



CITY OF SANTA BARBARA, CALIFORNIA

**SUBSURFACE DESALINATION INTAKE AND POTABLE
REUSE FEASIBILITY STUDIES**

**WORKSHOP #3
RESPONSES TO PUBLIC COMMENTS**

FINAL
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CITY OF SANTA BARBARA
SUBSURFACE DESALINATION INTAKE AND POTABLE REUSE
FEASIBILITY STUDIES

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APPENDIX 1: PUBLIC COMMENTS AND TAP RESPONSES TO PUBLIC COMMENTS

**WORKSHOP #3
RESPONSES TO PUBLIC COMMENTS**

1.0 BACKGROUND

On Wednesday, October 26, 2016, Technical Advisory Panel (TAP) Workshop #3 was held at Santa Barbara City Hall, located at 735 Anacapa Street from 9:30 am until 12:00 noon. Stakeholders and interested parties were invited to attend the TAP meeting. As presented in the Work Plans, public comments were collected and compiled from the meeting. Written comments were also accepted for the following two weeks, until November 9, 2016.

2.0 OBJECTIVE

The objective of this document is to present responses to each of the stakeholder comments received regarding material presented at TAP Workshop #3. It is noted that the TAP provided third-party response to each of the public comments; thus, the purpose of this report is to convey City of Santa Barbara (City) responses to public comments and to the TAP's responses to those comments, where applicable.

3.0 RESPONSES

Refer to Appendix 1 for a summary of all public comments that were received along with the TAP's responses to these public comments, related to Workshop #3. City responses to the public comments are as follows.

3.1 Comment #1A - Kira Redmond, Santa Barbara Channelkeeper

1. Comment: Santa Barbara Channelkeeper, like many environmental organizations throughout California, is extremely concerned about the move by several water districts and municipalities to develop seawater desalination as a new source of water supply in response to the current drought. The environmental impacts of seawater desalination are significant and well-known, both to the climate due to the extremely high energy requirement to remove salt from seawater, as well as to the marine environment due to the impingement and entrainment of marine life from open ocean seawater intakes and the discharge of concentrated brine waste into the ocean.

2. TAP Response: *The purpose of the current subsurface intake (SSI) feasibility study is to evaluate the technical feasibility of replacing the existing open water intake for the City of Santa Barbara Charles E. Meyer Desalination Facility with SSIs in a severely drought-constrained situation. The work performed under this feasibility study will be used by the City to inform future long-term planning studies. The Panel expects the City will evaluate questions associated with impacts of producing desalinated water has on the environment under the Long-Term Water Supply Plan update process.*
3. City Response: *The City agrees with the TAP's response to this comment. The purpose of the current SSI and Potable Reuse study is to evaluate technical feasibility of each alternative, with a goal to inform future studies. As stated in the Work Plan and Technical Memorandum's presented at this Workshop, the City is planning to revisit its Long Term Water Supply Plan when the Cachuma decisions are rendered and the City's long term water supply needs are known. Desalination and potable reuse may both be considered.*

3.2 Comment #1B - Kira Redmond, Santa Barbara Channelkeeper

1. Comment: This Technical Advisory Panel was formed in response to pressure that Channelkeeper brought to bear on the City of Santa Barbara to assess SSI and potable reuse alternatives out of concern for the significant marine life mortality that will occur from the City's use of its existing open ocean intake. We have been closely tracking the development of the SSI and potable reuse feasibility studies being undertaken, and have voiced several concerns about the scope of work to this Panel, to the City of Santa Barbara, and to the Central Coast Regional Water Quality Control Board (RWQCB).
2. TAP Response: *The Panel is aware of and shares some of Channelkeeper's concerns about the scope of work for the SSI and potable reuse feasibility studies, and has commented on those concerns in the response to public comments from Panel Meeting #1 (August 5, 2015) and Panel Meeting #2 (January 27-28, 2016). These documents are posted online at: <http://www.nwri-usa.org/santa-barbara-panel.htm>*
3. City Response: *The City agrees with the TAP's response to this comment. The City has responded to all public and TAP comments received during the Workshops #1 and #2. These documents are also posted online at the link above.*

