



# Lift Bridge Operations in Sturgeon Bay

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**Mission statement:**  
*To provide leadership in the development and operation of a safe and efficient transportation system.*

## Included in this issue:

- Sturgeon Bay Lift Bridge operation—WisDOT studying remote operation
- Goals of remote control of movable bridges—safety first.

## Sturgeon Bay lift bridge operations

### WisDOT studying remote operations

Sturgeon Bay boasts one of the busiest waterways in the state. With the brand new Maple/Oregon Street Bridge set for completion in September 2008, three bridges, including the Bay-view and Michigan St. bridge, will soon be crossing that waterway and serving Sturgeon Bay motorists and the many tourists that visit the city every year.

The Wisconsin Department of Transportation's (WisDOT) northeast region operates 13 lift bridges in the state. WisDOT is in the process of studying the feasibility of "remote operation" for many of these bridges in the region.

According to WisDOT NE Planning and Highway Operations Manager Brett Wallace, "Throughout the region, the goals of the studies have always been the same. First and foremost to maintain or improve safety, secondly to maintain or improve level of service and finally, there would have to be a savings

to the state."

Wallace added, "But the savings would come only after we satisfy the first two primary goals."

Currently, WisDOT relies on an on-site bridge tender to open and close each bridge. The Sturgeon Bay bridge

*"First and foremost to maintain or Improve Safety"*

tenders have done and continue to do an outstanding job. They would still be involved in remotely operating the bridge.

It is estimated that remote operations of the three Sturgeon Bay bridges would result in a savings of more than \$575,000 annually, while maintaining safety and level of service. All three bridges would be equipped for on-site operation. On-site operation of each bridge might sometimes become necessary for maintenance, during a very busy boating period such as

a holiday, or during inclement weather.

Here is how it would work.

The conversion to remote operations includes the installation of roadway and waterway cameras, microphones, and loud speakers at all three bridges. The video cameras would provide more complete views of the roadway and waterways, improving the view the tenders have today. One immediate benefit would be the ability to more easily check for pedestrians.

Each bridge would be equipped with a short wave radio and a horn to communicate with mariners, and microphones and speakers to communicate with pedestrians and motorists.

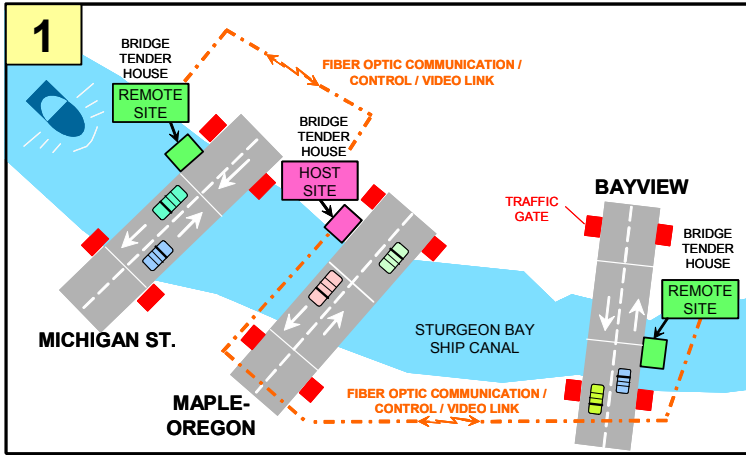
All of this equipment will be linked together through a fiber optic connection. This fiber optic link would carry the control commands from the Maple/Oregon Street Bridge to the other bridges.

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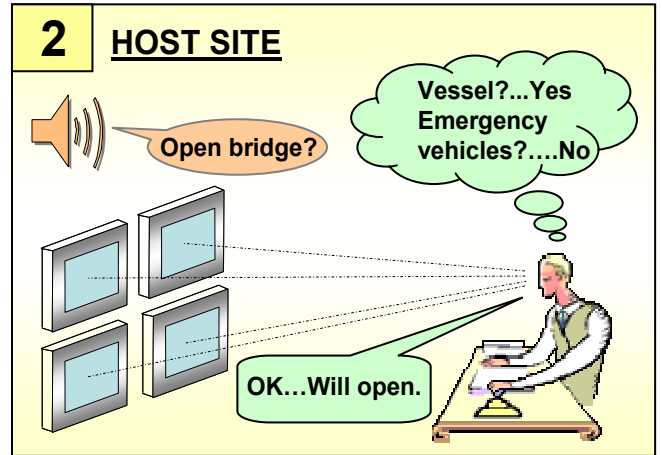


