

# *Stamford Ferry Feasibility Study*

## *Technical Analysis on Site Selection*



U R B I T R A N **R** E P O R T



Prepared for  
City of Stamford, CT

Submitted by  
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In association with  
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May 2007

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**Date:** May 2, 2007  
**Re:** Preliminary Site Feasibility Study

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The purpose of this memo is to transmit to the City of Stamford a preliminary analysis of the feasibility of several sites in the Stamford Harbor as potential ferry terminal locations. The focus of this memo is to identify the land use, environmental, and marine conditions of any particular site for appropriateness as a ferry facility in Stamford Harbor. This analysis did not consider site disposition, acquisition, access to transportation or economic development, which will be the focus of future analysis.

*Figure 1: Stamford Harbor Site Map* identifies the location of the sites selected for initial screening, which are referred to as follows:

1. Southfield Park
- 2A. Antares site adjacent to Atlantic Avenue
- 2B. Antares site adjacent to Pacific Avenue
3. Brewer's Shipyard
4. Kosciuszko Park
5. Harborside
6. Halloween Marina

### **Method for Selecting Initial Sites**

The seven sites selected were chosen based on the following threshold criteria:

- accessible, by vehicle and / or pedestrian path, to the Stamford Transportation Center;
- would not require the removal of any residential uses;
- sufficient land to support a ferry terminal of approximately 3,000 to 10,000 square feet;
- space for parking approximately 250 vehicles; and
- located on navigable water with access to Stamford Harbor.

### **Summary Conclusions**

Based on the results of this preliminary screening the following sites will be subject to further investigation.

- Antares 1 at Atlantic
- Antares 2 at Pacific
- Brewer's Shipyard
- Harborside



This page acts as a placeholder for:  
Figure 1 - Stamford Harbor Site Map.

The actual figure may be downloaded on the website.

## Method for Evaluating Sites

As a first step in evaluating the potential sites for the ferry landing, preliminary screening criteria were developed with the goal of providing a basis of comparison between the sites. Several environmental, marine and meteorological factors were considered when evaluating potential sites for a ferry landing. These preliminary screening considerations are outlined below. Future analysis will consider site disposition, acquisition and the impacts of existing, proposed and potential development adjacent to any selected site under consideration.

### A. Environmental

An environmental screening of proposed ferry terminal sites was conducted in order to identify potential fatal flaws as well as other significant environmental constraints that could adversely effect project implementation at each site. Sites were first visited in the field and photographed. Upon completion of field reconnaissance, Geographic Information System (GIS) data was then obtained from the Connecticut Department of Environmental Protection (CTDEP) among other sources and was thoroughly scrutinized for each site location. Field reconnaissance and GIS information was further supplemented by a review of existing resource and land use mapping and aerial photographs of Stamford's shoreline. Census 2000 data were also consulted to gain an understanding of the demographics at each site.

The screening analysis primarily focused on the potential for impacts to regulated resources and/or those resources that are specifically protected by Executive Orders. Non-regulated resources were also secondarily considered. While it is difficult at this stage to provide a numerical score to the regulated and non-regulated resources, for the purposes of this analysis, a simple system was to distinguish acceptable from unacceptable conditions. Regulated resources are typically those resources that are either limited in supply or are recognized for the substantial benefits they offer to the general population. For these reasons, legislation has been passed for the sole purpose of protecting these resources. Regulated resources and/or resources specifically protected by Executive Orders include:

- Wetlands (both inland and tidal)
- 100-year floodplains
- CTDEP stream channel encroachment lines (SCEL)
- Federal and state listed endangered and/or threatened species
- Coastal zone
- Wild and scenic rivers
- Aquifer protections areas
- Section 106 resources
- Environmental justice populations
- U.S. Department of Transportation Act of 1966 Section 4(f) Resources
- Land and Water Conservation Fund Act (LWCF) Section 6(f) Resources

*Table 1: Environmental Resources Evaluation Matrix*, on the following page, identifies the numerical score of the various resources. Based on an analysis of these and several non-regulated resources, the two Antares sites, the Brewer's Shipyard site and the Harborside site were the most environmentally compatible for a ferry site. While none of the sites screened are fatally flawed, the Southfield Park Site would be very challenging to implement from an environmental design and permitting standpoint, and the Halloween Marina has severe marine constraints.

Table 1: Environmental Resources Evaluation Matrix

Environmental Indicator	Site 1 Southfield Park	Site 2A Antares At Atlantic	Site 2B Antares at Pacific	Site 3 Brewer's Shipyard	Site 4 Kosciuszko Park	Site 5 Harborside	Site 6 Halloween Marina
<b>Natural Resources</b>							
Inland Wetlands	2	3	3	3	3	3	3
Tidal Wetlands	1	3	3	3	1	3	1
Mud Flats	1	3	3	2	1	3	1
100-year floodplains	1	1	1	1	1	1	1
Natural Diversity Database Areas	3	3	3	3	3	3	3
<b>Coastal Resources</b>							
Shellfish Beds	1	3	3	3	3	3	3
Eelgrass Beds	3	3	3	3	3	3	3
Public Beaches	1	3	3	3	3	3	3
Aquifer Protection Areas / Wells	3	3	3	3	3	3	3
Coastal Boundary	1	1	1	1	1	1	1
Existing Water Dependent Use*	2	3	3	2	3	3	2
<b>Cultural/Civic Resources</b>							
Municipal Property**	2	3	3	2	2	3	2
Trails	3	3	3	3	1	3	3
Public Parks (Section 4(f) Property)	1	3	3	3	1	3	1
Section 6(f) Property (LWCFA)	3	3	3	3	3	3	3
Landfill	3	3	3	3	3	3	3
Waste Water Treatment Plant	3	3	3	3	3	2	3
Cemetery	3	3	3	3	3	3	3
Low Income Populations***	3	3	3	3	3	3	3
Minority Populations***	3	1	1	1	1	3	3
<b>Other</b>							
Historic Resources	3	3	3	3	3	3	3
State / Federal Property	3	3	3	3	3	3	3
Hurricane Inundation Areas	2	3	3	2	2	3	2
Surface Water Quality	3	3	3	3	3	3	2
Ground Water Quality	3	3	3	3	3	3	2
Hazardous Materials	3	1	1	1	3	2	3
Noise Sensitive Receptors****	1	3	3	3	3	3	1
<b>Total Rating Points</b>	<b>61</b>	<b>73</b>	<b>73</b>	<b>69</b>	<b>65</b>	<b>75</b>	<b>64</b>