3.3 Comment #1C - Kira Redmond, Santa Barbara Channelkeeper

1. Comment: Channelkeeper hereby repeats for the record that, by defining “feasible” as capable of producing 10,000 acre-feet per year (AFY) of water, these studies are a grave disappointment and disservice to the ratepayers of Santa Barbara. By setting the threshold for feasibility at 10,000 AFY – more than three times the amount of water the City is now recommissioning its desalination plant to produce – the findings that subsurface desalination intakes and potable reuse are infeasible were premeditated. This was done deliberately in order to justify the City’s continued pursuit of desalination with an open ocean intake, which we all know will have significant adverse environmental impacts.
2. TAP Response: *The City will need to respond to this comment regarding the target water demand.*

The Panel commented on the 10,000 acre feet per year (AFY) objective in the Panel reports for both Meeting #1 (August 5, 2015) and Meeting #2 (January 27-28, 2016). The Panel responded to this issue following Meeting #2 by requesting that the City provide a description of the current baseline water use, as well as a stacked bar or pie chart showing what comprises the 10,000 AFY of demand. One chart should represent drought conditions and another should represent non-drought conditions, including documented sources of the demand projections. Demand projections should be included in the upcoming Urban Water Management Plan and/or Long-Range Water Supply Plan update.

The Feasibility Study evaluates a desalination facility that may be used during drought to produce up to 10,000 AFY. As a result, the study is a screening tool for this purpose. The Feasibility Study should state that future studies would consider SSIs that could not satisfy this target demand, but may satisfy a smaller facility. Future studies should be used to analyze supply and demand, validate the 10,000 AFY target and the purpose of the desalination facility during drought and non-drought years, and craft a water supply plan that may combine portions of open ocean intake, the potential for SSIs, and, the potential for potable reuse.

The City should revisit the capacity of desalination, as well as the design drought used for planning, to reflect their needs going forward. With this information, the City should revisit the issue of using SSIs while considering the information developed from the Feasibility Study.

3. City Response: *The City generally agrees with the TAP's response to this comment and has responded to the referenced previous comments, which are available at the website referenced above. On August 31, 2015, the City responded to public comments from Workshop #1 and submitted the finalized Work Plans to RWQCB for SSI and Potable Reuse Studies. In a letter dated October 20, 2015, the Central Coast RWQCB approved the Work Plans, which accepted the 10,000 AFY threshold criteria with the following qualifications:*
- a. *"We understand that this stepwise approach in the Work Plan will allow for initial work to focus on intake capacities of various subsurface intake technologies [and capacities of Potable Reuse alternatives] and later work would provide further information on potentially feasible options that pass this initial screening."*
 - b. *"Central Coast Water Board staff shares the concern with Heal the Ocean that within the confines of this study this 10,000 AFY threshold prevents the potable reuse alternatives from progressing past initial screening feasibility analysis of technical factors into feasibility analysis of non-technical social, environmental, and economic factors. Having said this, we understand that the information from this study will help with future decisions regarding direct and indirect potable reuse by the City that could reduce the need for desalinated water."*
 - c. *"The City will not perform a combined alternative analysis at this time, but the City will pursue this when it knows how its water supply needs will be affected by pending environmental and operational decisions that could reduce the availability of water from the Cachuma Reservoir or new potable reuse regulations."*
 - d. *"The studies must evaluate the technical feasibility of the maximum capacity of potable reuse and subsurface intake options in order to provide information on whether the alternatives could independently or combined potentially replace the screened open-ocean intake desalination facility."*

The City understands that a combination of subsurface intakes, surface intakes, and potable reuse can be used. However, this study has identified what SSI and Potable Reuse alternatives are technically feasible, and the maximum yield possible, which can inform future evaluations. As indicated in the final Work Plan and Technical Memorandum No. 1 (For both SSI and Potable Reuse Study Documents), changes in the Cachuma water supply may affect the amount of water available to the City in the future. When those changes are known, it will be necessary for the City to update its Long Term Water Supply Plan. At that time, as acknowledged by the RWQCB in their acceptance of this study's Work Plans, the feasibility information developed during this study (e.g., maximum yields from subsurface intakes and potable reuse alternatives) can be used to inform these future supply alternatives evaluations.

