

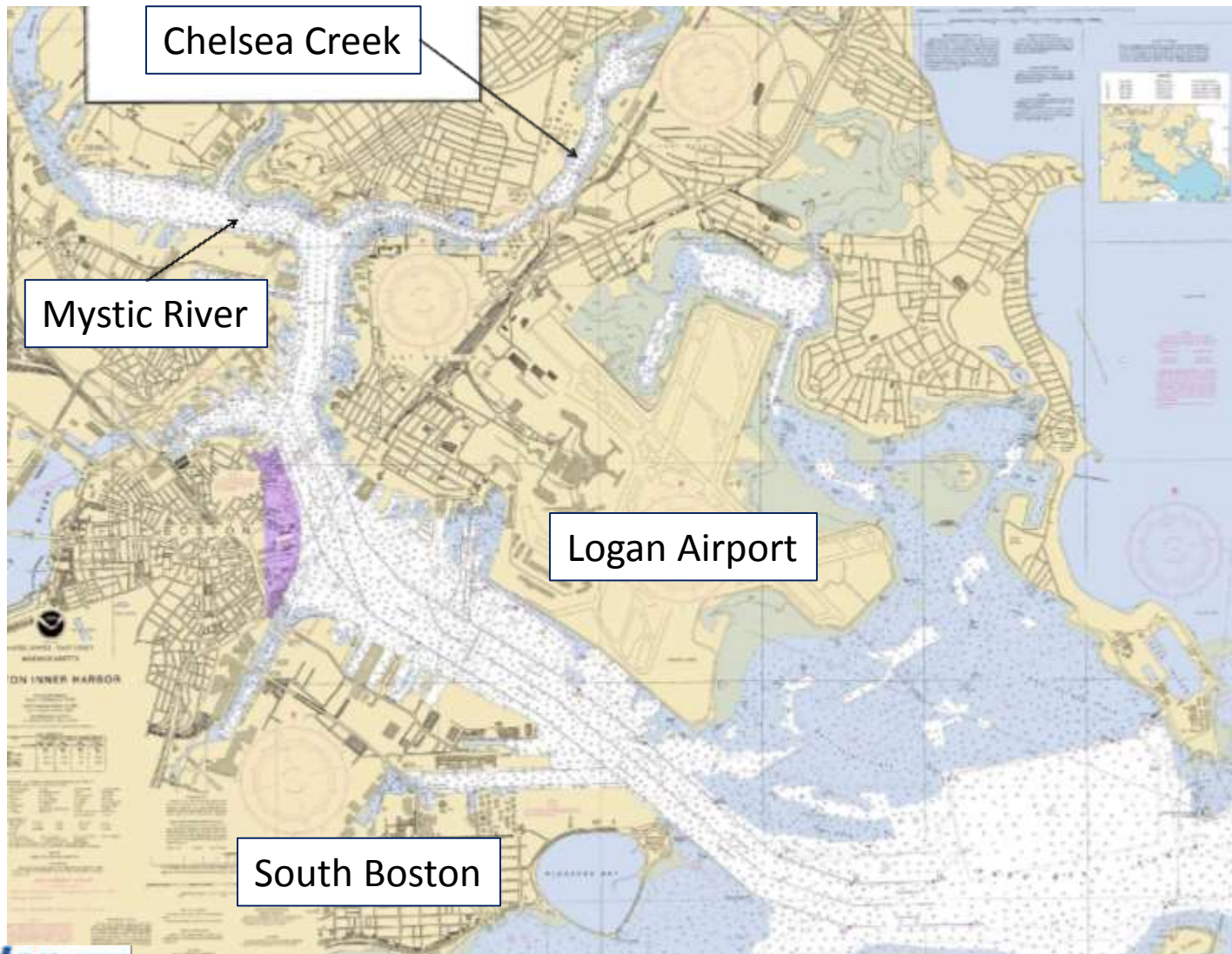
# Boston Harbor Deep Draft Navigation Improvement Project



AAPA Harbors and Navigation Sub-  
Committee

September 15, 2015

# Port of Boston



# Port of Boston: Mystic River and Chelsea Creek





# Port of Boston: South Boston



# Shipping Lines are Driving the Change in Industry

Shipping lines  
build larger vessels  
to create  
economies of scale



Panama Canal  
expands  
to accommodate  
larger vessels and  
keep pace with  
Suez Canal



Ports invest millions  
in water and  
on land to stay  
competitive

## Evolution of Container Vessel Size



Courtesy of AAPA



Courtesy of [www.cranehotline.com](http://www.cranehotline.com)



