

8.0 SUMMARY OF IMPACTS

Table 8-1 summarizes the potential impacts by alternative.

Table 8-1: Summary of Potential Impacts

	Proposed Action Perimeter Deck	War Memorial Beach	Closed System Pool	No Action
Land Ownership and Management	No significant impacts to land ownership and management would result from construction or operation of the Perimeter Deck. Land would remain under control of the City and County, and access to the site and surrounding area would be opened to the public following construction commencement.	No significant impacts to land ownership and management would result from construction or operation of the War Memorial Beach. The land ownership and management impacts during construction and operations of the War Memorial Beach would be greater than those of the Perimeter Deck, because the executive order for the area would need to be amended.	The land ownership and management impacts during construction and operations of the Closed System Pool would be similar to those of the Perimeter Deck.	No change and therefore no impact to land ownership and management would result from No Action.
Infrastructure and Utilities	No significant impact to infrastructure and utilities would result from construction or operation of the Perimeter Deck. Designs would identify existing infrastructure and utilities and would therefore not be impacted. No substantial utility upgrades are planned. On-site fire protection water requirements would need to be met through coordination with the Honolulu Fire Department and the BWS. The Honolulu Fire Department has identified the need for a BWS cross connection and backflow prevention system.	No significant impact from construction or operation of the War Memorial Beach would occur. Designs would identify existing infrastructure and utilities, and would therefore not impact existing systems. The War Memorial Beach would include improvements to on-site water, wastewater, electrical/telecommunication systems, and storm drainage systems. Improvements would include a new pad-mounted transformer (location to be determined). New duct lines for electrical and a new water line to main lines along	No significant impact from construction or operation of the Closed System Pool would occur. The process to plan, design, and implement infrastructure and utilities involve professional engineers and would, therefore, be done in a manner that would not significantly impact infrastructure and utilities. Any impacts would instead be expressed in costs and time. Utility studies would be needed to identify anticipated demand, infrastructure, routing, costs and time for installation. For example,	No change and therefore no impact to infrastructure and utilities would result from the No Action alternative.

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	Perimeter Deck			
	Operational utilities demand would be similar to the No Action alternative.	<p>Kalakaua Avenue would be needed. Similar to the Perimeter Deck, fire protection water requirements will need to be met.</p> <p>Operational utilities demand from the bath house and lighting would not represent a significant increase in demand and would be comparable to other beach use, but would include lighting on the reconstructed memorial arch.</p>	<p>the Closed System Pool assumes that fresh pool water would be extracted from a dedicated well; however, a well location has not been identified and a well siting study was not conducted for this EIS. Additionally, substantial discussion with professional engineers would be needed to plan for the possible demand on the wastewater system during events when the pool would need to be drained for maintenance or other reasons, e.g., natural hazards.</p> <p>The need for a continuously running pump to maintain circulation and water quality in the Closed System Pool would create the greatest long-term demand for potable water, electricity, and wastewater over all other action alternatives.</p>	
Transportation	<p>No significant impact to transportation would occur from construction or operation of the Perimeter Deck. Best construction practices such as avoiding major truck activity during peak traffic hours and preparing required traffic control plans would be used to minimize temporary construction-related impacts.</p> <p>No significant impacts to transportation during operations</p>	<p>No significant impact to transportation would occur from construction or operation of the War Memorial Beach. The transportation impacts would be similar to those described in the Perimeter Deck. The additional construction vehicular trips for beach sand (4 to 6 truckloads per hour over the course of 20 days in 10-hour work days) would also be managed with best construction practices.</p>	<p>No significant impact to transportation would occur from construction or operation of the Closed System Pool. The transportation impacts would be similar to those described in the Perimeter Deck.</p>	<p>No change and therefore no impact to transportation would result from No Action.</p>