3.4 Comment #1D - Kira Redmond, Santa Barbara Channelkeeper

1. Comment: Channelkeeper's takeaway from these studies, which we will relay when talking with reporters and ratepayers about them, is that both SSIs and potable reuse are in fact likely feasible and capable of producing at least twice as much water as the City intends to produce with desalination fed by an open ocean intake, with significantly less environmental impacts. Yet despite these findings, the City is proceeding full steam ahead with the most environmentally destructive option.
2. TAP Response: *Following Meeting #1 in August 2015, and again after Meeting #2 in January 2016, the Panel noted that "full replacement of the screened open ocean intake is listed as the only option. Subsurface desalination intakes and potable reuse are considered as mutually exclusive rather than combined to develop integrated solutions; however, it is likely that the best solution will include combinations of components and complementary opportunities."*

In our response to Meeting #2, the Panel stated, "Regardless of what conclusions are reached for meeting current project goals (with 10,000 AFY demand), the conclusions should also include alternatives to meet partial demand." The Panel understands the information developed through the current feasibility study will provide information for future studies. In addition to evaluating demand projections and climate change scenarios, these future studies will also evaluate, as mentioned above, combinations of components and complementary opportunities.

3. City Response: *The City agrees with the TAP's response to this comment and has responded to the referenced previous comments, which are available at the website referenced above. The City understands that a combination of subsurface intakes, surface intakes, and potable reuse can be used. However, this study has identified what SSI and Potable Reuse alternatives are technically feasible, and the maximum yield possible, which can inform future evaluations. As indicated in the final Work Plan and Technical Memorandum No. 1 (For both SSI and Potable Reuse Study Documents), changes in the Cachuma water supply may affect the amount of water available to the City in the future. When those changes are known, it will be necessary for the City to update its Long Term Water Supply Plan. At that time, as acknowledged by the RWQCB in their acceptance of this study's Work Plans, the feasibility information developed during this study (e.g., maximum yields from subsurface intakes and potable reuse alternatives) can be used to inform these future supply alternatives evaluations.*

The City has yet to perform a combined alternative analysis, but will pursue this when it knows how its water supply needs will be affected by pending environmental and operational decisions that could reduce the availability of water from Lake Cachuma or new potable reuse regulations.

3.5 Comment #2A - Hillary Hauser, Heal the Ocean

1. Comment: Heal the Ocean thanks the Technical Advisory Panel for the opportunity to comment on this issue that is so important to the Santa Barbara community. We would like to commend the City of Santa Barbara and the TAP for the progress it has made on researching sustainable water initiatives. It is exciting to see Santa Barbara on the cutting edge of water reuse and strengthening local water supplies. There are several areas that we would like to see discussed further or revised. In past conventions of the TAP and drafts of the Feasibility Study, HTO argued against the 10,000 AFY benchmark that all alternatives are held to, as we found this benchmark to be unreachable and improperly chosen. Although we understand that this benchmark is now set, we have several outstanding questions.
2. TAP Response: *The Panel acknowledges that Heal the Ocean has questions regarding the 10,000 AFY target as part of the Feasibility Studies. Also, see the Panel's response to Comment 1C above.*
3. City Response: *The City agrees with the TAP's response to this comment and has provided response to previous comments (e.g., for Workshops #1 and #2) to provide explanation of this criteria. Refer to City response for Comment #1C, which outlines the stepwise fashion of the study's methodology. This was used to provide the most useful technical feasibility evaluation of the maximum yield for SSI and potable reuse alternatives, without knowing how supply needs will be affected by pending environmental and operational decisions that could reduce the availability of water from the Lake Cachuma or new potable reuse regulations.*

3.6 Comment #2B - Hillary Hauser, Heal the Ocean

1. Comment: What would operating the desalination facility at the 10,000 AFY benchmark look like in terms of associated energy costs?
2. TAP Response: *As described in the scope of work for the SSI feasibility study, the purpose of the study is to evaluate the technical feasibility of SSIs for the City of Santa Barbara's Charles E. Meyer Desalination Facility. As a result, energy requirements of the desalination facility were not developed for this evaluation. Questions associated with the energy requirements of alternatives are valid and would be considered in future studies of specific project alternatives.*
3. City Response: *The City agrees with the TAP's response to this comment. The scope of this study was to evaluate technical feasibility of SSIs and potable reuse. Thus, energy requirements of the City's desalination facility at 10,000 AFY were not addressed in this study.*

