Report Title [Publication Date] Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F#	Finding (text may be duplicated due to spanning and multiple respondent effects) Fires resulting from an earthquake represent a significant risk of widespread damage and potential loss of life in San Francisco.	Respondent Assigned by CGJ [Response Due Date] President, San Francisco Fire Commission [September 15, 2019]	Finding Response (Agree/Disagree) Agree with the finding	Finding Response Text		Recommendation (text may be duplicated due to spanning and multiple respondent effects) By no later than December 31, 2020, the Mayor, the SFPUC, the SFFD, and the Office of Resilience and Capital Planning should jointly present to the Board of Supervisors a detailed plan to ensure the City is well prepared to fight fires in all parts of San Francisco in the event of a 1906-magnitude (7.8) earthquake.	Respondent Assigned by CGJ [Response Due Date] President, San Francisco Fire Commission [September 15, 2019]	Recommendation Response Text Ensuring that San Francisco has the infrastructure and resources to be well prepared to fight fires in all parts of San Francisco is something that will be a focus of the next 10-Year Capital Plan. Per Administrative Code 3.20, that Plan must be submitted to the Mayor and Board no later than March 1 of each odd-numbered year for approval no later than May 1. The requested presentation would be delivered as part of that Plan's submission to enable holistic planning across San Francisco's resilience challenges. Updates available on this timeline would be included. The City cannot discuss the project and timeline until the ESER 2020 plan passes. For this reason, the City will sync this recommendation with the Capital Plan, and push back the timeline to December 31, 2021.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F1	Fires resulting from an earthquake represent a significant risk of widespread damage and potential loss of life in San Francisco.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding		R2 [for F1-F6]	The plan discussed in Recommendation R1 should include a detailed proposal, including financing sources, for the installation within 15 years of a high-pressure, multi-sourced, seismically safe emergency water system for those parts of the City that don't currently have one, i.e., by no later than June 30, 2034.	President, San Francisco Fire Commission [September 15, 2019]	The commitment of sources for specific uses on specific timelines for San Francisco's public infrastructure is the work of the 10-Year Capital Plan. The plan discussed in Recommendation 1 will be acknowledged in the Capital Plan, and based on analysis, will be done on the capital plan timeline. The capital planning process gathers, documents, and balances planned funding for needs across the public infrastructure portfolio and across San Francisco's resilience challenges. The Capital Plan has longstanding funding principles to guide the prioritization of public infrastructure investments. These investments are tiered: (1) address legal and/or regulatory mandates; (2) ensure public safety and enhance resilience; (3) preserve assets and promote sustainability; (4) advance planned and programmatic needs; and (5) promote economic development. In the next 10-Year Capital Plan and those that follow, the City will continue to analyze priority projects and programs and identify sources to advance those priorities. Committing to entirely funding a single program out of context and without regard for the trade-offs of that commitment would be out of step with the City's longstanding and highly regarded capital planning process and likely create significant vulnerabilities elsewhere in the portfolio.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F2	The municipal water supply system (MWSS) is highly vulnerable to damage from a major earthquake and is not a reliable source for water supply for firefighting after a major earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Disagree, partially	The MWSS has been significantly upgraded in the last 15 years through the Water Supply Improvement Program (WSIP) initiated by the SFPUC. The goals of WSIP included to reduce vulnerability of the water system to damage from earthquakes and increase overall water system reliability. There were 35 in-city projects within the \$4.8 billion-dollar program. The WSIP was the largest capital program ever undertaken by San Francisco, and one of the largest water infrastructure programs in the nation. Additionally, it is one of the only comprehensive and strategic infrastructure programs targeted specifically at improving a water system's seismic reliability and resiliency. Additionally, it is unique because the WSIP utilized a 7.8 magnitude earthquake as its seismic Level of Service.	[for F1-F6]	By no later than December 31, 2020, the Mayor, the SFPUC, the SFFD, and the Office of Resilience and Capital Planning should jointly present to the Board of Supervisors a detailed plan to ensure the City is well prepared to fight fires in all parts of San Francisco in the event of a 1906-magnitude (7.8) earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Ensuring that San Francisco has the infrastructure and resources to be well prepared to fight fires in all parts of San Francisco is something that will be a focus of the next 10-Year Capital Plan. Per Administrative Code 3.20, that Plan must be submitted to the Mayor and Board no later than March 1 of each odd-numbered year for approval no later than May 1. The requested presentation would be delivered as part of that Plan's submission to enable holistic planning across San Francisco's resilience challenges. Updates available on this timeline would be included. The City cannot discuss the project and timeline until the ESER 2020 plan passes. For this reason, the City will sync this recommendation with the Capital Plan, and push back the timeline to December 31, 2021.

