

ABSTRACT

Title of Thesis: ANNAPOLIS CITY DOCK: A SENSORY EXPLORATION

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Master of Architecture, 2012

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This thesis reclaims the neglected waterfront of Annapolis City Dock by reconnecting to unique sensory experiences shaped by wind, water, and craft. A more engaging relationship between land and water is created by sculpting the city's edge and designing a maritime museum and boat building workshop. Sculptural elements of the building produce energy while mapping the movement of wind, and ideas from sailing inspire adaptable building elements which can be tuned to different wind conditions. The site and the building are designed to gracefully accept flooding through landscaping and wet flood proofing strategies. Physical making and the history of craft are reintroduced to a stagnant waterfront while the process of boat making inspires a tectonic expression of frame and skin. These ideas of wind, water, and craft create tactile experiences of place, which are woven into the built environment to reinforce Annapolis' identity as a sailing city.

ANNAPOLIS CITY DOCK:
A SENSORY EXPLORATION

By

Marisa Ann Gomez

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Introduction

Juhani Pallasmaa argues that the preoccupation with the visual experience suppresses investigation through other senses.¹ Today's ocular-centric society focuses mainly on sight, but the experience of place cannot be reduced solely to its appearance. An architect's primary mode of communication is often drawings, but designers must consider the effects of their interventions on all of the senses. This thesis explores architecture as a multi-sensory experience shaped by three elements; Wind, Water, and Craft. These elements are essential to Annapolis' identity as a sailing city.

Annapolis, Maryland will be used as the backdrop for this sensory exploration because of its unique set of sensory qualities based on its proximity to the water. This thesis explores ways to enhance the experience of City Dock, while focusing mainly on a site that borders the south side of the inlet. 110 Compromise Street is currently under built due to restrictive zoning. The site terminates Main Street in an anticlimactic manner. The site is the former home of Fawcett Boat Supplies, a retail store that catered to tourists and the sailing community, however, the building has been vacant for two years. The site has ample opportunity to create an engaging public space, and support a variety of programs to serve visitors and members of the local community.

This thesis tests a program that includes museum, boat building workshop, boat display, office, educational space and rental event space. The boat workshop serves as a major component to the maritime museum experience. This workshop showcases the historic local trade of wooden boat making which was once prevalent in Annapolis. The workshop component is part of a hands-on trade education program in conjunction with local schools.

Wind

Those who sail understand the majestic relationship between the manmade and the natural as wind is harnessed to propel a manmade vessel across open water. As a sailing city, wind is integral to the identity of Annapolis and this natural phenomenon should be celebrated throughout the built environment. This thesis explores the celebration of wind on three levels; power, sculpture, and tuning.

Advancements in wind power technologies are creating products with abilities to generate power with lower and lower wind velocities. With wind speeds averaging around 12-13 mph, wind in Annapolis could generate small amounts of power and serve as an educational demonstration to museum visitors. Small scale turbines and wind collection methods were investigated as an alternative to traditional large scale turbines.



Figure 3- Vibro-Wind Diagram- Cornell Professor Francis Moon developed wind energy generator that vibrates in the wind to produce energy, Source- Michler, Andrew. "Piezoelectric Pads Harness Wind Energy without Turbines," Inhabitat. www.inhabitat.com (accessed May 18 2012).



Figure 2- Vibro-Wind Demonstration- Pads are attached to piezoelectric cells that generate current when they move in the wind, Source- Michler, Andrew. "Piezoelectric Pads Harness Wind Energy without Turbines," Inhabitat. www.inhabitat.com (accessed May 18 2012).



Figure 1- Wind Cube- Modular micro turbines that can be applied to building facades for wind power generation, Source- "Wind Cube Modularized Wind Power System for Urban City Lifestyle" Tuvie. www.tuvie.com (accessed May 18 2012).

Currently City Dock is frozen in historic times and feels stagnant to visitors. In an attempt to connect the inherently dynamic nature of wind to a stagnant city, many wind activated artworks were studied. Wind is an invisible phenomenon but wind activated art allows patterns of wind to be mapped and celebrated throughout the city.



Figure 4- Technorama-Wind activated façade designed by Ned Kahn, Source- www.NedKahn.com



Figure 5- Pacific Grass- Energy generated from movement of rods causes installation to light up, Source- <http://www.kondimopoulos.com/2010/05/pacific-grass>



Figure 6- Adjusting Sails, Source- www.inmagine.com (accessed May 18 2012)

In sailing, wind does not remain constant so the sails must constantly be adjusted or tuned to reach optimal performance. This idea of tuning to environmental conditions can also be applied to the built environment. Adaptable building elements were studied a response to changing wind, sun, and water conditions.

Water

Much of Annapolis City Dock is built on land that has been infilled since the 1800s. This “new” ground is entirely covered by the 100 year flood plain with an expected water level rise of 8 feet. City Dock currently experiences at least minor flooding every couple months and major flooding every few years. In response to current and future flooding conditions, this thesis explores landscape and architectural ways of dealing with water level rise.

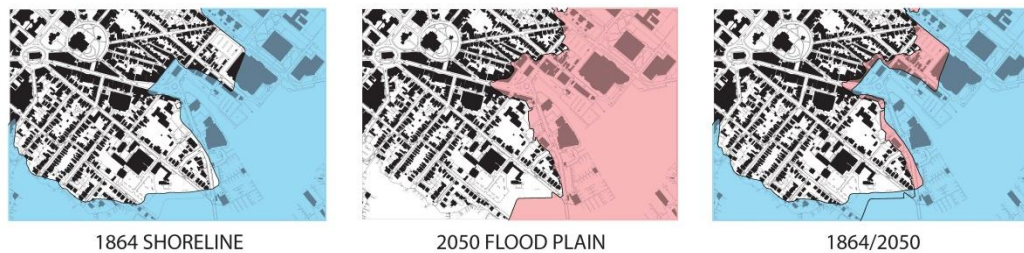


Figure 7- Shoreline versus 100 Year Flood Plain, Source- Author 2012

Current prevalent methods of flood proofing include flood gates, and stilts however these forms of flood proofing create physical barriers between buildings and surrounding urban environments. This thesis explores methods of wet flood proofing in an attempt to keep the building integrated with its surroundings. Wet flood proofing is a method which allows flood waters into the building. Areas below flood level are finished with resilient materials like concrete and removable wainscoting to allow for minimal clean up time after a flood event. Closed cell insulation is used below flood level to prevent water damage. Electrical outlets are placed higher on the wall above flood level and mechanical systems placed on the second floor to avoid water damage. In addition to flood proofing strategies, rainwater strategies were investigated to help design a system for celebrating rainwater collection in conjunction with flood level tracking.

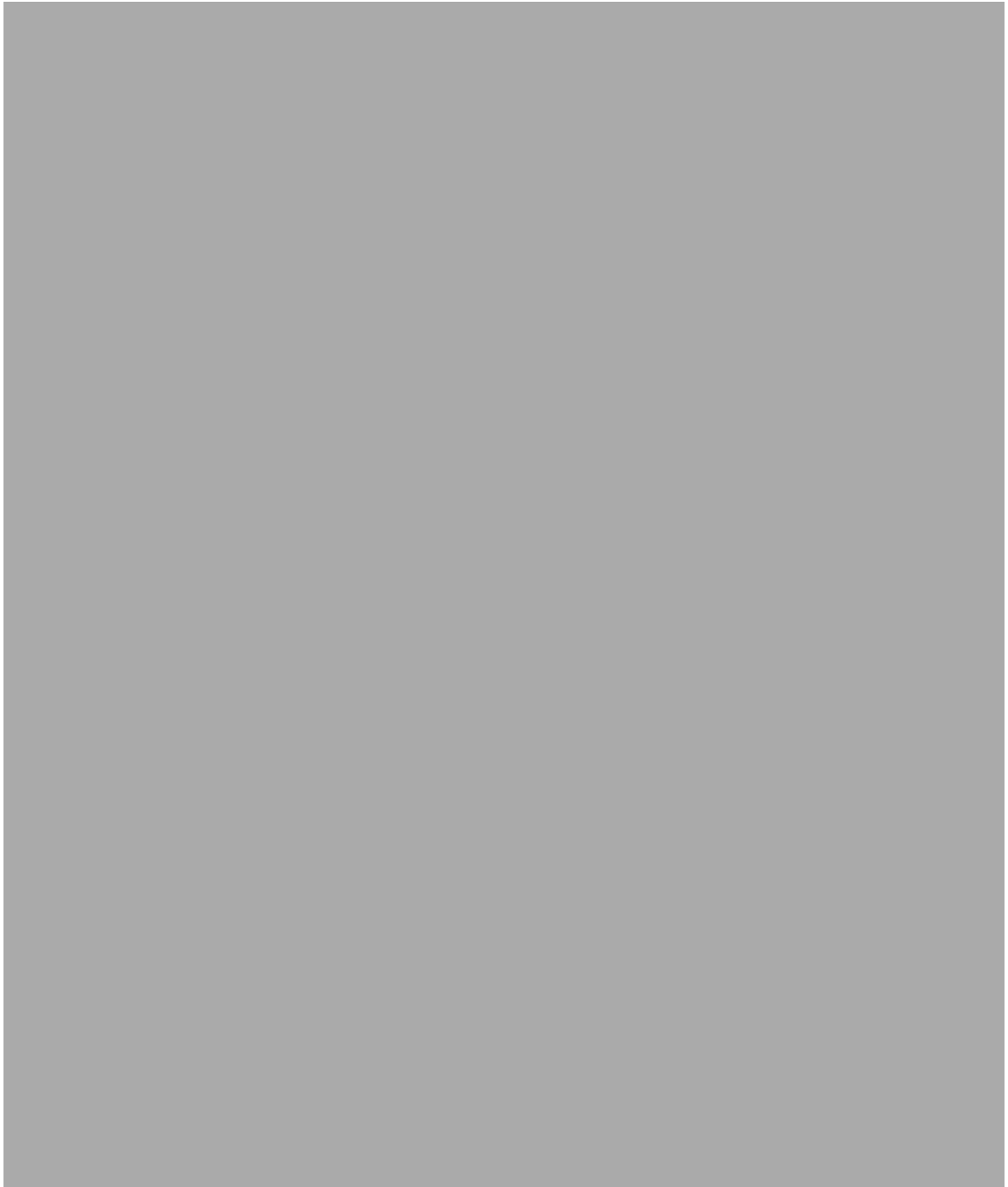


Figure 8- Nissen Adams Flood House- Wet Flood Proofing Strategies, Source- “Designing for Flood Risk”

http://www.architecture.com/Files/RIBAHoldings/PolicyAndInternationalRelations/Policy/Environment/2Designing_for_floodrisk.pdf

Craft

Annapolis City Dock used to be a working port for oyster boats and fishing boats. Downtown was packed with the working class, making a living from industries related to the Chesapeake Bay. As the oyster industry faded with the declining health of the Bay, industry moved away from City Dock. Historic preservation efforts have frozen downtown Annapolis in its colonial time period, completely removing any reference to its 20th century industrial period. This thesis explores ways to reintroduce skilled labor and building crafts into City Dock.

Craft is explored through program with the addition of a boat building workshop. This workshop will be an integral part of the maritime museum, demonstrating an important part of Annapolis' history to visitors. The workshop will also host programs for local community members to learn about working with their hands and the value of making.



Figure 9- Chesapeake Bay Maritime Museum Boat Workshop, Source- Author 2012

The craft of boat making also inspires an investigation of building craft and building tectonics. The building's relationship to both land and water is investigated through building materials and structure. Systems of framing and skinning, inspired by boat building traditions inspire structural and cladding techniques.



Figure 10- Martha's Vineyard

House, Source-

www.StevenHoll.com

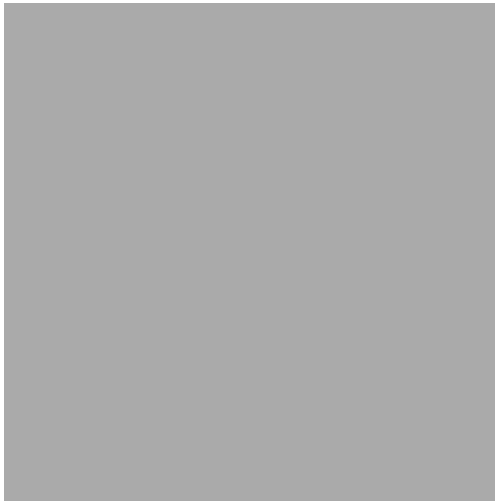


Figure 11- House 22,

Source- www.MLSarchitects.ca

Annapolis, Maryland

Site Description

Annapolis is a city located where the Severn River joins the Chesapeake Bay. The city has over 300 years of history and continues to be an exciting attraction for thousands of visitors a year. Annapolis is the self-proclaimed Sailing Capital of the United States. The city is home to the Naval Academy and hosts the largest annual sailboat show in America. Several sailing clubs exist within 1 mile of the city center. The maritime industry in Annapolis is valued at roughly 1 Billion dollars. In 1965 the city of Annapolis was named as a National Historic Landmark.

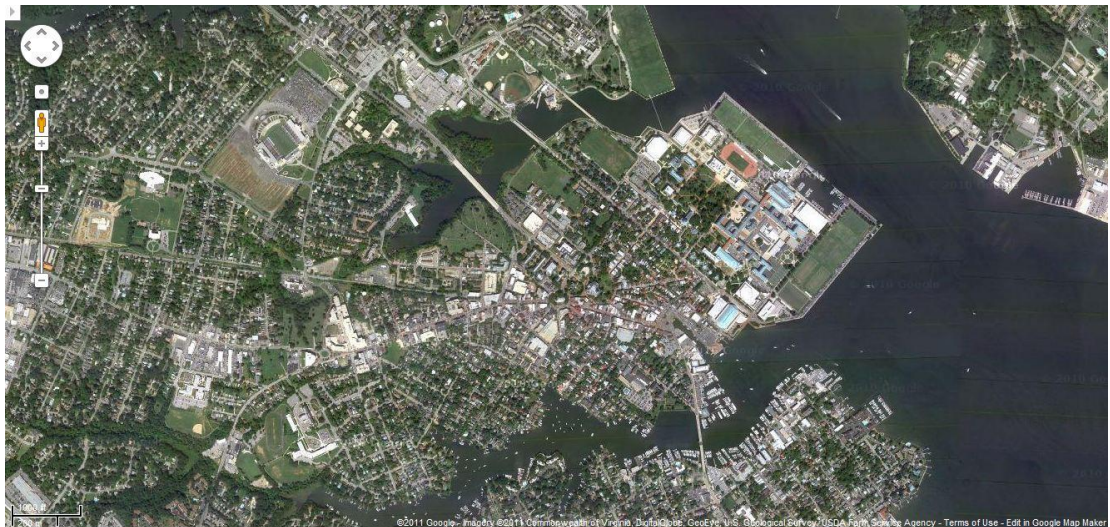


Figure 12- Annapolis, Maryland Aerial Photograph, Source- Google Maps, 2011

City Dock

Until the 1950s Annapolis City Dock operated as a working port and seafood marketplace. During oyster season, the harbor was crowded with skipjacks and other working boats integral to the economic wellbeing of the city. After the 1950s, Annapolis gained a growing reputation as a luxury boating destination. City Dock sits at the heart of downtown Annapolis and is comprised of various properties and public spaces.



Figure 13- City Dock Places of Interest, Source- Diagram by Author, Underlay Google Maps, 2011

Dock Street

Dock Street is currently home to a number of stores and restaurants that front a large surface parking lot with space for over 200 cars, directly adjacent to the water. This is an important drop off location for buses of school children and visitors. The Harbormaster building sits in the middle of the parking lot with a Visitor Center kiosk.