3.7 Comment #2C - Hillary Hauser, Heal the Ocean

1. Comment: Would operating [the desalination facility] at 10,000 AFY require the installation of a subsurface intake?

2. TAP Response: *As described in the draft subsurface intake feasibility study, the City currently has the capability to operate the desalination facility to produce 10,000 AFY using the existing open ocean intake. The SSI Feasibility Study is intended to evaluate the use of a various subsurface intake technologies as a replacement for the existing open ocean intake.*
3. City Response: *The City agrees with the TAP's response to this comment. The City has the capability to operate the desalination facility at a production capacity of 10,000 AFY using the existing screened open ocean intake. This is outlined in the Final Subsurface Intake (SSI) Feasibility Study Report, which is available at the project website referenced in response to Comment #1B.*

3.8 Comment #2D - Hillary Hauser, Heal the Ocean

1. Comment: *Regarding Table 3.19: This table appears to begin a discussion of augmenting the water generated by the desalination plant with other forms of recycled water, introducing a series of "Maximum Total Yields" of combined yields from desalination with the yields from Alternatives 1A through 3B. However after Table 3.19, we found no continued discussion of combined yields or augmentation. We were confused by the Panel's apparent decision to begin, and just as quickly end, this consideration. HTO believes that the path to a sustainable water future for Santa Barbara lies in a balanced portfolio of water resources, and that augmenting desalinated water with recycled water will be better for the environment, require less energy input, and be more cost effective for the City.*
2. TAP Response: *The panel agrees with Heal the Ocean that a sustainable water future for Santa Barbara should include a balanced portfolio of water resources. The City's approach to using 10,000 AFY as a target yield has been previously commented on by the Panel. See the Panel's response to Comment 1D above. The Panel has also commented on the City's approach of studying the feasibility of SSI and potable re-use alternatives as mutually exclusive. Under the current studies, the portfolio of water supplies is not evaluated, and a more balanced approach would be determined under future studies, including the Long-Range Water Supply Plan update process.*
3. City Response: *The City also agrees with Heal the Ocean and the TAP regarding the sustainability of future water. As stated previously, the City will consider various alternatives when updating their Long Term Water Supply Plan. The City's approach to the target yield has also been commented on by the City in Comment #2C and other responses.*

As commented previously, the City has not performed a combined alternative analysis at this time, but will pursue this when it knows how its water supply needs will be affected by pending environmental and operational decisions that could reduce the availability of water from Lake Cachuma or new potable reuse regulations.

With regard to Table 3.19, the purpose of this table was to highlight the design considerations with Alternatives 2A and 2B using half of the desalination facility site, and thus reducing the total build-out capacity of the desalination facility from 10,000 AFY to 5,000 AFY. Clarification text has been added to Section 3.5.3 before presentation of Table 3.19.

3.9 Comment #2E - Hillary Hauser, Heal the Ocean

1. Comment: Cost of Alternatives: HTO believes that specific cost estimates related to each alternative (1A-3B) will be a vital tool for future research and discussion regarding indirect potable reuse, direct potable reuse, and nonpotable reuse in the City of Santa Barbara. We would like to see an in-depth discussion of associated costs for each alternative, as well as the desalination facility, as we feel this will be a useful tool in further determining feasibility. We understand that costs are to be developed as part of the County's Long-Term Water Supply Update; however, it is our understanding that this update will not commence until we are out of the drought emergency. This leaves the City on track to continue to expand desalination capacity as it will be the only immediate supply available to expand. It is the hope of HTO that the City will not find itself in the plight of other cities that are left waiting for rain without additional water resources. We believe that improved cost estimates will lower a number of barriers as the City looks to future water supply alternatives.
2. TAP Response: *As described in the scope of work for the SSI feasibility study, the purpose of the study is to evaluate the technical feasibility of SSIs for the City of Santa Barbara's Charles E. Meyer Desalination Facility.*

The estimates of costs for various water supply project alternatives (i.e., indirect potable reuse, direct potable reuse, nonpotable reuse, and desalination) would be further developed under future studies.