KEY:	1	<b>Warning</b> - Potential impacts to regulated resources and/or a need exists for more detailed assessment.
	2	<b>Caution</b> - Potential for impact but resources may be avoided or impacts not considered detrimental to project.
	3	<b>Acceptable / Good Conditions</b> - No impacts expected

\* Existing Water Dependent Uses are important as public access to these land uses should be maintained.

\*\* Municipal Properties are important if a project potentially involves converting public property to a private use.

\*\*\* Based on 2000 U.S. Census: 0% to 49% of population (No Shading); 50%-60% of population (Yellow Shading); 61% to 100% (Red Shading)

\*\*\*\* Noise sensitive receptors for this analysis include residences that exist within 300 feet of a proposed Ferry Terminal site.

## **B. Marine**

The marine criteria, identified below, includes the condition of the water's edge, exposure to wind and wave action, the depth and the width of the channel, the ability to navigate in the channel and the possibility of interference with other marine traffic and the time to get from the dock to the open waters of Stamford Harbor. Details on these conditions as well as the other criteria are described below in *Table 1, Marine Resources Evaluation Matrix*.

### **Edge Condition**

The nature of the existing waterfront structure and its condition are important for evaluating the ability of the site to receive a ferry landing and to determine, at a later stage, what type of landing is appropriate for the site. At the preliminary screening level, each site was evaluated based on necessity for and degree of site improvements needed to create a ferry landing.

### **Exposure to Environment**

Degree of exposure to wind and wave is important both for ferry operations and passenger comfort. Low to moderate environmental forces can increase passenger discomfort both during travel and while embarking and disembarking. Moderate environmental forces can make it more difficult for ferry pilots to land the vessels at a terminal, causing delays in service and likely causing discomfort to passengers. Extreme environmental forces can result in suspended service. At the preliminary screening level, these factors have been evaluated for determining site specific issues with landing the ferry vessel.

### **Water Depth Immediately Waterside of Site**

The water depth immediately waterside of the site will be examined in conjunction with other characteristics to determine several factors, including the need for dredging in the area, type of ferry landing appropriate for the site and orientation of the ferry landing. Dredging was not considered at this preliminary stage. Ferry vessels generally will require at least eight feet of water depth to account for the draft of the vessel plus additional depth for clearance under the keel.

### **Safe Navigation**

Factors that affect safe navigation include water depth in the channel, channel width, available space for manoeuvring vessels and expected frequency of encounters with other vessels. For the preliminary screening, all of the above factors were considered. The manoeuvring of vessels was considered for the surrounding area only, i.e. only from the site under consideration to the south end of Stamford Harbor.

### **Travel Time To/From Site to Optimal Speed**

Many bodies of water are governed by local harbors and /or government agencies which limit vessel speed in areas of navigation obstructions, close to shore and areas where vessel traffic is heavy. Stamford Harbor is governed by speed restrictions, as will some of the bodies of water to be travelled to reach several of the destinations for this ferry study. At this preliminary screening level, each site was evaluated to determine the travel time, in minutes, required for a ferry to reach the water beyond Stamford Harbor only. Travel time to destinations will be considered during evaluation of preferred sites.

*Table 2: Summary of Maritime Screening Characteristics*, on the following page explains how the ratings for the marine criteria were evaluated. The two extremes are explained with the understanding that anything between these two extremes is given a grade of 2.

**Table 2: Summary of Maritime Screening Characteristics**

Characteristic	Objective	Grade Criteria	
		3	1
Existing Waterfront Structure and Condition of the Structure	Assess the need for shoreline improvements or demolition and reconstruction.	Sites deemed suitable for receiving a ferry landing with minimal upgrades	Sites requiring major upgrades
Exposure to Elements	Assess vulnerability of site to environmental factors (wind and wave primarily), both from perspective of passenger discomfort and operability.	Sheltered from the elements	Exposed to the elements
Water Depth Immediately Waterside of Site  Note: that all water depths cited in this report are with respect to mean lower low water.	Assess proximity of landing to shore and/or need for dredging.	Water depth of 8 feet or more	Water depth less than 5 feet
Channel Width	Assess navigability for ferry travel.	Channel width 100 feet or greater	Channel width 50 feet or less
Channel Depth In Area	Assess existence of under-keel clearance for vessels.	Channel depth 12 feet or more	Channel depth less than 8 feet
Other Vessel Traffic	Assess ease of navigation and possible impact on other vessels.	Sites with no vessel encounters within the surrounding area of the landing	Sites with frequent encounters with vessels
Ease of Maneuvering for Ferries	Assess site to determine if appropriate room is available for ferries to land and leave with ease.	Sites with a minimum of 200 feet of width for maneuvering in 8 feet minimum water depth	Sites with less than 125 feet of width for maneuvering in 8 feet minimum water depth
Travel Time from Site to Optimal Speed	Assess speed restrictions to determine time required for ferries to increase to optimal speed	Travel time of 5 minutes or less at restricted speeds	Travel time of 12 minutes or more at restricted speeds

Table 3: Marine Resources Evaluation Matrix, identifies the score of each site relative to the above marine characteristics.