Figure 14- Harbormaster Complex, Source- Author, 2011



Figure 15- Dock Street from Donner Lot, Source- Author, 2011

Market Space

Market Space caps the water inlet known as Market Slip or Ego Alley. The Market House has a number of food kiosks. To the southwest of the Market House is a plaza where visitors can enjoy food from the Market. The plaza is also home to the annual Annapolis Christmas tree.

The small patio at the end of the inlet is a lively gathering spot throughout the year. Local workers gather to eat lunch. Families enjoy ice cream while kids climb around the statues. Local musicians and artist often use this area as a stage.



Figure 16- Market Slip Patio, Source- Author, 2011



Figure 17- Market Slip Patio, Source- Author, 2011

Susan B Campbell Park

Campbell Park is a brick patio at the end of City Dock with a panoramic view toward the harbor. This area is often used for tented events, and concerts. It is also an important space during the annual boat show.



Figure 18- Susan B Campbell Park Facing Water, Source- Author, 2011



Figure 19- Susan B Campbell Park Facing Dock Street, Source- Author, 2011

Donner Lot

Donner lot is a city owned 24-space parking lot at the base of Main Street. This lot is currently used for a weekend Farmer's Market and is converted into valet parking on the weekends.



Figure 20- Donner Lot from Dock Street, Source- Author 2011



Figure 21- Donner Lot, Source- Author, 2011

Compromise Street

Compromise Street is an important corridor that provides a gateway into Annapolis from the south. Currently Compromise Street is lined with residential to the West and the east side of Compromise Street is home to the Annapolis Yacht Club, the Marriott Hotel, the Fleet Reserve Club and the former Fawcett Boat Supplies building.



Figure 22- Approach From Compromise Street, Source- Author, 2011.

110 Compromise Street

110 Compromise Street is the site of the former Fawcett's Boat Supplies store that sold boat parts and supplies, apparel and nautically themed souvenirs. Fawcett Boat Supplies left this site in 2010 for financial reasons. The site is currently zoned as part of a Waterfront Maritime Conservation district that aims to preserve the charming character of Annapolis as a maritime city by requiring new structures within the district to retain maritime uses. This site has ample opportunity to create an engaging public space, and support a variety of programs which serve visitors and members of the local community.



Figure 23- Fawcett's Boat Supplies, Source- Author, 2011.

The main façade of the former Fawcett's Boat Supplies building facing away from City Dock toward the Spa Creek Bridge. This is the only corner of the building with windows.



Figure 24- Fawcett's Building from Main Street, Source- Author, 2011.

The back of the Fawcett's building currently faces Main Street leaving pedestrians without an activated street front. The current orientation of this building is not welcoming, especially at night.



Figure 25- Fawcett Building Along Water, Source- Author, 2011.

The Fawcett's building does not have any windows or openings toward the water which creates an uninviting environment for pedestrians. Public access to the waterfront continues past this building but visitors feel unsure whether they should continue past this corner. The dock walkway is only about 8 feet wide and is not of a civic scale.

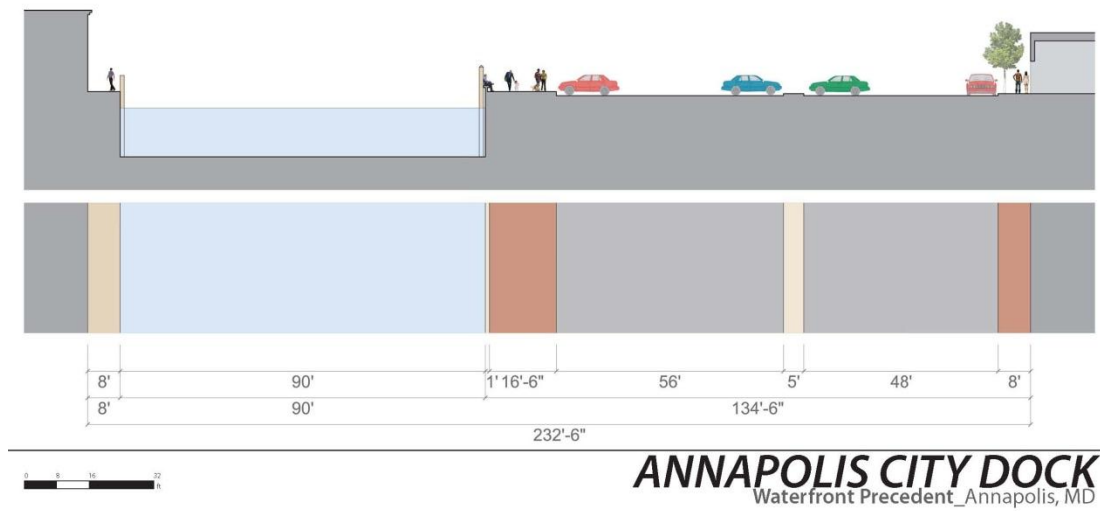


Figure 28- Annapolis Site Section, Source- Author, 2011.

Site History

In 1694 the Capital of Maryland was moved from St. Mary's in southern Maryland to Annapolis and Francis Nicholson was appointed Governor of Maryland. Francis Nicholson designed a plan for Annapolis in 1695 that incorporated baroque circles and diagonal vistas cut through an existing orthogonal street grid. Annapolis is the first complete and surviving Baroque plan in the United States. State circle was built on the highest point of the city at 55 feet above sea level on about six acres of green. Church Circle is on slightly lower land and sits on about 2 acres of land. Nicholson's accommodation of site topography prevented the development of pure geometries.



Figure 29- Nicholson's Plan of Annapolis, Source- Reps, John W. "Town Planning in the Tidewater Colonies." *In The Making of Urban America*, 88. Princeton, New Jersey: Princeton University Press, 1965

The landform of City Dock has been altered many times throughout history. The original shoreline ran along the front of building now currently on Dock Street. By 1844 the sides of Market Slip were beginning to be filled in. In 1854 Fort Severn was transferred to the Department of the Navy and by 1877 the Naval Academy had truncated the original vista from State Circle to the water. A bridge was built across Spa Creek in 1868 but it was not until 1890 that the bridge was connected to Main Street by Compromise Street. Parts of Compromise Street have existed since 1837 but it took considerable negotiation to convince waterfront property owners in 1890 that Compromise Street should be connected all the way to the Spa Creek Bridge. By 1935 the land under what is now Susan Campbell Park was filled in and the turning basin at the end of Market Slip was dug out in 1981.



Figure 30- Shoreline Infill, Source- Frens, Dale E., Christopher Lang Frens, and Frens Restoration Architects. *Building in the Fourth Century: Annapolis Historic District Design Manual* Annapolis Historic Preservation Com., 2007.



Figure 31- View Based on 1864 Drawing, Source- Reps, John W. Bird's Eye Views: Historic Lithographs of North American Cities. Princeton, New Jersey: Princeton Architectural Press, 1998.



Figure 32- 1864 Plan of City Dock, Frens, Dale E., Christopher Lang Frens, and Frens Restoration Architects. *Building in the Fourth Century: Annapolis Historic District Design Manual* Annapolis Historic Preservation Com., 2007.



Figure 33- Campbell Park Land Filled in by 1935, Source- Budge, Joe. *The Shorelines of the Annapolis Market Slip* Annapolis City Dock Advisory Committee, 2011 (accessed October 17 2011).



Figure 34- 1981 Addition of Turning Basin, Source- Budge, Joe. *The Shorelines of the Annapolis Market Slip* Annapolis City Dock Advisory Committee, 2011 (accessed October 17 2011).

Site Planning

In 2009 the City of Annapolis created a comprehensive plan that expressed interest in improving City Dock². The 2009 Comprehensive Plan outlined a number of goals including increasing public access to the waterfront, creating pedestrian friendly environments and providing a variety of public open spaces to sponsor various activities. The City wants to provide accommodations for various types of boats including recreational boaters, cruise boats, and water taxis. The City would also like to reduce parking within the waterfront civic space while still allowing enough vehicular access to support the retail along Dock Street.

City Dock Advisory Committee

A City Dock Advisory Committee comprised of over 25 representatives from local stakeholders was established by Mayor Cohen in September of 2010. This Committee was tasked with encouraging public participation in creating a development plan for City Dock. The City Dock Advisory Committee identified a number of issues with the current layout of city dock. There is too much emphasis on vehicular traffic and not enough public open space. There is not a successful transition from water to land and view sheds have been compromised. Businesses are struggling to compete with nearby large commercial activity within the region.

ULI Study

The Urban Land Institute was asked by the City to conduct a study of Annapolis in November of 2011³. ULI recognized that Annapolis has authentic history and charm. Annapolis is currently a regional dining destination and ULI believes that Annapolis should capitalize upon this. They suggested that in order to support a greater mix of retail within the city, Annapolis

would need to get a higher density of people living Downtown. There is currently a lack of housing for young professionals. There is also a need for more hotels closer to City Dock.

ULI identified a number of potential redevelopment sites. It was suggested that the former Annapolis Recreation Center could be adaptively reused as housing or hospitality. The current Board of Education Site could be redeveloped into a mixed use complex with structured parking. Vacant lots on Dock Street and specific non-historic parcels could be developed into mixed use with structured parking. ULI recommended that Market House become a flexible open air pavilion with retail kiosk by day and an entertainment venue by night. ULI recommended that building codes be relaxed within the historic core to allow more buildings along Main Street to utilize their second and third story spaces as professional offices. The former site of Fawcett's Boat Supplies was designated as a good spot for additional hotel space or waterfront entertainment and retail.



ULI SUGGESTIONS
Site Analysis, Annapolis, MD

Figure 35- ULI suggestions for City Dock, Source- Urban Land Institute. *Annapolis City Dock: A Technical Assistance Panel Report* Urban Land Institute, 2010.

ULI provided a sketch which re-imagined City Dock as a more vibrant space for visitors and residents. The harbormaster complex was expanded and a plaza was added to the southeast to host events. Paving this plaza provides the opportunity to use the space as additional parking when needed. Reinforced Grass was recommended in place of much of the current parking lot. This would allow visitors to enjoy being close to the water while still allowing flexibility for the area to be used during the boat show for kiosk space. ULI suggested flexible removable shading devices to make the area more pleasant in the summer sun. They also recommended carving out some of the shoreline near Fawcett's Boat Supplies and the Sailing Hall of Fame to give more people access to the water.

Site Analysis

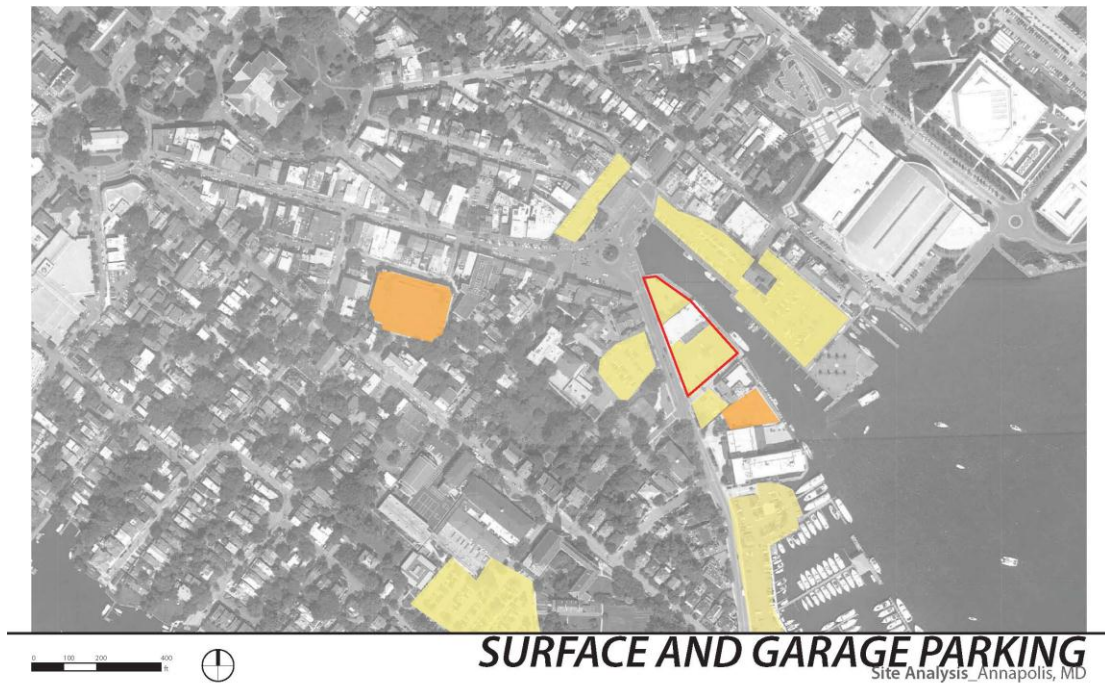


Figure 37- Parking, Source- Author, 2011.

Parking on City Dock is poorly organized. Structured parking garages on Main Street and at the Marriott Hotel on Compromise Street carry some of the parking loads but extensive surface parking surrounds much of the waterfront. The monumental axis from Church Circle, down Main Street toward the waterfront is capped with a parking lot. A large parking lot separates the waterfront from the storefronts along Dock Street creating an unfriendly pedestrian environment. If parking were concentrated in garages, the waterfront could be developed into a more successful public gathering space.

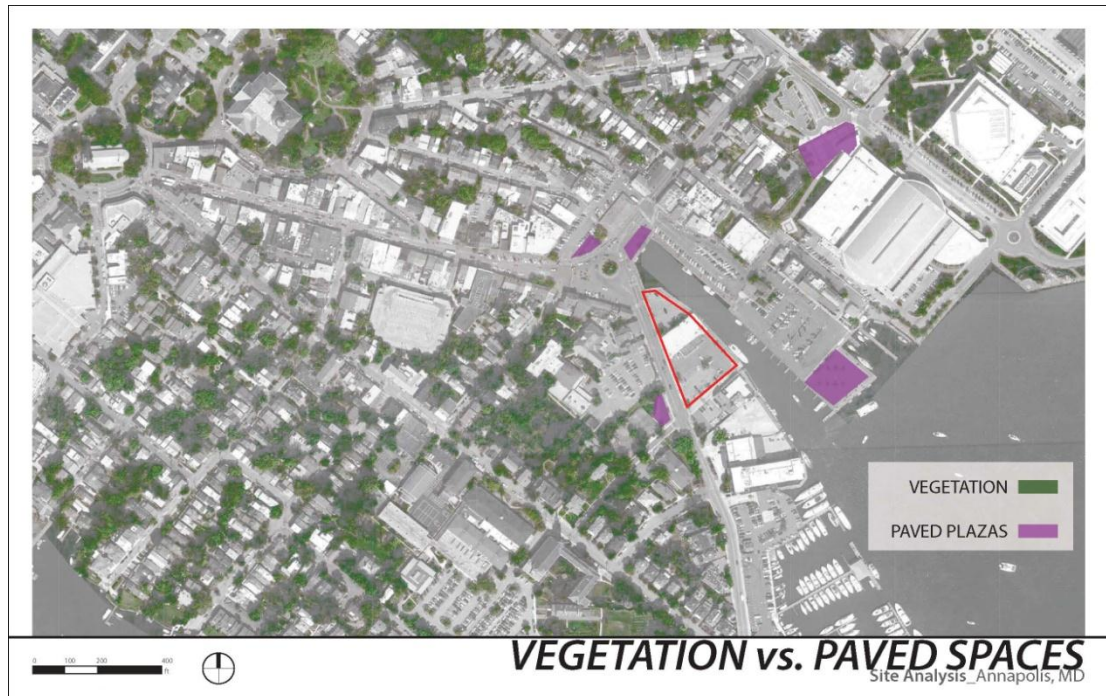


Figure 38- Landscape vs. Hardscape, Source- Author, 2011.