# COSCO/K Line/Yang Ming/Hanjin/Evergreen AWE-2 Service Via the Panama Canal



**US Ports: New York, Boston, Norfolk**  
**Asia Ports: Qingdao, Shanghai, Ningbo**

**2M Alliance: Mediterranean Shipping Company/Maersk Line  
US-Mediterranean Service**



**Mediterranean Ports: Gioia Tauro, Naples, Leghorn, La Spezia, Genoa, Valencia, Algerciras, Sines;  
U. S. Ports: New York, Boston, Baltimore, Norfolk, Savannah, Charleston**

**From Boston via Valencia to Jeddah, Salalah, Jebel Ali, Singapore, (from Singapore to Laem Chabang and Ho Chi Minh City),  
Yantian, Chiwan, Hong Kong, Dalian**

**To Boston via Valencia from Dalian, Xingang, Busan, Qingdao, Ningbo, Shanghai, Yantian, Hong Kong, Chiwan, Singapore**



## Mediterranean Shipping Company US-N. Europe Service



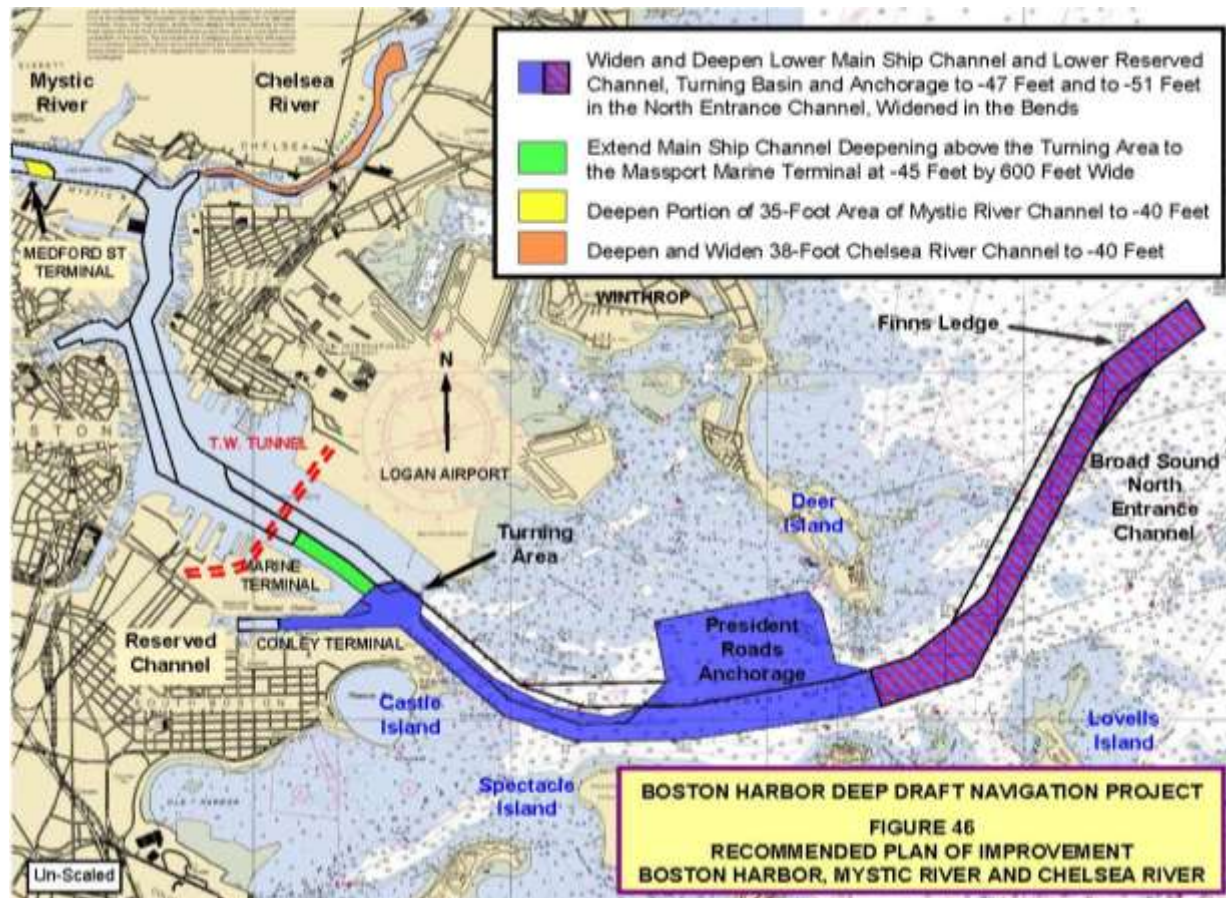
**Rotation: Antwerp, Bremerhaven, Rotterdam, Boston, Philadelphia, Freeport,  
Balboa, Guayaquil/Puerto Bolivar, Cristobal Panama, Antwerp**