WSS Page 1 of 7

Act Now Before It Is	F2	The municipal water supply system (MWSS) is	President, San Francisco	Disagree, partially	The MWSS has been significantly upgraded in the last 15 years through the	R2	The plan discussed in Recommendation R1	President, San Francisco	Requires further	The commitment of sources for specific uses on specific
Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]		highly vulnerable to damage from a major earthquake and is not a reliable source for water supply for firefighting after a major earthquake.	Fire Commission		Water Supply Improvement Program (WSIP) initiated by the SFPUC. The goals of WSIP included to reduce vulnerability of the water system to damage from earthquakes and increase overall water system reliability. There were 35 in-city projects within the \$4.8 billion-dollar program. The WSIP was the largest capital program ever undertaken by San Francisco, and one of the largest water infrastructure programs in the nation. Additionally, it is one of the only comprehensive and strategic infrastructure programs targeted specifically at improving a water system's seismic reliability and resiliency. Additionally, it is unique because the WSIP utilized a 7.8 magnitude earthquake as its seismic Level of Service.		should include a detailed proposal, including financing sources, for the installation within 15 years of a high-pressure, multi-sourced, seismically safe emergency water system for those parts of the City that don't currently have one, i.e., by no later than June 30, 2034.	Fire Commission [September 15, 2019]	analysis	timelines for San Francisco's public infrastructure is the work of the 10-Year Capital Plan. The plan discussed in Recommendation 1 will be acknowledged in the Capital Plan, and based on analysis, will be done on the capital plan timeline. The capital planning process gathers, documents, and balances planned funding for needs across the public infrastructure portfolio and across San Francisco's resilience challenges. The Capital Plan has longstanding funding principles to guide the prioritization of public infrastructure investments. These investments are tiered: (1) address legal and/or regulatory mandates; (2) ensure public safety and enhance resilience; (3) preserve assets and promote sustainability; (4) advance planned and programmatic needs; and (5) promote economic development. In the next 10-Year Capital Plan and those that follow, the City will continue to analyze priority projects and programs and identify sources to advance those priorities. Committing to entirely funding a single program out of context and without regard for the trade-offs of that commitment would be out of step with the City's longstanding and highly regarded capital planning process and likely create significant vulnerabilities elsewhere in the portfolio.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F3	Approximately 30 cisterns have recently been added with funds from ESER bonds, but cisterns only have up to about an hour of water supply and thus do not provide sufficient water for fighting fires following a major earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding	Cisterns serve as one of many important tools for use by the SFFD in response to a disaster. Cistern locations are strategically located in the City in the event of a major conflagration to assist as a "Demarcation Line" on some of The City's major thoroughfares. This was realized after the 1906 earthquake. With work accomplished through the ESER bond program, cisterns have been seismically improved throughout the City and the overall number of cisterns has increased to approximately 230, providing the Fire Department access to millions of gallons of water in an emergency.		By no later than December 31, 2020, the Mayor, the SFPUC, the SFFD, and the Office of Resilience and Capital Planning should jointly present to the Board of Supervisors a detailed plan to ensure the City is well prepared to fight fires in all parts of San Francisco in the event of a 1906-magnitude (7.8) earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Will be implemented	Ensuring that San Francisco has the infrastructure and resources to be well prepared to fight fires in all parts of San Francisco is something that will be a focus of the next 10-Year Capital Plan. Per Administrative Code 3.20, that Plan must be submitted to the Mayor and Board no later than March 1 of each odd-numbered year for approval no later than May 1. The requested presentation would be delivered as part of that Plan's submission to enable holistic planning across San Francisco's resilience challenges. Updates available on this timeline would be included. The City cannot discuss the project and timeline until the ESER 2020 plan passes. For this reason, the City will sync this recommendation with the Capital Plan, and push back the timeline to December 31, 2021.