Value Analysis Study
for
SAFR-174175

Rehabilitate Slate/Mosaic Historic Fountains in NHL Aquatic Park Bathhouse

Value Analysis Study 2015-030

Final Report
October 8, 2015

San Francisco Maritime National Historical Park
National Park Service
October 8, 2015

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.FOREWORD

This Value Analysis Report presents the recommendations of the Value Analysis Study for the project to Rehabilitate and Conserve the Slate and Mosaic Historic Fountains and Improve Access for People with Disabilities to the Maritime Museum, San Francisco Maritime National Historic Park. Conducted on 16 May 2012.

This is to certify that the Value Analysis Study was led by the undersigned National Park Service Value Analysis Technical Expert and was conducted in accordance with National Park Service value analysis principles and guidelines.

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Value Study Facilitator

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Report Writer

EXECUTIVE SUMMARY

The National Park Service is preparing to advertise a construction project that would rehabilitate the entry ramp and historic fountains at the Maritime Museum, San Francisco Maritime National Historic Park, San Francisco, CA. A value study was conducted on 16 May 2012 in San Francisco, CA.

Summary Description of Project: The fountains flanking the entry to the museum are not functioning. Although drained, they leak and allow rain water to enter the finished basement areas of the building. The fountains with their mosaic tile artwork are an integral element in the aquatic themes of the design of the historic bathhouse, a contributing building to the Aquatic Park National Historic Landmark District, now used as a museum. This project will replace the waterproofing and restore the mosaic tile art work. The project will also look at opportunities to make the building entry comply with the requirements of the Architectural Barriers Act.

Value Study Objectives

- Determine if the functionality of the fountains should be restored
- Select a preferred alternative for making the main building entry accessible in accordance with the Architectural Barriers Act.

Summary of Recommendations:

The Value Study Team recommends *Alternative E* as the preferred approach for future development. It had the highest value while achieving the lowest cost with the exception of the *"No Action Alternative"*. The *"No Action Alternative"* while analyzed in the study, was recommended to be eliminated since it was unable to meet two of the project objectives of stopping the leaks, and restoring the fountains to good condition. The preferred approach "*Alternative E"* consists of restoring the fountain, constructing twin gangway style ramps. This approach did not have the paramount advantage which was the *No Action Alternative*, but it did have the second highest score for that factor (Protects / Retains Historic Fabric). It also had the highest score in the next most important factor (Provides a Compatible Solution without Creating a False Sense of History).

COMPARATIVE INITIAL COSTS

Alternative	Description	2012 Class C Estimate Accessibility	2011 Class C Estimate Fountain Rehabilitation + 4% escalation	TOTAL COST
No Action	No fountain repair, existing ramp remains	$0	$0	
A-1	New wide landing, stairs covered, wide ramp, fountains restored.	$238,541	$457,628	$696,169
B	Narrower landing and ramp, stairs covered, fountains restored	$216,369	$457,628	$673,997
B-1	Constructs two fixed ramps to either side of the entry, stairs partially obscured, by ramp landings, and fountains restored.	$233,290	$457,628	$690,918
D	Demolish fountains and install two fixed ramps to either side of the entry.	$280,492	$457,628	$738,120
E	Construct two movable gangway style ramps on either side of the door. Fountains restored	$140,000	$457,628	$597,628

VALUE STUDY

STUDY SPECIFICS AND OBJECTIVES

The Value Study had three basic objectives:

- Review a full range of project alternatives
- Select a preferred alternative design scheme
- Discuss potential opportunities for improving the preferred alternative and adding additional advantages to that alternative

The study team was composed of a mix of professional disciplines and varied National Park service preservation, accessibility, design, operations and maintenance personnel. Members of the park staff grounded the team with knowledge of the intricacies of managing and working on this site.

SPECIAL CRITERIA

APPLICABLE CODES:

- 2010 California Building Codes
- 2012 International Building Codes
- Architectural Barriers Act
- Americans with Disabilities Act

PLANNING CRITIERIA AND CONSTAINTS:

- Stop leaks into the building from the existing fountains
- Preserve the art deco / streamline moderne character and features of the building and entry
- Restore the fountain to full functionality
- Provide accessible access to the main building entry
- The main entry is where large exhibits are moved into the building

PROJECT BACKGROUND

The decorative fountains are located in front of the Maritime Museum Building (aka Sala Burton Building or Aquatic Park Bathhouse) and were originally built in 1938. The fountains flank the main entrance and are a contributing feature of a National Historic Landmark. The 2 fountain basins are each of the same dimensions, with a bottom tier measuring approximately 34-feet long and a top tier (set within the lower basin) approximately 14-feet long. The walls of the fountain are clad with green slate panels and coping stones. Interior vertical wall surfaces consist of green terrazzo curbing. The mosaics are set into a mortar bed with grouted joints applied over the concrete structure.

The fountains are part of the composition of the slate bas-relief facade which was carved by Work Progress Administration (WPA) sculptor Sargent Johnson. The WPA

artwork on and in the building is nationally significant. As noted in the National Historic Landmark (NHL) nomination: "The building and the site design are outstanding examples of Streamlined Moderne. The park has no architectural parallel on the west coast, and although on a smaller scale, it rivals the design quality of portions of Miami Beach, famous for its Deco and Moderne buildings."

To date, the fountains have never had any type of maintenance or conservation performed on them. The mortar is largely missing from between the slate panels, and a couple of small pieces have broken off. The slate is nicked and stained, much of the damage is from skateboards. The mosaics within the fountain basins badly need to be reset in new bedding or pieces could be lost. The fountains have not functioned in over 20 years. During heavy rainfalls, water ponds in the fountain basin and leaks into the building, necessitating improving the waterproofing of the building before the park reactivates the fountains.

The restoration of the fountains at the main entrance of the building also requires that the park address the issue of accessibility into the building. Currently, a temporary metal ramp allows mobility impaired individuals access to the main entrance, which is several steps above the sidewalk.

The NPS has recently spent close to 15 million dollars restoring the windows, roofs, interior murals, slate façade, and amphitheater of this building. The damaged, non-operative fountains at the building's main entrance give the appearance of lack of care or concern by the park to the more than 250,000 people who visit the museum per year. Completion of this project will restore the front entrance of this important National Historical Landmark building to its former glory and allow for improved access for individuals with impaired mobility.

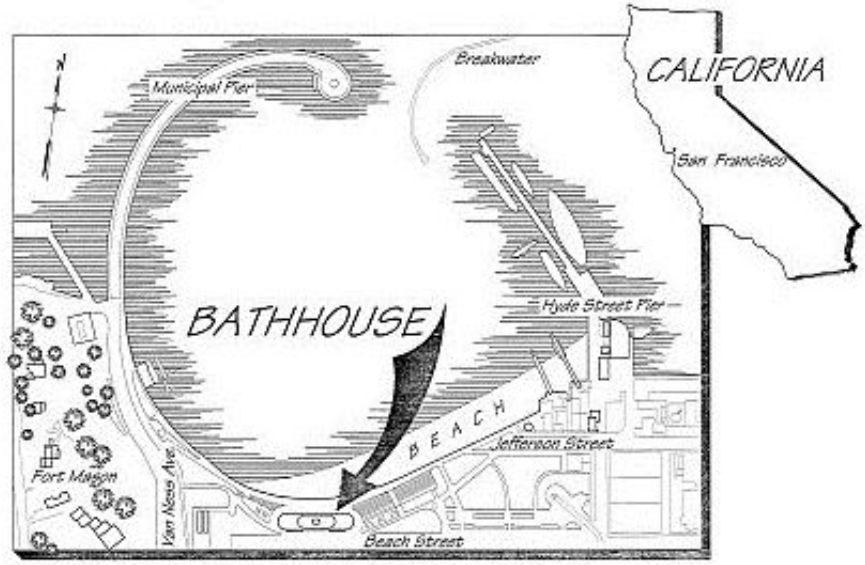
Fountains and Ramp Current Conditions

Ramp from West

View to west from Senior Center

Front of Building, Circa 1960

Bathhouse location, HABS drawing



LOCATOR MAP: Based on information from the General Management Plan of the San Francisco Maritime National Historical Park

PHASE I - INFORMATION

A range of material was available to the value study team including:

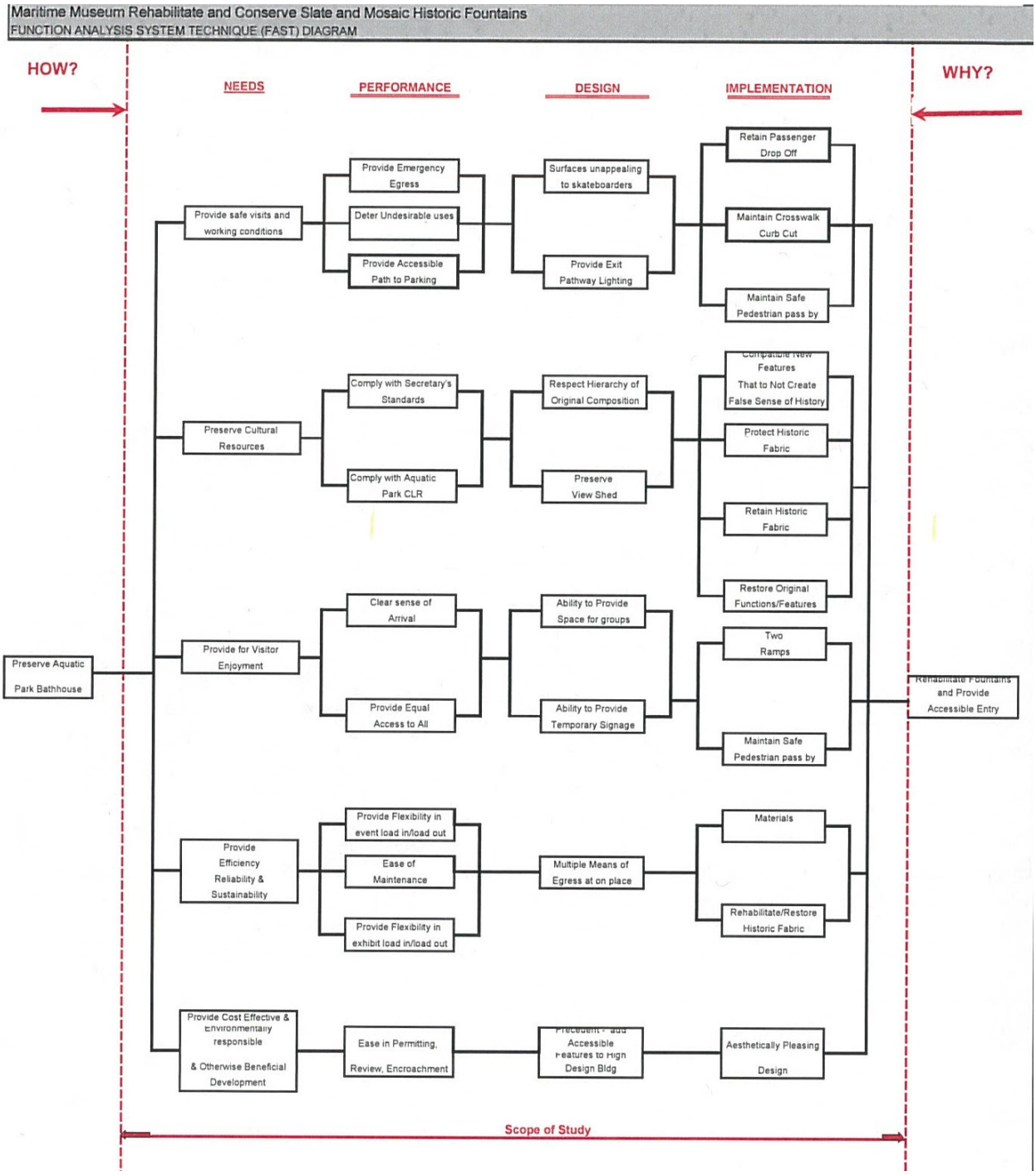
- A power point outlining the existing conditions, a description of the Alternatives A-1, B, B-1, and D with renderings of each.
- Report - Maritime Museum Slate and Mosaic Historic Fountain Assessment and Treatment Recommendations San Francisco Maritime National Historical Park
- Class C Cost Estimate for each of the Alternatives
- Mini-CBA Agenda
- Selected Alternative Descriptions

In an effort to understand the context for this project, the study team developed a list of "stakeholders", person with an active interest in the making of project decisions or the outcome of such decisions.

Stakeholders:

#	Stakeholders	Primary Interest
1	**Visitors** *250,000* Visitor - Focused Visitor - Casual Event Users School Groups Potential Tour Group Stop Meetings Workshops Weddings/Parties Special Events (Openings, etc.)	Visitor Experience and Quality Building Character Feature Preservation Something to Experience Museum Access Load in – Load out Entrance Experience Arrival / Access Way Finding
2	**Congressional Delegations** Senator Feinstein Senator Boxer Representative Pelosi Committee Staffers	Local Economy Project Cost Sala Burton Building Plaque Keep informed
3	**Media**	Visitor Experience Project Cost
4	**Public** Neighbors Fisherman's Wharf Community Benefit District Rowing Clubs Ghirardelli Square Sea Scouts Area Tourists Muni (Municipal Transportation Agency) Senior Center Bocce Club San Francisco Maritime Park Association Disability Community Aquatic Park Neighbor Association	Sidewalk-Privatizing Sidewalk Eyesore / Attractive Nuisance Circulation – No impediment to Tourists Way Finding / Easy Access Access to Restrooms Access for Loading in and out Universal Access Aesthetics Preservation of Fabric Protection of the Landmark Status Preservation of the Artwork and the WPA Seal Good Design

	SF Beautiful SF Architectural Heritage SF Historic Preservation Commission New-New Deal AIA - ASLA	
5	**Local Governments** City and County of San Francisco	Encroachment on Public Way Permitting Landmark Preservation
6	**Federal and State Government** California Office of Historic Preservation Advisory Council on Historic Preservation	Protection of Resources
7	**National Park Service** Servicewide Park Superintendent Interpretation Park Maintenance Operations Cultural Resources	Protection of Resources Visitor Experience Park Operations Local Economy Educational Quality Project Cost Low Maintenance Exhibit Load In / Out



Functional Analysis

The study team developed a functional analysis of the proposed alternatives identifying the key functional objectives and elements. The information, presented in a Functional Analysis System Technique diagram (FAST) portrays a functional description of potential areas to be studied and reflects the design team's initial design effort. The

diagram presents how and why a function exists. The diagram clearly represents the broad range of function addressed by the design. Using the functional analysis the study team validated the general project's intent.

EVALUATION (Part 1 - Evaluation Factors)

As the first task of the evaluation phase the team developed and discussed the factors which would be used to evaluate the alternatives.

The NPS Objectives and Factors 1-7 shown below were established for the NPS servicewide priority setting process and grow out of National Leadership Council guidance and formed a framework for evaluation.

The study team then defined variables and subfactors to tailor the evaluation factors to the needs of this project. No significant advantage was identified between the two alternatives in the first two factors.

EVALUATION FACTORS AND DEFINITIONS

NPS OBJECTIVE: Protect Cultural and Natural Resources	
Factor 1: Prevent loss of Resources	
Sub-factor	Definitions/Variables
a) Protect/Retain Historic Fabric	* preserves
b) Provides Compatible Solution without Creating a False Sense of History	* preserves
c) Impacts to Original Uses	* preserves
d) Complies with the CLR	* Not used since all but Alternative D cannot comply
e) Preserves Historic View of the Front Façade (Artwork)	* Not used since is covered above
Factor 2: Maintain and Improve the condition of Resources	
Sub-factor	Definitions/Variables
a) Repairs Leaks through Fountains	* Not used since this is a given of the project
b) Repairs damaged and deteriorated finishes	* Not used since this is a given of the project
NPS OBJECTIVE: Provide for Visitor Enjoyment	
Factor 3: Provide visitor services and educational and recreational opportunities	
Sub-factor	Definitions/Variables
a) Provide Equal Access to All	* ADA
b) Provides Clear/Direct Entry to the Building	* Arrival

c)	Provides Space for Groups to Gather	* Not used
Factor 4: Protect public health, safety and welfare.		
Sub-factor		Definitions/Variables
a)	Provide Emergency Egress	
b)	Deters Undesirable Uses	Skate Board / Bicycle Trick Parks
c)	Maintains a Safe Pedestrian Pass By	
d)	Provides Accessible Paths from Parking Drop-Off and Crosswalks	
e)	Allows for Placement of Exitway lighting with the Construction	Common to all alternatives
NPS OBJECTIVE: Improve efficiency of park operations		
Factor 5: Improve operational efficiency and sustainability.		
Sub-factor		Definitions/Variables
a)	Provides Flexibility for Event Load-in and Load Out	*
b)	Provides for Low Maintenance	*
c)	Provides Multiple Paths to the Main Entry	* Does not provide any advantage (skip)
Factor 6: Protect employee health, safety, and welfare		
Sub-factor		Definitions/Variables
Not Used		*
NPS OBJECTIVE: Provide cost-effective, environmentally responsible, and otherwise beneficial development for the National Park System.		
Factor 7: Provide other advantages to the National Park System.		
Sub-factor		Definitions/Variables
Minimizes the Effort Required for Permitting, Review, Encroachment, and Compliance		
Provides Precedent for Adding Accessible Features to a High Design Building		Not used
SPECIAL FACTOR: COST		
Sub-factor		Definition/Variables
INITIAL COST (Short-term)		* Capital Costs
LIFE CYCLE COST (Long-term)		* Maintenance Costs * Operating Costs * Staffing Costs

CREATIVITY

The value study team examined five alternatives and proposals for improving the original design. All five were selected for further development and evaluation using the Choosing by Advantages process. During the process, a sixth alternative, Alternative E, was developed.