	Proposed Action Perimeter Deck	War Memorial Beach	Closed System Pool	No Action
	of the Perimeter Deck would occur. There would be no change in transportation factors, e.g., no change in parking stalls or growth on this segment of Kalakaua Avenue.			
Noise	<p>No significant impact from construction or operation noise under the Perimeter Deck would occur. Construction would be temporary (approximately 7 months), limited to daytime, and would operate under a State permit in accordance with HAR Chapter 11-46 that will control noise.</p> <p>Operational impacts could include voices from the Perimeter Deck basin and bleachers being audible from neighboring beaches. Such voices are not expected to exceed allowable levels in accordance with HAR Chapter 11-46 and would therefore not be significant. Any large planned gatherings would require a City permit, which will serve to control noise.</p>	<p>No significant impact from construction or operation noise under the War Memorial Beach would occur. The noise impacts of the War Memorial Beach would be similar to those of the Perimeter Deck. Duration of construction would be longer than the Perimeter Deck construction by approximately 2 months, at approximately 9 months, and would involve greater landside activities. These noise impacts are not expected to be significant as they would be temporary, be limited to daytime, and occur under a State permit in accordance with HAR Chapter 11-46 that will control noise.</p>	<p>No significant impact from construction or operation noise under the Closed System Pool would occur. The noise impacts of the Closed System Pool would be greater than those of the Perimeter Deck and War Memorial Beach. Duration of construction would be the longest of all of the action alternatives at approximately 12 months, and longer in duration than the Perimeter Deck by approximately 5 months. These noise impacts are not expected to be significant as they would be temporary, be limited to daytime, and occur under a State permit in accordance with HAR Chapter 11-46 that will control noise.</p> <p>The pool pump would be a source of continuous noise. With acoustic treatment, noise would be minimized, but would contribute to the new background noise.</p>	<p>No change and therefore no impact to and from noise would result from No Action.</p>
Climate and Air Quality	<p>No significant impacts to the climate (as considered through GHGs) or air quality would occur from construction and operation</p>	<p>No significant impact from construction or operation of the War Memorial Beach would occur. Climate and air quality</p>	<p>No significant impact from construction or operation of the Closed System Pool would occur. Climate and air quality impacts</p>	<p>No change and therefore no impacts to the climate and air</p>

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<p>of the Perimeter Deck.</p> <p>Construction-related GHG pollutants would be temporary, controlled, and insignificant compared to statewide emissions. Emissions of regulated air pollutants would also be temporary and, in addition, controlled as required under HAR Chapter 11-60.1-33 (fugitive dust). Construction-related vehicular emissions would not significantly impact air quality as they would be temporary, relatively low volume (compared to the volume needed to generate a pollutant “hot spot”), and unlikely to be concentrated with frequent trade wind conditions.</p> <p>Operational emissions of GHG and regulated air pollutants would not be significant. Perimeter Deck users would need to compete for existing parking stalls and use other forms of transportation, e.g., mass transit. Vehicular emissions of GHGs and regulated air pollutants could therefore occur from the use of any additional mass transit that would be needed to support this growth, but would not significantly impact State GHG emissions or air quality.</p>	<p>impacts during construction and operations of the War Memorial Beach would be greater than those of the Perimeter Deck. Additional construction-related GHG and regulated air pollutant emissions would occur from offshore sand recovery and truck hauling from the sand barge to the project site. For the same reasons discussed in the Perimeter Deck, these additional emissions would not significantly impact the State GHG emissions or air quality.</p> <p>Operational maintenance of the beach is expected to involve regular sand replenishment. While these impacts would not significantly impact State GHG emissions and air quality, they represent an additional source of GHG emissions that would indefinitely contribute to the State’s GHG emissions.</p> <p>The approximately 525 to 700 truckloads over an estimated 20 days, or 4 to 6 truckloads per hour over a 10-hour work day, would not significantly impact air quality.</p>	<p>during construction and operations would be greater than those of the Perimeter Deck and War Memorial Beach.</p> <p>Operational activities would include the use of a continuously running pool pump to maintain circulation and water quality, along with regular maintenance. While these emissions would occur where electrical generation is occurring, e.g., Kahe power plant, and would be indirect effects, they would not significantly impact State GHG emissions and air quality. These emissions would represent an additional source of GHG emissions that would indefinitely contribute to the State’s GHG emissions.</p>	<p>quality would result from No Action.</p>

	Proposed Action			
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Topography, Geology, and Hydrology	No significant impacts to topography, geology, or hydrology would occur from construction and operation of the Perimeter Deck. No substantial changes would occur with the removal of beach quality sand in the pool.	No significant impacts to topography, geology, or hydrology would occur from construction and operation of the War Memorial Beach. Impacts to underwater topography (bathymetry) and geology would be limited to the footprint of the Natatorium pool.	No significant impacts to topography, geology, or hydrology would occur from construction and operation of the Closed System Pool. Impacts to underwater topography (bathymetry) and geology would be limited to the footprint of the Natatorium pool.	No change and therefore no impacts to topography, geology, and hydrology would occur with no action.
Natural Hazards	No significant impact from or to natural hazards from construction or operation of the Perimeter Deck would occur. The Perimeter Deck would not exacerbate effects of natural hazards with BMPs for the project construction site in the event of natural hazards. The Perimeter Deck would improve the structural integrity of the Natatorium, potentially minimizing impacts from natural hazards.	No significant impact from or to natural hazards from construction or operation of the War Memorial Beach would occur. Impacts associated with the War Memorial Beach would be similar to those of the Perimeter Deck.	No significant impact from or to natural hazards from construction or operation of the War Memorial Beach would occur. Impacts associated with the Closed System Pool would be similar to those of the Perimeter Deck. Additionally, during operations, natural hazards could cause waves to overtop the perimeter wall and alter the pool water quality.	Under No Action, the Natatorium would be more vulnerable to the impacts of natural hazards in its dilapidated state. Significant impact to the facility could result from coastal hazards including hurricanes, tsunamis, and storm waves. Impacts resulting in Natatorium debris could also exacerbate the effects of natural hazards with the loose debris, increasing risk to public safety.
Nearshore Physical Environment and Sea Level	No significant impact to the nearshore physical environment is anticipated from construction or operation of the Perimeter	Significant impacts to the nearshore physical environment are anticipated from construction and operation of the War	Significant impacts to the nearshore physical environment are anticipated from construction and operation of the Closed	No change and therefore no impact to the nearshore physical

