** *The Development is located in an area that has been rated as low hazard for meadows and severe hazard rating for trees. The property within the Development has a distinct wildfire history; there are burn sites within the boundaries of the Development from historical wildfires and numerous large wildfires have burned within 5 miles of the property comprising the Development, including the Black Forest Fire, which, according to the El Paso County Sheriff's Department, burned 14,280 acres, destroyed 489 homes, and killed 2 people in 2013. No assurances can be given as to whether any future wildfire will impact any portion of the Development. The occurrence of wildfires could have an adverse effect, among others matters, on the availability of property insurance. See "THE DEVELOPMENT—Environmental and Potential Nuisance Matters."*

The Town of Paradise, California, was almost entirely destroyed by a recent wildfire, which scientists attribute, at least in part, to drought resulting from climate change. Below is an excerpt from a recent report on financing from an ad valorem tax for a development area within the City. While the disclosure may have been prophetic in one sense, the potential magnitude of the wildfire risk may not have been adequately disclosed and may have warranted a risk analysis separate from that of the other natural disasters noted.

### ***Natural Disasters***

*The value of the property in the Project Area in the future can be adversely affected by a variety of additional factors, particularly those which may affect infrastructure and other public improvements and private improvements on the property and the continued habitability and enjoyment of such private improvements. Such additional factors include, without limitation, geologic conditions such as earthquakes, topographic conditions such as fire, earth movements, landslides, floods and climatic conditions such as droughts and storms of various types and intensity. In the event that one or more of such conditions occur, such occurrence could cause damages of varying seriousness to the land and improvements and property value in the Project Area could be diminished in the aftermath of such events. A substantial reduction of the value of such properties could affect the ability or willingness of the property owners to pay the property taxes.*

*Because of the topography and location of the Town, all or portions of the Town are subject to soil erosion and wildfire hazards.*

*The Town and its surrounding area have been relatively free from significant earthquakes. There are no known active faults within the Town. There is no guarantee that a significant earthquake will not occur in or near the Town, causing damage to the properties in the Project Area. A shear zone of the Foothills Fault Zone extends into the southern portion of the County. The Cleveland Hills Fault, an active fault, is in the County. Two dams located near the Town, the Paradise Dam and Magalia Dam, if damaged in a major earthquake, could have a significant impact on the properties and people of the Town.*

*The entire Town is located outside of 100 (one percent) and 500 (0.2 percent) year flood zones as defined by the Federal Emergency Management Agency ("FEMA"). However, localized flooding occurs at locations where the storm drainage facilities have not been able to adequately handle the stormwater drainage. The Town has developed an "Interim Policy" consistent with FEMA policies and objectives. The areas that have been repeatedly inundated during storm events are delineated as Special Permit Zones. A certified elevation certificate based on the determination of the 100-year base flood elevation per FEMA guidelines is required for any development in these Special Permit Zones.*

*Consistent with FEMA guidelines, the County has formed a hazard mitigation planning committee ("HMPC") and developed a Local Hazard Mitigation Plan. The Town has adopted the hazard mitigation goals and objectives developed by the HMPC.*

## ***Rising Sea Levels***

Coastal areas may be particularly prone to rising sea levels. Below is an excerpt from a disclosure by the San Francisco Bay Area Toll Authority (BATA) on the risks posed by rising sea levels, with detailed reference to a third-party governmental risk assessment.

### ***Sea Level Rise***

*In March 2016, the City and County of San Francisco released its Sea Level Rise Action Plan for San Francisco (the "Plan"). According to the Plan, in the last century, sea levels have risen eight inches around the San Francisco Bay and Pacific Coast. By the end of this century, they are most likely to rise an additional 36 inches. Rising Bay and coastal water levels are already affecting San Francisco with periodic coastal flooding of low-lying shorelines, increased shoreline erosion, and salt water impacts to San Francisco's wastewater treatment systems. When rain falls during higher-than-normal tides, tide levels can also slow the drainage of rainfall run-off into San Francisco Bay, increasing the potential for urban stormwater flooding. The Plan projects that over the coming decades, sea level rise related impacts will increase in frequency and extent, and additional areas will begin to experience periodic coastal and/or urban flooding. Where shorelines are built on bayfill, subsidence may further intensify flooding risks, and higher groundwater levels may increase liquefaction and seismic risks during earthquakes. The most likely projections for San Francisco are based on a moderate level of global greenhouse gas emissions and continued accelerating land ice melt patterns. The upper range estimates represent unlikely, but possible, levels of sea level rise using very high greenhouse gas emissions scenarios with significant land ice melt.*

*The Plan predicts that, without action, a variety of coastal hazards will increase as seas rise. San Francisco's current coastal flooding issues, including damaged infrastructure, impacted sewage system, and road closures will increase in frequency and extent. Unlike coastal flooding, urban flooding is caused by rainfall runoff. As the sewage and stormwater system storage capacity is maximized, Bay discharges occur. When the Bay is high enough to slow discharges, drainage of stormwater runoff from San Francisco to the Bay can be impeded, resulting in inland urban flooding during storms. The Pacific coastline and some Bay shoreline areas are susceptible to increased erosion associated with extreme tides and increased wave action. Without protective action, the Plan maintains, rising seas will increase erosion hazards. The Embarcadero waterfront and the Marina neighborhood area can experience flooding under current annual highest tides in the absence of storms. Without protective action, this regular, predictable flooding will occur more frequently and affect larger areas as seas rise. As the sea level rises, the elevation of average daily high tides will continue to increase. Without action, according to the Plan, up to six percent of San Francisco's current land could be permanently inundated by daily tides by the end of the century. Climate change may affect the frequency and intensity of coastal storms, El Nino cycles, and related processes. A clear consensus has not fully emerged on these changes, but a commonly*

*identified trend is a tendency toward increased wind speed and wave height along northern California. This may increase both erosion rates along the ocean beach coast and extreme tide frequency within the Bay.*

*Sea level rise is not expected to have an adverse effect on the Bridges themselves. However, the effect on motor vehicle traffic in the Bay Area generally, and particularly on Bridge access routes, could have an adverse impact on Bridge toll revenues.*

See also Exhibit B, which includes examples of risk disclosures relating to the rising sea level by five other California municipalities.

### ***Earthquakes***

Issuers in identified seismic fault zones should disclose the nature and potential magnitude of known risks (including upstream dam failures), as well as mitigation efforts, such as stringent building codes and seismic retrofits. In certain seismically active areas, such as Anchorage, Alaska, earthquake insurance may be unavailable, insufficient, or not cost-effective (due to high premiums, high deductibles, and low policy limits) to mitigate risks, and the availability of insurance should be considered in appropriate disclosure. Such disclosures frequently refer to third-party seismic risk studies.

Below is a recent disclosure on earthquake risk from BATA.

#### ***Risk of Earthquake***

*The Bay Area's historical level of seismic activity and the proximity of the Bridge System to a number of significant known earthquake faults (including most notably the San Andreas Fault and the Hayward Fault) increases the likelihood that an earthquake originating in the region could destroy or render unusable for a period of time one or more of the Bridges, their highway approaches or connected traffic corridors, thereby interrupting the collection of bridge toll revenues for an undetermined period of time.*

*An earthquake originating outside the immediate Bay Area could have an impact on Bridge System operations and bridge toll revenues. On October 17, 1989, the Bay Area experienced the effects of the Loma Prieta earthquake that registered 7.1 on the Richter Scale. The epicenter of the earthquake was located in Loma Prieta about 60 miles south of the City of San Francisco in the Santa Cruz Mountains. The Loma Prieta earthquake caused damage to the east span of the San Francisco-Oakland Bay Bridge and adjacent highways.*

*On August 24, 2014, a 6.0-magnitude earthquake occurred near Napa, California, the epicenter of which was located approximately 15 miles from the Carquinez and Benicia-Martinez Bridges. Caltrans conducted inspections of the seven bridges of the Bridge System and found no damage from this event.*

*Research conducted since the 1989 Loma Prieta earthquake by the United States Geological Survey concludes that there is a 70% probability of at least one*

*magnitude 6.7 or greater earthquake, capable of causing wide-spread damage, striking the Bay Area before 2030. Major earthquakes may occur at any time in any part of the Bay Area. An earthquake of such magnitude with an epicenter in sufficiently close proximity to the Bay Area could result in substantial damage.*

*The Seismic Retrofit Program is specifically intended to mitigate the risk of major damage to the Bridges due to seismic activity by enhancing the structural integrity of the Bridges to accommodate ground motions along the various identified faults with return periods of between 1,000 and 2,000 years. As described in Appendix A — under the caption “CAPITAL PROJECTS AND FUNDING — Seismic Retrofit Program,” the Seismic Retrofit Program has been substantially completed since September 2013. However, the completion of the Seismic Retrofit Program will not ensure that one or more of the Bridges or their highway approach routes would not be damaged, destroyed or rendered unusable for a period of time in the event of a single earthquake or a combination of earthquakes.*

*When large seismic events have occurred in the past, Caltrans has demonstrated an ability to quickly repair bridge structures and reestablish traffic flows. As a consequence of the 1989 Loma Prieta earthquake, the San Francisco-Oakland Bay Bridge suffered collapse of a section of the bridge’s east span upper deck. Within 30 days, two replacement deck sections were designed, ordered, fabricated, delivered and installed as part of an \$8.6 million construction project. With the completion of the Seismic Retrofit Program, the need for repairs of this magnitude is expected to be greatly reduced, especially on the San Francisco-Oakland Bay Bridge and the Benicia-Martinez Bridge, both of which have been strengthened to Lifeline Structure criteria. See APPENDIX A — “BAY AREA TOLL AUTHORITY — THE BRIDGE SYSTEM — Seismic Retrofit of the Bridge System.” However, the actual damage caused by a future seismic event could vary substantially from expectations or past experience.*

The Metropolitan Water District of Southern California maintains one of the largest water service areas (and customer bases) in the nation, as well as three major aqueducts stretching hundreds of miles in multiple directions from its service area across multiple known seismic fault lines. As one might expect, its disclosure of seismic risk is among the most fulsome, particularly concerning risk mitigation measures, including detailed information on earthquake response plans and selected system facility vulnerabilities. (The District’s disclosure on earthquake insurance, however, omits information concerning seismic insurance availability, coverages, and deductibles, as well as the District’s self-insurance reserves for seismic losses.)

