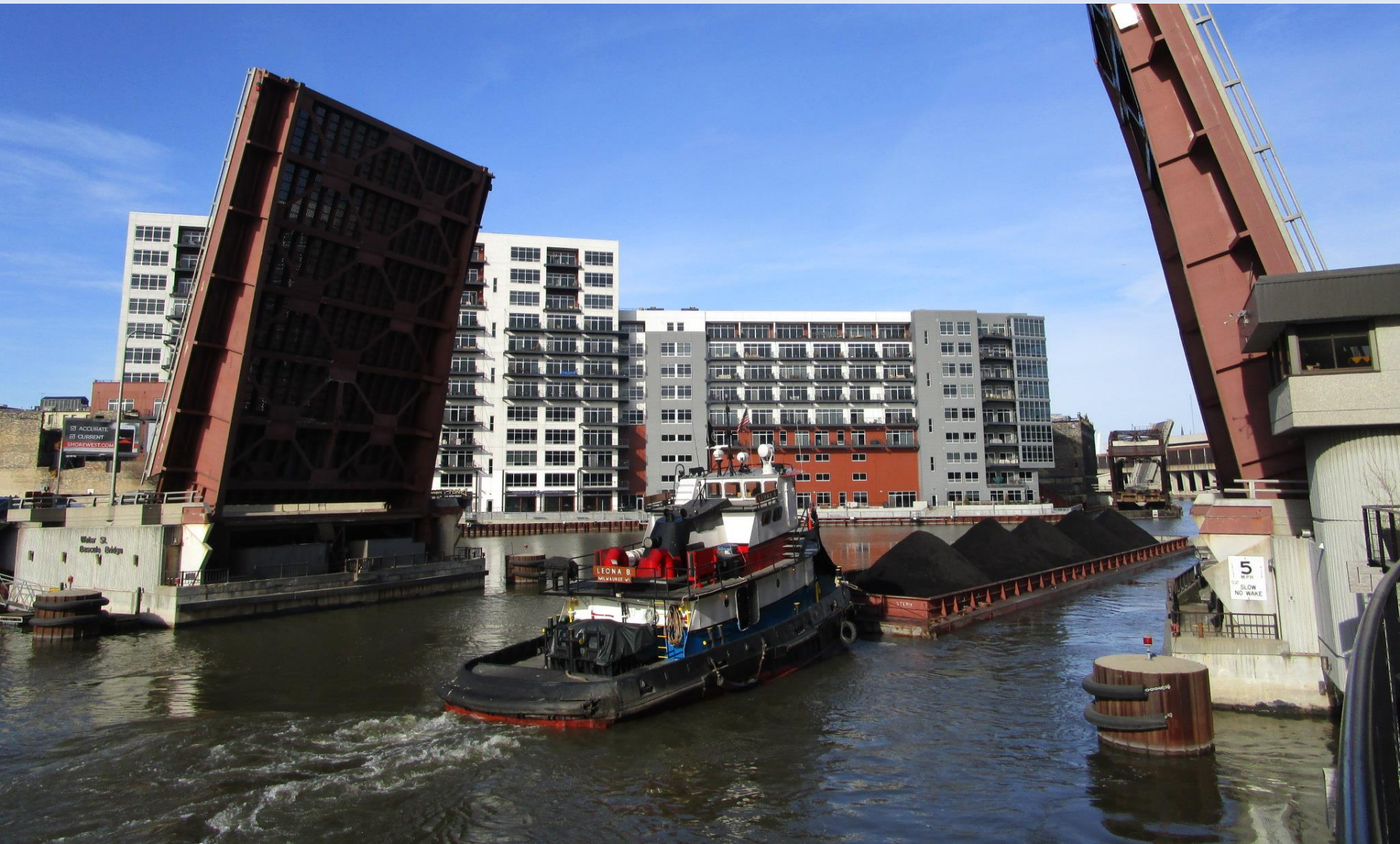


# Report to Public Works Committee

## Movable Bridge Operations



# Report to Public Works Committee

## Movable Bridge Operations

DPW was requested by the Public Works Committee to report on the following:

- What codes govern the use of bridge bells?
- Can a shroud be used to redirect the sound from the bells?
- What would be the cost for eliminating the bells at bridges adjacent to housing and using flag people?
- What can be done to limit openings by the commercial boat owners between 4:30 and 5:30 pm?
- Will there be any special operating provisions for the street car on the St. Paul Bridge?