# Overview of the Boston Harbor Dredging Project

- Dredging to 51/47 feet will allow larger, deeper draft vessels to access Boston Harbor port facilities.
- Dredging Project Benefits:
  - Will preserve vessels' capability to deliver home heating oil, jet fuel, salt, and gasoline.
    - 67% of the region's petroleum and all jet fuel for Logan are imported through Port of Boston.
  - Expanded transit times to/from Chelsea Creek terminals
  - Will reduce truck miles associated with shipping cargo over land by nearly 20 million
  - Improved safety and air quality
- According to the Army Corps of Engineers:
  - Conley Terminal containers are expected to double by 2034 as a result of the dredging project.
  - For every \$1 spent on dredging, more than \$7 is generated in economic benefits.
  - Total project cost: approximately \$350 million
  - Expected Start: 2016

# Boston Harbor Deep Draft Improvement Project



- North Entrance Channel
- Bend and Turn Improvements
- Presidents Road Mooring Area
- Chelsea River

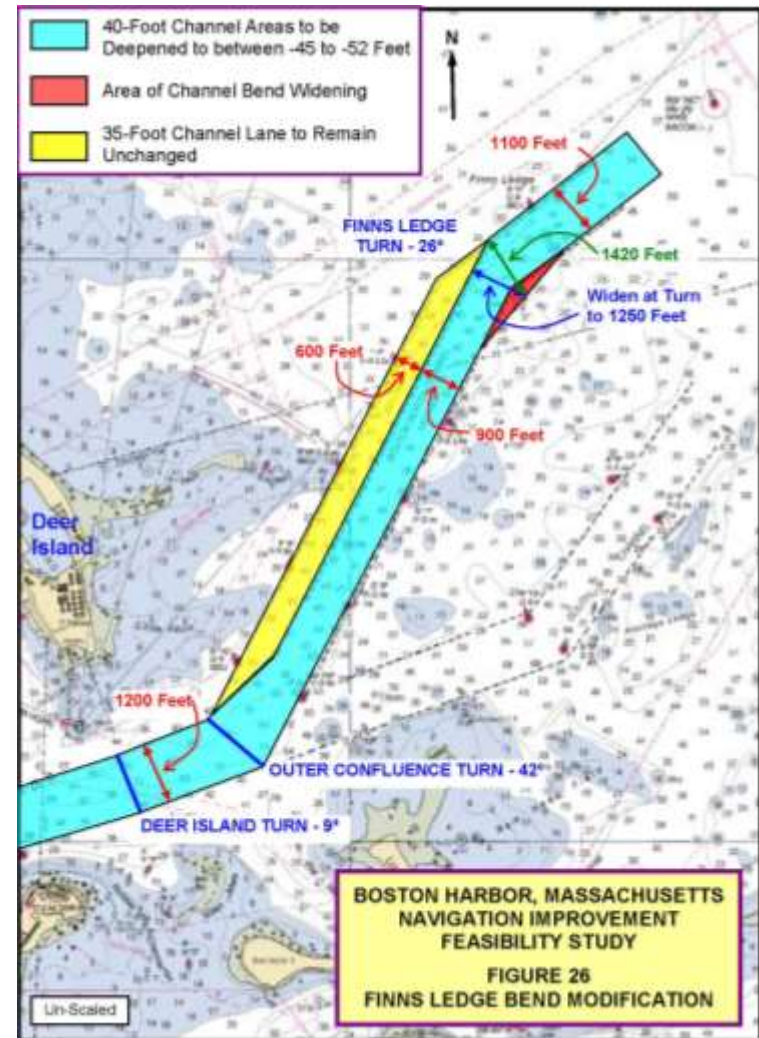
# Design Vessel

TABLE 29 BOSTON HARBOR DESIGN VESSELS						
Vessel Class	Capacity	Year Built	DWT	Draft	Beam	LOA
<b>CONTAINERSHIPS</b>						
MSC Delaware Bay Class - Panamax	4713 TEU	2002	56,700	43.3	106	872
COSCO Hamburg Class – Post Panamax	5618 TEU	2001	69,193	45.9	131	919
MSC Alessia Class – Post Panamax	6732 TEU		85,891	47.6	131	984
COSCO Yokohama Class – Post Panamax	7455 TEU	2004	92,900	46	141	1050
COSCO or Hanjin Post Panamax - Asian Service	8500 TEU		Varies	48	140	1099
<b>LIQUID BULK TANK SHIPS</b>						
LNG Cryotanker - Distrigas	125,000 CM			42	140	940
Chelsea-Max			41,000	35	90	585
Chelsea – With-Project			50,000	42	106	692
Mystic - Exxon			87,000	45	138	840
<b>DRY BULK CARRIERS</b>						
Marine Terminal – Cement			60,000	42	105	715
Mystic River - Cement			40,000	37	93	632
<b>TUGS</b>						
Typical Harbor Tug			160	12.5	29	100
Note: Vessel drafts are typical fully loaded static (at rest), summer (warm water), salt water (high salinity) drafts						

