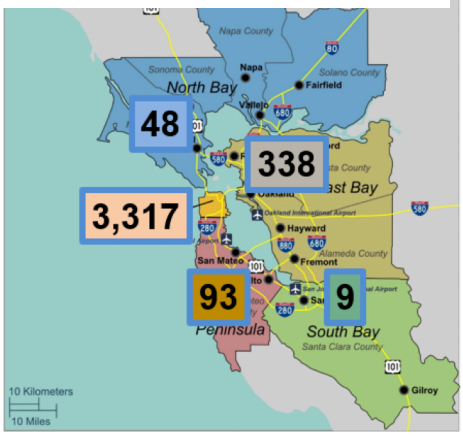
The Treasure Island Sailing Center

TISC creates opportunities for people to learn and grow through sailing. We provide access to boat and instruction because people who connect with the bay will take care of it. Our programs accommodate people of all ages, ability, gender, and socioeconomic backgrounds- we have an 80% youth scholarship rate. We serve close to 4000 sailors per year (Figure 1) and expect (based on other sailing centers nationally) to serve more than 20,000 people per year. We believe that San Francisco will be a leader in providing equal access to sailing by developing a community sailing center in the only place possible in San Francisco—Clipper Cove.

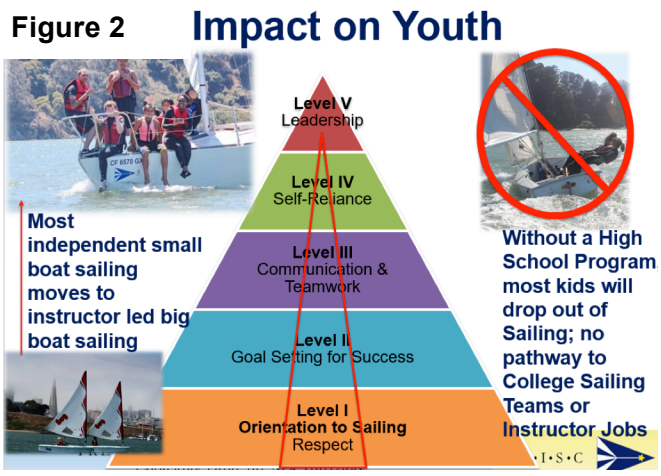
Figure 1. 2015 TISC participation



Impact of Clipper Cove Marina Development

The biggest threat to providing public access to Clipper Cove is the reduction of safe, navigable space. This is particularly true for our youth programs that pride itself in offering a 5 level curriculum designed to introduce kids to the Bay at a young age, then provide them with pathways to hone their sailing and personal skills that lead to educational and job opportunities they never thought possible. By reducing space in the cove (page 2), self-piloted small boat sailing would be replaced with instructor-piloted keelboat sailing outside of the cove reducing the number of kids we can accommodate as well as what and how we teach them (Figure 2).

Figure 2

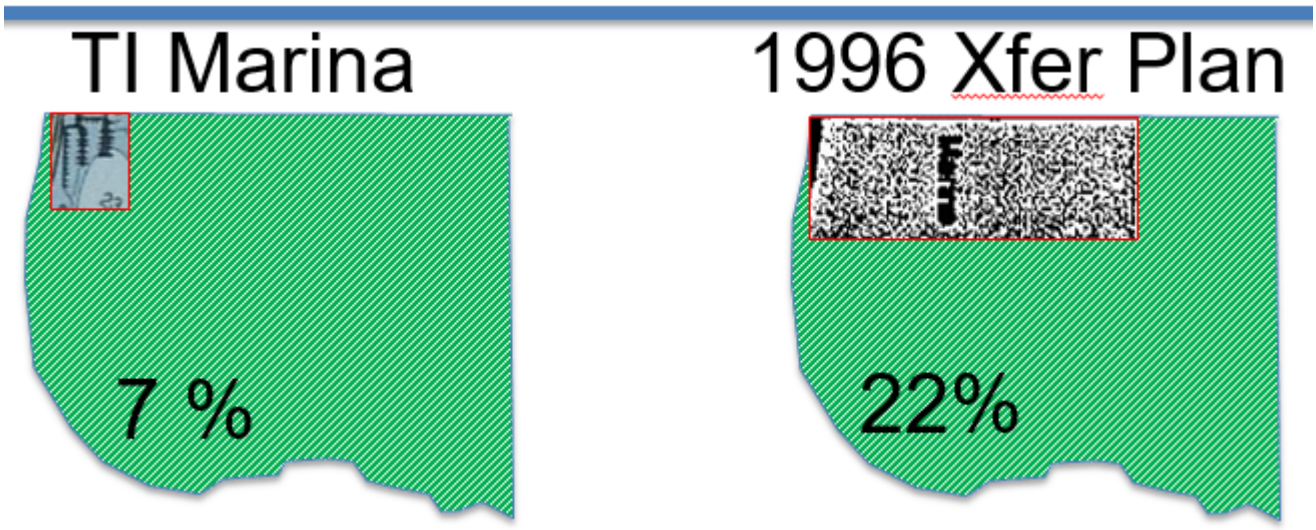


Due Diligence & Good Faith Compromise

In 2015, TISC learned about the expanded Marina footprint from a concerned TISC parent. Over the past 18 months, we have worked diligently (as volunteers) to communicate to all stakeholders the negative implications on our scope and type of programming. When prompted by TIDA to outline our current use of the Cove and acceptable marina designs, we teamed up with architects, engineers and other experts to research and design feasible solutions. In doing so, we determined that a 235 berth (42'avg) marina would preserve the majority of current use (p. 3), thus having "Minimal Impact" and being our top recommendation. We also developed a compromise solution ("Spring 2016 Compromise"), a 306 berth (46'avg) plan which was rejected (p. 4). In the Fall of 2016, we developed another compromise ("October 2016 Compromise"). This plan includes 334 berths (45'avg) (p. 6). We also developed financial models to ensure our solutions were economically feasible and sustainable (see "Clipper Cove Marina Expansion - Economic Feasibility Study"). Additionally, we outlined a "Maximal Impact" plan (p. 7) that represents the bare minimum space required to continue our programs, albeit with substantial limitations and modifications. Obviously, this is not our preferred our recommended plan, but it does communicate the maximal footprint that the marina can have while allowing TISC to continue. The goal of this document is to provide an overview of the plans we produced to negotiate a compromise that allows public service and access with a modernized expanded marina. The dimension specifics are offered in addition to each plans programmatic and financial impact. Based on the information included, TISC strongly recommends the October 2016 Compromise as a path forward (p.6).

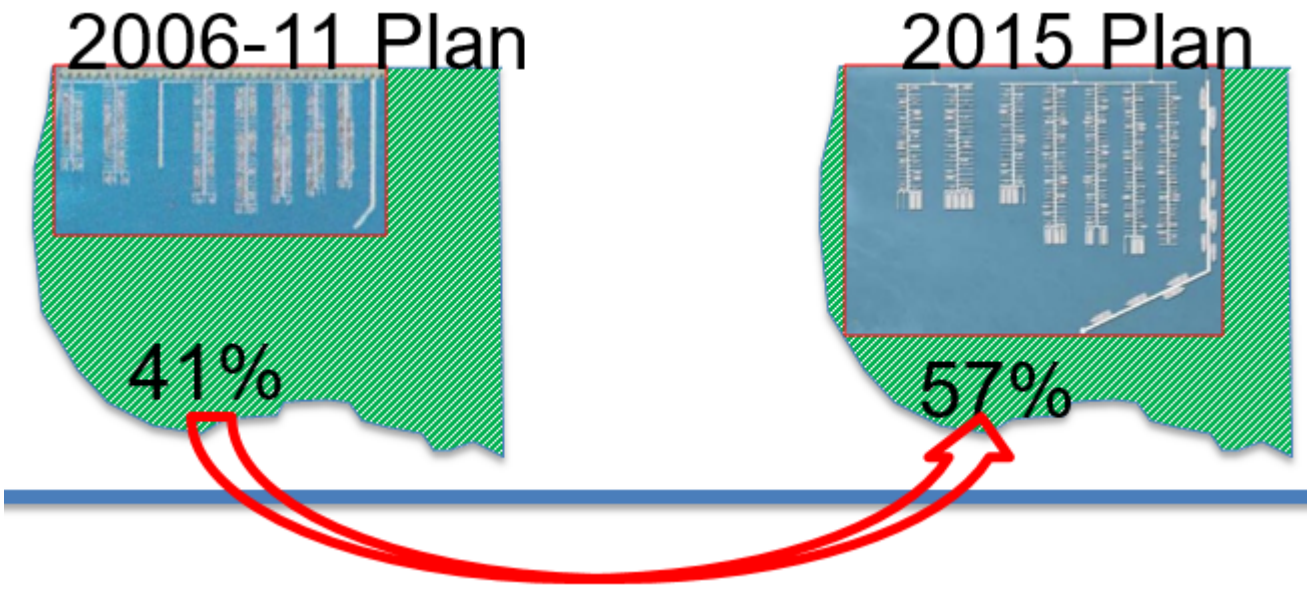
Current Marina & 1996 Transfer Plan

The current marina utilizes 7% of the cove and accommodates 107 boats that average 31' in length. The 1996 Transfer plan called for an expansion and modernization of the marina that utilizes 22% of the cove. However, even this plan did not maximize the sailable space in the cove (it's rectangular shape puts its most eastward dock 1685' from the mean low waters (MLW) edge at the causeway and its southward encroachment (470' south into the cove), likely because the cove was not being used at the time by the public. The Treasure Island Sailing Center was founded in 1999.



