



Lift Bridge Operations in Winnebago County

February 2006

Contact information:

WisDOT Northeast Region
944 Vanderperren Way
Green Bay, WI 54304

Mailing address:
P.O. Box 28080
Green Bay, WI 54324-0080

Phone: (920) 492-5643
Fax: (920) 492-5640
E-mail:
greenbay.dtd@dot.state.wi.us

WisDOT Web site:
www.dot.wisconsin.gov

Neil Michaelson, PE
Regional Bridge Engineer
Phone: (920) 492-7170

Kim Rudat
Communications Manager
Phone: (920) 492-5743

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

Included in this issue:

- Advisory Task Force holds first meeting
- Priority safety issues
- How remote control would work in Menasha
- Camera installation in Winnebago County

Menasha may see remote control bridge operations by May 2007

In less than a year and a half, Menasha may make a subtle but important change in how it operates its lift bridges. Tentative plans call for the Racine Street and Tayco Street bridges to be retrofitted to enable remote operation of Tayco St. bridge from Racine St. bridge. The Wisconsin Department of Transportation (WisDOT) is considering the concept of remote control operations in Menasha. This concept has gained the support of local and state officials.

The concept of remote control operations in Menasha has gained the support of local and state officials.

The current method of lift bridge operation in Menasha relies on an on-site operator to open the bridge. The retrofit for remote bridge operation would include the installation of roadway and waterway cameras, microphones and loud-speakers at both Tayco St. and Racine St. The audio and video equipment would feed to speakers and monitors at the Racine St. bridge through a fiber optic connection, allowing one bridge tender at Racine St. to operate both bridges.

The video cameras would

provide more complete views of the roadway and waterway than what the on-site tenders have today. This would improve the safety of bridge operations by ensuring that any pedestrians who may be on the bridge would be more clearly seen.

The microphones and speakers would allow the remotely located tender to communicate with boaters who request an opening and also with pedestrians and motorists who are on the bridge.

A fiber optic link would also carry the control commands from Racine St. to Tayco St. and allow the remote tender to monitor the status of Tayco St. at all times.

Extensive research has shown that remote operations are very achievable in Menasha while maintaining safety and the current level of service. The number of requested

bridge openings can be handled by one bridge tender, making remote control an efficient way to operate the bridges.

Remote operations could save the taxpayers an estimated \$90,000 annually.

Although remote operations involves one bridge tender, there would be no reduction in the number of openings. Remote operations would continue to provide on-demand bridge openings, maintaining the same level of service as on-site operation to boaters in Menasha.

While Tayco Street would be set up for remote operation from Racine St., both bridges would still have the ability to be operated by one on-site tender if the need arises.

Full implementation of remote operations is being considered for May 2007.



Tayco Street Bridge in Menasha may be ready for remote operation in May 2007.

Advisory Task Force holds first meeting

The Lift Bridge Remote Operations & Safety Advisory Task Force held its first meeting on December 1, 2005.

The Advisory Task Force (ATF) is a group of volunteers from the Winnebago County area who have interests in remote control operation of moveable bridges. Members of the ATF represent a wide variety of viewpoints and concerns on the issue of remote control operations in Menasha. The 12 public members represent:

- Bridge tenders
- Emergency service officials
- Law enforcement officials
- Winnebago County Supervisor
- Cerebral Palsy of Mideast Wisconsin
- Fox River Navigational System Authority
- WisBOAT
- Winnebago County Highway Department
- City of Menasha Public Works
- Commercial barge operator

Remote operation is being considered for implementation in approximately one year in Menasha.

The purpose of the ATF is to advise the Wisconsin Department of Trans-

portation (WisDOT) on issues concerning the remote operation of lift bridges in Menasha. WisDOT officials believe that the concerns and input from these stakeholders is critical to the successful implementation of remote control operations in Menasha. WisDOT would like to thank each of these volunteers for their time and valuable assistance.

At the meeting, state officials provided a summary of remote control-related

activities over the past two years and a presentation outlining issues that had been previously voiced at public meetings and covered in two previous feasibility studies.

The ATF deemed eight of the safety issues identified to be priority safety issues. (See article below for list of these eight issues and the Department's responses).



Members of the Advisory Task Force work with WisDOT officials to address issues about remote control bridge operations. Safety issues were the focus of the December meeting.

