



THE MUNICIPALITY OF
CHESTER

GOLD RIVER BRIDGE

A SUMMARY of the
FINDINGS OF THE
CONDITIONS
ASSESSMENT REPORT

BACKGROUND:

The last train crossed the bridge on September 19, 1991.

Since 2003, the bridge has supported only recreational uses.

The bridge is ~100 years old; 25-50 years beyond its intended lifespan.



BACKGROUND:

A draft condition assessment report was received by MOC on September 21, 2021.

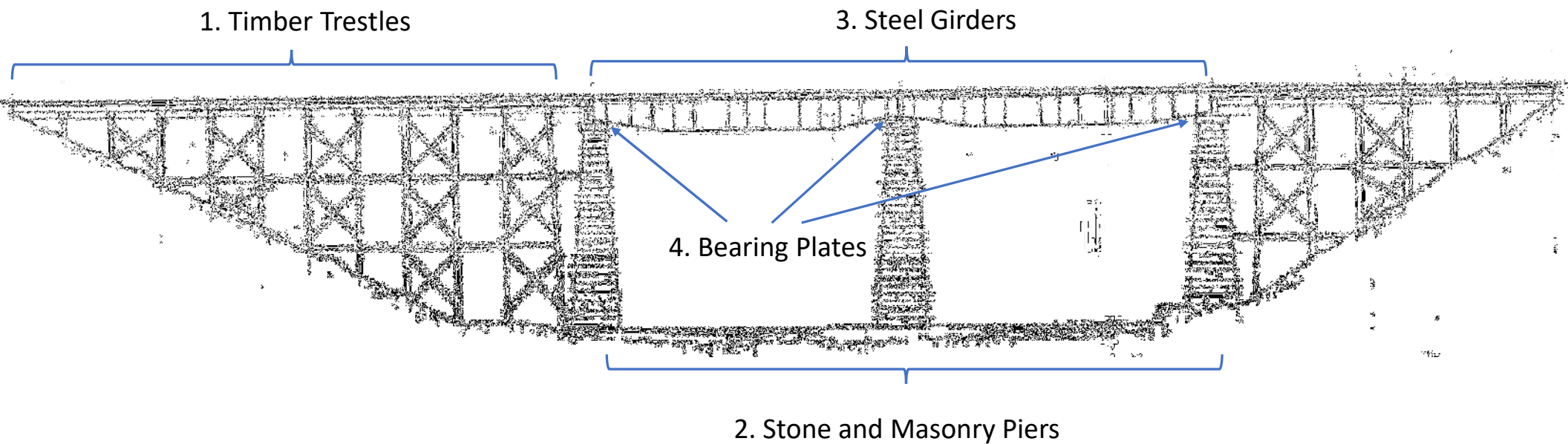
The new assessment could be compared to assessments conducted in 2001 and 2013. This allowed the engineers to determine the rate of deterioration and priority of repairs.



BACKGROUND:

There are FOUR main structural components

The strength of the bridge relies on these four systems working together



OBSERVATIONS: Timber Trestles

- The lifespan of creosote timbers is typically 50 years
- Many timbers are in very good condition. However, some have degraded rapidly in recent years due to:



Animal and insect damage



Decay



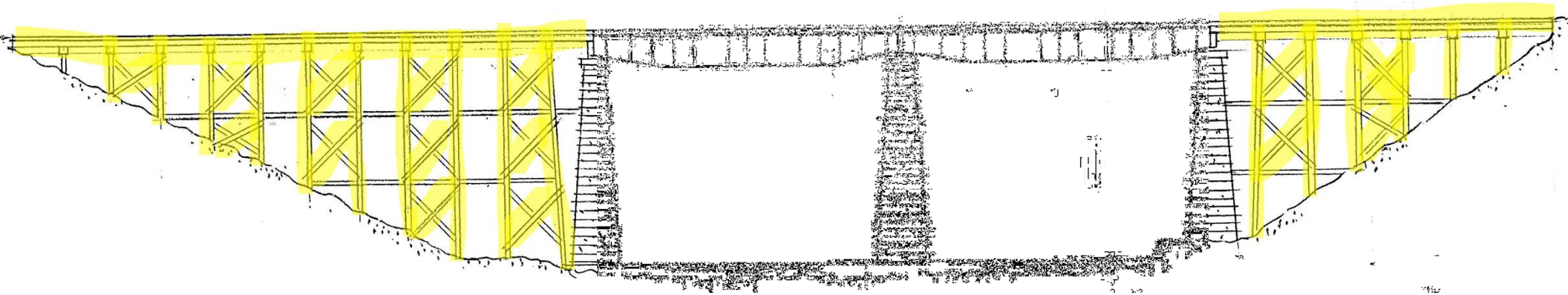
Cracked timbers



Vandalism



Rusting and missing hardware



OBSERVATIONS : Stone & Masonry Piers

Piers are intended to support downward forces

They are not intended to support lengthwise or side-to-side forces

The piers have degraded in recent years due to:



Missing masonry



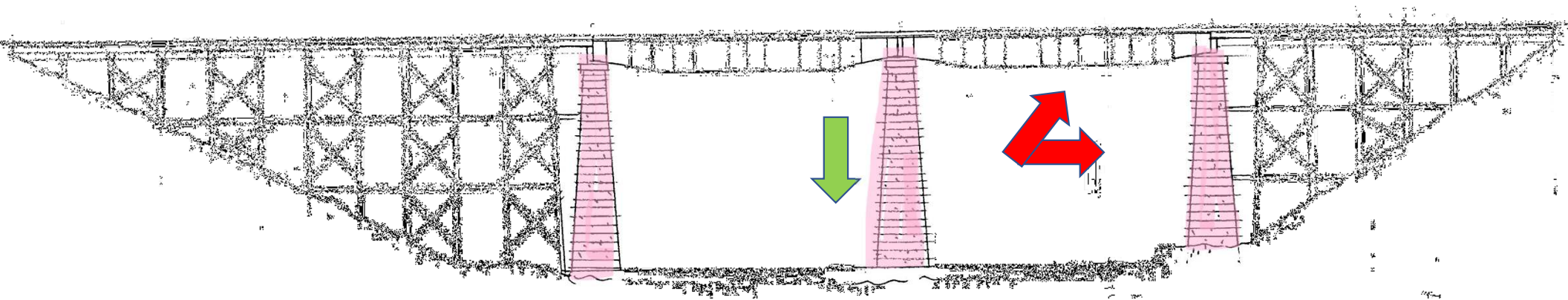
Cracking



Shifting and cracked top caps – allows water to get in



Vegetation



OBSERVATIONS: Steel Girders

Degradation has progressed in recent years due to:



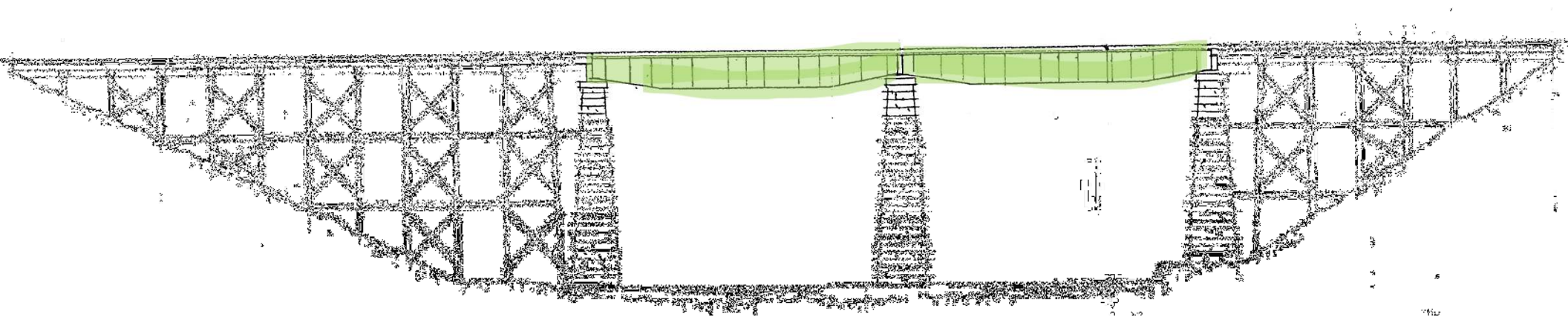
Surface coating failure



Pack rust on lateral braces



Pitting and corrosion on flanges



OBSERVATIONS: Bearing Plates

Bearing plates sit between the steel girders and the stone piers

The east and west end bearings are fixed

The central bearings are designed to slide to accommodate the expansion/contraction of the steel