#	Alternative (Brainstormed)	Disposition of Alternative
1	No Action Alternative	Included
2	Alternative A1 – New landing/wide ramp	Included
3	Alternative B – New Landing, 5 foot wide ramp	Included
4	Alternative B1 – Existing Landing with side ramp	Included
5	Alternative D – Replace Fountains with ramp	Included
6	Alternative E – Twin Gangways Ramps	Included. Gangway Ramps similar to ramp in No Action Alternative

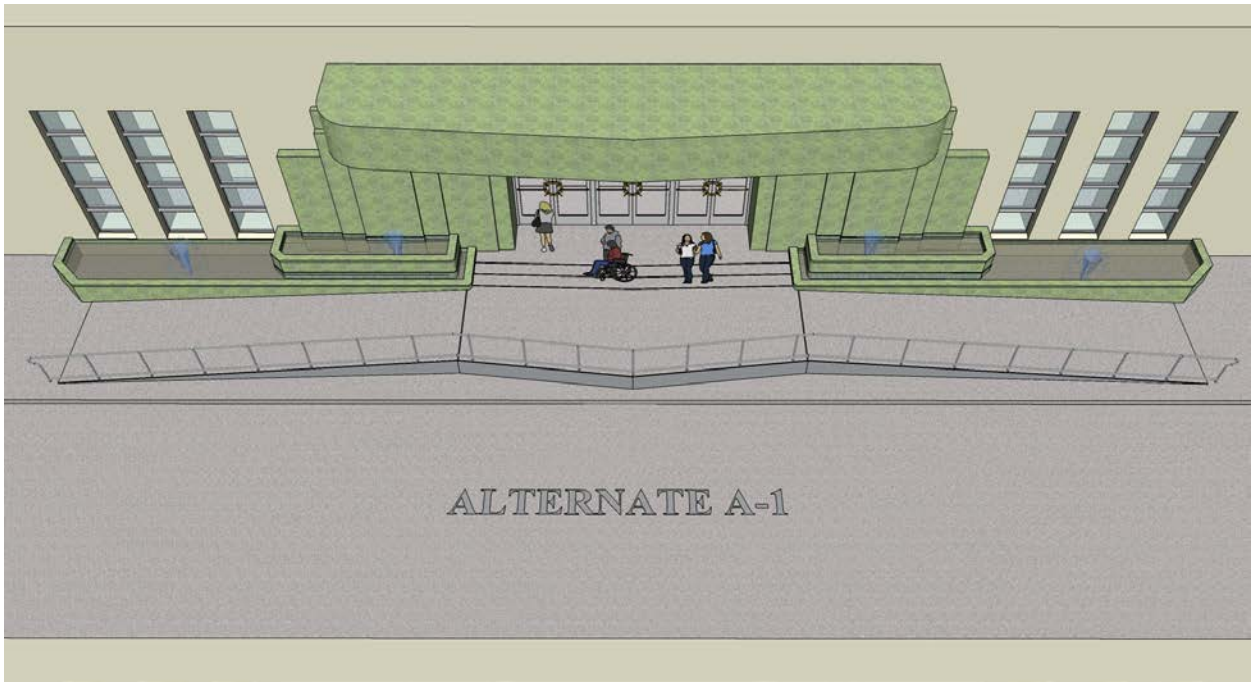
EVALUATION (Part 2 - Choosing by Advantages)

The **6** alternatives were evaluated using a process called Choosing by Advantages, where decisions are based on the importance of advantages between alternatives. The evaluation involves the identification of the attributes or characteristics of each alternative relative to the evaluation criteria, a determination of the advantages for each alternative within each evaluation factor, and then the weighing of importance of each advantage.

The highest importance advantage is identified in each factor. The paramount advantage, across factors, was determined and assigned a weight of 100. Remaining advantages were rated on the same scale. Construction and life cycle costs were developed for each alternative. Recommendations are based on a balance of cost and importance.

The evaluation sheets form the basis for presenting the developed alternatives and design sketches and cost estimates are attached. The evaluation tables present many types of information. Attributes of an alternative are shown above the dotted line in the tables. Advantages between alternatives are shown below the dotted line. An anchor statement summarizes those advantages. The advantage with the highest importance with in a factor is indicated by a highlight around the advantage cell. The advantages are all rated on a common scale.

The drawings used for this process follow. There were no drawings for Alternative E or the no Action Alternative.


ALTERNATE A-1


ALTERNATE B-1


ALTERNATE B


ALTERNATE D


ALTERNATE D


ALTERNATE D

REHABILITATE SLATE/MOSAIC HISTORI FOUNTAINS
IN NHL AQUATIC PARK BATHHOUSE
San Francisco Maritime National Historical Park
SAFR 174175A
Choosing by Advantages

FACTOR	ALTERNATIVES					
	No Action Alternative	Alternative A1 New Landing/Wide Ramp	Alternative B New Landing/5 foot Wide Ramp	Alternative B1 Existing Landing w/Side Ramp	Alternative D Replace Fountains with Ramp	Alternative E Twin Gangway
PROTECT CULTURAL AND NATURAL RESOURCES						
FACTOR 1: Prevent Loss of Resources						
SUB-FACTOR 1a - Protect/Retain Historic Fabric						
Attributes	Preserves the historic fabric in the fountain rehab	Preserves the historic fabric in the fountain rehab	Preserves the historic fabric in the fountain rehab	Preserves the historic fabric in the fountain rehab, less fabric covered.	Removes the fountains, mosaic,	Preserves the historic fabric in the fountain rehab
Advantages	No historic fabric lost, minimum direct impact **100**	No historic fabric lost, most fabric covered **70**	No historic fabric lost, most fabric covered **70**	No historic fabric lost, less area of potential impact **80**	**0**	No historic fabric lost, minimum direct impact **90**
SUB-FACTOR 1b - Provides Compatible Solution without Creating a False Sense of History						
Attributes	Light temporary addition (aluminum gangway ramp) Breaks the symmetry,	Handrail contemporary, transparent, access to the road cut off	Creates a base to entry to the building. Introduces a perception of a visual barrier to the building	Creates a new symmetrical feature but keeps the visual experience for the stairs	A major visual feature (fountains) is lost. Adds new materials to blend into the wall panels, greatest risk in creating a false sense of history.	Creates a new symmetrical feature but keeps the visual experience for the stairs
Advantages	100% fabric preserved, modest, easily distinguished addition, reversible **90**	Keeps historic fabric, transparent railing, minimal new base appearance, symmetrical, reads as a contemporary addition **70**	Keeps fabric, easily distinguishable, **60**	Keeps fountains, some of the stair visible **95**	**0**	Keeps fountains, some of the stair visible **95**
SUB-FACTOR 1c – Impacts to Original Uses						
Attributes	Whole stair is visible, most of the stair useable, fountain restored	Restores fountain, stairs concealed, stairs not useable	Restores fountain, stairs concealed, stairs not useable	Restores the fountain, portion of the stair is useable	Fountain removed, stairs concealed, new stairs provided	Restores the fountain, portion of the stair is useable
Advantages	Preserves original uses fountain and 75% stair for use **85**	Preserves fountain only **60**	Preserves fountain only **60**	Preserves fountain and a 25% portion of the stair for use **70**	**0**	Preserves fountain and a 25% portion of the stair for use **70**

FACTOR	ALTERNATIVES											
	No Action Alternative		Alternative A1		Alternative B		Alternative B1		Alternative D		Alternative E	
SUB-FACTOR 1d – Complies with the CLR												
Attributes: Delete since all the solutions but D cannot be designed to accommodate CLR and mostly covered above												
Advantages												
SUB-FACTOR 1e – Preserve historic view of the front façade (Artwork)												
Attributes: Covered, skip.												
Advantages												
FACTOR 2: Maintain and Improve Condition of Resources												
Not used as this is a given of the project.												
PROVIDE FOR VISITOR ENJOYMENT												
FACTOR 3: Provide visitor services and educational and recreational opportunities												
SUB-FACTOR 3a -Provide Equal Access to All												
Attributes	Existing separated access, ramp on west side only, the ramp steepness limits the number of users. 8%		Provides universal access accessible route, arrive at common entry, wider path		Provides universal access accessible route, arrive at common entry		Alternative access, accessible stairs, accessible route, arrive at common entry, conflict with door and stair rails		Alternative access, accessible stairs, accessible route, arrive at common entry, conflicts with doors at top.		Alternative access, accessible stairs, accessible route, arrive at common entry, conflict with door and stair rails	
Advantages		**0**	Reduces the slope to 5%, widest landing at top, widest ramps, Access from both sides	**45**	Reduces the slope to 5%, wide landing at top, access from both sides	**40**	Reduces the slope to 5%, access from both sides	**39**	Reduces the slope to 5%, access from both sides	**38**	Reduces the slope to 5%, access from both sides	**39**
SUB-FACTOR 3b– Provides Clear/Direct Entry to the Building												
Attributes	Obvious direct entry, ramp access only from one side.		Indirect entry, railing obvious to redirect path, no obvious way to cross Beach at Polk		Indirect entry		Obvious direct entry, ramp from both sides		Obvious direct entry, ramp from both sides		Obvious direct entry, ramp from both sides	
Advantages	Clear how to enter the building but less direct	**40**		**0**	Can easily cross from Polk	**20**	Clear how to enter building from all directions	**45**	Clear how to enter building from all directions	**45**	Clear how to enter building from all directions	**45**
SUB-FACTOR 3c – Provides Space for Groups to Gather												
Attributes: Skip, see above												