There is a noticeable lack of public green space within the city center. Most of the public gathering areas including the Alex Haley memorial, Susan B Campbell Park, and the plaza outside of Market House are paved surfaces with very few trees. Some of these plazas are designed with limited vegetation to allow for spaces to be converted during large annual events including the US Sailboat Show. There could be a better mix of landscaped and paved areas to allow a more diverse range of activities.



Figure 39- Visitor Destinations, Source- Author, 2011.

Major visitor destinations include St Anne’s Episcopal Church on Church Circle, the State House, Market House, the Paca House, and the newly designed Sailing Hall of Fame. Main Street and the walk around the water are also seen as a tourist destination. The site at 110 Compromise Street could help to develop the city’s waterfront as a better destination.

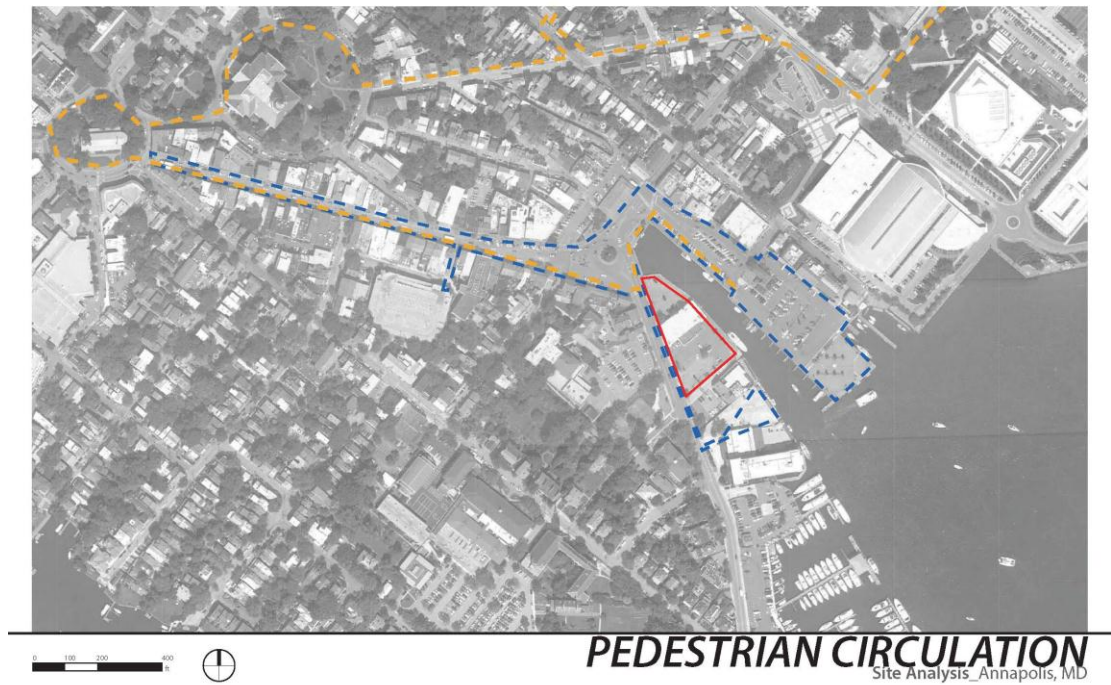


Figure 40- Pedestrian Circulation, Source- Author, 2011.

Pedestrian activity around City Dock is focused heavily on Main Street. Buses of visitors are often dropped off in the parking lot adjacent to Dock Street. They walk up Main Street to Church Circle and then visit the statehouse before making their way to the Naval Academy. Residents of Annapolis and the surrounding area often park in the garage on Main Street and stay closer to the waterfront after doing one lap up and down Main Street to people watch. There is a very popular bar and restaurant below the Marriott along the water that is often frequented by locals. Developing the site at 110 Compromise Street would create more active pedestrian experience for residents walking to restaurants and businesses along Compromise Street.

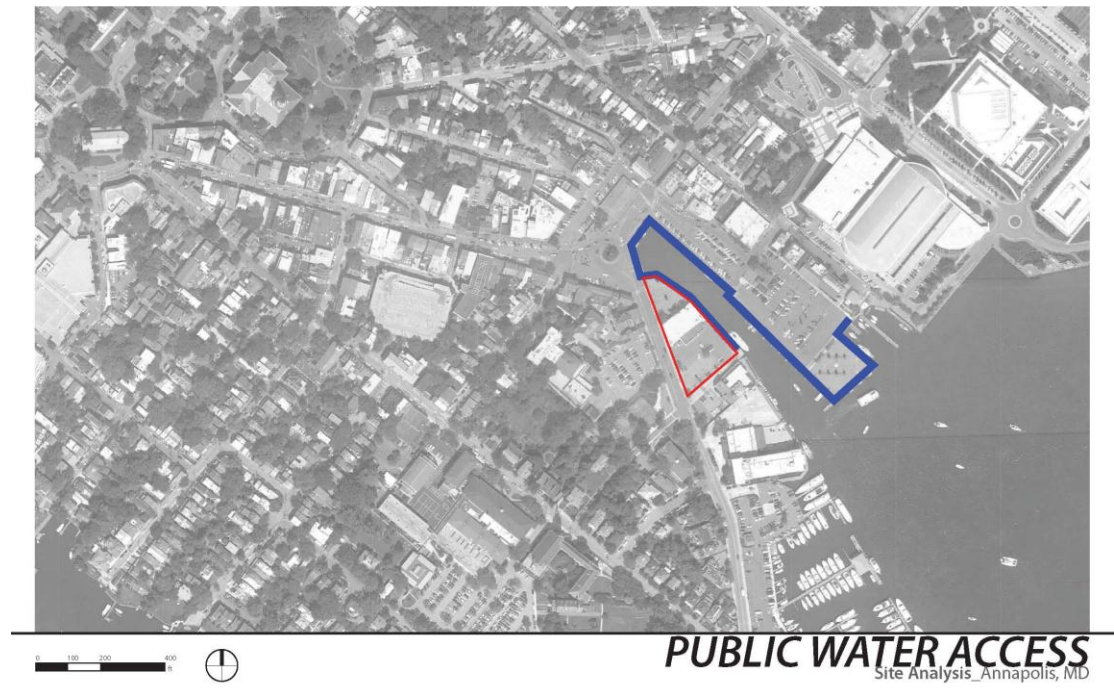


Figure 41- Public Water Access, Source- Author, 2011.

Pedestrian access around the water front continues from the Susan B Campbell Park around the harbor and along the northeast side of the site. Pedestrian access is restricted at the southeast end of the site by the Fleet Reserve Club and the Marriott Hotel. Though there is a public dock along the northeast edge of the site, it is not a welcoming place to walk due to the narrow width of the dock. A better experience along the waterfront could be created if this sight were developed.

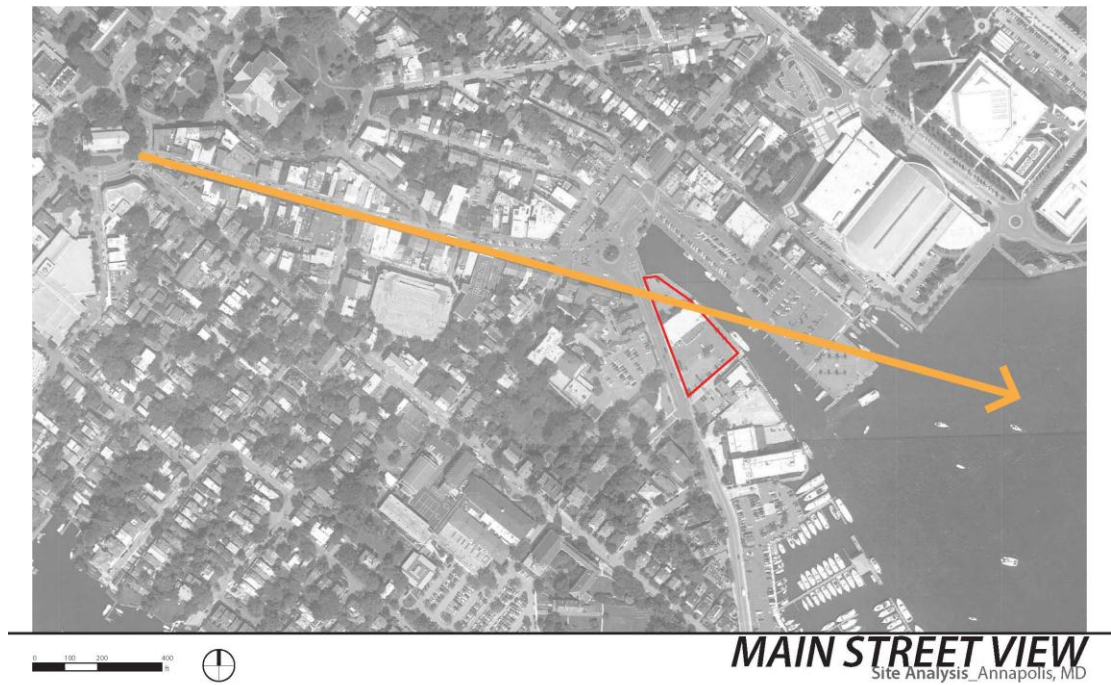


Figure 42- Main Street View Shed, Source- Author, 2011.

Main Street creates an important axis from Church Circle to the waterfront. Currently the view of the water from Main Street is slightly obstructed by the corner of the northern corner of the former Fawcett Boat Supplies building. The city is interested in creating a development on the site that opens this view.



Figure 43- Material Palette, Author, 2011.

The architecture of Annapolis is constructed of a variety of brick and stone materials. The architectural vocabulary is mostly solid walls with punched openings. There are a few newer developments in the city which have interpreted this palette with more modern materials including a mixed use project along State Circle which uses a mix of wood and brick.

Site Precedents

Site precedents were investigated to determine ways of activating the waterfront within the city. The following examples show strategies for creating a publicly accessible and vibrant waterfront. Each example creates places for people to move along the waterfront as well as places to sit and rest while enjoying the views.

Nyhavn, Copenhagen, Denmark

Nyhavn is a 17th century canal and entertainment district in Copenhagen, Denmark. The north, sunnier side of the canal is lined with townhouses, bars, and restaurants while the south side of the canal is lined by historic mansions. The canal itself is used to display historic wooden ships which are open to tourists.



Figure 44- Nyhavn, Copenhagen, Source- Students of the World. [Http://www.studentsoftheworld.info](http://www.studentsoftheworld.info) (Accessed December 15, 2011).

Though Nyhavn is almost twice the length of Ego Alley in Annapolis, Maryland, its width is almost identical to Ego Alley at about 90 feet wide. Figure 37 shows Nyhavn overlayed onto Ego Alley at the same scale.

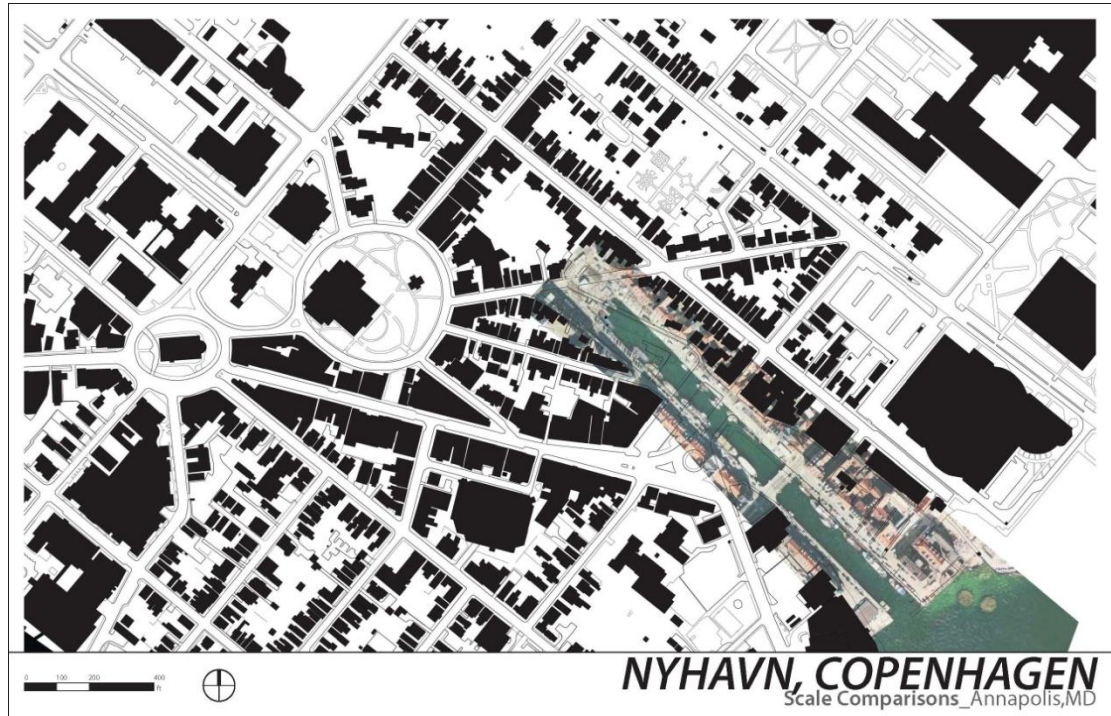


Figure 45- Nyhavn Scale Comparison, Source Author, 2011.



Figure 46- Nyhavn Ground Surface, *US2Norway*, www.us2norway.com, (accessed December 15, 2011).

Unlike Ego Alley, Nyhavn favors the pedestrian experience above cars. On the north side of the canal, the street comes all the way to the water, but the ground is paved with a curbless cobblestone surface so that cars and people can share the same space.

Restaurants open into the public space, creating seating areas along the water for visitors to people watch and enjoy the water. People line the edge of the waterfront on sunny days. On the south side of the canal there is a busier vehicular street and the water is lined with parking spaces. In comparison to Ego Alley, Nyhavn provides a more activated pedestrian experience while still accommodating vehicles.



Figure 47- Nyhavn Waterfront, Source- Lonely Planet, <http://www.lonelyplanet.com/denmark/images/nyhavn-copenhagen>\$23633-7 (accessed December 15, 2011).

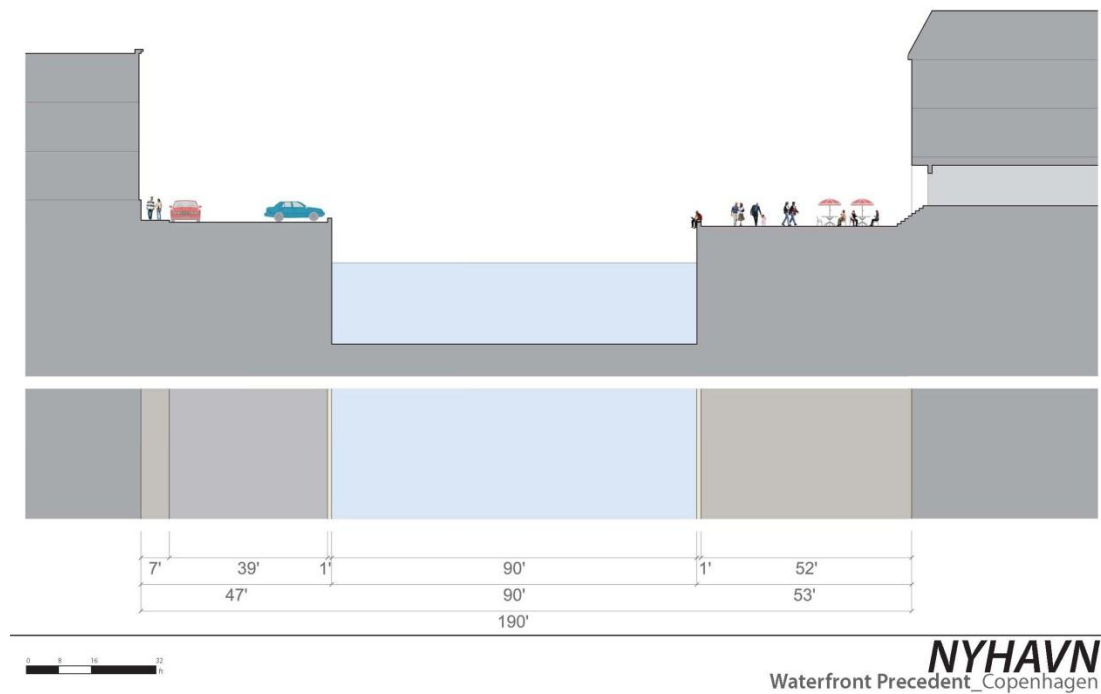


Figure 48- Nyhavn Section, Source-Author, 2011.