### ***Earthquakes, Wildfires, and Other Natural Disasters: Safety and Security Risks***

*Southern California is subject to geotechnical and extreme weather conditions which represent potential safety hazards, including expansive soils, wildfires, high winds and areas of potential liquefaction and landslide. Earthquakes, wildfires, high winds or other natural disasters could interrupt operation of the Water System and thereby interrupt*

*the ability of Metropolitan to generate sufficient Net Operating Revenues and may require Metropolitan to increase its rates and charges. See Appendix A under the caption “METROPOLITAN’S WATER DELIVERY SYSTEM — Seismic Considerations.” The occurrence of military conflicts and terrorist activities, including cyber terrorism, could also adversely impact the operations of the Water System or the finances of the Metropolitan. Metropolitan has a variety of security measures and safeguards in place. See Appendix A under the captions “GOVERNANCE AND MANAGEMENT — Cybersecurity” and “METROPOLITAN’S WATER DELIVERY SYSTEM — Security Measures.” However, there can be no assurance that any existing or additional safety and security measures will prove adequate in the event that military conflicts or terrorist activities, including cyber terrorism, are directed against the assets of the Water System. The costs of security measures could be greater than presently anticipated.*

### ***Risk Management***

*Metropolitan is exposed to various risks of loss related to the design and construction of facilities, and the treatment and delivery of water. With the assistance of third party claims administrators, Metropolitan is self-insured for liability, property and workers’ compensation. Metropolitan self-insures the first \$25 million per liability occurrence, with commercial liability coverage of \$75 million in excess of the self-insured retention. The \$25 million self-insured retention is maintained as a separate restricted reserve. Metropolitan is also self-insured for loss or damage to its property, with the \$25 million self-insured retention also being accessible for emergency repairs and Metropolitan property losses. In addition, Metropolitan obtains other excess and specialty insurance coverages such as directors’ and officers’ liability, fiduciary liability and aircraft hull and liability coverage.*

*Metropolitan self-insures the first \$5 million for workers’ compensation with statutory excess coverage. The self-insurance retentions and reserve levels currently maintained by Metropolitan may be modified by the Board at its sole discretion.*

### ***Seismic Considerations***

***General.*** *Although the magnitude of damages resulting from a significant seismic event are impossible to predict, Metropolitan’s water conveyance and distribution facilities are designed either to withstand a maximum probable seismic event or to minimize the potential repair time in the event of damage. The five pumping plants on the [Colorado River Aqueduct] CRA have been buttressed to better withstand seismic events. Other components of the CRA are monitored for any necessary rehabilitation and repair. Metropolitan personnel and independent consultants periodically reevaluate the internal water distribution system’s vulnerability to earthquakes. As facilities are evaluated and identified for seismic retrofitting, they are prioritized, with those facilities necessary for delivering or treating water scheduled for upgrade before noncritical facilities. However, major portions of the California Aqueduct and the CRA are located near major earthquake faults, including the San Andreas*

*Fault. A significant earthquake could damage structures and interrupt the supply of water, adversely affecting Metropolitan's revenues and its ability to pay its obligations. Therefore, emergency supplies are stored for use throughout Metropolitan's service area, and a six-month reserve supply of water normally held in local storage (including emergency storage in Diamond Valley Lake) provides reasonable assurance of continuing water supplies during and after such events (assuming there has been no impairment of Metropolitan's internal distribution network).*

*Metropolitan has an ongoing surveillance program that monitors the safety and structural performance of its 20 permitted dams and reservoirs. Operating personnel perform regular inspections that include monitoring and analyzing seepage flows and pressures. Engineers responsible for dam safety review the inspection data and monitor the horizontal and vertical movements for each dam. Major on-site inspections are performed at least twice each year. Instruments that transmit seismic acceleration time histories for analysis any time a dam is subjected to strong motion during an earthquake are located at a number of selected sites.*

*In addition, Metropolitan has developed an emergency plan that calls for specific levels of response appropriate to an earthquake's magnitude and location. Included in this plan are various communication tools, as well as a structured plan of management that varies with the severity of the event. Pre-designated personnel follow detailed steps for field facility inspection and distribution system patrol. Approximately 40 employees are designated to respond immediately under certain identifiable seismic events. An emergency operations center is maintained at the OCC. The OCC, which is specifically designed to be earthquake resistant, contains communication equipment, including a radio transmitter, microwave capability and a response line linking Metropolitan with its member agencies, DWR, other utilities and the State's Office of Emergency Services.*

*Metropolitan, in conjunction with [California Department of Water Resources] DWR and LADWP, has recently formed the Seismic Resilience Water Supply Task Force for the purpose of collaborating on studies and mitigation measures aimed at improving the reliability of imported water supplies to Southern California. Specific task force goals included revisiting historical assumptions regarding potential aqueduct outages after a seismic event; establishing a common understanding about individual agency aqueduct vulnerability assessments, projected damage scenarios, and planning assumptions; and discussing ideas for improving the resiliency of Southern California's imported water supplies through multi-agency cooperation. The task force has established multi-year goals and will continue to meet on these issues and develop firm plans for mitigating seismic vulnerabilities.*

*Metropolitan also maintains machine, fabrication, and coating shops at its facility in La Verne, California. Several construction projects have been completed to upgrade and expand these shops. A total of nearly \$40 million has been invested to enhance Metropolitan's capacity not only to provide fabrication and coating services*



for planned rehabilitation work, maintenance activities, and capital projects, but also to perform emergency fabrication support to Metropolitan and its member agencies. Metropolitan has also maintained reimbursable agreements with DWR to perform machining, fabrication, and coating services for critical repair and rehabilitation of State Water Project facilities. These agreements have enhanced timely and cost-effective emergency response capabilities. Materials to fabricate pipe and other appurtenant fittings are kept in inventory at the La Verne site. In the event of earthquake damage, Metropolitan has taken measures to provide the design and fabrication capacity to fabricate pipe and related fittings. Metropolitan is also staffed to perform emergency repairs and has pre-qualified contractors for emergency repair needs at various locations throughout Metropolitan's service area.

**State Water Project Facilities-California Aqueduct.** *The California Aqueduct crosses all major faults either by canal at ground level or by pipeline at very shallow depths to ease repair in case of damage from movement along a fault. State Water Project facilities are designed to withstand major earthquakes along a local fault or the San Andreas Fault without major damage. Dams, for example, are designed to accommodate movement along their foundations and to resist earthquake forces on their embankments. Earthquake loads have been taken into consideration in the design of project structures such as pumping and power plants. The location of check structures on the canal allows for hydraulic isolation of the fault-crossing repair.*

*While the dams, canals, pump stations and other constructed State Water Project facilities have been designed to withstand earthquake forces, the critical supply of water from Northern California must traverse the Bay-Delta through hundreds of miles of varying levels of engineered levees that are susceptible to major failures due to flood and seismic risk. In the event of a failure of the Bay-Delta levees, the quality of the Bay-Delta's water could be severely compromised as salt water comes in from the San Francisco Bay. Metropolitan's supply of State Water Project water would be adversely impacted if pumps that move Bay-Delta water southward to the Central Valley and Southern California are shut down to contain the salt water intrusion. Metropolitan estimates that stored water supplies, CRA supplies and local water resources that would be available in case of a levee breach or other interruption in State Water Project supplies would meet demands in Metropolitan's service area for approximately twelve months. See "METROPOLITAN'S WATER SUPPLY—Storage Capacity and Water in Storage" in this Appendix A. Since the State and federal governments control the Bay-Delta levees, repair of any levee failures would be the responsibility of and controlled by the State and federal governments.*

*Metropolitan, in cooperation with the State Water Contractors, developed recommendations to DWR for emergency preparedness measures to maintain continuity in export water supplies and water quality during emergency events. These measures include improvements to emergency construction materials stockpiles in the Bay-Delta, improved emergency contracting capabilities, strategic levee improvements and other*

structural measures of importance to Bay-Delta water export interests, including development of an emergency freshwater pathway to export facilities in a severe earthquake. DWR utilized \$12 million in fiscal year 2007-08 for initial stockpiling of rock for emergency levee repairs and development of Bay-Delta land and marine loading facilities and has identified future funding for expanded stockpiles.

**State Water Project-Perris Dam.** Perris Dam forms Lake Perris, the southernmost terminal reservoir for the State Water Project in Riverside County, with maximum capacity of approximately 130,000 acre-feet of water. Metropolitan uses water from Lake Perris for delivery to customers in Riverside and San Diego counties. Deliveries from the lake are used as a redundant source for the Mills Water Treatment Plant, drought supply from a flexible storage account, and for consumptive use by Metropolitan's customers. DWR reported in July 2005 that seismic studies indicate that DWR's Perris Dam facility could sustain damage from moderate earthquakes along the San Jacinto or San Andreas faults due to potential weaknesses in the dam's foundation. In late 2005, DWR lowered the water level in the reservoir by about 25 feet and reduced the amount of water stored in the reservoir to about 75,000 acre-feet as DWR evaluated alternatives for repair of the dam. In December 2006, DWR completed a study identifying various repair options, began additional geologic exploration along the base of Perris Dam and started preliminary design. DWR's preferred alternative is to repair the dam to restore the reservoir to its historical level. On November 11, 2011, DWR certified the final EIR and filed a Notice of Determination stating its intent to proceed with the preferred alternative. Repair work was completed in April 2018. DWR estimates that repairs cost approximately \$119 million plus \$19.5 million for environmental and right-of-way work. DWR has begun to refill Lake Perris to allow the dam to be tested and certified to again store 130,000 acre-feet of water. Under the original allocation of joint costs for this facility, the State would have paid approximately six percent of the repair costs. However, because of the recreational benefit this facility provides to the public, the Legislature has approved a recommendation from DWR that the State assume 32.2 percent of these repair costs. The remaining 67.8 percent of repair costs will be paid for by the three agencies that use the water stored in Lake Perris: Metropolitan (42.9 percent), DWA (3.0 percent) and CVWD (21.9 percent). DWR recovers the cost of repairs through its annual statement of charges sent to each agency. See "METROPOLITAN EXPENSES—State Water Contract Obligations" in this Appendix A.

### **Coastal Inundation**

In certain coastal areas of the country prone to seismic activity, inundation (flooding) from tsunamis triggered by either onshore or offshore earthquakes may pose a material risk, especially if revenue-producing or other operating facilities are located in low-lying areas near the ocean. This is largely a West Coast risk. Coastal issuers whose revenue-producing assets, including taxable assessed real estate, are located within identified inundation zones can access National Oceanic and Atmospheric Administration mapping tools to help assess the risk and determine if disclosure may

be warranted. It may be appropriate in municipal offerings for issuers who are subject to material inundation risk to reference NOAA or USGS analyses in their offering documents. See [https://www.tsunami.noaa.gov/research\\_modeling.html](https://www.tsunami.noaa.gov/research_modeling.html) for guidance on how tsunami models and forecasts are developed and how NOAA assesses risks. The assessment of East Coast tsunami risk remains in its infancy (see <https://www1.udel.edu/kirby/nthmp.html>).

Below is an example of a disclosure by an Oregon school district (Seaside School District #10). Certain classroom buildings were located within an identified tsunami inundation zone. Interestingly, the project involved the construction of replacement buildings outside the inundation zone, thereby providing investors with some comfort that threat mitigation measures were being implemented through the issuance of the bonds. As in the BATA example above, the District references third-party (federal and state) official reports in an attempt to quantify the likelihood of a catastrophic event.