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F3	Approximately 30 cisterns have recently been added with funds from ESER bonds, but cisterns only have up to about an hour of water supply and thus do not provide sufficient water for fighting fires following a major earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding	Cisterns serve as one of many important tools for use by the SFFD in response to a disaster. Cistern locations are strategically located in the City in the event of a major conflagration to assist as a "Demarcation Line" on some of The City's major thoroughfares. This was realized after the 1906 earthquake. With work accomplished through the ESER bond program, cisterns have been seismically improved throughout the City and the overall number of cisterns has increased to approximately 230, providing the Fire Department access to millions of gallons of water in an emergency.	R2 [for F1-F6]	The plan discussed in Recommendation R1 should include a detailed proposal, including financing sources, for the installation within 15 years of a high-pressure, multi-sourced, seismically safe emergency water system for those parts of the City that don't currently have one, i.e., by no later than June 30, 2034.	President, San Francisco Fire Commission [September 15, 2019]	Requires further analysis	The commitment of sources for specific uses on specific timelines for San Francisco's public infrastructure is the work of the 10-Year Capital Plan. The plan discussed in Recommendation 1 will be acknowledged in the Capital Plan, and based on analysis, will be done on the capital Plan, and based on analysis, will be done on the capital plan timeline. The capital planning process gathers, documents, and balances planned funding for needs across the public infrastructure portfolio and across San Francisco's resilience challenges. The Capital Plan has longstanding funding principles to guide the prioritization of public infrastructure investments. These investments are tiered: (1) address legal and/or regulatory mandates; (2) ensure public safety and enhance resilience; (3) preserve assets and promote sustainability; (4) advance planned and programmatic needs; and (5) promote economic development. In the next 10-Year Capital Plan and those that follow, the City will continue to analyze priority projects and programs and identify sources to advance those priorities. Committing to entirely funding a single program out of context and without regard for the trade-offs of that commitment would be out of step with the City's longstanding and highly regarded capital planning process and likely create significant vulnerabilities elsewhere in the portfolio.

Page 2 of 7

					·					
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F4	The City's high-pressure emergency water supply system, known as the Auxiliary Water Supply System (AWSS), does not cover large parts of Supervisorial Districts 1, 4, 7 and 11, roughly one-third of the City's developed area. As a result, these districts are not adequately protected from fires after a major earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding	The SFPUC, SFFD, and San Francisco Public Works (SFPW) are committed to increasing fire protection throughout San Francisco. Since the passage of the first Earthquake Safety and Emergency Response Bond in 2010, the three agencies have been implementing projects to improve the AWSS system's seismic reliability and range of coverage. Enhancing the AWSS range of coverage to all areas of the City would require the allocation of funds to do so. The three agencies will continue to develop and implement projects utilizing new and proven technologies that improve upon the original system design. There have been many advancements in earthquake resistant pipeline design and materials, hydrants, and seismic valves since the early 1900s, and the City intends to use the best possible technology available to meet the performance standards of the SFFD.		By no later than December 31, 2020, the Mayor, the SFPUC, the SFFD, and the Office of Resilience and Capital Planning should jointly present to the Board of Supervisors a detailed plan to ensure the City is well prepared to fight fires in all parts of San Francisco in the event of a 1906-magnitude (7.8) earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Will be implemented	Ensuring that San Francisco has the infrastructure and resources to be well prepared to fight fires in all parts of San Francisco is something that will be a focus of the next 10-Year Capital Plan. Per Administrative Code 3.20, that Plan must be submitted to the Mayor and Board no later than March 1 of each odd-numbered year for approval no later than May 1. The requested presentation would be delivered as part of that Plan's submission to enable holistic planning across San Francisco's resilience challenges. Updates available on this timeline would be included. The City cannot discuss the project and timeline until the ESER 2020 plan passes. For this reason, the City will sync this recommendation with the Capital Plan, and push back the timeline to December 31, 2021.