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Rise	<p>Perimeter Deck</p> <p>Deck. The function of the Diamond Head groin—preserving Sans Souci Beach—would be maintained throughout construction and operation. The Perimeter Deck would not result in loss of WOTUS.</p> <p>Designs could consider SLR, structural concerns, historic preservation interest, and costs. Decisions would be made to avoid significant impacts on the nearshore environment.</p> <p>Unresolved Issue. Sea level rise is an issue that involves costs and subjective trade-offs, including any impact on the historic structure, to avoid further indecision and lack of action.</p>	<p>Memorial Beach. The function of the Diamond Head groin—preserving Sans Souci Beach—would be maintained throughout construction and operation. The War Memorial Beach would include loss of approximately 0.9 acres of WOTUS.</p> <p>Long-term impacts from SLR would result in beach loss and increased long-term maintenance requirements.</p> <p>Unresolved Issue. Sea level rise is an issue that involves costs and subjective trade-offs, including any impact on the historic structure, to avoid further indecision and lack of action.</p>	<p>System Pool. The function of the Diamond Head groin—preserving Sans Souci Beach—would be maintained throughout construction and operation. The Closed System Pool would include loss of WOTUS, as the entire pool area (approximately 1.4 acres) would be lost.</p> <p>Long-term impacts from SLR would result in increased overtopping of the perimeter deck and potential inundation of the pool. Design of the Closed System Pool would incorporate future SLR scenarios.</p> <p>Unresolved Issue. Sea level rise is an issue that involves costs and subjective trade-offs, including any impact on the historic structure, to avoid further indecision and lack of action.</p>	<p>environment would occur with no action.</p> <p>The effects of SLR are expected to be evident soonest on the WWMC under this alternative. It is anticipated that SLR would result in more frequent overtopping of perimeter walls, further dilapidation of the structure, and eventual full or partial inundation of the current perimeter deck.</p>
Water Quality	<p>No significant impacts to water quality would occur from construction of the Perimeter Deck. The USACE permit needed for in-water construction activities would require compliance with CWA Section 401 that requires BMPs to prevent adverse effects on water quality from occurring.</p> <p>Long-term beneficial and significant impacts on the water</p>	<p>Significant beneficial long-term impacts on water quality would result from War Memorial Beach as circulation and water quality would improve. The water quality impacts of the War Memorial Beach would be similar to those of the Perimeter Deck.</p>	<p>No significant impacts to water quality would occur from construction and operation of the Closed System Pool. The USACE permit needed for in-water construction activities would require compliance with CWA Section 401 that requires BMPs to prevent adverse effects on water quality from occurring.</p> <p>The water and operations of the Closed System Pool would no</p>	<p>No change and therefore no impact to water quality would result from No Action.</p>