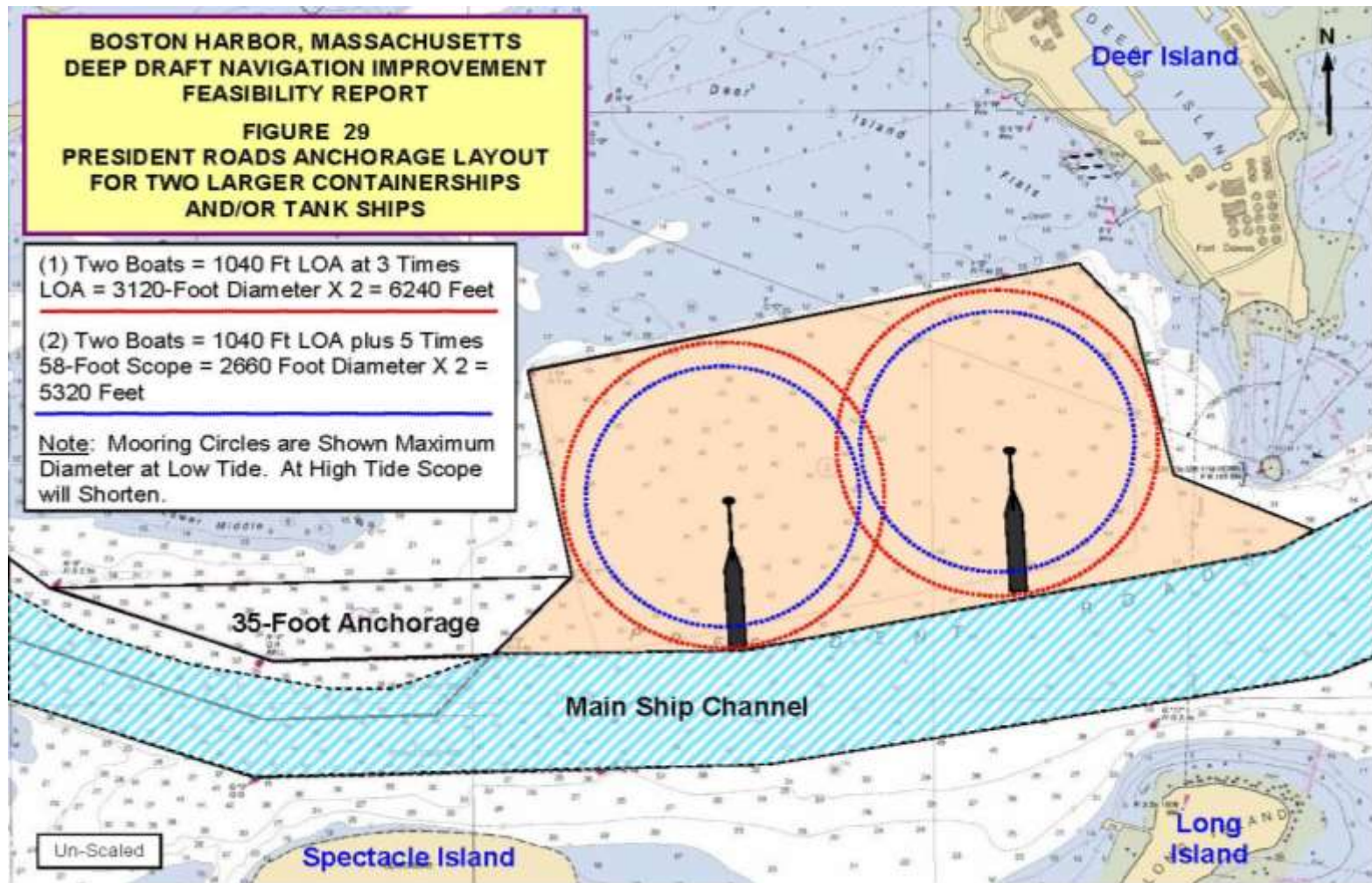


# North Entrance Channel

- Deepen Channel 51' to accommodate all sea states for larger ships
- Widen Finns Ledge Turn to allow for better factor of safety for ships with larger beams and help with overall maneuverability of smaller ships moving in the channel.