### ***The Project.***

*The District is pursuing various capital improvements, including constructing a new high school and a new middle school to replace existing, deteriorated structures, and expanding and renovating an elementary school to house all District elementary students. The District is located in an area of seismic activity along the Pacific Coast known as the Cascadia Subduction Zone, in which the likelihood of a major earthquake of magnitude 8.7 to 9.1 has been determined to be approximately 11-17% in the next 50 years (United States Geological Service Professional Paper 1661f, 2013, [https://pubs.usgs.gov/pp/pp1661f/pp1661f\\_text.pdf](https://pubs.usgs.gov/pp/pp1661f/pp1661f_text.pdf)) (See “Seismic Activity” herein). The existing high school and middle school, and one of the District’s elementary schools, are currently within a tsunami inundation zone based on estimates created by the Oregon Department of Geology and Mineral Industries (“DOGAMI”) (see DOGAMI Tsunami Inundation Map TIM-CLAT-08, <http://www.oregongeology.org/pubs/tim/p-TIM-Clat-08.htm>), and beyond their deteriorated condition, are believed by the District to have a high probability of catastrophic seismic collapse in the event of an earthquake. As a consequence, bond proceeds will also be used to finance the relocation of these schools from the inundation zone.*

### ***Seismic Activity.***

*The State of Oregon is in an area of seismic activity along the Pacific coast. The current scientific consensus is that the State and the Pacific Northwest region are subject to periodic significant earthquakes along the Cascadia Subduction Zone, a large fault that runs offshore from Northern California to British Columbia. Probability calculations based on the geologic record of such earthquakes over the past 10,000 years, indicate that the likelihood of a major earthquake of magnitude 8.7 to 9.1 is approximately 11-17% in the next 50 years (United States Geologic Service Professional Paper 1661f, 2013, [https://pubs.usgs.gov/pp/pp1661f/pp1661f\\_text.pdf](https://pubs.usgs.gov/pp/pp1661f/pp1661f_text.pdf)). The State expects that such an earthquake could cause widespread damage to structures and*

*infrastructure in western Oregon, and significant damage in coastal areas, including the District, if inundated by an accompanying tsunami. It is likely that the resulting damage from such an earthquake and/or tsunami to infrastructure could be sufficient to disrupt transportation, communications, water and sewer systems, power and gas delivery and fuel supplies for weeks to months for much of western Oregon. This kind of regional disaster could result in a significant, and perhaps permanent, loss of population and business. The Bonds are unlimited tax general obligation bonds (see “Security” and “Property Taxes” herein).*

**Government Regulation.** Well-meaning efforts by governments to adapt to climate change through the enactment of legislation or the promulgation of regulations may actually create a derivative risk due to climate change. BATA recently disclosed the following risks relating to potential increases in operating costs and reductions in operating revenue as a result of climate change adaptation legislation.

***Climate Change Issues and Economic Impact of Possible New and Increased Regulation***

*In 2006, the California legislature passed Assembly Bill 32, the “California Global Warming Solutions Act of 2006,” which requires the Statewide level of greenhouse gas (“GHG”) emissions to be reduced to 1990 levels by 2020 and directs the California Air Resources Board (“ARB”) to serve as the lead agency to implement the law. On October 20, 2011, the ARB made the final adjustments to its implementation plan for Assembly Bill 32 - the “California Cap-and-Trade Program” or the “Program” - which was implemented and became effective in January 2012. The Program covers regulated entities emitting 25,000 million metric tons of carbon dioxide equivalent per year or more and entities in certain listed industries, including major industrial sources, electricity generating facilities, and fuel suppliers. Non-covered entities are encouraged to opt-in and voluntarily participate in the Program. The Program was expanded on January 1, 2015 to include fuel distributors in order to capture emissions from motor vehicle fuels. While various studies anticipated that the legislation would cause an immediate 9 to 10 cent increase in the price of gasoline and up to 20 cents per gallon by 2020, these impacts are difficult to observe due to market fluctuations in the price of gasoline caused by other determinants.*

*The Program may create an incremental cost of electricity and motor vehicle fuel. However, the Program’s effects on economic activity and transportation mode choices in the Bay Area, both of which may impact Bridge toll revenues, is difficult to predict. Further, the Authority is unable to predict if any additional federal, State and local laws and regulations with respect to GHG emissions or other environmental issues (including but not limited to air, water, hazardous substances and waste regulations) will be adopted, or what effects such laws and regulations will have on the underlying factors that influence vehicle traffic volume on the Bridge System. The effects, while unknown, could be material.*

Aside from the BATA disclosure above, local governments that are heavily dependent on fossil fuel production have yet to fully address the implications of climate change and climate change policy, coal production, and the effects climate change policy may have on the economic and fiscal conditions of local governments, including surrounding areas beyond the local government borders. While coal-dependent communities (and bonds issued by coal-dependent governmental entities) may only represent a small percentage of the total outstanding governmental bonds, the potential for fiscal collapse (and potential default on debt obligations) in those communities is higher, and therefore, the investment in those communities' bonds is riskier, given the reliance on coal production.

Several California municipalities filed a suit in 2017 against fossil fuel companies, seeking damages for climate changes affecting their communities allegedly caused by the defendants. On April 27, 2018, a letter prepared by Martha Haines, former head of the SEC's Office of Municipal Securities, was sent to the SEC's Public Finance Abuse Unit on behalf of the plaintiff municipalities seeking to rebut counter-allegations that they had failed to adequately disclose climate change risks in certain offering documents, particularly risks from rising sea levels. The letter includes excerpts from the offering documents noting the risk of rising sea levels and referencing third-party reports assessing such risks. A copy of the letter is attached as Exhibit B—not to highlight the risks disclosed, but rather to share the municipalities' stated reasons for *not* including as much information about rising sea levels as they presumably did in their lawsuit against the defendants. The rebuttal points made in the letter indicate that (1) not every perceived risk may be material to a particular offering (e.g., the risk may be most likely to occur in a time period beyond the final maturity of the offered bonds, or the particular facilities financed may not face the same risks confronting the debtor generally), (2) not every risk is fully understood at the time of offering, and (3) comprehensive mitigation efforts may forestall or prevent (or shift downstream) certain impacts from climate change.

## EXHIBIT A

# Risk Factors Disclosed in a Recent Securities Prospectus for a Corporate Registrant

### CLIMATE CHANGE:

#### *New legal requirements could adversely affect our operating results.*


Our business and results of operations could be adversely affected by the passage of new climate change, defense, environmental, infrastructure and other laws, policies and regulations. Growing concerns about climate change and greenhouse gases, such as those adopted under the United Nations COP-21 Paris Agreement or the EPA Clean Power Plan, may result in the imposition of additional environmental regulations for our clients' fossil fuel projects. For example, legislation, international protocols, regulation or other restrictions on emissions regulations could increase the costs of projects for our clients or, in some cases, prevent a project from going forward, thereby potentially reducing the need for our services. In addition, relaxation or repeal of laws and regulations, or changes in governmental policies regarding environmental, defense, infrastructure or other industries we serve could result in a decline in demand for our services, which could in turn negatively impact our revenues. We cannot predict when or whether any of these various proposals may be enacted or what their effect will be on us or on our customers.

#### *Business, regulatory, and legal developments regarding climate change may affect the demand for our products or the ability of our critical suppliers to meet our needs.*

Scientific studies have suggested that emissions of certain gases, commonly referred to as greenhouse gases (GHGs) including carbon dioxide and methane, may be contributing to warming of the Earth's atmosphere and other climate changes. Legislation and new rules to regulate emission of GHGs have been introduced in numerous state legislatures, the U.S. Congress, and by the EPA. Some of these proposals would require industries to meet stringent new standards that may require substantial reporting of GHGs and other carbon intensive activities in addition to potentially mandating reductions in our carbon emissions. While we cannot assess the direct impact of these or other potential regulations, we recognize that new climate change reporting or compliance protocols could affect our operating costs, the demand for our products and/or affect the price of materials, input factors and manufactured components which could impact our margins. Potential opportunities could include greater demand for certain types of railcars, while potential challenges could include decreased demand for certain types of railcars or other products and higher energy costs. Other adverse consequences of climate change could include an increased frequency of severe weather events and rising sea levels that could affect operations at our manufacturing facilities, the price of insuring company assets, or other unforeseen disruptions of our operations, systems, property or equipment.

#### *Climate change may adversely impact our facilities and our ongoing operations.*

The potential physical impacts of climate change on our operations are highly uncertain and depend upon the unique geographic and environmental factors present, for example rising sea levels at our deep water port facilities, changing storm patterns and intensities, and changing temperature levels. As many of our recycling facilities are located near deep water ports, rising sea levels may disrupt our ability to receive scrap metal, process the scrap metal through our shredders and ship products to our customers. Periods of extended adverse weather conditions may inhibit



construction activity utilizing our products, scrap metal inflows to our recycling facilities, and retail admissions and parts sales at our auto parts stores.

***Climate change and related regulatory responses may adversely impact our business.***

Climate change as a result of emissions of greenhouse gases is a significant topic of discussion and may generate federal and other regulatory responses in the near future, including the imposition of a so-called “cap and trade” system. It is impracticable to predict with any certainty the impact on our business of climate change or the regulatory responses to it, although we recognize that they could be significant. The most direct impact is likely to be an increase in energy costs, which would increase slightly our operating costs, primarily through increased utility and transportation costs. In addition, increased energy costs could impact consumers and their ability to incur and repay indebtedness. However, it is too soon for us to predict with any certainty the ultimate impact, either directionally or quantitatively, of climate change and related regulatory responses.

***Legislative or regulatory initiatives related to global warming/climate change concerns may negatively affect our business.***

There has been an increasing focus and significant debate on global climate change, including increased attention from regulatory agencies and legislative bodies. This increased focus may lead to new initiatives directed at regulating an as-yet unspecified array of environmental matters. Legislative, regulatory, or other efforts to combat climate change could result in future increases in taxes or in the cost of transportation and utilities, which could decrease our operating profits and could necessitate future additional investments in facilities and equipment. We are currently unable to predict the potential effects that any such future environmental initiatives may have on our business.

EXHIBIT B

Bond Analysis Report and Letter to SEC FINAL-042718-002

April 27, 2018

LeeAnn Ghazil Gaunt, Chief of the Public Finance Abuse Unit.  
Public Finance Abuse Unit  
100 F St. NE  
Washington, DC 20549

**RE: Inaccurate and Meritless Allegations in Letters to the SEC from the Competitive Enterprise Institute and the National Association of Manufacturers**

Dear Ms. Gaunt:

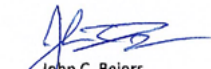
We are providing you a detailed report that rebuts the inaccurate and meritless allegations leveled by the Competitive Enterprise Institute (CEI) in its February 1, 2018 letter to you, and by the National Association of Manufacturers (NAM) in its March 27, 2018 to you. The report was prepared by Martha Haines, who, as you know, was head of the SEC's Office of Municipal Securities from 2001 to 2011.