FACTOR	ALTERNATIVES											
	No Action Alternative		Alternative A1		Alternative B		Alternative B1		Alternative D		Alternative E	
FACTOR 4 - Protect Public Health, Safety and Welfare												
SUB-FACTOR 4a – Provide Emergency Egress												
Attributes	Provides Basic Exit to both stairs , ramp one side, no railing on stair		Egress by wide ramp, access from all doors		Same as A-1, but narrower ramp		Egress by stairs and ramp. Multidirectional Exiting		Same as B-1		Egress by stairs and ramp. Multidirectional Exiting	
Advantages	Straight exit via stairs	7	Wider Ramps	6		0	Can also go straight out for exiting via stairs	10	Can also go straight out for exiting via stairs	10	Can also go straight out for exiting via stairs	10
SUB-FACTOR 4b – Deters Undesirable Uses												
Attributes	Can add deterrence.		Can design in deterrence - but the ramp is wide open. No new seat wall.		Can design in deterrence, creates a new seat wall, wide open but narrow ramp.		Discontinuous ramps, new seat wall, can design in Deterrence. Historic fountain walls somewhat protected.		Ramp is continuous with landing, can design deterrence.		Can add deterrence.	
Advantages	No Flight Deck	60		0	Less of a flight deck than A-1	20	Interrupted flight deck	40	Less of a flight deck than A-1	20	No Flight Deck	60
SUB-FACTOR 4c - Maintains A Safe Pedestrian Pass By												
Attributes	Restricts the sidewalk on one side, narrow bypass for 20 feet		Ramp and sidewalk combined. No choice in path away from entry. No stair encroachment.		4 foot sidewalk for a distance of 70 feet (confirm length) Alternative paths, No stair encroachment.		4 foot sidewalk for a distance of 70 feet (confirm length) Alternative path with stair encroachment.		4 foot sidewalk for a distance of 15 feet (confirm length). Stair encroaches into sidewalk.		4 foot sidewalk for a distance of 70 feet (confirm length) Alternative path with stair encroachment.	
Advantages	Creates a shield area for groups to gather while allowing bypass	20		0	Sidewalk is completely separate from ramp. No conflict with building users	40	Eddy space at intersection of sidewalk and stair. Entry segregated from sidewalk.	60	Wider separated sidewalk	40	Eddy space at intersection of sidewalk and stair. Entry segregated from sidewalk.	60
SUB-FACTOR 4d - Provides Accessible Paths from Parking Drop-Off and Crosswalks												
Attributes	Easily accessible from the west, long path of travel from east parking. Can add curb cuts at crosswalks.		Must move loading zone, cannot access existing crosswalks.		Similar to No Action with equal access to parking east and west. No direct access for loading zone, access from crosswalks can be accommodated.		Similar to B with direct access to entry via stairs		Same as B-1		Similar to B with direct access to entry via stairs	
Advantages	Crosswalks can be accommodated, access possible.	50		0	Crosswalks can be accommodated, access possible.	50	Crosswalks can be accommodated, direct access possible.	75	Crosswalks can be accommodated, direct access possible.	75	Crosswalks can be accommodated, direct access possible.	75
SUB-FACTOR 4e - Allows for Placement of Exit way lighting with the Construction												
Attributes: Group decided that lights can be accommodated in the new construction.												
Advantages												

FACTOR	ALTERNATIVES											
	No Action Alternative		Alternative A1		Alternative B		Alternative B1		Alternative D		Alternative E	
IMPROVE EFFICIENCY OF PARK OPERATIONS												
Factor 5: Improve operational efficiency and sustainability.												
SUB-FACTOR 5a - Provides Flexibility for Event Load-in and Load-out												
Attributes	Park in front, take stairs or ramp. Ramp only 4', limited weight, tight turn ramp		Remove railing to get some stuff in, 8' ramp, large landing to maneuver, need to move loading zone, Can be designed for heavier loading		Larger top landing, low wall to allow items to be loaded over. 4' ramp, can be designed for heavier loads		4' ramp, can load over stairs, narrower landing at the top of the stair, good at the ramps, may need to remove handrails		Doors and ramps conflict at the top, not much maneuvering space at the top, can load straight in over stairs		Park in front, take stairs or ramp. Ramp only 4', limited weight, tight turn ramp	
Advantages	Can relocate ramp if necessary, wider stair access	30	Large platform allows use of all doors, wide ramp	35	More landing at doors. No steps	25	More landing at the doors for maneuvering	20		0	Can relocate ramp if necessary, wider stair access	30
SUB-FACTOR 5b - Provides for Low Maintenance												
Attributes	High fountain maintenance,		x square feet of new vertical surface for graffiti, high fountain maintenance, close to road subject vehicle damage, expensive fountain to maintain		xx square feet of vertical surface for graffiti, joints between new and old materials to maintain, expensive fountain to maintain		xxx square feet of vertical surface for graffiti, joints between new and old materials to maintain, expensive fountain maintenance		No fountain to maintain, joints between new and existing materials to maintain		High fountain maintenance,	
Advantages	no additional wall surface to maintain, less joints to maintain	15	less vertical edge to be graffiti'd	10	slightly less wall	5		0	No fountain to maintain.	20	no additional wall surface to maintain, less joints to maintain	15
SUB-FACTOR 5c – Provides Multiple Paths to the Main Entry												
Not used, does not provide any advantage.												
FACTOR 6 – Protect Employee Health, Safety and Welfare												
Not used as this is a given of the project.												
PROVIDE COST-EFFECTIVE, ENVIRONMENTALLY RESPONSIBLE, AND OTHERWISE BENEFICIAL DEVELOPMENT FOR THE NPS												
FACTOR 7 - Provide Other Advantages to the National Park System												
SUB-FACTOR 7a - Minimize the Effort Required for Permitting, Review, Encroachment, and Compliance.												
Attributes	Engage with the city on accessible path from the east and crosswalks, 106 consultation but no adverse impact		Same as no action, public utility impacts, changes to public access, higher effort in city consultation.		Similar to A-1		Similar to A-1		Similar to A-1 with an adverse effect on consultation, city review and approval requires		Engage with the city on accessible path from the east and crosswalks, 106 consultation but no adverse impact	
Advantages	Easiest approvals,	85	106 consultation easier, highest city consultation/permit effort	40	106 consultation easier, others involved 106 consultation easier, higher city consultation/permit effort	50	106 consultation easier, high city consultation/permit effort	55		0	Easiest approvals,	85
SUB-FACTOR 7b – Provides Precedent for Adding Accessible Features to a High Design Building												
Not used												

FACTOR	ALTERNATIVES					
	No Action Alternative	Alternative A1	Alternative B	Alternative B1	Alternative D	Alternative E
TOTAL IMPORTANCES OF ADVANTAGES	582	336	440	589	248	674

Choosing By Advantages

The following choosing by advantages (CBA) decision matrix was prepared by the team to document the rationale for determining which was the best option based on the importance of advantages with 100 being the highest score.

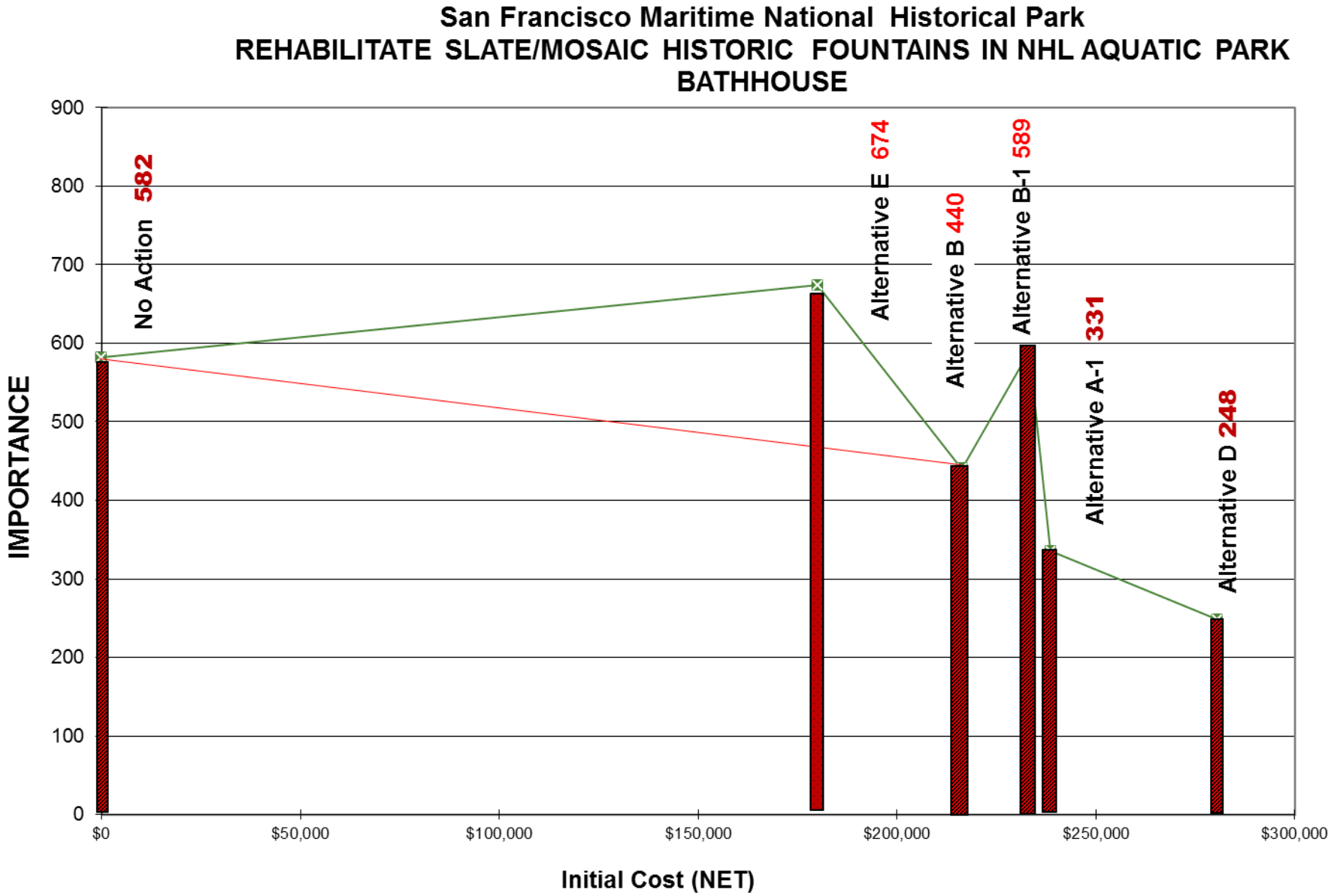
Importance of Allocation to Advantages Scale

