

Solutions to Safety and Congestion Issues at Highway-Rail Grade Crossings

2007 Missouri Transportation Research Forum

April 17, 2007



Background

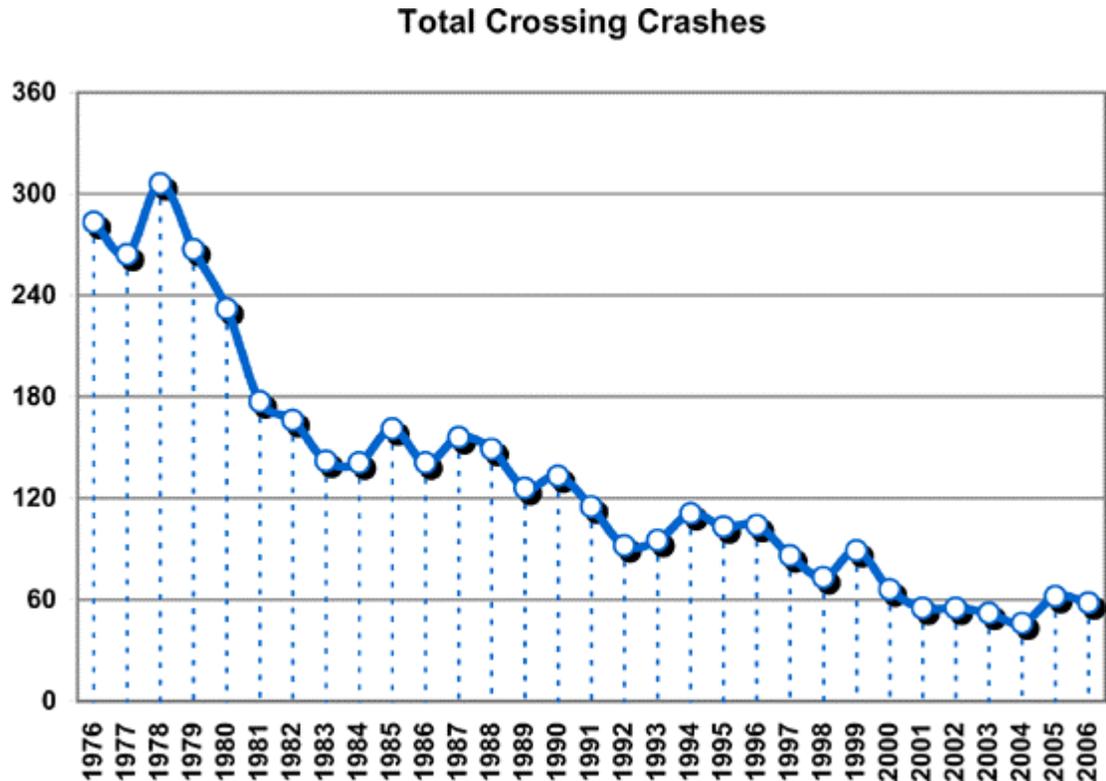


- Nationwide, a collision occurs between a train and vehicle or a train and a pedestrian approximately every 2 hours
- In Missouri there are approximately 4,000 public highway/rail crossings and 3,000 private roadway/rail crossings
- There are only about 1,630 public highway/rail crossings in Missouri equipped with active warning devices (lights and/or gates), which equates to approximately forty-two percent of all public crossings

Safety Progress

Since the implementation of the Missouri Highway/Rail Crossing Safety Program in 1976:

- Collisions have been reduced by 81 percent
- Fatalities have been reduced by 76 percent
- Injuries have been reduced by 83 percent



Source: Operation Lifesaver and the Missouri Department of Transportation

Basic Safety Devices

Advance Warning



Pavement
Marking



Crossbucks



Flashing Lights



Automatic Gates



- Primarily funded through Federal Section 130 funds
- In Missouri, there is a Grade Crossing Safety Account funded by vehicle registrations
- Nationwide evaluations of safety improvements made under Section 130 indicate that it has helped prevent over 10,500 fatalities and 51,000 nonfatal injuries