2002-2006 TIE Marina Proposal

In 2002, a plan was put forth by TIE that supported quadrupling of the marina. It utilized 41% of the cove. Despite our small programs at the time, we repeatedly asked for the marina to be moved as far to the west as possible. We also asked that the megayacht pier in the middle of the marina be removed so that the wave attenuator could be moved to the west. In 2015, after 10 years of dramatic expanded use of the Cove by the public, TIE submitted a substantially larger footprint, taking over 57% of the cove. All of the existing TISC programs held in the cove would be eliminated.



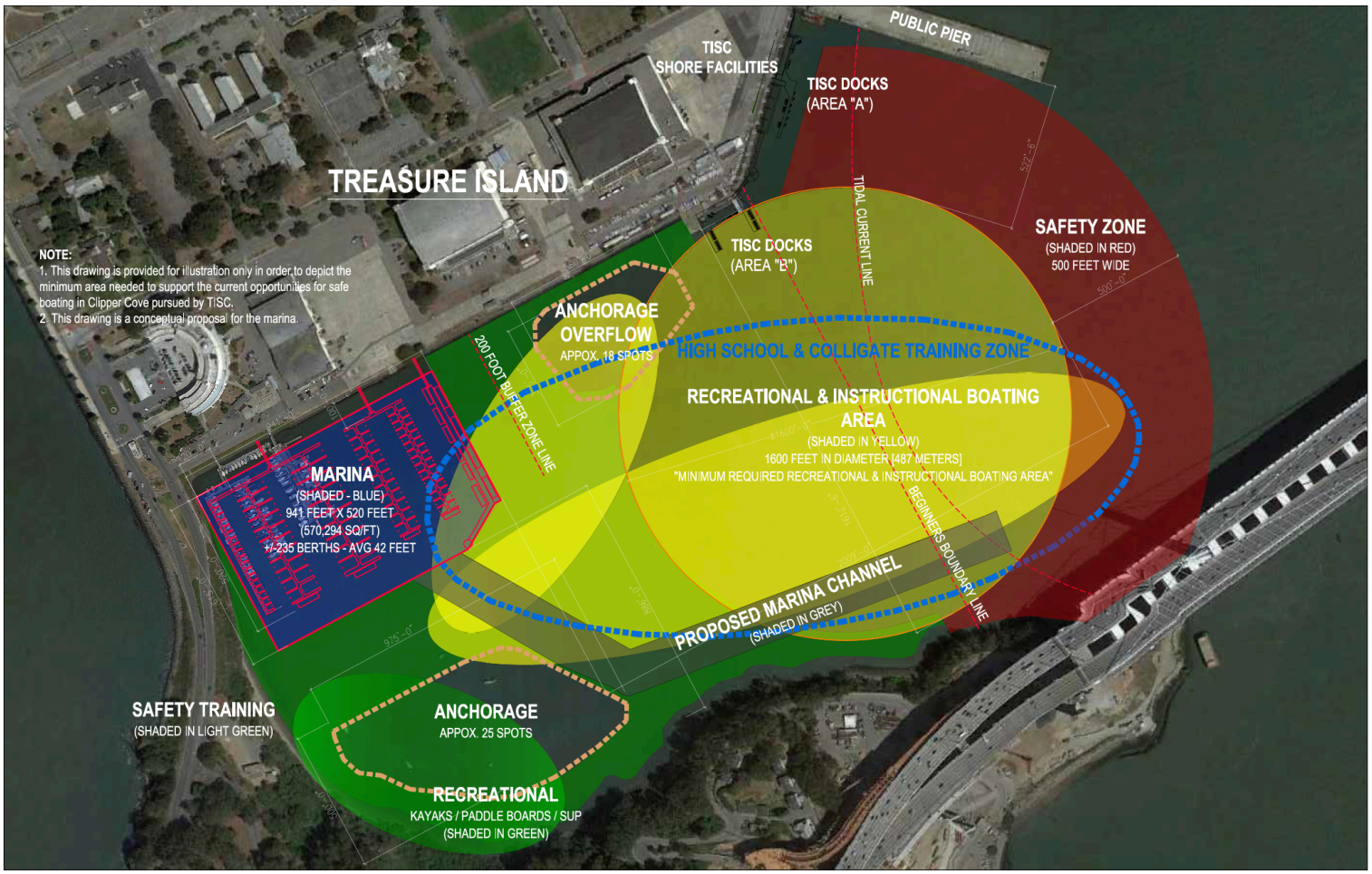
Proposed Solution for a Shared Approach to Clipper Cove- SPRING 2016

Benchmark: “Minimum Impact” Plan for Maximum Shared Use

More than doubling the size of the current marina (228% increase) would minimally impact the current use of the cove by anchorage folks as well as TISC Education and Recreation Programs. We believe that any marina design should start from this benchmark which establishes the maximum marina expansion that can be accommodated while minimally impacting current use.

Key Design Points:

- Marina Footprint with wave attenuator (570,294 SqFt)
  - Location of Wave Attenuator From Causeway to the East: 941’
  - Length of Wave Attenuator/Docks from shore to the South: 520’ plus a 200‘ dog leg extension
- Accommodates 235 berths at ~42 ft slip average
- >500’ of guest docks on each side of wave attenuator
- 25 mooring balls in the cove; Ample space for self-anchorage
- Current use is easily resumed close to normal



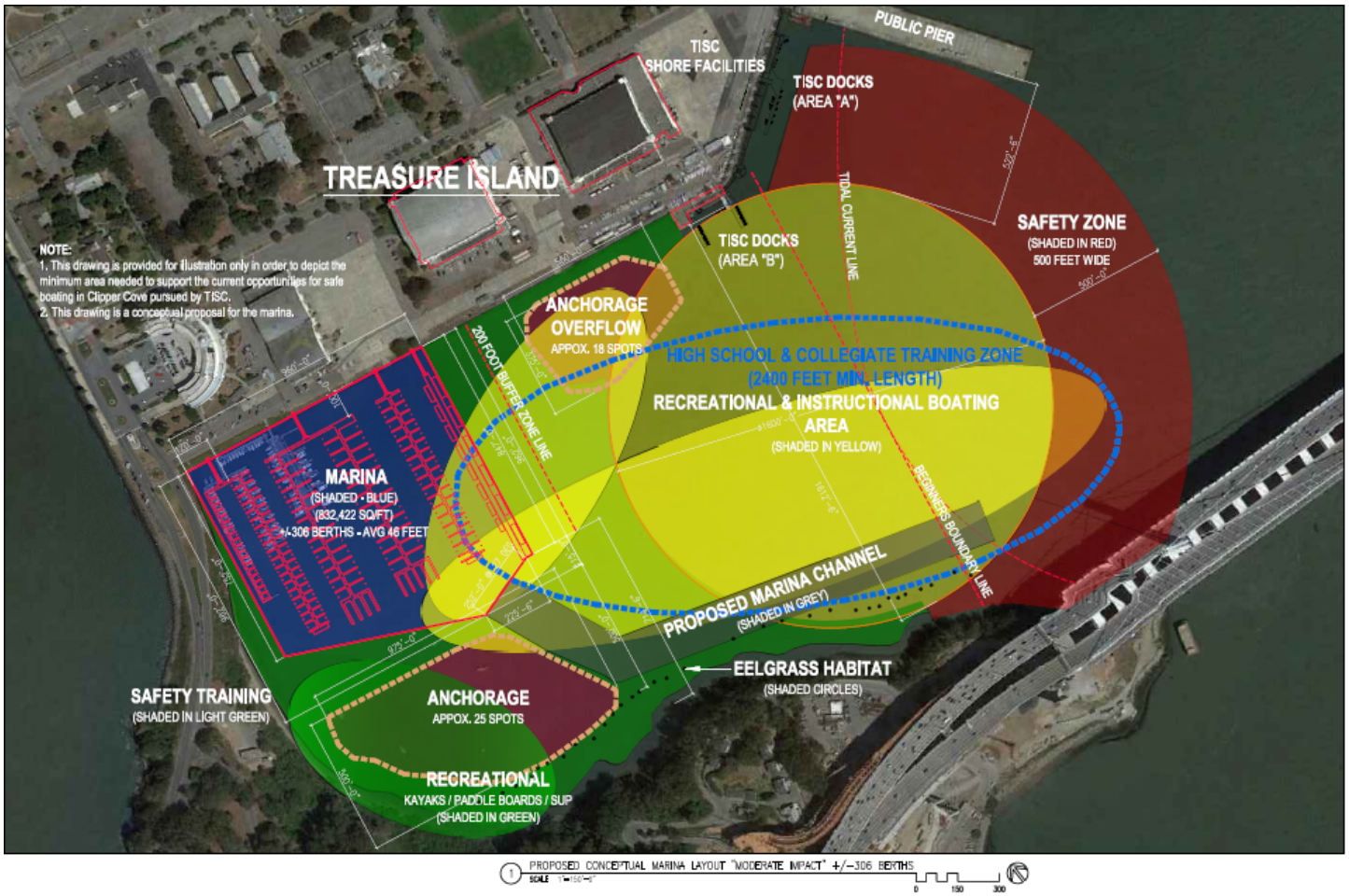
1 PROPOSED CONCEPTUAL MARINA LAYOUT "MINIMUM IMPACT" +/-235 BERTHS
SCALE 1"=150'-0"
0 150 300

Spring 2016 Compromise

Tripling the footprint of the current marina (@313%) would result in a substantial number of slips being added to the modernized marina while preserving most of the area currently used for orientations and beginner sailing.