The City will need to respond to the scope and timing for conducting these future studies.
3. City Response: *The City agrees with the TAP's response. As stated in the Work Plans in accordance with this study, cost estimates and other non-technical feasibility analyses under this study would be performed on only alternatives carried forward and meeting goals of the current study. As concluded in the SSI and potable reuse studies, none of the alternatives met objectives of the current study. Costs estimates and other non-technical evaluations can be performed at the appropriate time under future studies.*

3.10 Comment #2F - Hillary Hauser, Heal the Ocean

1. Comment: Water Security: HTO has been advocating for more serious discussions of relocating at-risk infrastructure in order to combat the threats of sea level rise for a number of years. This includes the relocation of the El Estero WWTP and its associated infrastructure. Griggs and Russell's 2012 City of Santa Barbara Sea-Level Rise Vulnerability Study found that low-lying elements of Santa Barbara's infrastructure such as the El Estero WWTP would have a "Very High" probability of flooding with a 4-foot rise in sea level, and that flood impacts would range from "Moderate" to "High" over the next 50 years. It is imperative to consider these effects on Santa Barbara's water supply and treatment capabilities when projects that are intended to exist far into the future are being implemented. The City should not look at sustainability only in terms of resource use, but also in terms of long term sustainability of proposed projects and investments. With this in mind, HTO would like to see an improved discussion of the water security of Alternatives 1A through 3B. This would include a discussion of the risks associated with co-locating facilities in the event of a natural disaster, sea level rise, and a risk-analysis of associated piping and necessary water infrastructure for each alternative.
2. TAP Response: *The current Potable Reuse Feasibility Studies included "sea level rise or tsunami hazard" as criteria under "Oceanographic Factors" (see TECHNICAL MEMORANDUM NO. 3: BASIS OF DESIGN AND INITIAL SCREENING: POTABLE REUSE). The report can be viewed at: <http://www.nwri-usa.org/santa-barbara-panel.htm>*

In addition, the current SSI Feasibility Study includes a "tsunami hazard evaluation" in the section on "Coastal Hazards and Sediment Transport Analysis" (see SUBSURFACE DESALINATION INTAKE FEASIBILITY STUDY, TECHNICAL MEMORANDUM NO. 3: BASIS OF DESIGN AND INITIAL SCREENING), available online at [http://www.nwri-usa.org/pdfs/TM-03---BOD-and-Initial-Screening-\(SSI\)_FINAL_March2016.pdf](http://www.nwri-usa.org/pdfs/TM-03---BOD-and-Initial-Screening-(SSI)_FINAL_March2016.pdf)
3. City Response: *The City agrees with the TAP's response. As stated in the TAP's response, Oceanographic Factors including sea level rise or tsunami hazards were evaluated in the initial screening evaluation. All alternatives were deemed to be potentially feasible for this criterion, as engineering solutions could be designed to mitigate any risks. Furthermore, as part of TM3 of the SSI study (i.e., contained in the Final Subsurface Intake (SSI) Feasibility Study Report), a sea level rise, wave run-up, and tsunami hazard evaluation was performed. Refer to the "Coastal Hazards and Sediment Transport Analysis" section (i.e., Section 3.2.5) of this report, also available at the link referenced above. Appendix C of this report contains full details of the analysis and more detailed results.*

3.11 Comment #2G - Hillary Hauser, Heal the Ocean

1. Comment: Conclusion: HTO remains dedicated to the health of Santa Barbara residents and to the health of our local marine and freshwater systems. We again would like to request a shift away from the “either/or” comparison study and ask that augmentation options for the desalination plant be seriously considered, as a full water portfolio will be the best choice going into the future. HTO commends the efforts that have been made by the City of Santa Barbara and Carollo Engineers thus far and look forward to seeing continued progress.
2. TAP Response: *The comments are noted.*
3. City Response: *The City thanks Heal the Ocean for their comment and continues to make progress on the evaluation of water supply alternatives for the future. As stated in response to previous comments, the shift away from the "either/or" comparison study can be performed when it is known how the City's water supply needs will be affected by pending environmental and operational decisions that could reduce the availability of water from the Cachuma Reservoir. New potable reuse regulations may affect the viability of this potential water supply.*

**APPENDIX 1 – PUBLIC COMMENTS AND TAP RESPONSES
TO PUBLIC COMMENTS**

National Water Research Institute Technical Advisory Panel for
City of Santa Barbara's Subsurface Desalination Intake and Potable Reuse Feasibility Studies

TAP Response to Public Comments related to Public Meeting #3 (held October 26, 2016)