Possible Solutions

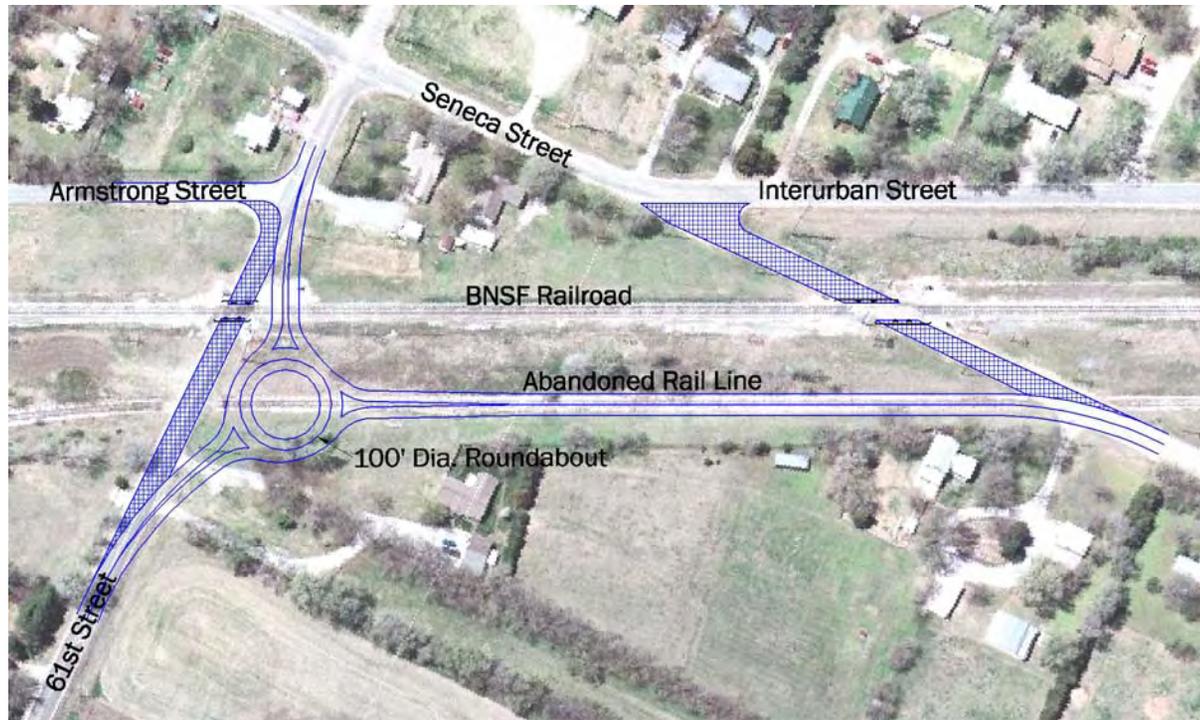
- Crossing Condition
- Quiet Zones
- Land Use Planning
- Crossing Consolidation
- Turn Lane Extension
- Grade Separation
- Crossing Geometry
- Crossing Approach Improvements

Crossing Consolidation



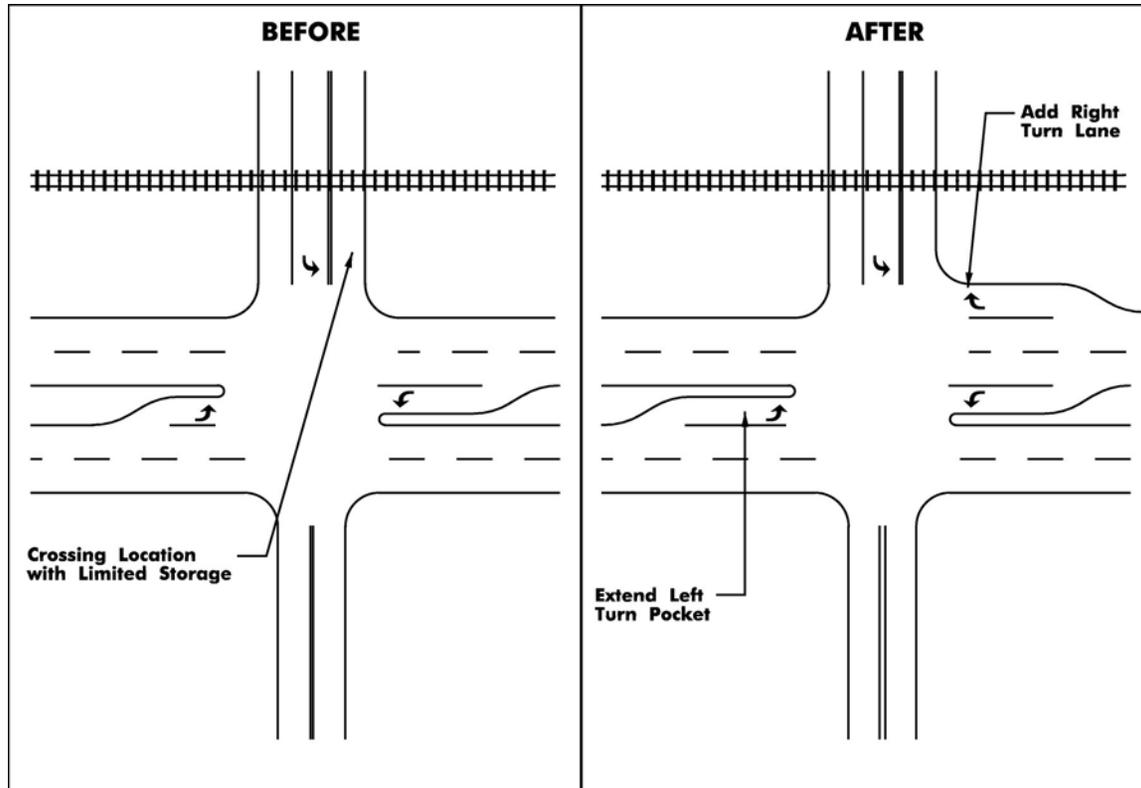
- The consolidation or closure of redundant grade crossings is a safe and reasonably cost-effective alternative to decrease exposure at the crossing by eliminating the grade crossing altogether

