US Army Corps of Engineers®

Charleston District

CHARLESTON PENINSULA, SOUTH CAROLINA, A COASTAL STORM RISK MANAGEMENT STUDY

Charleston, South Carolina

VISUAL/AESTHETIC RESOURCES ASSESSMENT
APPENDIX - A

FEBRUARY 2022

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1.0 INTRODUCTION

1.1 Guidance on Aesthetic Resources Assessment

The visual resources assessment for this appendix was conducted according to ER 1105-2-100 (22 Apr 2000), Appendix C Environmental Evaluation & Compliance, section C-5 "Aesthetic Resources". The referenced ER at C-5.d(1) emphasizes the importance of "a systematic approach to consider aesthetic resources. Advantages of a systematic and quantifiable approach include the ability to assign a visual resource value to all of the landscape units within a study area, identify important aesthetic resources, and to determine causes of adverse impact. Such a procedure provides a clear, tractable basis for including aesthetics in plan formulation, design, reformulation, and mitigation planning." The ER further instructs that "Appropriate mitigation shall be undertaken for adverse effects to significant aesthetic resources."

Aesthetic resources can briefly be defined as those natural and man-made features of the environment that can be perceived by all the senses, not just sight. Aesthetic resources include the unified combination of water resources, landforms, vegetation, and user characteristics at a site. An aesthetic resource may be a particular landscape, viewshed, or view as perceived with all the senses. Visual resources are defined as those natural and cultural features of the environment that can be potentially viewed. For the purposes of this analysis, because the visual sense is so predominant in a typical observer's reaction and evaluation, the terms *visual resources* and *aesthetic resources* are used interchangeably.

The USACE approach to the assessment of aesthetic resources includes an equitable aspect. As stated in the referenced ER, C-5.c(6): "Equity is also an important consideration in working in partnership with local sponsors. The preservation and enhancement of aesthetic quality must be an important goal in all projects regardless of the socio-economic conditions in the project area." While the projected aesthetic impacts discussed below would appear to have equivalent effects on the spectrum of socioeconomic communities, this aspect will continue to be considered as the assessment moves thru feasibility and into the PED phase to identify any highly disproportionate and adverse effect on minority, low income, or disadvantaged communities.

1.2 Utilizing the Visual Resources Assessment Procedure (VRAP)

The procedure recommended in ER 1105-2-100, section C-5, is the Visual Resources Assessment Procedure (VRAP) as described in the Waterways Experiment Station (WES) Instructional Report EL-88-1. The VRAP was developed for USACE water resources projects and is consistent with USACE planning and environmental policies. The VRAP itself states that it is a "general guide rather than a rigid prescription for visual resource studies".

The VRAP provides a method to calculate a Visual Impact Assessment (VIA) Value that identifies the nature and magnitude of the visual impacts. Technical, institutional, and public considerations can be further applied to refine the determination of visual impacts. Due to the importance of Charleston Peninsula's aesthetic resources to the public, the consideration of impacts is critical in the evaluation of alternatives. The VRAP determines the difference in aesthetic quality between the without-project future and with-project future conditions, utilizing the Management Classification System (MCS) and VIA Procedures which provide a technical basis for identifying significant impacts. The emphasis of the procedure is visual with the VIA Value based on the visual characteristics of the following elements: water, landform, vegetation, land use, and user activity.

The VRAP identifies the following visual quality objectives: to identify visual resources characteristic of the landscape in the study area; to identify the project's potential impacts on the visual resources; to identify if mitigation may be necessary to assure compatibility; to make general recommendations that could reduce visual contrast, such as borrowing from visual elements of the surrounding landscape; yet if the recommended project (in this case the Tentatively Selected Plan) has symbolic value, informative significance, and/or creative design, then visual contrast could be a desirable characteristic.

"*Mitigation*" with regard to effects on aesthetic resources refers to avoidance, minimization, rectifying (repairing, rehabilitating, or restoring), reducing or eliminating over time, or compensating for adverse impacts. Mitigation in the VRAP is often discussed as an action that reduces an aesthetic impact to being less than significant. For example, if there is an adverse impact to a significant aesthetic resource due to high visual contrast, then aesthetic mitigation may be a design treatment (such as borrowing from visual elements of the surrounding landscape) that reduces visual contrast to a point where the impact is no longer significant.

1.3 Intro to VRAP and Limitations

1.3.1 Overview of VRAP

The Visual Resources Assessment Procedure (VRAP) is made up of two parts, the Management Classification System (MCS) and the Visual Impact Assessment (VIA) Procedure. Though the procedure is modifiable and should be viewed with some flexibility, the general steps of the VRAP are as follows:

MCS (presented in Section 2 of this appendix)

- Identify the regional landscape and similarity zone.
- Select sites for the MCS.
- Inventory/assess existing visual resource conditions.
- Determine the MCS class.

VIA Procedure (presented in Section 3 of this appendix)

- Select sites for the VIA procedure.
- Forecast without project conditions to assess any changes from existing visual resource conditions.
- Forecast with project conditions.
- Use simulations to show designs of alternatives.
- Assess visual impacts to obtain a single VIA Value for the landscape components and the landscape modifiers.
- Engage the public, in this case through NEPA review, to help inform the findings.

The version of the VIA procedure used at this time is the "Basic Procedure." The Basic Procedure assesses the five landscape components of: water, landform, vegetation, user activity and land use; and the three landscape modifiers of: compatibility, spatial dominance, and scale contrast. Six sites[1] were selected for the purpose of generalizing the project's visual impacts for the previously identified landscape components and modifiers. The intention was not to describe the visual impacts to these six places, but rather to use them as examples to summarize the overall project's aesthetic impacts.

The Basic VIA procedure was completed by a team of four people including a USACE Landscape Architect in collaboration with the City of Charleston Senior Resiliency Coordinator, the Historic Charleston Foundation Chief Advocacy Officer, and the Preservation Society of Charleston Director of Historic Preservation, and with graphic support from the City of Charleston Civic Design Center. Please note that the method recommends the VIA team opinions be aggregated and presented as a whole, not as a dialogue attributable to individuals or organizations. Note also that though historic and preservation organizations as well as the City were part of the team, the focus remained aesthetics as defined/described by the VRAP method, and this is a USACE product. Working collaboratively on the VIA procedure with a team having pertinent and varied expertise brought balance and reduced subjectivity.

[1] Note that the VRAP method states that the MCS and the VIA procedure are able to use the same sites, but do not have to. In this case six sites were used for both the MCS and the VIA, but the six sites for the MCS were different from the six sites for the VIA. These are further discussed in the Section 2 (MCS), and Section 3 (VIA).

1.3.2 Scope

The lack of detailed engineering and design of the project features during the feasibility phase, in addition to time and budgetary constraints, precludes the USACE from conducting all the necessary analyses prior to completion of the study to sufficiently identify and evaluate aesthetic resources, fully determine the impacts of the project, or establish methods to mitigate those significant impacts. As such, USACE will continue its evaluation of aesthetic resources during the Preconstruction Engineering and Design (PED) phase, assuming authorization of a project and the availability of funding. The specifics regarding what aesthetic mitigation is necessary, reasonable, and achievable are expected to be made during the PED phase, prior to construction.

Project compliance with Section 106 and 110 of the National Historic Preservation Act (NHPA) is addressed in the main report and Appendix D. Section 106 of the NHPA requires an assessment of the potential impact of an undertaking on historic properties that are within the proposed project's area of potential effects. Effects to historic properties occur when the features alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. The aesthetic resources assessment presented on the following pages is governed by different laws/policies and has different purposes (Section 1.1), as well as different procedures, guidelines, and objectives (Section 1.2, and 1.3.1).

Note also that though 'water', 'landform', 'vegetation', 'land use', and 'user activity' are resources studied in various ways throughout the feasibility report, in this appendix they are evaluated visually according to the VRAP method. For a scientific assessment of these or similar resources, please go to the main report, the Environmental Resources Appendix (Appendix F), or other appendices as appropriate.

1.3.3 Limitations

Types of limitations that can occur here include those with time, place, and the method itself. Regarding timing, the VRAP MCS and VIA procedure were conducted in spring and summer of 2020, respectively. This means that the work started after other parts of the study were well underway, but a year or so before the optimized alignment was determined and other parts of the optimized plan available. The assessment was completed utilizing the information available at the time.

For a large and extensive project such as this one, the method recommends using sites to generalize to the project. This study used six places to generalize to the project as a whole. A key limitation of using sites to generalize to a whole is incomplete understanding of variability across the project.

Both due to the information available at the time of the assessment and due to the sites selected for evaluation, this evaluation is focused on the storm surge barrier. Pump stations and other project elements that may impact aesthetics are not discussed in this document.

The VRAP method does call for selecting 'representative' places, but what is representative can be open to interpretation. In the case of this study, the majority of the VIA team wanted to select sites with iconic views. Upon completion of the analysis, it seems that by selecting places with iconic views, the findings may be somewhat different to what they would have been if places with high-functioning multi-purpose public uses had been prioritized for selection, or even if places were selected more randomly or for more diversity. As a result, site selection may have potentially caused impacts to land use and user activity to be underrepresented, as well potentially caused impacts to compatibility and scale contrast to be underrepresented. But, averaging across the categories overall, the findings of the study are still believed to be accurate for identifying whether the project's aesthetic impacts are significant, and to be useful to moving towards mitigation.

1.4 Additional Aesthetic Assessment Products and Intended Outcomes

Beyond what is called for in the VRAP, this effort also resulted in a cost estimate for aesthetic mitigation described in Section 4.0. It also resulted in a Memorandum of Understanding (MOU) between USACE and the

City of Charleston. The MOU has been developed to ensure a common framework and process between the parties for their continued cooperative partnership in the assessment of aesthetic resource impacts and mitigation. The MOU is intended to guide the path forward for continued aesthetic assessment as the study moves from the feasibility into the PED phase. Among other things, the MOU addresses the general process, roles, responsibilities, limitations, and goals which the USACE and the City recognize for the assessment of aesthetic resources, including with regard to public involvement and the development of appropriate mitigation measures. The MOU is provided as a separate document.

2.0 MANAGEMENT CLASSIFICATION SYSTEM (MCS)

The VRAP method states that if using the Basic VIA Procedure, an abbreviated version of the MCS can be completed. Due to time and budget constraints, and a desire to focus effort on the Basic VIA Procedure (Section 3), an abbreviated MCS classification was performed.

2.1 MCS Regional Landscape Identification

The regional landscape provides a frame of reference for the inventory and evaluation of visual resources. The regional landscape covers a broad physiographic area in which landforms, water resources, vegetation, and climate tend to exhibit common characteristics. The regional landscape for the purposes of this report is the Southern Coastal Plain, defined differently by different sources, but commonly including central and southern coastal South Carolina and coastal Georgia.

2.2 MCS Landscape Similarity Zone Establishment

A similarity zone provides a more specific framework with which to define and evaluate the visual resources of the study area. The similarity zone represents a physiographic area of land that has common characteristics of landform, water resources, vegetation, user activity, and land use. The similarity zone concept is used because the character of the visual resources in a zone should be used as a basis for evaluating the visual impacts of projects in that zone. The similarity zone for the purposes of this report is defined as currently occupied urban landscapes with historic areas and structures, such as the Charleston Peninsula.

2.3 MCS Resource Inventory

This MCS resource inventory culminates in a summary description of the existing visual resources, focusing on the elements that unify the Charleston Peninsula as a zone. To get to the summary description of the existing visual resources, several viewpoints from and of the Charleston Peninsula were inventoried. It is important to remember that the focus here is not so much on the individual sites inventoried, but on what they yield in terms of a summary description of existing conditions.

2.3.1 MCS Site Inventory

Several viewpoints from and of the Charleston Peninsula that are accessible by all of the public for free were identified via internet searches for ‘views’ and for ‘parks,’ with preference given to locations that could look across to each other. Brittlebank Park and Higgins Pier, which is at the terminus of the West Ashley Bikeway, were selected as a pair; as were Melton Peter Demetre Park with The Battery; and Waterfront Park with the dock at the USS Clamagore at Patriot’s Point (see Figure 2-1).

The sites were visited on March 1, 2020, the weather was generally sunny and cool, and it was a clear day with very good visibility to the distance. The following bullet points capture the observations on that day.

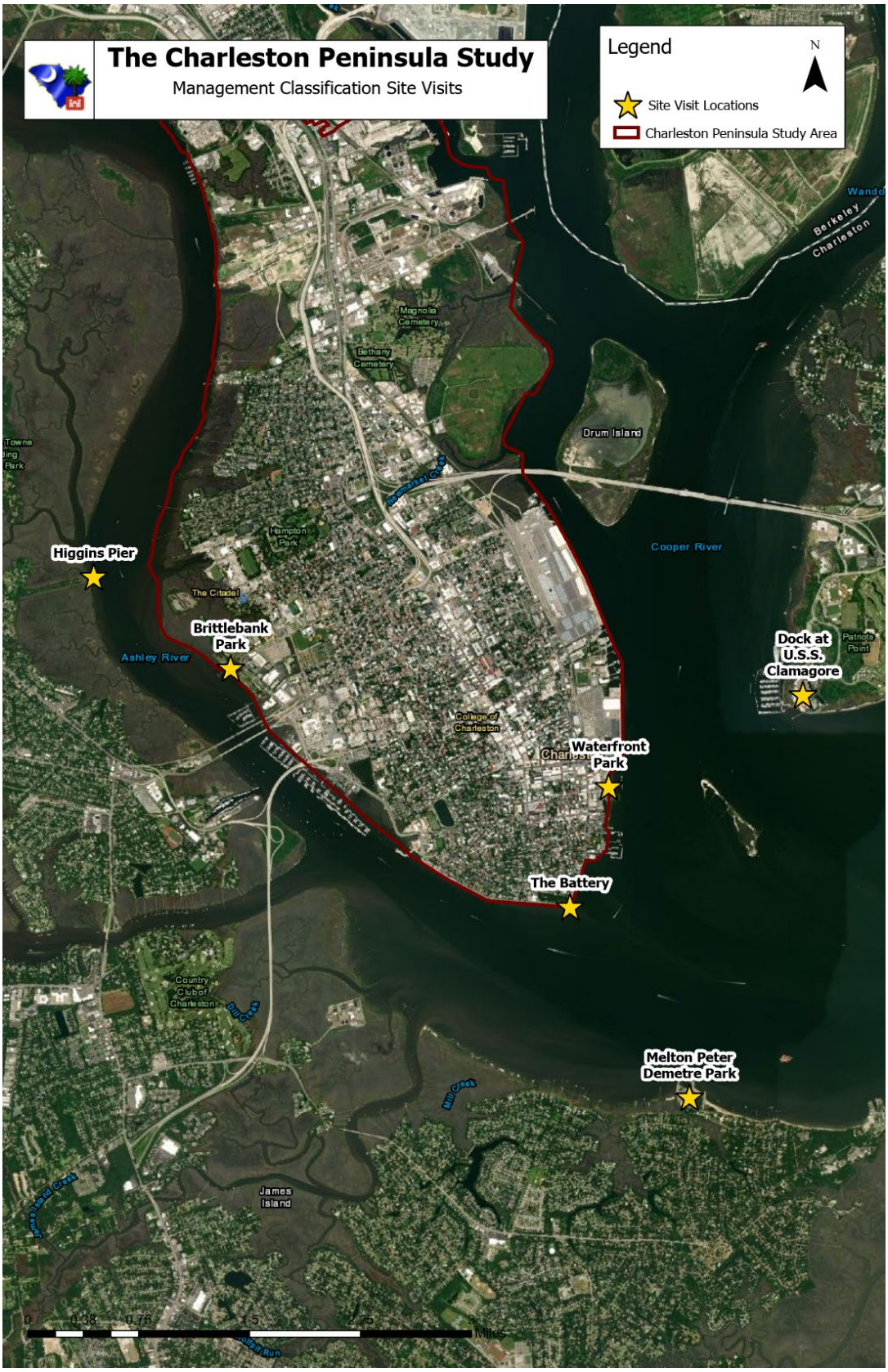

Figure 2-1. Management Classification System Site Visit Locations

Brittlebank Park

Time: 12:45 PM

Figure 2-2. At Brittlebank Park, looking upstream toward Higgins Pier

- Water – Ashley River, which visually appeared to be moving swiftly, and was of a large visual scale.
- Landform – Coastal.
- Vegetation – The view upstream across the river had a 75-100% vegetation cover of some diversity, appearing to be predominantly tree cover with marsh visible as well.
- Land use – Brittlebank Park is a recreational urban park with a natural character and has views across to both undeveloped vegetation (upstream, as shown in image), as well as to primarily commercial urban scenery downstream.
- Access – Brittlebank Park is accessed from a secondary road and has walkways throughout. Direct access to the water was not observed during this visit but may be present.
- User activity – There were visitors in Brittlebank Park that could be considered a medium level of use because there was activity, but it was not crowded. Brittlebank Park does host events and can be very crowded at times.
- Litter/pollution – None noted.
- Adjacent scenery – Is somewhat similar in that it is an urban environment in Charleston. However, it must be acknowledged that parks are places where aesthetics has been a main consideration, and so the adjacent scenery may not be quite as attractive as the park itself. In addition to the scenery depicted in the image above, if one looks downstream, scenery is of an urban nature, with a hotel, a bridge (Hwy 17), and a marina, overhead highway signs, etc.
- Sounds – Sounds were present but generally inconspicuous.
- Smells – Smells were present but generally inconspicuous.
- Visibility – Panorama views across the water are possible.

Higgins Pier (terminus of West Ashley Bikeway)

Time: 1:00 PM

Figure 2-3. At Higgins Pier, looking downstream towards Brittlebank Park

- Water – Ashley River, which visually appeared to be moving swiftly, and was of a large visual scale.
- Landform – Coastal.
- Vegetation – The view when considering both sides of the river had a 25-50% vegetation cover of some diversity, appearing to be predominantly tree cover with marsh and Brittlebank Park across the river visible as well.
- Land use – Higgins Pier is a recreational pier set in marsh habitat at the terminus of the West Ashley Bikeway with a natural character and has views across to primarily commercial urban scenery as well as to Brittlebank Park.
- Access – Higgins Pier is accessed by land from a trail and has a small boat dock as well for direct access to/from the water.
- User activity – There were visitors at Higgins Pier that could be considered a medium to high level of use because there were a number of people at the pier (some were fishing) and along the trail, that could be considered full but not quite crowded.
- Litter/pollution – Present but limited.
- Adjacent scenery – Is somewhat similar in that it is an urban environment in Charleston and marshes and tree cover were present onsite as well as visible in the distance, along with the urban elements. Note the overhead highway signs and the construction cranes visible in the view shown above.
- Sounds – Sounds were present but generally inconspicuous.
- Smells – Smells were present but generally inconspicuous.
- Visibility – Panorama views across the water are possible.