Key Design Points:

- Marina Footprint with wave attenuator (832,422 SqFt)
  - Location of Wave Attenuator From Causeway to the East: 990’
  - Length of Wave Attenuator/docks from shore to the South: 847’
  - Dog Leg length 252’ at 45º angle from main attenuator line
- Accommodates ±306 berths (46ft slip average)
- >800’ of guest docks on each side of wave attenuator
- 25 mooring balls in the cove; Ample space for self-anchorage
- The majority of the recreational and instructional boating area (yellow) is preserved. However, there is a **significant reduction in the area available for instructional and recreational youth sailing.**
- High School and College Sailing programs (blue dotted oval) can continue training and racing in Clipper Cove, albeit with moderate modifications in size and type of racing area, including expansion into the safety zone requiring increased safety precautions to be taken (i.e. # safety boats, wind cap, seasonal /tidal restrictions).
- Ample current free, safe space upwind of launch for beginners (Dotted red lines)

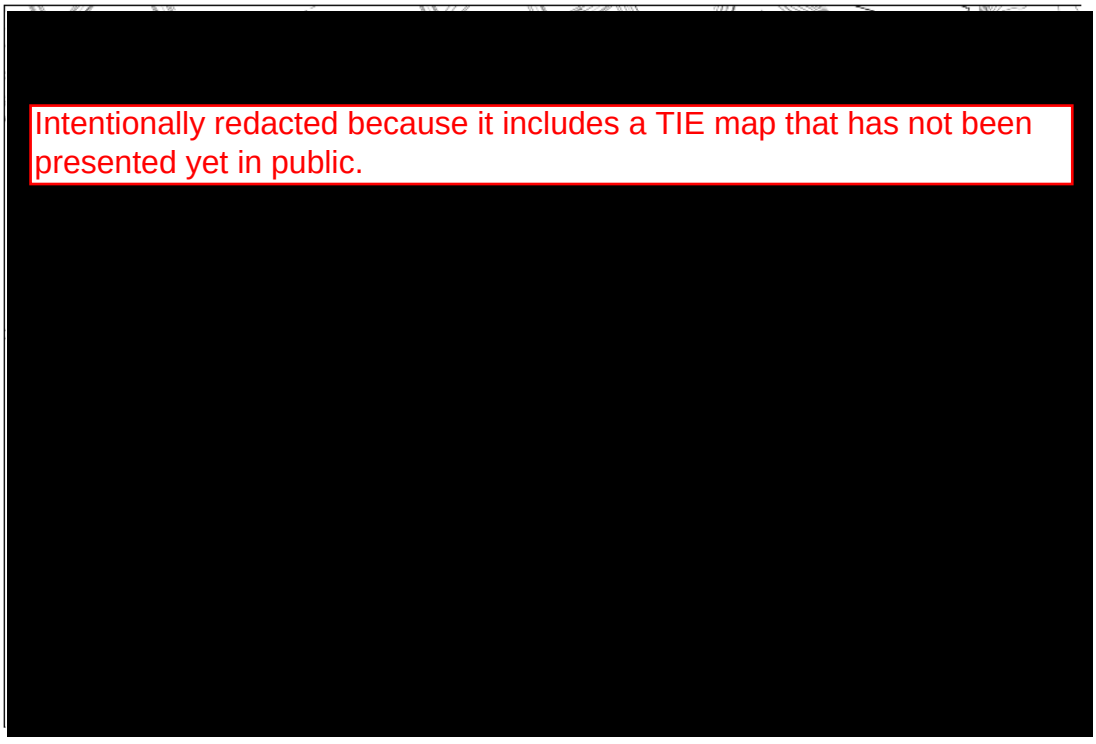


October 2016 Compromise

Clipper Cove Shared Space Objectives

In examining potential compromise options that surfaced in October, TISC identified several key metrics for evaluating whether the proposed plans would provide shared use of Clipper Cove:

1) A marina footprint that accommodates current use
2) A wave attenuator location (on the TI shoreline) that:
    a. allows adequate space for the majority of current sailing educational and recreational uses to persist, and
    b. minimizes the length required to protect the marina
3) Optimization of space shared by anchor outs, small boat instruction, and recreational small boaters.
4) Add value to the cove and the boating community by modernizing and expanding the current marina
5) A plan that accommodates recreational and educational use by as much of the public as possible (beach, kayaks, SUPs, small boat sailing, keelboat sailing, motorboats)

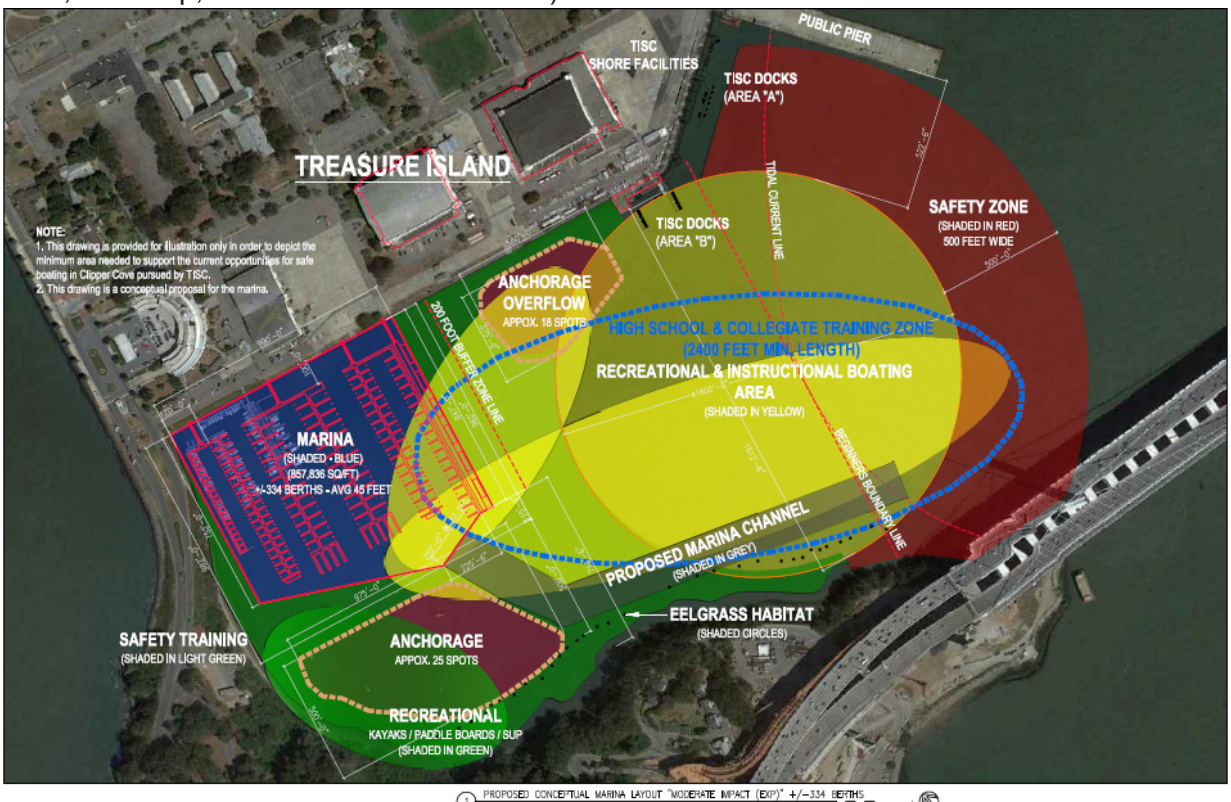


TISC Plan- October 2016 (Appendix 2:A21-EXP)

Given the challenges described, and to further identify compromise solutions, TISC returned to our Spring 2016 Compromise map, moved the attenuator wall further eastward and added a half row of slips to the inside wall of the wave attenuator. This design adds 36 slips to the plan without causing the elimination of any TISC programs. That said, compromises in where and when programs take place will have to be made. Although we still believe that a yet smaller plan that would accommodate ALL current public use is more appropriate, **we can support this plan** or one with an equivalent footprint that observes the location of the wave attenuator and provides navigable space to the beach.

Key Design Points:

- Marina Footprint with wave attenuator (857,836 SqFt; 23% of Cove)
  - Location of Wave Attenuator From Causeway to the East: @990'
  - Length of Wave Attenuator/docks from shore to the South: @847'
  - Dog Leg Length: not needed due to length and westward placement of attenuator. Up to @252', at 45º angle from main attenuator line is acceptable; tip is 962' from TI shore
  - Public use space reduction: 607, 836sq ft (16% of cove)
- Accommodates ±334 berths (45ft slip average). Berths are single finger slips which is environmentally friendly (reduces bay fill) and is cheaper to build.
- >800' of guest docks on east side of wave attenuator
- 25 mooring balls in the cove; Ample space for self-anchorage east of wave attenuator
- Additionally, the most eastward row of boats (Row E) includes 38 35' boat slips accommodating more of the public (35' yachts are substantially cheaper ($100k) than 45'($400k) yachts). We highly encourage that this space utilize a shared boat model (think car share or Uber).
- Acceptable current free, safe space upwind of launch for beginners (Dotted red lines) and a navigable pass to the beach (500' between tip of dogleg and eel grass; 225' of upwind narrow passage space)
- High School/College Sailing programs (blue dotted oval) can train and race in Clipper Cove, albeit with moderate modifications in size and type of racing area and additional safety precautions (i.e. # safety boats, wind cap, seasonal /tidal restrictions).