**Table 3: Marine Resources Evaluation Matrix**

Marine Related Indicators	Site 1 Southfield Park	Site 2A Antares At Atlantic	Site 2B Antares at Pacific	Site 3 Brewer's Shipyard	Site 4 Kosciuszko Park North	Site 5 Harborside	Site 6 Halloween Marina
Condition of Existing Waterfront	2	3	3	2	2	2	1
Exposure to Elements	2	3	3	2	3	2	3
Water Depth at Site	1	2	2	2	1	1	1
Channel Width in Site Area(ft)	3	3	3	3	1	2	1
Channel Depth in Area (ft)	3	3	3	3	1	3	1
Other Vessel Traffic in Area	1	1	1	1	1	1	1
Ease for Ferries to Land and Turn as Necessary	2	3	2	2	1	1	1
Travel Time from Site to Optimal Speed (min)	1	1	1	1	1	1	1
<b>Total Rating Points</b>	<b>15</b>	<b>19</b>	<b>16</b>	<b>16</b>	<b>11</b>	<b>13</b>	<b>10</b>

Key:

1	<b>Warning / Poor Condition-</b> Potential constraints would be extremely difficult and / or expensive to mitigate and/or a need exists for more detailed assessment.
2	<b>Caution / Potentially Acceptable Conditions-</b> Potential for impact but adverse conditions may be avoided or impacts not considered detrimental to project.
3	<b>Acceptable / Good Conditions -</b> No impacts expected



## **Rationale for Selecting Preferred Sites**

During project development, the goal is to avoid impacts to the aforementioned regulated resources whenever possible. Not only does this ensure protection of regulated resources, but from a developer's perspective, eliminates potentially costly project delays that can occur when regulated resource impacts are involved. For instance, when regulated resources cannot effectively be avoided, project planners and engineers must first develop designs and other innovative techniques to minimize impacts to these resources to the greatest extent practicable. If unavoidable impacts to regulated resources still exist, then these impacts must be mitigated. When mitigation is required, project planners and designers work collaboratively with agencies that have jurisdictional authority over the regulated resource in order to develop an acceptable mitigation strategy. Once a mitigation strategy is approved, a Memorandum of Understanding (MOU) is typically drawn-up between the project developer and the involved agency and the MOU serves as a condition of a permit. The developer is thereby committed to implementing the mitigation plan as specified. For these reasons, the best policy is to avoid regulated resources as much as possible from the outset of a project. The more regulated resources potentially impacted, the more difficult it will be to develop a successful project at a given site.

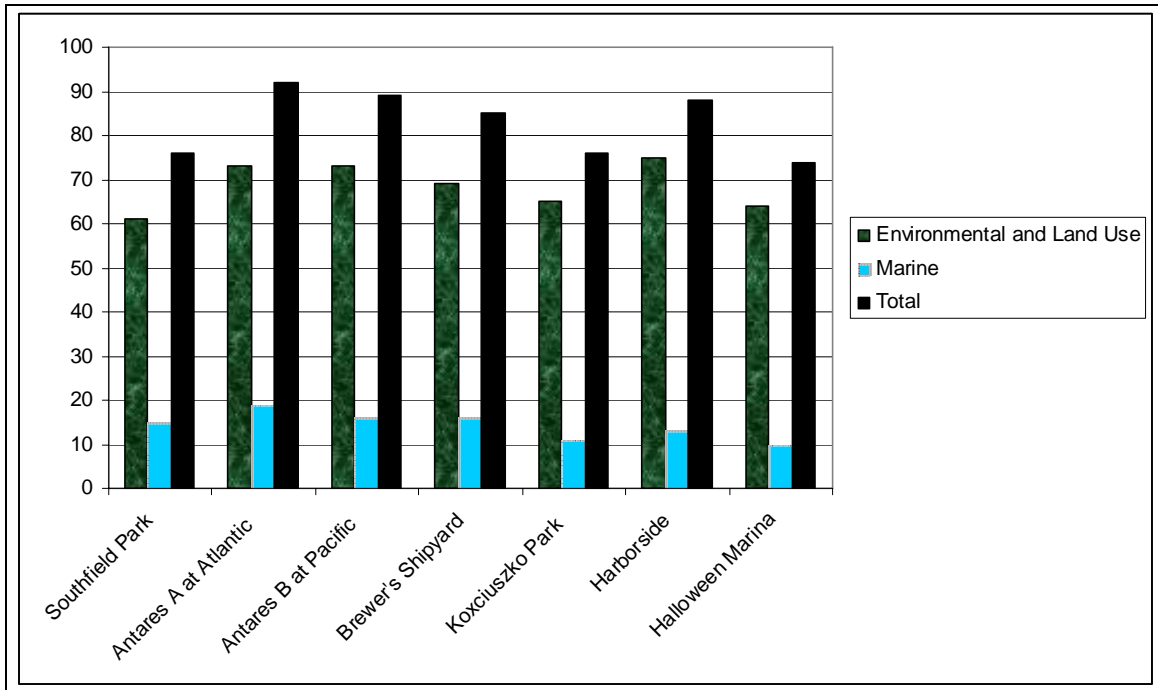
In the evaluation of the environmental, land use and marine related characteristics of each site, a grading system was developed to rate the value of each of the evaluated criteria. The grading system is very basic for this preliminary screening and was not weighted to account for ease or difficulty in correcting deficiencies of one factor over another. Weighting of advantageous characteristics of the matrix is more appropriate for detailed analysis. A simple scale with grades of 1 through 3 was used to rate each factor for each site. A grade of 1 corresponds to a poor rating, grade 2 is satisfactory and grade 3 is good. The sum total of the grades determines the most suitable sites to be evaluated, with the highest grade being the best suited site based on preliminary screening.

Based on the screening methodology and rationale described above, proposed sites involving potential impacts to a larger number of regulated resources or marine constraints were considered to be less attractive and/or less suitable for project development than those sites with few or no regulated resource implications, or with few or no marine constraints.

Based on this rationale, Antares Sites 2A and 2B and the Brewer's Shipyard sites are considered to be most suitable for project implementation based solely on the review of environmental resource and land use information presented herein. The Harborside site scored well from an environmental and land use basis, but has serious limitations relative to water access due to the narrow width of the channel. The Southfield Park site scored well from a marine basis, but has many regulated and non-regulated land use and environmental impacts. The Halloween Harbor site scored poorly from both an environmental and marine perspective.