Melton Peter Demetre Park (James Island)

Time: 1:50 PM

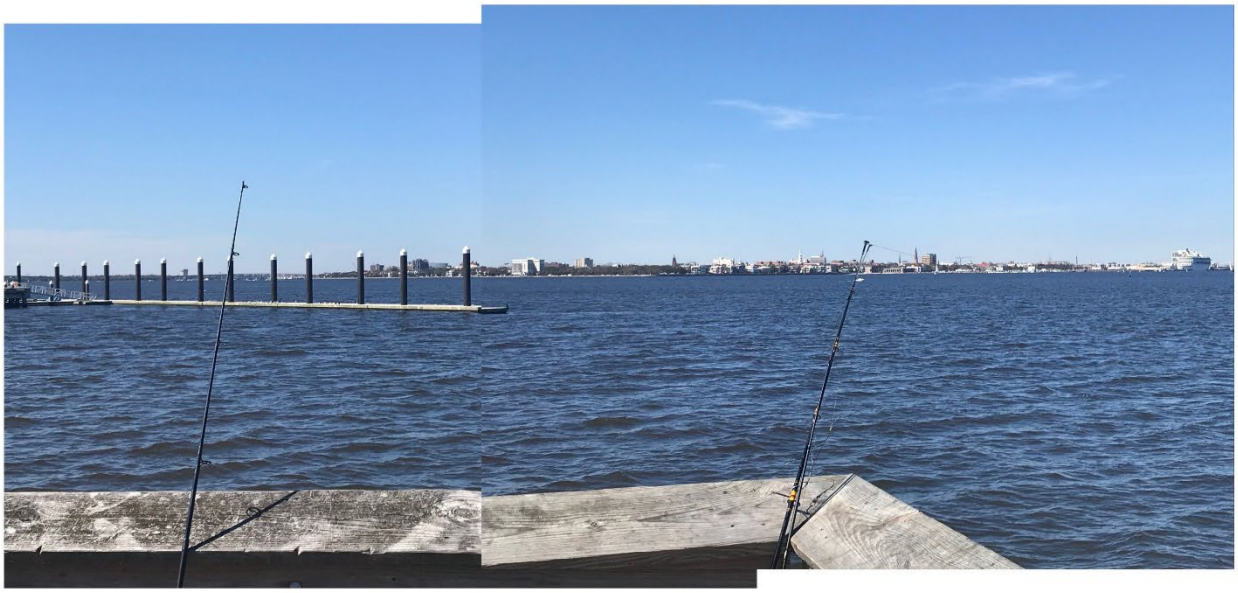

Figure 2-4. At Melton Peter Demetre Park, looking towards The Battery

- Water – Looking across the Charleston Harbor with the mouth of the Ashley River at the left, which visually appeared to be moving swiftly, and was of a large visual scale.
- Landform – Coastal.
- Vegetation – The view had a 25-50% vegetation cover of some diversity, appearing to be predominantly tree cover with The Battery across the harbor visible at the center of the image above.
- Land use – Melton Peter Demetre Park is a recreational park with pavilions and piers set at the water's edge, with natural character, and has views across the Charleston Harbor to primarily urban scenery with mixed residential, commercial and historic elements, including a view of The Battery.
- Access – Melton Peter Demetre Park is accessed by a frequently used local street.
- User activity – There were visitors at the park that could be considered a medium to high level of use because there were a number of people throughout, that could be considered full but not quite crowded. Some people were fishing off the pier.
- Litter/pollution – None noted.
- Adjacent scenery – Is somewhat similar in that it is an urban environment in Charleston and tree cover was present onsite as well as visible in the distance, along with urban elements including but not limited to church steeples. Note the construction cranes visible in the view shown above.
- Sounds – Sounds were present but generally inconspicuous.
- Smells – Smells were present but generally inconspicuous.
- Visibility – Panorama views across the water are possible. The dominant element in this view was the docked cruise ship, but a cruise ship is not there all the time.

The Battery

Time: 2:20 PM

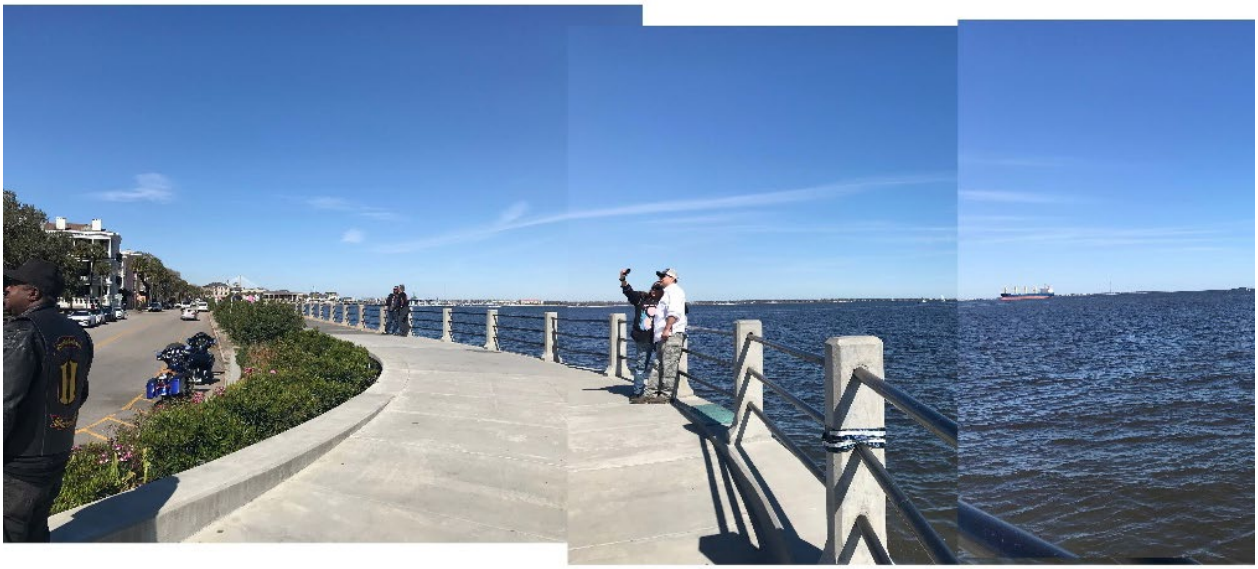

Figure 2-5. At The Battery, looking across the Charleston Harbor

- Water – Looking across the Charleston Harbor, which visually appeared to be moving swiftly, and was of a large visual scale.
- Landform – Coastal.
- Vegetation – The view had a 25-50% vegetation cover of some diversity, appearing to be predominantly tree cover with Melton Peter Demetre Park across the harbor visible at the far right of the image above.
- Land use – The Battery is a recreational park with a walkway set at the water's edge with an urban character and has views across the Charleston Harbor to primarily water scenery with natural looking elements in the distance due to tree cover.
- Access – The Battery is accessed by a secondary street.
- User activity – There were visitors at the park that could be considered a medium to high level of use because there were a number of people throughout, that could be considered full but not crowded.
- Litter/pollution – Present but limited.
- Adjacent scenery – Is somewhat similar in that it is an urban environment in Charleston and tree cover was present onsite as well as visible in the distance, along with the urban elements. Note the presence of water towers, cell phone towers, and similar along the horizon line.
- Sounds – Sounds were present but generally inconspicuous.
- Smells – Smells were present but generally inconspicuous.
- Visibility – Panorama views across the water are possible. On a clear day one can see Ft. Sumter on the horizon, though with the naked eye only as a small element. The dominant element in this view, besides the harbor itself, was the commercial ship passing through.

Waterfront Park

Time: 2:40 PM

Figure 2-6. At Waterfront Park, looking across the Charleston Harbor towards Patriot's Point

- Water – Looking across the Charleston Harbor with the mouth of the Cooper River in the center, which visually appeared to be moving swiftly, and was of a large visual scale.
- Landform – Coastal.
- Vegetation – The view had a 0-25% vegetation cover, appearing to be tree cover.
- Land use – Waterfront Park is a recreational park with pavilions and piers set at the water's edge with an urban character and has views across the Charleston Harbor to primarily urban scenery with primarily commercial elements, including a view of Patriot's Point.
- Access – Waterfront Park is accessed by a secondary street.
- User activity – There were visitors at the park that could be considered a medium to high level of use because there were a number of people throughout, that could be considered full but not quite crowded.
- Litter/pollution – Present but limited.
- Adjacent scenery – Is somewhat similar in that it is an urban environment in Charleston, here dominated by urban elements and the water. This park is a place within the urban environment where aesthetics has been a main consideration, and the adjacent scenery is not as attractive as the park itself. Note the rusted industrial building at the left of the image, construction cranes, power stations and other industrial elements in the view, as well as the large cruise ship shown above.
- Sounds – Sounds were present but generally inconspicuous.
- Smells – Smells were present but generally inconspicuous.
- Visibility – Panorama views across the water are possible. On a clear day one can see Ft. Sumter on the horizon, though with the naked eye only as a small element. The dominant element in this view, other than the water, was the cruise ship, but the ship is not always there.

Dock at USS Clamagore (at Patriot's Point, Mount Pleasant)

Time: 3:20 PM

Figure 2-7. At USS Clamagore, looking across the Charleston Harbor towards Waterfront Park

- Water – Looking across the Charleston Harbor with the mouth of the Cooper River at the right, which visually appeared to be moving swiftly, and was of a large visual scale. However, the water inside the marina was moving very little.
- Landform – Coastal.
- Vegetation – The view had a 0-25% vegetation cover of trees in the distance.
- Land use – The USS Clamagore is a recreational feature with the bridge from the dock to it providing a free opportunity to take in a view across the harbor. It is next both to Patriot's Point and a marina with a number of docks, all set at the water's edge with an urban character.
- Access – The dock to the USS Clamagore can be accessed for free by a public walkway accessible by walking past a neighboring hotel. (Note that you would have to pay to go inside the USS Clamagore itself.)
- User activity – There were a few visitors that could be considered a low to medium level of use.
- Litter/pollution – None noted.
- Adjacent scenery – Is somewhat similar as an urban environment in Charleston, here dominated by the marina and the water in the foreground, but also with urban. Even though this location is an activity node within the urban environment, the adjacent scenery is not particularly attractive. Note the large cruise ship shown above, as well as the construction cranes, overhead highway signs, power stations and other unattractive elements.
- Sounds – Sounds were present but generally inconspicuous.
- Smells – Smells were present but generally inconspicuous.
- Visibility – Views across the water are possible, but they are often partially screened by marina elements in the foreground. Views across the Charleston Harbor are to primarily urban scenery with mixed commercial and industrial elements, but also includes a glimpse of Waterfront Park behind the cruise terminal, and a few historic church steeples.

2.3.2 MCS Resource Summary Description, aka Existing Conditions

This summary description is a description of existing conditions for aesthetic resources in the project area, in NEPA terms known as the Affected Environment. Organized by the five landscape components of water, landform, vegetation, land use, and user activity, the unifying visual elements within each of these components, are the following:

Water

The type, movement and scale of water resources contribute to the general landscape composition, for example, by providing a feature that can be a focal. Large bodies of swiftly moving water are present, including the Charleston Harbor and the Ashley and Cooper rivers. In the places observed, these water bodies are often visually dominant and aesthetically pleasing.

Landform

The type of landform present in an area contributes to the general landscape composition by enclosing space, defining viewing distances, and creating opportunities for different viewer positions. The Charleston Peninsula is a coastal landform. The relatively flat nature of the coastal landform here means that the contribution the landform makes to the landscape composition is to not provide enclosure or define viewing distances. Further, vertical changes to viewer positions are not opportunities the landform here typically provides. What the coastal landform here does provide in many cases, especially near the water, is open views into the distance. In the places observed these views, when present, are aesthetically pleasing.

Vegetation

The cover and diversity of vegetation existing in the study area can determine the visual boundaries of a view, provide canopy cover, or screen particular project components. Percent vegetation cover varies widely depending on location and view. When present, the type of vegetation also varies from forested wetlands and marshes to park trees and other urban plantings. Seasonal change was not perceptible but, for vegetation around the Peninsula, change is subtle (relative to other parts of the nation) with plants here predominantly being green and leafed most of the year.

User Activity

User activity consists of the number of participating people using a place, the kinds of activities, and the frequency of the activities. User activity was very place specific and varied accordingly. Some observed uses included sidewalks with people using them to walk, run, or bike. The numbers of people observed were dependent upon location, with some locations more heavily used than others. People were also present on piers, in some cases fishing.

On the water were boats of various sizes and purposes, including small boats such as sailboats and motorboats, as well as large ships such as cruise ships and container ships. Roads in the vicinity of the inventoried sites had people driving cars, as well as other types of traffic such as busses and commercial vehicles, and sometimes these were audible at the site visits. For someone desiring a peaceful waterfront experience, traffic, when abundant, was generally a noisy and unattractive activity. Similarly, for someone desiring a settled and often historic setting, construction cranes, where present, were another unattractive activity visible on the skyline.

Land Use

For the purposes of aesthetic assessment, land use refers to the observable characteristics of how land is used to support various human activities. Examples of land use types are industrial, commercial, residential, agricultural, recreational, and undeveloped. Note that this is based on what is observable in the field, not what may be present in land use plans.

Land uses in the areas observed were primarily either commercial and institutional or had commercial and institutional substantially interspersed with some residential. The project area has other land use types, but they were not observed on this day. Dependent on location, docks, small boat marinas, or other uses associated with connecting with the water were present. Scenery across the water bodies in the distance often consisted of a generally urbanized landscape, though with vegetation often visible.

Distinct attractive land uses included parks and recreational areas as well as historic steeples visible on the skyline from some locations. Parks important to the area's tourism, as well as historic neighborhoods/sites on the National or State Register of Historic Places, were perceptible and are part of visual resources in the study area. For someone desiring a predominantly historic setting, contemporary industrial buildings and skyline infrastructure such as cell phone towers and directional highway signs are present and unattractive.

2.4 MCS Forecasting

The VRAP method notes that "If the MCS is being prepared as part of a VIA, then forecasting may not be necessary." In this case, the Basic VIA Resource Inventory in section 3.1 serves as the forecast, i.e., it serves as the future without project condition for this assessment.

2.5 MCS Assessment Framework

A professional assessment framework is developed that determines existing visual quality and puts the study area, the Charleston Peninsula zone, into a management class. The management class provides general guidelines as to the degree and nature of visual change acceptable in a landscape. As such, it provides goals and constraints to be considered in the planning and design of a water resources project.

Table 2-1, below, documents the MCS scoring for each resource, and the resulting management class for the study area. The columns in Table 2-1 have specific definitions provided by the VRAP, as given here.

> **Distinct** – something that is considered unique and is an asset to the area. It is typically recognized as a visual/aesthetic asset and may have many positive attributes. Diversity and variety are characteristics in such a resource.
>
> **Average** – something that is common in the area and not known for its uniqueness, but rather is representative of the typical landscape of the area.
>
> **Minimal** – something that may be looked upon as a liability in the area. It is basically lacking any positive aesthetic attributes and may actually diminish the visual quality of surrounding areas.

The below presentation of the MCS assessment framework is preliminary based on the analysis conducted during feasibility and because effort would be ongoing during PED should not be considered final.

Table 2-1. MCS Assessment Framework

–	**Distinct** **3**	**Average** **2**	**Minimal** **1**
Water Resources	x	Large bodies of swiftly moving water, such as the Charleston Harbor and the Ashley and Cooper Rivers.	x
Landform	x	Coastal.	x

–	**Distinct** **3**	**Average** **2**	**Minimal** **1**
Vegetation	x	Percent cover varies from close to 0% to close to 100% depending on location and view. Type varies from marshes and forested wetlands to park trees and other urban plantings.	x
Landuse	Parks and recreational areas, historic steeples visible on skyline	Commercial buildings	Industrial buildings, infrastructure
User Activity	Park events, historic tours	General river and harbor viewing, land-based recreation, fishing off of piers, boating	Construction activities
Subtotals	6	10	2
Total	18		

As can be seen in Table 2-1, above, the MCS assessment framework total score is 18. Management classes and Total Assessment Values include: Preservation (17 or greater), Retention (14 to 16), Partial Retention (11 to 13), Modification (8 to 10), and Rehabilitation (less than 8). Therefore, the Charleston Peninsula overall, based on the sites inventoried in the MCS, is preliminarily found to be in the Preservation Class.

This is the average assessment made while also noting that site selection may have influenced this outcome and also noting that, even across that site selection, each resource component category included resources of varying quality. In other words, there may be locations within the Charleston Peninsula that would be better placed in another class such as the Retention Class, or the Partial Retention Class, etc. Still, as a preliminary finding, the average rating of Preservation Class seems a reasonable overall rating for the Charleston Peninsula, given the quality of visual resources inventoried.

The VRAP defines Preservation Class as the following: These areas are considered to be unique and to have the most distinct visual quality in the region. They are highly valued and are often protected by Federal and State policies and laws. These areas include wilderness areas, some natural areas, portions of wild and scenic rivers, historic sites and districts, and similar situations where changes to existing resources are restricted. While limited project activity is not precluded, it should not be readily evident. Structures, operations, and use activities should appear to be extensions of the protected resource and should faithfully represent, repeat, or reinforce the visual character of that resource. Projects in these zones should have a VIA Value of 0 or better.

In the VIA procedure (Section 3), an appraisal of project visual impacts is made, in part, by comparing the VIA Value with the acceptable range specified by the MCS classification. MCS descriptions of acceptable changes also can be used in qualitative appraisals of project visual quality conditions. Consideration of other aspects of visual quality for projects can also be included as necessary.

3.0 BASIC VISUAL IMPACT ASSESSMENT (VIA)

The Basic VIA Resource Inventory (Section 3.1) and the Basic VIA Forecast (Section 3.2) culminate in a Basic VIA Assessment for the overall project (Section 3.3). It is important to remember that the focus here is not on the individual sites inventoried (3.1) and their forecasts (3.2), but that these are steps toward the Basic VIA Assessment for the project overall (3.3).