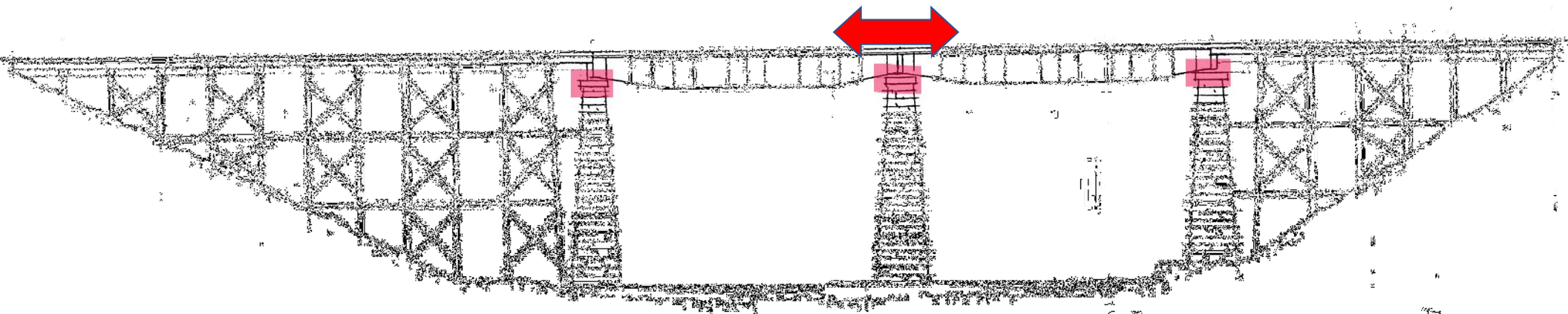
The central bearings have failed and no longer slide

This failure transfers the movement of the girders down into the piers creating a 'vertical cantilever'. Think of how a flagpole wobbles at the top while the bottom stays fixed.



Corrosion and no evidence of 'sliding' as would be expected

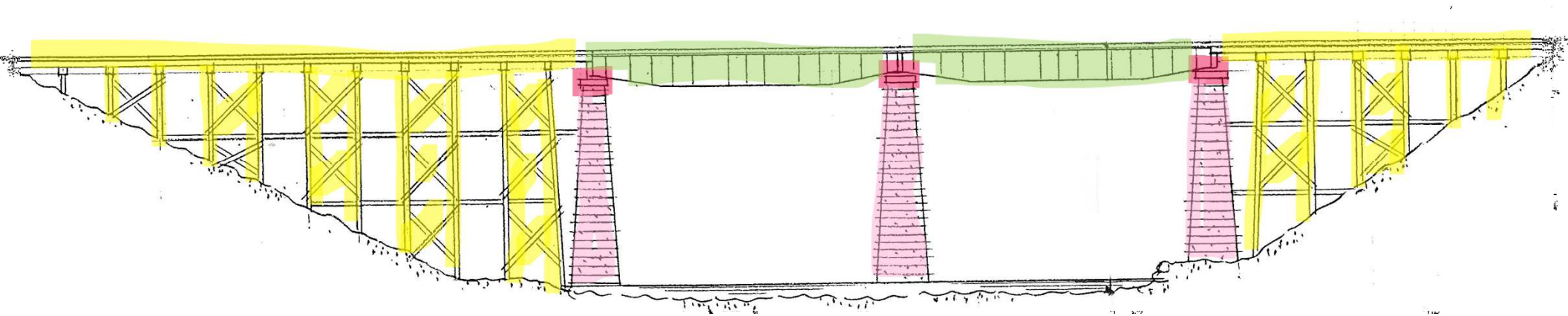
This is an issue because the piers, whose condition is also compromised, were not designed to accommodate the lengthwise and side-to-side forces.



CONCLUSIONS:

The components of the bridge that were designed to move, no longer do.

And the components that were not supposed to move, now do.