Crossing Consolidation



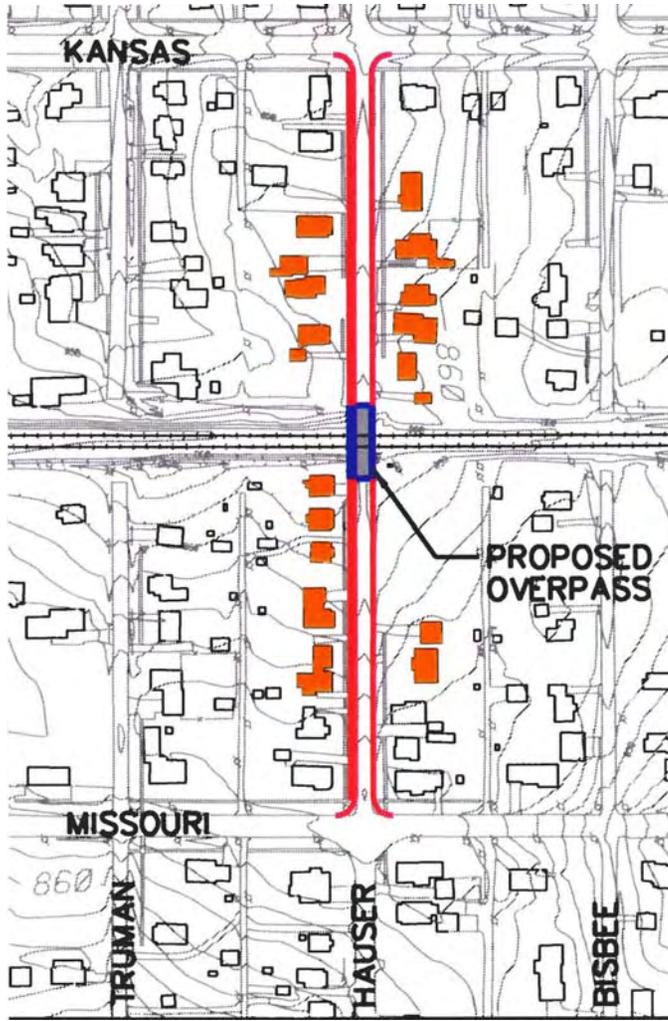
- When a railroad diagonally crosses two intersecting section line roads, it is possible that the crossings could be combined

Turn Lane Extensions



- A left-turn lane should be of adequate length to provide vehicular storage for those vehicles turning left without overflowing into an adjacent through-lane. When left-turning vehicles overflow into the through-lane, through traffic is forced to stop or change lanes. This is escalated further when the intersection is located parallel to railroad tracks.

Grade Separation: Roadway Over Rail

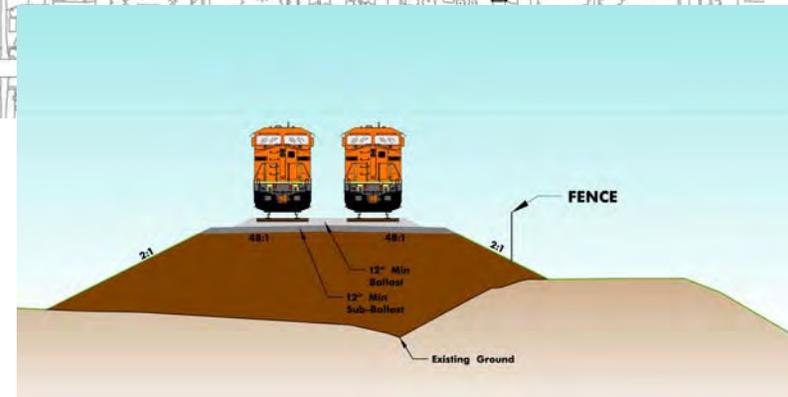


- Completely eliminates interaction between trains and vehicles reducing congestion and improving safety
- High Cost, Potentially High Property Impacts

Grade Separation: Rail over Roadway



- Railroad is elevated to provide grade separations with roadway under
- High Cost, Typically railroads have a wide right-of-way to use for horizontal realignment



Where to Start

➤ Local or Regional Planning Process

- Evaluate grade crossings to understand what is happening in your community

➤ Work in partnership with the DOT and Railroads

➤ Be Proactive

- When designing a capacity improvement or completing a major street plan consider highway-rail grade crossing safety from the start

➤ Don't forget Education and Enforcement

- Operational Lifesaver
- Positive Enforcement Campaigns by local and state police