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F4	The City's high-pressure emergency water supply system, known as the Auxiliary Water Supply System (AWSS), does not cover large parts of Supervisorial Districts 1, 4, 7 and 11, roughly one-third of the City's developed area. As a result, these districts are not adequately protected from fires after a major earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding	The SFPUC, SFFD, and San Francisco Public Works (SFPW) are committed to increasing fire protection throughout San Francisco. Since the passage of the first Earthquake Safety and Emergency Response Bond in 2010, the three agencies have been implementing projects to improve the AWSS system's seismic reliability and range of coverage. Enhancing the AWSS range of coverage to all areas of the City would require the allocation of funds to do so. The three agencies will continue to develop and implement projects utilizing new and proven technologies that improve upon the original system design. There have been many advancements in earthquake resistant pipeline design and materials, hydrants, and seismic valves since the early 1900s, and the City intends to use the best possible technology available to meet the performance standards of the SFFD.	R2 [for F1-F6]	The plan discussed in Recommendation R1 should include a detailed proposal, including financing sources, for the installation within 15 years of a high-pressure, multi-sourced, seismically safe emergency water system for those parts of the City that don't currently have one, i.e., by no later than June 30, 2034.	President, San Francisco Fire Commission [September 15, 2019]	Requires further analysis	The commitment of sources for specific uses on specific timelines for San Francisco's public infrastructure is the work of the 10-Year Capital Plan. The plan discussed in Recommendation 1 will be acknowledged in the Capital Plan, and based on analysis, will be done on the capital plan timeline. The capital planning process gathers, documents, and balances planned funding for needs across the public infrastructure portfolio and across San Francisco's resilience challenges. The Capital Plan has longstanding funding principles to guide the prioritization of public infrastructure investments. These investments are tiered: (1) address legal and/or regulatory mandates; (2) ensure public safety and enhance resilience; (3) preserve assets and promote sustainability; (4) advance planned and programmatic needs; and (5) promote economic development. In the next 10-Year Capital Plan and those that follow, the City will continue to analyze priority projects and programs and identify sources to advance those priorities. Committing to entirely funding a single program out of context and without regard for the trade-offs of that commitment would be out of step with the City's longstanding and highly regarded capital planning process and likely create significant vulnerabilities elsewhere in the portfolio.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F4	The City's high-pressure emergency water supply system, known as the Auxiliary Water Supply System (AWSS), does not cover large parts of Supervisorial Districts 1, 4, 7 and 11, roughly one-third of the City's developed area. As a result, these districts are not adequately protected from fires after a major earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding	The SFPUC, SFFD, and San Francisco Public Works (SFPW) are committed to increasing fire protection throughout San Francisco. Since the passage of the first Earthquake Safety and Emergency Response Bond in 2010, the three agencies have been implementing projects to improve the AWSS system's seismic reliability and range of coverage. Enhancing the AWSS range of coverage to all areas of the City would require the allocation of funds to do so. The three agencies will continue to develop and implement projects utilizing new and proven technologies that improve upon the original system design. There have been many advancements in earthquake resistant pipeline design and materials, hydrants, and seismic valves since the early 1900s, and the City intends to use the best possible technology available to meet the performance standards of the SFFD.	R5 [for F4]	The SFFD should strategically locate the majority of the PWSS hose tenders in areas that at present only have low-pressure hydrants and/or cisterns.	Fire Commission	Will be implemented	The Department is currently finalizing specifications for these units, after which they will go out to bid through the City's procurement processes before construction. It is anticipated the Department will take receipt of these units in the second half of 2020/early 2021. These hose tenders are a heavy-duty apparatus designed to be able to be deployed and moved throughout the City depending on need, giving the Department needed operational flexibility in its response.