100	No historic fabric lost, minimum direct impact
95	Keeps fountains, some of the stair visible
90	
85	Preserves original uses fountains and 75% stair for use; easiest City approvals
80	
75	Crosswalks can be accommodated, direct access possible,
70	
75	
60	No flight deck, eddy space at intersection of sidewalk and stair. Entry segregated from sidewalk
55	
50	
45	Reduces the slope to 5%, widest landing at top, widest ramps; access from both sides; clear how to enter building from all directions
40	
35	Large platform allows use of all doors, wide ramp
30	
25	
20	No fountain to maintain
15	
10	Can also go straight out for exiting by stair

ANALYSIS

The study team evaluated the benefit or importance of advantages to be realized from the Alternatives: No Action, A-1. B-1, B, D and E. The Alternative E, the new alternative, includes basic revisions which increased benefits and reduced cost. On purely a benefit or importance basis the new alternative provides the greatest advantage to the NPS.

An initial cost estimate for the alternative was developed. Results were graphed with importance or benefit of each Alternative on the vertical scale and initial cost with redesign costs ($40,000) on the horizontal scale. Of the designs, Alternative E clearly has the highest benefit at the least cost. When Life Cycle costs are added in, the benefit remains.


San Francisco Maritime National Historical Park
REHABILITATE SLATE/MOSAIC HISTORIC FOUNTAINS IN NHL AQUATIC PARK BATHHOUSE
IMPORTANCE
900
800
700
600
500
400
300
200
100
0
No Action 582
Alternative E 674
Alternative B 440
Alternative B-1 589
Alternative A-1 331
Alternative D 248
$0
$50,000
$100,000
$150,000
$200,000
$250,000
$300,000
Initial Cost (NET)

PHASE IV - DEVELOPMENT

The A/E, Architectural Resources Group, developed three additional stainless steel ramp designs based on the Alternative E model. They further revised the design to be a concrete composite. The new cost including automatic door openers at the museum entrance is around $260,000.

Final Design Concept:

PHASE V - RECOMMENDATIONS/ WRAP-UP

The value study team reviewed the study recommendations at the close of the study.

The Value Study Team recommends *Alternative E* as the preferred approach for future development. It had the highest value while achieving the lowest cost with the exception of the *"No Action Alternative"*. The *"No Action Alternative"* while analyzed in the study, was recommended to be eliminated since it was unable to meet two of the project objectives of stopping the leaks, and restoring the fountains to good condition. The preferred approach "*Alternative E"* consists of restoring the fountain, constructing twin gangway style ramps. This approach did not have the paramount advantage which was the *No Action Alternative*, but it did have the second highest score for that factor (Protects / Retains Historic Fabric). It also had the highest score in the next most important factor (Provides a Compatible Solution without Creating a False Sense of History).

PHASE VI - IMPLEMENTATION

Implementation of the value study recommendations will rest with the design team and the client team, as work progresses on the next stages. Value analysis will be required throughout any re-design phases.

VALUE STUDY TEAM

NAME	ROLE/ Representing	PHONE	EMAIL
TEAM MEMBERS			
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APPENDICES

1. General Value Analysis Methodology
2. Value Analysis Job Plan
3. Value Analysis Study Agenda
4. Life Cycle Cost Analysis

1. GENERAL VALUE ANALYSIS METHODOLOGY

Value analysis is not a critical review, constructability review, or cost cutting exercise. It is a problem solving and decision making technique that bypasses learned responses to produce alternative solutions achieving all required functions of the original design at the least cost over the life of the facility. It is a team effort which follows an established, organized, job plan, and problem identification format that promotes objectivity and stimulates creativity. When the value analysis methodology is followed precisely, beneficial results are ensured.

A value analysis team must be willing to challenge criteria and opinions, many of which may have been maintained by historical continuity or outdated policy. Value analysis follows a methodology of distinct phases, relies upon teamwork, and the increase in creativity resulting from the synergism of a multi-disciplined group. It searches for and uses current technology to achieve the value analysis goal: To creatively furnish technically sound alternatives to satisfy the user's needs at the lowest life cycle cost.

Value analysis examines systems of design and breaks them into components which are then described in terms of intended use. The intended use (the purpose for the component's existence) called a function, is described in just two words, an active verb, and measurable noun.

These two-word functions are separated into categories by type:

1. Higher order functions define the user's needs.

2. Basic functions present the performance feature which must be achieved to satisfy this need. Without this quality the item ceases to be useful for whatever purpose it is required.

Secondary functions result from the method chosen to accomplish the basic function or functions. These can be further categorized into essential, desired, or non-essential. Unless they are essential, they have zero value and can be eliminated without affecting the required performance of the system or design.

Functions are arranged into two word pictures describing the project under study. The result is a FAST Diagram, an acronym for Function Analysis System Technique. It verifies the correctness of the function definitions and shows their interrelationships. It identifies and separates them into higher order, basic, and required secondary functions.

A Cost Model of a design's components, including the identification of the component's function, prioritize opportunities for value improvement. A function analysis, including cost/worth ratios, further pinpoints poor value in greater detail. When cost exceeds

worth (when the cost worth ratios exceeds unity), it indicates critical areas for the Value Engineering team to concentrate on during their alternative development efforts.

Focused by the cost model and the functional analysis, alternatives are generated through brainstorming. Generally, ideas are put through two sieves: (a) an initial judgmental level screening against evaluation factors followed by and a final more rigorous evaluation using Choosing by Advantages or other decision making method. The top three alternatives surviving these procedures are identified. The top-ranked of these is developed as the recommended solution, and estimates are prepared. Redesign costs and hours are estimated to reflect implementation impacts to assist management in their decision-making process. Estimated savings resulting from the use of the recommended alternatives are calculated, using life cycle costs, recognizing the time value of money where applicable and redesign costs are subtracted to show net savings.

The Value Analysis process, described above, has been structured into a job plan that deals with seven phases..

2. VALUE ANALYSIS JOB PLAN

Phase I - Information Phase

This phase ensures that all team members completely understand the objectives of the project and purpose of the project by gathering relevant information. Data is used to focus the study team on areas of highest potential for improved project value. Correct information is essential to making a sound decision. **Keywords:** Cost Model, Quality Model, Design Presentation

Phase II - Functional Analysis Phase

This phase ensures that all team members completely understand the functions required. The team paints a functional portrait of the project and evaluates program needs versus wants. **Keywords:** Functional Analysis, FAST Diagram, 75% of Net Available Alternative.

Phase III - Creativity Phase

This is the creative phase where the team "brain-storms" alternative methods of achieving the required functions of a project. At this point ideas are not evaluated, since criticism of an idea could discourage participation, decrease the flow of alternatives, and inhibit the creative endeavor. **Keywords:** Brainstorming, Deferred Judgment, Options, Alternatives, 90% of Net Available Alternative.

Phase IV - Evaluation Phase

This phase may occur in two steps. 1) An initial phase, where the study team eliminates alternatives that are not feasible or are otherwise unsuitable, and documents the rationale. 2) A final stage, after development, where advantages are weighed using specific evaluation factors. Cost is evaluated on an initial and life-cycle basis. **Keywords:** Evaluation Factors, Importance, Choosing by Advantages, Importance to Cost Ratio

Phase V - Development Phase

This is the designated study phase, where the best alternatives are developed into proposals for final evaluation and presentation. Alternatives are developed sufficiently to (1) demonstrate technical viability, (2) permit accurate estimates of their costs, (3) determine advantage, and (4) facilitate design documentation and construction. **Keywords:** Cost Estimates, Life-cycle Cost, Design Development

Phase VI - Recommendation/Presentation Phase

This phase consists of presenting the recommended proposals to decision makers at the end of a value study workshop. The presentation must be clear and concise, present factual data, and clearly demonstrate reasons for the recommendations to

the decisionmakers. Opportunities and impediments to implementation are identified. **Keywords:** Sound Decisions, Recommendations, Commitment.