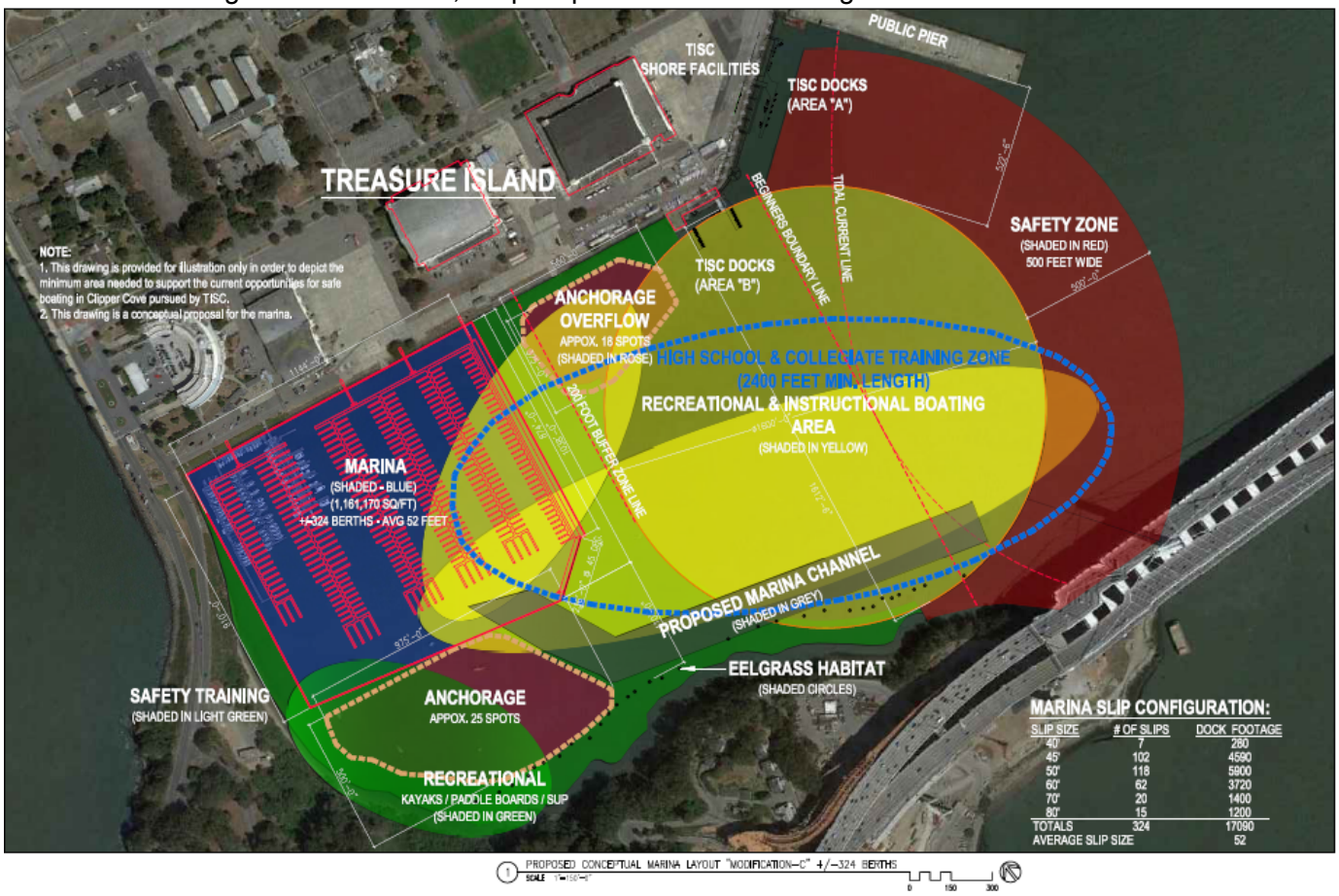


Maximum Impact – October 2016 (Appendix 2: A25C)

In an attempt to identify all possible compromises, TISC also designed a footprint based directly on the October 2016 TIE design which accommodates an average slip size of 52' and includes double finger berths (ie., docks on both sides of each boat). In contrast to the TIE October 2016 drawing, this modified proposal provides the **minimum** space required for our advanced sailing programs to continue AND the **minimum** navigable space to allow most beginner sailors to reach the beach. It must be stressed that with this proposal, under certain wind and current conditions, we will NOT be able to run certain programs and access to the west end of the Cove will be challenging for some beginning sailors. This plan leaves the bare minimum required to continue our programs, albeit on a more limited basis.

Key Design Points:

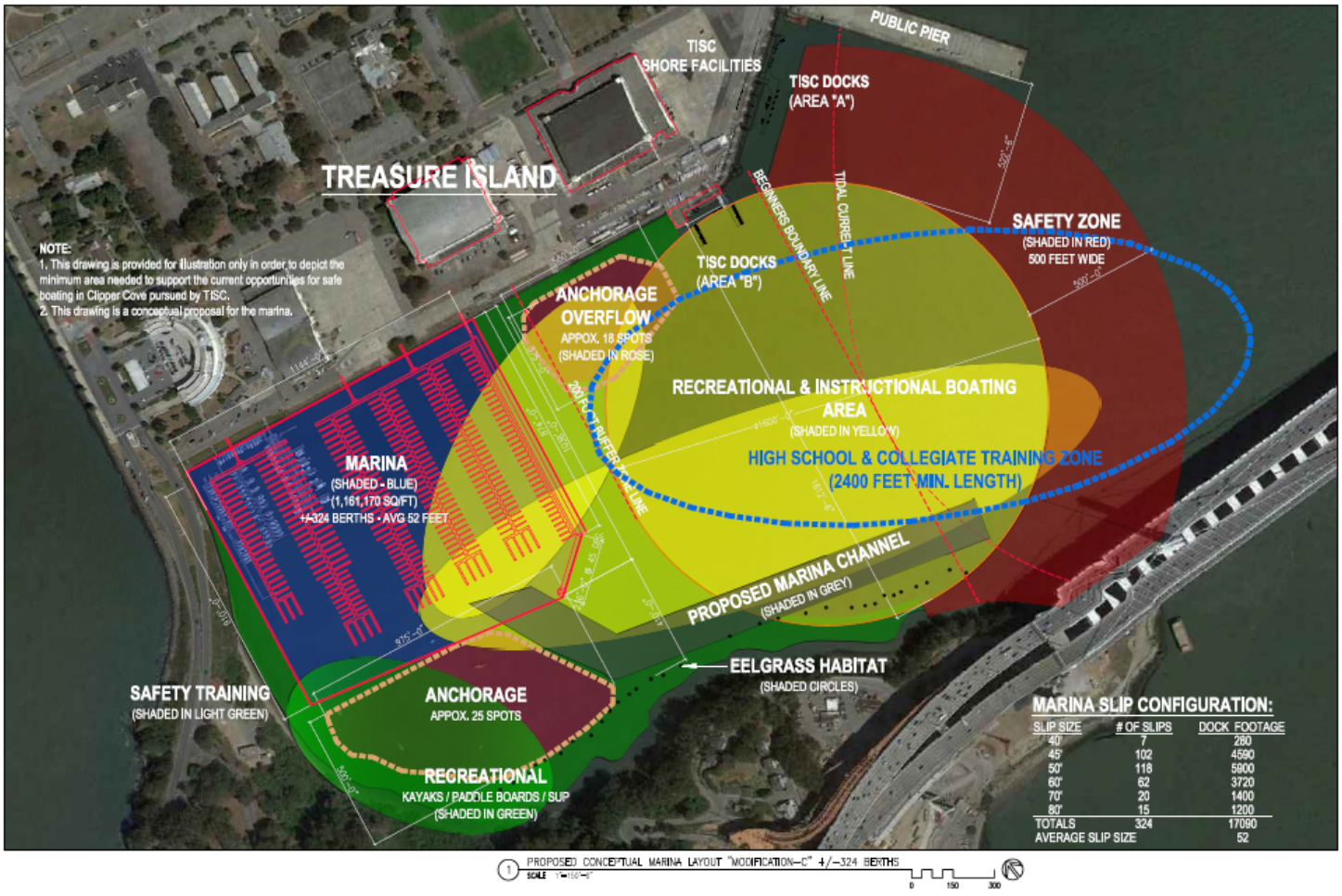
- Marina Footprint with wave attenuator (1,161,170 sq ft; 31% of Cove)
  - Location of Wave Attenuator from MLW at Causeway to the East: @1144' This means the location of the wave attenuator is 184' east from our Spring 2016 proposal and a 181' west compared to the October 2016 TIE proposal.
  - Length of Wave Attenuator/docks from shore to the South: @874'
  - Dog Leg Length: @236' @45º angle, tip is 1038' from TI shore. This is 158' longer than the 2005 EIR.
  - Public use space reduction: 911,170 sq ft (24% of cove)
- The navigable pass to the beach is 410' between tip of dogleg and eel grass yielding a @225' of upwind narrow passage space)
- Accommodates ±324berths (52ft slip average), double finger berths, doubling the necessary bay fill
- @800' of guest docks on east side of wave attenuator
- 25 mooring balls in the cove; Ample space for self-anchorage east of wave attenuator



Although this plan allows our current programs to survive, it will require substantial modifications and limitations on them. The number of boats on the cove at the same time will be reduced and the advanced/racing programs will have wind/current restrictions placed on them (see shift of blue dotted oval to the east). **This plan provides the bare minimum space required to continue providing our existing (though greatly modified) educational and recreational opportunities to the Bay Area community**. Therefore, if we have to, we will live with this plan; we will not support it but will will not actively oppose it. We do not know how other groups will respond to this proposal (Anchorage, Bay Keepers, Sierra Club, Save Clipper Cove).