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	<p>quality within the existing basin would occur. However, elevated turbidity is anticipated during an interim post-construction period until equilibrium is reached. Water quality would be monitored, as coordinated with the DOH. Beach closures may be prudent for intermittent periods and as coordinated with neighboring beach stakeholders.</p>		<p>longer be part of marine waters; rather, the water quality would be subject to the WQS set forth in HAR Chapter 11-10, public swimming pools. Treated pool water could spill out into adjacent marine waters during unusual natural hazards such as hurricanes. The impacts would be dependent on the event, but would be considered finite, temporary, and therefore not significant to marine water quality for the purpose of this EIS.</p>	
Marine Biology	<p>No significant impacts to marine biological resources are anticipated from construction and operation of the Perimeter Deck. The USACE permit needed for in-water construction activities would require, at a minimum, ESA Section 7 consultation, EFH consultation (MSA §305(b)), and compliance with CWA Section 401, which would set forth BMPs to prevent adverse effects on protected marine species and EFH from occurring. Further, with the use of appropriate perimeter barriers during construction, impacts from increased turbidity to the surrounding reefs are not anticipated. Any offsets for EFH loss would be identified in the consultation process.</p> <p>No significant impacts on marine</p>	<p>Significant impacts to aquatic resources would occur from construction of the War Memorial Beach with the loss of 0.9 acres of WOTUS. The USACE permit needed for in-water construction activities would require, at a minimum, ESA Section 7 consultation, EFH consultation (MSA §305(b)), and compliance with CWA Section 401, which will set forth BMPs to prevent adverse effects on protected marine species and EFH from occurring during construction. Any offsets for EFH loss would be identified in the consultation process.</p> <p>Additional studies would be needed to evaluate the marine resources potentially affected by offshore sand harvesting and is an</p>	<p>Significant impacts to aquatic resources would occur from construction of the Closed System Pool with the loss of 1.4 acres of WOTUS. The USACE permit needed for in-water construction activities would require, at a minimum, ESA Section 7 consultation, EFH consultation (MSA §305(b)), and compliance with CWA Section 401, which will set forth BMPs to prevent adverse effects on protected marine species and EFH from occurring during construction. With the containment of sediment and use of appropriate perimeter barriers during construction, impacts to surrounding reefs from increased turbidity are not anticipated. Any offsets for EFH loss would be</p>	<p>No change and therefore no impact to marine biological resources would result from No Action. However, the entrapment hazard for monk seals would remain an issue.</p>

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	biological resources from the anticipated operational uses, such as swimming, are anticipated. Beneficial effects would include the loss of an existing marine mammal entrapment hazard.	unresolved issue. No significant impacts on marine biological resources from operational uses, such as swimming, are anticipated. Beneficial effects would include the loss of an existing marine mammal entrapment hazard.	identified in the consultation process. No significant impacts on adjacent marine biological resources from the anticipated operational uses within the enclosed pool, such as swimming, are anticipated. Rather, beneficial effects would include the loss of an existing marine mammal entrapment hazard.	
Terrestrial Biology	No significant impact to terrestrial biological resources would result from construction and operation of the Perimeter Deck. Existing laws and the USACE permit required for in-water construction work would serve to protect regulated species. As exceptional trees may not be part of the federal consultation process, mitigation is recommended for exceptional trees.	No significant impact to terrestrial biological resources would result from construction and operation of the War Memorial Beach. The potential impacts to the terrestrial biological resources during construction and operation of the War Memorial Beach would be greater than those of the Perimeter Deck; however, existing laws and the USACE permit required for in-water construction work would serve to protect regulated species. As exceptional trees may not be part of the federal consultation process, mitigation is recommended for exceptional trees.	No significant impact to terrestrial biological resources would result from construction and operation of the Closed System Pool. The impacts to the terrestrial biological resources during construction and operations of the Closed System Pool would be similar to those of the Perimeter Deck. Similarly, mitigation is recommended for exceptional trees.	No change and therefore no impact to terrestrial biological resources would result from No Action.
Historic and Cultural Resources	Significant beneficial impacts to historic and cultural resources would result from construction and operation of the Perimeter Deck. The rehabilitation of the	Significant adverse impacts to historic and cultural resources would result from construction and operation of the War Memorial Beach. The demolition	Significant beneficial impacts to historic and cultural resources would result from construction and operation of the Closed System Pool. The historic and	No change and therefore no impact to historic and cultural resources would

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<p>Perimeter Deck</p> <p>deteriorating Natatorium would significantly benefit the unique historic structure and the historic Kapi'olani Regional Park. With the HRS Chapter 6E historic review process, consultation, SHPD concurrence, and the provisions of HRS Chapter 6E that protect inadvertent discoveries, no adverse significant impacts would occur during construction.</p> <p>Operation of the Perimeter Deck would result in significant beneficial impacts as it would reinstate the living memorial, allow uses such as swimming and other cultural practices, and reestablish public access to this portion of the historic Kapi'olani Regional Park.</p>	<p>of the Natatorium, due to its status as a National Register of Historic Places listed property, is protected against demolition as part of projects requiring Federal permits. If demolition is selected, the process to gain approvals for it is expected to result in substantial resources to justify demolition and delays in obtaining required approvals and permits, e.g., USACE permit and HRS Chapter 6E historic preservation review.</p> <p>Unresolved Issue. The corridors for new electrical duct lines and a new water line to existing main lines along Kalakaua Avenue would need to be identified and reviewed in accordance with HRS Chapter 6E.</p>	<p>cultural impacts of the Closed System Pool would be similar to those of the Perimeter Deck. The main difference is the alteration of the naturally ocean-fed swim basin to a closed-system artificially circulating swimming pool. However, while the function of the swim basin interior would be different, the historic character of the Natatorium structure as a whole would not be substantially altered, with the same changes as the Perimeter Deck in terms of the memorial arch, urns, flagpoles, walls, façade, stadium seating structure (bleachers), courtyard walls, lighting, landscape features, concrete deck, and dimensions of the swim basin. The addition of the closed pool would include more non-historic fabric added to the historic structure, but most of this would be below water level, such as the pool liner, or concealed, such as pump equipment.</p> <p>Unresolved Issue. The corridors for new electrical duct lines, new water line, and any new well would need to be identified and reviewed in accordance with HRS Chapter 6E.</p>	<p>result from No Action. However, the long-term impact of No Action on the Natatorium, Kapi'olani Regional Park, and certain cultural practices would be significant and adverse.</p>