**Michigan Street Bridge**

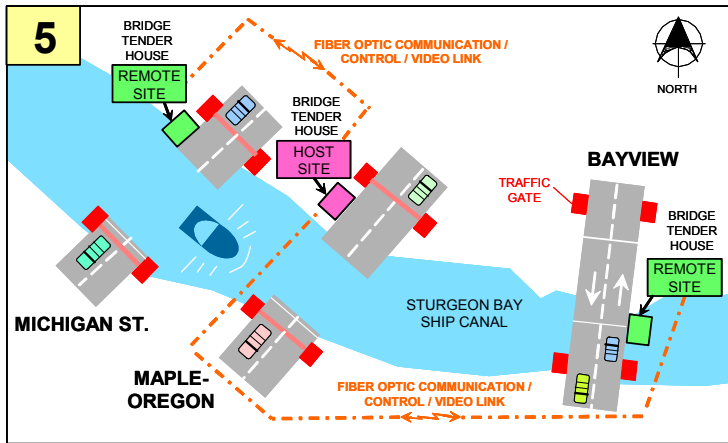
# Remote control operations in St



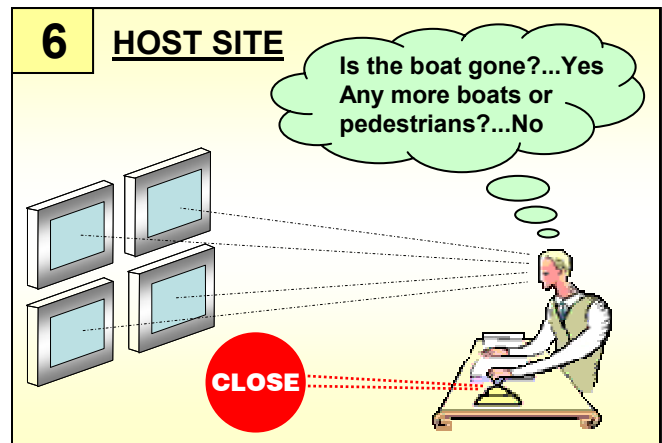
- A boat approaches the Michigan Street Bridge and requests an opening via radio, horn or visual signal.
- Because they are near each other the openings of Michigan Street Bridge and the new Maple-Oregon Street Bridge will be coordinated with each other.



- The remote bridge tender at Maple-Oregon Bridge receives the opening request from the boater at Michigan St.
- The remote tender scans the monitors to confirm the presence of the vessel and check for emergency vehicles approaching the bridge.
- The tender responds to the boater indicating whether or not the bridge can be opened.

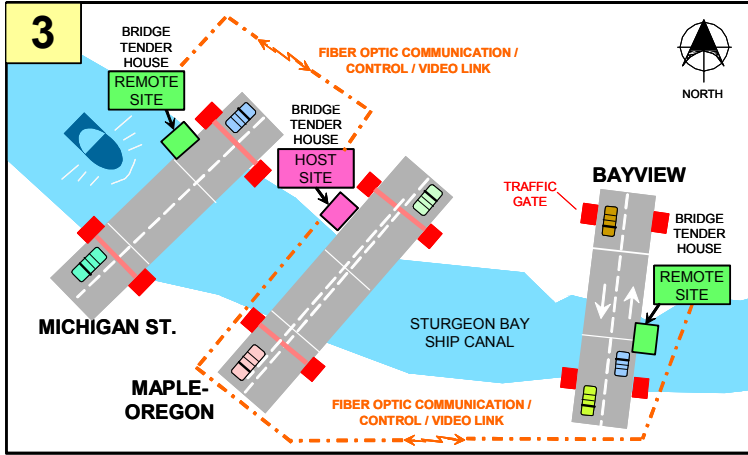


- While continuing to monitor Michigan Street and Maple-Oregon bridges for gate violators and the Bayview Bridge for approaching vessels, the tender opens Michigan Street and Maple-Oregon bridges. The boat safely passes through.
- As the bridge opens, the roadway cameras automatically reposition to focus on the near-side gate area to monitor for any gate violators.

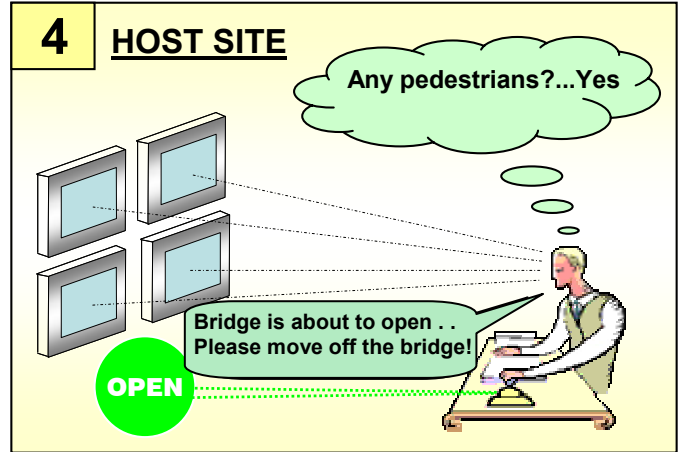


- The tender confirms the boat has passed through and no more vessels are approaching. The tender continues to scan the roadway monitors to ensure there are no pedestrians inside the gates.
- The tender closes the bridges while watching for any additional vessels approaching.