	Comment	Commenter/ How Conveyed	Technical Advisory Panel Response
1A	<p>Santa Barbara Channelkeeper, like many environmental organizations throughout California, is extremely concerned about the move by several water districts and municipalities to develop seawater desalination as a new source of water supply in response to the current drought. The environmental impacts of seawater desalination are significant and well-known, both to the climate due to the extremely high energy requirement to remove salt from seawater, as well as to the marine environment due to the impingement and entrainment of marine life from open ocean seawater intakes and the discharge of concentrated brine waste into the ocean.</p>	<p>Kira Redmond, Santa Barbara Channelkeeper. At meeting and via email.</p>	<p>The purpose of the current subsurface intake (SSI) feasibility study is to evaluate the technical feasibility of replacing the existing open water intake for the City of Santa Barbara (City) Charles E. Meyer Desalination Facility with SSIs in a severely drought-constrained situation. The work performed under this feasibility study will be used by the City to inform future long-term planning studies. The Panel expects the City will evaluate questions associated with impacts to the environment under the Long-Term Water Supply Plan update process.</p>
1B	<p>This Technical Advisory Panel was formed in response to pressure that Channelkeeper brought to bear on the City of Santa Barbara to assess subsurface intake (SSI) and potable reuse alternatives out of concern for the significant marine life mortality that will occur from the City's use of its existing open ocean intake. We have been closely tracking the development of the SSI and potable reuse feasibility studies being undertaken and have voiced several concerns about the scope of work to this Panel, to the City of Santa Barbara, and to the Central Coast Regional Water Quality Control Board (RWQCB).</p>	<p>Kira Redmond. At meeting and via email.</p>	<p>The Panel is aware of and shares some of Channelkeeper's concerns about the scope of work for the SSI and potable reuse feasibility studies, and has commented on those concerns in the response to public comments from Panel Meeting #1 (August 5, 2015) and Panel Meeting #2 (January 27-28, 2016). These documents are posted online at: http://www.nwri-usa.org/santa-barbara-panel.htm</p>

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TAP Response to Public Comments related to Public Meeting #3 (held October 26, 2016)

	Comment	Commenter/ How Conveyed	Technical Advisory Panel Response
1C	<p>Channelkeeper hereby repeats for the record that, by defining “feasible” as capable of producing 10,000 acre-feet per year (AFY) of water, these studies are a grave disappointment and disservice to the ratepayers of Santa Barbara. By setting the threshold for feasibility at 10,000 AFY – more than three times the amount of water the City is now recommissioning its desalination plant to produce – the findings that subsurface desalination intakes and potable reuse are infeasible were premeditated. This was done deliberately in order to justify the City’s continued pursuit of desalination with an open ocean intake, which we all know will have significant adverse environmental impacts.</p>	<p>Kira Redmond. At meeting and via email.</p>	<p>The City will need to respond to this comment regarding the target water demand.</p> <p>The Panel commented on the 10,000 acre feet per year (AFY) objective in the Panel reports for both Meeting #1 (August 5, 2015) and Meeting #2 (January 27-28, 2016). The Panel responded to this issue following Meeting #2 by requesting that the City provide a description of the current baseline water use, as well as a stacked bar or pie chart showing what comprises the 10,000 AFY of demand. One chart should represent drought conditions and another should represent non-drought conditions, including documented sources of the demand projections. Demand projections should be included in the upcoming Urban Water Management Plan and/or Long-Range Water Supply Plan update.</p> <p>The Feasibility Study evaluates a desalination facility that may be used during drought to produce up to 10,000 AFY. As a result, the study is a screening tool for this purpose. The Feasibility Study should state that future studies would consider SSIs that could not satisfy this target demand, but may satisfy a smaller facility. Future studies should be used to analyze supply and demand, validate the 10,000 AFY target and the purpose of the desalination facility during drought and non-drought years, and craft a water supply plan that may combine portions of open ocean intake, the potential for SSIs, and, the potential for potable reuse.</p> <p>The City should revisit the capacity of desalination, as well as the design drought used for planning, to reflect their needs going forward. With this information, the City should revisit the issue of using SSIs while considering the information developed from the Feasibility Study.</p>

National Water Research Institute Technical Advisory Panel for
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TAP Response to Public Comments related to Public Meeting #3 (held October 26, 2016)