Priority safety issues identified by ATF

The main goal of the first ATF meeting was to review all of the safety issues and concerns identified during the past two years of public meetings and studies dealing with remote operation of highway drawbridges in Menasha. In addition, ATF members provided input on additional concerns that had not been brought up at previous public meetings.

ATF members identified and prioritized

those issues and concerns they believed were the most significant and warranted the most attention. Following is a summary of the ATF's top eight priority safety issues, and the WisDOT's responses to those issues:

1. Visibility of low profile objects and people

- Properly mounted video cameras would enhance views of low profile objects and the waterway

2. Operator's ability to hear sounds and signals at the remotely operated bridge

- Vision would still be the primary method for monitoring the remote bridge
- Properly mounted microphones would assist remote bridge operators

(Continued on page 3)

(Continued from page 2)

- Speakers would allow two-way communication at the remote site

3. No bridge tender on-site to assist motorists on bridge

- Bridge tenders could communicate with motorists at remote site from host bridge
- Bridge tenders would have a direct link to 911 dispatchers
- Bridge tenders are expected to stay at bridge controls for safety purposes

4. Waterway congestion/queuing of boats

- Both bridges would continue to provide current level of on-demand service

5. Ability to respond to an emergency with a quick bridge opening

- Both bridges would be monitored with the same attention - reaction and operation time would remain the same
- The operation of one bridge could be stopped so that the other could be opened in an emergency

6. Communication protocol at remotely operated bridge

- U.S. Coast Guard regulations would continue to be followed
- Remote cameras, microphones, speakers and lights would allow the remote operator to signal and communicate with boat captain at remote bridge

7. Roadway congestion due to an open bridge

- Some vehicle backups will occur as they do now

8. Maintaining a direct communication link between bridge tenders and emergency service providers

- Instantaneous communication between tender and emergency responders would be maintained with two-way radios
- Fiber optics are being considered to further improve this communication



Photo from bridge tender house showing person in wheelchair near bridge railing. Note how person in wheelchair is obscured by railing.

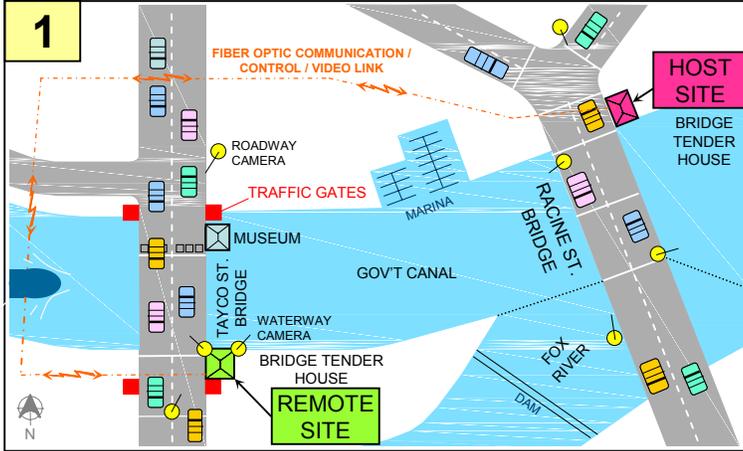


Photo from proposed elevated camera position showing same person in wheelchair near bridge railing. Person in wheelchair is easily visible.

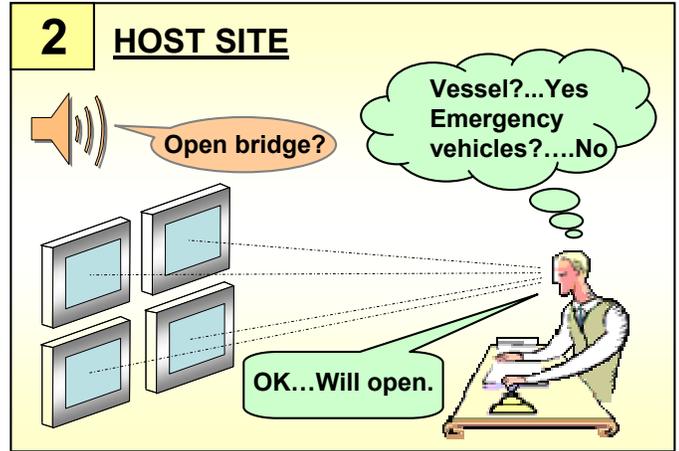
Goals of remote control bridge operation - safety first