KEY POINTS

- 8% (134,596 sq feet) reduction in the sailing area used by SFUSD Set Sail Learn classes and all other youth programs as well as by high school and collegiate sailing and adult sailing
- Set Sail Learn Classes will accommodate 3 classes/day, reduced from 4 planned
- High School/College training will be shortened by 300' so that boats stay within safety zone.
- High School/Collegiate racing will extend beyond the safety zone by 200-300', depending on wind and current conditions. This will require additional safety boats and high wind/high current limitations. Racing will be cancelled when conditions are unsafe to utilize space outside of the safety zone.
- TISC programs can continue to utilize the beach for safety training, and most beginners will still be able to access the west end of the cove and sail to the beach albeit requiring more advanced skills. Some beginning sailors will be not be access the each or sail to the west end of the Cove.
- High School and Collegiate Sailing displaced to the east outside the Cove



Plan Comparison of Dimensions

To compare plans that have been proposed by both TIE & TISC, we have made the following table that estimates key metrics. We identified the protected area of the cove to be 3,787,430 square feet, by using the tide line as the eastern most boundary.

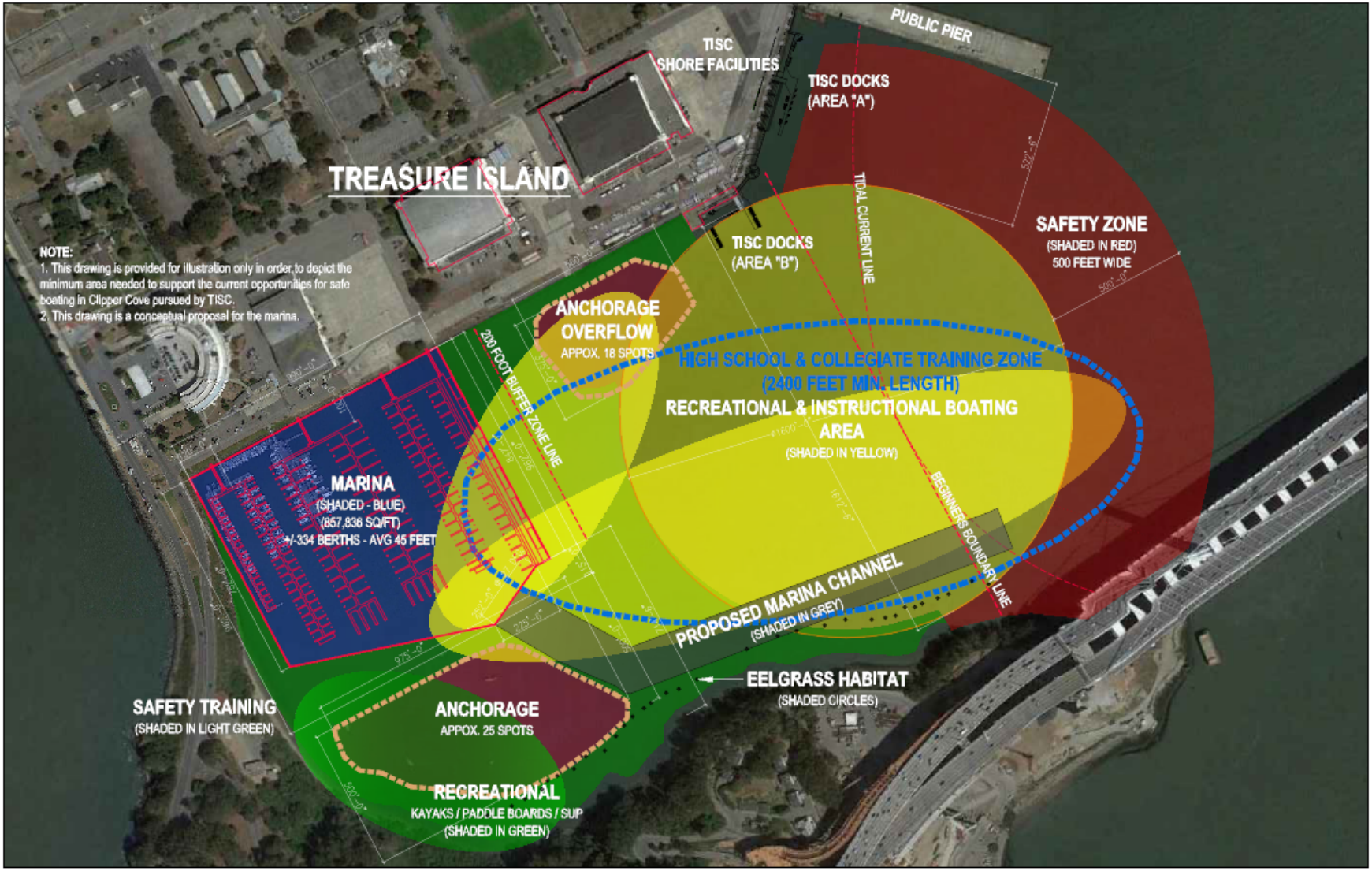
Marina Plan	# Berths (Avg)	Att. Wall Location from MLW at causeway (ft)	Main Attenuating wall length from shore (ft)	Dog leg length (ft)	Entire attenuating wall length (ft)	Dog leg angle (º) from wave atten. line	End of Dogleg Location from TI shore (ft)	Navigable space (ft)	Area of Marina (sq ft)	% of Cove
Current Marina	107 (30.9)	400	500	n/a	n/a	n/a	520	700	250,000	7%
1996 Transfer Plan	n/a	1,685	470	0	0	n/a	470	950	838,950	22%
TIE- 2006 EIR	372 (54.5)	1,780	720	150	870	38	821	680	1,543,480	41%
TIE- 2015 Plan	417 (50.3)	1,770	1,010	660	1,670	63	1,300	210	2,145,350	57%
Intentionally redacted because it includes a TIE map that has not been presented yet in public.										
TISC Minimal Impact*	235 (42)	941	600	170	770	55	670	750	686,754	18%
TISC - Spring 2016**	306 (46)	960	847	252	840	45	962	500	832,422	22%
TISC- October 2016-(A)***	334 (45)	990	847	Up to 252	840	45	962	500	857,836	23%
TISC- Maximal Impact-(B)****	324 (52')	1144	874	236’	1216	45	1,038	410	1,161,170	31%

*Benchmark plan presented in spring of 2016 that accommodates all of current public use

** Spring 2016

*** October 2016 Compromise—preferred compromise

**** Maximum Impact plan presented in October of 2016 – this plan provides the bare minimum space needed to continue existing programs, with limitations/modifications