Darling Harbour, Sydney, Australia

Darling Harbour in Sydney, Australia creates a lively pedestrian experience around its waterfront.



Figure 49- Darling Harbour, Source- *Michigan Tech University*, WWW.MTU.EDU, (accessed December 15, 2011).



Figure 50- Darling Harbour Stairs, Source- EvanWong, www.flickr.com, (Accessed December 15, 2011).

The East side is lined with bars and restaurants and is a dining destination within the city. There is no street along the waterfront but there is a wide brick walkway incase vehicles are necessary. The ground plane transitions from brick to wood as it reaches the water. The wood steps down from the storefront level towards the water creating steps for visitors to rest and enjoy the views.

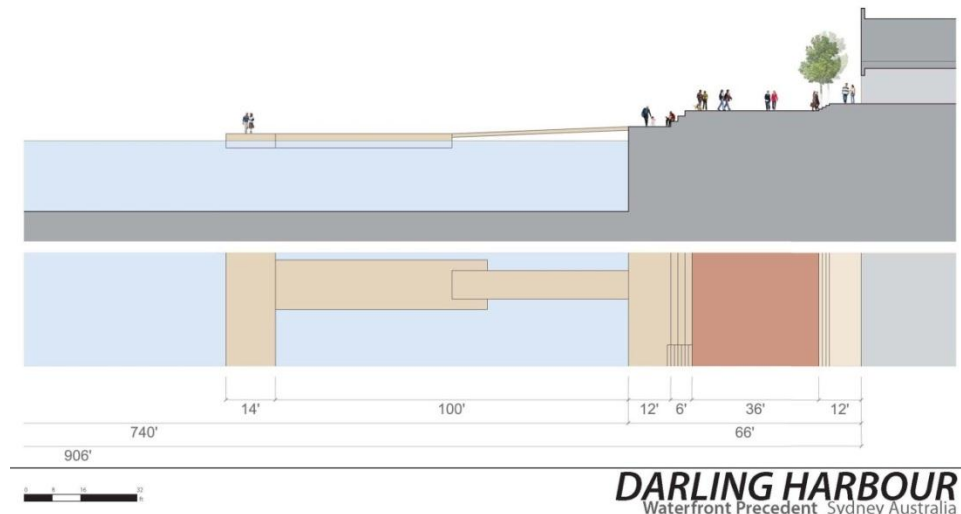


Figure 51- Darling Harbour Section, Source- Author, 2011.

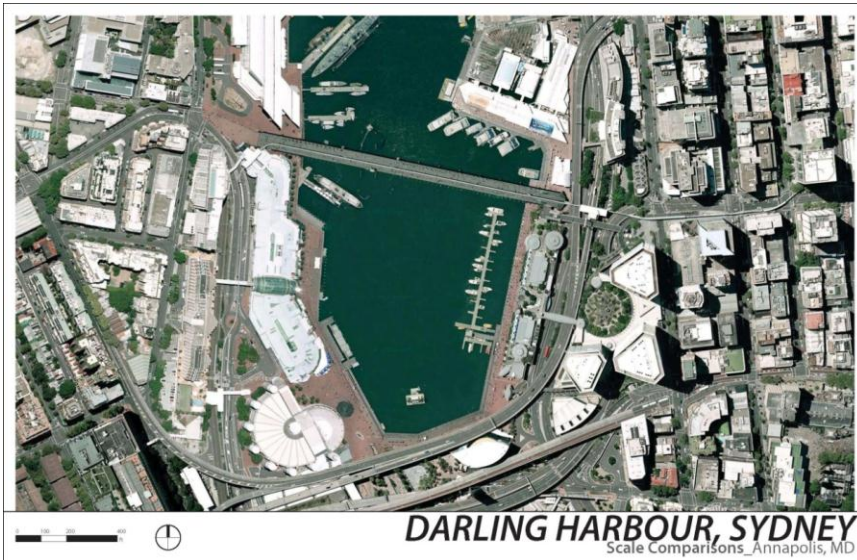


Figure 52- Darling Harbour Aerial, Source- Google Maps, 2011.



Figure 53- Darling Harbour Scale Comparison, Source- Author, 2011.

Though the harbor is much wider than Ego Alley in Annapolis, the length of the harbor below the bridge is similar to Ego Alley.

Program

A program evolved as sensory, site and precedent ideas were tested in context. The Annapolis Maritime Center is comprised of major program pieces including maritime museum, boat building workshop, boat display, event space, office space and restaurant.

Maritime Museum Precedents

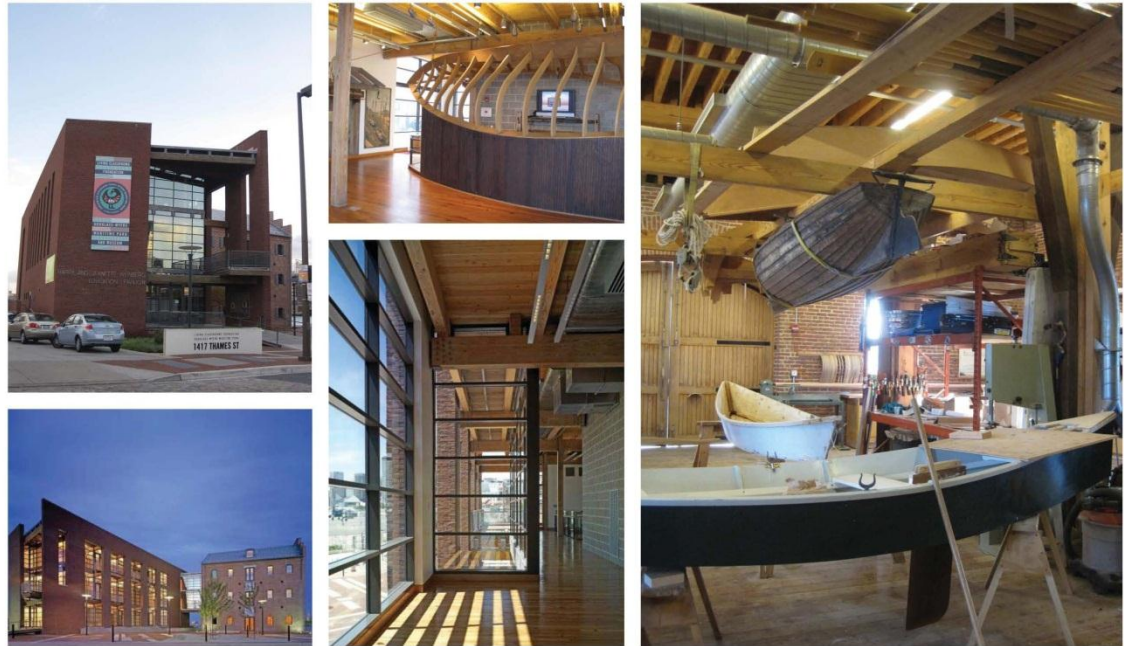
Annapolis has a very strong maritime history that should be prominently displayed at City Dock. A hands-on maritime museum on City Dock would give visitors access to this rich aspect of local history. Maritime museums within the Chesapeake Bay region were studied as precedents for this thesis.

Frederick Douglass – Isaac Myers Maritime Park, Baltimore, MD

The Frederick Douglass- Isaac Myers Maritime Park is located near Fell's Point in Baltimore, Maryland.



Figure 54- Frederick Douglass- Isaac Myers Maritime Park, Source- Google Maps, 2011.



LIVING CLASSROOMS PHOTOS

Ziger Snead_Baltimore, MD

Figure 55- Living Classrooms Photos, Source- Author, 2011.

The Frederick Douglass- Isaac Myers Maritime Park is the home to a maritime museum, offices for the Living Classrooms Foundation, a restaurant, gift shop, boat workshop and event rental space as well as a large public plaza fronting the water.

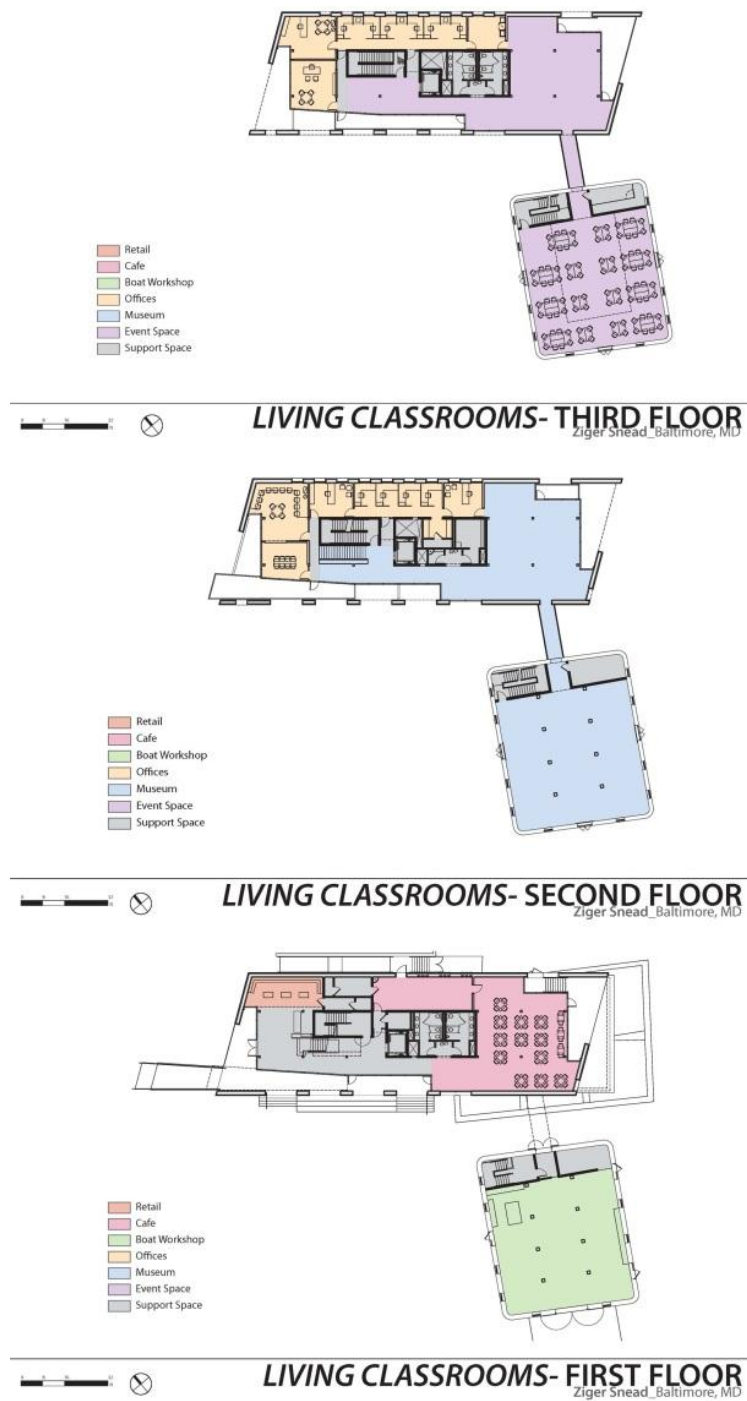


Figure 56- Living Classrooms Program Distribution, Source- Plans: Ziger Sneed Architects, 2004, Diagram: Author, 2011.

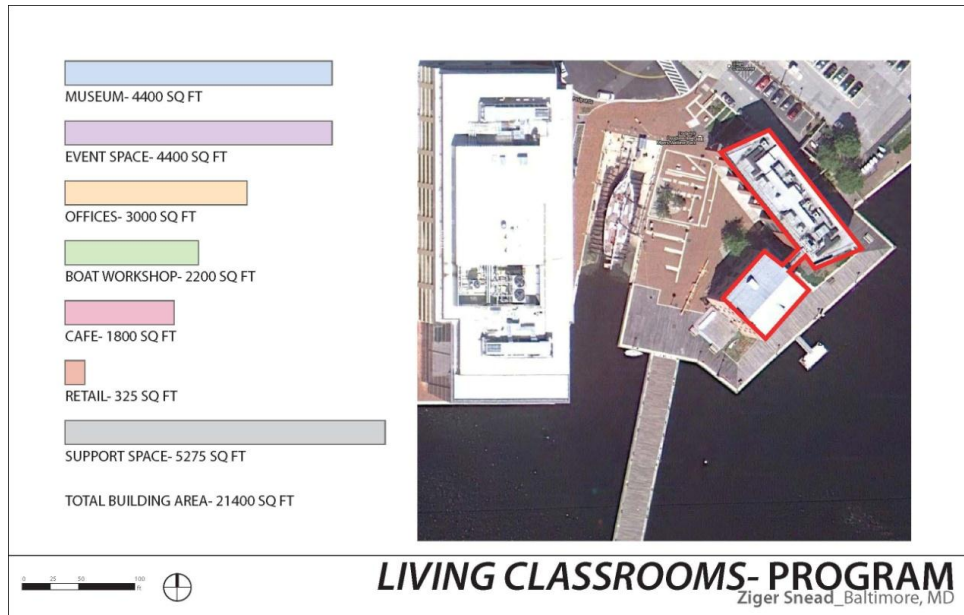


Figure 57- Maritime Park Program, Source- Author, 2011.

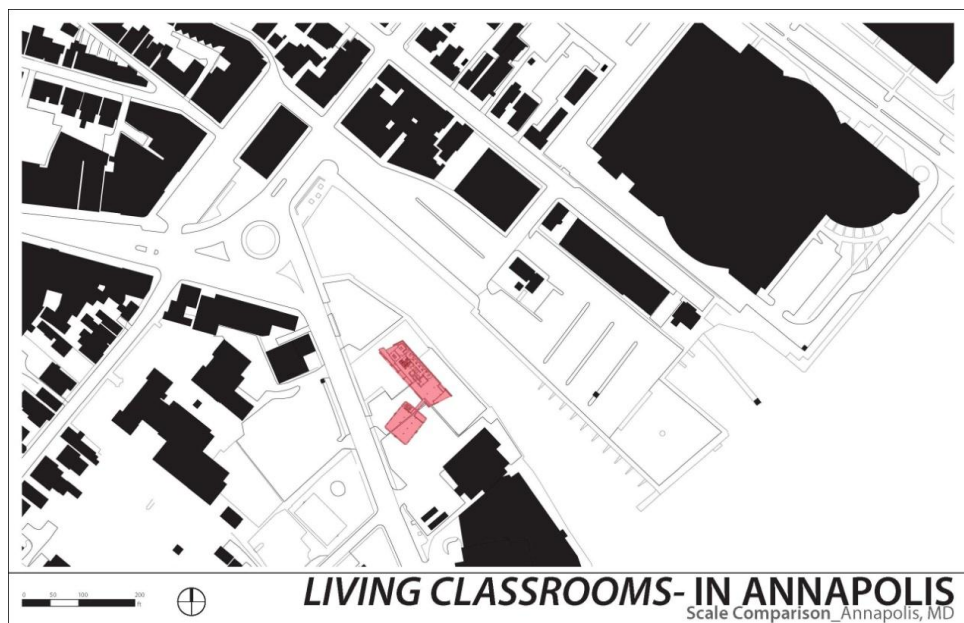


Figure 58- Maritime Park in Annapolis, Source- Author, 2011.