AWSS Page 3 of 7

Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	FS	A high-pressure, multi-sourced, seismically safe emergency firefighting water supply will be costly but is essential to protect the City.	President, San Francisco Fire Commission [September 15, 2019]	As the City considers what is essential to protect San Francisco, it is important to acknowledge our multiple, complex resilience challenges. These challenges are documented in the Resilient SF strategy (2016) and underlie the strategic efforts of our capital investments as represented in the 10-Year Capital Plan (last updated 2019). These challenges are: Earthquakes, Sea Level Rise/Climate Change, Aging Infrastructure, Unaffordability, and Social Inequity. All of these challenges represent meaningful threats to San Franciscans, their property, and their ability to make a life in the city. In making decisions about priority investments, San Francisco must keep an eye on all of these challenges, identify the areas of greatest need across them, and make progress on all fronts simultaneously. The City has taken significant steps since 2010 to ensure that the City has a high-pressure multi-sourced, seismically safe EFWS. Since the passage of the first Earthquake Safety and Emergency Response Bond in 2010, SFPUC, SFFD, SF Public Works have been implementing projects to improve the system's seismic reliability and range of coverage. The three agencies will continue to implement projects utilizing new and proven technologies that improve upon the original system design.	[for F1-F6]	By no later than December 31, 2020, the Mayor, the SFPUC, the SFFD, and the Office of Resilience and Capital Planning should jointly present to the Board of Supervisors a detailed plan to ensure the City is well prepared to fight fires in all parts of San Francisco in the event of a 1906-magnitude (7.8) earthquake.	President, San Francisco Fire Commission [September 15, 2019]	Ensuring that San Francisco has the infrastructure and resources to be well prepared to fight fires in all parts of San Francisco is something that will be a focus of the next 10-Year Capital Plan. Per Administrative Code 3.20, that Plan must be submitted to the Mayor and Board no later than March 1 of each odd-numbered year for approval no later than May 1. The requested presentation would be delivered as part of that Plan's submission to enable holistic planning across San Francisco's resilience challenges. Updates available on this timeline would be included. The City cannot discuss the project and timeline until the ESER 2020 plan passes. For this reason, the City will sync this recommendation with the Capital Plan, and push back the timeline to December 31, 2021.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F5	A high-pressure, multi-sourced, seismically safe emergency firefighting water supply will be costly but is essential to protect the City.	President, San Francisco Fire Commission [September 15, 2019]	As the City considers what is essential to protect San Francisco, it is important to acknowledge our multiple, complex resilience challenges. These challenges are documented in the Resilient SF strategy (2016) and underlie the strategic efforts of our capital investments as represented in the 10-Year Capital Plan (last updated 2019). These challenges are: Earthquakes, Sea Level Rise/Climate Change, Aging Infrastructure, Unaffordability, and Social Inequity. All of these challenges represent meaningful threats to San Franciscans, their property, and their ability to make a life in the city. In making decisions about priority investments, San Francisco must keep an eye on all of these challenges, identify the areas of greatest need across them, and make progress on all fronts simultaneously. The City has taken significant steps since 2010 to ensure that the City has a high-pressure multi-sourced, seismically safe EFWS. Since the passage of the first Earthquake Safety and Emergency Response Bond in 2010, SFPUC, SFFD, SF Public Works have been implementing projects to improve the system's seismic reliability and range of coverage. The three agencies will continue to implement projects utilizing new and proven technologies that improve upon the original system design.			President, San Francisco Fire Commission [September 15, 2019]	The commitment of sources for specific uses on specific timelines for San Francisco's public infrastructure is the work of the 10-Year Capital Plan. The plan discussed in Recommendation 1 will be acknowledged in the Capital Plan, and based on analysis, will be done on the capital Plan, and based on analysis, will be done on the capital plan timeline. The capital planning process gathers, documents, and balances planned funding for needs across the public infrastructure portfolio and across San Francisco's resilience challenges. The Capital Plan has longstanding funding principles to guide the prioritization of public infrastructure investments. These investments are tiered: (1) address legal and/or regulatory mandates; (2) ensure public safety and enhance resilience; (3) preserve assets and promote sustainability; (4) advance planned and programmatic needs; and (5) promote economic development. In the next 10-Year Capital Plan and those that follow, the City will continue to analyze priority projects and programs and identify sources to advance those priorities. Committing to entirely funding a single program out of context and without regard for the trade-offs of that commitment would be out of step with the City's longstanding and highly regarded capital planning process and likely create significant vulnerabilities elsewhere in the portfolio.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F6	Unless the City increases funding levels, it will be several decades (i.e., after the USGS predicts one or more major earthquakes will occur) before the southern parts of the City have a high pressure, multi-sourced, seismically safe emergency firefighting water supply.	Fire Commission [September 15, 2019]	 Decisions about programming and funding levels of future ESER bonds and other complementary sources that could support the expansion of the AWSS have yet to be made.	[for F1-F6]	By no later than December 31, 2020, the Mayor, the SFPUC, the SFFD, and the Office of Resilience and Capital Planning should jointly present to the Board of Supervisors a detailed plan to ensure the City is well prepared to fight fires in all parts of San Francisco in the event of a 1906-magnitude (7.8) earthquake.		Ensuring that San Francisco has the infrastructure and resources to be well prepared to fight fires in all parts of San Francisco is something that will be a focus of the next 10-Year Capital Plan. Per Administrative Code 3.20, that Plan must be submitted to the Mayor and Board no later than March 1 of each odd-numbered year for approval no later than May 1. The requested presentation would be delivered as part of that Plan's submission to enable holistic planning across San Francisco's resilience challenges. Updates available on this timeline would be included. The City cannot discuss the project and timeline until the ESER 2020 plan passes. For this reason, the City will sync this recommendation with the Capital Plan, and push back the timeline to December 31, 2021.

