Structural Integrity: Silver Bridge
The Aftermath

Following in the wake of the Silver bridge disaster, one immediate legacy was that the Hi Carpenter Bridge was closed.

Jack Fowler
The sister bridge, it had to be closed because it was a similar design, the same company built it. Um, we know now that, uh, they knew there wasn't any way to inspect it and to correct any findings that they might have. So public opinion, uh, almost required that bridge to be closed to vehicular traffic.

Walter Carpenter
So I sneaked through the bars of the barrier and walked across the bridge and the people that were waiting to get some way to cross, they just followed me like little chicks following a mother hen and there were just a trail of us but after Dick asked me, he said, "Aren't you afraid to cross the bridge," just to show you how the people were affected by the falling of the Silver Bridge, that they thought that bridge could fall at any time.

Jack Fowler
I suppose a case could be made for not having closed the St Mary's bridge as soon as they did. It had different use, you know, it didn't have the traffic lights at the end, it didn't have the interstate traffic that our bridge had here, uh, the tractor trailers, all the heavy loads that it carried. There could have been means of inspecting, uh, to find if there were failure, if there was failure on the bridge, if it could be used in a different manner, but I believe that public opinion would not have accepted that, there was too much pressure because of this terrible disaster we had here, I think public opinion would have overridden whatever they may have felt.

Walter Carpenter
They couldn't get it out of their minds, the fate of this bridge was sealed. The National Transportation Safety Board had no other recourse than to say they had to condemn the bridge because they couldn't prove it was safe, and they were no doubt right in coming to that conclusion.

Narrator
So, apart from the subsequent demolition and removal of the Hi Carpenter Bridge, the Silver bridge disaster did at least have a lasting legacy in terms of bridge safety in general….

Tom Vena
When the Silver Bridge collapsed in 1967, President Johnson established National Bridge Inspection Standards, which are the guidelines that are used throughout the United States for all bridges that are inspected.
The National Bridge Inspection Standards require that every bridge be inspected on a two-year frequency, and if that bridge has any problems, it's increased to 12 months, or it could be once a month depending on how severe the problems are with that structure.

Narrator
The 3 sister bridges have already been inspected over 20 times and they will continue to be checked for safety…

Tom Vena
In the past the designers had designed this bridge to last 100 years with a factor of safety around two, and due to the heavy loads that are travelling across the bridge today, that factor of safety has probably gone down, but it's still a safe bridge to travel.

To replace these particular eyebars because they're in tension, you'd have to design another support system to support it while you're removing it. So you'd actually build some false work, it would be another bridge next to the exact same bridge that you have, and then remove that false work when you're all complete.
The different techniques that we use to inspect the steel members would be, um, non-destructive testing where we can x-ray the metal or we can use a sonogram where you use a gel over top of the metal with a sound probe.
In the near future we're going to make some minor repairs to hold us over until we have time to develop plans for a major rehab on the bridge, and that major rehab we're going to replace the deck unclear and all the steel members that are deteriorated and paint the structure over again.

Narrator
In America alone, there are over 1,000,000 bridges and thanks to Silver Bridge, they all now receive regular inspection and maintenance. In the case of the 3 sister bridges, redundancy was built-in from the outset in the form of additional eyebars, reducing the criticality of highly stressed joints.
It's just as important today for those engineers responsible for designing and maintaining bridges to be aware of the need for redundancy, where the inevitable weakest links occur in a structure. And also, knowing those weakest links, to protect them from the effects of corrosion and fatigue and thus ensure the integrity of the structure.