The chart on the following page identifies the ranked scores of the various sites. It is important to understand that these are not weighted scores, but are used primarily to identify the most desirable and least desirable sites.

**Figure 2: Ranked Scores of Selected Sites**



The table below identifies the ranked scores of the various sites from environmental, land use and marine perspectives. The total number of points, that a site could achieve if all conditions were acceptable and there were no or minimal impacts, is 105.

**Table 4: Summary of Site Scores**

	Southfield	Antares A at Atlantic	Antares B at Pacific	Brewer's Shipyard	Kosciuszko	Harborside	Halloween Marina
Environmental and Land Use	61	73	73	69	65	75	64
Marine	15	19	16	16	11	13	10
<b>Total</b>	<b>76</b>	<b>92</b>	<b>89</b>	<b>85</b>	<b>76</b>	<b>88</b>	<b>74</b>

Total scores are provided for each site in the following detailed analysis of each site; however, these scores are not weighted and in this analysis, there were many more environmental / land use criteria evaluated than marine criteria. In addition, there has been no attempt to analyse the impacts of potential transportation constraints, which could have major impacts. There has also been no attempt to quantify the impacts of proposed development adjacent to the sites that could provide positive or negative impacts to a ferry terminal facility; the intangible impacts from access to scenic, cultural, or economic resources.

However, based on the preliminary screening, we recommend that any site with a total score lower than 80 be dropped from further consideration.

## **A. Environmental**

During project development, the goal is to avoid impacts to the aforementioned regulated resources whenever possible. Not only does this ensure protection of regulated resources, but from a developer's perspective, it eliminates potentially costly project delays that often occur when regulated resource impacts are involved. For instance, when regulated resources cannot effectively be avoided, project planners and engineers must first develop designs and other innovative techniques to minimize impacts to these resources to the greatest extent practicable. If unavoidable impacts to regulated resources still exist, then these impacts must be mitigated. When mitigation is required, project planners and designers work collaboratively with agencies that have jurisdictional authority over the regulated resource in order to develop an acceptable mitigation strategy. Once a mitigation strategy is approved, a Memorandum of Understanding (MOU) is typically drawn-up between the project developer and the involved agency and the MOU serves as a condition of a permit. The developer is thereby committed to implementing the mitigation plan as specified. For these reasons, it is in the best interest of project developers to avoid regulated resources as much as possible from the outset of a project. The more regulated resources potentially impacted the more difficult it will be to develop a successful project at a given site.

With respect to locating a ferry terminal along Stamford's shorefront, there will be an obvious need to comply with federal and state coastal zone consistency and coastal permitting requirements. The nature and extent of coastal permitting will be significant regardless of which site is implemented, and will depend on the amount of dredging, fill, and other immediate shoreline and channel alternations that will be needed to construct the project.

Based on the screening methodology and rationale described above, proposed sites involving potential impacts to a larger number of regulated resources were considered to be less attractive and/or less suitable for project development than those sites with few or no regulated resource implications. Based on this rationale, Antares Sites 2A and 2B and the Brewer's Shipyard site are considered to be most suitable for project implementation based solely on the review of environmental resource and land use information presented herein.

## **B. Marine**

With respect to locating a ferry terminal along Stamford's shorefront, there will be an obvious need to comply with federal and state coastal zone consistency and coastal permitting requirements. The nature and extent of coastal permitting will be significant regardless of which site is implemented, and will depend on the amount of dredging, fill, and other immediate shoreline and channel alternations that will be needed to construct the project.

## Summary Description of All Potential Sites

The following section briefly summarizes the land use, environmental, marine and other relevant characteristics of each of the potential ferry terminal sites.

### 1. Southfield Park

#### A. Land Use and Environmental

This site is a 13-acre City-owned public park with direct shore access including a beach and adjacent pier, located on the west side of the west Branch of Stamford Harbor. Figure 3: Site 1 – Southfield Park, on the following page includes a photo montage and site map of Southfield Park. The park is located within the 100-year coastal flood hazard area and is also south of the hurricane barrier, meaning it will become inundated in a Category 1 or Category 2 hurricane. Although GIS data does not indicate the presence of an inland wetland within the park, field reconnaissance identified the potential presence of a narrow inland wetland located between the park and the condominium development to the south. To verify the presence of an inland wetland near the site, a CT Certified Soils Scientist would need to assess the soils in this area.

The water depth in this northern area is very shallow at 5 feet maximum, although water depths are closer to 2 feet in most areas. There are mudflats located just offshore from the beach, and slivers of tidal wetland vegetation can be found along the shoreline. There is also a hard clam bed that exists just offshore and extends well to the south of the proposed site. Shellfishing is prohibited in the vicinity of the park but the shellfish beds to the south are classified by the Connecticut Department of Agriculture, Bureau of Aquaculture (DA/BA) as Restricted-Relay. Marine water quality in the vicinity of the site is poor and is designated by the CTDEP as Class SC/SB. Groundwater quality at the site is designated by the CTDEP as Class GB.

There are a variety of recreational amenities in the park including a basketball court, two tennis courts, a softball field, children's playscape, picnic areas, and even a small marina. The park qualifies a Section 4(f) property according to the United States Department of Transportation Act of 1966. Section 4(f) protects historic resources eligible for listing or listed on the National Register of Historic Places (NRHP), as well as significant publicly owned parks, recreation areas, or wildlife/waterfowl refuges. The fact that Southfield Park is a Section 4(f) property is critical to the successful implementation of the project. Section 4(f) properties may only be impacted if there is no feasible or prudent alternative to their use and the project includes all possible planning to minimize harm resulting from such use.