A program similar to the Maritime Park program would fit comfortably on City Dock in Annapolis leaving ample room for public open space.

Annapolis Maritime Museum

Annapolis currently has a small state funded maritime museum located outside of City Dock in Eastport. This museum sits within a residential neighborhood along the waterfront in an adapted historic oyster factory. In 2003, Hurricane Isabel destroyed a corner of the building and the museum spent \$1.5 million to rebuild. The structure is a simple warehouse building made of concrete block. Roof supports are reinforced by wooden beams and concrete floors run through the entire museum. There is a large amount of office space with a museum room and an art gallery with rotating exhibits which fronts the water. The museum is used mostly by local school groups but it gets very few visitors from out of town due to its local away from City Dock. The museum is only open Thursday through Sunday from noon to 4pm. The Annapolis Maritime Museum is heavily involved with the community and sponsors a number of activities including a group of Annapolitans who restore historic boats in the open green space adjacent to the museum. This museum provides a number of exciting opportunities for those who stumble upon it, but it would benefit from moving to a more prominent location.



Figure 59- Annapolis Maritime Museum- Source- Google Maps, 2011

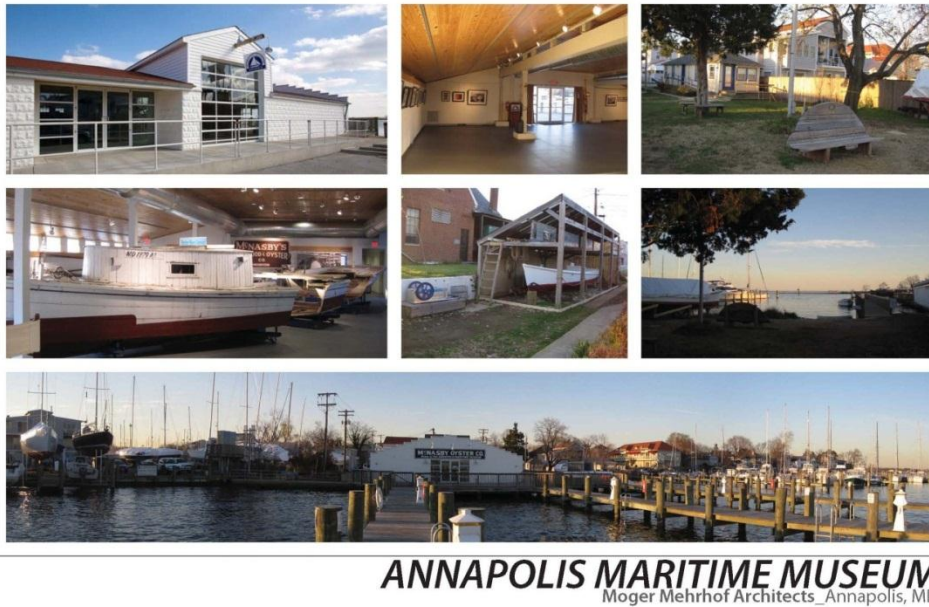


Figure 60- Annapolis Maritime Museum Photos, Source- Author, 2012

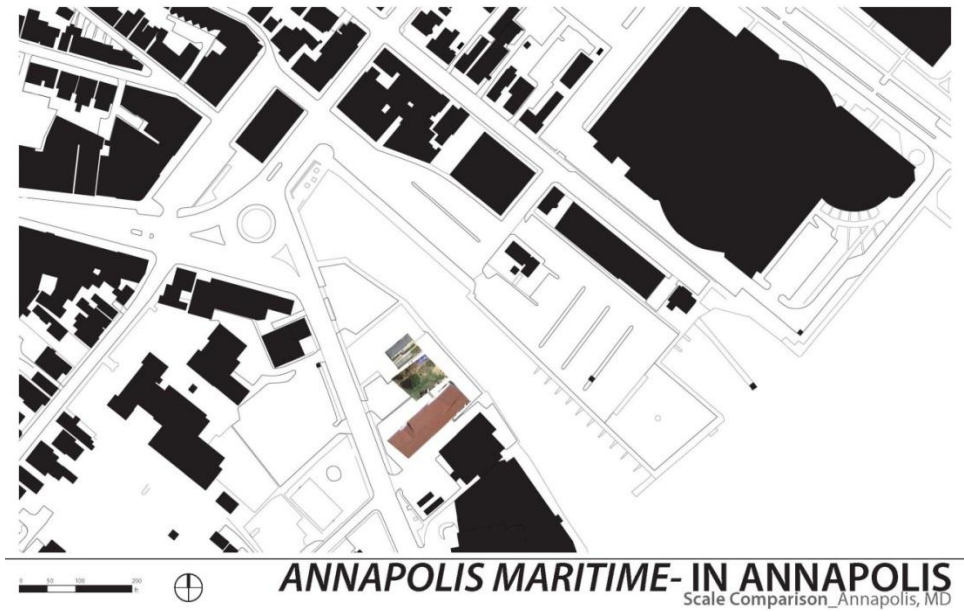


Figure 61- Annapolis Maritime Museum Footprint, Source- Author, 2012

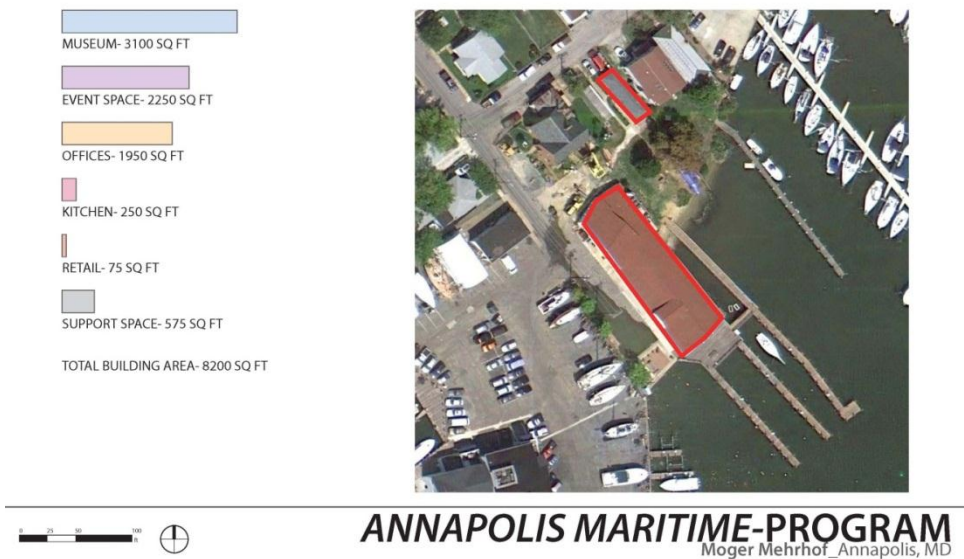


Figure 62- Annapolis Maritime Museum Program, Source- Author, 2012

Chesapeake Bay Maritime Museum- St. Michael's, MD

The Chesapeake Bay Maritime Museum located in St Michael's Maryland is a sprawling museum campus with a variety of buildings and exhibits displaying Bay history and artifact. The Boat building workshop at the Chesapeake Bay Maritime Museum was studied as precedent for the proposed workshop space at the Annapolis Maritime Center.



Figure 63- Chesapeake Bay Maritime Museum Workshop- Source, Author 2012



Figure 64- Chesapeake Bay Maritime Museum Workshop, Source- www.flickr.com

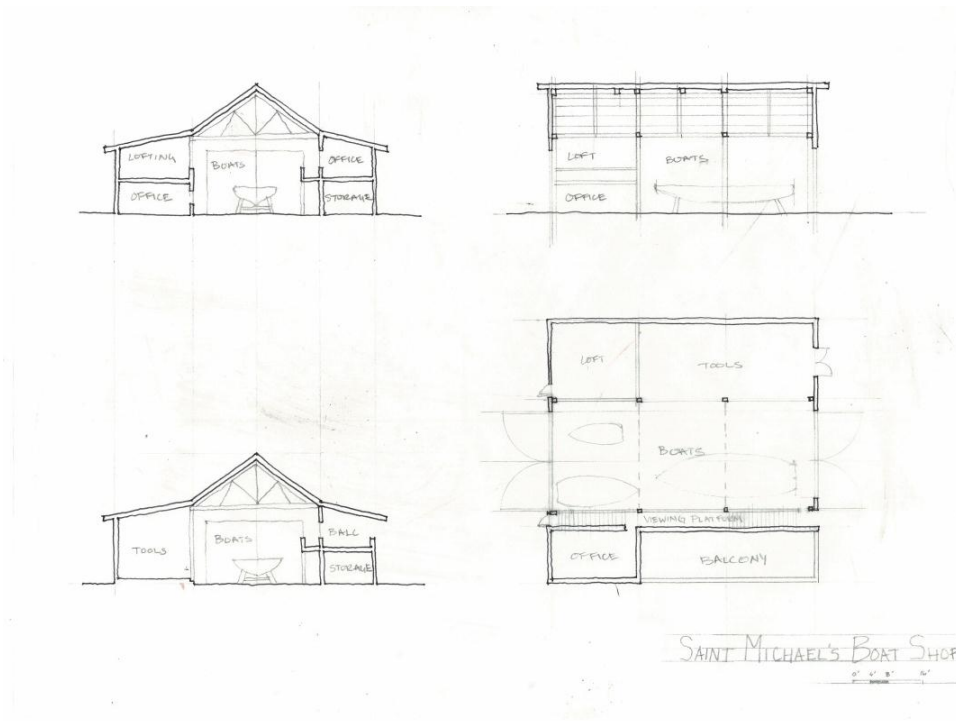


Figure 65- Chesapeake Bay Maritime Museum Workshop Dimensions, Source- Author 2012

Program Studies

A program evolved as sensory, site and precedent ideas were tested in context. The program for this site activates the ground floor, provides amenities for Annapolitans, creates a tourist destination, and provides revenue through event rental space. The Annapolis Maritime Center is comprised of major program pieces including maritime museum, boat building workshop, boat display, event space, office space and restaurant.

Museum

Annapolis' industrial history has been all but erased from City Dock. There are numerous museums scattered about the downtown area, but all seem to cater to colonial times. Annapolis needs a museum that can serve as an anchor to city dock, and offer a hands-on, interactive experience as an alternative to the stagnant colonial house museums currently available. The museum component will allow for a relocation of exhibits currently hidden in Eastport at the Annapolis Maritime Museum. This museum will serve as a starting point for explaining the history of the Chesapeake Bay as it evolved from a place of work boat and oystering, to a bay used mainly for recreational purposes. The museum will also provide exhibit space for learning about environmental issues and how our actions are affecting the health of our local ecosystems. Architecturally the museum component allows visitors to visually interact with the waterfront while providing a front to Compromise Street. The museum is easily visible from the base of Main Street and the promenade of the museum allows visitors to interact with the boat building workshop.

Boat Workshop

The boat building workshop is an integral component of the maritime museum which allows visitors to have a tactile relationship with the history of boat making in Annapolis. Visitors will enter the boat workshop as part of the museum promenade. The boat workshop will produce boats for sale to generate profit. The workshop will also be used for educational programs similar to the Living Classrooms program through the Frederick Douglass Maritime Museum in Baltimore. Local youth will be participants in programs that teach reading and math skills through making. The workshop may also be used to sponsor apprenticeship programs to help aspiring shipwrights continue to learn the skills of boat making. Substantial covered outdoor workspace will be part of the boat building workshop. A high bay space is necessary for working on and moving large boats. A track hangs from the ceiling and runs the length of the boat building workshop and into the outdoor space to allow boats to be raised and moved in and out of the workshop. The space is sized for the workshop to comfortably handle 30 foot boats.

Boat Retail

The boat retail space provides an opportunity for smaller boats made in the boat workshop to be displayed for sale. This space is modeled after the storefront to Chesapeake Light Craft in Annapolis, a small company which produces kits to assemble small wooden boats. This retail space will provide a storefront to Compromise Street allowing pedestrians to see the final products from the workshop space.

Café

The restaurant serves as an amenity to local residents and visitors alike. It is easily visible from the base of Main Street and provides ample outdoor eating space to enjoy Bay breezes on nice evenings. Many restaurants on City Dock currently lack this outdoor amenity. The

restaurant is positioned to interact and activate the plaza created between the two building volumes. The restaurant may also help support large events hosted in the event space. Easy access to the restaurant is provided directly from the plaza and also from the museum lobby.

Office

The office component will serve both the museum administration and the Living Classrooms programs sponsored by the boat building workshop. The office is well suited to line the upper floors of the building facing Compromise Street and allowing ample day lighting for museum staff. The office is physically separated from the workshop space to provide an ample sound buffer since both spaces are likely to be used during similar hours. Direct access from the plaza to the office is provided so that museum staff does not have to traverse the museum before entering their work environments.

Event

The event space is conceived as a large gathering space which can host a variety of different activities throughout the week. On weekends the space could be rented out for conferences, wedding or other large community gatherings. During the week, the space could be subdivided into smaller gathering areas to serve as classrooms for school children visiting the museum, or places to teach lessons to be later applied in the boat building workshop. When not in use as classroom or event space the area is used as gallery to display local artwork similar to the event rooms as the Annapolis Maritime Museum in Eastport and the Frederick Douglass Maritime Museum in Baltimore. This room is placed on the third floor closest to provide panoramic views of the Chesapeake Bay, Main Street, and City Dock.