3.1 Basic VIA Resource Inventory

A Basic VIA Resource Inventory serves as the future without project (FWOP) condition and is the basis for comparison with the future with project (FWP[2]) condition. Six viewpoints from and of the Charleston Peninsula that are accessible by the public for free were identified by VIA team discussion.

Locations were identified where visitors were likely to expect a view, as well as where the project would likely be visible. Sites selected were primarily civic amenities with iconic views in mixed use urban environments (High and Low Battery walls, Lockwood Drive, the Exchange St. entry to Waterfront Park), or civic amenities with iconic views in residential urban/suburban land use types (Wagener Terrace, Melton Peter Demetre Park). See Figure 3-1 for the site locations.

VIA team-members also selected together the vantage point to be assessed and shared photos and location descriptions with each other to ensure assessments were of the same specific location and vantage point. These are all from a pedestrian point of view on a sidewalk, except Melton Peter Demetre Park, which is from a point of view seated on a bench. The photos are included below, along with the synthesized team assessment of each site.

The sites were visited by each team-member between August 01 and August 13, 2020, at varying times of day, and with varied weather conditions typical to the time of year. Note that August is very hot with temperatures commonly in the 90s (Fahrenheit) and with the heat index often over 100.

Field notes were taken on the existing conditions, and any anticipated changes to the existing conditions for the future without project condition were recorded for water, landform, vegetation, land use, and user activity. Both the existing and the future without project condition are shown below since the VIA team recorded both, but the primary purpose here is to capture the future without project condition.

[2] Note that these acronyms are only used in the site visit notes further below to save space.

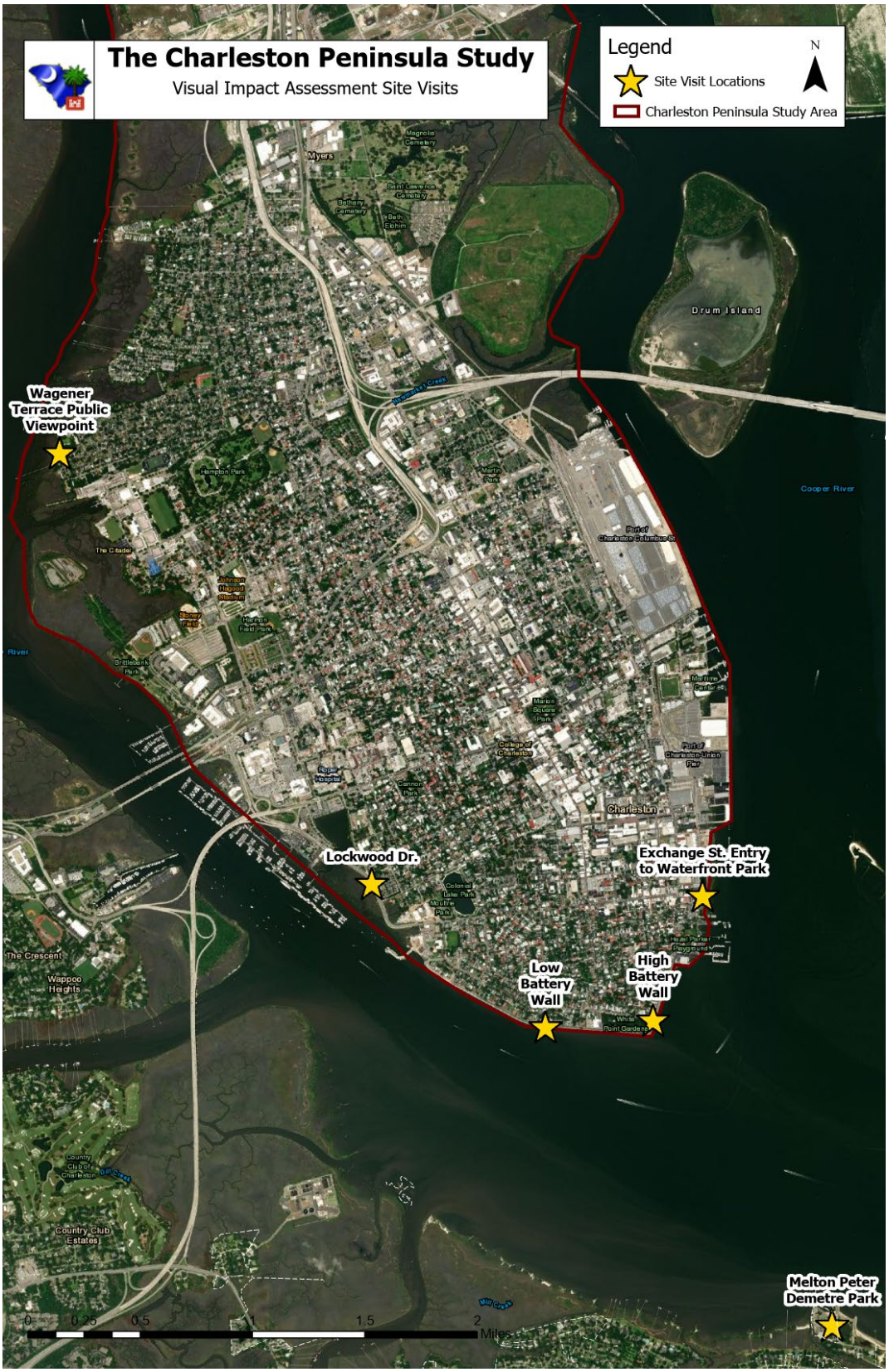

Figure 3-1. Visual Impact Assessment Site Visit Locations

VIA team members were asked to envision what the future without project condition may look like for water, landform, vegetation, land use, and user activity at each of the locations, based on the future without project condition previously published in the draft FR/EA released in April 2020. The future without project condition assumed the City would raise the current Low Battery Wall to a 9ft elevation NAVD88, which would provide additional reduction in storm surge damages in the Battery area, but also would alter the aesthetic experience

of the Low Battery. All other locations would be subject to sea level rise (SLR) and storm surge damages and the impacts that result from them.

It is important to reiterate that though individual sites are recorded in this section, the purpose was to move toward an overall project assessment. The project assessment is where all evaluators' assessments for all sites are combined into a single assessment for the project. As described in Section 1.3.2 there are limitations associated with selecting sites to represent the project as a whole. Still, this is what the VRAP method recommends because it is an effective way to achieve a reasonable assessment of the overall future without project condition for a large project.

3.1.1 The Low Battery Wall above Murray Blvd.

Figure 3-2. Near the terminus of Lenwood Boulevard, looking toward the Low Battery[3]

- Water –
    - Existing: The Ashley River appears large and swift moving.
    - FWOP: With the City's Low Battery project and projected 2.5-3ft increase in the height of the wall, the view of the river would be similar, but be more screened by the new handrail than it is now. Additionally, coastal storm surge may damage the area behind the new wall, potentially causing periodic closures for repairs, therefore a lack of access to the water view.
- Landform –
    - Existing: Coastal.
    - FWOP: The view of the coastal landform across the water to James Island would be similar, but more screened by the new handrail than it is now. Additionally, there is the potential for periodic closures of the wall and area for repairs, limiting access to the view.
- Vegetation –
    - Existing: The view contains about 25% vegetation cover. The private property in the foreground has a wide variety of plant types including grass, oaks, palms, and hedges. Lenwood has sparse palm trees on the public sidewalk, but there is no vegetation in the public realm visible on the Low Battery itself. The treeline on the opposite shore is visible.

[3] Note that evaluators did not utilize a concept image of the City's project when conducting this assessment. A site visit was used with the request the team imagine the future without project condition. For readers, imagining how the City's project in this location would look may be facilitated by looking at Figure 3-8 and imagining it with an open rail. The main difference between the USACE's project shown in Figure 3-8 (future with project condition) and the City's project (future without project condition) is that the City's project would have an open railing, where the closed railing of the USACE project would provide additional protection.

    - FWOP: The vegetation in the foreground would be similar, the view of vegetation on the opposite shore may be more screened by the new handrail than it is now. Additionally, vegetation would be subject to exposure to coastal storm surge that could change its presence or condition.
- Land use –
    - Existing: Urban residential with recreational walkway at the Low Battery seawall.
    - FWOP: Land use would be similar, dependent upon the frequency/severity of coastal storm surge that could eventually contribute to changes in land use. The wall as recreational walkway would be similar, subject to periodic closures from coastal storm surge damage.
- User activity –
    - Existing: Frequent auto traffic on Murray Blvd., lots of boats on the water including motorboats, a few pedestrians/joggers on the seawall, and some residents doing yardwork.
    - FWOP: User activity would be similar, assuming the road and the wall have not been damaged by coastal storm surge and are open.

3.1.2 The High Battery Wall above E. Battery St.

Figure 3-3. Near the terminus of S. Battery Street, standing on wall at a set of stairs and looking North

- Water –
    - Existing: The confluence of the Ashley and Cooper Rivers at the Charleston Harbor appears to be moving swiftly and of a large scale.
    - FWOP: The view from the existing wall would be similar. However, coastal storm surge may damage the existing wall, potentially causing periodic closures for repairs, therefore a lack of access to the water view.
- Landform -
    - Existing: Coastal.
    - FWOP: The view of the coastal landform would be similar, except for the potential for periodic closures of the wall for repairs, limiting access to the view.
- Vegetation –
    - Existing: Percent cover vegetation in this location is about 25%, mostly comprised of palm trees, oaks, oleander, and grass. There are some ornamental shrubs between the High Battery Wall and E. Battery St. The ornamental trees present on side streets are visible and, if one looks over one's right shoulder, the treeline on the opposite shore is visible.
    - FWOP: The vegetation would be similar, subject to its exposure to coastal storm surge that could change its presence or condition.
- Land use –
    - Existing: Urban residential with recreational walkway at the High Battery seawall. A marina and tourist boats are in view.

    - FWOP: Land use would be similar, dependent upon the frequency/severity of coastal storm surge that could eventually contribute to land use changes. The wall as recreational walkway would be similar, subject to periodic closures from coastal storm surge damage.
- User activity –
    - Existing: A high degree of user activity observed including people walking, jogging, and biking. A good amount of traffic with many cars and a few motorcycle groups on E. Battery St., also many boats on the water. Note that there also were walking and driving tours being conducted in the area.
    - FWOP: User activity would be similar, assuming the road and the wall have not been damaged by coastal storm surge and are open.

3.1.3 Exchange St. Entry to Waterfront Park

Figure 3-4. Near terminus of Exchange Street, looking across Concord toward the park

- Water –
    - Existing: From this viewpoint the Cooper River can only be glimpsed in the distance through the iron fence on the horizon.
    - FWOP: The view of the water would be similar. However, the area will be subject to coastal storm surge damage and, depending on the severity, the street could be closed for repairs therefore potentially limiting access to this viewpoint.
- Landform -
    - Existing: Coastal.
    - FWOP: The view of the coastal landform would be similar, but the street has the potential for periodic closures for repairs, limiting access to the view.
- Vegetation –
    - Existing: Percent cover vegetation is about 25-50%, mostly comprised of trees, shrubbery, grass, and vines. Though the vegetation is mostly aesthetically pleasing, there also is an unattractive weedy lot in the foreground. Waterfront Park is visible, and one can see that a main feature is a highly attractive allee providing a nice source of shade. Seasonal change is only evident from leaves on the ground.
    - FWOP: The vegetation would be similar, but subject to exposure to coastal storm surge that could change its presence or condition.
- Land use –
    - Existing: Urban residential/commercial mix near where standing, with Waterfront Park ahead for recreation.

    - FWOP: Land use of the street would be similar dependent upon the frequency/severity of coastal storm surge that could eventually contribute to changes in land use. Access to the park is gained by going up the staircase. The land use of the park would be similar, subject to periodic closures from coastal storm surge damage. Additionally, SLR and repeated coastal flooding may contribute to erosion and inundation of the park.
- User activity –
    - Existing: Activities observed included residents taking out trash, people out dog walking, jogging or walking singly and in groups, there sometimes are bicyclists, and frequently there are cars traveling along Exchange St. To the minimal extent that water can be seen, sail and motor boats can also be glimpsed.
    - FWOP: User activity would be similar, assuming the road and sidewalks have not been damaged by coastal storm surge and are open. User activity visible in the park would be similar, subject to periodic closures from coastal storm surge damage.

3.1.4 Lockwood Drive

Figure 3-5. Near the terminus of Wentworth Street, looking South along Lockwood

- Water –
    - Existing: The Ashley River appears large due to the low-lying nature of the land, to be moving swiftly with current further away, but relatively calm in the area closer to shore.
    - FWOP: The view of the water would change over time due to SLR and repeated coastal flooding gradually eroding and inundating the landscape and therefore changing the experience of water. Additionally, coastal storm surge could contribute to periodic closure of the road and sidewalks, therefore a lack of access to these views of the water.
- Landform -
    - Existing: Coastal.
    - FWOP: The view across Lockwood Drive to the marsh, and across the Ashely River to James Island would be similar for a while, but SLR and repeated coastal flooding would gradually inundate and erode the landscape and change the experience. Additionally, coastal storm surge would speed erosion, therefore causing further alteration of the landscape and views.
- Vegetation –
    - Existing: Percent cover vegetation is about 25%. There mostly is a sense of being open, though there are palm trees along the road. There is marsh at the water's edge and treeline on the opposite bank. There also are a variety of bushes and grass.
    - FWOP: The vegetation would be similar for a while, however over time would slowly change or possibly disappear with SLR and repeated coastal flooding. Additionally, coastal storm surge could contribute to abrupt changes in the presence or condition of the vegetation.

- Land use –
    - Existing: Suburban/urban residential with sidewalks on both sides of each road, and the sidewalk on the other side of Lockwood being adjacent to the water. The Coast Guard station, a marina and marine activity are in view. Lockwood Drive is a heavily trafficked road and major entry point to the city.
    - FWOP: Land use would be similar for a while, but coastal storm surge may damage the road and sidewalks, potentially causing periodic closure for repairs. Additionally, with SLR and repeated coastal flooding the land itself would begin to disappear and land use would change in response, including the possible need to reconfigure or relocate the road and/or sidewalk.
- User activity –
    - Existing: Lockwood is four lanes and experiences heavy vehicular traffic. Cars are frequent and abundant, and a few sail and motor boats are active in the river. Though joggers and cyclists are known to be on the riverside sidewalk as well, what was observed by one evaluator was just one cyclist present during one visit and one jogger present during another. Other evaluators reported light to medium bike/ped activity.
    - FWOP: User activity would be similar for a while, but coastal storm surge would contribute to periodic closures of the road and sidewalks. Additionally, SLR and repeated coastal flooding would erode and inundate the landscape and change land use, including reduced accessibility. Therefore, user activity would gradually change and be reduced as well.

3.1.5 Wagener Terrace Public Viewpoint, 5th Ave. & Saint Margaret St.

Figure 3-6. Looking across the bench in the public right of way toward the river

- Water –
    - Existing: The Ashley River appears to be moving swiftly and is of large visual scale.
    - FWOP: The view of the water would be similar for a while, however coastal storm surge could contribute to periodic road closure, therefore a lack of access to this view. Additionally, SLR and repeated coastal flooding would gradually erode and inundate the landscape and therefore change the experience of the water.
- Landform -
    - Existing: Coastal.
    - FWOP: The view across the marsh and the water to the West Ashley neighborhood would be similar for a while, but SLR and repeated coastal flooding would gradually inundate and erode the landscape and change the experience. Additionally, coastal storm surge could speed erosion, therefore causing further alteration of the landscape and its views.
- Vegetation –
    - Existing: There is vegetation cover of 50%-75%, primarily consisting of marsh, so with a mostly open character. Vegetation is diverse including ornamental landscaping nearby, the marsh in the midground, and the treeline visible across the water.
    - FWOP: The vegetation would be similar for a while; however coastal storm surge could contribute to abrupt changes in the presence or condition of the vegetation. Additionally, over time the vegetation would slowly change with SLR and repeated coastal flooding.
- Land use –
    - Existing: Suburban residential with a concrete bench in a public right-of-way space that while not an official city park functions like a pocket park.

    - FWOP: Land use would be similar for a while, but coastal storm surge may damage the road, causing periodic closure for repair. Coastal storm surge could also eventually contribute to land use change. Additionally, with SLR and repeated coastal flooding the land itself would begin to disappear and land use would change in response, including possible loss of the 'pocket park', and need to reconfigure or close the road.
- User activity –
    - Existing: Varying levels of activity were observed on the water, ranging from one small motorboat to a few boats active at once. One car passed by, and a city yard waste collection team. Small groups of people, such as a family of three on bikes and two individuals on foot, were observed going to the public bench for a few minutes for the river/marsh view. A few joggers and cyclists and some residents doing yardwork were observed in the neighborhood. Private docks are in view.
    - FWOP: User activity would be similar for a while, but coastal storm surge could contribute to periodic closures of the road. Additionally, SLR and repeated coastal flooding would contribute to erosion and inundation of the land, causing reduced accessibility. Therefore, user activity would gradually change and be reduced as well.

3.1.6 Melton Peter Demetre Park

Figure 3-7. Looking across the harbor toward the view of downtown

- Water –
    - Existing: Looking across Charleston Harbor with the Ashley River at left and the Cooper River at right, the water is of a large visual scale, and appears to be moving swiftly.
    - FWOP: The view of the water would be similar.
- Landform -
    - Existing: Coastal.
    - FWOP: The view of the coastal landform would be similar.
- Vegetation –
    - Existing: At the end of this pier there is no vegetation cover, but the view across the water has approximately 25% vegetation cover, mostly of the trees along the city waterfront.
    - FWOP: Dependent upon the frequency/severity of coastal storm surge, vegetation along the city waterfront could be damaged or destroyed.
- Land use –
    - Existing: Suburban park. The view of the city skyline includes a mix of residential, commercial, ecclesiastic, the recreational walkway of the High Battery seawall, and etc.
    - FWOP: Land use in this location would be similar (dependent upon its own exposure to risk, which this study did not evaluate). The view of land use across the harbor could change, dependent upon the frequency/severity of coastal storm surge buildings in the city skyline could be damaged or destroyed, changing what land uses are visible.