The park is located in a section of Stamford known as the Waterside neighborhood and is immediately adjacent to a large new high-end condominium development to the north known as Avalon on Stamford Harbor. This condominium complex has direct views to the east and south of the Harbor and Long Island Sound. Constructing a ferry terminal in this area would likely disrupt the views that these residents are accustomed to and expect. Also abutting the site on the south is a residential area. Some of the properties are within 300 feet of the proposed ferry terminal site, meaning they may be adversely affected by noise from ferry terminal operations. According to Chapter 4 of the guidance manual *Transit Noise and Vibration Impact Assessment* (DOT-T-95-16, April, 1995), a 300-foot buffer is the threshold for noise impacts for ferry terminals. Any residence or other noise sensitive land use (i.e. receptor) that falls within this 300 foot buffer will have to be evaluated in detail using noise modelling software to ascertain the level of impact that may occur at the receptor. Lastly, the site is accessed via Southfield Avenue which passes primarily along the eastern periphery of the Waterside neighborhood residential area and also serves as the main route to more residential areas to the south. Increased traffic associated with ferry operations could be perceived as a nuisance by some local residents.

This page acts as a placeholder for:  
Figure 3 - Southfield Park.

The actual figure may be downloaded on the website.

## **B. Marine and Water Resources**

The site is very close, about  $\frac{1}{4}$  of a nautical mile, to the open waters of Stamford Harbor. This location leaves the site more vulnerable to winds and waves than a site further north on the channel. The northern portion of the waterfront edge is bulk-headed with a stone wall, which is in good condition based on a visual inspection from the beach. There is a cap at the water's edge atop this wall.

The Southern portion of the site consists of a beach front, where water depths gradually increase westward toward the channel. Access to the site is available through Stamford Harbor by way off the Outer Reach and Inner Reach and then along the West Branch.

The Outer Reach and Inner Reach are both dredged approach channels, 200 feet wide with minimum water depths of 15 feet. The West Branch is a dredged channel, approximately 125 feet wide and 12 to 15 feet deep in the area of Southfield Park. There are marinas located to the north and east of Southfield Park, indicating the presence of pleasure craft traffic in the area. There also is commercial traffic which passes this site as it travels to sites farther north along the West Branch. There is available area for a ferry to maneuver if adequate water depth is obtained. Vessels travelling from Southfield Park would require about 18 minutes to travel out of the Harbor.

## **C. Conclusion**

From an environmental and land use perspective, this site is considered less suitable than others for a proposed ferry terminal. From a marine perspective it is better than some and more challenging than other sites. It scored 76 out of a possible 105. We recommend that it be dropped from further consideration.

## **2A. Antares Sites**

### **A. Land Use and Environmental**

The Antares sites, referred to in this memo as 2A and 2B, are located on a large tract of land located along the eastern shore of the West Branch of the Rippowam River just north of the hurricane barrier, Ponus Yacht Club, and Brewer's Shipyard. The sites are located on the east side of West Channel of Stamford Harbor within a section of Stamford known as the South End neighborhood. Antares, a major developer in the Stamford area, has purchased the land for the purposes of developing a multi-use commercial, office, and residential complex. Buildings and other structures that once occupied the land have been demolished and consequently the ground surface is heavily disturbed with minimal vegetative cover. The two potential ferry terminal sites are essentially adjacent to each other and within the same area of disturbed land. Site 2A is located north of Site 2B and is directly opposite a Concrete Processing Plant that is located on the western shoreline of the West Branch of the Rippowam River. Figure 4, on the following page is a photo montage and site map of Site 2A; Figure 5, on page 17 is a photo montage and site map of Site 2B.

Overall, there are minimal environmental resources associated with either site. Like all of the potential terminal sites, both Antares Sites 2A and 2B are located within Connecticut's Coastal Boundary. However there are no tidal wetlands, inland wetlands, mudflats, shellfish beds, or other significant coastal resources at either of the Antares sites. The sites are also in close proximity to the existing channel located within the West Branch of the Rippowam River. The only mapped natural resource in the vicinity of the two sites is a 100-year floodplain, which is confined to a relatively narrow swath along the shoreline in the vicinity of Antares Site 2B. Further north the 100-year floodplain protrudes slightly further inland to the east and broadens in the vicinity of Antares Site 2A. Both sites would suffer tidal inundation along their immediate shorefronts during a Category 1, 2, or 3 hurricane. A rip-rap armoured hurricane barrier, which defines the southern limits of the overall Antares development site, protects landward portions of both Antares ferry sites from tidal inundation. Landward areas may only become inundated under a northwest moving Category 4 hurricane or a Category 5 hurricane. A visual inspection of the site after the major storm of April 2007 showed some ponding from the rainfall, but little evidence of flooding, due to the elevation.

Marine water quality in the vicinity of both sites is poor and is designated by the CTDEP as Class SC/SB. Groundwater quality at the sites is designated by the CTDEP as Class GB.

However, one potential drawback is the possibility of encountering hazardous materials during construction at both sites due to former industrial land uses. The overall Antares Development site is being thoroughly evaluated by a Licensed Environmental Professional (LEP) who is working closely with the CTDEP to develop an acceptable remediation plan for the site that will effectively cap and contain hazardous materials so that any potential for exposure to contaminants and/or the migration of contaminants offsite is significantly reduced.

With respect to demographics, the South End neighborhood near Antares Sites 2A and 2B has a large concentration of minorities which may trigger the need for a detailed environmental justice (EJ) assessment. The project would have to be evaluated to ensure compliance with Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Lastly, the two potential sites are more than 300 feet from the nearest residence or noise sensitive land use so noise associated with the ferry terminal will not be an issue if it were constructed on the Antares property.

This page acts as a placeholder for:  
Figure 4 - Antares A at Atlantic.

The actual figure may be downloaded on the website.

## **B. Marine and Water Resources**

While there are few differences in the land-based environmental conditions, there are some differences from marine perspectives between the two sites, as described below.