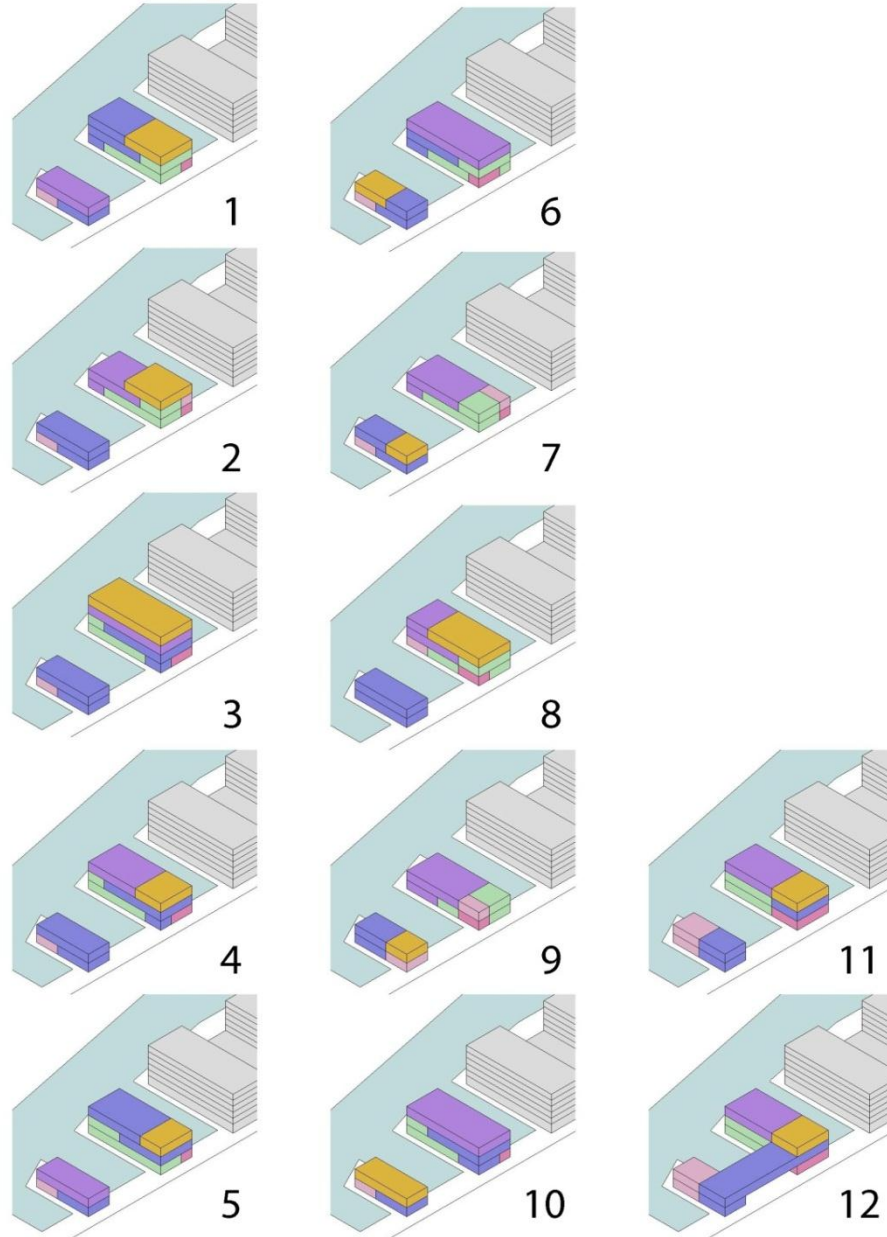


Figure 66: Program Studies- Images 1-10 illustrate different organizations of desired program throughout the building in varying proportions. Images 11 and 12 illustrate more final versions of program distribution. Source- Author 2012

Program Analysis

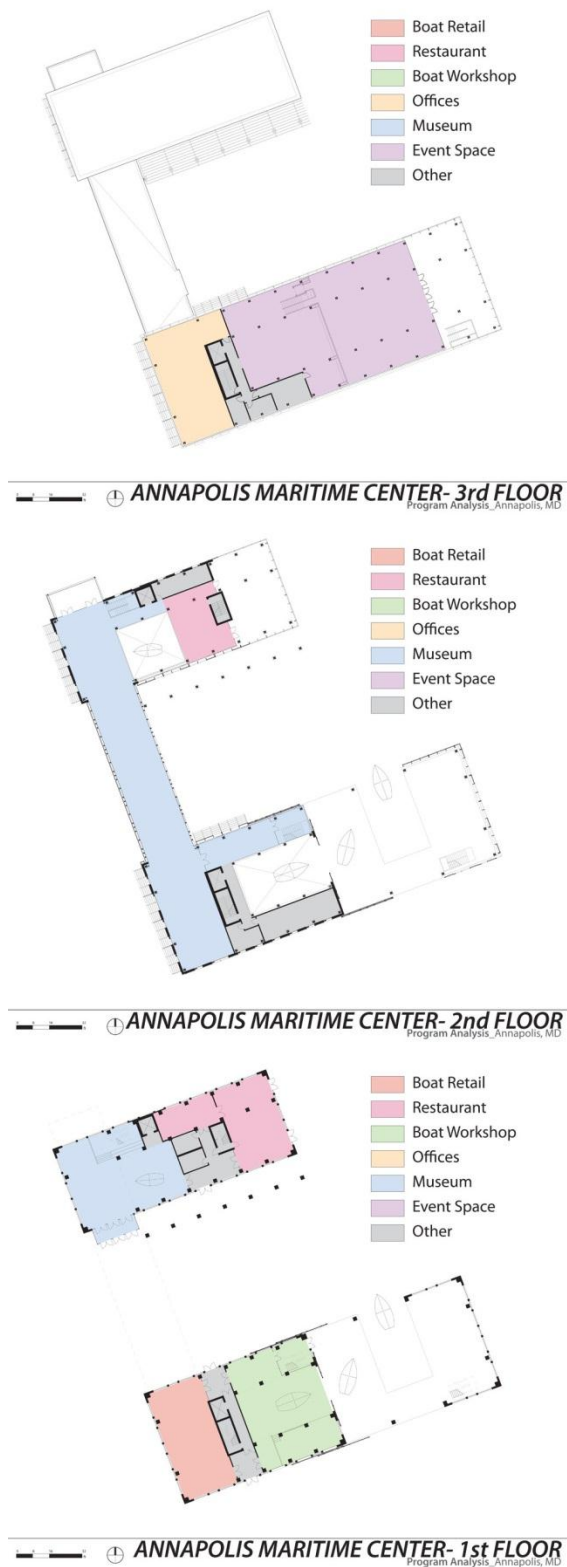


Figure 67: Program Distribution, Source- Author 2012.

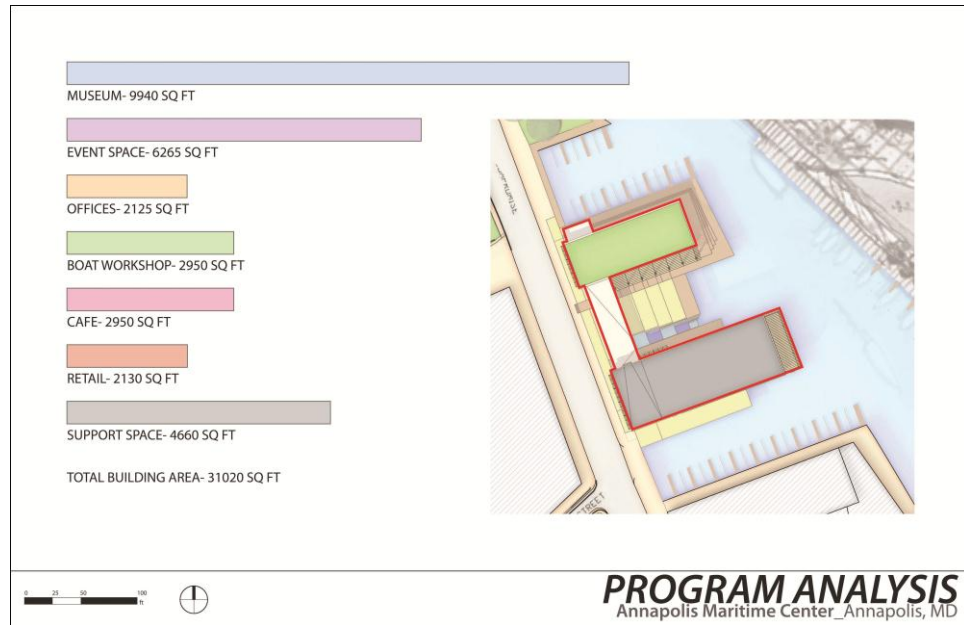


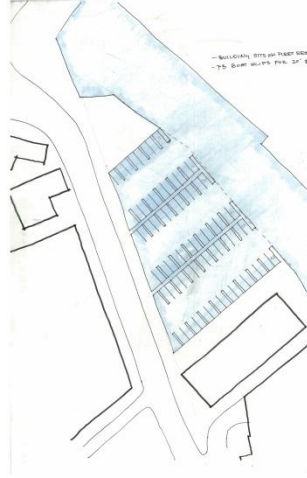
Figure 68: Program Analysis, Source- Author 2012.

Architectural Response

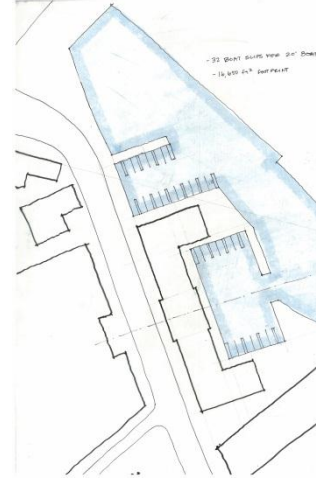
Urban Scale



Figure 69- Finger Pier, Source -
Author 2012



**Figure 70- Perpendicular to
Water,** Source- Author 2012



**Figure 71- Compromise Street
Liner,** Source- Author 2012

A number of urban strategies were investigated to study the carving of City Dock to provide a better interaction with the waterfront. The Finger Pier scheme provided the most added pedestrian promenade along the waterfront while allowing for a weaving of land and water. The Bar Perpendicular to the Waterfront scheme marginalized the building too much while preferencing boat slips. The Compromise Street Liner provided a strong edge to compromise street but created too much of a barrier between street and water.

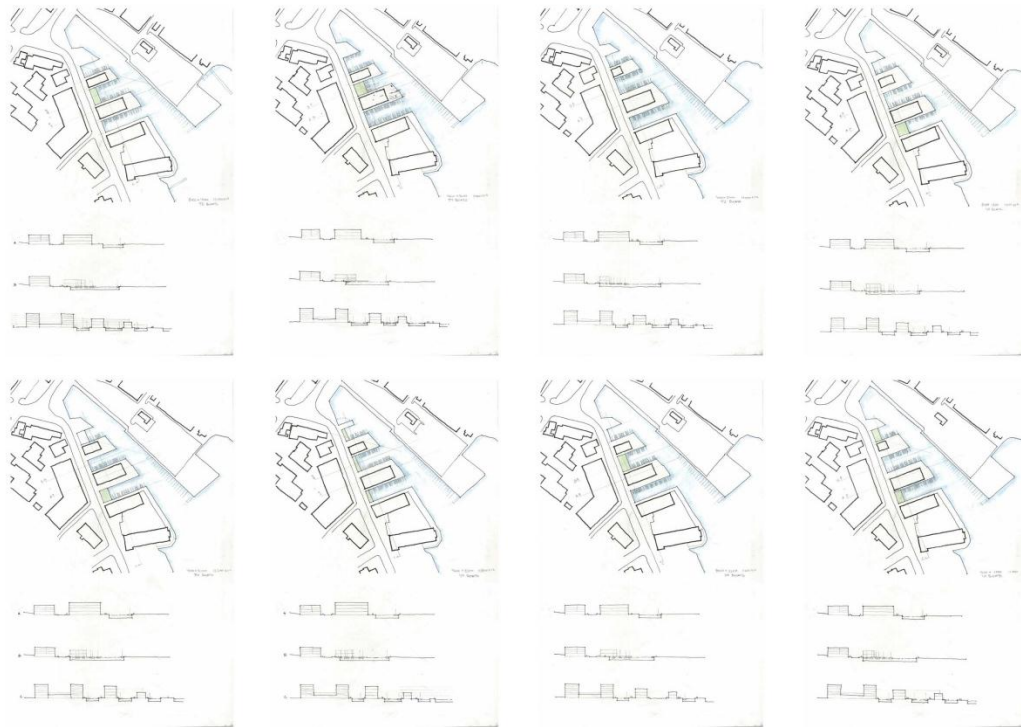


Figure 72- Shoreline Studies, Source- Author 2012.

This shoreline study illustrates an investigation of public space and its interaction with the waterfront on varying sides of the building volumes. Public space is most effective when provided in between the two building volumes creating a plaza framed by the two buildings.



Figure 73-Proposed Site Plan, Source- Author 2012

The new Annapolis Maritime Center provides a new anchor to the end of the monumental axis created by Main Street. The current Fleet Reserve building is demolished and new space is provided in the extended Marriott complex. 5 stories of hotel are added on the existing parking deck of the Marriott Complex. The existing parking deck is transformed into green space facing the waterfront providing further amenities for hotel guests. A parking garage lined with ground floor retail and street front office lines the West edge of Compromise Street. ULI's proposal is adopted for the current surface parking on City Dock. A mix of landscape and hardscape provide a welcoming environment for visiting pedestrians. The Annapolis Maritime Center plaza faces this newly proposed green space.



Figure 74- Proposed Site Plan, Source- Author 2012

Architectural Scale

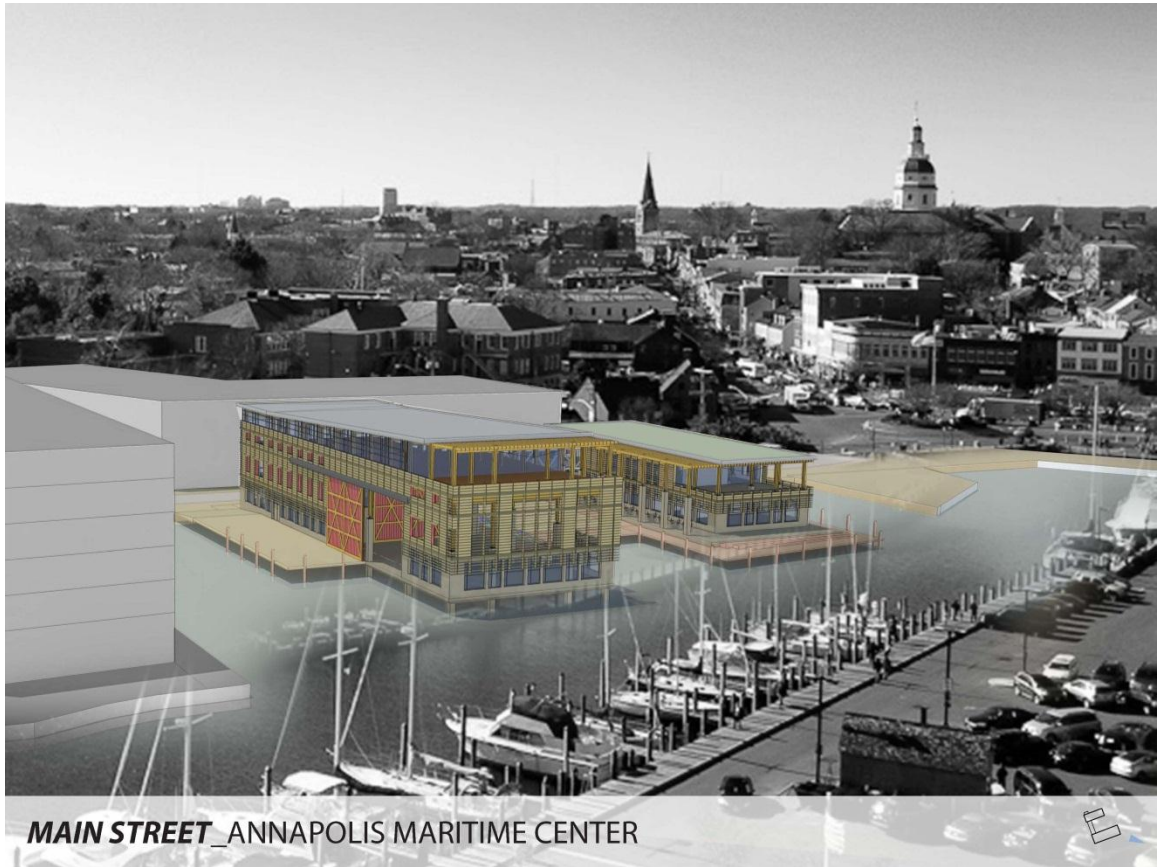


Figure 75- Annapolis Maritime Center- Main Street, Source- Author 2012

The Annapolis Maritime Center creates an anchor for City Dock at the base of Main Street. The museum and boat workshop provide amenities for tourists and local community members. The building massing is reminiscent of industrial shed architecture.