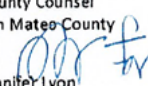
The allegations in the CEI and NAM letters are similar to those made against our communities in a Petition filed by Exxon in Texas state court on January 8, 2018. Their incorrect and misleading claims of "possible bond fraud" and a "violation of 15 U.S.C. § 77q(a)(2)" echo those made in a Petition filed by Exxon in Texas state court in January seeking to depose public counsel and other officials representing municipal governments that filed suit against Exxon and other fossil fuel companies over the past nine months.


After reviewing the circumstances surrounding the various financing, Ms. Haines concludes that none of the bond offerings they cite "either made an untrue statement of a material fact regarding sea level change or, where relevant, climate change in their respective disclosure documents ... or omitted such a material fact necessary in order to make the information included therein, not misleading."

Thank you for taking the time to review the Haines Report. We hope it will be informative for you. Please let us know if you have any questions.

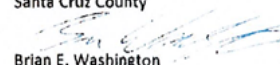
Sincerely,

  
John C. Beiers  
County Counsel  
San Mateo County

  
Jennifer Lyon  
City Attorney  
City of Imperial Beach

  
Anthony P. Condotti  
City Attorney  
City of Santa Cruz

  
Dana McRae  
County Counsel  
Santa Cruz County

  
Brian E. Washington  
County Counsel  
Marin County



statements made, in light of the circumstances under which they were made, not misleading?

2. Is there a “stark and irreconcilable conflict”<sup>6</sup> between (i) the complaints filed by the Municipal Governments in connection with their respective civil tort claims against Exxon and other fossil fuel companies and (ii) the disclosures made by the Municipal Governments in connection with certain bond offerings?

#### Summary Conclusions

In my opinion, based on the information I have reviewed:

1. None of the Municipal Governments either made an untrue statement of a material fact regarding sea level change or, where relevant, climate change<sup>7</sup> in their respective disclosure documents for the securities offerings identified in the Petition or omitted such a material fact necessary in order to make the information included therein, not misleading.

2. There is no inconsistency or conflict between the allegations in the complaints filed by the Municipal Governments in connection with their respective civil tort claims against Exxon and other fossil fuel companies regarding sea level rise and the disclosures made by such governments in their respective disclosure documents.

I have four primary reasons for this conclusion, some or all of which are applicable depending on the particular securities offering (discussed in detail below):

- a. Information that does not yet exist or is unknown necessarily cannot be disclosed.
- b. The leased premises generating the lease payments that secured the bonds at issue were at no risk from sea level change prior to the maturity date of the securities.
- c. The maturity of the securities was so short that it was not reasonable to foresee any impact on their timely repayment from long-term sea level change.
- d. It is not reasonably foreseeable that the issuers would ignore the risks of sea level rise once known to them, fail to take steps to adapt to and mitigate its impact and, as a result, allow their respective financial conditions to deteriorate to the extent that they would default on their repayment obligations decades in the future.

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<sup>6</sup> Petition at p. 5 ¶ 9.

<sup>7</sup> i.e., wildfire risks in the County of Santa Cruz.

It is important to note that investors in municipal securities are always interested in information concerning the relative risk of repayment of their bonds. As a corollary, information concerning risks that may arise after their bonds will have matured is not material to investors making an investment decision.<sup>8</sup> Furthermore, disclosure documents speak as of their date. Issuers cannot include in disclosure documents information that does not yet exist. In addition, disclosures of speculative information or projections, when included, are appropriately accompanied by cautionary language in order to emphasize their uncertainty.

### Discussion

#### *Overview of Disclosure Requirements of the Federal Securities Laws applicable to the Municipal Governments*

Municipal governments, including those listed above are subject to the prohibitions against fraud set forth in the securities laws, including specifically section 17(a) of the Securities Act of 1933,<sup>9</sup> section 10(b) of the Securities Exchange Act of 1934 and SEC Rule 10b-5<sup>10</sup> thereunder. In sum, these provisions prohibit the making of any untrue statement of a material fact or any omission to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading in connection with the offer, sale or purchase of securities. Obviously, the determination of what constitutes a “material fact” is essential to comply with these provisions.<sup>11</sup>

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<sup>8</sup> Although they may be generally interested as individuals or citizens, this is not relevant to the securities laws.

<sup>9</sup> In relevant part:

15 U.S. Code § 77q - Fraudulent interstate transactions (Section 17(a) Securities Act of 1933):

(a) USE OF INTERSTATE COMMERCE FOR PURPOSE OF FRAUD OR DECEIT It shall be unlawful for any person in the offer or sale of any securities ..... by the use of any means or instruments of transportation or communication in interstate commerce or by use of the mails, directly or indirectly -  
[subsection (1) omitted]

(2) to obtain money or property by means of any untrue statement of a material fact or any omission to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading; or

[subsection (3) omitted].

<sup>10</sup> In relevant part:

17 CFR 240.10b-5 (Exchange Act Rule 10b-5) Employment of manipulative and deceptive devices. It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange,

(a) [omitted]

(b) To make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or

(c) [omitted]

in connection with the purchase or sale of any security.

<sup>11</sup> Of note, the Commission's Guidance Regarding Disclosure Related to Climate Change (Release Nos. 33-9106, 34-61469 and FR-82) dated February 2, 2010, which provides guidance to

In brief, Courts have found that information is material if there is a substantial likelihood that a reasonable investor would consider it important in deciding to make an investment decision. In particular, in considering whether an omitted fact (supposedly, in this case, the potential consequences of sea level rise on repayment of certain bonds issued by the Municipal Governments) was material, courts will consider whether there was a substantial likelihood that the disclosure of the omitted fact would have been viewed by a reasonable investor as having significantly altered the total mix of information made available.<sup>12</sup> This “total mix” includes “information already in the public domain and facts known or reasonably available to [investors].”<sup>13</sup> For example, information reported countrywide in the press and on radio and television, discussed in Congress, and analyzed in published administrative and judicial opinions, and which was the subject of a nationwide consumer boycott accompanied by massive media advertising has been found clearly to be already in the public domain.<sup>14</sup>

*What is Important to Investors in Municipal Bonds?*

The overarching concern of investors in municipal bonds is simple: to be paid principal and interest when due. Factors relevant to timely repayment are of obvious importance in making an investment decision. Thus, the source of repayment for each bond offering and the sufficiency of that source must be considered and evaluated in order to determine what information would be material to investors. In addition, investors who may wish to sell their bonds before their maturity date are interested in factors that may affect their future market value. Disclosure documents focus on the current strength of the specific source(s) of repayment of a bond and address risks to such sources of repayment that are known or reasonably foreseeable at the time the disclosure is made. There is no hard and fast set of rules for issuers of municipal securities to follow when making disclosures, rather they must assess the materiality of available information -- which is a determination based on the particular facts and circumstances known at the time the disclosure document is prepared. Thus, both the information available to an issuer of municipal securities and the date upon which it became available are important when considering whether disclosure regarding a specific bond is adequate.

An evaluation of whether information concerning potential impacts on a particular municipal entity as a result of sea level rises, flooding and related concerns is material under the securities laws depends upon a number of factors, including (1) the security and sources for payment of the particular bonds, (2) the

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public companies regarding the Commission's then existing disclosure requirements as they apply to climate change matters, is inapplicable to the Municipal Governments.

<sup>12</sup> See, *TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438 (1976) and *Basic v. Levinson*, 485 U.S. 224 (1988).

<sup>13</sup> See, *Rodman v. Grant Foundation*, 608 F.2d at 70 (2d Cir. 1979).

<sup>14</sup> See, *Siebert v. Sperry Rand Corp.*, 586 F.2d at 952 (2d Cir. 1978).

maturity of the securities being offered, (3) the plans in place to mitigate and adapt to sea level rise, and (4) the resources already set aside and available in the future to mitigate and adapt to sea level rise. Thus, there is no one-size-fits all disclosure formula.<sup>15</sup>

Issuers of municipal securities are not required to disclose information that is not yet available or reasonably reliable. Furthermore, in general, the accuracy of predictions declines the farther out in time they cover. Projections of the effects and costs of sea level rise in specific geographic areas decades in the future necessarily entail a higher level of uncertainty.

Often, both direct and indirect factors may affect the source of repayment of a particular bond.<sup>16</sup> For example, in the case of lease revenue bonds, if the leased facilities for which lease rental payments are due were to suffer material damage or destruction that substantially interferes with their use and occupancy, financing documents often provide that all or part of the lease rental payments may be suspended while the facilities cannot be used. As a result, the fact that a particular leased facility is anticipated to be below sea-level at some point prior to the maturity date of the bonds could directly affect the source of repayment and would likely be material to investors. In addition, the existence of rental interruption insurance that might mitigate such a potential loss of lease payments for some period of time also would likely be material to investors in evaluating repayment risk.

Similarly, events that might indirectly impact the future ability of a municipal entity to make lease rental payments (such as climate-related events that might severely impact an entity's overall financial or economic condition by significantly reducing tax revenues or increasing expenses and creating a need for a substantial amount of increased debt) may be relevant to an investor. However, in the case of sea-level rise and certain other climate impacts, municipal entities generally will not be greatly affected for decades and may be expected to undertake adaptation and mitigation strategies,<sup>17</sup> making the probability and magnitude of indirect impacts

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<sup>15</sup> A recent research report by Moody's Investors Service dated November 28, 2017 regarding the evaluation of the impact of climate change on U.S. state and local government issuers addresses factors it considers important when evaluating credit risk related to climate change. It notes that the credit risks from climate change are embedded in its existing approach to analyzing key credit factors. See, <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2017/12/Evaluating-the-impact-of-climate-change-on-US-state-and-local-issuers-11-28-17.pdf>

<sup>16</sup> Obviously, the factors that may affect repayment vary depending on the source of repayment for the particular bond issue. In the case of bonds payable from property tax revenues, for example, foreseeable occurrences prior to the maturity of the bonds that might impact an entity's overall financial or economic condition by significantly reducing tax revenues or increasing expenses and creating a need for a substantial amount of increased debt generally would be material to an investor.

<sup>17</sup> See, for example, the discussion of adaptation and mitigation strategies found in the County of San Mateo Sea Level Rise Vulnerability Assessment Final Report dated March, 2018, available at:

difficult to assess, particularly when looking far into the future. Furthermore, issuers must beware of making predictions for the future, whether positive or negative, without current documentation to support it for fear of being accused of making a material misstatement that violates the anti-fraud provisions of the securities laws.<sup>18</sup>

*Analysis of Disclosures Made by Each Municipal Government*

A. County of San Mateo

1. The Petition alleges that San Mateo County's disclosure statements were inadequate regarding sea-level change for the following three bond issues: (1) \$40,065,000 San Mateo County Joint Powers Financing Authority Lease Revenue Bonds (Refunding and Capital Projects) 2013 Series A (Robert Sans Memorial Issue) (the "2013 San Mateo Lease Revenue Bonds")<sup>19</sup>, (2) \$175,065,000 San Mateo County Joint Powers Financing Authority Lease Revenue Bonds (Capital Projects) 2014 Series A (Maple Street Correctional Center) (the "2014 San Mateo Correctional Center Lease Revenue Bonds"), and (3) \$107,600,000 San Mateo County Joint Powers Financing Authority Refunding Lease Revenue Bonds (Youth Services Campus) 2016 Series A (the "2016 San Mateo Youth Services Lease Revenue Bonds"). All are payable from lease rental payments to be made by the County on related leases.