1 PROPOSED CONCEPTUAL MARINA LAYOUT "MODERATE IMPACT (EXP)" +/-334 BERTHS
SCALE 1"=150'-0"
0 150 300

Sailing Area Review
NILSEN Architecture Planning Interior Design

Treasure Island Sailing Center
Treasure Island California

Site Plan

A21-EXP
10-17-2016

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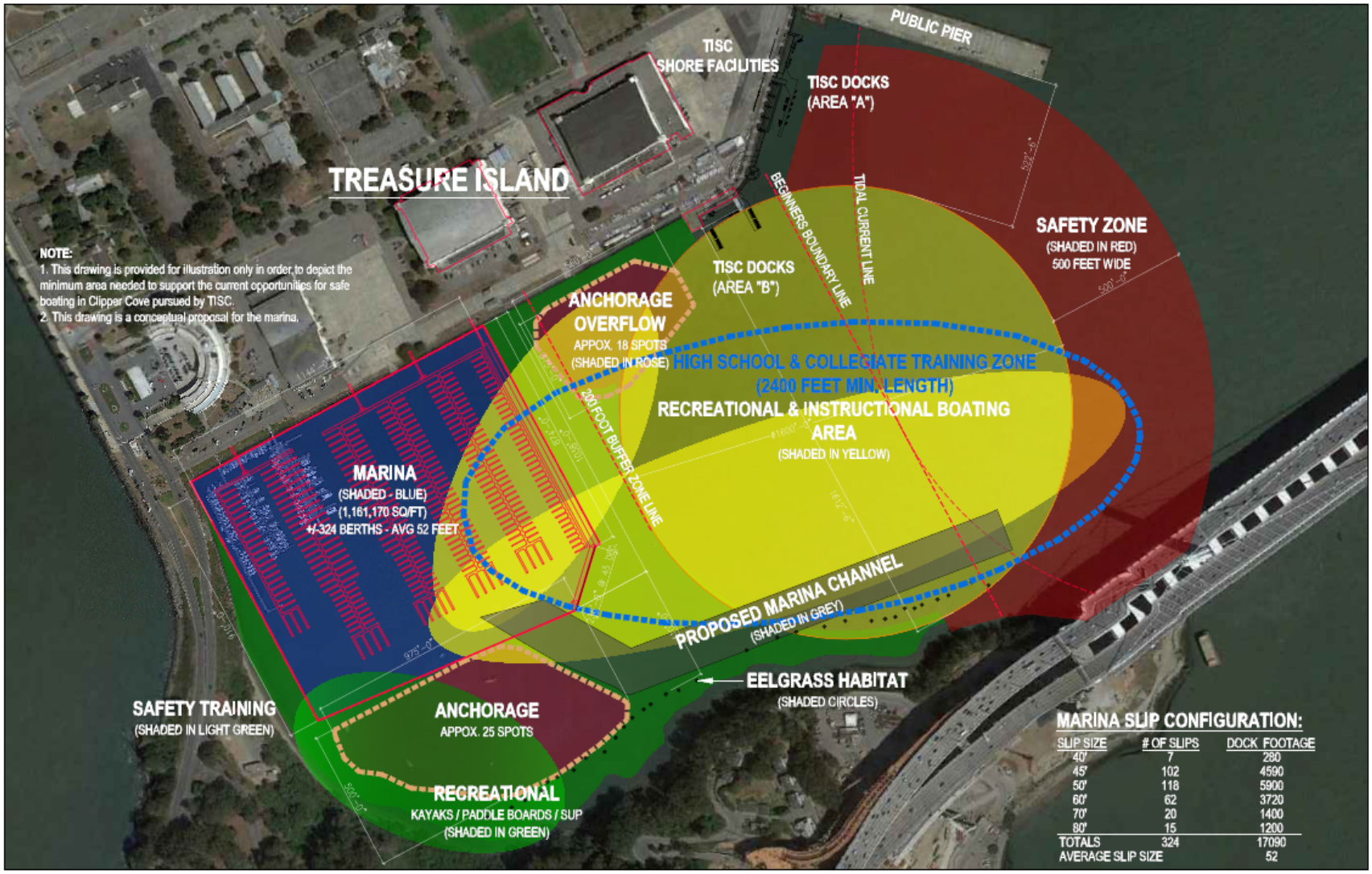

1 PROPOSED CONCEPTUAL MARINA LAYOUT "MODIFICATION-C" +/-324 BERTHS
SCALE 1"=150'-0"
0 150 300

Sailing Area Review
NILSEN Architecture Planning Interior Design

Treasure Island Sailing Center
Treasure Island California

Site Plan

A25C
10-17-2016

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Clipper Cove Marina Expansion
Economic Feasibility Study

October 19, 2016

TREASURE ISLAND SAILING CENTER
Launching Point for New Horizons

T•I•S•C

Clipper Cove Marina Expansion Economic Feasibility Study

October 19, 2016

Several proposals have emerged to expand the existing private marina on Clipper Cove at Treasure Island. While economic feasibility is a key criterion for evaluating these proposals, there is little or no public information regarding the economic feasibility for any of these proposals. The Treasure Island Sailing Center (TISC) has voiced concern over the large marina footprint (420-slip marina) put forward by Treasure Island Enterprises (TIE). In response, TISC has proposed alternative footprints that would accommodate current use by the public. To ensure our solutions were economically feasible and sustainable, TISC undertook a study to establish economic viability.

This analysis provides a snapshot of cash flow for three marina configurations, utilizing development costs, dredging costs, operational costs and ongoing revenue for each configuration. Excluded from this analysis are tax liability implications as well as any leasing costs that might be imposed by the Treasure Island Development Authority.

This study provided the basis for economic comparisons between 300-slip and 400-slip marina configurations, and the results illustrate that a range of marina configurations are economically feasible, including a 306-slip shared-used plan. While larger marinas provide additional revenue they also incur substantially higher costs, particularly dredging costs.

Dredging costs are a significant cost challenge for proposals designed to accommodate large visiting yachts, such as the TIE proposal submitted to DBW in Sept, 2015 calling for guest docking for yachts up to 250'. Our baseline was based on 10' dredging for yachts up to 80' in length with variants of 8' and 12'. The dredging costs in this analysis are based upon a separate dredging cost model ("TISC Clipper Cove Dredging Cost Model" is available upon request).

The costs and revenues in this analysis were determined in consultation with W. B. Clausen Structural Engineers, Inc. and by reference to information provided by the California Division of Boating and Waterways.

The figures below summarize the economic feasibility detailed in the enclosed tables for a 306-slip marina in Clipper Cove with an average slip size of 46'.

Cash Flow Snapshot for 306-slip marina on-line in 2021

Revenue and Expenses:

- Annual Revenues: $3,267,000
- Annual Expenses: $2,736,000
- **Annual Net Cash Flow: $531,000**

The attached tables detail the expenses and revenue established in this analysis for the 306-slip configuration as well as for a 398-slip configuration, including design variations for deeper or shallower dredging. Financial figures for the TIE proposed 420-slip marina, secured through a public records request to the California Department of Boating and Waterways, are also provided for comparison.

Across all options, the analysis consistently returns the same conclusion: a range of marina configurations is economically feasible, including a 306-slip shared-use marina layout.

For more information regarding this analysis contact:

David Guinther, TISC Board of Directors

daveg@onclippercove.com

www.onclippercove.com

Clipper Cove Marina Expansion - Economic Feasibility Study

Development Costs

ITEM	300 Slip Marina	Source*
Demo	$300,000	WBC
Transient	$1,200,000	WBC
Floats	$8,000,000	WBC
Walkway	$700,000	WBC
Piles	$900,000	WBC
Elec/Plumbing	$1,100,000	WBC
Inflation	included	
Construction Subtotal:	**$12,200,000**	
Soft Costs:	**$4,000,000**	WBC
Development subtotal:	**$16,200,000**	
Dredging Costs -10'	**$1,684,000**	
Total Marina Build-10'	**$17,884,000**	
Dreding Costs:		
Dredging- to 8'	$856,000	CCDCM
Dredging- to 10'	$1,684,000	CCDCM
Dredging- to 12'	$2,705,000	CCDCM
Total Cost Scenarios:		
TOTAL - @ 8'	$17,056,000	
TOTAL - @ 10'	$17,884,000	
TOTAL - @ 12'	$18,905,000	

*** - Sources:**
WBC: W. B. Clausen Structural Engineers, Inc.
CCDCM: Clipper Cove Dredging Cost Model
TIE-DBW: TIE DBW Loan Document

Revenues vs. Expenses 2021

	TISC	Source*
2021 Revenue	**300 Slips**	
Slips	$2,967,000	TIE-DBW - Dock Rates
Visitors	$300,000	Clausen Eng. Estimate
Total Revenue	**$3,267,000**	
2021 Expenses		
Maintenance	$860,000	Clausen Eng. Estimate
Mgt Fees	$150,000	Clausen Eng. Estimate
Dredging Accrual	$168,000	10% / yr Dredging Accrual
Legal	$200,000	Clausen Eng. Estimate
DBW Loan Repayment	$1,358,000	20 yr loan @ 4.5%
Total Expenses	**$2,736,000**	
Net Cash Flow	**$531,000**	
Adjustments to Net Cash Flow:		
- For Lower WBC Est.	($470,000)	Use Clausen Rates w / inflation
+ for 8' Dredge	$146,000	Saving if Dredge to 8'
- for 12' Dredge	($78,000)	Higher Costs if Dredge to 12'

Annual Loan Repayment ** (principle & interest) / Total Amount

Loan Repay-8'	$1,295,000	/	$17,056,000
Loan Repay-10'	$1,358,000	/	$17,884,000
Loan Repay-12'	$1,435,000	/	$18,905,000

DBW Loan Rates **

DBW **Private** Marina Loans: rate - prime plus 1, payback terms - 20 years after completion of construction.
Note: Prime Rate 3.5% - Aug, 2016 (i.e. loan rate = 4.5%)

DBW **Public** Marina Loans: rate - 4.5%, payback terms - 30 years after completion of construction.