	Comment	Commenter/ How Conveyed	Technical Advisory Panel Response
1D	<p>Channelkeeper’s takeaway from these studies, which we will relay when talking with reporters and ratepayers about them, is that both SSIs and potable reuse are in fact likely feasible and capable of producing at least twice as much water as the City intends to produce with desalination fed by an open ocean intake, with significantly less environmental impacts. Yet despite these findings, the City is proceeding full steam ahead with the most environmentally destructive option.</p>	<p>Kira Redmond. At meeting and via email.</p>	<p>Following Meeting #1 in August 2015, and again after Meeting #2 in January 2016, the Panel noted that “full replacement of the screened open ocean intake is listed as the only option. Subsurface desalination intakes and potable reuse are considered as mutually exclusive rather than combined to develop integrated solutions; however, it is likely that the best solution will include combinations of components and complementary opportunities.”</p> <p>In our response to Meeting #2, the Panel stated, “Regardless of what conclusions are reached for meeting current project goals (with 10,000 AFY demand), the conclusions should also include alternatives to meet partial demand.” The Panel understands the information developed through the current feasibility study will provide information for future studies. In addition to evaluating demand projections and climate change scenarios, these future studies will also evaluate, as mentioned above, combinations of components and complementary opportunities.</p>
2A	<p>Heal the Ocean thanks the Technical Advisory Panel for the opportunity to comment on this issue that is so important to the Santa Barbara community. We would like to commend the City of Santa Barbara and the TAP for the progress it has made on researching sustainable water initiatives. It is exciting to see Santa Barbara on the cutting edge of water reuse and strengthening local water supplies. There are several areas that we would like to see discussed further or revised. In past conventions of the TAP and drafts of the Feasibility Study, HTO argued against the 10,000 AFY benchmark that all alternatives are held to, as we found this benchmark to be unreachable and improperly chosen. Although we understand that this benchmark is now set, we have several outstanding questions.</p>	<p>Hillary Hauser, Heal the Ocean. At meeting and via email.</p>	<p>The Panel acknowledges that Heal the Ocean has questions regarding the 10,000 AFY target as part of the Feasibility Studies. Also, see the Panel’s response to Comment 1-C above.</p>

National Water Research Institute Technical Advisory Panel for
City of Santa Barbara's Subsurface Desalination Intake and Potable Reuse Feasibility Studies

TAP Response to Public Comments related to Public Meeting #3 (held October 26, 2016)

	Comment	Commenter/ How Conveyed	Technical Advisory Panel Response
2B	What would operating the desalination facility at the 10,000 AFY benchmark look like in terms of associated energy costs?	Hillary Hauser. At meeting and via email.	As described in the scope of work for the SSI feasibility study, the purpose of the study is to evaluate the technical feasibility of SSIs for the City of Santa Barbara's Charles E. Meyer Desalination Facility. As a result, energy requirements of the desalination facility were not developed for this evaluation. Questions associated with the energy requirements of alternatives are valid and would be considered in future studies of specific project alternatives.
2C	Would operating [the desalination facility] at 10,000 AFY require the installation of a subsurface intake?	Hillary Hauser. At meeting and via email.	As described in the draft subsurface intake feasibility study, the City currently has the capability to operate the desalination facility to produce 10,000 AFY using the existing open ocean intake. The SSI Feasibility Study is intended to evaluate the use of subsurface intakes as a replacement for the existing open ocean intake.
2D	Regarding Table 3.19: This table appears to begin a discussion of augmenting the water generated by the desalination plant with other forms of recycled water, introducing a series of "Maximum Total Yields" of combined yields from desalination with the yields from Alternatives 1A through 3B. After Table 3.19, however, we found no continued discussion of combined yields or augmentation. We were confused by the Panel's apparent decision to begin, and just as quickly end, this consideration. HTO believes that the path to a sustainable water future for Santa Barbara lies in a balanced portfolio of water resources, and that augmenting desalinated water with recycled water will be better for the environment, require less energy input, and be more cost effective for the City.	Hillary Hauser. At meeting and via email.	<p>The panel agrees with Heal the Ocean that a sustainable water future for Santa Barbara should include a balanced portfolio of water resources.</p> <p>The City's approach to using 10,000 AFY as a target yield has been previously commented on by the Panel. See the Panel's response to Comment 1-D above.</p> <p>The Panel has also commented on the City's approach of studying the feasibility of SSI and potable re-use alternatives as mutually exclusive. Under the current studies, the portfolio of water supplies is not evaluated, and a more balanced approach would be determined under future studies, including the Long-Range Water Supply Plan update process.</p>