# Report to Public Works Committee

## Codes Regarding Use of Bridge Bells

### AASHTO LRFD Movable Highway Bridge Design Specifications, 2<sup>nd</sup> Edition 2007 with 2018 Interim Revisions: Section 1.4.4.1 General

Warning signs, hazard identification beacons, traffic signals, **signal bells and gongs**, gates and barriers, and other safety devices shall be provided for the protection of pedestrian and vehicular traffic.

### Section 1.4.4.6 Warning Lights, Alarms, and Traffic Signals 1.4.4.6.1 Traffic Signals and Bells

**Warning bells or gongs** should be provided to supplement the traffic signals.

# Report to Public Works Committee

## Controlling Sound of Bells at Wells Street

- Bridge Engineering has conducted bridge bell decibel readings at Wells Street Bridge.
- Decibel readings measured:
  - As is
  - With a shroud to redirect sound:
    - Unpainted
    - Painted with mastic to reduce vibration
  - Painted the bell with mastic to reduce vibration
  - Operating two of the four bells.

# Report to Public Works Committee

## Controlling Sound of Bells at Wells Street

### Decibel Readings at Wells Street

<b>Location</b>	<b>As Is</b>	<b>Unpainted Cover</b>	<b>Painted Cover</b>	<b>Painted Bell</b>
<b>0 feet (At Bell)</b>	94	96	93	94
<b>10 Feet</b>	79	86	82	81
<b>25 Feet</b>	74		74	75
<b>Pier 106 Patio</b>	69	72	67	70
<b>One Bell Opposite side of street</b>	62	66	63	