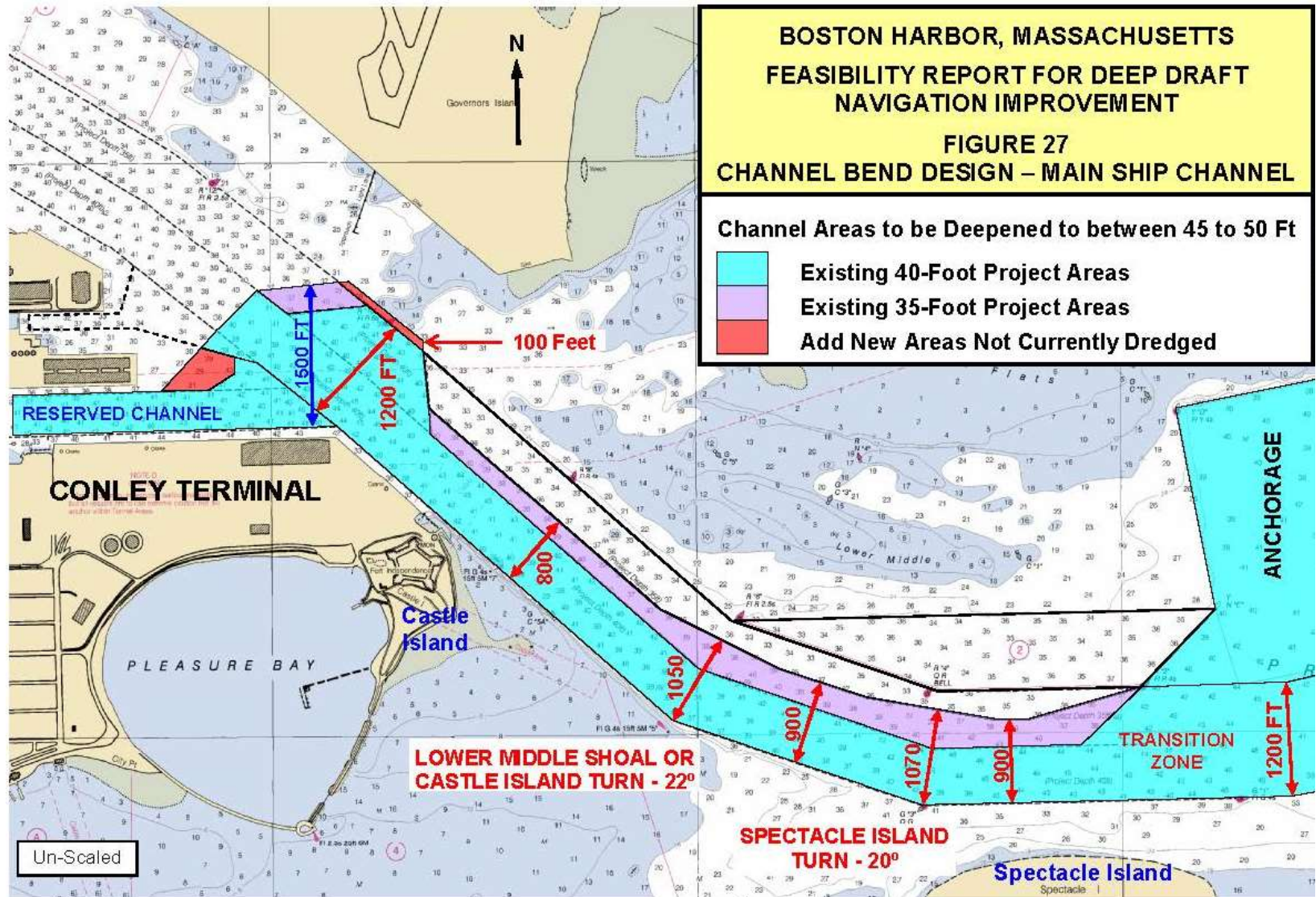


# Presidents Roads Mooring Area



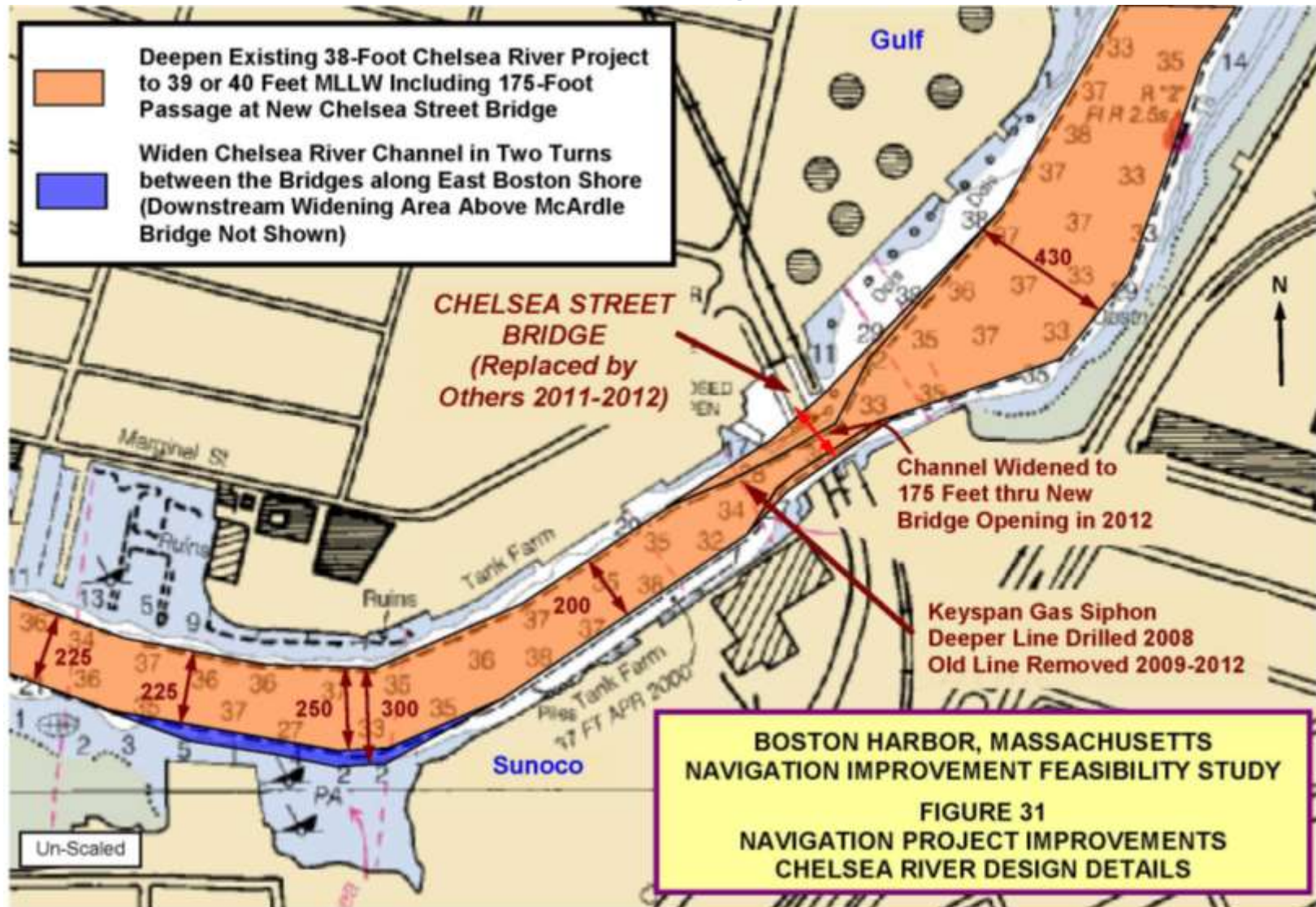