- User activity –
    - Existing: Observed activity was medium to high as there were visitors throughout taking in the view, fishing, walking, crabbing, beach combing, swimming, sunning, eating, or gathering in groups. Boats were observed on the water, including tour boats and commercial in the distance.
    - FWOP: User activity in this location would be similar (dependent upon its own exposure to risk, which this study did not evaluate).

3.1.7 Basic VIA Resource Inventory Findings, aka Future Without Project Condition

This summary description is of the future without project (FWOP) condition for aesthetic resources in the project area, in NEPA terms known as the No Action Alternative. It is organized by the five landscape components of water, landform, vegetation, land use, and user activity.

Water

The Ashley and Cooper Rivers and the Charleston Harbor are large and generally swift moving. In the future without project condition places people currently go for views of the water may periodically be closed for repairs due to damages from coastal storm surge. Additionally, some of the views may change over time due to SLR and repeated coastal flooding gradually eroding and inundating the landscape, with the potential for these viewpoints to be rendered inaccessible.

Landform

The Charleston Peninsula has a coastal landform. In the future without project condition, views across marshes and large waterbodies to low-lying neighborhoods would be similar to the present condition for a while, but in the future without project condition SLR and repeated coastal flooding would gradually erode and inundate the landscape. Coastal storm surge could speed erosion, therefore causing further alteration of the landscape and its views. Additionally, coastal storm surge could contribute to periodic closures or inaccessibility of the viewpoints from which the landform can be seen.

Vegetation

Vegetation cover and diversity varies by location. In the future without project condition vegetation would be exposed to coastal storm surge that could change its presence or condition abruptly. Additionally, over time the vegetation would slowly change, and in some cases possibly disappear, due to SLR and repeated coastal flooding.

Land Use

The peninsula has many land use types, but those observed included urban and suburban intensities of residential and residential/commercial mix with a public park, recreational walkway, or public right-of-way amenity present or very close. Marinas and other coastal land uses were often in view. Mostly local or secondary streets were the means of access, but a heavily trafficked primary street was a key access and land use in one observed location.

In the future without project condition land use may be similar to the existing condition for a while, but is dependent upon the frequency and severity of coastal storm surge that could damage buildings and eventually contribute to changes in land use. Public parks, recreational walkways, and public right-of-way amenities may also be similar to the existing condition for a while, but subject to periodic closures from coastal storm surge damage. Streets and sidewalks would be similar to the existing condition, dependent upon the frequency and severity of coastal storm surge that could contribute to periodic closures for repairs. Additionally, in some locations SLR and repeated coastal flooding would contribute to the land itself disappearing, and land use would change in response, including the possible loss of structures and amenities, and the possible need to reconfigure or relocate roads and/or sidewalks.

User Activity

User activity often includes vehicular traffic both on water (motor and sail boats) and on land (cars, trucks, motorcycles), as well as people out individually or in groups, often by foot and sometimes bicycle, engaged in recreational activities as well as daily life tasks such as commuting or doing chores. In the future without project condition user activity would be similar for a while, assuming the places the activities are occurring have not been damaged by coastal storm surge and are open. However, in some locations SLR and repeated coastal flooding would erode and inundate the landscape and change what activities could be supported.

3.2 Basic VIA Forecast

Basic VIA forecasting is a capture of the future with project (FWP) condition. In this case, using six sites as representative examples to support general conclusions for the project as a whole. Though individual sites are recorded in this section, the purpose is to move toward a project assessment. The project assessment is where all evaluators' assessments for all sites are combined into a single assessment for the project. As described in Section 1.3.2 there are limitations associated with selecting sites to represent the project as a whole. Still, the VRAP method recommends this as an effective way to achieve a reasonable assessment of the overall future with project condition for a large or extensive project.

Management measures included in Alternative 2 that have the potential to significantly impact aesthetic resources, and/or to affect the VIA Value, include structural, nonstructural, and natural and nature-based features.[4] Due to the fact that most of these measures and features were not yet well defined when the aesthetic resources assessment was conducted, the aesthetic assessment focused on evaluating only the storm surge barrier as it was conceptualized as of August of 2020. To aid this evaluation, the City of Charleston prepared photo simulations of the seawall based on information that USACE provided. The length and height of the proposed wall was represented with red/pink shading.

The same six viewpoints assessed for the Basic VIA Resource Inventory were used for the Basic VIA Forecast to generalize aesthetic impacts across the project as a whole. This included places where the wall would be a new feature, one of which had a gate identified as well, and also included places with existing walls that would be modified (the Low Battery Wall, the High Battery Wall). The VIA team was asked to use the photo simulations to help them imagine the future with project condition. And the sites were evaluated by each team-member between August 28, 2020 and September 11, 2020 at varying times of day, and with varied weather conditions typical to the season.

[4] Further description of these measures as identified in the optimized plan, as well as of the continued utilization of VRAP for aesthetic assessment during PED, is provided in Section 4.0.

3.2.1 The Low Battery Wall above Murray Blvd. (Simulation)

Figure 3-8. Near the terminus of Lenwood Boulevard, looking toward the Low Battery (simulation)

- Water –
    - FWP: The USACE project adds a small change to the City's project by filling in the handrail as part of USACE's protective seawall. From this vantage point the Ashley River would no longer be able to be glimpsed through the handrail.
- Landform –
    - FWP: From this vantage point the James Island coastline would no longer be able to be glimpsed through the handrail.
- Vegetation –
    - FWP: The vegetation in the foreground would be similar, but the view of vegetation on the opposite shore would be reduced to just a glimpse of the top of the treeline over the handrail.
- Land use –
    - FWP: Land use would remain similar, being urban residential with recreational walkway at the Low Battery seawall.
- User activity –
    - FWP: User activity would be similar, with frequent auto traffic on Murray Blvd., lots of boats on the water including motorboats, a few pedestrians/joggers on the seawall, and residents doing chores.

3.2.2 The High Battery Wall above E. Battery St. (Simulation)

Figure 3-9. Near the terminus of S. Battery Street, standing on wall and looking North (simulation)

- Water –
    - FWP: From the new wall the view of the confluence of the Ashley and Cooper Rivers at the Charleston Harbor would be similar to the future without project condition, but accessible more reliably due to fewer closures from coastal storm surge.
- Landform -
    - FWP: From the new wall the view of the coastal landform would be similar to the future without project condition, but accessible more reliably due to fewer closures caused by coastal storm surge.
- Vegetation –
    - FWP: Vegetation would be similar to the future without project condition, but with increased presence and improved condition due to the reduction of damage from coastal storm surge.
- Land use –
    - FWP: Land use would be similar to the future without project condition, being urban residential with recreational walkway at the seawall, but with structures protected from coastal storm surge and therefore less likely to change use type. The land use of the wall itself would be similar to the future without project condition, but accessible more reliably due to fewer closures caused by coastal storm surge damages.
- User activity –
    - FWP: User activity would be similar to the future without project condition, including vehicular traffic on the water and on land (auto and motorcycle), as well as ped/bike, but more frequent due to fewer road and wall closures caused by damages from storm surge.

3.2.3 Exchange St. Entry to Waterfront Park (Simulation)

Figure 3-10. Near terminus of Exchange Street, looking across Concord toward the park (simulation)

- Water –
    - FWP: For comparison, note that in the future without project condition the water is only glimpsed in the distance through the iron fence on the horizon. In the future with project condition shown above, the view of the Cooper River would be further screened, to only be visible through the gate. However, the view here would be accessible more reliably due to fewer street closures caused by damages from coastal storm surge.
- Landform -
    - FWP: The horizontal aspect of the coastal landform would be less prominent, with the gate in the wall creating a more focused view through the park. However, the view would be accessible more reliably due to fewer street closures caused by damages from storm surge.
- Vegetation –
    - FWP: As simulated, the future with project condition shows that vegetation would be similar to the future without project condition. The difference is that in the future with project condition the vegetation on the outside of the wall would remain exposed to coastal storm surge that could change its presence or condition, but vegetation inside the wall would have protection from damages by coastal storm surge.
- Land use –
    - FWP: The future with project condition places the wall between the neighborhood and the park, creating a physical separation, with the neighborhood receiving protection from damages caused by coastal storm surge, but with the park still exposed. Land use would be similar to the future without project condition, being urban residential/commercial mix with the park ahead, however buildings would have protection and therefore be less likely to change use type due to damages

from coastal storm surge. Also, the area would be accessible more reliably due to fewer street closures caused by coastal storm surge damages. From this vantage point on the street sidewalk, the gate in the wall provides a focused opening connecting the street to the park. Additionally, the park's tree canopy is visible above the wall flanking the gate. The park itself would be similar to the future without project condition, remaining subject to periodic closures from storm surge damage.

- User activity –
    - FWP: User activity on the street would be similar to the future without project condition, including residents doing chores, ped/bike activity, and auto traffic, as well as gaining access to the park by going up the staircase. However, activities here would be accessible more reliably in the future with project condition due to the street not being subject to closures resulting from coastal storm surge. Note that user activity visible in the park would remain the same in the future with project condition as the future without project condition, including being subject to periodic closures due to damages from coastal storm surge.

3.2.4 Lockwood Drive (Simulation)

Figure 3-11. Near the terminus of Wentworth Street, looking South along Lockwood (simulation)

- Water –
    - FWP: The view of the Ashley River would be entirely gone for vehicular traffic on Lockwood Drive. The water would still be visible from the path on the wall and would be accessible more reliably due to fewer closures caused by damages from coastal storm surge. Additionally, SLR and repeated coastal flooding would not gradually erode and inundate the landscape, so the experience of water that is provided on the wall would be persistent.
- Landform –
    - FWP: The wall completely changes the coastal landscape from this vantage point, with the open horizontal landform present in the future without project condition, instead, in the future with project condition being blocked by the wall. The view across Lockwood Drive to the marsh and across the Ashley River to James Island would be entirely gone for vehicular traffic. The landform would still be visible from the path on the wall and would be accessible more reliably due to fewer closures caused by coastal storm surge damages. Additionally, SLR and repeated coastal flooding no longer would gradually erode and inundate the landscape, so the experience of landform that is provided on the wall would be persistent.
- Vegetation –
    - FWP: As simulated, the wall would replace the vegetation on the West side of Lockwood Drive, including a loss of the palm trees. Marsh vegetation and the treeline on the opposite bank would still be visible from the path on the wall. The vegetation on the outside of the wall would remain exposed to coastal storm surge that could change its presence or condition, but vegetation inside the wall would have protection from damages by coastal storm surge.
- Land use –

    - FWP: Lockwood Drive is a heavily trafficked road and major entry point to the city. Land use would be similar to the future without project condition, being suburban/urban residential with sidewalks on both sides of each road, and the sidewalk in the other side of Lockwood being adjacent to the water. As simulated, in the future with project condition the wall would be the dominant structure in the landscape but conserve usable land. The area would be accessible more reliably due to fewer road and sidewalk closures caused by coastal storm surge damages. Additionally, land use and road/sidewalk configuration would not be shaped by the erosion and inundation of SLR and repeated coastal flooding since the wall would provide protection from these. However, due to the degree of change in the landscape, the wall may affect the land use around it in other ways difficult to predict.
- User activity –
    - FWP: User activity would be similar to the future without project condition, including heavy vehicular traffic and light ped/bike use, but in the future with project condition the experience of the activity would be very different with lost or changed views as explained above. However, activities here would be accessible more reliably in the future with project condition due to the roads/sidewalks not being subject to closures resulting from coastal storm surge damages, as well as the wall providing protection against the impacts of SLR and repeated coastal flooding. Therefore, the activities available in the with project condition would be persistent.

3.2.5 Wagener Terrace Public Viewpoint, 5th Ave. & Saint Margaret St. (Simulation)

Figure 3-12. Looking across the bench in the public right of way toward the river (simulation)

- Water –
    - FWP: The view of the Ashley River would be entirely gone from this vantage point.
- Landform -
    - FWP: The view across the water to the West Ashley neighborhood would be entirely gone, and the wall changes how the coastal landscape is experienced from this vantage point. However, the experience that is provided would be accessible more reliably due to fewer street closures caused by coastal storm surge damages. Additionally, SLR and repeated coastal flooding no longer would gradually erode and inundate the landscape, so the experience of the landform that is provided would be persistent.
- Vegetation –
    - FWP: Future with project vegetation visible in the foreground would be similar to future without project vegetation, but the experience of vegetation in the midground and beyond would substantially change in the future with project condition. The amount of marsh in view would lessen, and the view of the treeline across the water would be limited to what could be seen over the top edge of the wall. Note that vegetation on the outside of the wall would remain exposed to coastal storm surge that could change its presence or condition, but vegetation inside the wall would have protection from damages by coastal storm surge. Additionally, vegetation inside the wall would not be subject to erosion and inundation caused by SLR and repeated coastal flooding.
- Land use –
    - FWP: Land use would be similar to the future without project condition, being suburban residential with a public right-of-way space, but in the future with project condition land use would be accessible more reliably due to fewer road closures caused by coastal storm surge damages.

Additionally, land use would not be subject to pressures to change from periodic coastal storm surge damages, and the wall would provide protection from the erosion and inundation of SLR and repeated coastal flooding. However, due to the change in the landscape, the character of the 'pocket park' and the view from the road would change.

- User activity –
    - FWP: Residents doing chores, vehicular traffic, and activity on the water would be similar to the future without project condition. However, from this vantage point, the future with project condition would interrupt the expansiveness of the coastal landform and eliminate the view of the river. Therefore, bike/ped activity and use of the public right-of-way space may be less for people who want to admire the view. However, activities here would be accessible more reliably in the future with project condition due to the roads not being subject to closures resulting from coastal storm surge damages, as well as the wall providing protection against the impacts of SLR and repeated coastal flooding. Therefore, the activities available in the with project condition would be persistent.

3.2.6 Melton Peter Demetre Park (Simulation)

Figure 3-13. Looking across the harbor toward the view of downtown (simulation)

- Water –
    - FWP: In the with project condition the view across the Charleston Harbor with the Ashley River at left and the Cooper River at right would be similar to the without project condition.
- Landform -
    - FWP: The view of the coastal landform would be similar.
- Vegetation –
    - FWP: Vegetation would be similar, but on the peninsula more protected from coastal storm surge damages.
- Land use –
    - FWP: Land use in this location would still be a suburban park. And, the Charleston Peninsula would have protection from coastal storm surge damages, so the mix of land use on the city skyline, including residential, commercial, ecclesiastic, the recreational walkway of the High Battery, and etc., would be less likely to change as a result of periodic storm surge damages.
- User activity –
    - FWP: User activity in this location would be similar, including visitors on the park land, piers, and beach.

3.2.7 Basic VIA Forecast Findings, aka Future With Project Condition

This summary description is of the future with project condition for aesthetic resources in the project area, in NEPA terms known as Alternative 2. It is organized by the five landscape components of water, landform, vegetation, land use, and user activity.

Water

The Ashley and Cooper Rivers and the Charleston Harbor are large and generally swift moving. In the future with project condition, the Ashley and Cooper rivers and the Charleston Harbor would remain large and generally swift moving. The places people go for views of the water would be more persistent and reliably accessible due to the protection provided by the wall, but the aesthetic experience of the water may be different. What the differences are would vary by location but may include the following: the waterbody may be similarly visible, visible but more screened, and/or no longer visible. Note that more than one of these may simultaneously be true in the same given location, dependent upon the viewer's vantage point. For example, the view at Lockwood Drive would be entirely gone for vehicular traffic, but still visible by pedestrians from the path on the wall.

Landform

The Charleston Peninsula has a coastal landform. In the future with project condition, access to views across marshes and large waterbodies would be more persistent and reliable due to the protection provided by the wall, but the aesthetic experience of the coastal landform may be different. What the differences are would vary by location but may include the following: the coastal landform may be similarly visible, the horizontal aspect of the coastal landform may be less perceptible, and/or the wall may block the ability to see the coastal landform.

Vegetation

Vegetation cover and diversity varies by location. In the future with project condition vegetation on the outside of the wall would remain exposed to coastal storm surge that could change its presence or condition, but vegetation inside the wall would have increased presence and improved condition due to the reduction of damage from coastal storm surge as well as SLR and coastal flooding. The aesthetic experience of vegetation may be different in the future with project condition. What the differences are would vary by location but may include the following: the view of vegetation may be similar, the view of vegetation may be partially screened, and/or vegetation or the view of vegetation may be lost.

User Activity

User activity varies by location. In the future with project condition the places people engage in activity would be more persistent and accessible more reliably due to the protection provided by the wall, but the activity, or the experience of it, may be different. What the differences are would vary by location but may include the following: user activity and the experience of it may be similar, or user activity would be similar but the experience of the activity would be different with lost or changed views, or user activity would be similarly available but less utilized due to lost or changed views.

Land Use

The peninsula has many land use types. In the future with project condition land use would be more persistent and accessible more reliably due to the protection provided by the wall, but the experience of the land use may be different. What the differences are would vary by location, but may include the following: land use may be similar, or connections between land uses may be more focused through gates where land use on the inside of the wall is more protected and land use outside the wall is not, and/or the wall may change the character of the landscape to such a degree that the land use around it is affected in ways difficult to predict.

3.3 Basic VIA Assessment, aka Project Impact Assessment

The Basic VIA Procedure is used for assessing specific project alternatives and provides the impact assessment and evaluation information required for most USACE studies. An assessment determines the difference between the without project and the with project conditions for aesthetic resources, i.e., the project VIA Value.

The MCS represents the without project condition and determines the acceptable numerical range for the VIA Value (Table 3-1). If the calculated VIA Value is within the range of the visual impact guidelines for the management class, the visual impact should be appraised as beneficial, acceptable, or desirable. If, however, the visual impact falls outside the range, it is appraised as an adverse impact. Additional technical, institutional (laws and policies that affect visual resources), and public (expressed public perceptions of visual impacts) considerations are brought to bear to determine the significance of an adverse impact.

Table 3-1. Acceptable Numerical Range for VIA Value

Management Class	**VIA Value**
Preservation	10 to 0
Retention	10 to -2
Partial retention	10 to -5
Modification	10 to -7
Rehabilitation	10 to -10

The VIA Value is the measure of visual impact caused by the project, comparing with project and without project conditions, and is used for comparison with the project's MCS classification of the study area. The VIA Value for the project is a numerical measure of aesthetic impact and is tractable by examining the specific changes in landscape components. The modifier ratings show how the changes in landscape components result in changes in spatial dominance, scale contrast, and compatibility. These are used to further support and explain the numerical VIA Value.