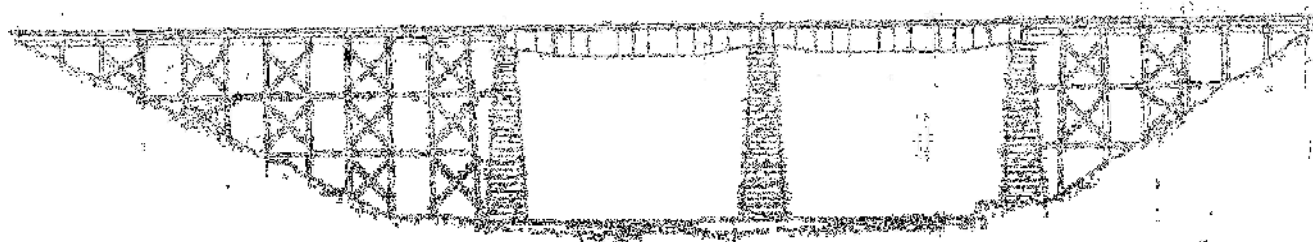
CONCLUSIONS:

Yes, the bridge used to hold up trains.

The question now is not: can the bridge support a train, ATV, bicycle, or hiker?

BUT

Can the bridge hold itself up?



CONCLUSIONS:

It is highly unlikely that the bridge will fall tomorrow, next week, or next year.

But the engineers cannot say with 100% certainty that it won't.

From the 2021 Assessment Report (page 24):

“ Since there are no definitive visible indications of imminent failure it is difficult to precisely determine when the bridge will fail. **However, has been determined that due to the observed condition of the bridge and its support components it is a certainty that the bridge is at risk of structural failure. Therefore, it is recommended that MODC to immediately remove the Gold River Multi-Use Bridge from service and close it to public access until such time that required repairs and reconstructions can be completed.** ”

[Click here to access the full report.](#)



CONCLUSION:

Based on this recommendation AND the awareness that we are approaching the cold season (steel contraction/movement + snow loads), MOC decided that the best course of action was to close the bridge to ensure public safety.



NEXT STEPS:

MOC is responsible for the management of the bridge.

The bridge is still owned by the Province of Nova Scotia.

We will now begin to explore the best and most achievable options to maintain passage over the Gold River for all users in the short-term and long-term.

Options include:

- Repair
- Reconstruction
- New construction
- Decommissioning



THE MUNICIPALITY OF
CHESTER

GOLD RIVER BRIDGE

A SUMMARY of the
FINDINGS OF THE
CONDITIONS
ASSESSMENT REPORT

BACKGROUND:

The last train crossed the bridge on September 19, 1991.

Since 2003, the bridge has supported only recreational uses.

The bridge is ~100 years old; 25-50 years beyond its intended lifespan.



BACKGROUND:

A draft condition assessment report was received by MOC on September 21, 2021.

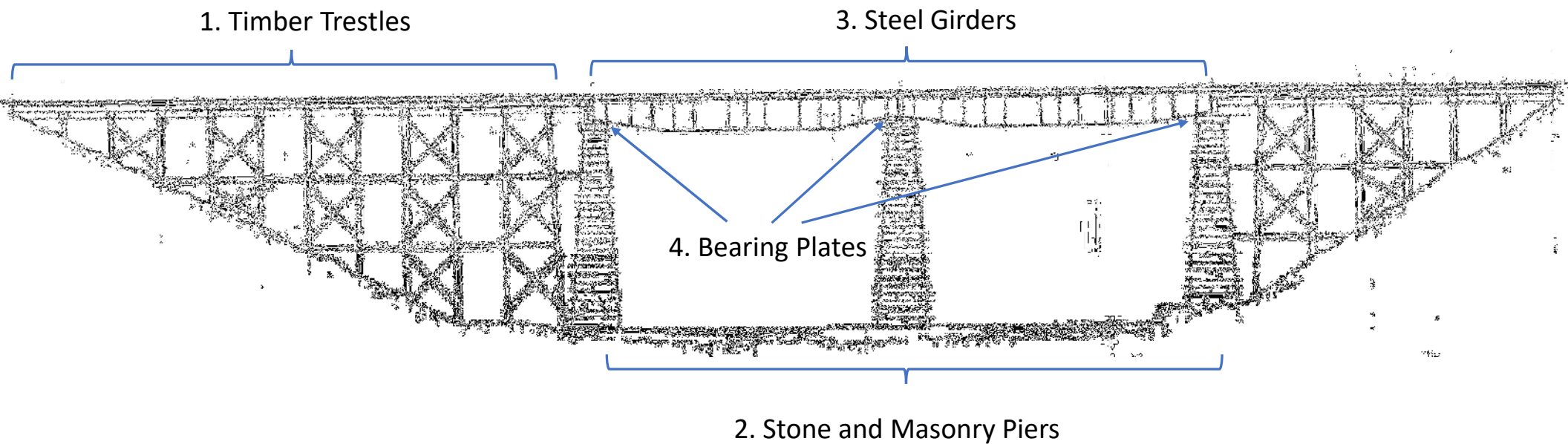
The new assessment could be compared to assessments conducted in 2001 and 2013. This allowed the engineers to determine the rate of deterioration and priority of repairs.