# Bends and Turn Improvements





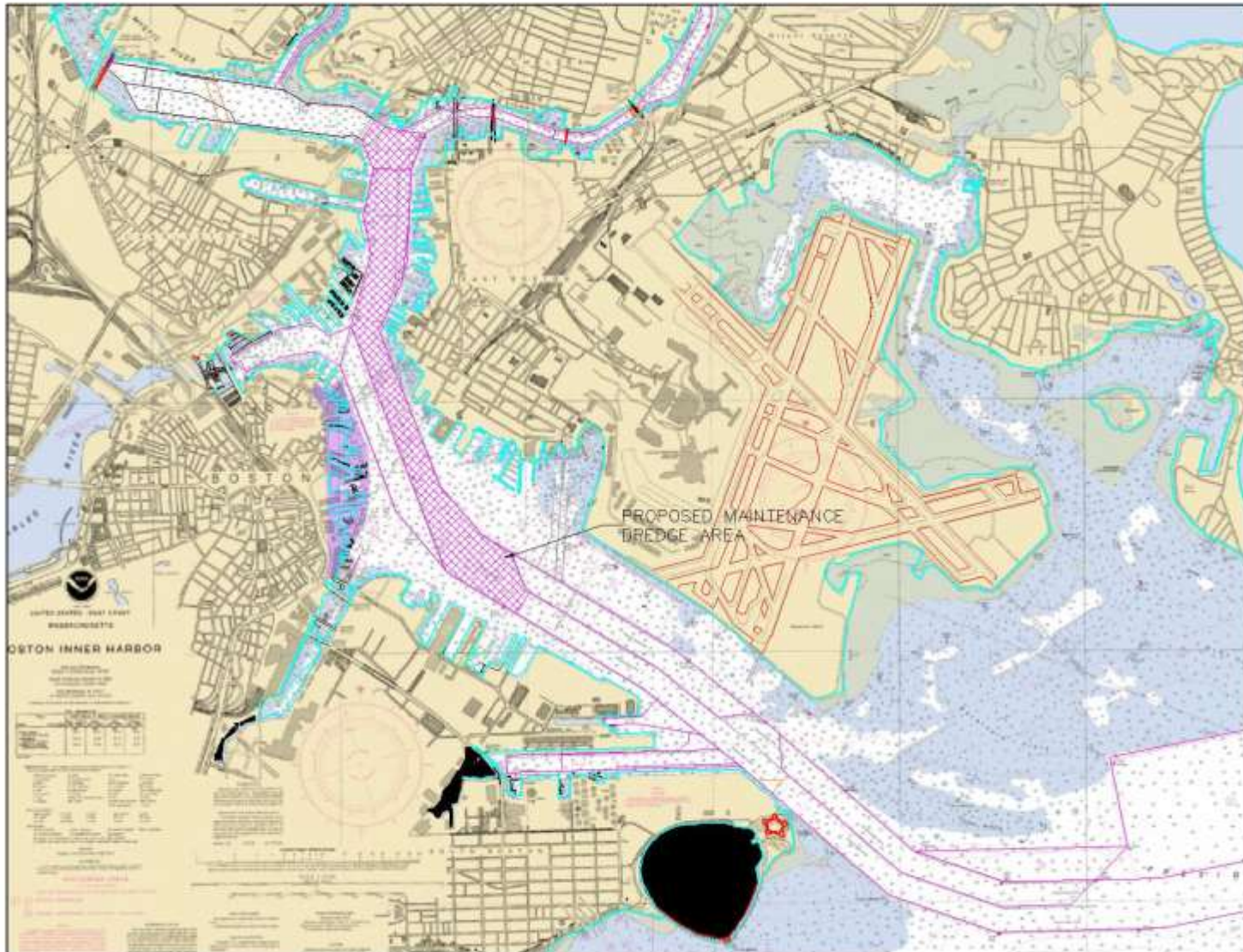
# Chelsea River Improvements



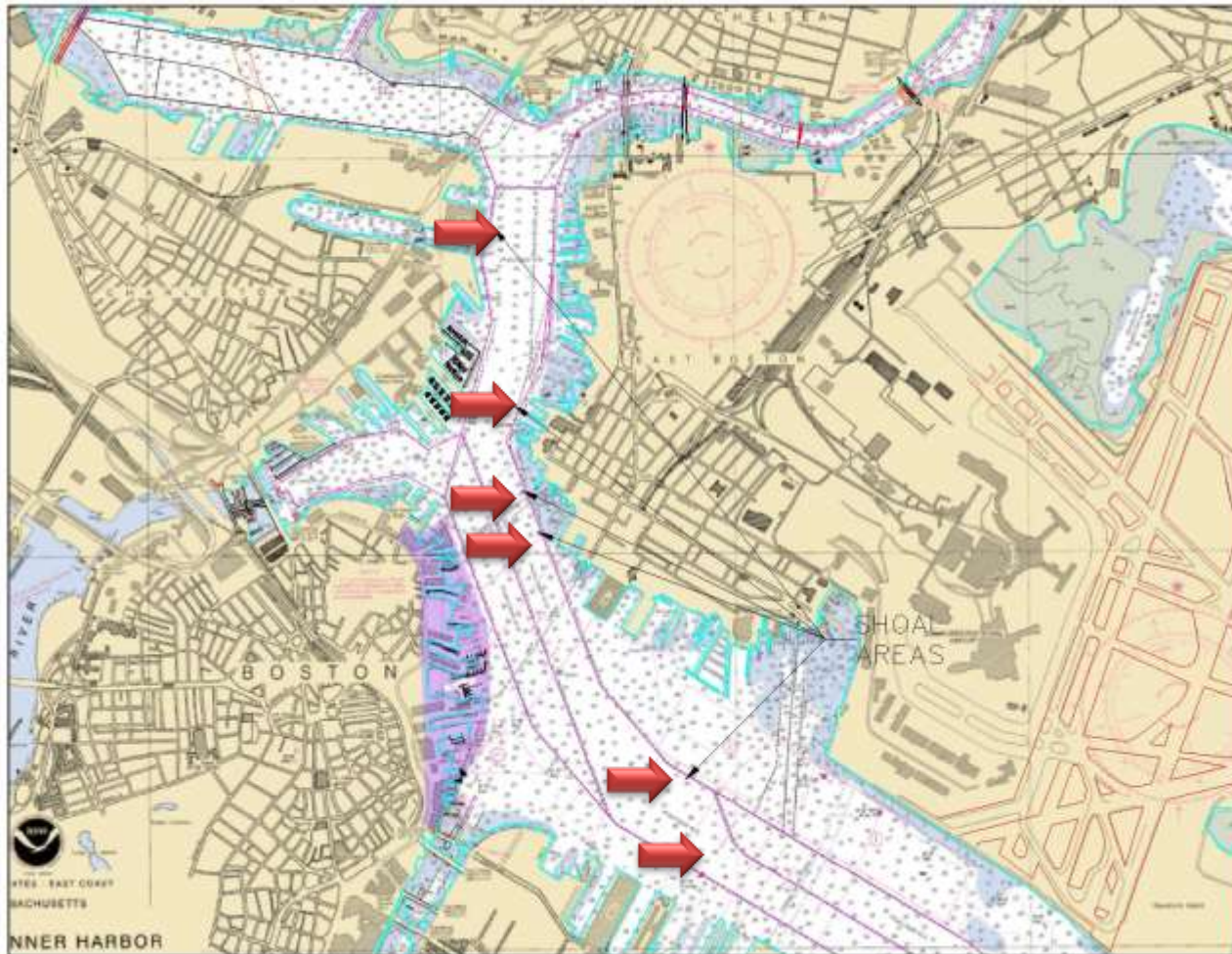
Chelsea River improvements (dredging and fendering) will not be completed if maintenance dredging of inner harbor is not completed.