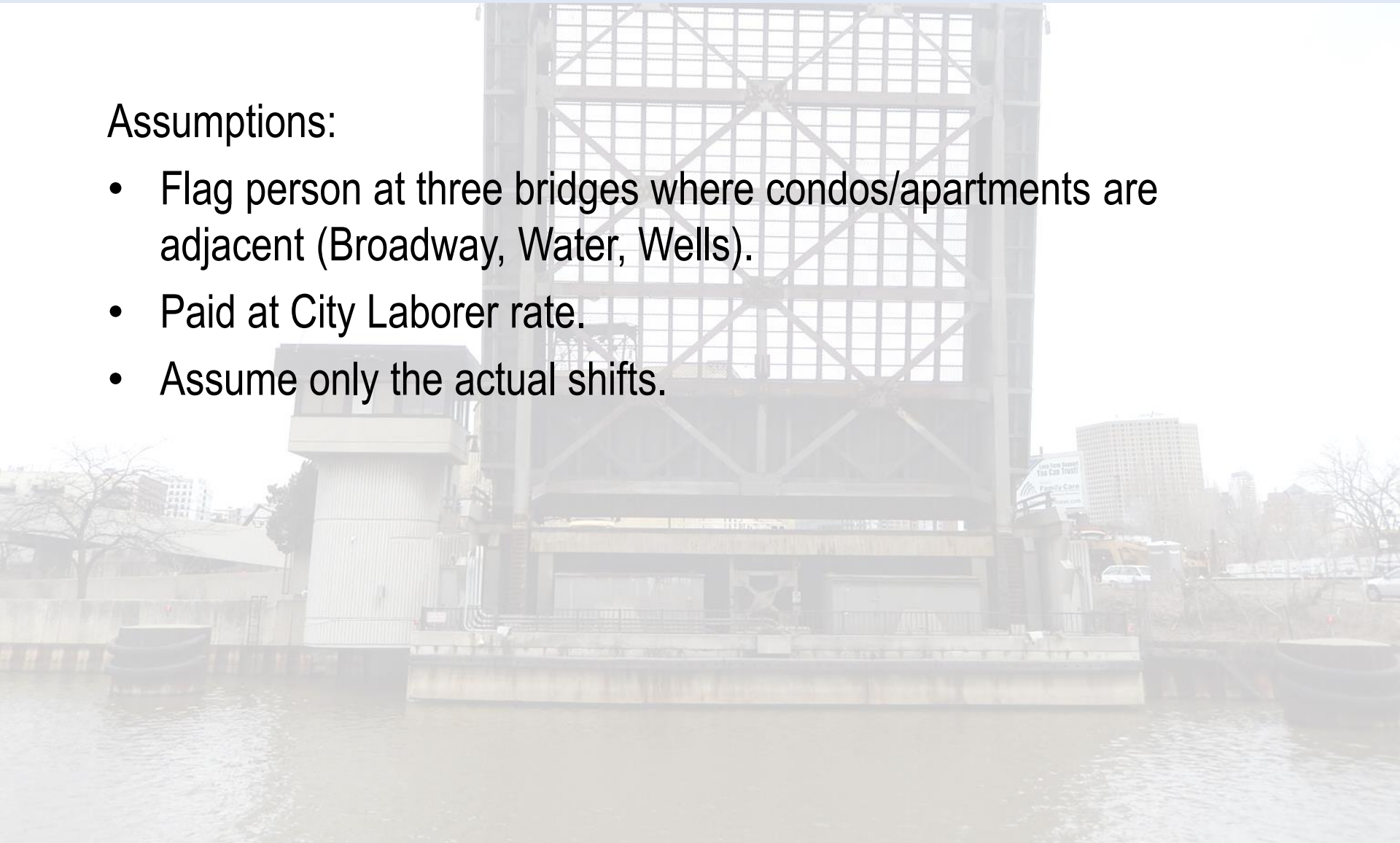
Ambient noise at Wells Street Bridge with no roadway traffic: 62 dB

# Report to Public Works Committee

## Cost of Flag Person in Lieu of Bridge Bells

### Assumptions:

- Flag person at three bridges where condos/apartments are adjacent (Broadway, Water, Wells).
- Paid at City Laborer rate.
- Assume only the actual shifts.