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Visual Resources	<p>Significant beneficial impacts to visual resources and aesthetics would result from the Perimeter Deck. Construction impacts would be adverse but temporary and not significant.</p> <p>Significant beneficial impacts would occur from reconstruction and extend during operations as significant views from the currently closed Natatorium would be available. Existing views of the Natatorium from the adjacent shoreline promenade and Sans Souci Beach would also improve.</p>	<p>Significant adverse impacts to existing views and aesthetics would result from the War Memorial Beach, as this alternative would include demolition and permanent loss of the historic Natatorium. Construction impacts would be adverse and slightly greater than the Perimeter Deck because construction duration is two months longer; however, they would be temporary and not significant.</p> <p>Significant adverse impacts would occur from demolition and extend during operations as the view of the memorial arch would be permanently lost and replaced with a less visually prominent replica.</p>	<p>Significant beneficial impacts to visual resources and aesthetics would result from the Closed System Pool. The impacts to visual resources from the construction phase and operations of Closed System Pool would be similar to those described in the Perimeter Deck, although construction impacts would be slightly greater with a construction period four month longer than the Perimeter Deck.</p>	<p>No change and therefore no impact to visual and aesthetic resources would result from No Action.</p>
Public Services	<p>No significant impacts to public services would result from construction and operation of the Perimeter Deck. Additional City staff (e.g., a total of 4 lifeguards) and associated budget would be needed to operate the publicly accessible area. With the additional 317 users per day, no significant impacts on HPD, HFD, EMS, or ENV for solid waste are anticipated.</p>	<p>No significant impacts to public services would result from construction and operation of the War Memorial Beach. Additional City staff (e.g., a total of 5 lifeguards) and associated budget would be needed to operate the publicly accessible area and would be greater than those of the Perimeter Deck. With the additional 317 users per day, no significant effects on HPD, HFD, EMS, or ENV for solid waste is anticipated.</p>	<p>No significant impacts to public services would result from the construction and operation of the Closed System Pool. Additional City staff and associated budget would be needed to operate the publicly accessible area and would be similar to those of the Perimeter Deck. With the additional 317 users per day, no significant effects on HPD, HFD, EMS, or ENV for solid waste is anticipated.</p>	<p>No change and therefore no impact to public services would result from No Action.</p>

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Socioeconomics and Recreation	No significant impact to socioeconomic environment would result from construction and operation of the Perimeter Deck. The additional jobs associated with the 7-month, \$25.6 million project would be a beneficial and temporary impact. Depending on timing with other in-water construction projects, such as the \$450+ million Kapalama wharf and container terminal project, adverse impacts in the form of increased cost and construction delay could result.	No significant impact to socioeconomic environment would result from construction and operation of the War Memorial Beach. Impacts would be similar to those of the Perimeter Deck. This \$28.8 million project is likely to generate additional jobs and be of longer duration than the Perimeter Deck.	No significant impact to socioeconomic environment would result from construction and operation of the Closed System Pool. Impacts would be similar to the Perimeter Deck. This \$42.7 million project would be substantially greater than the Perimeter Deck and War Memorial Beach.	No change and therefore no impact to public services would result from No Action.
Preliminary Estimated Capital Costs (Construction)	\$25.6 million	\$28.8 million	\$42.7 million	\$0 (but could be \$1.4 million in emergency repairs)
Preliminary Estimated Operations & Maintenance Costs, annual (Operation)	\$341,805	\$345,740	\$406,870	\$0
Estimated Construction Duration	28 weeks (6.5 months)	36 weeks (8.5 months)	49 weeks (11.5 months)	Not applicable