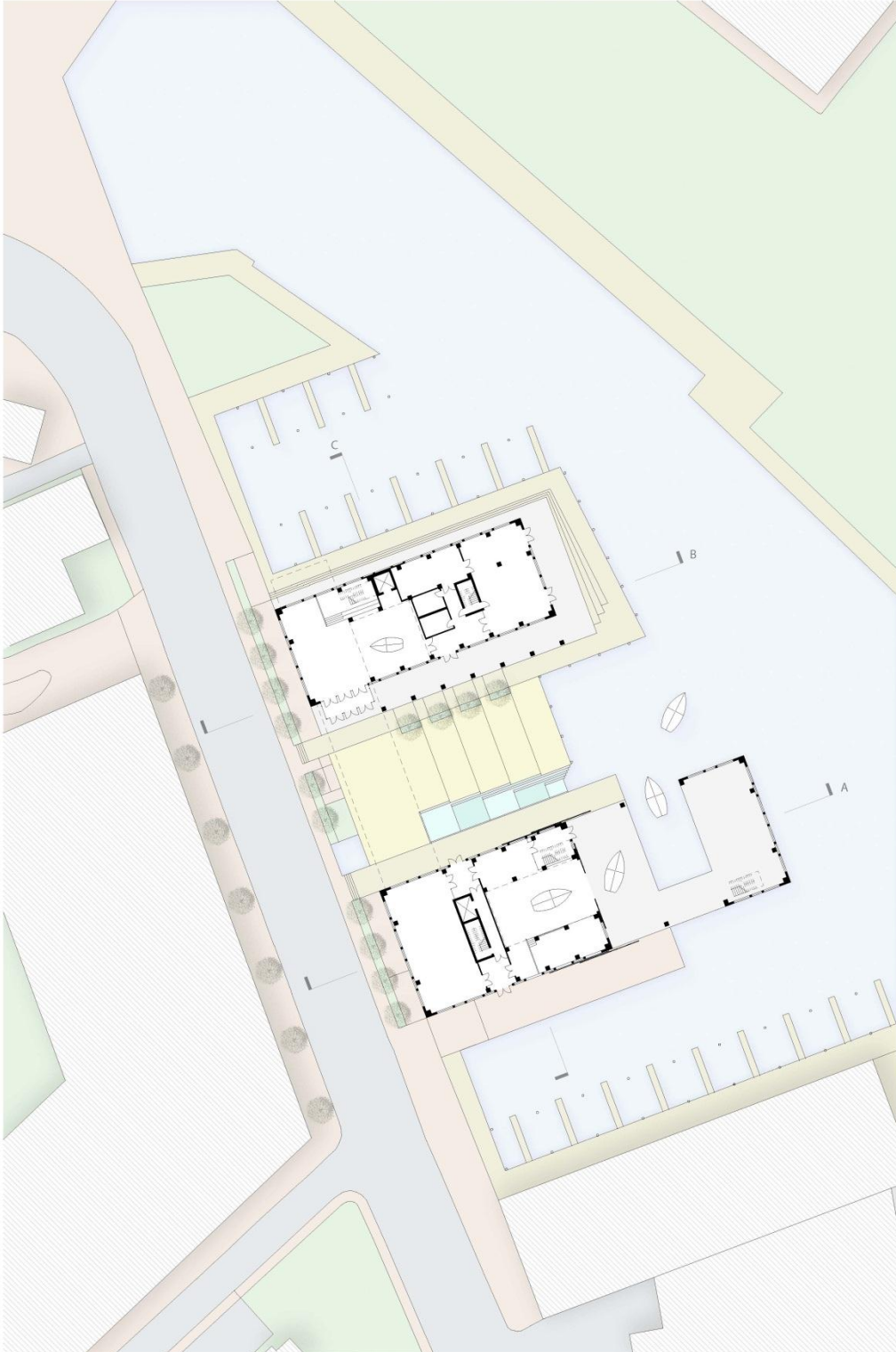


Figure 76- First Floor Plan, Source- Author 2012

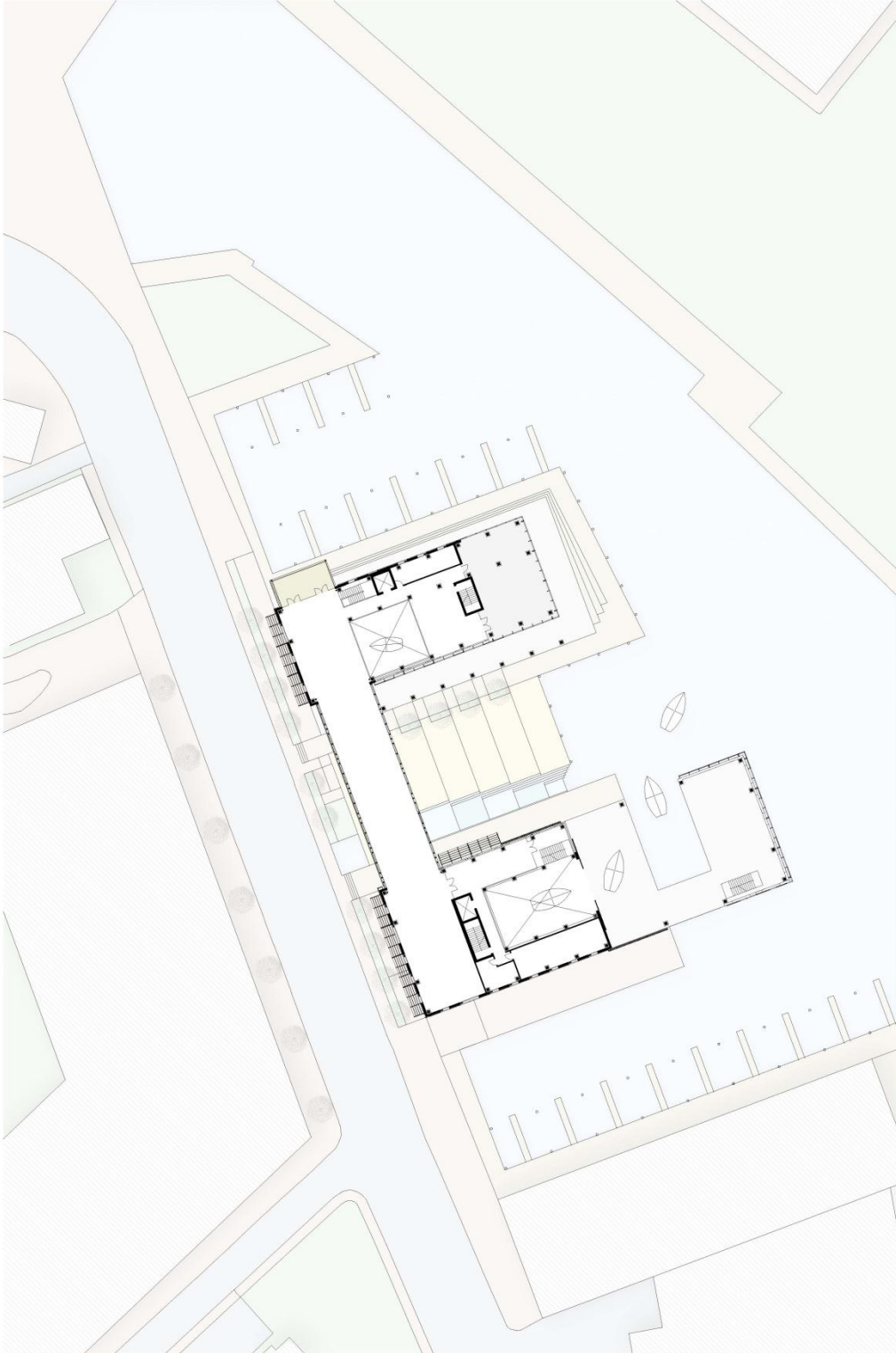


Figure 77- Second Floor Plan, Source- Author 2012

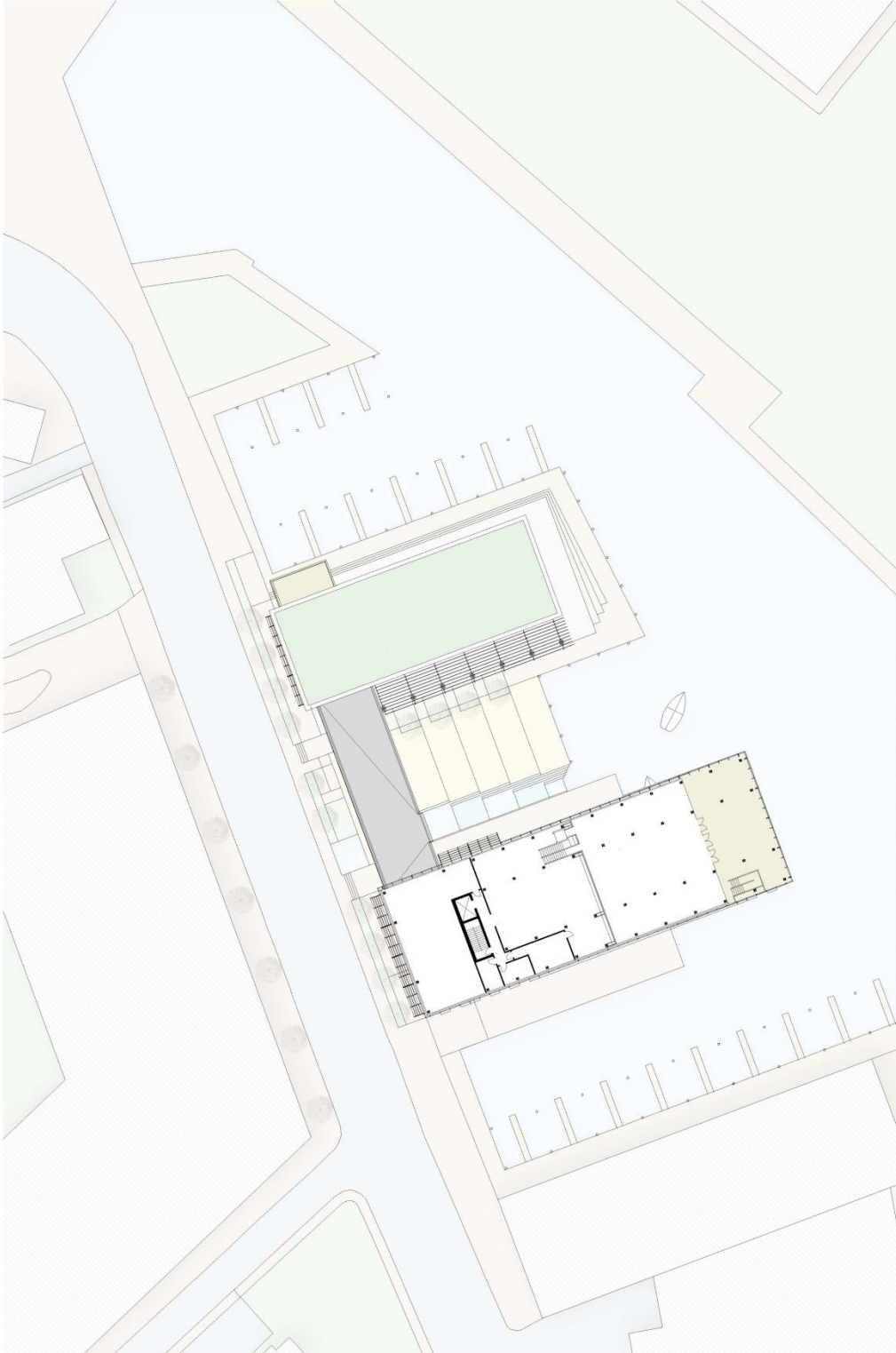


Figure 78- Third Floor Plan, Source- Author 2012.