# Report to Public Works Committee

## Cost of Flag Person in Lieu of Bridge Bells

### Calculation

8 hour shift

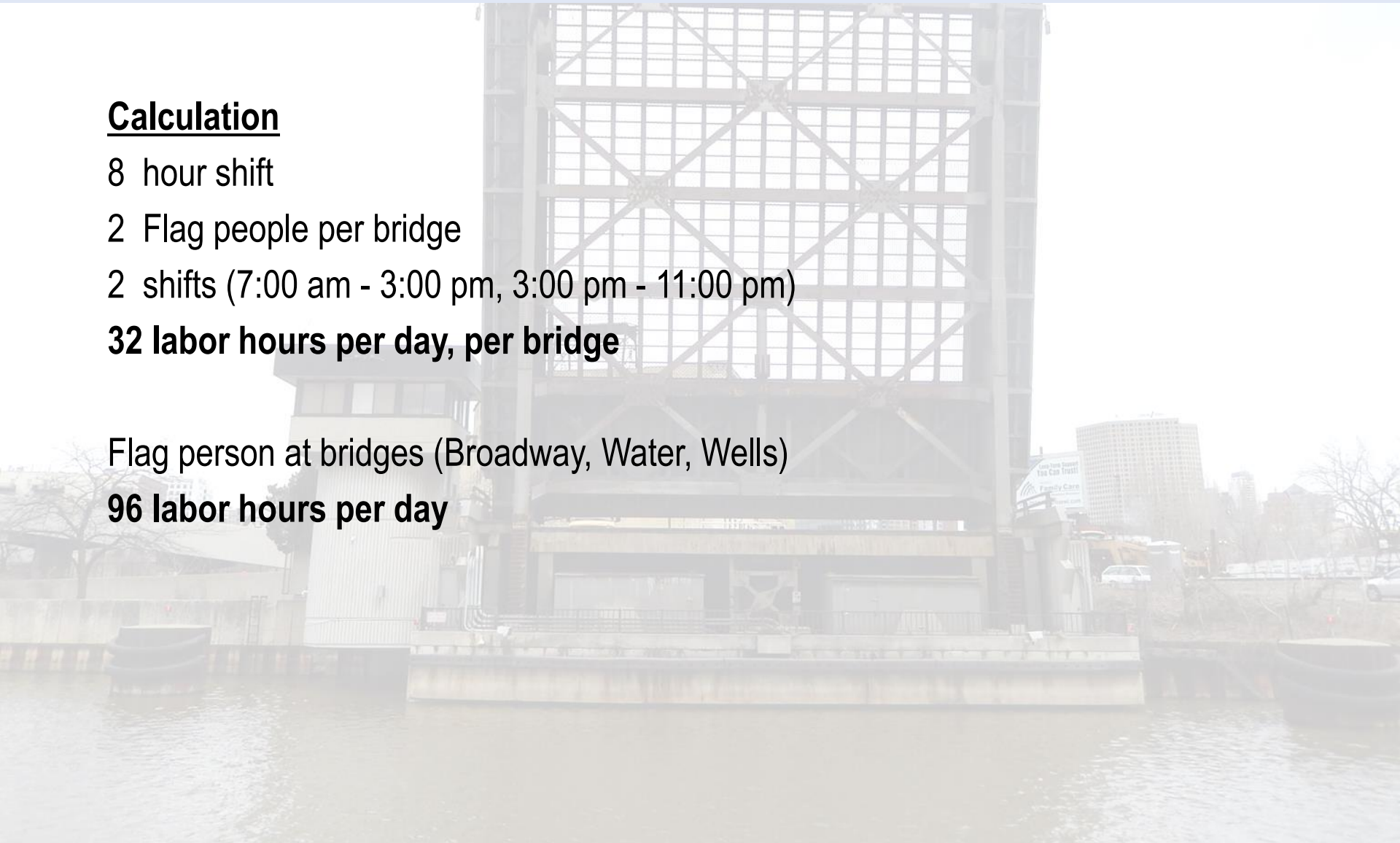
2 Flag people per bridge

2 shifts (7:00 am - 3:00 pm, 3:00 pm - 11:00 pm)

**32 labor hours per day, per bridge**

Flag person at bridges (Broadway, Water, Wells)

