



# Digital Bridges: The Next Evolution of Rail Crossings

From reactive warnings to  
real-time, AI-driven systems

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*2026 National Highway*

*-Rail Grade Crossing Safety Conference  
Atlanta, GA*



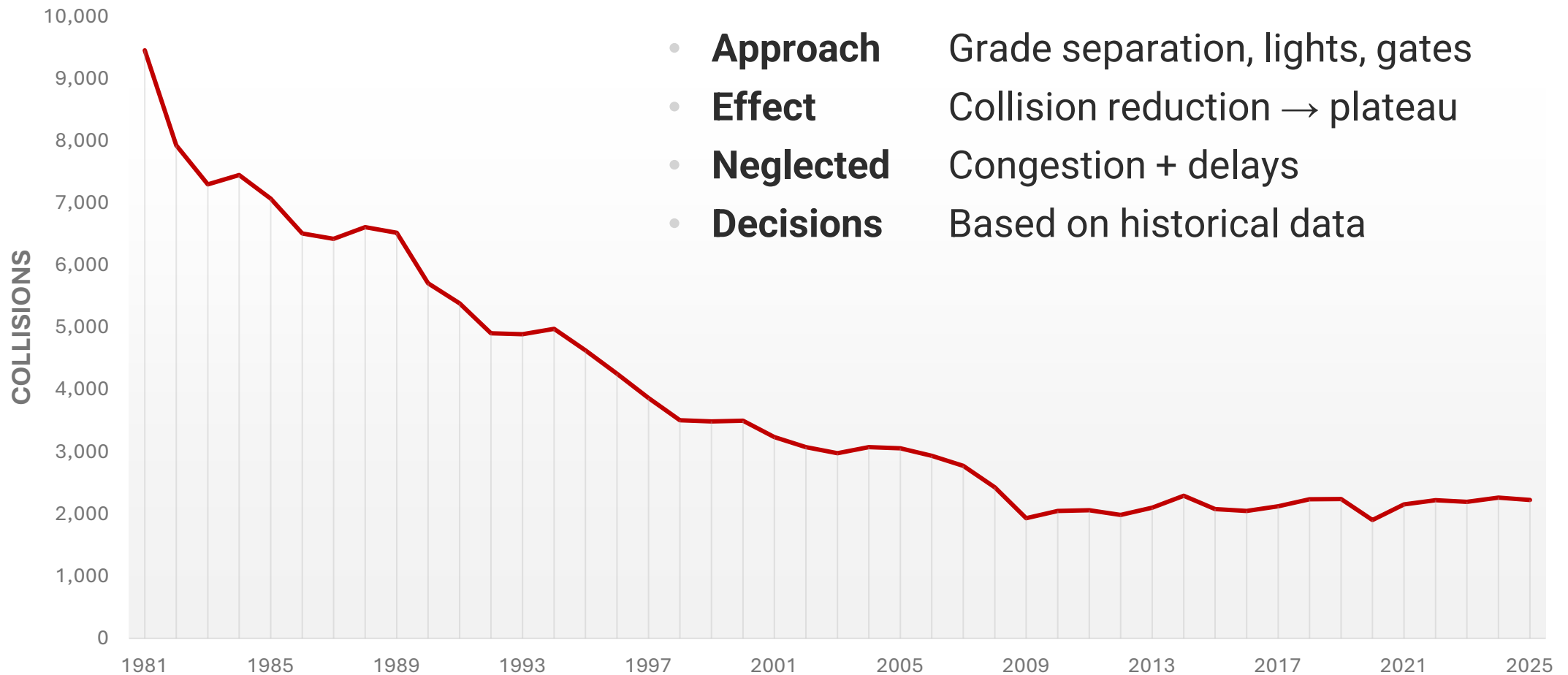
# Rail crossings are designed to answer one question



## Is a train here, right now?

- No visibility before or after
- No ability to plan or reroute
- Limited connection to broader system

# We've reached the limits of the current approach



- **Approach** Grade separation, lights, gates
- **Effect** Collision reduction → plateau
- **Neglected** Congestion + delays
- **Decisions** Based on historical data