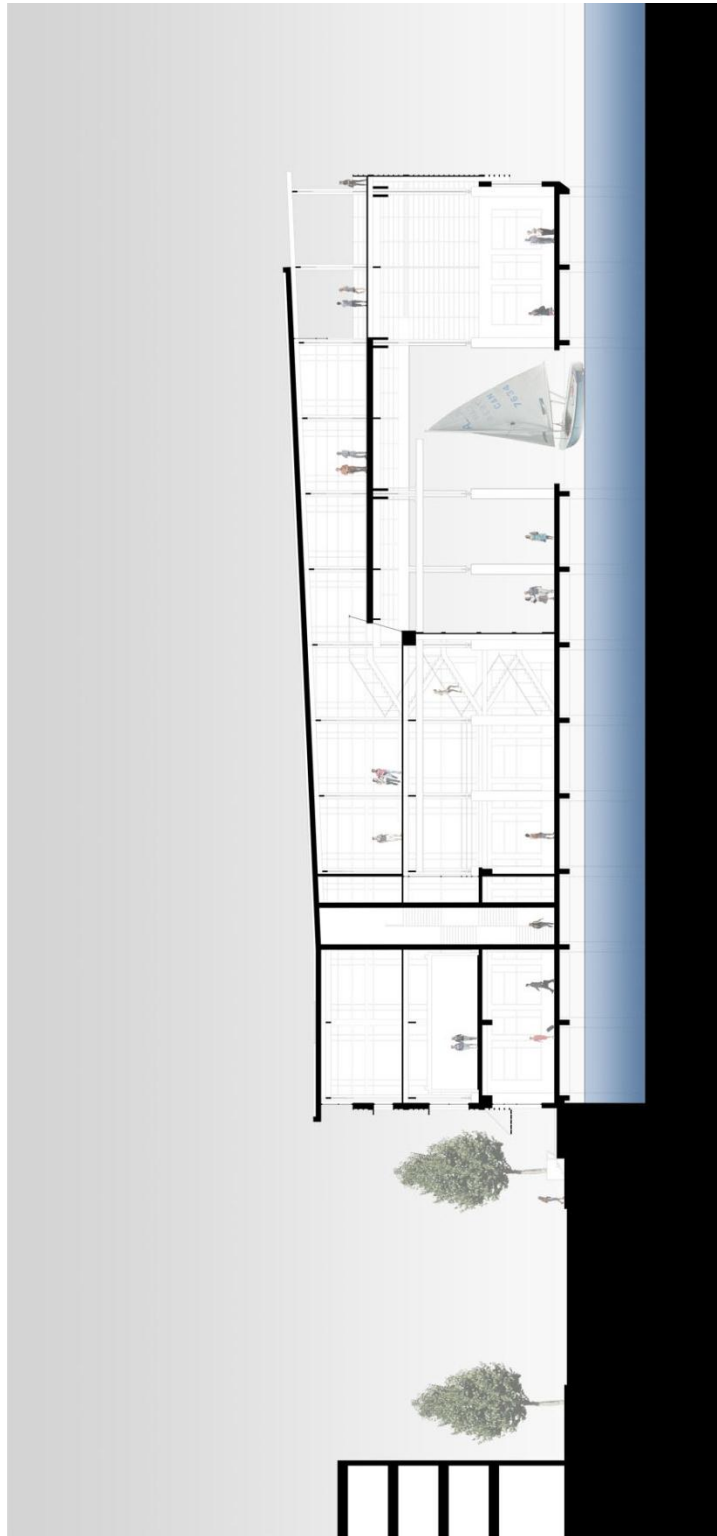


Figure 79- Section A- Boat Building Workshop, Source- Author 2012

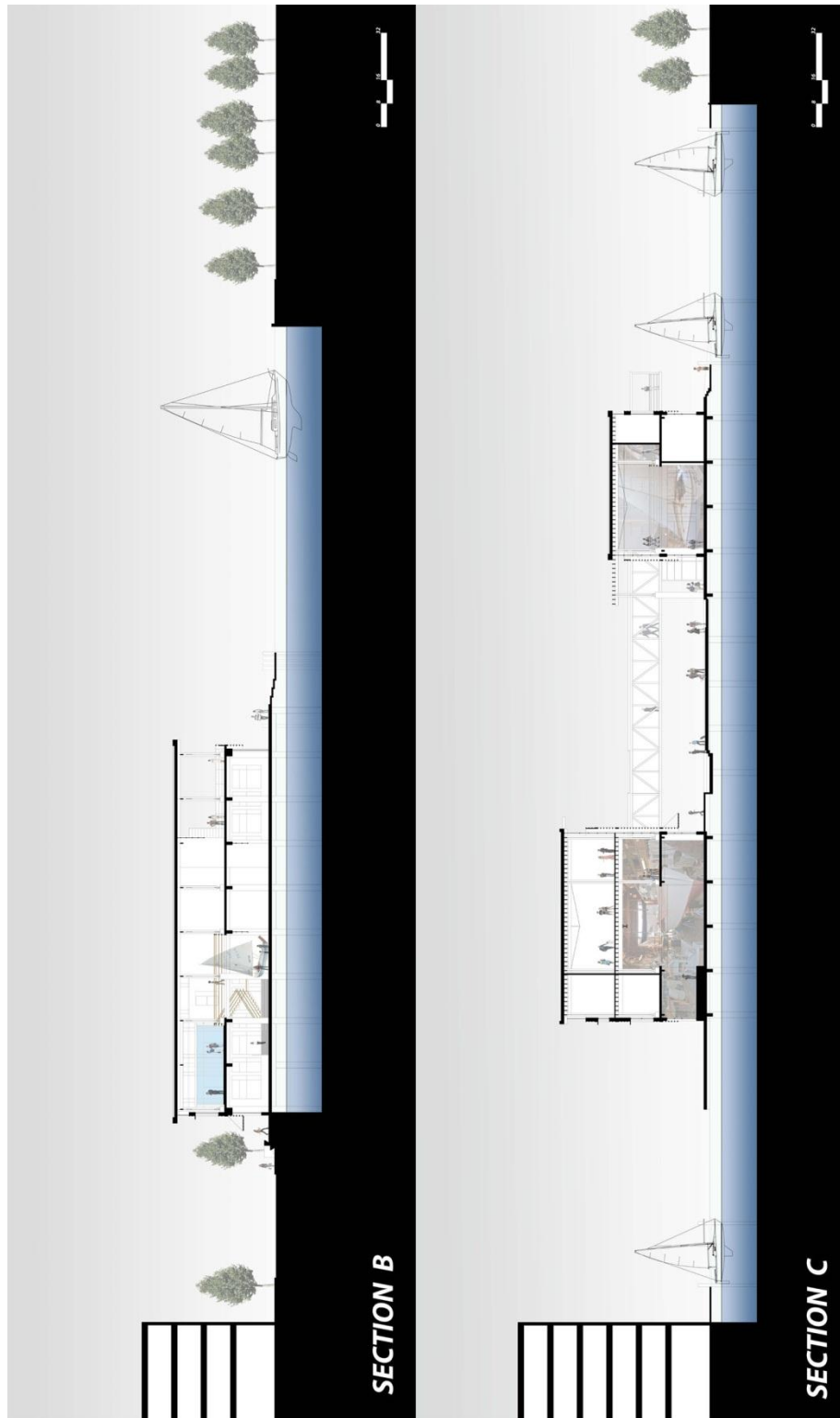


Figure 80- Sections, Source- Author, 2012.



Figure 81- Building Parti- The courtyard parti is reinforced through a number of building strategies. Solid walls face out of the complex with punched openings relating to surrounding building context while curtain walls create the courtyard facades providing greater connection to the plaza from within the building. Source- Author 2012

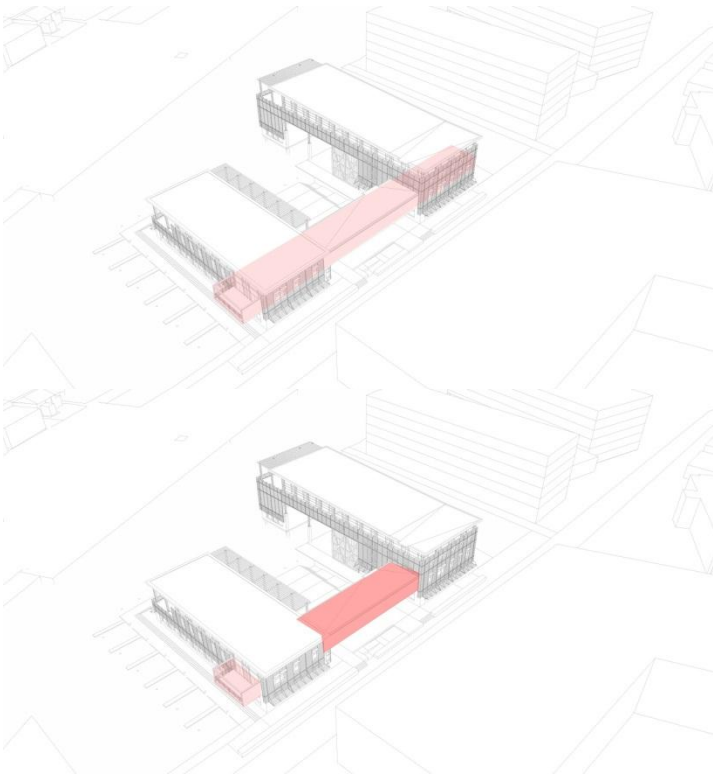


Figure 82- Bridge- The bridge connects program between the two buildings. It provides a strong visual edge to Compromise Street while still allowing for porosity toward the waterfront on the ground floor. The bridge provides a spatial buffer between the plaza and vehicular street beyond. The center span is a truss bridge and an overlook is created toward Main Street to recall the bridge structure and create an iconic beacon for the museum. Source- Author, 2012

Detail Scale



Figure 83- The Overlook, Source- Author, 2012



Figure 84- Wind Façade Construction- The bridge is an integral piece for wind expression within the project. The Ego Alley side of the bridge is glass and opens to the plaza and waterfront. The Compromise Street façade of the bridge is glass behind a wind activated screen that creates visual excitement along the street front while providing solar shading. The Wind façade is comprised of a series of metal rods with small 3" x 3" metal discs. As the wind blows, the flat discs rotate around the steel rods creating a façade that maps the wind as it moves across the building.



Figure 85- Technorama Wind Facade, Source- www.NedKahn.com



PLAZA_ANNAPOLIS MARITIME CENTER

Figure 86- Plaza, Source- Author, 2012

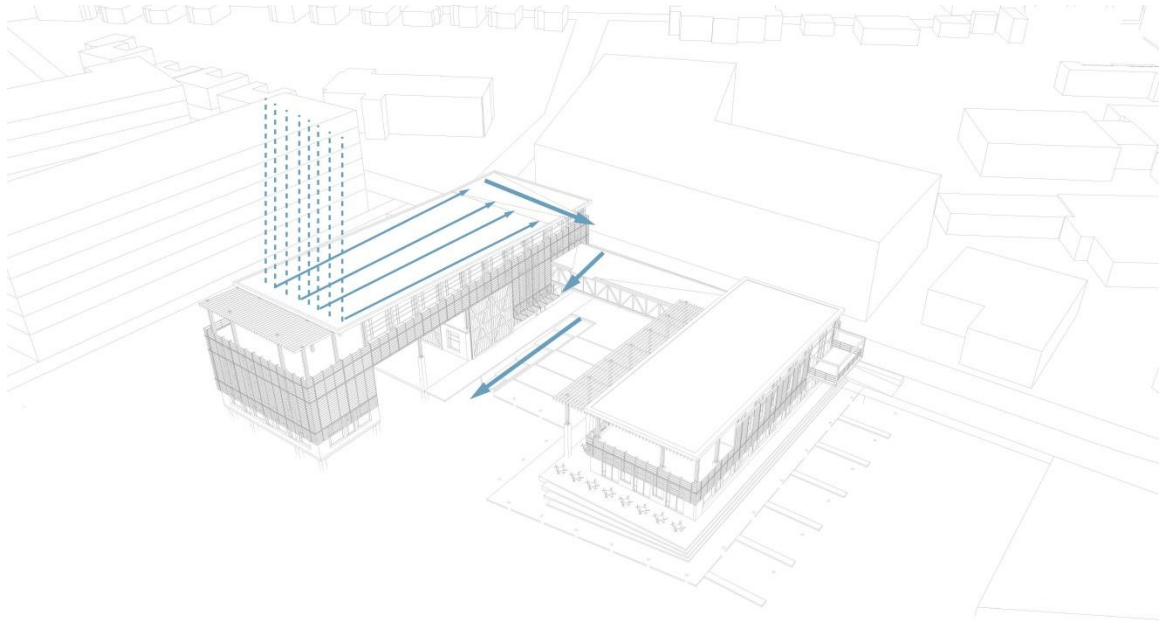


Figure 87- Water Collection- Rainwater is celebrated within the plaza as water is collected from a slanted roof, then traced onto the bridge and finally sheeted into the plaza down a sculptural stair that leads to the waterfront.

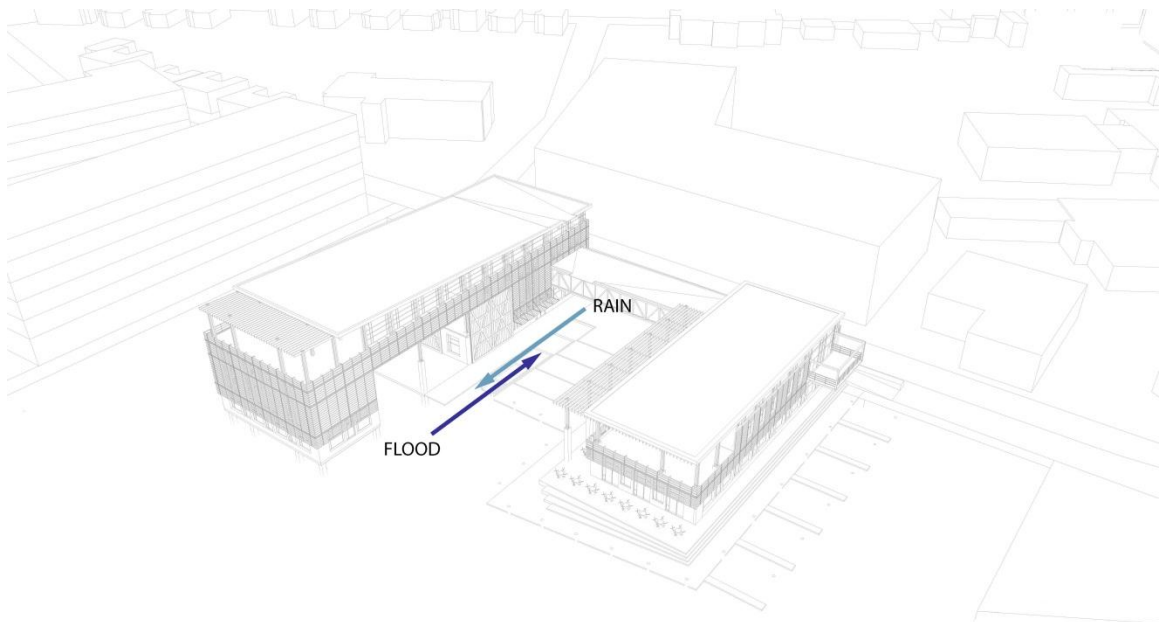


Figure 88- Water Stair- The sculptural stair is used to celebrate rainwater as well as track water level rise as the Bay level fluctuates. It also provides a better connection to the water for visitors looking to dip their toes in the Bay.

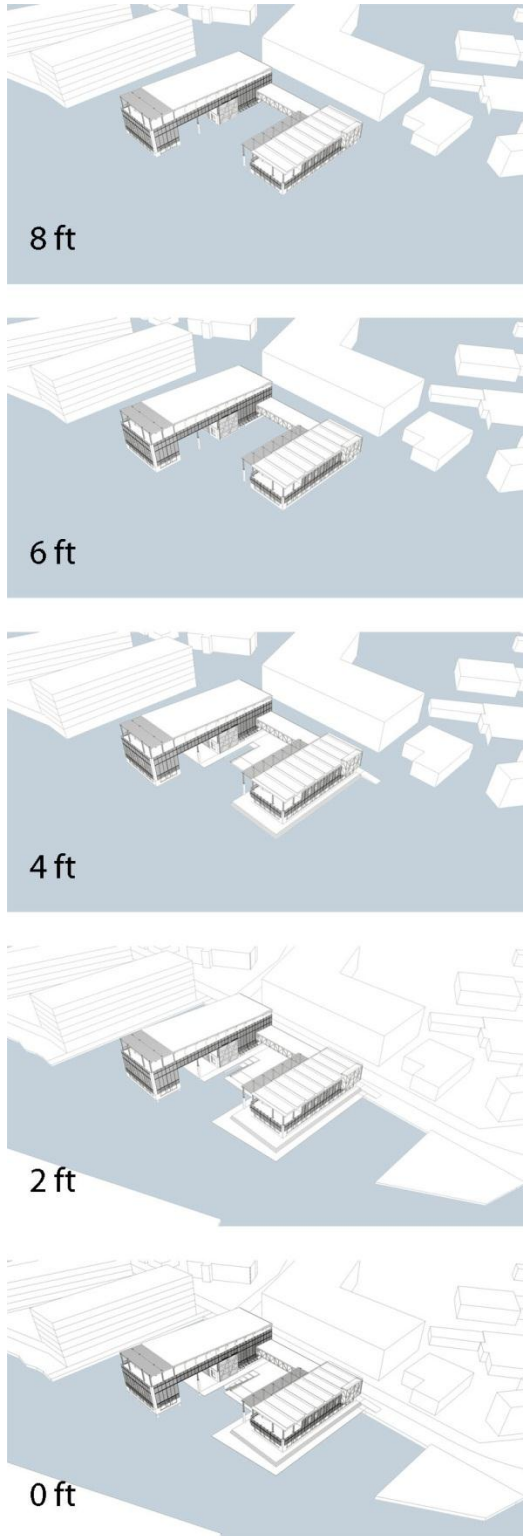


Figure 89- Water Level Rise- Typical water level shown at 0 ft is 4 ft below dock level and 6 feet below the new plaza level. As water level rises 2 ft, it starts to fill the sculptural stair in the plaza. At 4 ft, the water level covers the docks but the plaza is still functional. This level of flooding happens every few months. At 6 ft, water covers the plaza and starts to enter the building through flood vents. This level of flooding happens every few years. At 8 ft, water is almost to the bottom of the window sills. This level of flooding happens with extreme storms.



Figure 90- Bridge, Source- Author 2012



Figure 91- Compromise Street, Source- Author 2012



Figure 92- Entry, Source- Author 2012



FROM MARKET HOUSE

Figure 93- View from Market House, Source- Author 2012



EVENT BALCONY

Figure 94- Plaza from Event Balcony, Source- Author 2012



Figure 95- Plaza, Source- Author 2012

Conclusion

Themes of wind, water and craft shape urban and architectural environments which speak to the inherent maritime qualities of Annapolis. The invisible natural phenomenon of wind is mapped and woven into the building façade and openings in sheltered outdoor spaces and shaped to maximize comfortable seasonal breezes. Water is collected and celebrated and both the roof and plaza level. The structure of the building clearly illustrates its ability to withstand flooding as the structure transitions from concrete to wood above the flood plain. Annapolis' history of making is reintroduced into a prominent location on City Dock. Structure is clearly expressed allowing for visitors to understand not only boat making, but the making of the building. The proposed Annapolis Maritime Center provides great amenities to tourists and the community. This thesis clearly illustrates a reconnection to both nature and an active, tactile history that is currently lacking in many waterfront cities along the Chesapeake Bay.

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Endnotes

¹ Pallasmaa, Juhani. *Eyes of the Skin: Architecture of the Senses*. Hoboken, NJ: Wiley Academy, 2005.

² *Annapolis Comprehensive Plan* City of Annapolis: Department of Planning and Zoning, 2009.

³ Urban Land Institute. *Annapolis City Dock: A Technical Assistance Panel Report* Urban Land Institute, 2010.