Phase VII - Implementation Phase

This phase occurs outside the workshop and provides for follow-up and implementation of accepted VA proposals. Actions by the planning/design team and managers are typically required. **Keywords:** Follow-through, Monitoring, Documentation

National Park Service
U.S. Department of the Interior

Golden Gate
National Recreation Area

Fort Baker, Bldg. 507
Sausalito, CA 94965

Mini-CBA Notes

REHABILITATE SLATE/MOSAIC HISTORIC FOUNTAINS IN NHL AQUATIC PARK BATHHOUSE

16 May 2012

Agenda

I. **Background**

A. *Overall Scope*

B. *PMIS 174175– Rehabilitate Slate/Mosaic Historic Fountains in NHL Aquatic Park Bathhouse - San Francisco Maritime National Historic Park*

C. *ARG*

II. **Scope** (Overall Component Diagram)

A. *What we plan to design*

1. Rehabilitate the fountains flanking the main entry to the Bathhouse to stop leaks and preserve a contributing feature to the building.
2. Create an accessible entry to the facility by replacing the temporary ramp.
3.

III. **Stakeholders**

IV. **Budget**

A. *$535,361 (Net Construction)*

V. Break 10:00 to 10:15 AM

VI. CHOOSING BY ADVANTAGES (Mini-CBA)

A. Purpose: A decision making system to simplify, clarify and unify decision making
B. Anchor to FACTS!
C. Carefully evaluate the lifecycle duration

VII. Functional Analysis

A. *Using FAST Chart – Develop Factors and Attributes*
B. *Why - How*

VIII. Lunch

IX. Alternatives

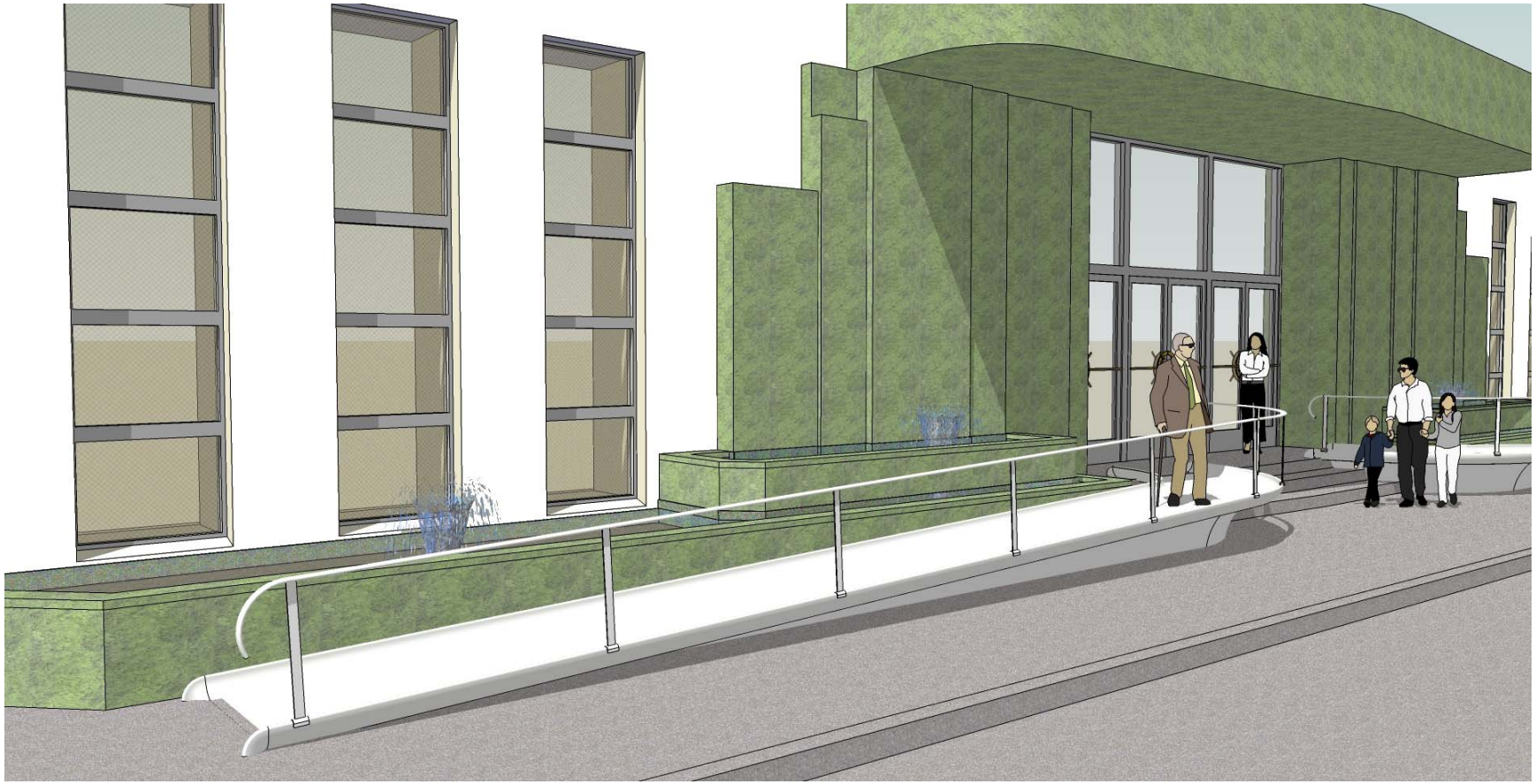
A. *Go Over Identified Alternatives*
B. *Brainstorm*