### Antares 2A at Atlantic Avenue

The Antares 2A site is located on the east side of the West Branch. It is about  $\frac{3}{4}$  of a nautical mile north of Stamford Harbor. The site is located on the turning basin at the north end of the West Branch. The location of the site within the channel makes it slightly less vulnerable to winds and waves than those areas along open water; however, its location on the turning basin will expose it to wakes from other vessels. Based on information received from reference sources, the waterfront edge is bulkheaded or treated with rip rap, although visual inspection could not be performed. Pictures indicate the waterfront structures are in good condition. The water depth immediately waterside of the site is very shallow at 1 to 5 feet. However, the site is located just adjacent to the turning basin on the West Branch, where water depths are in the range of 12 to 15 feet. Access to the site is available through Stamford Harbor by way of the Outer Reach and Inner Reach and the along the West Branch. The entire length of the West Branch is dredged to this site location at varying widths of approximately 125 to 150 feet and depths of 12 to 15 feet. Vessel traffic in the area travels to and from marinas as well as commercial facilities on both the east and west sides of the West Branch. Additionally, this site is located on the turning basin where a ferry would encounter vessels turning to travel toward Stamford Harbor. There is available area for a ferry to maneuver within the turning basin. Vessels traveling from Antares site 2A would require about 20 minutes to travel out of the Harbor.

### Antares 2B at Pacific Avenue

The Antares 2B site is located slightly south of the 2A site on the east side of the West Branch. The site is located just south of the turning basin. The location of the site within the channel makes it slightly less vulnerable to winds and waves than areas on open water. Based on information received from reference sources, the waterfront edge is bulkheaded or treated with rip rap, although visual inspection could not be performed. Pictures indicate the waterfront structures are in good condition. The water depth immediately waterside of the site is very shallow at 1 to 5 feet. However, the site is located just adjacent to the dredged channel, where water depths are in the range of 12 to 15 feet. Access to the site is available through Stamford Harbor along the Outer Reach and Inner Reach and the along the West Branch. The West Branch is 125 to 150 wide and 12 to 15 feet deep for the entire length of travel to the site. Vessel traffic in the area is the same as that for Antares site 2A, with both pleasure craft and commercial traffic expected. There is available area for a ferry to maneuver if water depths are available. Additionally, the site is located close to the turning basin making it possible for ferries to use this for maneuvering, if necessary. Vessels traveling from Antares site 2B would require about 21 minutes to travel out of the Harbor, if the turning basin is used.

## **C. Conclusions**

Overall, from most perspectives, these two sites are considered more suitable than others for a proposed ferry terminal, with minor differences from a land use perspective. From a marine perspective, 2B is slightly superior. The northern site on the Antares property scored a total of 92 and the southern site scored a total of 89, out of a total possible score of 89.

The major concern is that the site is in private ownership and at this time, the property owners have not incorporated a ferry facility into their development scheme.

This page acts as a placeholder for:  
Figure 5 - Antares B at Pacific.

The actual figure may be downloaded on the website.

### **3. Brewer's Shipyard**

#### **A. Land Use and Environmental**

The Brewer's Shipyard is located within Stamford's South End neighborhood, just south of the Ponus Yacht Club, hurricane barrier, and Antares Development Site. Figure 6, on the following page, includes a photo montage and site map of Site 3, the Brewer's Shipyard. The ship yard occupies a small rectangular peninsula that is located between the mouth of the West Branch of the Rippowam River on the west and a small embayment on the east. The embayment separates the ship yard peninsula from the Kosciuszko Park peninsula and Cemetery Point. The shipyard, which was purchased by Antares, is a significant water dependent use and one of the most active marinas in the region. It is accessed via Washington Boulevard, which essentially terminates near the entrance to Ponus Yacht Club and the shipyard.

The main boat launch/ramp is located on the western side of the shipyard along with a number of wooden docks. A bulkhead dominates the shoreline along the West Branch of the Rippowam River near the boat launch/ramp and docks.

The entire shipyard is located within the 100-year coastal flood hazard area (floodplain) and, because it is located entirely south of the hurricane barrier, the property may become inundated during Category 1 and 2 hurricanes. Being located water-ward of the hurricane barrier also limits future development. The City of Stamford discourages non-water dependent uses at the site as such uses would be inconsistent with the municipal coastal program.

Due to the intensive and long standing use of the site as a full service shipyard, the potential for site contamination exists but has not been substantiated. Lastly, like Antares Sites 2A and 2B, demographic data for the area suggest the potential need for a detailed environmental justice assessment per Executive Order 12898.

Overall, from an environmental and land use perspective, this site is considered more suitable than others for a proposed ferry terminal as long as the terminal is oriented so that high-speed ferries arrive and depart via the West Branch of the Rippowam River as opposed to the shallow embayment on the eastern side of the peninsula.

This page acts as a placeholder for:  
Figure 6 - Brewer's Shipyard.

The actual figure may be downloaded on the website.

## **B. Marine**

The Brewer's Shipyard site is located on the east side of the West Branch. The site is very close to the open waters of Stamford Harbor. As the site is located close to Stamford Harbor, it is more vulnerable to winds and waves than a site further north on the channel. The waterfront edge is treated to the north of the site with a pile supported platform which looks to be in good condition from the limited visual inspection available from the landside. To the south the waterfront is bulkheaded. The water depth immediately waterside of the site is shallow at 5 feet maximum. However, the site is located just adjacent to the dredged channel, where water depths are in the range of 12 to 15 feet. Access to the site is available through Stamford Harbor along the Outer Reach and Inner Reach and then along the West Branch which is dredged to approximately 125 feet wide and 12 to 15 feet deep in the area of Brewer's Shipyard. There are marinas located along the length of the Brewer's Shipyard site as well as to the north and west of the site, indicating that there is pleasure craft traffic in the area. Commercial traffic travels to sites farther north along the West Branch. Portions of the site provide an area for a ferry to maneuver into and out of the site, if water depths are available. Vessels traveling from Brewer's Shipyard would require about 17 minutes to travel out of the Harbor.