- 1) To improve safety for boaters, pedestrians and motorists
- 2) To maintain the current level of service for boaters and for motorists
- 3) To reduce the annual operation cost of moveable bridges

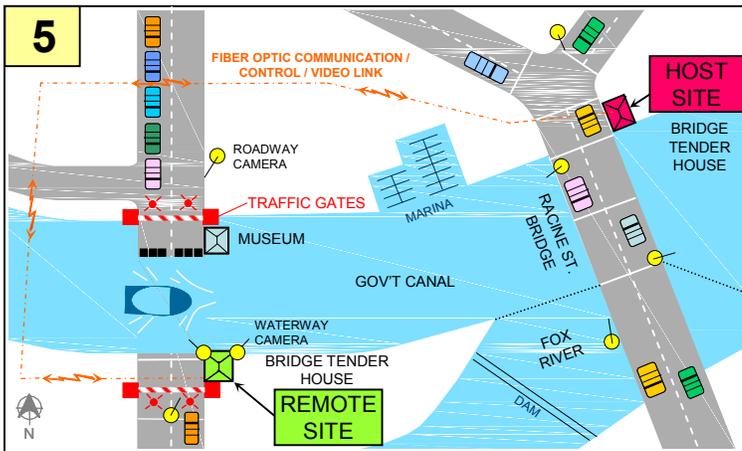
Remote control operations in



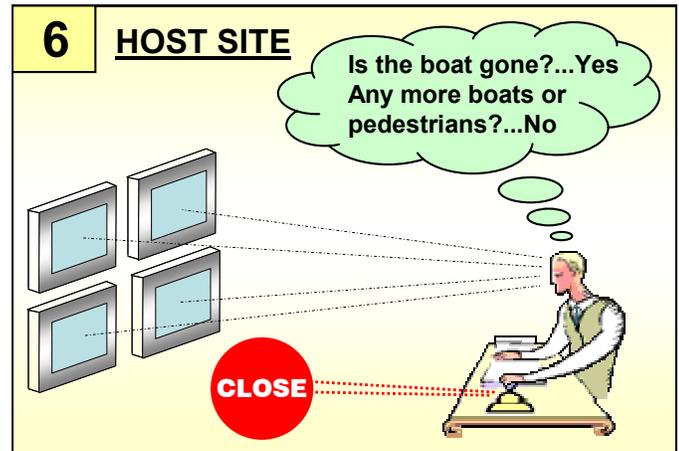
- A boat approaches the Tayco St. Bridge and requests an opening via radio, horn or visual signal.



- The remote bridge tender at Racine St. receives the opening request from the boater at Tayco 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 immediately. If the tender is currently operating

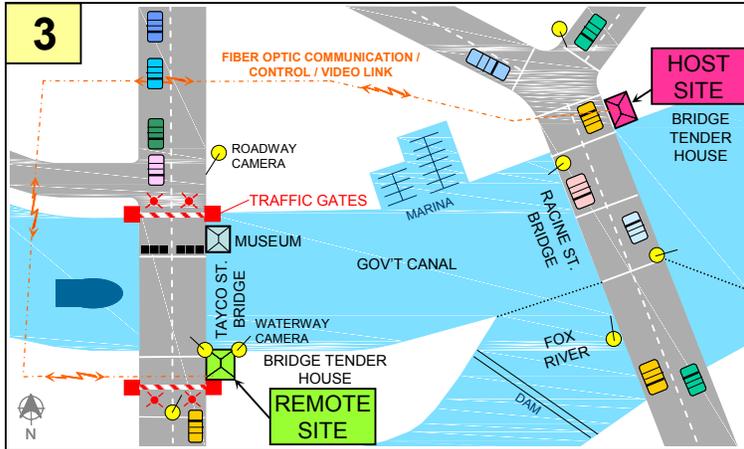


- While continuing to monitor Tayco St. bridge for gate violators and Racine St. bridge for approaching vessels, the tender opens Tayco St. bridge and the boat passes through.
- As the bridge opens, the roadway cameras automatically reposition to focus on the near-side gate area to monitor for any gate violators.