3.3.1 Overview of Aesthetic Impacts

VIA Value

The following discussion of the VIA Value is preliminary based on the feasibility level design and placement of management measures at the time of assessment and because effort would be ongoing during PED, should not be considered final. In accordance with the MOU, the project design would be modified where possible to avoid significant impacts to aesthetic resources. Based on the stated focus of assessing the aesthetic impacts of the storm surge barrier at six sites as a generalization for the project's overall aesthetic impacts, the USACE has determined the preliminary VIA Value to be - 1.80 for a management class that is preliminarily identified as Preservation Class.

A series of detailed evaluations and calculations are done to arrive at the VIA Value, which results in a numerical characterization of the visual change between the future without project condition and the future with project condition. Specifically, the Distinct, Average, and Minimal criteria in the MCS (i.e., the existing condition) are used to assess the visual quality of both the future without project condition and the future with project condition for each visual resource component in each viewpoint, the resources being: water, landform, vegetation, land use, and user activity. For each visual resource component, a Distinct, Average, or Minimal designation is determined for the with- and without-project conditions. Each visual quality designation has a numerical value associated with it: Distinct = 3, Average = 2, Minimal = 1. The numerical difference between the with- and without-project alternative (i.e., "A" minus "B") provides the values. These values are a measurement of visual change and are used to develop the VIA Value.

This VIA Value is for all places averaged across evaluators, and comprised of the following landscape components: water, landform, vegetation, land use, and user activity. Figure 3-14 shows the distribution of the

- 1.80 value across the five landscape components. The purpose of evaluating and reporting in this way is to extrapolate from the example sites to generalize to the overall project and, if possible, to identify if there are any particular landscape components especially impacted.

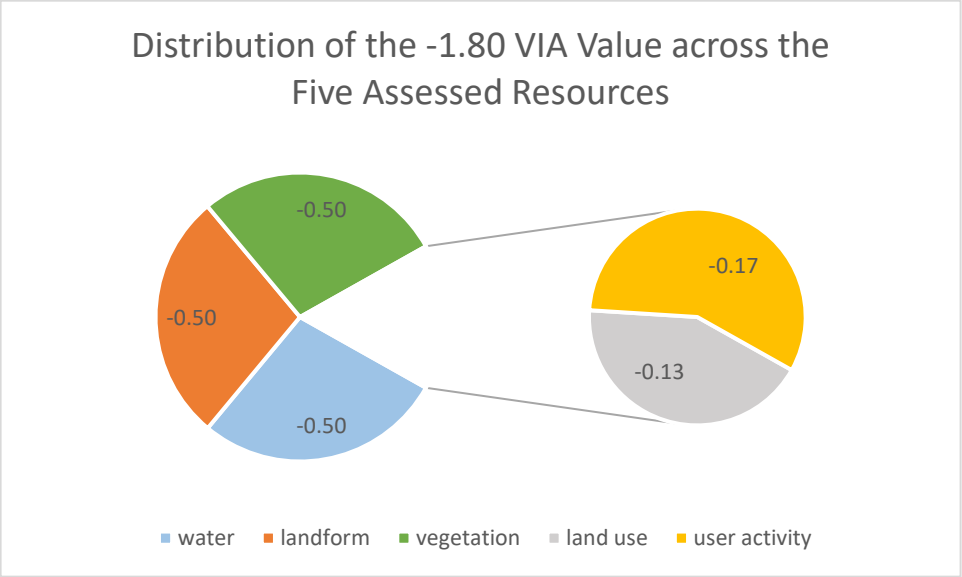

Figure 3-14. Distribution of the -1.80 VIA Value across the Five Assessed Resources

The distribution of the score shown above may be partly due to site selection (as indicated in Section 1.3.2, Limitations), and may have been different if, for example, places known for diverse land use and user activity (beyond that associated with views) had been assessed. However, it is reasonable to believe that the VIA Value representing the overall project impact would still have been a negative value below 0, and overall adverse aesthetic impact.

In addition to the VIA Value, the Basic VIA Assessment is comprised of narrative descriptors called the Modifier Rating(s). These can be useful when independently considering each of the landscape components of water, landform, vegetation, land use, and user activity. The Modifier Rating can also be considered at the aggregate scale to seek a general understanding, as discussed below.

Modifier Rating

Modifier ratings are presented for the following three categories that influence aesthetic impact: compatibility, scale contrast, and spatial dominance. Definitions provided within the VRAP method are:

Compatibility is the degree to which landscape elements and characteristics are still unified within their setting. Compatibility can be described as the following:

- Not Compatible - The modification is not harmonious within the setting.
- Somewhat Compatible - The modification is more or less harmonious within the setting.
- Compatible - the modification is harmonious within the setting.

Scale Contrast is the difference in absolute or relative scale in relation to other distinct objects or areas in the landscape. Scale contrast can be described as the following:

- Severe - The modification is much larger than the surrounding objects.
- Moderate - The modification is slightly larger than the surrounding objects.
- Minimal - The modification is much smaller than the surrounding objects.

Spatial Dominance is the prevalent occupation of a space in a landscape by an object(s) or landscape element. Spatial dominance can be described as the following:

- Dominant - The modification is the major object or area in a confined setting and occupies a large part of the setting.
- Co-dominant - The modification is one of the major objects or areas in a confined setting, and its features are of equal visual importance.
- Subordinate - The modification is insignificant and occupies a minor part of the setting.

Similar to the VIA Value, the modifier ratings of all the evaluators were summarized to a single evaluation, in this case based on a majority rating. These have been color coded to make it easier to understand the ratings at a glance but are also understandable without the color coding just based on the words. Red signifies a rating with the most negative impact level possible, yellow the medium impact rating (still negative), and green the least negative impact level.

Table 3-2 shows that, overall, the seawall is somewhat compatible, with minimal scale contrast, but is dominant spatially. Generally, when everything is rolled up like this, spatial dominance and compatibility are found to be consistent impacts.

Table 3-2. Majority of the Majority Modifier Ratings of the Project

Majority of the Majority Modifier Rating	
Compatibility:	Somewhat Compatible
Scale Contrast:	Minimal Scale Contrast
Spatial Dominance:	Dominant Spatially

The purpose of evaluating and reporting in this way is to identify, if possible, if there is any particular type of aesthetic impact that is especially problematic. In this case, spatial dominance appears to be problematic, and compatibility is also problematic.

It is important to note that, as before, this finding is shaped by the sites that were assessed. In this case, if sites were assessed that already were confined due to nearby tree-cover or the presence of buildings, as is the case in many locations along the project not selected for evaluation, then the finding may have been that the scale contrast or the compatibility were the most commonly identified impacts. Even so, any generalization for the overall project may or may not apply in specific locations, as there is variability dependent upon location.

Additionally, the VRAP method calls for majority assessment from the VIA team. Per VIA team discussion, majority does not represent consensus. There was diversity amongst assessor's opinions and this diversity is captured in the charts below. Nevertheless, the method is striving towards a balanced, integrated assessment for the project overall and the team lead, a Landscape Architect, integrated team dialogue into a single narrative assessment to support what's shown in each chart.

The VIA Value and the Modifier Ratings become more tractable by examining the specific changes in landscape components (Section 3.3.2).

3.3.2 Impacts to Water

The major water resources in the study area include the Ashley and Cooper rivers, as well as Charleston Harbor. When comparing the future with project condition to the future without project condition, the average aesthetic impact of the future with project condition to water across all locations is -0.50 (Figure 3-15).

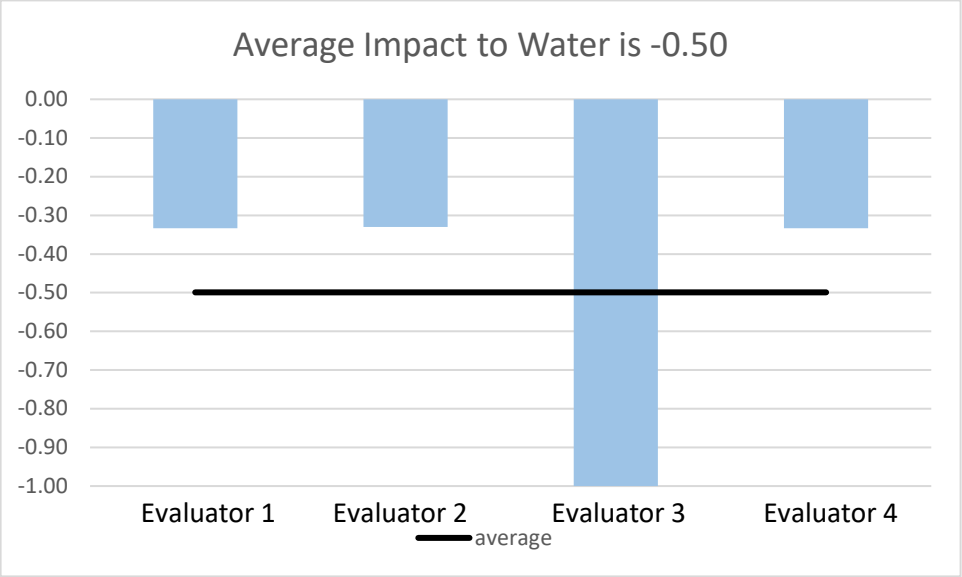

Figure 3-15. The Average Impact to Water is -0.50

Though individual opinions vary, evaluators found that for water a consistent impact was the spatial dominance of the sea wall (Table 3-3).

Table 3-3. Modifier Ratings of the Project Relative to Water

WATER	**Evaluator 1**	**Evaluator 2**	**Evaluator 3**	**Evaluator 4**	**Majority Rating**
Compatibility	Compatible	Compatible	Not Compatible	Compatible	Compatible
Scale Contrast	Minimal	Minimal	Severe	Minimal	Minimal
Spatial Dominance	Subordinate	Dominant	Dominant	Dominant	Dominant

VIA Team discussion highlighted that spatial dominance was not always the only or main impact.

Compatibility. The human experience of compatibility with water at the High Battery, the Low Battery, and Melton Peter Demetre Park (MPDP) viewpoints in the with project condition doesn't change significantly from the without project condition. Assuming there is a harmoniously designed useable pedestrian space in the with project condition, then the user experience of compatibility with water at the Exchange St. entry to Waterfront Park and Lockwood Drive viewpoints is changed only somewhat. Compatibility does change significantly for vehicular traffic on Lockwood Drive, entirely losing the view of the water. Compatibility also changes at the Wagener Terrace public viewpoint.

Scale Contrast. At Lockwood Drive the scale contrast is moderate to severe in that the wall stands tall against the road and obstructs the water, but the addition of a path on the wall helps break up the scale. The scale contrast at the Exchange St. entry to Waterfront Park is moderate due to the fact that even without the wall you currently don't see the water much from this viewpoint, but this connection is reduced when the wall is in place even with a gate added. At the Wagener Terrace public viewpoint, the scale contrast is severe by replacing most of the view of the water with a view of a wall. The scale contrast at the Low Battery and the High Battery is minimal, as well as from MPDP.

Spatial Dominance. Some places do not change much. Some do a great deal. From some viewpoints within the Peninsula the wall becomes the dominant feature. It disrupts the Peninsula's relationship to the water by confining the Peninsula from the water. Lockwood Drive and the Wagener Terrace public viewpoint are excellent examples of this. At the Exchange St. entry to Waterfront Park, from this viewpoint also, the wall is

dominant to the view of the water. The wall is subordinate only from a few of the assessed viewpoints, the High and Low Battery being amongst them. The wall is also subordinate to water from the MPDP viewpoint.

3.3.3 Impacts to Landform

The landforms in a project study area could range from coastal to mountainous. The Charleston Peninsula has a coastal landform. When comparing the future with project condition to the future without project condition, the average aesthetic impact of the future with project condition to landform is -0.50 (Figure 3-16).

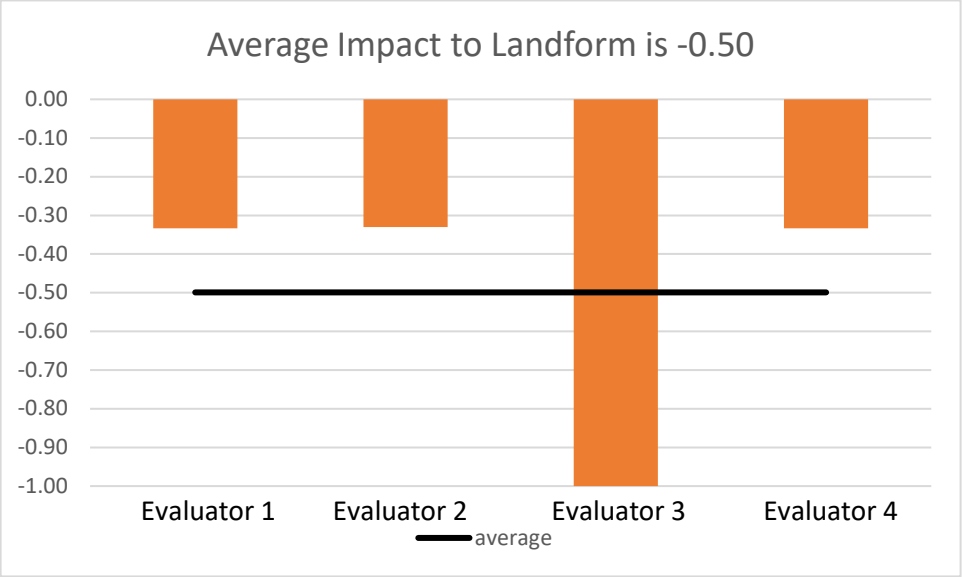

Figure 3-16. The Average Impact to Landform is -0.50

Though individual opinions vary, evaluators found that for landform a consistent impact is the spatial dominance of the sea wall, with the wall only being somewhat compatible and having a moderate scale contrast (Table 3-4).

Table 3-4. Modifier Ratings of the Project Relative to Landform

LANDFORM	Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Majority Rating
Compatibility	Compatible	Somewhat Compatible	Not Compatible	Somewhat Compatible	Somewhat Compatible
Scale Contrast	Minimal	Moderate	Severe	Moderate	Moderate
Spatial Dominance	Subordinate	Dominant	Dominant	Dominant	Dominant

VIA Team discussion highlighted the impacts from spatial dominance, compatibility, and scale contrast.

Compatibility. In general, the wall is only somewhat compatible due to the interference with the broad nature of a coastal landform. For example, Lockwood Drive and the Wagener Terrace public viewpoint lose the open, panoramic view. The project is compatible with the coastal landform at the High and Low Battery Wall because people would be able to walk on it and still see/experience the coastal landform. Compatibility with landform at the Exchange St. entry to Waterfront Park is somewhat compatible if designed with a harmonious gate. The wall is compatible when viewed from MPDP.

Scale Contrast. Scale contrast is minimal to moderate for the coastal landform at the High and the Low Battery, as well as at MPDP. The scale contrast is moderate at the Exchange St. entry to Waterfront Park, due to the coastal landform here already having multistory buildings downtown. At Lockwood Drive the scale contrast is moderate to severe due to also having multi-story buildings across the street, and the addition of a path on the

wall helps break up the scale. At the Wagener Terrace public viewpoint, the scale contrast is severe due to the interruption of the open panoramic nature of the coastal landform.

Spatial Dominance. The wall takes up a great part of the coastal landform, blocking views that were previously wide and sweeping. In some cases it becomes the view. For example, Lockwood Drive where the view of the coastline is entirely blocked for vehicular traffic. At the Wagener Terrace public viewpoint, and places where the wall is in the water, you may be able to see the near coastline, but the view of the coastline across the water is lost. An exception to this is locations where there is a gate that is open, such as at the Exchange St. entry to Waterfront Park. Or where you're able to walk on the wall, such as the High and the Low Battery walls.

3.3.4 Impacts to Vegetation

The vegetation in a project study area can be evaluated in three general ways: cover, diversity, and seasonal change. The ability to observe seasonal change is dependent upon timing and was not an influential factor in this evaluation. Vegetation cover and diversity varies by location, and were the main factors influencing this evaluation. When comparing the future with project condition to the future without project condition, the average aesthetic impact of the future with project condition to vegetation is -0.50 (Figure 3-17).

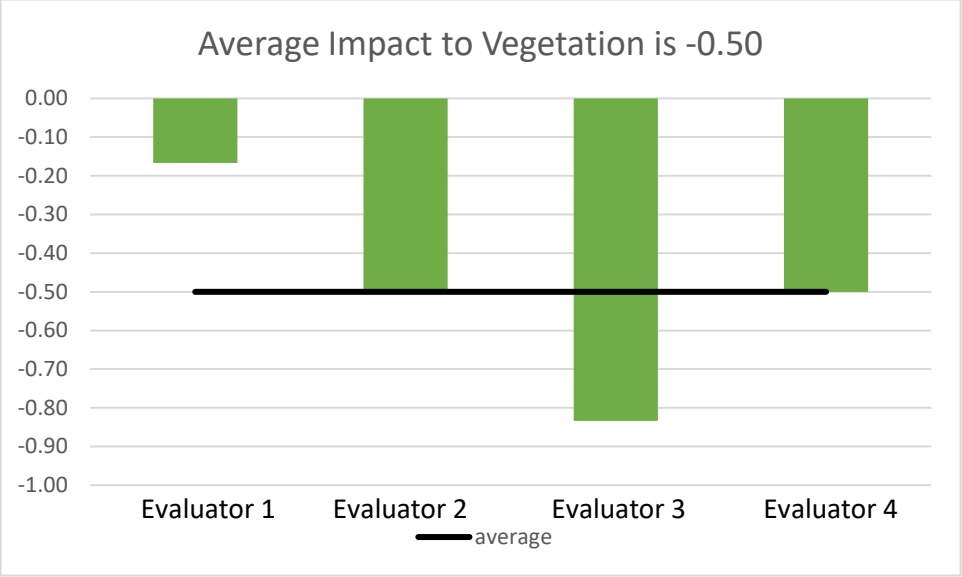

Figure 3-17. The Average Impact to Vegetation is -0.50

Though individual opinions vary, evaluators found that for vegetation a consistent impact is the spatial dominance of the sea wall (Table 3-5).