BACKGROUND:

There are FOUR main structural components

The strength of the bridge relies on these four systems working together



OBSERVATIONS: Timber Trestles

- The lifespan of creosote timbers is typically 50 years
- Many timbers are in very good condition. However, some have degraded rapidly in recent years due to:



Animal and insect damage



Decay



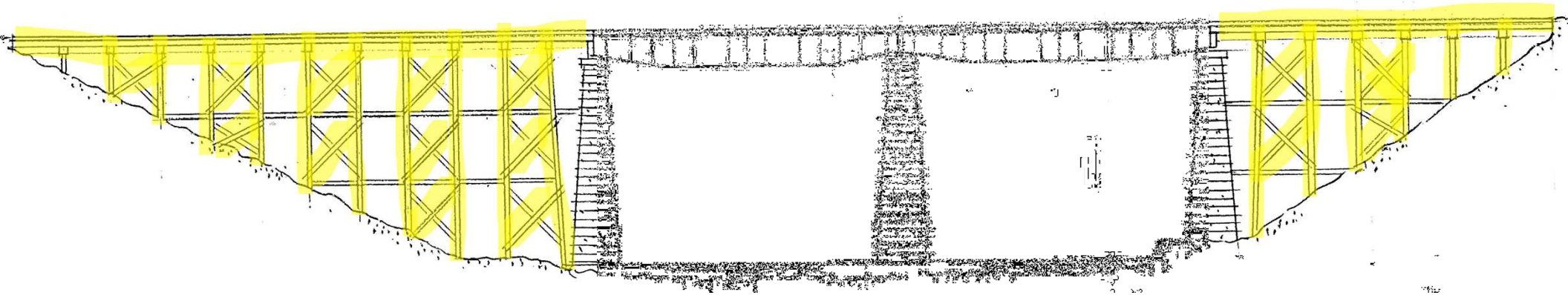
Cracked timbers



Vandalism



Rusting and missing hardware



OBSERVATIONS : Stone & Masonry Piers

Piers are intended to support downward forces

They are not intended to support lengthwise or side-to-side forces

The piers have degraded in recent years due to:



Missing masonry



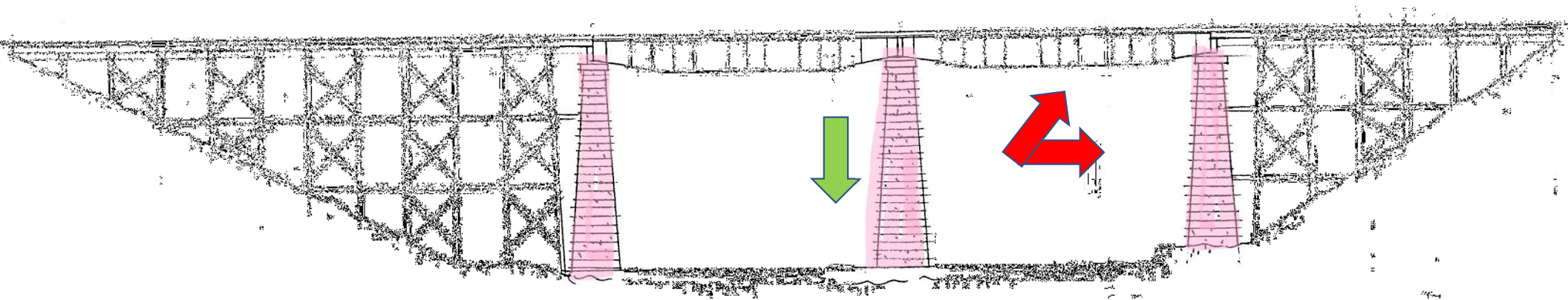
Cracking



Shifting and cracked top caps – allows water to get in



Vegetation



OBSERVATIONS: Steel Girders

Degradation has progressed in recent years due to:



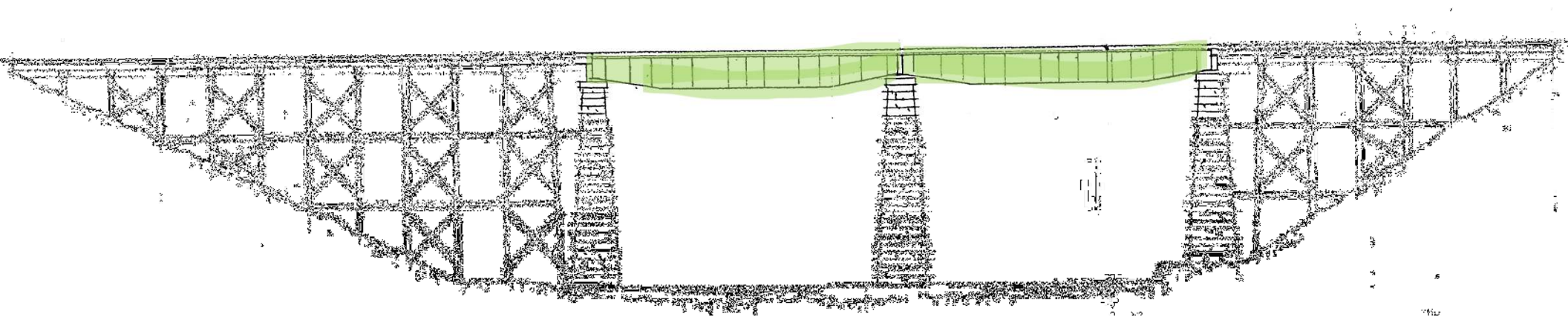
Surface coating failure



Pack rust on lateral braces



Pitting and corrosion on flanges



OBSERVATIONS: Bearing Plates

Bearing plates sit between the steel girders and the stone piers

The east and west end bearings are fixed

The central bearings are designed to slide to accommodate the expansion/contraction of the steel

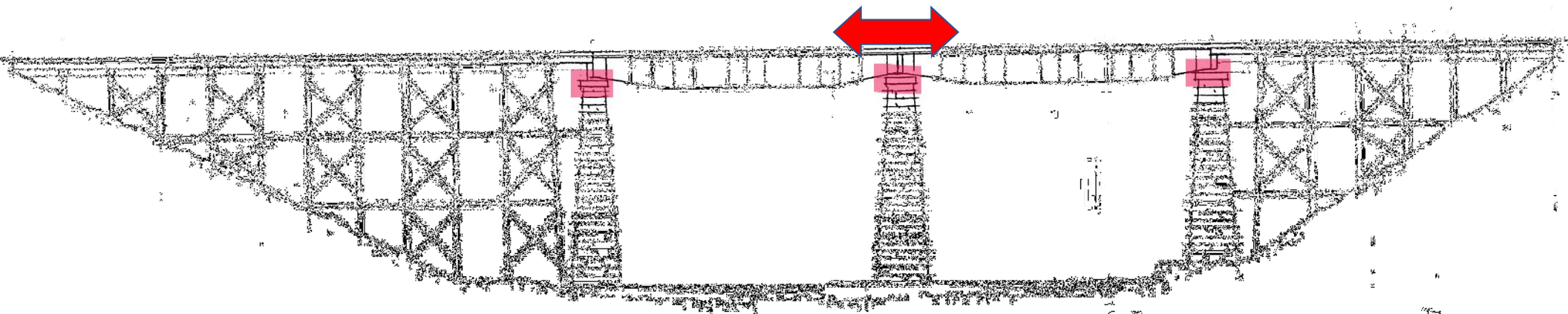
The central bearings have failed and no longer slide

This failure transfers the movement of the girders down into the piers creating a 'vertical cantilever'. Think of how a flagpole wobbles at the top while the bottom stays fixed.