Access to the existing navigational channel associated with the West Branch of the Rippowam River is direct. On the eastern side of the peninsula where the embayment is located, the shoreline is armoured with large rip-rap. There are several floating docks located within the embayment and mudflats are found during low tide at the northern end of the embayment. There are no tidal or inland wetlands on the Brewer Shipyard. There are no shellfish beds near the shipyard site and offshore areas are designated as Prohibited for shell-fishing by the DA/BA. Marine water quality in the vicinity of the site is poor and is designated by the CTDEP as Class SC/SB. Groundwater quality at the site is designated by the CTDEP as Class GB.

## **Conclusion**

This site scored well from a both an environmental and land use perspective as well as from a marine perspective, with a total of 85 out of 105.

## **4. Kosciuszko Park**

### **A. Land Use and Environmental**

Kosciuszko Park is a City-owned public park that occupies 15.8 acres of a peninsula located between the West Branch of the Rippowam River and East Branch of the Rippowam River. Figure 7 on the following page, is a photo montage and site map of Site 4, Kosciuszko Park. Access to the park, which is located south of the Pitney Bowes office building, is primarily gained via Washington Boulevard to Dyke Lane to Elmcroft Road. The park, which was recently improved, offers several amenities including baseball fields, a children's playground, soccer fields, and a stone dust perimeter trail complete with solar lighting and benches with uninterrupted views of Stamford Harbor and Long Island Sound. Like Southfield Park, Kosciuszko Park is a public Section 4(f) property and therefore is protected under Section 4(f) of the Department of Transportation Act of 1966. Like the Antares and the Brewer Shipyard sites, Kosciuszko Park is located in Stamford's South End neighborhood and is an important resource for that community as well as the City of Stamford as a whole.

The park is located south of the hurricane barrier but its interior portions are at a higher elevation than its shoreline perimeter. Only the extreme southern tip of the park, known as Cemetery Point, and interior low lying areas near the Pitney Bowes office building at the park's entrance are vulnerable to flooding from Category 1 and 2 hurricanes. The entire shoreline of the park is designated as a 100-year coastal flood hazard area (floodplain). Mudflats dominate the eastern shoreline as well as a large area to the west of Cemetery Point near the entrance to the embayment located between Brewer's Shipyard and the park. There are also exposed mudflats along the western shoreline of the park well north into the small embayment. Tidal wetland vegetation occurs in sporadic clumps along the eastern shoreline but is by no means widespread. The shoreline surrounding the entire park is a mix of rocky shore and beachfront. There are no shellfish beds near the park and offshore areas are designated as Prohibited for shellfishing by the DA/BA. Marine water quality in the vicinity of the site is poor and is designated by the CTDEP as Class SC/SB. Groundwater quality at the site is designated by the CTDEP as Class GB.

Like the Antares sites and the Brewer Shipyard site, demographic data indicates a high concentration of minorities in the South End neighborhood which would suggest the potential need for a detailed environmental justice assessment per Executive Order 12898 if this site were selected for further evaluation. Lastly, although there is a residential neighborhood located to the north of the park, just north of the Pitney Bowes office building, these residences are greater than 300 feet from any potential ferry terminal site proposed within the park, thus noise issues are not a concern.

This page acts as a placeholder for:  
Figure 7- Kosciuszko Park.

The actual figure may be downloaded on the website.

## **B. Marine**

The Kosciuszko Park site is located slightly northwest of the Inner Reach channel. Since conditions vary along the length of the site, two areas were considered: one at the northern tip and one at the southern tip. In general, the waterfront edge consists of several conditions including rocky slopes and beach fronts, some of which is laden with large debris. At the north tip, the site is fairly sheltered from wind and waves. The existing waterfront consists mostly of beach front. The water depth immediately waterside of the north area is very shallow at less than 0 to less than 5 feet maximum. Maneuvering a ferry in the north area will be extremely difficult, if not impossible due to the narrowness of the area and the limited water depth. At the south tip, the site is located close to Stamford Harbor where it is more vulnerable to winds and waves. The waterfront edge consists mostly of rocky slopes with some beach front. The water depth immediately waterside of the south tip is about 7 to 9 feet. The south tip has area available for a vessel to maneuver if adequate water depth is obtained. Access to the both the north and south ends of the park are available through Stamford Harbor along the Outer Reach and Inner Reach. There is no dredged channel into the Kosciuszko Park site. Water depths leading into the area are anywhere from 7 to 11 feet at the south tip to less than 0 to less than 5 feet at the north tip. There are marinas located along the east side of the Brewer's Shipyard which is across the water to the west of Kosciuszko Park, indicating that there is pleasure craft traffic in the area which would be encountered if a ferry landing were located at either the north or south. Vessels traveling from the north tip would require about 17 minutes to travel out of the Harbor while vessels traveling from the south tip would require about 14 minutes.

## **C. Conclusion**

Overall, this site is considered less suitable than others for a proposed ferry terminal from an environmental, land use perspective and marine perspective, scoring a total of 76 out of a possible 105. We recommend that it be dropped from further consideration.

## **5. Harborside**

### **A. Land Use and Environmental**

This site, which is also owned by Antares, is located in an industrial zone just south and downstream of the Stamford Wastewater Treatment Plant (WWTP) along the eastern shoreline of the East Branch of the Rippowam River. Figure 8 on the following page includes a photo montage and site map of Site 6, Harborside. The site is accessed via Magee Avenue. There is about an eight-foot difference in elevation between the shoreline and the rest of the site. The narrow shoreline is the only portion of the site within the 100-year coastal flood hazard area (floodplain). The shoreline is primarily rocky unimproved beachfront. There are no tidal wetlands and there is only a small sliver of mudflat, primarily south of the site. There are no shellfish beds near the site, which is just downstream of the WWTP discharge, and offshore areas are designated as Prohibited for shell-fishing by the DA/BA. The water depth immediately waterside of the area is very shallow at 0 to less than 2 feet maximum.

The site may only become inundated under a northwest moving Category 4 hurricane or a Category 5 hurricane. There are no inland wetlands or other regulated environmental resources at the site. Marine water quality in the vicinity of the site is poor and is designated by the CTDEP as Class SC/SB. Groundwater quality at the site is designated by the CTDEP as Class GB.