Table 3-5. Modifier Ratings of the Project Relative to Vegetation

VEGETATION	Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Majority Rating
Compatibility	Compatible	Compatible	Not Compatible	Compatible	Compatible
Scale Contrast	Minimal	Minimal	Severe	Minimal	Minimal
Spatial Dominance	Compatible	Dominant	Dominant	Dominant	Dominant

VIA Team discussion highlighted that spatial dominance is not always the only or main impact.

Compatibility. Compatibility with vegetation isn't changing in some places but is in others. People's ability to enjoy vegetation cover and diversity is going to be similar with project and without project at the High and Low Battery walls, and MPDP. At the Exchange St. entry to Waterfront Park, assuming the mature trees there now

are retained/replaced, and a gate is in place to allow a view into the park through it, then the compatibility is largely unchanged. At Lockwood Drive and the Wagener Terrace public viewpoint the wall is not compatible, due to the loss of connection with the marsh and open views of vegetation across the water.

Scale Contrast. The scale contrast with vegetation was minimal overall, but with variability from place to place. At the High and Low Battery walls it was minimal because these places do not currently have much vegetation cover. From MPDP the wall is of a minimal scale relative to everything else, including the vegetation that stands behind it. The scale contrast at the Exchange St. entry to Waterfront Park is moderate relative to the existing mature trees – this assumes a way is found to retain/replace the trees. At Lockwood Drive and the Wagener Terrace public viewpoint, the scale contrast is moderate to severe and severe, respectively, as described in the water and landform paragraphs.

Spatial Dominance. The High and Low Battery walls are examples of where the wall is co-dominant with vegetation. At the Exchange St. entry to Waterfront Park the wall is co-dominant with the existing mature trees, assuming they can be retained/replaced, and the addition of a gate also helps. From MPDP the wall appears subordinate to vegetation. Lockwood Drive is where the wall is especially dominant to vegetation, with plans at the time of assessment indicating a removal of trees on the west side of the street. That tree removal being a significant impact in addition to the already significant impact of the views of the marsh and vegetation across the river being blocked. However, the path on the wall at Lockwood would help regain those views for people able to get on the path. Similarly, the wall is dominant at the Wagener Terrace public viewpoint.

3.3.5 Impacts to User Activity

The user activity, or human behavior, in a project study area can be evaluated in terms of kind (the variety of activities), use (the number of participating people), and degree or intensity (the frequency of the activity). User activity in this project study area often includes vehicular traffic both on water (motor and sail boats) and on land (cars, trucks, motorcycles), as well as people out individually or in groups, often by foot and sometimes bicycle, engaged in recreational activities as well as daily life tasks. When comparing the future with project condition to the future without project condition, the average aesthetic impact of the future with project condition to user activity is -0.17 (Figure 3-18).

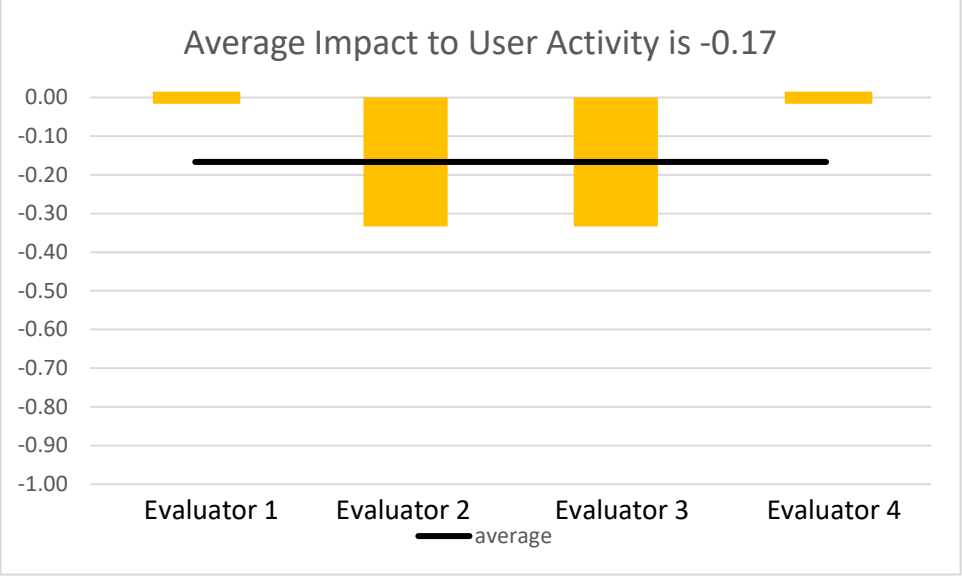

Figure 3-18. The Average Impact to User Activity is -0.17

Though individual opinions vary, evaluators found that for user activity a consistent impact is the spatial dominance of the sea wall, with the wall only being somewhat compatible (Table 3-6).

Table 3-6. Modifier Ratings of the Project Relative to User Activity

USER ACTIVITY	Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Majority Rating
Compatibility	Compatible	Somewhat Compatible	Not Compatible	Somewhat Compatible	Somewhat Compatible
Scale Contrast	Minimal	Moderate	Severe	Minimal	Minimal
Spatial Dominance	Subordinate	Dominant	Dominant	Dominant	Dominant

VIA Team discussion highlighted the impacts from spatial dominance and compatibility, as well as impacts with scale contrast.

Compatibility. The Wagener Terrace public viewpoint is an example of where the wall is not compatible. The current user activity there is to utilize a bench in the public right of way to visually connect with the coastal landform, water, and vegetation. The wall as currently planned wouldn't allow that activity. At Lockwood Drive the experience for vehicular traffic is entirely changed with views lost. If there is a path on the wall at Lockwood Drive, as is currently planned, then the user activity currently happening on the sidewalk could happen on the wall, though as currently planned the extent of the path on the wall is shorter than the current sidewalk and potentially more difficult to access, therefore only somewhat compatible. A gate at the Exchange St. entry to Waterfront park helps the wall be somewhat compatible with user activity there. Activity at the High and Low Battery walls, and at MPDP, would be unchanged.

Scale Contrast. At the High and Low Battery walls the impact of scale for user activity is minimal, in terms of kind, use, and degree or frequency. User activity at the Wagener Terrace public viewpoint is severely impacted by the scale of the wall, as currently planned. At Lockwood Drive the scale contrast has a moderate impact to user activity overall in that the experience in a vehicle is changed significantly, but with a path on the wall the user activity currently on the sidewalk, i.e., pedestrians, can move up on the path and is therefore a less significant change. The scale contrast minimally impacts user activity at the Exchange St. entry to Waterfront Park and has no impact at MPDP.

Spatial Dominance. User activity (ped/bike) at Lockwood Drive is significantly impacted by the dominance of the wall (dominant) as currently planned. The path on the wall is shorter and narrower, with limited access points and elevation changes that have to be navigated, and though this is better than not having a path, the impact of the wall is still significant. Additionally, the spatial dominance of the wall at Lockwood causes all views of the water, landform, and vegetation to be lost to the abundant vehicular traffic. The wall at the Wagener Terrace public viewpoint is dominant and, as indicated previously, the experience at the public bench would change. With gate access providing some relief, the wall is co-dominant at the Exchange St. entry to Waterfront Park. The wall is subordinate to user activity at the High and Low Battery walls, and at MPDP.

3.3.6 Impacts to Land Use

For the purposes of aesthetic assessment, land use refers to the observable characteristics of how land is used to support various human activities. Examples of land use types are industrial, commercial, residential, agricultural, recreational, and undeveloped. Note that this is based on what is observable in the field, not land use plans. The peninsula has many land use types, but those observed included urban and suburban intensities of residential and residential/commercial mix with a public park, recreational walkway, or public right-of-way amenity present or very close. Mostly local or secondary streets were the access, but a heavily trafficked primary street was a key access and land use in one observed location. When comparing the future with project condition to the future without project condition, the average aesthetic impact of the future with project condition to land use is -0.13 (Figure 3-19).

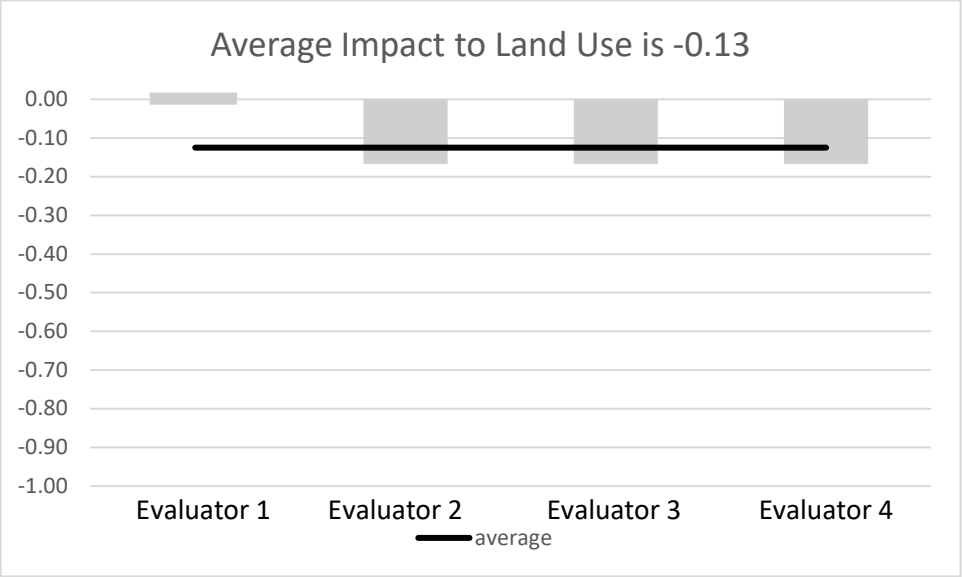

Figure 3-19. The Average Impact to Land Use is -0.13

Though individual opinions vary, evaluators found that for land use a consistent impact is the spatial dominance of the sea wall, with the wall only being somewhat compatible (Table 3-7).

Table 3-7. Modifier Ratings of the Project Relative to Land Use

LAND USE	Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Majority Rating
Compatibility	Compatible	Somewhat Compatible	Not Compatible	Somewhat Compatible	Somewhat Compatible
Scale Contrast	Minimal	Moderate	Severe	Minimal	Minimal
Spatial Dominance	Subordinate	Dominant	Dominant	Dominant	Dominant

Compatibility. Sites selected were civic amenities with iconic views in mixed use urban environments (High and Low Battery walls, Lockwood Drive, the Exchange St. entry to Waterfront Park), or civic amenities with iconic views in residential urban/suburban land use types (the Wagener Terrace public viewpoint, Melton Peter Demetre Park). Industrial and other land use types were not evaluated. Overall, based on the sites evaluated, the wall is somewhat compatible with mixed use, residential, and recreational land use types, dependent upon location. For example, the wall is compatible with land use at the High and Low Battery walls, and MPDP. The wall does not change land use at Lockwood Drive or the Wagener Terrace public viewpoint, but due to the degree of change in the landscape the wall may affect the land uses in these locations in ways difficult to predict. The wall is only somewhat compatible with the land use at the Exchange St. entry to Waterfront Park due to visually disconnecting the park from the mixed-use urban environment, though the gate does help keep the wall from being not compatible.

Scale Contrast. The change in scale relative to land use is minimal for the High and Low Battery walls and MPDP due to being on the wall or to viewing it from a distance. The change in scale relative to land use is moderate at Lockwood Drive and the Exchange St. entry to Waterfront Park due to multi-story buildings nearby, though the change is more noticeable at Lockwood because the baseline view is more open and panoramic than the one at Exchange St. The change in scale relative to land use is severe at the Wagener Terrace public viewpoint due to the change from a panoramic view of a coastal landscape to a large wall in the midground.

Spatial Dominance. The wall is subordinate to land use at the High and Low Battery walls and MPDP due to being on the wall or to viewing it from a distance. The wall is co-dominant with land use at the Exchange St. entry to Waterfront Park due to the multi-story buildings nearby. The wall is dominant relative to land use at Lockwood Drive, and at Wagener Terrace due to changing a panoramic view of a coastal landscape to one of a large wall.

3.3.7 Technical, Institutional and Public Considerations

As noted above, a determination of the significance of an adverse impact involves consideration of technical, institutional (laws and policies that affect visual resources), and public (expressed public perceptions of visual impacts) factors. As a general matter, USACE recognizes that aesthetic resources in and around the Charleston Peninsula are an integral part of the community's life and character and that addressing these resources with care is in the public interest.

Regarding institutional factors, the authority to consider measures to preserve and enhance scenic and aesthetic qualities in the vicinity of water resource projects was granted by Section 232 of WRDA 1996 (P.L. 104-303), Scenic and Aesthetic Considerations. ER 11-5-2-100, C-5, refines the parameters of this authority to provide for cost-shared mitigation for adverse effects to significant aesthetic resources subject to a disciplined and reasonable approach. The Charleston Peninsula is considered to be in the Preservation class due to the heavy concentration of historic sites, structures, and districts there, as well as the distinctive scenic values it offers. The historic and cultural resource values are addressed elsewhere in this FR/EIS, along with Federal and local laws and regulations which protect them. Aesthetic and scenic values more broadly are also recognized and protected in local law and legislation. For example, the City of Charleston's Design Review Board states that the purpose of its design reviews is "to establish a review process that will protect and improve the visual and aesthetic character and economic value of development within the City of Charleston" https://www.charleston-sc.gov/294/Design-Review-Board-DRB (last visited September 1, 2021). Additionally, the City of Charleston prepared and published the *Charleston Peninsula 3x3x3 Civic Design Opportunities For Preliminary Engineering and Design, Fall 2021* report <https://www.charleston-sc.gov/AgendaCenter/ViewFile/Agenda/_10212021-6933>.

Public perceptions of the Charleston Peninsula's aesthetic resources are evident in that the city is a top tourist destination. As the City of Charleston's Tourism Management Plan (2015) recognizes, "Charleston's unmatched array of 18th and 19th century architecture and its harmonious streetscapes have long been a draw for visitors." The College of Charleston's Office of Tourism and Analysis, Annual Report 2018-2019, notes media coverage where Condé Nast named Charleston the top US city for an 8th consecutive year, and that tourism has an annual economic impact on the greater Charleston area of about $7.4 billion, employing 40,000 workers. Additionally, along with impacts to historic and cultural values, aesthetic or visual impact was a common concern of comments received in response to the draft FR/EA released in April 2020.

3.3.8 Summary of Aesthetic Impacts

Because the preliminary VIA Value is - 1.80 for a landscape that is preliminarily identified as in the Preservation Class, and considering the relevant institutional and public considerations identified above, the VRAP identifies the impact as significant if not mitigated. The findings made during this study for each of the resources that contributed to the VIA Value and the determination of a significant impact were presented throughout Section 3.3 and are summarized below.

Project Impacts

Implementation of a storm surge wall under Alternative 2 would result in a permanent landscape feature, leading to the following changes in visual resources. The wall is typically dominant and often only somewhat compatible due to Charleston being a coastal landscape commonly holding panoramic views of water. The wall, being an enclosure by nature, often blocks these views and becomes a dominant feature in a now enclosed landscape. The wall is characterized as only somewhat compatible because in many places it disrupts

the current harmony with the coastal landform, causing the broad and open experience currently available to be lost. In at least one location what would change is a non-touristic view freely available to the public in a residential neighborhood, though with aesthetic mitigation something comparable could be regained. In another instance a near-panoramic view of the Ashley River and coastal landform that is commonly appreciated by vehicular traffic on Lockwood Drive would be lost and may be irreplaceable, though a path on the wall in this location is planned to provide something comparable for pedestrians.

However, the impact of the wall would include beneficial as well as adverse effects. Although Alternative 2 may significantly impact aesthetic resources as outlined above, construction of the new storm surge wall would provide protection to the Peninsula's abundant aesthetic resources and built environment, as well as protect access to these resources. A more resilient peninsula will not only have a reduced risk of damage due to storm surge, but will also be enabled to achieve more rapid recovery from severe storms that strike the peninsula. The No Action/Future Without Project Alternative would have none of these beneficial effects.

Construction Impacts

Construction impacts may occur with construction of the storm surge wall and associated features. The impacts to aesthetic resources are anticipated to be the same as impacts to other environmental and cultural resources, which are described in Chapter 6 of the main report.

4.0 CONCLUSIONS

To have no overall adverse impact for a zone preliminarily identified as in the Preservation Class, the VIA Value needs to be a 0 or greater. At a VIA Value of - 1.80, and in light of the relevant institutional and public considerations, the preliminary assessment has found aesthetic impacts to be significant. These conclusions are preliminary because effort would be ongoing during PED. Because this score is within 2 points of the target score, impacts are anticipated to be able to be addressed and mitigated by the PDT during PED.

As previously noted, final evaluation of aesthetic resources will occur prior to construction during the PED phase and will incorporate public input - assuming authorization of a project and the availability of funds. At that time, the aesthetic resources assessment would address the optimized plan as presented in the main report and summarized below.

4.1 The Recommended Plan

- **Storm surge wall along the perimeter of the Peninsula**: The storm surge wall would be constructed along the perimeter of the peninsula to reduce damages from storm surge inundation. On land, the storm surge wall would be a T-wall with traditional concrete stem walls and pile supported bases. In the marsh, the storm surge wall would be a combination wall (combo-wall), which consists of continuous vertical piles on the storm surge side and battered pipe piles on the other side, connected by a concrete cap. The length of the proposed wall is approximately 8.7 miles (1.5 miles of T-wall and 7.2 miles of combo-wall). It would be strategically aligned to minimize impacts to existing wetland habitat, cultural and aesthetic resources, and private property while allowing continued operation of all ports, marinas, and the Coast Guard Station. The wall would tie into high ground as appropriate, including the shoreline at the Citadel and the existing Battery Wall. Due to its age and uncertainty about the integrity of the structure, the High Battery would be reconstructed to meet USACE construction standards and raised to provide a consistent level of performance. The proposed elevation of the storm surge wall is 12 feet North American Vertical Datum of 1988 (NAVD88).

  The alignment of the wall displayed in Figure 4-1 has been optimized to minimize costs and impacts to the study area. Changes to the alignment may occur during the Pre-construction Engineering and Design (PED) phase as appropriate. Drivers of the potential changes include, but are not limited to, new developments in technology or construction methodologies, results of additional engineering analyses, unforeseen cultural and historic resources, the presence of buried utilities not discovered during feasibility, and real estate acquisition challenges. Also, during the PED phase, changes will occur for the purpose of aesthetic and cultural mitigation that could not be identified during the feasibility study because they inherently relate to detailed designs.