# Inner Harbor Channels



# Main Ship Channel Existing Conditions



➡ Shoal Areas



# Vessel Transit Windows

BOSTON HARBOR VESSEL TRANSIT WINDOW					
Vessel Class	Draft (feet)	Effective Draft (10% Under Keel Clearance)	Tide Requirement (Minimum)	Transit Window (hrs)*	Restrictions
LIQUID BULK TANK SHIPS					
LNG Cryotanker - Distrigas (Light Load)	36	39.6	5.6	10.5	
LNG Cryotanker - Distrigas	42	46.2	12.2	0	
Chelsea-Max	35	38.5	4.5	12.35	
Chelsea-Max (East of Chelsea Street Bridge)	35	38.5	4.5	6.175	Daylight hours only
Mystic - Exxon	36	39.6	5.6	10.5	
Mystic - Exxon	45	49.5	15.5	0	
DRY BULK CARRIERS					
Minerals/Salt	41	45.1	11.1	5.45	
Scrap	40	44	10	0.25	
Cement	37	40.7	6.7	8.4	
*Transit Window utilized a 10 foot Average Tide					

# Vessel Window with Project

BOSTON HARBOR VESSEL TRANSIT WINDOW WITH PROJECT						
Vessel Class	Draft (feet)	Effective Draft (10% Under Keel Clearance)	Tide Requirement (Minimum)	Transit Window (hrs)* Δ		Restrictions
LIQUID BULK TANK SHIPS						
LNG Cryotanker - Distrigas (Light Load)	36	39.6	-0.4	22.5	12	
LNG Cryotanker - Distrigas	42	46.2	6.2	9.45	9.5	
Chelsea-Max	35	38.5	-1.5	17.35	5	
Chelsea-Max (East of Chelsea Street Bridge)	35	38.5	-1.5	17.35	11	Assumes Fendering of Chelsea Street Bridge and Harbor Pilots lift restriction
Mystic - Exxon	36	39.6	-0.4	22.5	12	
Mystic - Exxon	45	49.5	9.5	2	2	
DRY BULK CARRIERS						
Minerals/Salt	38	41.8	1.8	16.85	11	
Scrap	40	44	4	13.25	13	
Cement	37	40.7	0.7	18.9	11	
*Transit Window utilized a 10 foot Average Tide						

# Building the Conley Intermodal Gateway



Massachusetts Port Authority  
November 2014





# Massport is a Good Neighbor

- **Tommy Butler Freight Corridor and Memorial Park:**
  - \$75 Million dollar Massport Investment.
  - Takes all container truck traffic off local streets.
  - Provides green space and a noise barrier.
- **Clean Truck Program Improves Air Quality:**
  - Massport initiated a program to replace older drayage trucks with cleaner, more efficient trucks.
  - Using an EPA award, 20 trucks were replaced in Phase I and Massport is investing \$1 Million to replace an additional 40 trucks under Phase II