"Clipper Cove Marina Expansion - Economic Feasibility Analysis"; Treasure Island Sailing Center; October 19, 2016

Development Costs - 300 Slips

ITEM	300 Slip Config	Source*
Demo	$ 300,000	WBC
Transient	$ 1,200,000	WBC
Floats	$ 8,000,000	WBC
Walkway	$ 700,000	WBC
Piles	$ 900,000	WBC
Elec/Plumbing	$ 1,100,000	WBC
Inflation	included	
Construction	**$ 12,200,000**	
Soft Costs	**$ 4,000,000**	WBC
Marina Build-w/o dredging	**$ 16,200,000**	

Dredging-TISC to 8'	$	855,752	CCDM
Dredging-TISC to 10'	$	1,683,899	CCDM
Dredging-TISC to 12'	$	2,705,280	CCDM

TISC - TOTAL - @ 8'	**$**	**17,055,752**
TISC - TOTAL - @ 10'	**$**	**17,883,899**
TISC - TOTAL - @ 12'	**$**	**18,905,280**

*** - Sources:**
WBC: W. B. Clausen Structural Engineers, Inc.
CCDM: Clipper Cove Dredge Model

"Clipper Cove Marina Expansion - Economic Feasibility Analysis"; Treasure Island Sailing Center; October 19, 2016

Cash Flow Analysis - 300 Slips

TISC - TIE Comparison Revenues vs. Expenses 2021

		TISC	Comments		
2021 Revenue		306 Slips			
Slips	$	2,497,146	Clausen Eng. Estimate		
Visitors	$	300,000	Clausen Eng. Estimate		
Total Revenue	$	2,797,146			
2021 Expenses					
Maintenance	$	860,000	Clausen Eng. Estimate		
Mgt Fees	$	150,000	Clausen Eng. Estimate		
Dredging Accrual	$	168,390	%/yr of Initial Dredging		
Legal	$	200,000	Clausen Eng. Estimate	**10%**	
Loan Repay	$	1,357,709	Annual Loan Repay (P + I)		
Total Expenses	$	2,736,098		**4.5%** **20**	yrs
Net Cash Flow	$	61,048			
Adjustments to Net Cash Flow:					
+ for TIE Ratesw/infl.	$	469,788	Use TIE Rates w/inflation		
+ for 8' Dredge	$	145,686	Save Loan Repay & Dredging		
- for 12' Dredge	$	(179,679)	Higher Loan Repay & Dredging		
Loan Repay-8'	$	1,294,837			
Loan Repay-10'	$	1,357,709			
Loan Repay-12'	$	1,435,250			

DBW Private Marina Loans: rate - prime plus 1, payback terms - 20 years after completion of construction.
** Prime Rate 3.5% - Aug, 2016

DBW Public Marina Loans: rate - 4.5%, payback terms - 30 years after completion of construction.

Cost Comparison - 3 Marina Options

ITEM	TISC-300 Slips	TISC-400 Slips	TIE-420 Slips	Comments	
Demo	$ 300,000	$ 300,000	$ 250,000		
Transient	$ 1,200,000	$ 1,425,000	$ 3,000,000	TISC Atten. Docks @ $1,500/ft	
Floats	$ 8,000,000	$ 10,500,000	$ 375,000	TIE Floats et al is $19,381,000	$ 19,381,000
Walkway	$ 700,000	$ 800,000	$ 850,000		
Piles	$ 900,000	$ 1,200,000			
Slips			$ 16,078,000	$/slip:	$ 38,280.95
Long Dock			$ 2,208,000		
Util/Sec/Storm			$ 470,000		
Dinghy Dock / L-Scap			$ 250,000		
Elec/Plumbing	$ 1,100,000	$ 1,400,000			
Inflation	included	included	$ 602,000		
Construction	**$ 12,200,000**	**$ 15,625,000**	$ 24,083,000		
Engineering			$ 2,031,000		
Entitlements			$ 600,000		
Fees			$ 2,418,000		
Contingency			$ 2,031,000		
Other	$ 4,000,000	$ 4,300,000			
Close & Finance			$ 734,000		
Soft Costs	**$ 4,000,000**	**$ 4,300,000**	$ 7,814,000	(Math Error in TIE xls Corrected)	
Marina Costs-w/o dredging	**$ 16,200,000**	**$ 19,925,000**	**$ 31,897,000**		
Dredging-TIE Estimate	>>>>>	>>>>>	**$ 3,000,000**	TIE Estimate for Dredging Costs	
Dredging-TISC to 8'	$ 855,752	$ 938,567		TISC $'s Use dredge model: 8'	
Dredging-TISC to 10'	$ 1,683,899	$ 1,821,923		TISC $'s Use dredge model: 10'	
Dredging-TISC to 12'	$ 2,705,280	$ 2,898,515		TISC $'s Use dredge model: 12'	
TISC - TOTAL - @ 8'	**$ 17,055,752**	**$ 20,863,567**			
TISC - TOTAL - @ 10'	**$ 17,883,899**	**$ 21,746,923**			
TISC - TOTAL - @ 12'	**$ 18,905,280**	**$ 22,823,515**			
TIE Construction -TOTAL			**$ 34,897,000**		

"Clipper Cove Marina Expansion - Economic Feasibility Analysis"; Treasure Island Sailing Center; October 19, 2016

Cash Flow Analysis - 3 Marina Options

Comparison Revenues vs. Expenses 2021

	TISC	TISC	TIE	Comments
2021 Revenue	300 Slips	400 Slips	420 Slips	
Slips	$ 2,497,146	$ 3,332,115		See DOCK RATES tab
Visitors	$ 300,000	$ 300,000		for slip/transient fees
Total Revenue	$ 2,797,146	$ 3,632,115	$ 4,800,000	<<< From TIE DBW Application
2021 Expenses				
Line Item	$ -	$ -	$ 2,531,000	
Maintenance	$ 860,000	$ 1,100,000		
Mgt Fees	$ 150,000	$ 200,000		
Dredging (maint.)	**$ 168,390**	**$ 182,192**	$ 374,000	TISC: 10%/yr accrue @ 10'
Legal	$ 200,000	$ 250,000		
Loan Repay	$ 1,357,709	$ 1,650,981	$ 2,649,232	<20 yr loan, 4.5%
Total Expenses	$ 2,736,098	$ 3,383,174	$ 5,554,232	
Net Cash Flow	$ 61,048	$ 248,942	$ (754,232)	
Adjustments to Net Cash Flow:				
- to remove 3% Infl.	$ (343,086)	$ (457,803)		less 3%/year inflation
+ for TIE Rates	$ 62,157	$ 55,143		Use TIE Rates
+ for TIE Ratesw/infl.	$ 469,788	$ 594,645		Use TIE Rates w/inflation
+ for 8' Dredge	$ 62,871	$ 67,063		Decreased Loan Repay
- for 12' Dredge	$ (77,541)	$ (81,733)		Increased Loan Repay
Loan Repay-8'	$ 1,294,837	$ 1,583,919		
Loan Repay-10'	$ 1,357,709	$ 1,650,981		
Loan Repay-12'	$ 1,435,250	$ 1,732,714		

$ 1 <IF TIE used Private Finance ($k)

Private 20 yr loan @ 4.5% (Prime +1)

Amount	Annual ($M)	4.5%
$20M	$ 1.52	20
$25M	$ 1.90	
$30M	$ 2.28	
$35M	$ 2.66	

Public 30 yr loan @ 4.5% **4.5%**

Amount	Annual ($M)	30
$15M	$ 0.91	
$20M	$ 1.22	
$25M	$ 1.52	
$30M	$ 1.82	
$35M	$ 2.13	

Private Marina Loans: rate - prime plus 1, payback terms - 20 years after completion of construction.
** Prime Rate 3.5% - Aug, 2016

Public Marina Loans: rate - 4.5%, payback terms - 30 years after completion of construction.

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Dock Rates for Cost Analysis

WBC Dock Rate Assumptions - 2016

MARINA - 300 Slips				
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE	Rate	Revenue
25	36	900	10	$ 9,000
30	0	-	10	$ -
35	76	2,660	10	$ 26,600
40	34	1,360	14	$ 19,040
45	61	2,745	14	$ 38,430
50	2	100	15	$ 1,500
60	60	3,600	16	$ 57,600
70	24	1,680	17	$ 28,560
80	13	1,040	18	$ 18,720
TOTAL	306	**14,085**		$ 199,450
AVERAGE SLIP SIZE		46.0		
			Total	$ 199,450
			90% << Rate	$ 179,505

TIE	TISC	% Larger	
48.5	46.0	5.4%	$ 2,154,060
	2021 Revenue @ 1.03% Inflation		$ 2,497,146

MARINA - 400 Slips				
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE	Rate	Revenue
25	36	900	10	$ 9,000
30	0	-	10	$ -
35	76	2,660	10	$ 26,600
40	34	1,360	14	$ 19,040
45	102	4,590	14	$ 64,260
50	38	1,900	15	$ 28,500
60	73	4,380	16	$ 70,080
70	30	2,100	17	$ 35,700
80	9	720	18	$ 12,960
TOTAL	398	**18,610**		$ 266,140
AVERAGE SLIP SIZE		46.8		
			Total	$ 266,140
			90% << Rate	$ 239,526

TIE	TISC	% Larger	
48.5	46.8	3.8%	$ 2,874,312
	2021 Revenue @ 1.03% Inflation		$ 3,332,115

Rate Assumed by TIE Loan Document - 2016

MARINA - 300 Slips				
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE	Rate	Revenue
25	36	900	12	$ 10,800
30	0	-	14	$ -
35	76	2,660	15	$ 39,900
40	34	1,360	16	$ 21,760
45	61	2,745	17	$ 45,293
50	2	100	17	$ 1,700
60	60	3,600	18	$ 64,800
70	24	1,680	19	$ 31,920
80	13	1,040	20	$ 20,800
TOTAL	306	**14,085**		$ 236,973
AVERAGE SLIP SIZE		46.0		
			Total	$ 236,973
			90% << Rate	$ 213,275