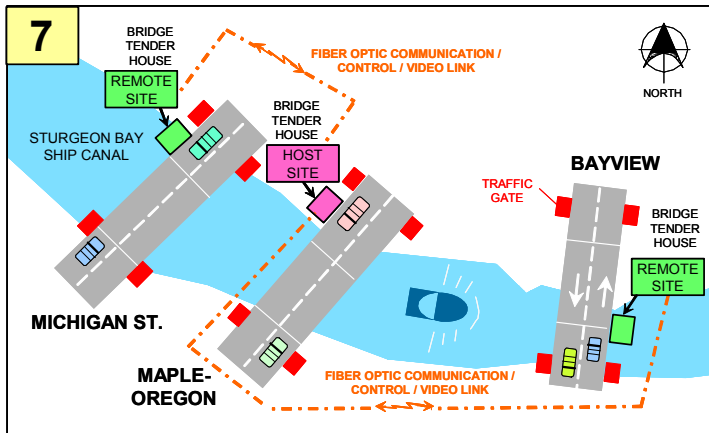
# Sturgeon Bay - how it would work



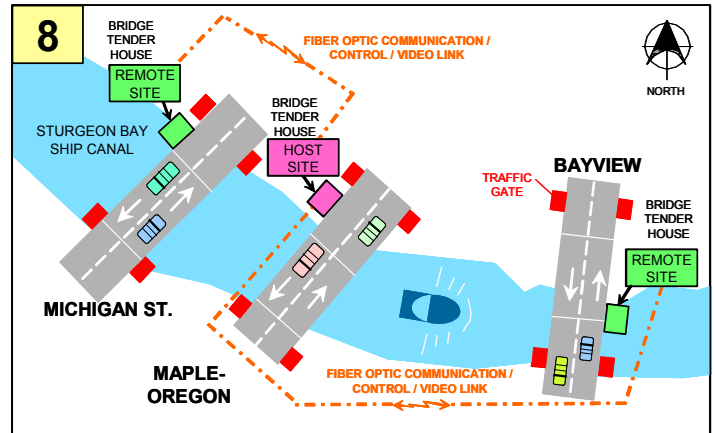
- The tender activates bridge traffic signals and bells to stop vehicle and pedestrian traffic.
- When traffic stops, the tender lowers the oncoming traffic gates.
- After all vehicles and pedestrians are off the bridge, the tender lowers the off-going traffic gates.



- The tender continues to scan the monitors to check for pedestrians on Michigan Street and on the Maple-Oregon Bridge. If pedestrians remain, loud speakers are used to notify them of the



- The roadway cameras automatically return to their original position, focused on the far side gate area.
- The tender opens the off-going traffic gates.
- The tender opens the on-coming gates and stops the bells.



- The operation is completed and the bridges are re-opened to traffic. The entire cycle of bridge opening and closing takes from 4 minutes to over 7 minutes depending on the size of the vessel.

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Wisconsin Department of Transportation

## Goals of remote control of movable bridges—safety first.

WisDOT strives to meet four goals when converting a movable bridge to remote control.

**Goal No. 1** *Maintain or improve safety for pedestrians, motorist and boaters during bridge operations.* Improving the bridge tender's view the bridge sidewalk areas and roadway on the far side of the movable leaf is a key safety improvement. These areas along with the waterway approach on the far side of the bascule leaf have been challenging for the operator when the near side bascule leaf is raised. The high-resolution video cameras will be located so that the operator can clearly see into these areas and even see wheel chairs or other low profile objects.

**Goal No. 2** *Maintain or improve the current level of service for the motorist and the mariners.* Level of

Service will meet or exceed the current Coast Guard approved opening protocol. Detailed studies of the operating history confirm that a single remote operator can handle the projected number of openings with ease, especially with the improved opening controls.

**Goal No. 3** *Reduce wear and tear and damage to the bridge mechanical equipment.* The new controls operate the bridge the same way each time and more smoothly than under manual control. This helps to prevent damage.

**Goal No. 4** *Reduce the annual operating cost of the movable bridges.* The cost to operate movable bridges is increasing every year. The retrofitting and operating costs can be reduced significantly with remote control.

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It would also allow the bridge tender at the Maple—Oregon Bridge to monitor the status of the other bridges at all times.

Implementation of remote operation would begin with the Michigan Street Bridge and the Maple/Oregon Street Bridge after the rehabilitation work on the Michigan Street Bridge. Ultimately, the Bayview Bridge could also be included in the remote operation after necessary modifications.

This could all happen in 2010, but before that, WisDOT will begin a substantial public involvement process. The department plans to talk with the public, boaters, bridge tenders and businesses in the Sturgeon Bay Area. The same course of study was followed in Menasha, where remote operations will be gradually brought on line during this boating season.

The result could well be improved safety and service, with reduced cost as value added. This is a result we can all appreciate.