2. The leases related to the 2013 San Mateo Lease Revenue Bonds, the 2014 San Mateo Correctional Center Lease Revenue Bonds and the 2016 San Mateo Youth Services Lease Revenue Bonds (the "San Mateo Bonds") all include a provision in which the rental payments securing such bonds will be reduced proportionally in the event that, by reason of any material damage or destruction (other than by condemnation), there is substantial interference with the use and occupancy by the County of the

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[http://seachangesmc.com/wp-content/uploads/2018/03/2018-03-12\\_SLR\\_VA\\_Report\\_2.2018\\_WEB\\_FINAL.pdf](http://seachangesmc.com/wp-content/uploads/2018/03/2018-03-12_SLR_VA_Report_2.2018_WEB_FINAL.pdf); City of Santa Cruz Climate Adaptation Plan 2012-2017 update, available at: <http://www.cityofsantacruz.com/home/showdocument?id=23644>; Marin Ocean Coast Sea Level Rise Adaptation Report Public Review Draft dated May, 2017, available at: [https://www.marincounty.org/~media/files/departments/cd/planning/slr/c-smart/chapters\\_13.pdf?la=en](https://www.marincounty.org/~media/files/departments/cd/planning/slr/c-smart/chapters_13.pdf?la=en).

<sup>18</sup> This is a result of the so-called "bespeaks caution" doctrine relied upon by various courts in concluding that claims of securities fraud are subject to dismissal if cautionary language in the offering document negates the materiality of the alleged misrepresentations or omissions. *In re Donald J. Trump Casino Securities Lit.*, 7 F.3d 357, 371 (3d Cir.1993), cert. denied sub nom., *Gollomp v. Trump*, 510 U.S. 1178, 114 S.Ct. 1219, 127 L.Ed.2d 565 (1994); see also *Sinay v. Lamson & Sessions Co.*, 948 F.2d 1037, 1040 (6th Cir.1991); *L Meyer Pincus & Assocs. v. Oppenheimer & Co.*, 936 F.2d 759, 763 (2d Cir.1991); *Romani v. Shearson Lehman Hutton*, 929 F.2d 875, 879 (1st Cir.1991); *Luce v. Edelstein*, 802 F.2d 49, 56 (2d Cir.1986); *Polin v. Conductron Corp.*, 552 F.2d 797, 806 n. 28 (8th Cir.), cert. denied, 434 U.S. 857, 98 S.Ct. 178, 54 L.Ed.2d 129 (1977).

<sup>19</sup> Referenced in footnote 117 of the Petition.

leased property. As required by each of the relevant facility lease agreements, the County has rental interruption insurance available to make lease payments for up to two years while repairs are being made and certain reserves are also available to make payments to bondholders. Thus, bondholders are protected from occasional short-term disruptions in the use of the leased property, such as flooding resulting from sea level change. In addition, the County insures all of its buildings against flood damage for \$25 million per occurrence and in the aggregate property policy. This insurance would help to repair damage to the leased facilities in the event of damage resulting from a covered peril, including flooding due to sea level rise.<sup>20</sup>

3. The Official Statement for the 2013 San Mateo Lease Revenue Bonds was dated July 10, 2013.<sup>21</sup> These bonds are payable from lease rental payments made by San Mateo County in connection with its use and occupancy of 5 parcels of leased property and have a final maturity on July 15, 2032. According to Climate Central,<sup>22</sup> the projected sea level rise<sup>23</sup> in San Mateo County by 2040 ranges from 0.8 feet (moderate) to 1.1 feet (fast rise).<sup>24</sup> Four of the five parcels of leased property related to the 2013 San Mateo Lease Revenue Bonds<sup>25</sup> are not projected to be at risk from flooding even under the fast rise scenario. In fact, they would not be expected to damage even if sea level rose by ten feet.<sup>26</sup> The fifth parcel, the County Office Building,

<sup>20</sup> See, Official Statement for 2013 San Mateo Lease Revenue Bonds at page 14-15, Official Statement for 2014 San Mateo Correctional Center Lease Revenue Bonds at pages 12-13, and the 2016 San Mateo Youth Services Lease Revenue Bonds at page 60.

<sup>21</sup> See, <https://emma.msrb.org/ER684998-ER530978-ER933493.pdf>

<sup>22</sup> See, <http://www.climatecentral.org/what-we-do#wwd> for information about Climate Central.

<sup>23</sup> Climate Central's analysis is based on median local sea level projections based on the intermediate scenario from NOAA Technical Report NOS CO-OPS (2017), intended for the 2018 U.S. National Climate Assessment. Sea level rise is relative to a 1992 baseline. See, [https://riskfinder.climatecentral.org/place/san-mateo.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017\\_int\\_p50&level=3&unit=ft](https://riskfinder.climatecentral.org/place/san-mateo.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017_int_p50&level=3&unit=ft)

<sup>24</sup> [https://riskfinder.climatecentral.org/place/san-mateo.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017\\_int\\_p50&level=3&unit=ft](https://riskfinder.climatecentral.org/place/san-mateo.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017_int_p50&level=3&unit=ft)

<sup>25</sup> County Health Center located at 222 W. 39<sup>th</sup> Street, San Mateo, CA; North County Satellite Clinic (North County Mental Health and Daly City Clinic) located at 375 89<sup>th</sup> Street, Daly City, CA; North County Crime Lab located at 50 Tower Road, San Mateo, CA; Skylonda Fire Station, located at 17290 Skyline Blvd., Woodside, CA. The County Office Building Project located at 555 County Center Road, San Mateo, CA is the exception.

<sup>26</sup> County Health Center, see, [https://ss2.climatecentral.org/#16/37.5283/-122.3057?show=satellite&projections=0-K14\\_RCP85-SLR&level=10&unit=feet&pois=hide](https://ss2.climatecentral.org/#16/37.5283/-122.3057?show=satellite&projections=0-K14_RCP85-SLR&level=10&unit=feet&pois=hide); North County Satellite Clinic, see, [https://ss2.climatecentral.org/#16/37.6879/-122.4702?show=satellite&projections=0-K14\\_RCP85-SLR&level=10&unit=feet&pois=hide](https://ss2.climatecentral.org/#16/37.6879/-122.4702?show=satellite&projections=0-K14_RCP85-SLR&level=10&unit=feet&pois=hide); County Crime Lab, see, [https://ss2.climatecentral.org/#16/37.5132/-122.3324?show=satellite&projections=0-K14\\_RCP85-SLR&level=10&unit=feet&pois=hide](https://ss2.climatecentral.org/#16/37.5132/-122.3324?show=satellite&projections=0-K14_RCP85-SLR&level=10&unit=feet&pois=hide); Skylonda Fire Station, see, [https://ss2.climatecentral.org/#14/37.4252/-122.3011?show=satellite&projections=0-K14\\_RCP85-SLR&level=10&unit=feet&pois=hide](https://ss2.climatecentral.org/#14/37.4252/-122.3011?show=satellite&projections=0-K14_RCP85-SLR&level=10&unit=feet&pois=hide).

is not projected to be at risk of flooding even if sea level rose by a foot, which is not projected to occur until years after these bonds mature.<sup>27</sup> Thus, even if this latest information from Climate Central had been known to San Mateo County in 2013, there would have been no material risk relevant to the leased property.

4. The Official Statement for the 2014 San Mateo Correctional Center Lease Revenue Bonds was dated May 6, 2014.<sup>28</sup> These bonds are payable from lease rental payments made by San Mateo County from its general fund in connection with its use and occupancy of the Maple Street Correctional Facility located in Redwood City, California. The final maturity date for these bonds is June 15, 2037. Projections of the impact of sea level rise on the Maple Street Correctional Facility indicate that a one-foot increase in sea level rise would not flood the facility.<sup>29</sup> However, absent any mitigation, local streets would be flooded by 2040 (three years after these bonds have matured) under the “fast-rise” scenario.

5. The Official Statement for the 2016 San Mateo Youth Services Lease Revenue Bonds was dated January 14, 2016.<sup>30</sup> The final bond maturity is scheduled for July 15, 2036. These bonds are payable from lease rental payments made by San Mateo County from its general fund in connection with its use and occupancy of a 40-acre site in the City of San Mateo on which the County’s Youth Services Center is located. This property is located on one of the highest points in the County and is at no risk of damage from sea level rise - even up to ten feet.<sup>31</sup>

6. Both the Official Statement for the 2014 San Mateo Correctional Center Lease Revenue Bonds and the Official Statement for the 2016 San Mateo Youth Services Lease Revenue Bonds included the following disclosures about the risks of sea level change affecting the County:

Risk of Sea Level Changes and Flooding

In May 2009, the California Climate Change Center released a final paper, for informational purposes only, which was funded by the California Energy Commission, the California Environmental Protection Agency, the Metropolitan

<sup>27</sup> [https://ss2.climatecentral.org/#16/37.4881/-122.2294?show=satellite&projections=0-K14\\_RCP85-SLR&level=1&unit=feet&pois=show](https://ss2.climatecentral.org/#16/37.4881/-122.2294?show=satellite&projections=0-K14_RCP85-SLR&level=1&unit=feet&pois=show)

<sup>28</sup> See, <https://emma.msrb.org/EA604100-EA472653-EA869138.pdf>

<sup>29</sup> Maple Street Correctional Facility, see, [https://ss2.climatecentral.org/#16/37.4928/-122.2158?show=satellite&projections=0-K14\\_RCP85-SLR&level=1&unit=feet&pois=hide](https://ss2.climatecentral.org/#16/37.4928/-122.2158?show=satellite&projections=0-K14_RCP85-SLR&level=1&unit=feet&pois=hide)

<sup>30</sup> See, <https://emma.msrb.org/EP904517-EP701084-EP1103033.pdf>

<sup>31</sup> Youth Services Center, see, [https://ss2.climatecentral.org/#13/37.4998/-122.3195?show=satellite&projections=0-K14\\_RCP85-SLR&level=1&unit=feet&pois=hide](https://ss2.climatecentral.org/#13/37.4998/-122.3195?show=satellite&projections=0-K14_RCP85-SLR&level=1&unit=feet&pois=hide)

Transportation Commission, the California Department of Transportation, and the California Ocean Protection Council. The title of the paper is, "The Impacts of Sea-Level Rise on the California Coast." The paper posits that increases in sea level rise will be a significant consequence of climate change over the next century. The paper evaluated the population, infrastructure, and property at risk from sea-level rise *if no actions are taken to protect the coast* [emphasis added]. The paper concluded that significant property in the State is at risk of flooding from 100-year flood events as a result of a 1.4-meter sea level rise. The paper further estimates that the replacement value of this property totals nearly \$100 billion (in 2000 dollars). Approximately one-quarter of the value of this risk is concentrated in the County, indicating that the County is particularly vulnerable to impacts associated with sea-level rise due to extensive development on its coastline. A wide range of critical infrastructure, such as roads, airports, hospitals, schools, emergency facilities, wastewater treatment plants, power plants, and wetlands is also vulnerable. Continued development in vulnerable areas will put additional assets at risk and raise development costs.