**96 labor hours per day**



# Report to Public Works Committee

## Cost of Flag Person in Lieu of Bridge Bells

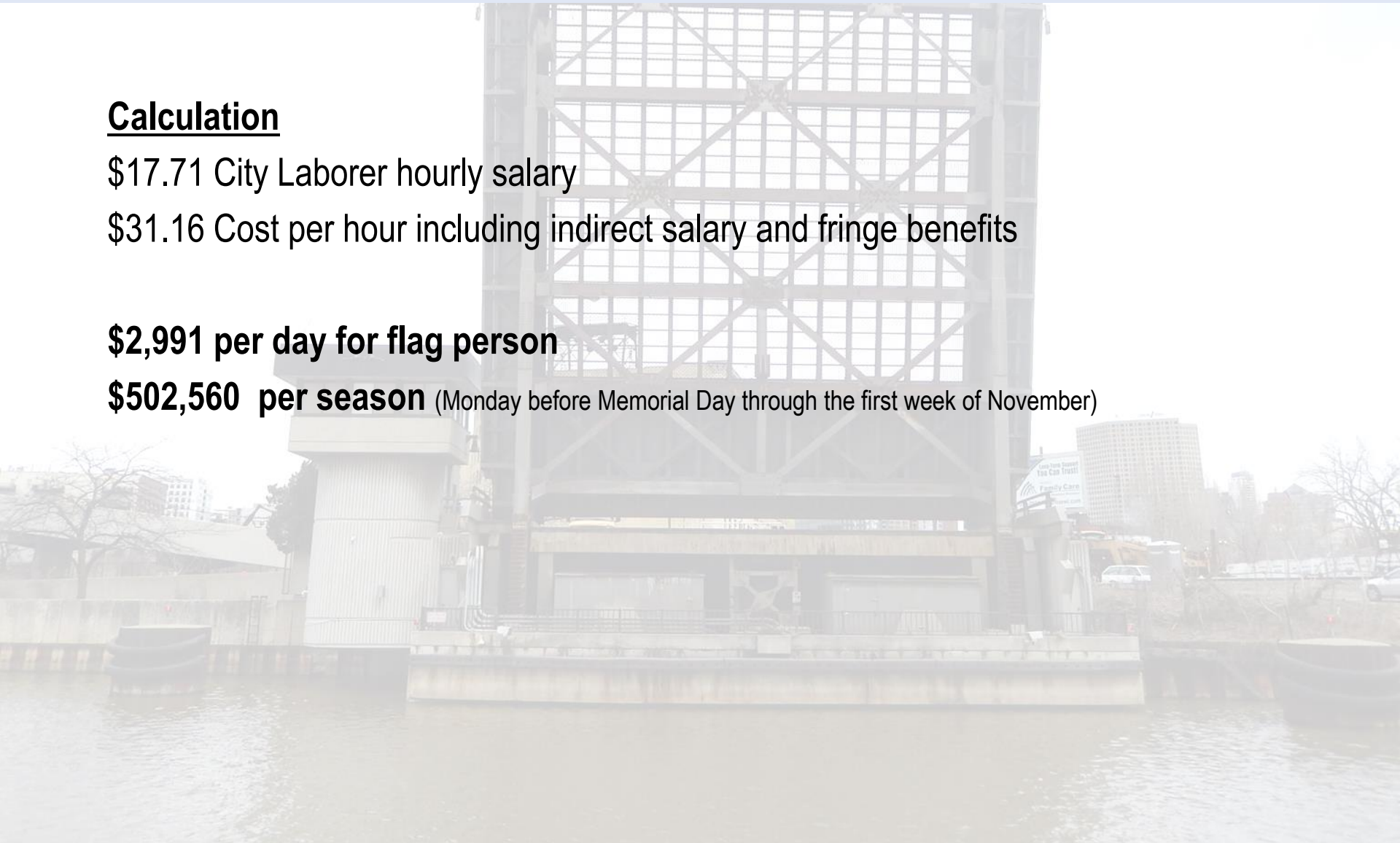
### Calculation

\$17.71 City Laborer hourly salary

\$31.16 Cost per hour including indirect salary and fringe benefits

**\$2,991 per day for flag person**

**\$502,560 per season** (Monday before Memorial Day through the first week of November)





# Report to Public Works Committee

## Boat Openings During Bridge Hours (4:30 pm to 5:30 pm)

DPW-Bridges met with the two commercial boat owners:

- Milwaukee River Cruise Line does not have openings during evening bridge hours.
- Milwaukee Boat Line is willing to adjust their afternoon cruise.
  - Most downtown traffic leaves heading west.
  - Will arrive at St. Paul and Clybourn around 5:30 pm.

# Report to Public Works Committee

## Special Provisions for the Street Car at St. Paul Bridge

Opening St. Paul Bridge for the street car will be done under the same operating procedure for buses.

- If the street car is close to the bridge, the bridge operator will hold marine traffic for a few minutes to allow the street car to pass.