

# Chelsea Street Bridge Fact Sheet

**The United States Coast Guard regulates the Chelsea Street Bridge - to lift to its full height (175') and lift on-demand for any vessel. MassDOT manages the operations of the bridge lifts and roadway traffic.**

## Bridge History

**1834** – First Bridge constructed

**1937** – Bridge replaced with a with a single-leaf bascule bridge; one lane of traffic in each direction, opened to traffic on May 10, 1937

**1992** - USCG issues an "Order to Alter" the configuration due to minimal clearance for tankers

**2006** - Additional FHWA funds for the replacement project were requested, but not available

**2008** - Funding is secured and Construction of the new lift bridge begins October 28, 2008. Ownership transferred from City of Boston to MassDOT.

**2012** – Opened to traffic on May 12, 2012, \$125M construction, 140' long with a 175' vertical clearance

## Lift Statistics (data collected through May 2019)

Durations are estimated and can vary significantly

### **TUG –ONLY Lift Duration Estimate (min.)**

Close Gates	2
Bridge Up	7
Vessel Passage	0*
Bridge Down	6
Open Gates	1
<b>Total:</b>	<b>16</b>

\*No passage time required because tugs typically pass through while bridge is lifting

### **BARGE Lift Duration Estimate (min.)**

Close Gates	2
Bridge Up	7
Vessel Passage	2
Bridge Down	6
Open Gates	1
<b>Total:</b>	<b>18</b>

### **TANKER Lift Duration Estimate (min.)**

Close Gates	2
Bridge Up	7
Vessel Passage	5
Bridge Down	6
Open Gates	1
<b>Total:</b>	<b>21</b>

### **Lift Type Breakdown**

Barges + Tugs: 40%

Tanker + Tug(s): 11%

Tugs/Pilots/Other: 48%

Test Lifts: 2%

### **Lifts per Day**

Minimum: 0

Average: 5.3

Maximum: 14

## Vessel Operating Procedures

- Vessel pilots radio the Bridge Operations room approximately 5-10 minutes before arrival
- Bridge must open to full height for all vessels
- Tug boats service all parts of the harbor; complex coordination issues
- Tanker movements require daylight hours and are tide-dependent
- Barge movements do not require daylight hours and are not typically tide-dependent

## Chelsea Creek Oil Demand

41% of New England's Petroleum Products

66% of Regional Home Heating Oil

79% of Gasoline for Massachusetts

100% of the Jet Fuel for Logan Airport

## McArdle Bridge

- Lifts occur ~ 5 minutes before or after Chelsea Street Bridge, depending on vessel direction
- Lift durations are approximately 60% of Chelsea Street Bridge due to the bridge type (bascule)
- Upstream vessel radio notifications are heard by Chelsea Bridge Operators

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## Bridge Operations Procedure (Under Review)

1. Call Massport and the MBTA to inform them of the bridge opening
2. Pull emergency stop button
3. Turn on control power
4. Click traffic light to red
5. Turn camera to view pedestrian gates/span sidewalk (make sure there are no pedestrians)
6. Close pedestrian gates
7. Turn camera view to traffic gates (make sure traffic is clear)
8. Close on coming warning gates far side and near (outer gates)
9. Double check to make sure all traffic is clear
10. Close off-going warning gates far side and near side (outer gates)
11. Close oncoming barrier gates far side and near (inner gates)
12. Close off-going barrier gates far side and near side (inner gates)
13. Turn camera back to pedestrian gates/span sidewalk (double check for pedestrians)
14. Go to skew status screen to make sure all system go and all four drivers are available
15. Blow horn 3 times
16. Hit auto raise (brakes will release and bridge will start moving)
17. Once the bridge has come to a complete stop you are ready to lower the bridge

## Traffic Volumes

### **Annual Average Daily Traffic (AADT)**

26,800 total vehicles per day

500 Massport employee shuttles per day

400 Airport shuttles per day

Unknown – Freight volumes

### **Weekday AM Peak Period**

7:00 AM – 9:00 AM, 3,375 vehicles

### **Weekday PM Peak Period**

3:30 PM – 5:30 PM, 3,605 vehicles

### **Weekend Peak Period**

3:30 PM – 5:30 PM, 3,092 vehicles

## Eastern Avenue / Chelsea Street Traffic Signal

- New Siemens m60 Controller
- Marginal Avenue NB free-right signals controlled by Bridge Operators
- Current preemption timing/phasing plan occurs during a bridge lift
- Consider adding an additional phasing/timing plan after a bridge lift completes. Could be possible with a new preemption link or peer-to-peer.

## Advanced Warning Sign System

- Eight locations in Chelsea, Revere, and East Boston
- Additional locations would likely be beneficial (e.g. Eastern Ave SB)
- Automatically triggered by a bridge lift via cellular communication
- No existing data collection (e.g. timestamp of system triggers)

## Primary Detour Routes

- Route 1A
- McArdle Bridge

## Traffic Data Sources

- Silver Line turning movement counts (2013)
- Bridge volumes (2018)
- Traffic counting cameras (proposed)
- Notification system lift tracking (proposed)
- Consider automated turning movement counts at Eastern Ave / Chelsea St
- Consider collecting or purchasing origin / destination data
- Consider automated vessel counting