X. Evaluation

A. *Evaluate Alternatives Based on Advantages*
B. *Add First Cost*
C. *Add Lifecycle Cost*

XI. Preferred Alternative = Recommendations

Main Entry Ramp – Existing View

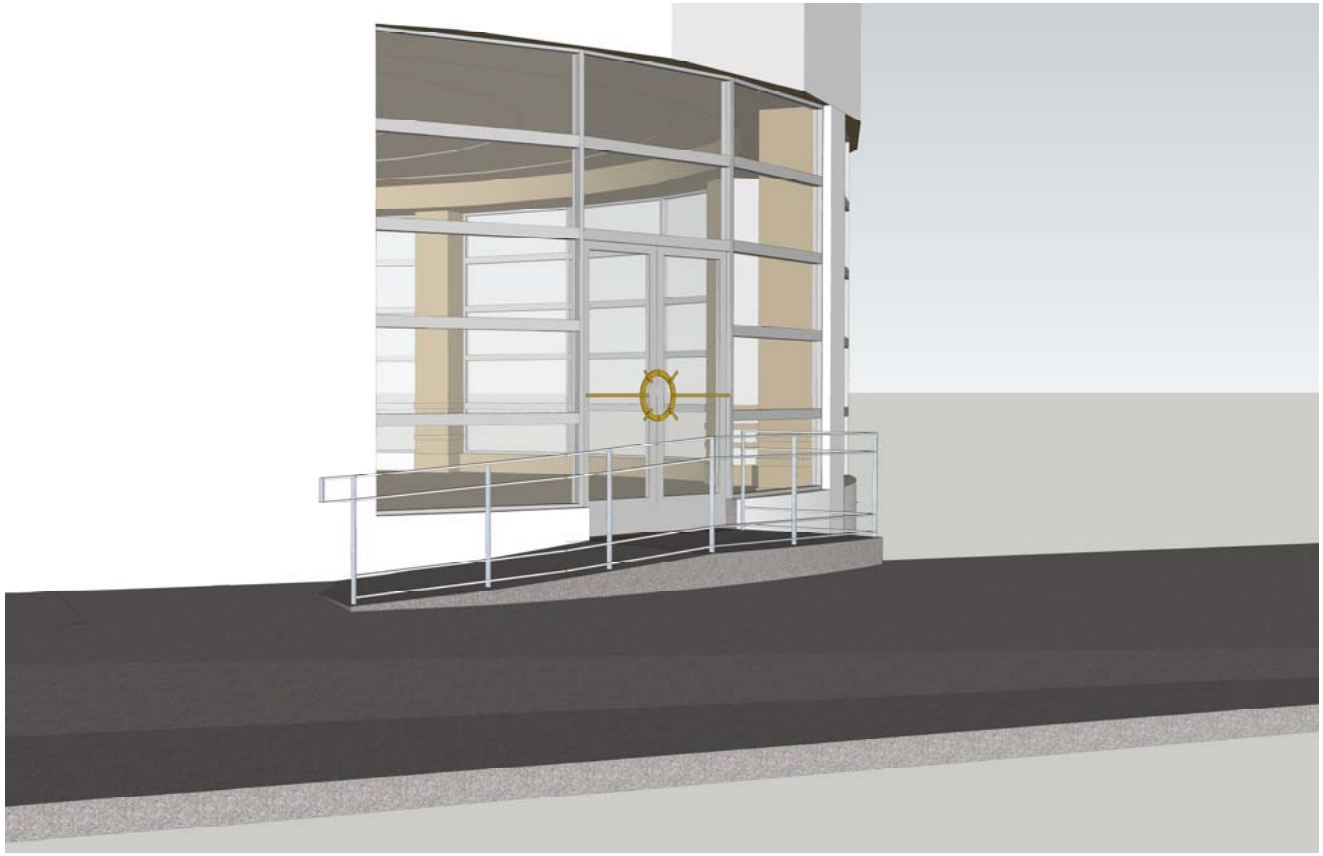


Main Entry Ramps – Computer Rendering

Main Entry Ramps – Computer Rendering

Main Entry Ramps – Computer Rendering

Senior Center Entry – Existing View



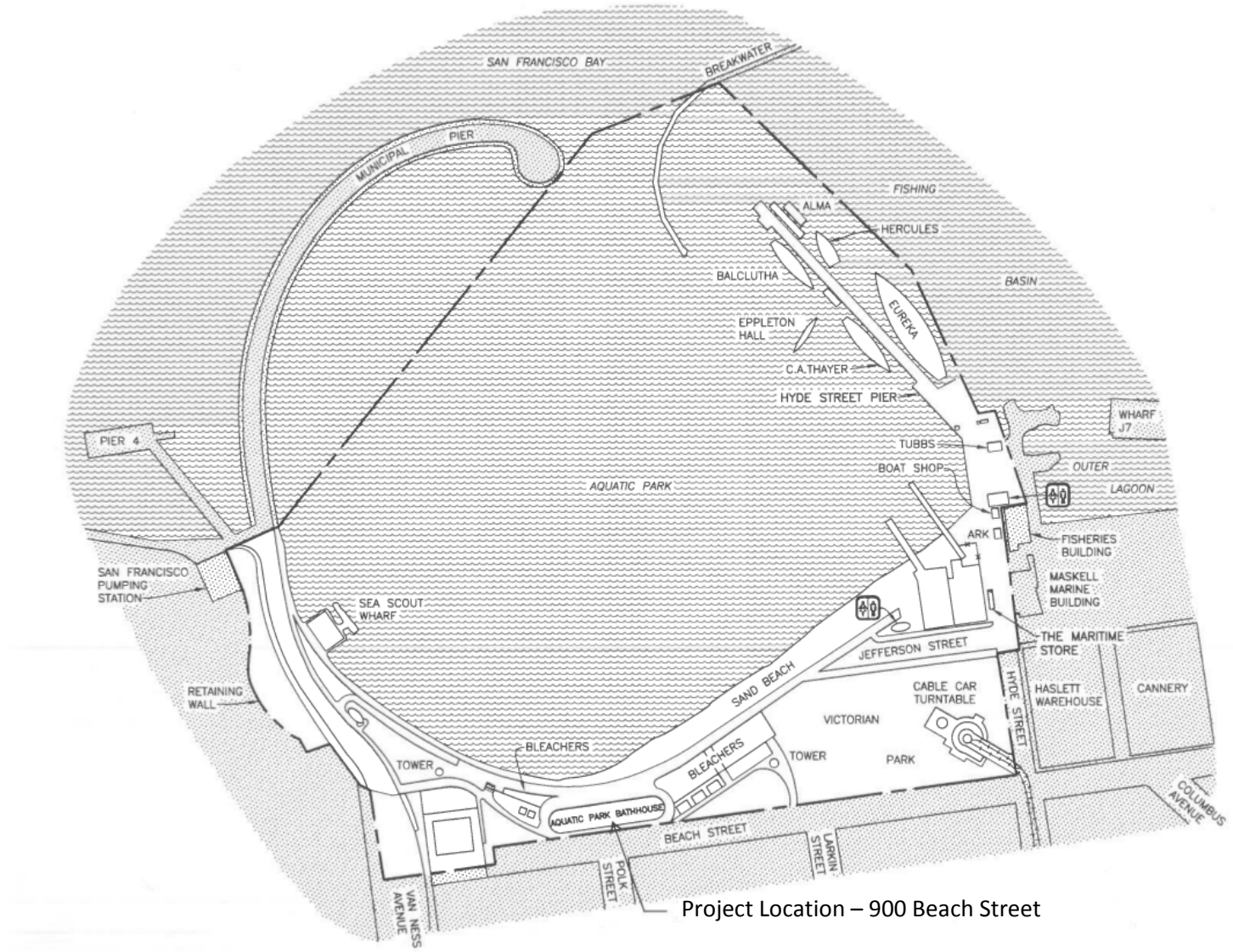
Senior Center Entry Ramp – Computer Rendering