WSS Page 4 of 7

Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]		Unless the City increases funding levels, it will be several decades (i.e., after the USGS predicts one or more major earthquakes will occur) before the southern parts of the City have a high-pressure, multi-sourced, seismically safe emergency firefighting water supply.	Fire Commission [September 15, 2019]	Disagree, wholly	Decisions about programming and funding levels of future ESER bonds and other complementary sources that could support the expansion of the AWSS have yet to be made.	R2 [for F1-F6]	The plan discussed in Recommendation R1 should include a detailed proposal, including financing sources, for the installation within 15 years of a high-pressure, multi-sourced, seismically safe emergency water system for those parts of the City that don't currently have one, i.e., by no later than June 30, 2034.	President, San Francisco Fire Commission [September 15, 2019]	Requires further analysis	The commitment of sources for specific uses on specific timelines for San Francisco's public infrastructure is the work of the 10-Year Capital Plan. The plan discussed in Recommendation 1 will be acknowledged in the Capital Plan, and based on analysis, will be done on the capital plan timeline. The capital planning process gathers, documents, and balances planned funding for needs across the public infrastructure portfolio and across San Francisco's resilience challenges. The Capital Plan has longstanding funding principles to guide the prioritization of public infrastructure investments. These investments are tiered: (1) address legal and/or regulatory mandates; (2) ensure public safety and enhance resilience; (3) preserve assets and promote sustainability; (4) advance planned and programmatic needs; and (5) promote economic development. In the next 10-Year Capital Plan and those that follow, the City will continue to analyze priority projects and programs and identify sources to advance those priorities. Committing to entirely funding a single program out of context and without regard for the trade-offs of that commitment would be out of step with the City's longstanding and highly regarded capital planning process and likely create significant vulnerabilities elsewhere in the portfolio.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]		Unless the City increases funding levels, it will be several decades (i.e., after the USGS predicts one or more major earthquakes will occur) before the southern parts of the City have a high pressure, multi-sourced, seismically safe emergency firefighting water supply.	Fire Commission [September 15, 2019]	Disagree, wholly	Decisions about programming and funding levels of future ESER bonds and other complementary sources that could support the expansion of the AWSS have yet to be made.		As interim measure, by no later than June 30, 2021, the City should purchase the 20 new PWSS hose tenders being requested by the SFFD, to replace and expand its currently inadequate inventory.	President, San Francisco Fire Commission [September 15, 2019]	Requires further analysis	The Fire Department has been allocated funding to purchase five units through funds from the FY19-20 City budget and an allocation from the State. The Department is currently working with the Office of Contract Administration to develop a multi-year term contract for hose tenders so in the case that additional funding is secured in future years, the Department will be able to reduce the amount of time for procurement of the apparatus. Each hose tender cost \$1 million each, and we need to weigh purchase of additional hose tenders to other budget request and priority.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]		The existing Portable Water Supply System (PWSS) inventory is inadequate. Investing in more PWSS hose tenders would provide a relatively quick, cost-effective interim means to improve protection of the southern and western parts of the City until a high-pressure, multisourced, seismically safe emergency water supply can be developed in those areas.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding	The Fire Department has been allocated funding to purchase five units through funds from the FY19-20 City budget and an allocation from the State. While the Department currently has five older hose tenders spread-out throughout the City, these new units are much more modern and provide the Department with a number of operational benefits, including the following: the capability of pumping and drafting water from any water source; extending the current AWSS system infrastructure; carrying 6,000 feet of hose for deployment; a 5,500 gallon per minute (GPM) on-board water pump and a 3,000 GPM portable submersible water pump; on-board monitor with a 525 foot reach; and four wheel drive. In addition, the Department has been successful in advocating and receiving Federal grant funds to assist with purchasing various PWSS equipment (valves, hose, ramps, etc.), and will continue to advocate for alternative sources of funding to increase the inventory of PWSS equipment.		As interim measure, by no later than June 30, 2021, the City should purchase the 20 new PWSS hose tenders being requested by the SFFD, to replace and expand its currently inadequate inventory.	President, San Francisco Fire Commission [September 15, 2019]	Requires further analysis	The Fire Department has been allocated funding to purchase five units through funds from the FY19-20 City budget and an allocation from the State. The Department is currently working with the Office of Contract Administration to develop a multi-year term contract for hose tenders so in the case that additional funding is secured in future years, the Department will be able to reduce the amount of time for procurement of the apparatus. Each hose tender cost \$1 million each, and we need to weigh purchase of additional hose tenders to other budget request and priority.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F8	Redundancy is an important feature of an emergency firefighting water system.	President, San Francisco Fire Commission [September 15, 2019]	Agree with the finding			The SFPUC, the SFFD and the SF Department of the Environment should study adding salt-water pump stations to improve the redundancy of water sources, especially on the west side. Findings and recommendations from this study should be presented to the Board of Supervisors by no later than June 30, 2021.	President, San Francisco Fire Commission [September 15, 2019]	Will be implemented	SFPUC and SFFD will complete this study by June 30, 2021.