Corrosion and no evidence of 'sliding' as would be expected

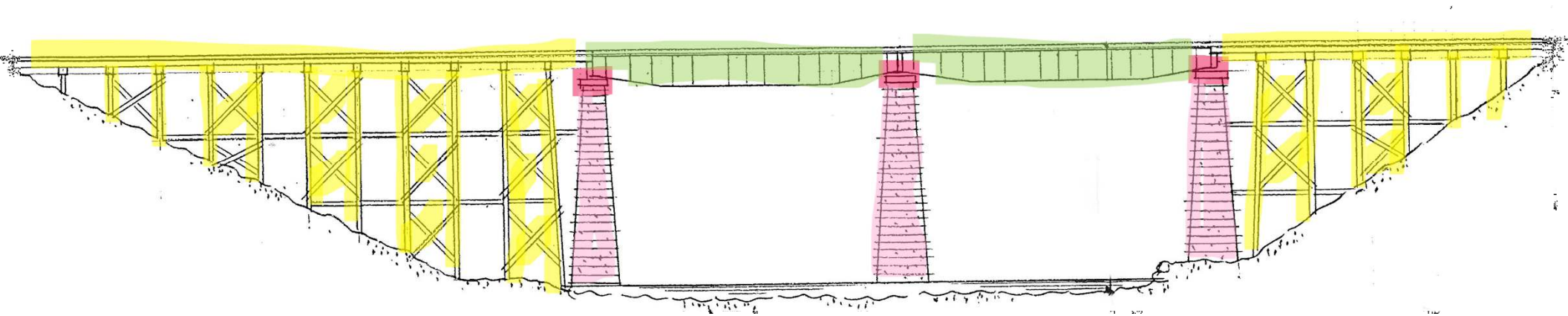
This is an issue because the piers, whose condition is also compromised, were not designed to accommodate the lengthwise and side-to-side forces.



CONCLUSIONS:

The components of the bridge that were designed to move, no longer do.

And the components that were not supposed to move, now do.



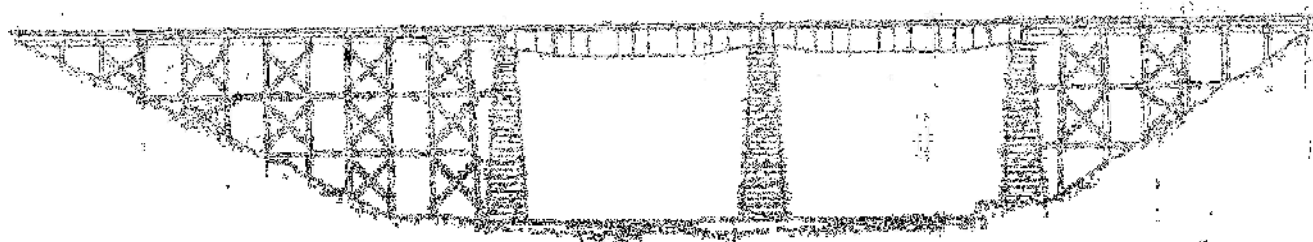
CONCLUSIONS:

Yes, the bridge used to hold up trains.

The question now is not: can the bridge support a train, ATV, bicycle, or hiker?

BUT

Can the bridge hold itself up?



CONCLUSIONS:

It is highly unlikely that the bridge will fall tomorrow, next week, or next year.

But the engineers cannot say with 100% certainty that it won't.

From the 2021 Assessment Report (page 24):

“ Since there are no definitive visible indications of imminent failure it is difficult to precisely determine when the bridge will fail. **However, has been determined that due to the observed condition of the bridge and its support components it is a certainty that the bridge is at risk of structural failure. Therefore, it is recommended that MODC to immediately remove the Gold River Multi-Use Bridge from service and close it to public access until such time that required repairs and reconstructions can be completed.** ”

[Click here to access the full report.](#)



CONCLUSION:

Based on this recommendation AND the awareness that we are approaching the cold season (steel contraction/movement + snow loads), MOC decided that the best course of action was to close the bridge to ensure public safety.



NEXT STEPS:

MOC is responsible for the management of the bridge.

The bridge is still owned by the Province of Nova Scotia.

We will now begin to explore the best and most achievable options to maintain passage over the Gold River for all users in the short-term and long-term.

Options include:

- Repair
- Reconstruction
- New construction
- Decommissioning