South Facing Elevation – Existing View

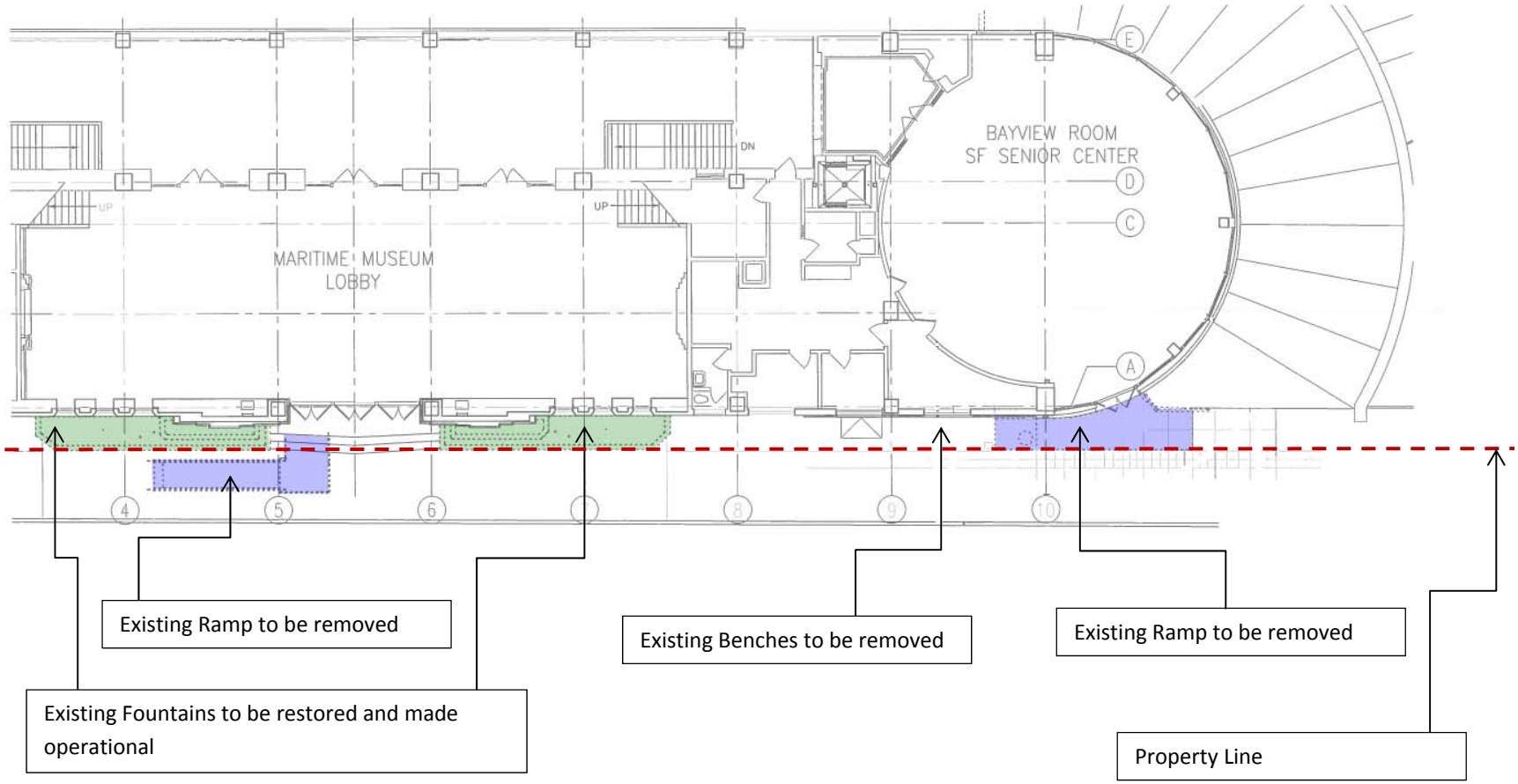
South Facing Elevation – Proposed View

South East Facing Elevation – Existing View

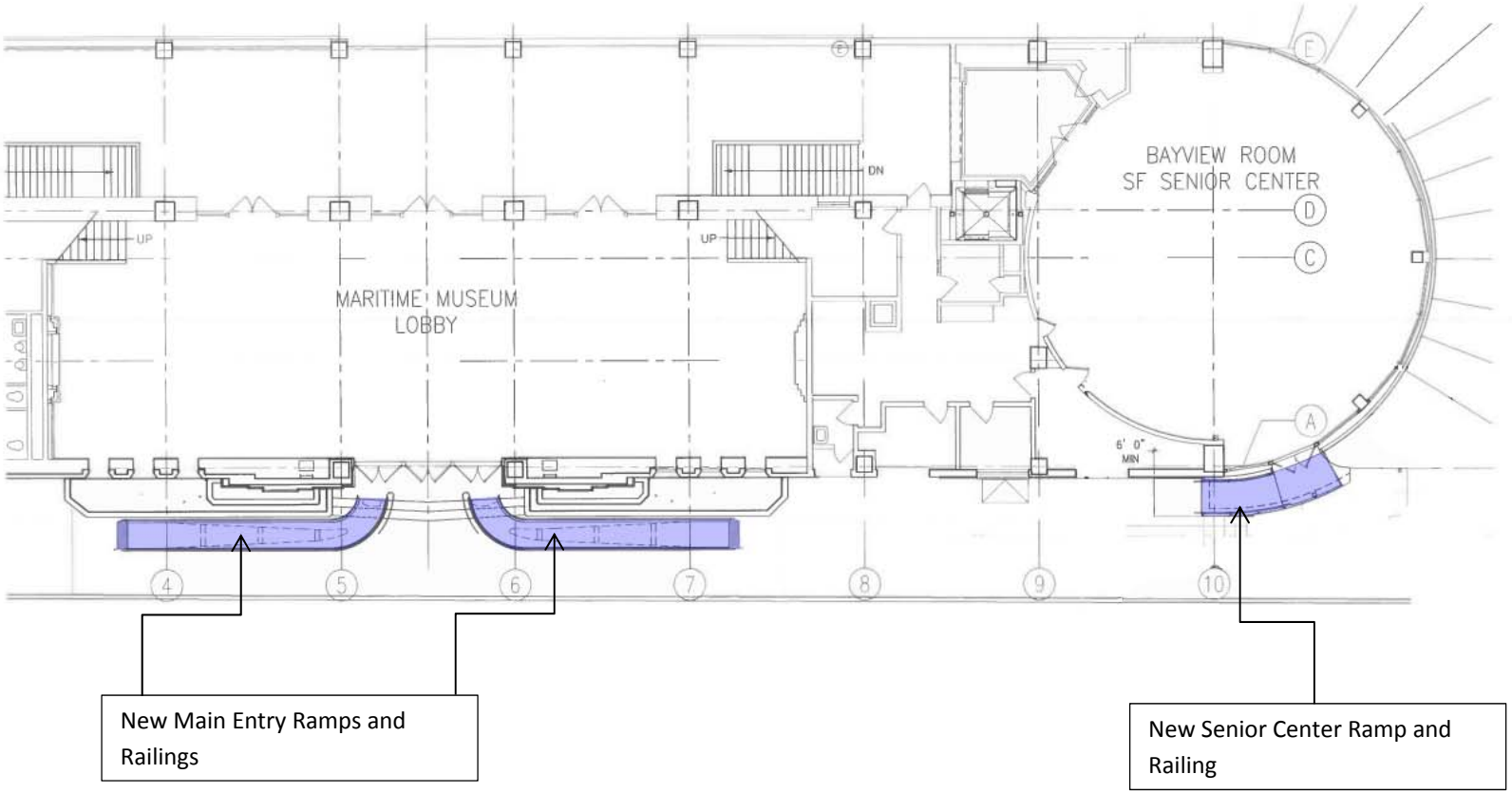
South East Facing Elevation – Proposed View



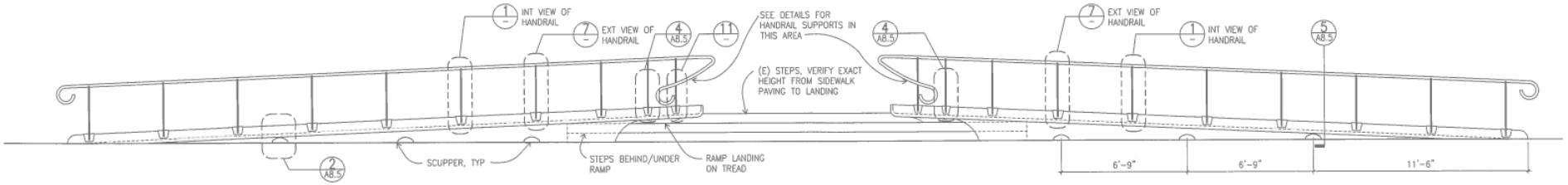
Location Plan



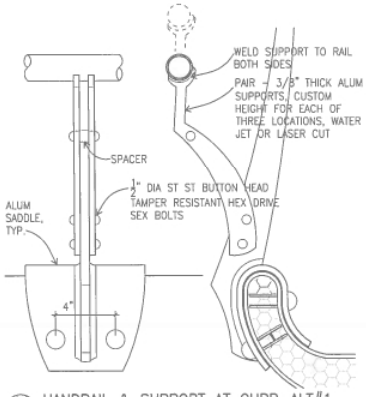
Site/Floor Plan – Existing and Demolition



Site/Floor Plan – Proposed Condition



15 A8.6 MAIN ENTRANCE RAMP – ALTERNATE 1
SCALE: (H)



11 A8.6 HANDRAIL & SUPPORT AT CURB–ALT#1
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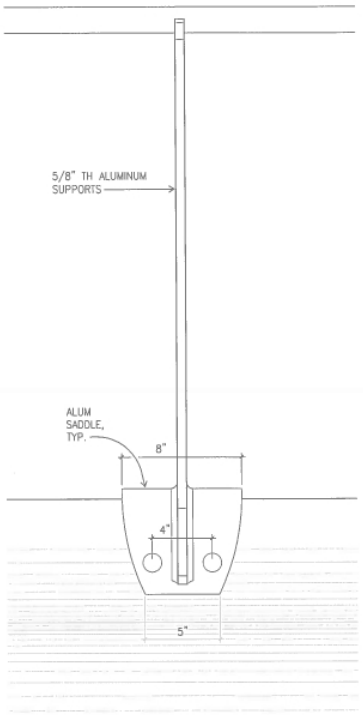
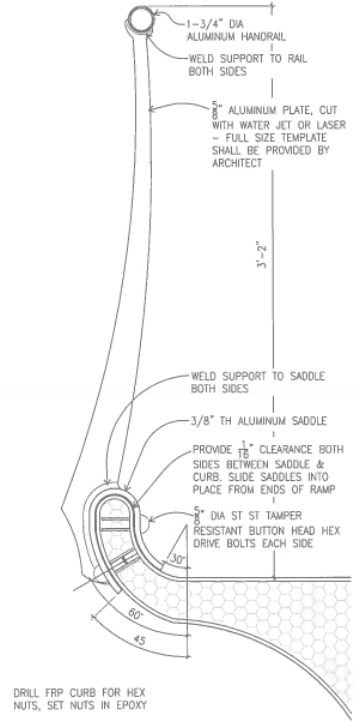


7 A8.6 SUPPORT AT CURB EXT VIEW–ALT#1
SCALE: (C)



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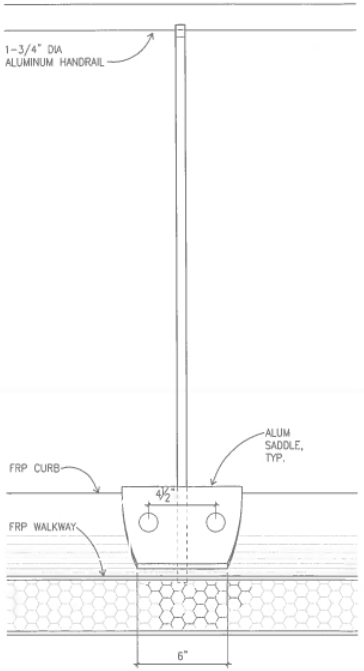
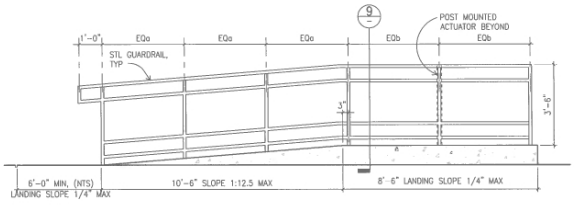
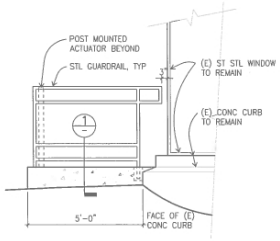


1 A8.6 SUPPORT AT CURB INT VIEW–ALT#1
SCALE: (C)

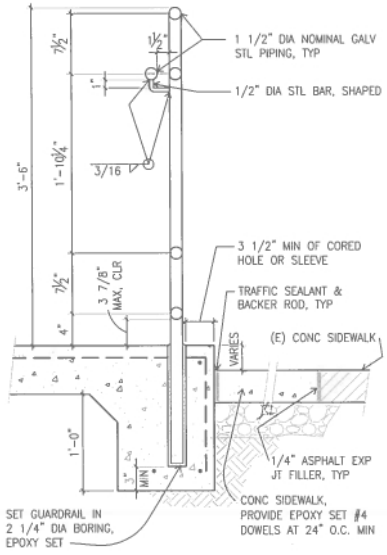
Main Entry Ramp – Elevation and Details



7 SLOPED WALK – EAST ELEVATION
SCALE: ⓒ



2 SLOPED WALK – EAST ELEVATION
SCALE: ⓒ



9 GUARDRAIL / HANDRAIL DETAILS
SCALE: ⓓ

Senior Center Ramp – Elevation and Details