			$ 2,559,303
2021 Revenue @ 1.03% Inflation			$ 2,966,934

MARINA - 400 Slips				
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE	Rate	Revenue
25	36	900	12	$ 10,800
30	0	-	14	$ -
35	76	2,660	15	$ 39,900
40	34	1,360	16	$ 21,760
45	102	4,590	17	$ 75,735
50	38	1,900	17	$ 32,300
60	73	4,380	18	$ 78,840
70	30	2,100	19	$ 39,900
80	9	720	20	$ 14,400
TOTAL	398	**18,610**		$ 313,635
AVERAGE SLIP SIZE		46.8		
			Total	$ 313,635
			90% << Rate	$ 282,272

TIE	TISC	% Larger	
48.5	46.8	3.8%	$ 3,387,258
			$ 3,926,760

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TISC Slip Mix for Analys Options

235 Slip Marina		
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE
25	36	900
30	60	1,800
35	44	1,540
40	0	-
45	22	990
50	0	-
60	48	2,880
70	18	1,260
80	7	560
TOTAL	235	9,930
AVERAGE SLIP SIZE		42.3

300 Slip Marina		
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE
25	36	900
30	0	-
35	76	2,660
40	34	1,360
45	61	2,745
50	2	100
60	60	3,600
70	24	1,680
80	13	1,040
TOTAL	306	14,085
AVERAGE SLIP SIZE		46.0

400 Slip Marina		
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE
25	36	900
30	0	-
35	76	2,660
40	34	1,360
45	102	4,590
50	38	1,900
60	73	4,380
70	30	2,100
80	9	720
TOTAL	398	18,610
AVERAGE SLIP SIZE		46.8

324 Slip Marina		
SLIP SIZE	# OF BERTHS	DOCK FOOTAGE
40	7	280
45	102	4,590
50	118	5,900
60	62	3,720
70	20	1,400
80	15	1,200
TOTAL	324	17,090
AVERAGE SLIP SIZE		52.7

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TIE Revenue Worksheets

Revenues 2020-21 **** Transient Fees Estimated to align with DBW Estimates & TIE Forcast

Slips	$ 4,115,207	<<< Based on slip fees and occupancy rates below
Transient	$ 625,625	<<< Transient Dock @ $2.50/ft - see chart for occupancy and days utilized
Total Rent	$ 4,740,832	

1430	length
$ 2.50	rate/year
70%	occupancy
250	days
$ 625,625	

TIE Slip Fees - 2015

Size	25	30	35	40	45	50	60	70	80
Rate	$ 12.00	$ 14.00	$ 15.00	$ 16.00	$ 16.50	$ 17.00	$ 18.00	$ 19.00	$ 20.00

TIE Slips Planned: 398

Size		30	35	40	45	50	55	60	70		
Number		34	39	37	64	81	57	64	22	398	Avg Slip Size
Linear Feet		1020	1365	1480	2880	4050	3135	3840	1540	19,310	48.5
Rate		$ 14.00	$ 15.00	$ 16.00	$ 16.50	$ 17.00	$ 17.50	$ 18.00	$ 19.00		
Occupancy	90%	90%	90%	90%	90%	90%	90%	90%	90%		
Revenue 2015		$ 154,224	$ 221,130	$ 255,744	$ 513,216	$ 743,580	$ 592,515	$ 746,496	$ 316,008	$ 3,542,913	
enue - N years out	5	$ 178,788	$ 256,350	$ 296,477	$ 594,958	$ 862,013	$ 686,887	$ 865,393	$ 366,340	$ 4,107,207	
* Factor 1	1	$ 178,788	$ 256,350	$ 296,477	$ 594,958	$ 862,013	$ 686,887	$ 865,393	$ 366,340	$ 4,107,207	
+/- Factor 2	$ 1,000	$ 179,788	$ 257,350	$ 297,477	$ 595,958	$ 863,013	$ 687,887	$ 866,393	$ 367,340	$ 4,115,207	
Net Revenue		$ 179,788	$ 257,350	$ 297,477	$ 595,958	$ 863,013	$ 687,887	$ 866,393	$ 367,340	$ 4,115,207	

TIE Slips Planned: 349

Size		30	36	35	40	41	45	48	50	58	60	70	80	88		
Number		0	3	0	37	4	91	6	109	6	56	20	16	1	349	Avg Slip Size
Linear Feet		0	108	0	1480	164	4095	288	5450	348	3360	1400	1280	88	18,061	51.8
Rate		$ 14.00	$ 15.00	$ 15.00	$ 16.00	$ 16.00	$ 16.50	$ 16.50	$ 17.00	$ 17.50	$ 18.00	$ 19.00	$ 19.00	$ 19.00		
Occupancy	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%		
Revenue 2015		$ -	$ 17,496	$ -	$ 255,744	$ 28,339	$ 729,729	$ 51,322	$ 1,000,620	$ 65,772	$ 653,184	$ 287,280	$ 262,656	$ 18,058	$ 3,089,486	
enue - N years out	5	$ -	$ 20,283	$ -	$ 296,477	$ 32,853	$ 845,956	$ 59,496	$ 1,159,993	$ 76,248	$ 757,219	$ 333,036	$ 304,490	$ 20,934	$ 3,581,561	
* Factor 1	1	$ -	$ 20,283	$ -	$ 296,477	$ 32,853	$ 845,956	$ 59,496	$ 1,159,993	$ 76,248	$ 757,219	$ 333,036	$ 304,490	$ 20,934	$ 3,581,561	
+/- Factor 2	$ 1,000	$ 1,000	$ 21,283	$ 1,000	$ 297,477	$ 33,853	$ 846,956	$ 60,496	$ 1,160,993	$ 77,248	$ 758,219	$ 334,036	$ 305,490	$ 21,934	$ 3,592,561	
Net Revenue		$ 1,000	$ 21,283	$ 1,000	$ 297,477	$ 33,853	$ 846,956	$ 60,496	$ 1,160,993	$ 77,248	$ 758,219	$ 334,036	$ 305,490	$ 21,934	$ 3,592,561	

TIE Slips Planned: 324

Size		30	36	35	40	41	45	48	50	58	60	70	80	88		
Number		0	0	0	7	0	102	0	118	0	62	20	15	0	324	Avg Slip Size
Linear Feet		0	0	0	280	0	4590	0	5900	0	3720	1400	1200	0	17,090	52.7
Rate		$ 14.00	$ 15.00	$ 15.00	$ 16.00	$ 16.00	$ 16.50	$ 16.50	$ 17.00	$ 17.50	$ 18.00	$ 19.00	$ 19.00	$ 19.00		
Occupancy	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%		
Revenue 2015		$ -	$ -	$ -	$ 48,384	$ -	$ 817,938	$ -	$ 1,083,240	$ -	$ 723,168	$ 287,280	$ 246,240	$ -	$ 2,960,010	
enue - N years out	5	$ -	$ -	$ -	$ 56,090	$ -	$ 948,214	$ -	$ 1,255,772	$ -	$ 838,350	$ 333,036	$ 285,460	$ -	$ 3,431,463	
* Factor 1	1	$ -	$ -	$ -	$ 56,090	$ -	$ 948,214	$ -	$ 1,255,772	$ -	$ 838,350	$ 333,036	$ 285,460	$ -	$ 3,431,463	
+/- Factor 2	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 57,090	$ 1,000	$ 949,214	$ 1,000	$ 1,256,772	$ 1,000	$ 839,350	$ 334,036	$ 286,460	$ 1,000	$ 3,442,463	
Net Revenue		$ 1,000	$ 1,000	$ 1,000	$ 57,090	$ 1,000	$ 949,214	$ 1,000	$ 1,256,772	$ 1,000	$ 839,350	$ 334,036	$ 286,460	$ 1,000	$ 3,442,463	

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Dredge costs - Import from Clipper Cove Dredge Cost Model

8	Target Water Depth
$ 17.00	Cost per CU yard
34	unit feet to be removed
11.33	unit yds to be removed
54,663	CU yds to be removed
1%	Scale factor (apply to removed material)
1	+/- factor (,000) (apply to removed material)
547	Additional material (*)
1,000	Additional material (+)
55,210	TOTAL Material to be removed
$ 938,567	Dredging Cost 400 Slip Config

$ 883,357 10' Add

10	Target Water Depth
$ 17.00	Cost per CU yard
66	unit feet to be removed
22.00	unit yds to be removed
106,111	CU yds to be removed
1%	Scale factor (apply to removed material)
1	+/- factor (,000) (apply to removed material)
1,061	Additional material (*)
1,000	Additional material (+)
107,172	TOTAL Material to be removed
$ 1,821,923	Dredging Cost 400 Slip Config

8	Target Water Depth
$ 17.00	Cost per CU yard
31	unit feet to be removed
10.33	unit yds to be removed
49,840	CU yds to be removed
1%	Scale factor (apply to removed material)
1	+/- factor (,000) (apply to removed material)
498	Additional material (*)
1,000	Additional material (+)
50,338	TOTAL Material to be removed
$ 855,752	Dredging Cost 300 Slip Configuration

$ 828,147 10' Add

10	Target Water Depth
$ 17.00	Cost per CU yard
61	unit feet to be removed
20.33	unit yds to be removed
98,072	CU yds to be removed
1%	Scale factor (apply to removed material)
1	+/- factor (,000) (apply to removed material)
981	Additional material (*)
1,000	Additional material (+)
99,053	TOTAL Material to be removed
$ 1,683,899	Dredging Cost 300 Slip Configuration

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