  The storm surge wall would include multiple pedestrian, vehicle, railroad, and storm (tidal flow) gates. Typically, the gates would remain open, and gate closure procedures would be initiated based on storm surge predictions from the National Weather Service. When major flooding is expected, storm gates would be closed at low tide, to keep the rising tide levels from taking storage needed for associated rainfall. For the vehicular, pedestrian, and railroad gate closings, timing of the closure would be dependent on evacuation needs and the anticipated arrival of rising water levels that close transportation arteries. Gate operation procedures would be refined during the PED phase with input from the City of Charleston, emergency management experts, and weather experts. Specific responsibilities of the non-Federal sponsor regarding execution of work will be described in the Project Partnership Agreement, a legally binding document between the Federal Government and the non-Federal sponsor, as well as the operations, maintenance, repair, replacement, and rehabilitation (OMRR&R) manual.

    - **Interior Drainage Facilities:** Preliminary interior hydrology analyses indicate that five temporary and five permanent, small to medium hydraulic pump stations are justified per ER

1105-2-100, Section 3-3.b.(5). The pump facilities would mitigate interior flooding caused by the storm surge wall.

- **Natural and Nature Based Features**: In association with the storm surge wall, approximately 9,300 feet of oyster reef-based living shoreline sills would be constructed as a minimization measure to reduce impacts to natural shorelines and other resources seaward of the wall. The living shoreline sills would reduce marsh scour at the proposed storm surge wall and reduce erosion of the shoreline edge. The living shorelines would also provide other environmental benefits. The reef-based living shoreline materials/design would be determined during the PED phase.

- **Nonstructural measures:** In residential areas where construction of the storm surge wall would be impracticable due to the topography of the peninsula or other existing constraints, nonstructural measures such as elevations and floodproofing could be applied. Neighborhoods that have been identified for nonstructural treatment include Lowndes Point on the north-western edge of the peninsula, Bridgeview Village on the north-east edge of the peninsula, and the Rosemont community in the Neck Area of the peninsula. Approximately 100 structures have been identified for nonstructural treatment and the minimum proposed design elevation is 12 ft NAVD88. Wet floodproofing measures, such as elevation of utilities, would be applied in the Lowndes Point area because residential structures are already elevated above 12 feet NAVD88. Dry floodproofing measures would be applied to Bridgeview Village and floodproofing or elevation measures would be applied to the Rosemont neighborhood due to the nature of the construction materials and techniques used in these communities. Higher design elevations will be considered during the PED phase because the nonstructural measures are not limited by the same topographic and infrastructure constraints as the storm surge wall.

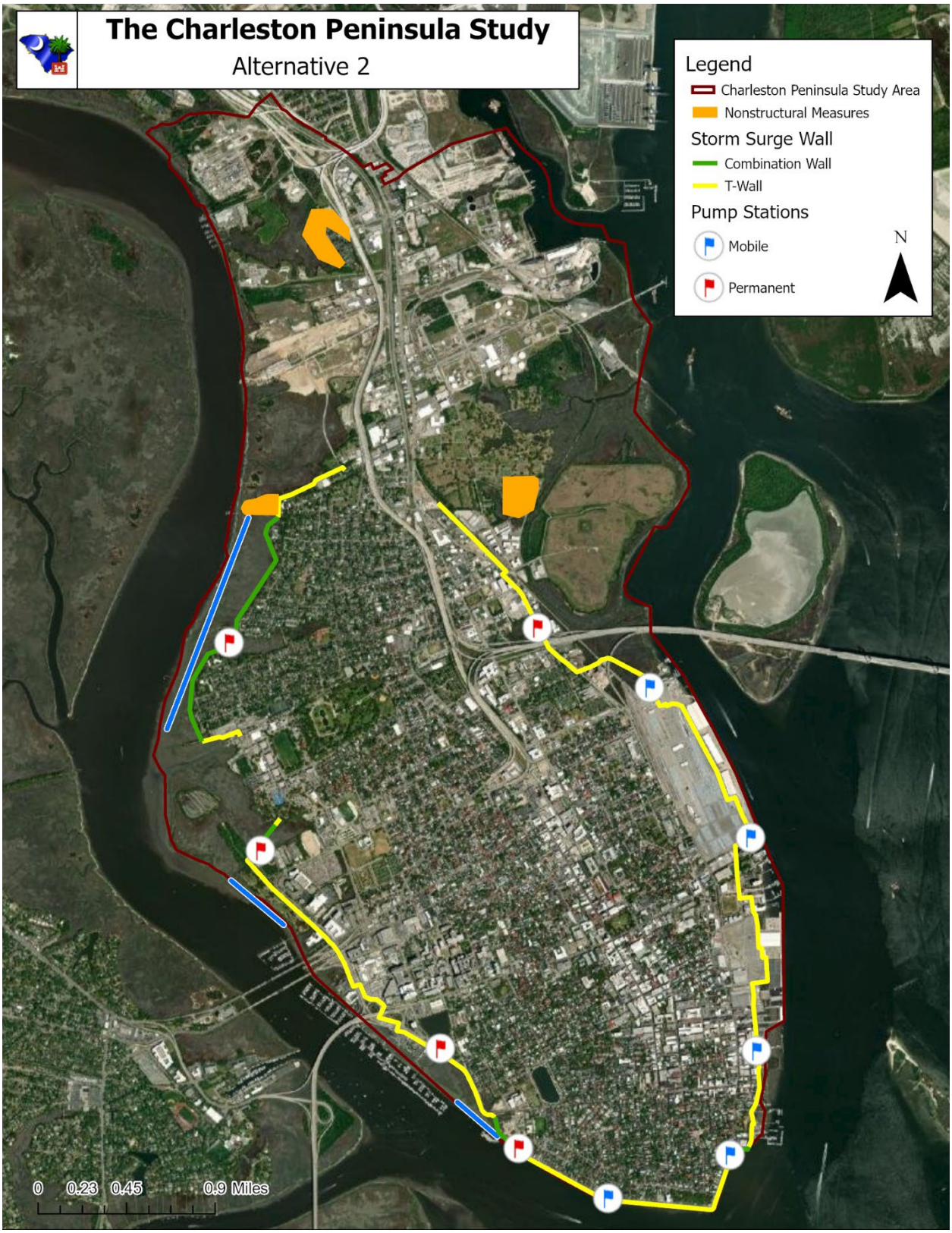

Figure 4-1. The Charleston Peninsula Study Recommended Plan

Once the PED phase is entered the VRAP would be continued and would inform mitigation and the refinement of the project. As the VRAP is continued and completed, the MCS Class may be further refined, and as the project is designed effort would be taken to design for the appropriate VIA Value.

4.2 Mitigation of Aesthetic Impacts

USACE is committed to further considering the mitigation of significant impacts to significant aesthetic resources in its design of the storm surge barrier and other project features during the PED phase. "*Mitigation*" with regard to effects on aesthetic resources refers to avoidance, minimization, rectifying, reducing or eliminating, or compensating for adverse impacts. The VRAP identifies that the visual quality objectives to pursue include the following:

- to identify the visual elements characteristic of the landscape;
- to identify ways to borrow at least partly from visual elements of the surrounding landscape;
- to identify ways that contrast can be reduced unless the recommended plan (in this case the Tentatively Selected Plan, which is Alternative 2) has symbolic value, informative significance, and/or creative design that cause contrast to be a desirable characteristic;
- to identify the aesthetic impacts to the landscape; and
- to identify if mitigation may be necessary to assure compatibility.

There are many ways the aesthetic impacts of the project could be mitigated, such as:

- storm surge barrier design such as the ability to walk on top, or near the top, of the wall in order to regain panoramic views;
- gate placement that provides relief to the dominance of the wall, or enhances its compatibility;
- alignment improvements such as locating/relocating the wall close to other existing dominant features or features of a large scale, so that the wall's relative dominance is more subordinate;
- design for the ability to double as civic amenity and/or user-activated space;
- integration of public art or landscape features for enhanced community experience, some of which may also assist with reducing scale contrast;
- contextualization of design and materials to specific locations;
- high-quality construction materials; and
- use of vegetation, such as trees that are large at maturity, to provide features that are potentially co-dominant.

ER 1105-2-100, C-5 provides guidance that the levels of project costs for aesthetics during the PED phase should remain consistent with those projected during the feasibility phase. This is challenging because, due to its interwoven nature with engineering design activities typically undertaken during PED, aesthetic mitigation has not been identified and evaluated during feasibility. Identification and evaluation of aesthetic mitigation is scoped to occur during PED alongside engineering design activities.

However, in order to provide a cost estimate during the feasibility phase, a rough order of magnitude cost estimate for aesthetic mitigation was developed by a USACE Civil/Structural Engineer working in collaboration with a USACE Landscape Architect and Urban Designers from the City's Civic Design Center. Though several ways of cost estimating were candidates, due to time constraints, cost per linear foot was developed by USACE as a percentage of the cost of construction for the flood barrier, with consideration given to the kinds of mitigation likely to be needed in different areas. The worksheet used to develop the rough order of magnitude cost estimate is provided in Table 4-1.

The aesthetic mitigation cost estimate was put through cost risk analysis as described in the Cost Engineering Sub-Appendix. The resulting aesthetic mitigation cost estimate included in the Alternative 2 cost estimate is approximately $60.5M.

Federal funding for aesthetic mitigation is subject to reasonable limits and may not provide for the cost sharing of some aesthetic measures desired by the City. The VRAP method provides a way for USACE to determine what is reasonable. Note that any aesthetic mitigation proposed during PED may need additional NEPA documentation, the need for which will be determined at that time.

If the City desires an aesthetic measure beyond what is determined reasonable by the USACE to mitigate adverse impacts, then the City may elect to pursue any aesthetic measure through betterments that are funded 100% by the City. These betterments will need to meet the goals and objectives of any Chief's Report resulting from the Charleston Peninsula Coastal Storm Risk Management Study and cannot compromise the engineering integrity or environmental compliance of a proposed project.

Table 4-1: Rough Order of Magnitude Estimate of Cost for Aesthetic Mitigation

Charleston Peninsula Coastal Flood Risk Management Study - Rough Order of Magnitude Estimate of Cost for Aesthetic Mitigation									
MA	Foundation	Typeofwall	Shape__Length	Startstation	Endstation	Description	**Cost / LF**	**Total Aesthetic Cost**	Examples of Aesthetic Mitigation
Marina	land	T-Wall	174.96	0+00	1+74.96	Citadel	1000	$174,960	Ped / bike friendly, palm trees, berms, grade changes, access, stairs / ramps, sidewalks, retain/replace water view (eg if unable to adequately mitigate aesthetic resources lost on Lockwood, may need to be replaced/regained elsewhere on project), vegetation
	marsh	combo wall	807.53	1+74.96	9+82.49	citadel to joe	1500	$1,211,302	
	land	Twall	6777.51	9+82.49	77+60.	Brittlebank to Marina	1500	$10,166,258	
	land	T-Wall with walkway	2213.03	77+60.	99+73.03	Marina to Lockwood/Broad	2000	$4,426,057	
	marsh	combo	866.35	99+73.03	108+39.38	coast guard dock (rebuilt)	0	$0	
MA total			10839.38						
Battery	land	T-Wall	4722.93	108+39.38	155+62.3	new city wall - low battery	500	$2,361,463	Peds currently access beach behind wall at low tide - retain access. eg, current conceptualized void filled w/ rocks may instead be usable space w/ beach access
	land	T-Wall	1342.68	155+62.3	169+04.98	high battery	2500	$3,356,689	
MA total			6065.60						
Port	marsh	combo wall w/backfill	510.10	169+04.98	174+15.08	off high battery and CYC	1500	$765,154	Potential realignment and/or removable wall, ped / bike friendly, vegetation, stairs / ramps, berms, grade changes, access, preserve or replace trees/allee
	land	T-Wall	2717.20	174+15.08	201+32.29	CYC -waterfront park	1500	$4,075,804	
	land	T-Wall	9941.39	201+32.29	300+73.68	Lowes Hotel -thru port	500	$4,970,697	
MA total			13168.70						
Newmark	land	T-Wall	3875.16	300+73.68	339+48.84	newmarket	500	$1,937,580	Minimize impacts to aesthetic resources, eg design ped / bike friendly, alignment refinement, consideration of gates, compatible wall articulation and contextual materials, preserve or replace trees
	land	T-Wall	3198.36	339+48.84	371+47.2	newmarket	500	$1,599,180	
	land	T-Wall	40.06	371+47.2	371+87.26	Upper new market	500	$20,030	
MA total			7113.58						
Wagner	land	T-Wall	825.00	0+00	8+25.	Diesel Creek	500	$412,500	Retain/replace existing views of and across the water by accommodating ped / bike access to and potentially on the wall, include lookout/rest points, comfort and safety features such as lighting and shade, also bike / ped connectivity and consideration of gates that support bike / ped connectivity
		combo wall	540.00	8+25	13+65.		500	$270,000	
		T-Wall	675.00	13+65	20+40.		500	$337,500	
	marsh	combo wall	2897.69	20+40.	49+37.69	Upper Wagner Terrace	500	$1,448,845	
	land	T-Wall	75.27	49+37.69	50+12.96	park	500	$37,635	
	marsh	combo wall	3043.80	50+12.96	80+56.76	Halsey to lower WT	500	$1,521,900	
	land	T-Wall	979.70	80+56.76	90+36.46	Citadel	500	$489,850	
MA total			9036.46						
Totals			46223.72					$39,583,404	
						Aesthetic mitigation is scoped to be identified and evaluated during PED. That effort is estimated to cost:		$5,585,760	
							Subtotal:	$45,169,164	
							34% Contingency:	$15,357,516	
							Total Aesthetic Mitigation Cost Estimate:	***$ 60,526,680***	

The examples provided here are some things the PDT would likely consider, but are not prescriptive, nor meant to exclude other possibilities.
This rough order of magnitude cost estimate for aesthetic mitigation was developed collaboratively by a civil/structural engineer, a landscape architect, and an urban designer.
Though several potential cost estimating methods were candidates, due to time constraints cost per linear foot was developed as a percentage of the cost of construction for the flood barrier.

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5.0 GLOSSARY

Absolute Scale

The absolute size of an object obtained by relating the size of the object to definitely designated (i.e., measured) standard.

Accessibility

The degree to which a resource can be approached.

Aesthetic Quality

The distinctive property of a landscape determined by professional, public, or personal values and the intrinsic physical properties of the landscape.

Aesthetic Resources

Those natural and man-made features of the environment that can be perceived by the senses, that is, what is seen and what is perceived by the other senses. Aesthetic resources elicit one or more sensory reactions and evaluations by the observer, particularly in regards to their pleasurable effects. Aesthetic resources include the combination of what can be perceived at a particular site. This involves the unified combination of water resources, landforms, vegetation, and user characteristics at a site. An aesthetic resource may be a particular landscape, viewshed, or view.

Atmospheric Conditions

Fog, precipitation, pollution, and other ambient-air related conditions, which affect the visibility of an object or objects. These conditions can greatly impact the visual perceptions of the landscape components, e.g., vegetation and the perceptions of the design elements of form, line, color, texture, and scale.

Attribute

The ecological, cultural, and aesthetic properties of natural and cultural resources that sustain and enrich human life, as defined and used by the Environmental Quality Procedures (US Water Resources Council 1983a*).

Average

A resource or activity that is common in the area and not known for its uniqueness, but rather as a reflection of the norm of the area.

Background

The distance in the landscape where elements lose detailed distinctions. Emphasis is on the outline or edge of one land mass or water resource against another with a strong skyline element (refer to Distance).

Basic Procedure

A Visual Impact Assessment Procedure that is a thorough process used for typical projects with low to moderate visual impact potential and relatively little controversy.

Canopied Landscape

A landscape covered or bridged by an overhead plane (e.g., branching of vegetation or man-made objects).

Color

The phenomenon of reflecting light of a particular intensity and wavelength (as red or green) to which the eye is sensitive.

Detailed Landscape

A vista that involves the immediate foreground which demands attention and is known for its detailed attributes.

Detailed Procedure

The Visual Impact Assessment Procedure used for projects that are unique, controversial, and likely to cause a significant visual impact. It is a more sensitive and extensive process than the Basic Procedure.

Distance

The spatial separation between an observer and subject (i.e., visual); categorized as foreground, middleground, and background.

Distinct

A resource or activity that is considered unique and an asset to an area. It is typically known as a visual/aesthetic draw and/or has many distinctive attributes. Diversity and compatibility are characteristics in such a resource.

Diversity

The condition of having a variety of characteristics or elements.

Ecoregions

A physiographic area of land that is classified by similarity of land-surface form, climate, vegetation, soils, and fauna.

Enclosed Landscape

An area in which the spaces are surrounded or enveloped by groupings of objects or by continuous objects.

Ephemeral Landscape

An area that lasts only briefly because of atmospheric and/or hydrological conditions, e.g., flood riparian area or wetland project, displaced/windblown objects and/or indirect/direct signs of wildlife.

Featured Landscape

An area dominated by one or a group of outstanding objects that serve to orient the observer.

Focal Landscape

An area characterized by the convergence of its elements; the emphasis of such a landscape is placed at the point of convergence.

Foreground

The area that can be designated with clarity and simplicity not possible in middle and background because the observer is a direct participant. Maximum detail and color intensity are characteristic of this zone. (Refer to Distance.)

Form

The mass or shape of an *object* that appears unified; often defined by edge, outline, and surrounding space.

General Procedure

The Visual Impact Assessment Procedure used to evaluate studies that are preliminary or broad in scope, such as a Reconnaissance or basin study.

Harmony

The combination of parts into a pleasing or orderly whole; a state of agreement or proportionate arrangement of form, line, color, texture, and scale.

Landscape

Landform, water, and landcover forming a distant visual pattern; an expanse of natural and man-made scenery seen by the eye in one view.

Landscape Compatibility

The degree to which landscape elements/characteristics are unified within their setting.

Landscape Composition

The arrangement of objects and voids in the landscape that can be categorized by their spatial arrangement. Some spatial compositions, especially those that are distinctly focal, enclosed, detailed, or feature-oriented landscapes, are more vulnerable to modifications than panoramic, canopied, or ephemeral landscapes.

Land Use

Various human activities that impact the landscape in a variety of ways. Examples of land use types are industrial, commercial, residential, agricultural, recreational, and undeveloped.