VSS Page 5 of 7

Act Now Before It Is	F9	Current plans to extend protections to the	President, San Francisco	Disagree, partially	While it is true that the SFPUC and SFFD are studying four potential water	R6	The SFPUC, the SFFD and the SF Department of	President, San Francisco	Will be implemented	SFPUC and SFFD will complete this study by June 30, 2021.
Too Late:		western part of the City do not include any high-	Fire Commission	. , ,	sources proposed to supply a potable EFWS on the west side of the City, which	[for F8-F9]		Fire Commission	•	
Aggressively Expand		pressure water sources north of Golden Gate	[September 15, 2019]		are not located north of Golden Gate Park, which by no means would reduce		pump stations to improve the redundancy of	[September 15, 2019]		
and Enhance Our		Park.			the proposed system's resiliency, reliability, performance, or ability to provide		water sources, especially on the west side.			
High-Pressure					abundant high-pressure water for fire suppression to the Richmond District		Findings and recommendations from this study			
Emergency					after a seismic event. San Francisco is unique in that there are 11 in-city		should be presented to the Board of Supervisors			
Firefighting Water					reservoirs, with a total water capacity of approximately 413,000,000 gallons.		by no later than June 30, 2021.			
System					Additionally, Lake Merced, also located within City Limits, has an additional		•			
[July 17, 2019]					approximately 1,000,000,000 gallons. The potable EFWS system for the					
					Westside of San Francisco that is being developed and analyzed would provide					
					that the new EFWS pipeline in the Sunset and Richmond Districts could be					
					supplied from four sources of water at two locations. The first two water					
					sources could be supplied to the EFWS pipeline via a 30,000 gallon per minute					
					pump station in the vicinity of Lake Merced. The two sources being studied for					
					this pump station are Lake Merced, which has a water supply of approximately					
1					one billion gallons, and a 60" seismically resilient SFPUC Hetch Hetchy Regional					
ı					Water System pipeline. The proposed potable EFWS also is analyzing the					
ı					inclusion of a second 30,000 gallons per minute pump station in the vicinity of					
					the SFPUC's Sunset Reservoir that could be supplied water by two sources: (1)					
					the 90 million gallon north basin of the Sunset Reservoir, which recently					
					underwent a \$64 million seismic retrofit, and (2) a 54" seismically resilient					
					SFPUC Hetch Hetchy Regional Water system pipeline.					
Act Now Before It Is	F10	The "reliability scores" being used by the SFPUC	President, San Francisco	Disagree, partially	Fire Response Areas (FRAs) were utilized by SFPUC and SFFD in the planning					
Too Late:		impart an overly optimistic impression of the	Fire Commission		study CS-199. This study divided the City into areas based on those defined by					
Aggressively Expand		protection provided.	[September 15, 2019]		the SFFD for initial alarm response and were called Fire Response Areas (FRAs).					
and Enhance Our		· ·			Probable fire demands were developed for each FRA using 1000 sets of fire					
High-Pressure					demands generated by Charles Scawthorn, PhD using a Monte Carlo analysis of					
Emergency					fire ignitions and fire growth using the ground motions from the design					
Firefighting Water					earthquake (7.8 magnitude). The fire ignitions were generated using methods					
System					similar to those used for the Community Action Plan for Seismic Safety (CAPSS)					
[July 17, 2019]					study (ATC 2010). The fire ignitions subsequently were used to develop water					
					demands that were aggregated into the likely fire demands for each FRA. The					
					water supplies for each FRA were developed using the reliability modeling tool					
					GIRAFFE, developed at Cornell University by Professor Thomas D. O'Rourke.					