The County is unable to predict whether sea level rise or other impacts of climate change or flooding from a major storm will occur, when they may occur, and if any such events occur, whether they will have a material adverse effect on the business operations or financial condition of the County and the local economy. The obligation of the County to make Base Rental Payments may be abated if the Facilities or any improvements thereon are damaged or destroyed by sea-level rise or any other impacts of climate change. There can be no assurance that the Facilities would not be damaged in whole or in part by a sea-level rise or any other impacts of climate change.<sup>32</sup>

7. San Mateo County issued a draft Sea Level Rise Vulnerability Assessment in April, 2017 and a Final Report in March, 2018, after all of the bonds in question had been issued.<sup>33</sup> This was the County's first

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<sup>32</sup> I note that only one sentence of this quote was included in the Petition.

<sup>33</sup> San Mateo County issued a draft Sea Level Rise Vulnerability Assessment in April, 2017 and a Final Report in March, 2018. The Draft report is available at: <http://seachangesmc.com/wp-content/uploads/2015/08/Final-ALL-Compiled-Public-Draft-4-3-17-V2.pdf> and [http://seachangesmc.com/wp-content/uploads/2018/03/2018-03-12\\_SLR\\_VA\\_Report\\_2.2018\\_WEB\\_FINAL.pdf](http://seachangesmc.com/wp-content/uploads/2018/03/2018-03-12_SLR_VA_Report_2.2018_WEB_FINAL.pdf). According to the 2017 San Mateo County complaint against Exxon and other fossil fuel companies, this was the County's first analysis of its overall vulnerability to sea level rise and its impacts from permanent inundation, temporary flooding caused by



comprehensive analysis of its overall vulnerability to sea level rise and its impacts.<sup>34</sup> The securities laws do not require disclosure of information that does not yet exist and is not reasonably foreseeable. Furthermore, the study cited in the County's disclosures above was premised on a 1.4 meter (4.59 foot) rise in sea level, which is not projected to occur during the lifetime of any of the securities at issue. Issuers are generally cautious when making disclosures of potential future events in order not to risk misleading investors should the specific projections not prove accurate.<sup>35</sup>

8. Because the ultimate source of lease rental payments from San Mateo County on the San Mateo Bonds is the General Fund of the County, the overall economic and financial viability of the County is of considerable importance to investors. The Official Statements for each of the San Mateo Bond Offerings provides extensive disclosure of the County's financial condition, including its audited financial statements. In addition, they include extensive disclosure of economic and demographic information regarding the County. Through the Continuing Disclosure Agreements into which it has entered for each of the San Mateo Bonds, the County has agreed each year to make publicly available<sup>36</sup> its annual audited financial statements and other specified economic and financial information. Furthermore, the County now makes extensive information available to investors and the general public evaluating its vulnerability to sea-level rise in detail and addressing potential adaptations and modifications that may be required to address it in the future.<sup>37</sup>

9. Conclusion. In my opinion, based on the information I have reviewed, San Mateo County did not make an untrue statement of a material fact regarding sea level change in its disclosure documents for the 2013 San Mateo Lease Revenue Bonds, the 2014 San Mateo Correctional Center Lease Revenue Bonds or the 2016 San Mateo Youth Services Lease Revenue Bonds or omit such a material fact necessary to make the information included therein, not misleading.<sup>38</sup> Nor is there any conflict between allegations

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storm events, erosion, and saltwater intrusion. The Assessment formally identified actual risks to the County expected with three feet of sea level rise, and the consequences associated with taking no action to prevent or mitigate the harms associated with those expected impacts.

<sup>34</sup> See, paragraph 171 of San Mateo County's 2017 complaint against Exxon and other fossil fuel companies.

<sup>35</sup> This is generally known as the "bespeaks caution doctrine" to the effect that if soft information in a disclosure document comes along with a cautionary language that warns the investors that the actual results or events may not occur, then the soft information may not be substantially misleading to investors.

<sup>36</sup> Through the EMMA system maintained by the Municipal Securities Rulemaking Board (available at: <https://emma.msrb.org/>).

<sup>37</sup> See, [http://seachangesmc.com/wp-content/uploads/2018/03/2018-03-12\\_SLR\\_VA\\_Report\\_2.2018\\_WEB\\_FINAL.pdf](http://seachangesmc.com/wp-content/uploads/2018/03/2018-03-12_SLR_VA_Report_2.2018_WEB_FINAL.pdf).

<sup>38</sup> Although under the "fast rise" scenario, local streets near the Maple Street Correctional Facility may be flooded by 2040, it is not reasonable to assume that, with decades of lead time, the

regarding sea level rise in its 2017 complaint against Exxon and other fossil fuel companies and the Official Statements for those bonds.<sup>39</sup>

San Mateo County issued bonds in 2013, 2014 and 2016. None of the leased property securing repayment of such bonds is projected to be below sea level prior to the maturity date of the related bonds. Thus, sea level rise is not expected to justify abatement of the lease payments that secure the bonds. Moreover, the County has rental interruption insurance available to make lease payments for up to two years while repairs are being made and certain reserves are also available to make payments to bondholders. Thus, bondholders are protected from occasional short-term disruptions in the use of the leased property, such as flooding resulting from sea level change.

Furthermore, the disclosure documents for the bonds San Mateo County issued in 2014 and 2016 included general disclosures regarding potential risks from sea level rise and included appropriate cautionary language about the uncertainty of whether or when flooding from sea level rise might occur and of the County's inability to predict whether such future events would have a material adverse effect on the financial condition and business operations of the County or on the local economy. This was appropriate considering (1) that the County's own draft assessment of the impact of sea level rise was not completed until 2017 - after the bonds had all been issued, (2) that substantial risks to the County from sea level rise are, even now, not projected to occur until after the maturity date of the bonds, (3) abatement and mitigation strategies may be expected to be undertaken to address flooding in the future, and (4) numerous local, state and federal resources are available to assist areas affected by climate change both in the near and long term.<sup>40</sup>

B. County of Marin

1. The Petition alleges that Marin County failed to provide adequate warnings of certain risks presented by sea level rise in the Official Statement for \$61,540,000 Certificates of Participation (2010 Financing

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County would fail to remediate this potential problem on local roads in order to be able to continue to use the facility.

<sup>39</sup> In fact, none of the information in the San Mateo County's complaint against Exxon and other fossil fuel companies regarding sea level rise specific to San Mateo County existed prior to 2017. In addition, that complaint generally referenced sea level change expected to occur by 2100, long after the maturity of the bonds in question.

<sup>40</sup> See, Moody's Investors Service, "Evaluating the impact of climate change on U.S. State and local issuers, November 28, 2017, available at: <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2017/12/Evaluating-the-impact-of-climate-change-on-US-state-and-local-issuers-11-28-17.pdf> [Noting, in part, that U.S. municipal issuers benefit from local state and federal processes to help areas affected by climate shock manage the immediate physical impacts of extreme weather and may access a variety of resources to expedite the long-term recovery of their economic base.]

Project) Evidencing Direct, Undivided Fractional Interests of the Owners Thereof in Lease Payments to be Made by the County of Marin, California, as the Rental for Certain Property Pursuant to a Lease Agreement with the Marin County Capital Improvements Financing Authority, dated September 28, 2010 (the "2010 Marin Lease COPs").<sup>41</sup>

2. The 2010 Marin Lease COPs are payable from lease payments on property comprising the Marin Civic Center complex, located at the northeast corner of the intersection of Highway 101 and North San Pedro Road on County-owned property within the City of San Rafael, California (the "Property"). According to projections by Climate Central, San Rafael is projected to have a sea level rise of 0.8 feet (medium scenario) to 1.1 feet (fast rise scenario) by 2040.<sup>42</sup> (The 2010 Marin County COPs had a final maturity of 2040.) However, the Property is at no risk of flooding until seas have risen by more than six feet.<sup>43</sup>

3. The known risks of sea level rise to Marin County were uncertain in 2010<sup>44</sup> and the County had not yet identified adaptation and mitigation strategies and their costs.<sup>45</sup> The only disclosures that it could have made at that point in time would have been so vague as to be essentially meaningless to investors. While the likelihood that there would be some impact from sea level rise on a coastal area, such as Marin County's, was obvious, the scope and magnitude of its impact was uncertain and inadequate to allow for a reasonable presentation of the foreseeable direct and indirect effects that sea level rise might entail.

<sup>41</sup> This official statement is available at: <https://emma.msrb.org/EA427434-EA332238-EA728082.pdf>

<sup>42</sup> See, [https://riskfinder.climatecentral.org/place/san-rafael.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017\\_inthi\\_p50&level=3&unit=ft](https://riskfinder.climatecentral.org/place/san-rafael.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017_inthi_p50&level=3&unit=ft)

<sup>43</sup> See, [https://ss2.climatecentral.org/#15/38.0027/-122.5386?show=satellite&projections=0-K14\\_RCP85-SLR&level=3&unit=feet&pois=show](https://ss2.climatecentral.org/#15/38.0027/-122.5386?show=satellite&projections=0-K14_RCP85-SLR&level=3&unit=feet&pois=show)

<sup>44</sup> In fact, the County has identified only one report related to sea level rise on or prior to 2010: a 2008 ecosystem restoration plan for Bolinas Bay, which had minimal discussion of sea level rise and the effects discussed were limited to Bolinas Bay and not relevant to the leased property.

<sup>45</sup> Marin County prepared two Sea Level Rise Vulnerability Assessments – one for its ocean coast (CSMART) and one for its bay shoreline (BayWAVE). According to the County, CSMART planning began in 2014, the draft report was released in November 2015 and the final report was presented to the County Board in February 2018. BayWAVE planning began in 2015, the draft report was released in April 2017 and the final report was presented to the County Board in June 2017. According to the Marin County complaint against Exxon and other fossil fuel companies (filed July 17, 2017), these assessments are the County's first analyses of the County's overall vulnerability to sea level rise and its impacts, including permanent inundation, temporary flooding, erosion, and saltwater intrusion. The Assessments formally identify actual risks to the County with sea level rise expected by the end of the 21st Century, and the consequences associated with taking no action to prevent or mitigate the harms associated with those risks.