Land Use Intensity

The degree to which a landscape is used by human activities. Examples of landscape intensity are urban, suburban, rural, and wilderness.

Light Direction

The direction from which light strikes a surface. Side lighting is usually the best situation for evaluating visual impacts. It is difficult to judge full visual impact under backlighting or full lighting.

Line

The path, real or imagined, that the eye follows when perceiving abrupt differences in form, color, or textures; usually evident as the edge of shapes or masses in the landscape.

Management Class

The designation given to a landscape resource that reflects its capability to support or assimilate visual impacts caused by projects. The five Management Classes are: Preservation, Retention, Partial Retention, Modification, and Rehabilitation.

Middle Ground

This is the distance in the landscape where elements begin to join. Conflicts of form, color, shape, or scale become evident. Although colors are unmistakable, they appear softer and bluer. Visual detail is also lessened. (Refer to Distance.)

Minimal

A resource or activity that may be looked upon as a liability in the area. It typically lacks any positive attributes and may actually diminish the quality of surrounding areas.

Modification Class

Landscape areas included in this class are not noted for their distinct qualities and are often considered common. Their use is moderate to heavy and typically not directly related to the visual resources of the areas. Management activities in these areas will cause visual change, but design and planning should recognize the need for visual compatibility, and the project itself should not dominate the resource.

Motion

The movement of visual resources, man, or objects in the landscape.

Observer Angle

See observer position.

Observer Position

The relationship between the location of the observer and the landscape that is being observed and how it affects the perception of the resource. The three viewer positions are inferior, normal, and superior.

Panoramic Landscape

A landscape with an unlimited, unobstructed view in all directions.

Partial Retention Class

Landscape areas included in this Management Class are often looked upon highly by local populations, but may not be protected by laws or institutional measures. Use in these areas are typically moderate and diverse. Management activities may cause visual change but should retain visual compatibility with the existing landscape. Changes that take place during the implementation of an activity must be unnoticeable within a year.

Preservation Class

Landscape areas included in this Management Class allow only ecological and natural change to occur. These areas are often protected by institutional policies. Use of the area is typically limited to off-road activities and may be low. Any Management activity in these areas must not be visible.

Rehabilitation Class

Landscape areas included in this Management Class have suffered from previously poor management practices. Use in these areas is typically low or nonexistent, and the area is often considered a misfit or blighted area. Project features that enhance the resource would be included for project in areas in this class.

Relative Scale

The apparent size relationship between landscape components and their surroundings.

Retention Class

Landscape areas included in this Management Class are considered unique and distinct. Use in this area is typically moderate to low. Any management activity that would increase that use may be detrimental to the quality of the zone. These activities must also remain virtually unseen. Any changes taking place during the implementation of a project should be unnoticeable when the project is completed.

Scale Contrast

The difference in absolute or relative scale in relation to other distinct objects or areas in the landscape.

Seasonal Change

Change brought about by seasonal variation (i.e., vegetation color, density of foliage) that may affect visual perception of an area.

Similarity Zone

A physiographic area of land that has common characteristics of ecoregions, land use, land use intensity, and water resources. Similarity Zones are assigned to a specific Management Classification.

Spatial Dominance

The prevalent occupation of a space in a landscape by an object(s) or landscape element.

Temporal Pattern

The change of visual resources or objects in the landscape over time.

Texture

The visual or tactile surface characteristics and/or appearance of an object.

Total Assessment Value

The numerical value that represents the assessment of the visual resources of a Landscape Similarity Zone. The -Total Assessment Value is determined by the Assessment Framework and the inventory of the resources in the Zone. The Total Assessment Value is used to assign a Zone to a Management Class.

Total Visual Impact Assessment Value

The value that represents the combination of the public and professional Visual Impact Assessment Values. The total Visual Impact Assessment Value is calculated in studies where there is a public assessment of visual impacts.

Uniqueness

An object or activity that is unusual or rare.

User Activity

Human behavior that can be evaluated in terms of kind (the variety of activities), use· (the number of participating people), and degree or intensity (the frequency of the activity).

Viewing Angle

The angle at which an object is seen. This angle may affect the perception of that object by: (a) perceptive foreshortening when seen obliquely or at a low viewing angle, thereby reducing apparent sizes of surfaces or areas, and (b) increasing the object's relative scale when seen perpendicularly.

Visibility

The geographic extent of a resource and legibility of its features that can be seen by an observer(s), as determined by his/her location.

Visual Absorption

The physical capacity of a landscape to screen proposed development and still maintain its inherent visual character. The degree of visual penetration and the complexity of the landscape affect this capacity.

Visual Character

The character of a landscape is composed of patterns that consist of elements of form, line, color, and texture.

Visual Compatibility

The degree to which development with specific visual characteristics is visually unified with its setting.

Visual Contrast

The difference in appearance between two (or more) elements and/or an element and its background.

Visual Dominance

That visual objects(s) that exerts the greatest influence on the visual character of the landscape.

Visual Impact

The significance and/or severity of change in visual resource quality as a result of activities or land use changes.

Visual Impact Assessment Value

The value that represents the visual impact caused by implementation of a proposed alternative. The Visual Impact Assessment Value is determined by the change in the landscape components, e.g., water resources.

Visual Quality

The visual significance given to a landscape determined by professional, public, or personal values and intrinsic physical properties of the landscape.

Visual Resource

Those natural and cultural features of the environment that can be potentially viewed.

Visual Resource Considerations

Primary considerations that should be considered prior to implementation of a Visual Impact Assessment Procedure. Institutional, technical, and public factors related to visual quality determine the significance of visual resources and visual impacts.

Visual Sensitivity

The degree of observer interest in visual quality and concern for existing conditions or proposed changes in the landscape.

Visual Vulnerability

An evaluation of a landscape's ability to accept change without diminishing visual quality.

MEMORANDUM OF UNDERSTANDING

BETWEEN THE

UNITED STATES ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT

AND THE

CITY OF CHARLESTON

REGARDING THE ASSESSMENT OF AESTHETIC RESOURCES

FOR THE CHARLESTON PENINSULA COASTAL STORM RISK MANAGEMENT STUDY,

CHARLESTON, SOUTH CAROLINA

This MEMORANDUM OF UNDERSTANDING (MOU) is entered into by and between the U.S. Army Corps of Engineers, Charleston District (hereinafter referred to as the "Corps"), and the City of Charleston (hereinafter referred to as the "City").

ARTICLE I – BACKGROUND

On October 10, 2018, the Corps and the City, as Non-Federal Sponsor, entered into an Agreement for the Charleston Peninsula, South Carolina Study. Among other things, that Agreement generally sets forth the obligations of the parties in the conduct of the Charleston Peninsula Coastal Storm Risk Management Study. The Study is subject to the National Environmental Policy Act (NEPA) which requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions, and provides an overall procedural framework for public involvement and environmental compliance. Among the effects to be assessed under NEPA are those relating to aesthetic or visual resources.

The purpose of the Study is to determine the feasibility of a project to manage the risk of damages to the Charleston Peninsula caused by coastal storm surge flooding. The proposed Project includes, without limitation, structural measures such as storm surge barriers, tide gates, and raising existing walls or barriers, and non-structural measures such as raising buildings, and flood proofing, as well as natural and nature-based features. These measures are expected to result in effects on aesthetic resources within the scope of NEPA. The parties recognize that current Corps policy is to protect aesthetic resources along with other natural and cultural resources, subject to a standard of reasonableness in defining the appropriate level of expenditures for aesthetic quality.

A feasibility level assessment following the methods identified in the Visual Resources Assessment Procedure (VRAP), WES Instructional Report EL-88-1, was completed in September of 2020. The VRAP method consists of two components, a Management Classification System

(MCS), and a Visual Impact Assessment (VIA). Six sites were used to determine the management classification, and another six sites were used as examples to complete the impact assessment for the Project. The results of the VIA Basic Procedure were aggregated to the visual resources of water, landform, vegetation, land use, and user activity to represent the Project as a whole. Note that the VRAP method has options for how it is conducted, and is flexible within those options. For example, the VIA can reference a 'General', 'Basic', or 'Detailed' procedure, dependent upon professional judgement of what is appropriate for a given Project, and/or a given site, and with consideration to budget and schedule limitations.

The Corps and the City anticipate that the assessment of effects on aesthetic resources will extend beyond the feasibility phase of the Project and into any Preconstruction, Engineering and Design (PED) phase. Recognizing that moving into the PED phase is subject to Federal approval and appropriations as well as non-federal cooperation and funding, and further recognizing that the assessment of aesthetic resources is subject to parameters of Federal, State or local law, regulation and policy, both parties desire to plan for and work successfully together to ensure continuity and appropriate priority in the assessment of aesthetic resources in the potential PED phase of the proposed Project. Accordingly, the Corps has invited the City to consult on and sign this MOU.

ARTICLE II – PURPOSE

The purpose of this MOU is to:

- Define "aesthetic resources" and describe the general scope of the "assessment of aesthetic resources";
- Provide a general framework within existing law, regulation and policy for the assessment of aesthetic resources;
- Ensure a common understanding between the parties for their continued cooperative partnership in the assessment of aesthetic resources;
- Identify the general process, roles, responsibilities, limitations, and goals which the Corps and the City recognize for the assessment of aesthetic resources;
- Enable, to the maximum extent practicable, the Corps' and the City's landscape architects, urban designers, architects, or other team members to work in partnership, achieve mutual goals, and leverage resources;
- Facilitate, as appropriate, the engagement of diverse stakeholders and communities to help address the challenges, opportunities, and possibilities associated with the assessment of aesthetic resources for the proposed Project;
- Provide transparency to other parties regarding the intended approach for the assessment of aesthetic resources; and,
- Ensure that the levels of Project costs for aesthetics during the PED phase remain consistent with those projected during the feasibility phase.

ARTICLE III – AUTHORITY

The Corps is entering this MOU based upon: the study authority provided in Section 110 of the Rivers and Harbors Act of 1962 (P.L. 87- 874) and the subsequent 22 April 1988 Senate Committee Resolution, as set forth in Section 1.1 of the final FR/EIS; its authority as lead agency for the assessment of environmental effects under NEPA; authority to address Scenic and Aesthetic Considerations under Section 232 of WRDA 1996 (P.L. 104-303); Paragraph C-5 of ER 1105-2-100 which provides authority to consider aesthetic resources in civil works planning studies; and, consistent with the process outlines in the referenced Visual Resources Assessment Procedure (VRAP), WES Instructional Report EL-88-1.

The City is entering this MOU under the authority of, among other things, SC Code Section 3-7-10 – State and political subdivisions authorized to enter into agreements with United States Government, which authorizes municipalities such as the City to provide, satisfy, or otherwise fulfill items of local cooperation for a civil works project.

ARTICLE IV – LIMITATIONS

This MOU and its provisions are subject and subordinate to, among other things, the following:

- governing provisions of any water resources project agreement for the Study or proposed Project including, without limitation, FCSA, Design Agreement (DA), or Project Partnership Agreement (PPA);
- the Programmatic Agreement Among the United States Army Corps of Engineers, the South Carolina State Historic Preservation Office, the National Park Service, the Advisory Council on Historic Preservation, and the City of Charleston Regarding the Charleston Peninsula Coastal Flood Risk Management Project, Charleston, South Carolina;
- authorization(s), authority, and local cooperation requirements;
- availability of appropriations (including allocation and allotment) or funding; and,
- applicable Federal and local law, regulation and policy.

ARTICLE V – SCOPE

This MOU is intended to address the assessment of aesthetic resources for the Charleston Peninsula Coastal Flood Risk Management Study and proposed Project within the identified Region of Influence for those resources.

A. Definitions as provided in ER 1105-2-100, C-5.

1. "*Aesthetic resources"* are those natural and man-made features of the environment that can be perceived by one or more of the senses, predominantly sight, sound and smell. Aesthetic resources include the unified combination of water resources, landforms, vegetation, and man-made structures or design at or perceived from a site. The visual sense tends to be so predominant in an observer's reaction and evaluation that aesthetic resources are often referred to as visual resources.

2. "*Assessment of aesthetic resources"* encompasses, without limitation, the identification of aesthetic resources and conditions, the assessment of the nature and extent of effects on aesthetic resources, design considerations such as compatibility, and the determination of appropriate mitigation.

3. "*Mitigation*" with regard to effects on aesthetic resources refers to avoidance, minimization, rectifying, reducing or eliminating, or compensating for adverse impacts.

B. *Region of Influence (ROI)*. The ROI or geographic scope for aesthetic resources includes all portions of the peninsula study area where temporary or permanent visual or other aesthetic changes could occur from one or more of the proposed Project measures, and also extends into the viewshed of the Charleston Harbor, the lower Cooper River, and the lower Ashley River.

ARTICLE VI – UNDERSTANDING OF THE PARTIES

A. *Process.* The methods of the Visual Resources Assessment Procedure (VRAP) as described in the WES Instructional Report EL-88-1 will be used to support the identification of aesthetic mitigation, as well as to evaluate whether that aesthetic mitigation is sufficient, not sufficient, or achieving an added benefit. This includes verifying the management classification and completing the visual impact assessment. To the extent practicable, locations along the reach of the Project may be addressed on a site-by-site basis for aesthetic mitigation with any version of the VRAP deemed appropriate. However, in order to determine the overall Project impact relative to what was determined during feasibility, the same six sites assessed during feasibility will be reassessed from the same vantage using the VRAP's Basic VIA Procedure. These six sites include the following: the Low Battery Wall near the terminus of Murray Blvd., the High Battery Wall near the terminus of E. Battery St., Lockwood Drive near the terminus of Wentworth St., the Exchange St. entry to Waterfront Park, the Wagener Terrace public viewpoint near the intersection of 5th Ave. and Saint Margaret St., and Melton Peter Demetre Park from the same view point. Examples of the kinds of places in addition to the original six that could be assessed/mitigated on a site-by-site basis include: A) visual corridors within the peninsula itself where there may be views down to and back up from the waterfront; B) places with high-functioning multi-purpose land uses and an abundance of diverse user activity; C) places where environmental justice is a concern; and D) other as determined appropriate at the time.

B. *Resources.* In addition to using the WES Instructional Report EL-88-1, the Corps and the City of Charleston Planning Department may develop a list of reference documents pertaining to design and aesthetic guidelines and standards relevant to this Project. These resources may be consulted by both parties in the development of the Project.

ARTICLE VII – RESPONSIBILITIES

A. *Partnership.* To carry out each party's responsibilities under this MOU, the Corps and the City will each provide at least one professional qualified in landscape architecture, architecture, or urban design and planning. Qualifications are described in the next paragraph. The Corps' and the City's representative(s) will collaborate on the VRAP assessment, and the City and/or the

Corps may provide mitigation ideas. Relying on the VRAP and utilizing information developed collaboratively, the Corps will determine which mitigation ideas are justifiable. And the Corps' PDT, including other disciplines, will incorporate those which are practicable. This may be an iterative process.

B. *Professional Qualifications.* To carry out each party's responsibilities under this MOU, the Corps and the City will each provide at least one professional qualified in landscape architecture, architecture, or urban design and planning. The minimal professional qualification in each of these fields is a professional degree in the field such as a Master of Landscape Architecture, a Master of Architecture, or a Master of Urban Planning, plus at least two years of full-time experience in landscape architecture, architecture or urban design and planning; or a State license to practice in landscape architecture or architecture. This approach to professional qualifications in the aesthetic resources context aligns with the *Secretary of the Interior's Professional Qualifications Standards* (Federal Register, Vol. 62, No. 119, pp. 33708-33723) which applies in the archaeology and historic preservation context.

C. *Other Disciplines*. To the extent that aesthetic mitigation may change the optimized plan, each party commits to making professionals in other disciplines such as engineering, environmental, economics, cultural resources, and real estate available and engaged as needed. The City and the Corps will endeavor to ensure that persons of the same or closely similar technical profession are available to achieve mutual understanding across organizational lines.

D. *Determination of Mitigation*. The parties recognize that it is ultimately the responsibility of the Corps to determine the appropriate aesthetic mitigation for effects on aesthetic resources consistent with Federal law, regulation and policy. In the event that the parties execute a DA for PED, the design of aesthetic features or mitigation measures will be cost-shared pursuant to that agreement. In the event that the Project is constructed, aesthetic mitigation will be cost-shared consistent with the Project as authorized. The Corps commits to providing the City and its identified aesthetic resources representatives with the opportunity to actively participate in the VRAP methods and process, as well as on the Project Delivery Team (PDT). The parties further recognize that Federal funding for aesthetic resources mitigation is subject to reasonable limits and may not provide for the cost-sharing of some mitigation measures desired by the City. If the City and Corps are unable to agree on an aesthetic mitigation plan or measure, then the City may elect to pursue any aesthetic mitigation measure through betterments that are funded 100% through the City. The City understands that betterments will need to meet the goals and objectives of any Chief's Report resulting from the Charleston Peninsula Coastal Flood Risk Management Study, and cannot compromise the engineering integrity or environmental compliance of a proposed Project.

E. *Review Process.* In the event that the parties execute a DA for PED, there will be a review process and schedule identified in the DA. The roles and responsibilities of the Corps and the

City in reviews will also be determined at that time. Mitigation measures deemed appropriate may require the Corps to evaluate the need for additional NEPA analysis.

F. *Public Engagement.* Public engagement led by the Corps will occur in compliance with NEPA and to the extent practicable as suggested in the VRAP method. Additional public engagement may be pursued by the City as needed to meet its own requirements; however, such additional public engagement will be at the sole expense of the City and subject to the Project schedule.

G. *Funding.* The Corps and the City are responsible to fund their own efforts, subject to any cost-sharing which may occur under an executed water resources project agreement.

ARTICLE VIII – GENERAL PROVISIONS

A. Effective Date. The effective date of this MOU is upon signature by both parties.

B. Term. This MOU will continue in effect from execution through completion of PED.

C. Severability. The provisions of this MOU represent the entire understanding of the parties, and no part is severable.

D. Modification. Modification to this MOU may only be made by the written agreement of both parties executed by signatories comparable to those executing the original agreement.

E. Termination. Either party can terminate this MOU with thirty (30) days advance written notice executed by a signatory comparable to the level of those executing the original agreement. If the City terminates, the Corps will continue commensurate with NEPA and Corps' policy.

ARTICLE IX – POINTS OF CONTACT

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ARTICLE X – APPROVAL

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