National Water Research Institute Technical Advisory Panel for
City of Santa Barbara's Subsurface Desalination Intake and Potable Reuse Feasibility Studies

TAP Response to Public Comments related to Public Meeting #3 (held October 26, 2016)

	Comment	Commenter/ How Conveyed	Technical Advisory Panel Response
2E	<p>Cost of Alternatives: HTO believes that specific cost estimates related to each alternative (1A-3B) will be a vital tool for future research and discussion regarding indirect potable reuse, direct potable reuse, and nonpotable reuse in the City of Santa Barbara. We would like to see an in-depth discussion of associated costs for each alternative, as well as the desalination facility, as we feel this will be a useful tool in further determining feasibility. We understand that costs are to be developed as part of the County's Long-Term Water Supply Update; however, it is our understanding that this update will not commence until we are out of the drought emergency. This leaves the City on track to continue to expand desalination capacity as it will be the only immediate supply available to expand. It is the hope of HTO that the City will not find itself in the plight of other cities that are left waiting for rain without additional water resources. We believe that improved cost estimates will lower a number of barriers as the City looks to future water supply alternatives.</p>	<p>Hillary Hauser. At meeting and via email.</p>	<p>As described in the scope of work for the SSI feasibility study, the purpose of the study is to evaluate the technical feasibility of SSIs for the City of Santa Barbara's Charles E. Meyer Desalination Facility.</p> <p>The estimates of costs for various water supply project alternatives (i.e., indirect potable reuse, direct potable reuse, nonpotable reuse, and desalination) would be further developed under future studies.</p> <p>The City will need to respond to the scope and timing for conducting these future studies.</p>

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	Comment	Commenter/ How Conveyed	Technical Advisory Panel Response
2F	<p>Water Security: HTO has been advocating for more serious discussions of relocating at-risk infrastructure in order to combat the threats of sea level rise for a number of years. This includes the relocation of the El Estero WWTP and its associated infrastructure. Griggs and Russell's 2012 City of Santa Barbara Sea-Level Rise Vulnerability Study found that low-lying elements of Santa Barbara's infrastructure such as the El Estero WWTP would have a "Very High" probability of flooding with a 4-foot rise in sea level, and that flood impacts would range from "Moderate" to "High" over the next 50 years. It is imperative to consider these effects on Santa Barbara's water supply and treatment capabilities when projects that are intended to exist far into the future are being implemented. The City should not look at sustainability only in terms of resource use, but also in terms of long term sustainability of proposed projects and investments. With this in mind, HTO would like to see an improved discussion of the water security of Alternatives 1A through 3B. This would include a discussion of the risks associated with co-locating facilities in the event of a natural disaster, sea level rise, and a risk-analysis of associated piping and necessary water infrastructure for each alternative.</p>	<p>Hillary Hauser. At meeting and via email.</p>	<p>The current Potable Reuse Feasibility Study includes "sea level rise or tsunami hazard" as criteria under "Oceanographic Factors" (see SUBSURFACE DESALINATION INTAKE AND POTABLE REUSE FEASIBILITY STUDIES, TECHNICAL MEMORANDUM NO. 3, BASIS OF DESIGN AND INITIAL SCREENING, POTABLE REUSE), available online at http://www.nwri-usa.org/pdfs/TM-03---Potable-Reuse-BOD-and-Initial-Screening-(optimized).pdf</p> <p>In addition, the current SSI Feasibility Study includes a "tsunami hazard evaluation" in the section on "Coastal Hazards and Sediment Transport Analysis" (see SUBSURFACE DESALINATION INTAKE FEASIBILITY STUDY, TECHNICAL MEMORANDUM NO. 3: BASIS OF DESIGN AND INITIAL SCREENING), available online at http://www.nwri-usa.org/pdfs/TM-03---BOD-and-Initial-Screening-(SSI)_FINAL_March2016.pdf</p>
2G	<p>Conclusion: HTO remains dedicated to the health of Santa Barbara residents and to the health of our local marine and freshwater systems. We again would like to request a shift away from the "either/or" comparison study and ask that augmentation options for the desalination plant be seriously considered, as a full water portfolio will be the best choice going into the future. HTO commends the efforts that have been made by the City of Santa Barbara and Carollo Engineers thus far and look forward to seeing continued progress.</p>	<p>Hillary Hauser. At meeting and via email.</p>	<p>The comments are noted.</p>