					GIRAFFE performs internal Monte Carlo analysis to damage pipes in the system					
					for multiple scenarios. The water supplies developed by GIRAFFE were					
					aggregated into the likely water supplies for each FRA. It should be noted that					
					the likely water supplies for each FRA assumed no water from the City's					
					municipal water system (MWSS), which is quite conservative and highly					
					unlikely even after a seismic event. The reliability score for each FRA is					
					calculated using the sum of all water supplies for each FRA and dividing it by					
					the FRA water demand. The reliability scores do exactly that - estimate how					
					much EFWS water will be available for firefighting demands in a given FRA. The					
					reliability scores are not meant to represent an estimate of the fire protection					
.					for a given house, block, or blocks. Rather it is a measure of the EFWS capacity					
<u>.</u>					and demand. The SFPUC recognizes the need to analyze potential EFWS					
.					demands on a more detailed level, and the agency began the process of doing					
i					so.					
i										
			1			I		1		

AWSS Page 6 of 7

Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]	F11	The City does not have a timeline to fund and complete development of a high-pressure, multi-sourced, seismically safe emergency water supply for all parts of the City, including poor neighborhoods that historically have not been as well protected as the downtown business district and many richer neighborhoods.	President, San Francisco Fire Commission [September 15, 2019]	The EFWS was built after the 1906 earthquake, and its location, primarily in the northeast portion of San Francisco, corresponds to the location of the majority of the city's population at that time. Since 2010, the SFPUC, SFFD, and Public Works have made critical improvements to the existing EFWS system. Expanding the EFWS prior to ensuring that the existing EFWS is resilient and reliable would have contradicted best engineering practices. The SFPUC and SFFD are developing plans that would implement a resilient, robust, and redundant potable EFWS for the Westside of San Francisco. The potable EFWS that is being developed and analyzed would propose the best method for bringing a robust and resilient high-pressure firefighting water system to the Western neighborhoods in San Francisco that is capable of providing water to the SFFD firefighters at the high-pressure needed for firefighters to combat large fires after a seismic event, and is likely to include over 14 miles of new EFWS pipelines and potentially two new pump stations likely to be supplied by four water sources. The SFPUC and SFFD's potable EFWS is being designed in a manner that allows for agility and the flexibility to add new technologies and water sources, and in a manner that allows the piping network to be extended in the future to serve additional areas.					
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]					R9 [for F12]	By no later than December 31, 2020 the SFPUC, with the advice and subject to the approval of the SFFD, should (a) implement "best practices" for the maintenance of AWSS assets, and (b) redefine which AWSS valves in the system are "critical," and, therefore, require more attention and priority in the SFPUC's maintenance plans.	President, San Francisco Fire Commission [September 15, 2019]	implemented	(a) SFPUC implements "best practices" for the maintenance of AWSS assets in collaboration with SFFD, and consistent with the terms of the Memorandum of Understanding Regarding Operation and Maintenance of San Francisco Water Supply Systems Related to Fire Suppression (MOU), SFPUC will seek SFFD's written approval for "any modifications that could compromise" the system's function as a high pressure firefighting system (MOU, page 2). (b) The AWSS critical valves have been identified and will be exercised every year through the AWSS Critical Valve Exercise Program.
Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High-Pressure Emergency Firefighting Water System [July 17, 2019]						By no later than June 30, 2020, the 2015 MOU between the SFPUC and the SFFD should be amended to include a detailed roadmap for annual emergency response exercises, including simulated disaster and earthquake drills involving the AWSS and the PWSS.	President, San Francisco Fire Commission [September 15, 2019]		The Fire Department conducts weekly hose/hose tender drills that it rotates through companies throughout the City. The Fire Department will work with the SFPUC to have them in attendance and participate in these drills. SFFD will also commit to working with the PUC to enhance the scope and frequency of trainings in the future for improved collaboration. SFFD and SFPUC will work together to amend the MOU by June 30, 2020.

AWSS Page 7 of 7