# We face three fundamental limitations

LIMITATION #1

**Reactive  
by design**

Only tells you when  
it's too late

LIMITATION #2

**Disconnected  
from the system**

No coordination with  
traffic, routing,  
emergency response

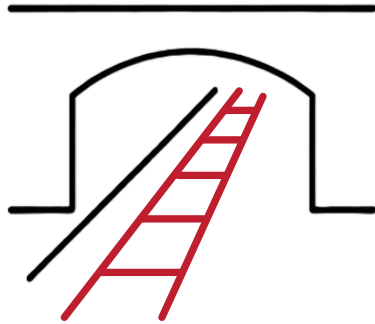
LIMITATION #3

**Stuck  
in the past**

Decisions based on  
historical data, not  
real-time conditions

# Introducing a different kind of bridge

## PHYSICAL BRIDGE



Grade  
Separation

## DIGITAL BRIDGE



Decision  
Separation

# What does a digital bridge look like?

## DETECTION

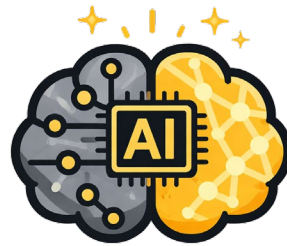
Capture real-time activity at the crossing



Sensor  
Bridge Foundation

## PREDICTION

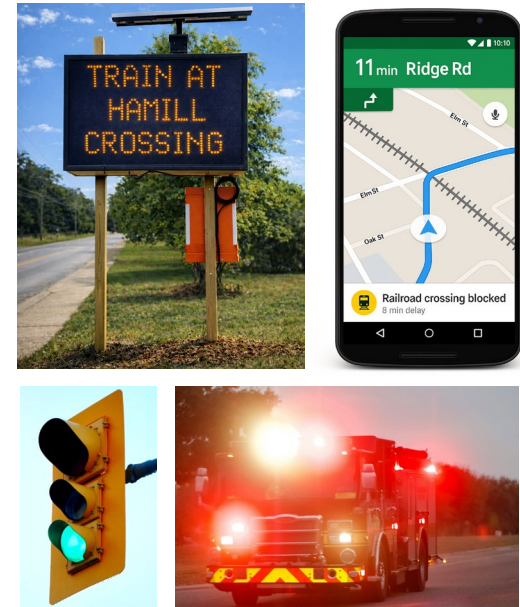
Determine what's about to happen



AI  
Bridge Structure

## INTEGRATION

Share the information across the system



Interconnections  
Bridge Deck



# Digital bridges deliver results today

**25%** fewer collisions

**30%** less congestion

**90%** less 911 delay

Deploy **thousands** of digital bridges for the cost of **one** physical bridge

# Digital bridges connect today to the future

TODAY

Disconnected



Reactive  
Uncoordinated  
Human-driven

TRANSITION

Digital Bridge



Adaptive  
Semi-coordinated  
Machine-assisted

FUTURE

Connected



Proactive  
Coordinated  
AI-driven

# Agentic AI has arrived



- From **weeks** of analysis → to **instant** diagnosis
- From **manual** studies → to **AI-generated** engineering solutions
- From **dashboards** → to **natural-language** answers
- From **historical** data → to **real-time** system intelligence

RAIL CROSSING  
Warning

REAL-TIME  
Data

REAL-TIME  
Information

REAL-TIME  
Intelligence

AUTOMATED  
Decisions

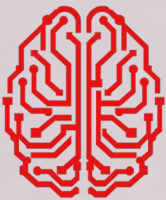
# Digital bridges: the next evolution at rail crossings



Improve safety –  
without waiting for  
grade separation



Reduce congestion  
and delays across  
entire networks



Deliver real-time  
visibility into crossing  
performance



Extend impact across  
thousands of crossings  
– not just one

# See digital bridges in action

- How digital bridges work in real-world deployments
- How agencies are reducing collisions, congestion, and delays
- How to secure federal funding for your projects
- The first live AI agent for rail crossings



Come see us at our booth