There are no residences or other noise sensitive receptors within 300 feet of the Harborside site, thus noise from potential ferry operations would not be an issue. As previously mentioned; the site is located within an industrial area and is immediately downstream of a WWTP. Thus, the potential for encountering hazardous materials and/ or contamination at the site is possible. With respect to demographics, high concentrations of minority and low income populations do not exist in the Census Tract that encompasses the site, therefore environmental justice is not an issue at this site.

### **B. Marine**

Located on the East Branch, northeast of the Inner Reach channel and north of the hurricane barrier, this location on the channel offers some shelter from wind and waves. In general, the waterfront edge consists of beach front, some of which is laden with large debris. However, the site is located just off the dredged channel with water depths of 12 feet. The channel is dredge for varying widths of 100 to 125 feet south of the hurricane barrier and 50 to 170 feet north of the hurricane barrier. This site is located on one of the narrower portions of the East Branch.

Access to the site is available through Stamford Harbor along the Outer Reach and Inner Reach. There are marinas located along the entire waterfront of the East Branch from the Harbor to the site. There is also a scrap yard on the west side of the East Branch, which uses its water frontage to load scrap onto barges. This indicates that there is vessel traffic with both pleasure and commercial type vessels. Maneuvering a ferry could be difficult depending on the size of the vessel, due to the narrowness of the channel at this location. Vessels traveling from Harborside would require about 20 minutes to reach the Long Island Sound.

### **C. Conclusions**

From an environmental and land use perspective, this site is considered more suitable than some others as there is a limited amount of involvement of regulated resources. There are concerns about the width of the channel and the distance to the Harbor. There may also be some concerns about adjacent land uses, but overall it scored relatively well with a total score of 88 out of 105.

This page acts as a placeholder for:  
Figure 8 - Harborside.

The actual figure may be downloaded on the website.

## **6. Halloween Marina**

### **A. Land Use and Environmental**

The site, the easternmost of the sites under consideration, is a recreational marina located on the northernmost portion of Westcott Cove. Figure 9, on the following page, includes a photo montage and site map of Site 7, Halloween Marina. The site is accessed via Seaview Avenue, which bisects city-owned parkland upon which the marina is located. The park, known as Cummings Park, includes baseball and softball fields, tennis courts, basketball courts, and other amenities including a beach. This publicly owned park is a Section 4(f) property and therefore is protected under Section 4(f) of the Department of Transportation Act of 1966.

To the immediate east of the marina is a multi-family residential development as well as a commercial office building. The residential development is approximately 300 feet from the proposed Halloween Marina ferry terminal site. Due to the proximity of residential development, there is a slight possibility for noise impacts from the proposed ferry terminal operations should the terminal be constructed at this marina site.

In terms of natural resources, there are exposed mudflats all along the shoreline as well as sporadic clumps of tidal wetland vegetation. Tidal wetlands, however, are by no means widespread as the shoreline is primarily rip rap or beachfront. The site lies entirely within the 100-year coastal flood hazard area (floodplain) and may become inundated by Category 1 and 2 hurricanes. There are no shellfish beds in the vicinity of the marina and the DA/BA classifies the offshore area adjacent to the marina as “Prohibited” for shell-fishing. Hard shell clam and oyster beds are, however, located further offshore within Westcott Cove. These beds are classified by the DA/BA as “Restricted-Relay” and further to the east as “Conditionally Approved”. Marine water quality in the vicinity of the site is considered good as it is designated by the CTDEP as Class SB/SA. Groundwater quality at the site is designated by the CTDEP as Class GA.

With respect to demographics, high concentrations of minority and low income populations do not exist in the Census Tract that encompasses the site, therefore environmental justice is not an issue at this site. There is no evidence of hazardous materials or contamination at the site.

### **B. Marine and Water Resources**

The Halloween Marina site is located east of Stamford Harbor in an area called Westcott Cove. The area offers shelter from wind and waves. The waterfront edge has both beach front and rip rap. The water depth immediately waterside of the area is very shallow at 0 to less than 4 feet maximum. There is a dredged channel into the site, which is very narrow and very shallow at 50 feet and 4 to 4.5 feet respectively. Access to the site is available through Westcott Cove and along the dredged channel, although the depth of the channel as it exists is too shallow for ferry vessels. There are marinas located within the site location and a gas station for vessels. This indicates that pleasure craft traffic is expected in the area. Maneuvering a ferry would be extremely difficult, if not impossible due to the narrowness of the area and the limited water depth. Vessels traveling from the Halloween Marina would require about 12 minutes to reach the Long Island Sound, while keeping mind that this location is farther east of destinations to New York City.

### **Conclusion**

Overall, this site is considered less suitable than others for a proposed ferry terminal, particularly from a marine perspective. We recommend that it be dropped from further consideration.

This page acts as a placeholder for:  
Figure 9 - Halloween Marina.

The actual figure may be downloaded on the website.

## Summary Conclusion

Based on the results of the preliminary screening we recommend that the following sites be dropped from further consideration:

- Southfield Park
- Kosciuszko Park
- Halloween Harbor

The other four sites will continue to be evaluated relative to:

- historical uses including contamination issues;
- adequacy for appropriate land and water related activities;
- access and proximity to downtown;
- transit connections;
- parking considerations; and
- proximity to mixed-use, moderate density waterfront development.

In addition, we will continue to evaluate the generic feasibility of ferry service from Stamford to a number of potential destinations.

If a feasible site is identified, as part of this study, future memos will address:

- what if any improvements, acquisitions and / or mitigation will be necessary;
- what are the transportation connections and constraints between any feasible site, the Transportation Center and major arterials for vehicles, transit, pedestrians and bicyclists;
- public / private partnership issues and concerns for management and operations of the ferry service;
- impacts of proposed development on a ferry facility;
- impacts of the ferry facility on existing and proposed adjacent land uses and economic development initiatives; and
- analysis of ferry demand studies to support a ferry service from Stamford Harbor.