4. Because the ultimate source of payment on the Marin County Lease COPs is from the General Fund of the County, the overall economic and financial viability of the County is of considerable importance to investors. The Official Statements for the Marin County Lease COPs provided extensive disclosure of the County's financial condition, including its audited financial statements. In addition, they included extensive disclosure of economic and demographic information regarding the County.<sup>46</sup> Through the Continuing Disclosure Agreements into which it has entered for the Marin County Lease COPs, the County has agreed each year to make publicly available<sup>47</sup> its annual audited financial statements and other specified economic and financial information.<sup>48</sup> Furthermore, the County now makes extensive information available to investors and the general public evaluating its vulnerability to sea-level rise in detail and addressing potential adaptations and modifications that may be required to address it in the future.<sup>49</sup>

5. Conclusion. In my opinion, based on the information I have reviewed, Marin County did not make an untrue statement of a material fact regarding sea level change in its disclosure documents for the 2010 Marin Lease COPs or omit such a material fact regarding sea level change necessary in order to make the information included therein, not misleading. Nor is there a conflict between allegations in its complaint and the Official Statement for the 2010 Marin County COPs.<sup>50</sup>

The 2010 Marin County COPs were issued before specific projections of the impact of sea level rise relevant to Marin County were available. The securities laws do not require disclosure of information that does not yet exist. Furthermore, the property financed with the proceeds of the COPs is projected to be at no risk of flooding prior to the maturity date of the COPs. Thus, even had detailed sea level rise information been available when its COPs were issued, there would have been no risk to disclose, as sea level rise would not have provided a basis for the County to abate the lease payments that secure the COPs.

C. County of Santa Cruz

1. The Petition alleges that Santa Cruz County's Official Statements were inadequate regarding sea-level change for its \$815,000

<sup>46</sup> <https://emma.msrb.org/EP866344-ER699871-ER1101416.pdf>

<sup>47</sup> Through the EMMA system maintained by the Municipal Securities Rulemaking Board (available at: <https://emma.msrb.org/>).

<sup>48</sup> See, <https://emma.msrb.org/EP866344-ER699871-ER1101416.pdf>

<sup>49</sup> See, <https://www.marincounty.org/main/marin-sea-level-rise>

<sup>50</sup> In fact, none of the information in Marin County's 2017 complaint against Exxon and other fossil fuel companies regarding sea level rise specific to Marin County existed in 2010. In addition, that complaint generally referenced sea level change expected to occur by 2100, long after the maturity of the bonds in question.

County of Santa Cruz Limited Obligation Improvement Bonds Assessment District No. 15-01 (Orchard Drive Sewer Extension Project) (the "2016 Santa Cruz County Sewer Extension Bonds") and \$47,000,000 2017-2018 Tax and Revenue Anticipation Notes (the "2017 Santa Cruz County TRANS").

2. The 2016 Santa Cruz County Sewer Extension Bonds are payable from assessments made on 23 parcels of real property encompassing approximately 7 acres in an unincorporated area known as "Graham Hill." All of the assessed property is located at an elevation that would not be affected by even a ten-foot rise in sea level, which is not predicted to occur prior to 2100 even using the most extreme scenario.<sup>51</sup> Nor are any of the parcels located in a critical wildfire hazard area.<sup>52</sup> Furthermore, they are payable from assessments to be paid by the private landowners of the assessed property, making the impact of sea level rise on the County itself immaterial.

3. The Official Statement for the 2017 Santa Cruz County TRANS was dated June 6, 2017, and the TRANS all mature on June 28, 2018. They are general obligations of the County issued for cash flow purposes and payable from unrestricted taxes, income, revenue, cash receipts, and other moneys of the County received or attributable to the 2017/2018 fiscal year and lawfully available. Total proposed budgeted receipts of the County for FY 2017/18 totaled \$473,087,123. The risk of financial devastation to the County (reducing its revenues by more than 90%) as a result of sea level rise during this approximately one-year period was, in my opinion, not material to investors due to the extreme unlikelihood of an occurrence of this magnitude in such a short period of time. Note that the projection for sea level rise in the County by 2020 is 0.7 feet using the most extreme scenario. Furthermore, according to Climate Central, only 0.1 square miles of land in the County that isn't potentially protected by levees or other flood control structures lies below 2 feet of elevation.<sup>53</sup>

4. Conclusion. In my opinion, based on the information I have reviewed, Santa Cruz County did not make an untrue statement of a material fact regarding sea level change or wildfire in its disclosure documents for the 2016 Santa Cruz County Sewer Extension Bonds or the 2017 Santa Cruz County TRANS or omit such a material fact necessary in order to make the information included therein, not misleading. Nor is there any conflict between allegations regarding sea level rise in its Complaint and the Official Statements for such bonds and notes.

<sup>51</sup> See, [https://ss2.climatecentral.org/#16/37.0137/-122.0342?show=satellite&projections=0-K14\\_RCP85-SLR&level=10&unit=feet&pois=hide](https://ss2.climatecentral.org/#16/37.0137/-122.0342?show=satellite&projections=0-K14_RCP85-SLR&level=10&unit=feet&pois=hide)

<sup>52</sup> Santa Cruz County, Local Hazard Mitigation Plan, p. 59.

<sup>53</sup> See, [https://riskfinder.climatecentral.org/county/santa-cruz-county.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017\\_int\\_p50&impact=Land&impactGroup=Land&level=3&unit=ft](https://riskfinder.climatecentral.org/county/santa-cruz-county.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017_int_p50&impact=Land&impactGroup=Land&level=3&unit=ft)

The 2016 Santa Cruz County Sewer Extension Bonds are secured by property that is not projected to be at any risk from sea level rise or wildfire. Furthermore, they are payable from assessments against private property, making any future impact of sea level rise on the financial condition of the County itself irrelevant. The 2017 Santa Cruz County TRANS matured within 13 months from their issuance. Sea level rise is, by its nature, a long-term problem, which could not reasonably be expected to affect the repayment of the TRANS. Thus, in both cases, there were no material facts to disclose regarding sea level rise or wildfire relevant to these securities

D. City of Imperial Beach

1. The City of Imperial Beach issued two series of bonds cited in the Petition: (1) \$21,595,000 Imperial Beach Redevelopment Agency 2010 Tax Allocation Bonds (Palm Avenue/Commercial Redevelopment Project) (the "2010 Imperial Beach Tax Allocation Bonds") and (2) \$17,260,000 Imperial Beach Redevelopment Agency Successor Agency (Palm Avenue/Commercial Redevelopment Project) 2013 Tax Allocation Refunding Bonds (the "2013 Imperial Beach Refunding Bonds"). The purpose of the 2013 Imperial Beach Refunding Bonds was to refund (i.e., refinance) the 2010 Imperial Beach Tax Allocation Bonds.

2. Both the 2010 Imperial Beach Tax Allocation Bonds and the 2013 Imperial Beach Refunding Bonds (the "Imperial Beach Bonds") were payable from certain property tax increment revenues derived from property located in an area designated as the Palm Avenue/Commercial Redevelopment Project Area (the "Project Area") and are not payable from the general fund or other revenues of Imperial Beach. The Project Area encompasses essentially all of the City of Imperial Beach. However, the City is not liable for repayment of the Imperial Beach Bonds.

3. The Official Statement for the 2010 Imperial Beach Tax Allocation Bonds was dated November 4, 2010.<sup>54</sup> These bonds had a final maturity date of June 1, 2040. The Official Statement for the 2013 Imperial Beach Refunding Bonds was dated November 19, 2013.<sup>55</sup> These bonds had a final maturity date of June 1, 2033. Neither document included disclosures specific to the risk of sea level rise.

4. The City completed a sea level rise vulnerability assessment in September 2016. According to that report, although a sea level rise of 1.6 feet or more would negatively affect large portions of the City, the "worst-case scenario" for sea level rise projects a 1.6 foot increase to be reached in 2047

<sup>54</sup> See, <https://emma.msrb.org/EP480808-EP374955-EP771885.pdf>

<sup>55</sup> See, <https://emma.msrb.org/EP782507-EP606121-EP1007572.pdf>

assuming no mitigation or adaptation efforts.<sup>56</sup> Climate Central projects sea level rise in Imperial Beach to range from 1 foot (medium scenario) to 1.4 feet (fast rise scenario) – by 2040. Furthermore, even assuming a 2-foot sea level rise, only 0.1 square miles of land in the City that isn't potentially protected by levees or other flood control structures is below two feet of elevation.<sup>57</sup>

5. The Petition excerpts several statements about sea level rise risks and consequences from a July 20, 2017 opinion piece written by Imperial Beach Mayor Serge Dedina.<sup>58</sup> It then asserts that this “litany of climate change risks [and ‘tremendous costs’ were] notably absent from Imperial Beach’s bond offerings.”<sup>59</sup> All of the excerpted statements were derived from the City’s 2016 Sea Level Assessment. As a result, that information could not have been included in either the 2010 or 2013 bond offerings because it did not yet exist.

6. Conclusion. In my opinion, based on the information I have reviewed, the City of Imperial Beach did not make an untrue statement of a material fact regarding sea level change in its disclosure documents for the 2010 Imperial Beach Tax Allocation Bonds and the 2013 Imperial Beach Refunding Bonds or omit such a material fact necessary in order to make the information included therein, not misleading. Nor is there a conflict between allegations in its Complaint and the Official Statements for the 2010 Imperial Beach Tax Allocation Bonds or the 2013 Imperial Beach Refunding Bonds.<sup>60</sup>

At the time the 2010 Imperial Beach Tax Allocation Bonds and the 2013 Imperial Beach Refunding Bonds were issued, information concerning the specific impact of sea level rise on the City was not yet available. Issuers are not obligated to disclose information that does not yet exist. Furthermore, had such information been available, it might reasonably have been considered immaterial to investors because significant negative impacts on the City are not projected to occur until after the final maturity of the bonds in question.

<sup>56</sup> See, Table 1-1, 2016 City of Imperial Beach Sea Level Rise Assessment (the “Imperial Beach Assessment”), available at: [http://www.imperialbeachca.gov/vertical/sites/%7B6283CA4C-E2BD-4DFA-A7F7-8D4ECD543E0F%7D/uploads/100516\\_IB\\_Sea\\_Level\\_Rise\\_Assessment\\_FINAL\(1\).pdf](http://www.imperialbeachca.gov/vertical/sites/%7B6283CA4C-E2BD-4DFA-A7F7-8D4ECD543E0F%7D/uploads/100516_IB_Sea_Level_Rise_Assessment_FINAL(1).pdf)

<sup>57</sup> See, [https://riskfinder.climatecentral.org/place/imperial-beach.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017\\_inthi\\_p50&impact=Land&impactGroup=Land&level=2&unit=ft#threat-forecast](https://riskfinder.climatecentral.org/place/imperial-beach.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017_inthi_p50&impact=Land&impactGroup=Land&level=2&unit=ft#threat-forecast)

<sup>58</sup> Dedina, Serge. “Fossil fuel industry should pay for rising sea level”, San Diego Union-Tribune (July 20, 2017). <http://www.sandiegouniontribune.com/opinion/commentary/sd-utbg-fossil-fuels-lawsuit-20170720-story.html>

<sup>59</sup> Petition, at pp. 32-33 ¶ 76.

<sup>60</sup> In fact, none of the information in the City of Imperial Beach’s 2017 complaint against Exxon and other fossil fuel companies regarding sea level rise specific to the City of Imperial Beach existed in 2013.