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

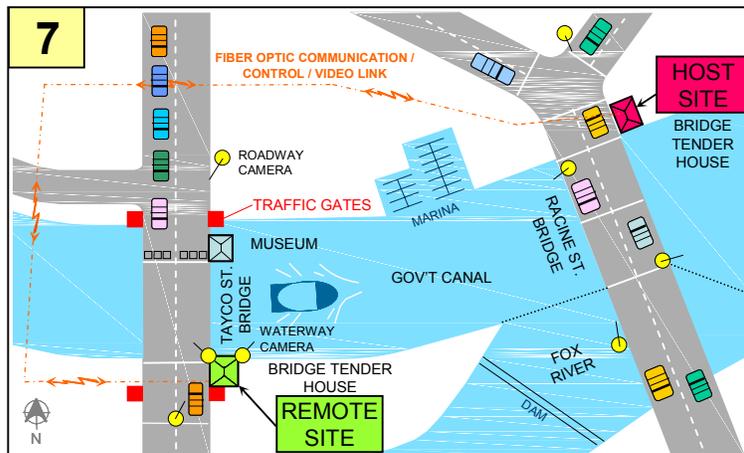
Menasha - how it would work



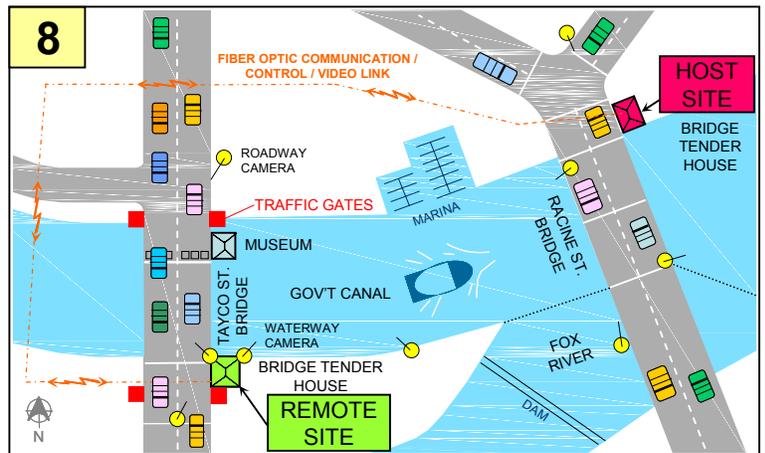
- The tender activates bridge traffic signals and bells to stop vehicle and pedestrian traffic.
- When traffic stops, the tender lowers the oncoming traffic gates.
- After all vehicles and pedestrians are off the bridge, the tender lowers the off-going traffic gates and raises the traffic barriers from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



- The tender continues to scan the monitors to check for pedestrians on Tayco St. bridge and in museum. If pedestrians remain, loud speakers are used to notify them of the bridge opening.



- 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, stops the bells and lowers the traffic barriers back into the roadway.



- The operation is completed and the bridge is re-opened to traffic.

Address

www.wisconsin.gov
WisDOT Web site:

Email: greenbay.dtd@dot.state.wi.us
Phone: (920) 492-5643
Fax: (920) 492-5640

Green Bay, WI 54324-0080
P.O. Box 28080
WisDOT Northeast Region



Wisconsin Department of Transportation

Bridge cameras to be installed for 2006 boating season

Boaters and motorists might notice some new additions to lift bridges over the Fox River in Oshkosh next April and in Menasha in mid to late summer. Video cameras will be installed on the bridges at Main Street, Oregon Street and Congress Avenue in Oshkosh and Racine Street and Tayco Street in Menasha. This effort is based on feedback from bridge operators and legislators.



Consultant and WisDOT engineers use a bucket truck to determine optimal positioning for the elevated cameras on the Wisconsin St. Bridge in Oshkosh.

This effort is based on feedback from bridge operators.

The cameras help improve safety by improving the bridge tenders' views of the roadway and sidewalks on the bridge and waterway below.

The roadway cameras will be mounted on existing light poles near the lift span to provide complete views of the roadway and sidewalk areas. Waterway cameras will be mounted underneath the bridge to provide views under the moveable span and show approaching boats. Four monitors in the bridge tender's house will show the camera views and allow for better visibility of cars, boats and pedestrians. The result will be safer operation of the bridges.

Currently, views from bridge tender houses are limited in certain areas by the bridge railing, walls of the bridge tender

house, and the lift span itself when it is open. This creates potential safety concerns.

The cameras in Oshkosh are scheduled for operation by the start of the 2006 boating season, set for April 15. Please note also that installation of cameras on bridges in Menasha to assist those bridge operators is planned for summer 2006.

Do you know someone who may be interested in this study? Please share this newsletter. If you would like more copies, contact Neil Michaelson, PE, (920) 492-7170.