E. City of Santa Cruz

1. The Petition cited one bond issue by the City of Santa Cruz: \$11,035,000 City of Santa Cruz Public Financing Authority 2017 Refunding Lease Revenue Bonds (the "2017 Santa Cruz Lease Revenue Bonds"). The Official Statement for the 2017 Santa Cruz Lease Revenue Bonds was dated March 22, 2017.<sup>61</sup> The final maturity of these bonds is November 1, 2037. Lease rental payments on the City's Police Station<sup>62</sup> are pledged to pay the 2017 Santa Cruz Lease Revenue Bonds.

2. The Official Statement for the 2017 Santa Cruz Lease Revenue Bonds includes a discussion (under the heading "Certain Risk Factors") of the risks of Natural Calamities, including flooding, earthquakes, tsunamis and wildfire. While sea level rise is not specifically mentioned, the risks from its primary impact, i.e., flooding, is disclosed to bondholders. Specifically, the Official Statement said (under the sub-heading "Natural Calamities"):

**Flood.** There are several areas subject to flooding in the City. The San Lorenzo River runs through the downtown corridor and the majority of the downtown area is in the San Lorenzo floodplain; as a result, 18 floods, eight of which have been considered severe, have occurred over the last 10 decades. The San Lorenzo River Levee Project significantly reduced the risk of flooding in the downtown area. However, the downtown and beach areas are still designated as floodplains.

Flooding along the coast of the City may occur with the simultaneous occurrence of large waves and storm swells during the winter. Storm centers from the southwest produce the type of storm pattern most commonly responsible for the majority of serious coastline flooding. The strong winds combined with high tides that create storm surges are also accompanied by heavy rains. When storms occur simultaneously with high tides, flood conditions including flooding at the mouth of the San Lorenzo River are exacerbated.

There are several smaller creeks in the City that are subject to periodic flooding. Flooding is a hazard on the lower reaches of Moore Creek where only shallow stream channels are present, the lower portion of Arana Gulch, north of Santa

<sup>61</sup> See, <https://emma.msrb.org/EP990879-EP768263-EP1170021.pdf>

<sup>62</sup> Located at 155 Center Street, Santa Cruz, CA



Cruz Yacht Harbor, and among portions of Branciforte and Carbonara creeks. In these areas there is minimal impact on public structures and facilities and only a few residential structures are within these flood zones. There can be no guarantee a flood in the future would not damage the Leased Property.

3. The City's sea level rise by 2040 is projected to be 0.9 feet (medium scenario) to 1.2 feet (fast rise scenario).<sup>63</sup> The City's Police Station is not projected to be at risk from even a five-foot sea level rise.<sup>64</sup> Thus, there should be no direct impact on repayment of the 2017 Santa Cruz Lease Revenue Bonds from sea level rise.<sup>65</sup>

4. According to the City's Draft Climate Adaptation Plan update (2017-2022), absent mitigation and adaptation efforts by the City, major portions of the City would be affected by sea level rise and other effects of climate change in the coming decades. These effects could, if ignored or poorly managed by the City, have an adverse effect on the City's economic and financial condition and might indirectly affect repayment of the Bonds. However, an evaluation of materiality requires an evaluation of the reasonable foreseeability of an event. Given the City's efforts to evaluate, mitigate and adapt to the impacts of sea level rise, in my opinion, it is not reasonably foreseeable that the City would suffer indirect effects from sea level rise of such a magnitude to cause the City to cease paying for use of its Police Station in the next twenty years (i.e., prior to the maturity date of the 2017 Santa Cruz Lease Revenue Bonds).

5. Conclusion. In my opinion, based on the information I have reviewed, the City of Santa Cruz did not make an untrue statement of a material fact regarding sea level change in its disclosure documents for the 2017 Santa Cruz Lease Revenue Bonds or omit such a material fact necessary to make the information included therein, not misleading. Nor is there any conflict between allegations in its complaint concerning sea level rise and the Official Statement for such bonds.

First, sea level rise would not provide a reason for the City to abate making payments on the Bonds because the leased property is not projected to be affected by sea level rise during the life of the Bonds due to its elevation. Furthermore, it is unreasonable to assume that the City will take

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<sup>63</sup> See, [https://riskfinder.climatecentral.org/place/santa-cruz.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017\\_inthi\\_p50&level=3&unit=ft](https://riskfinder.climatecentral.org/place/santa-cruz.ca.us?comparisonType=place&forecastName=Basic&forecastType=NOAA2017_inthi_p50&level=3&unit=ft)

<sup>64</sup> See, [https://ss2.climatecentral.org/#16/36.9678/-122.0292?show=satellite&projections=1-K14\\_RCP85-SLR&level=5&unit=feet&pois=hide](https://ss2.climatecentral.org/#16/36.9678/-122.0292?show=satellite&projections=1-K14_RCP85-SLR&level=5&unit=feet&pois=hide)

<sup>65</sup> Furthermore, the City's 2017 draft Climate Adaptation Plan shows that the police station is outside the *combined hazard zones* (rising tide + coastal storm flooding + erosion) until 2060.

no steps in the future to adapt or mitigate the projected effect of sea level rise on the City as a whole and will allow itself to become essentially insolvent and unable to make timely payments on the Bonds in the next twenty years. Sea level rise is a known long-term problem, and the City has undertaken significant efforts to evaluate, mitigate, and adapt to it. Finally, the official statement for the 2017 Santa Cruz Lease Revenue Bonds does, in fact, include an extensive discussion of the risks of flooding to the City in general.

## **Appendix I**

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#### **Employment History**

*Solo practice, 2012 - present:* serving as an expert witness and consultant in matters related to the securities law of municipal finance, including applicable SEC, MSRB and FINRA rules, and representing local governments, public companies and non-profit organizations on a variety of matters.

*Adjunct Professor of Law, Indiana University Maurer School of Law, 2013 - 2016:* taught "Municipal Finance Law."

*Adjunct Professor of Law, Georgetown University Law School, Spring Term, 2011:* taught "Public Finance: Tax and Securities Law Aspects" in the LL.M. Program.

#### *U.S. Securities and Exchange Commission:*

- *January 2001 - June 2011:* Assistant Director and Chief, Office of Municipal Securities, Division of Trading and Markets, U.S. Securities and Exchange Commission, Washington, D.C. Retired June 30, 2011.
- *August 1999 - January 2001:* Attorney-Fellow, Office of Municipal Securities, U.S. Securities and Exchange Commission, Washington, D.C.

As head of the Office of Municipal Securities (OMS), I coordinated the Securities and Exchange Commission's (SEC) municipal securities activities, advised the Commission on policy matters relating to the municipal bond market and developed and implemented major SEC initiatives in the municipal securities area, such as the creation of the MSRB's Web-based Electronic Municipal Market Access (EMMA) system, the 2008 and 2010 revisions to Exchange Act Rule 15c2-12, the registration of municipal advisors, and implementation of various other Dodd-Frank requirements related to the municipal market. In addition, I assisted and advised Commission Offices and Divisions on a wide array of municipal securities matters, such as enforcement actions, inspections and examinations, rules for mutual funds that invest in municipal securities, governmental accounting issues and legislation. I testified on behalf of the Commission to the House Financial Services Committee and interacted with, and made speeches and presentations to, many municipal securities industry groups to impart an understanding of the Commission's policies and to foster communication concerning current industry issues. I supervised OMS staff in the review and processing of rule filings of the Municipal Securities Rulemaking Board (MSRB) and acted as the Commission's primary liaison with the MSRB, FINRA, the Internal Revenue Service Office of Tax-Exempt Bonds and officials in the Treasury Department and Office of the Comptroller of the Currency tasked with municipal securities matters.

*Private Practice of Law, 1978 - 1999:* While at the following firms, I served as bond counsel, underwriter's counsel, issuers counsel, borrower's counsel, and counsel to credit providers on municipal bond offerings in multiple states and as an expert witness.

- 1997 - 1999: Partner, Public Finance Department, Barnes and Thornburg, Chicago, Illinois
- 1986 - 1997: Partner, Municipal Securities Department, Altheimer and Gray, Chicago, Illinois
- 1978 - 1986: Associate and Participating Partner, Municipal Securities Department, Chapman and Cutler, Chicago, Illinois

Law Licenses, Admissions to Practice and Qualifications

- State: Licensed to practice law in the State of Illinois and the District of Columbia
- Federal: Admitted to practice before the U.S. Supreme Court and the U.S. Court of Appeals for the Northern District of Illinois
- Qualified FINRA Arbitrator

Awards and Memberships

- Lifetime Achievement Award, Women in Public Finance, 2011
- Special resolution in recognition of accomplishments from the Municipal Securities Rulemaking Board, 2011
- SEC Chairman's Law and Policy Awards, 2008, 2010 and 2011
- Award from the National Federation of Municipal Analysts, 2005
- Award to Office of Municipal Securities from the American Bar Association's Division of State and Local Government Law, 2001
- Member, National Association of Bond Lawyers

Education

- J.D., The University of Michigan Law School, Ann Arbor, Michigan, 1977
- B.A., *magna cum laude*, History major, Wayne State University, Detroit, Michigan, 1972 - 1974
- University of Utah, Salt Lake City, Utah, 1970 - 1972

## **Appendix II**

### **Climate Central**

While preparing this report, I made use of Climate Central's *Surging Seas Risk Finder*<sup>66</sup> to obtain projections of sea level rise in particular locations. This interactive toolkit includes maps, local sea level and flood risk projections, and potential impacts for population, land, and, depending upon location, other variables.

Climate Central<sup>67</sup> is a non-profit research and journalism organization providing authoritative science-based information to help the public and policymakers make sound decisions about climate and energy.

Climate Central surveys and conducts scientific research on climate change and informs the public of key findings. Climate Central scientists publish and its journalists report on climate science, energy, sea level rise, wildfires, drought, and related topics. Climate Central is not an advocacy organization. It does not lobby, and does not support any specific legislation, policy or bill. Climate Central is a qualified 501(c) 3 tax-exempt organization.

Additional information about Climate Central available from other sources supports the description of the organization and its work found on Climate Central's website.<sup>68</sup>

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<sup>66</sup> Available at: <https://riskfinder.climatecentral.org/>

<sup>67</sup> The information in this appendix is derived from Climate Central's webpage: [www.climatecentral.org](http://www.climatecentral.org) and has not been independently verified.

<sup>68</sup> See, e.g., "A One Stop Shop for Climate Information," Columbia Journalism Review, December 8, 2008, available at: [https://archives.cjr.org/the\\_observatory/climate\\_central.php](https://archives.cjr.org/the_observatory/climate_central.php); Media Bias/Fact Check, LLC ranks Climate Central as "Pro-Science" and in the Very High category for factual reporting. It also notes that while Climate Central is evidence based, it has a leftward political bias through criticism of Republican policy. See, also, information available at: <https://mediabiasfactcheck.com/climate-central/>; The Center for Media and Democracy's "Source Watch" available at: [https://www.sourcewatch.org/index.php/Climate\\_Central#cite\\_note-2](https://www.sourcewatch.org/index.php/Climate_Central#cite_note-2).

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