

Using *Railroad-DOT Mitigation Strategies* SHRP2 Case Study



Photos courtesy: Arkansas State Highway & Transportation Department, Missouri DOT, Oregon DOT, and FHWA

Leveraging Section 130 Funding through *Railroad-DOT Mitigation Strategies (R16)*

Improving Railroad Crossing Safety Using Section 130 Funds and SHRP2 Strategies

Each year construction of hundreds of public agency highway projects cross over, under, or parallel to railroad rights-of-way, requiring extended coordination among state and local departments of transportation (DOTs) and railroads. Although most projects go smoothly, delays in development or construction do occur. Railroads must carefully evaluate public transportation agency projects in terms of safety, engineering, and operational impacts both during construction and for decades later. For the public agencies, delays during railroad reviews and agreements can increase project costs and extend renewal needs for users.

A key responsibility of both transportation agencies and railroads is to ensure safety at grade crossings. The Railway-Highway Crossings (Section 130) Program, administered by the Federal Highway Administration (FHWA), provides funds to state DOTs to eliminate hazards at railway-highway crossings. This program has led to significant decreases in fatalities at the tens of thousands of railway-highway grade crossings across the country.

This case study looks at how the state of Michigan uses the strategies embedded in the SHRP2 product, *Railroad-DOT Mitigation Strategies (R16)*, to successfully implement the Section 130 program, and provides a brief program description and the latest information from the FHWA on its administration.

What are *Railroad-DOT Mitigation Strategies (R16)*?

Thousands of highway projects intersect with railroad crossings. By using the tools included in *Railroad-DOT Mitigation Strategies (R16)*, public agencies and railroads can identify and work through possible sources of conflict and develop agreements to advance these projects in a timely manner.

This product includes a collection of railroad-DOT model agreements, sample contracts, an innovation library with examples from state departments of transportation and several Class 1 railroads, manuals, and standardized best practices.

This product uses a collaborative approach and identifies strategies in seven areas to improve performance. They include strategies to:

- Improve coordination
- Improve the project delivery process
- Streamline the process of reviewing and signing agreements
- Improve flagging
- Improve grade crossing safety and funding of crossing projects
- Improve training and knowledge transfer
- Improve administration processes

A Brief Look at the Section 130 Program

Section 130 funds are a set-aside from a state's Highway Safety Improvement Program (HSIP) and can be used at any public railway-highway grade crossing or railway-bike/pedestrian crossing. Using a hazard index showing where significant accidents or other related incidents occur, state DOTs identify specific railroad crossings that may require separation, relocation, or protective devices, and then establish and implement a schedule of projects to address these issues. Since funding is limited, state DOTs focus on projects with the highest priority.

The *Fixing America's Surface Transportation (FAST) Act* increased Section 130 funding by \$5 million a year. Now projects that eliminate hazards from crossings blocked due to idling trains are eligible for funding. In addition, states can use Section 130 funding to develop or update their State Grade Crossing Action Plans.

How *Railroad-DOT Mitigation Strategies* Can Improve a State's Program – Michigan's Experience

As part of the SHRP2 implementation of *Railroad-DOT Mitigation Strategies*, a Community of Interest (COI) was formed to share information, strategies, innovations, and best practices. Made up of 20 states and five railroads, FHWA, the Federal Railroad Administration (FRA), and the American Association of State Highway and Transportation Officials (AASHTO), the COI has met in person and through webinars to discuss how to improve Section 130 processes.

In these discussions, it became clear that by using many of the strategies embedded in the SHRP2 product, state and local DOTs can manage the Section 130 process more efficiently. The collection of model agreements, sample contracts, innovation library, and standardized best practices developed through SHRP2 such as memorandums of understanding (MOUs) enable both public agencies and railroads to identify and mitigate sources of conflict, and to advance projects efficiently.

The Michigan DOT oversees about 4,600 public crossings located on 3,600 miles of active track, with roughly 550 miles of track under state ownership. The state works on crossing issues with three Class 1 railroads (Norfolk Southern, CSX, and Canadian National), 25 short lines, and 350 local road agencies. At a recent webinar, Kris Foondle, Local Crossing Project Manager for Michigan's Office of Rail, provided key strategies that have enabled the state to use 100 percent of its Section 130 funding each year.

The state has a clearly defined project review and approval process that includes standardized request forms, cost reviews, and project-specific templates for subcontractors. In addition, it provides guidance documents and references for utility coordination, and includes specific compliance details in its master

Generally, Section 130 funds can be used for:

- Preliminary engineering, design, right-of-way, and construction costs
- Matching funds for a local agency on state-funded projects
- Incentive payments to local agencies to close a public crossing
- Data collection for a state's reporting requirements
- Developing a State Action Plan as required under the FAST-Act

Section 130 funds cannot be used for:

- Prevention of pedestrian trespassing away from a grade crossing, such as constructing fencing along a railroad right-of-way
- New grade crossing on a new railway or roadway. Section 130 can only be used for the elimination of hazards. A new crossing is not eliminating a hazard, nor does it address a highway safety problem.
- Automated enforcement such as cameras
- Quiet zones (QZ)

agreements. Foondle reported that the upfront analysis and selection process is critical, as is early and frequent communication and engagement with the various railroads in the state.

Michigan state law defines the project selection process, conducted through a Diagnostic Study Team review. This review can be convened either as part of a road project or Section 130 project and can include scoping meetings for property management or track relocations. The process also outlines project schedules and funding requirements.

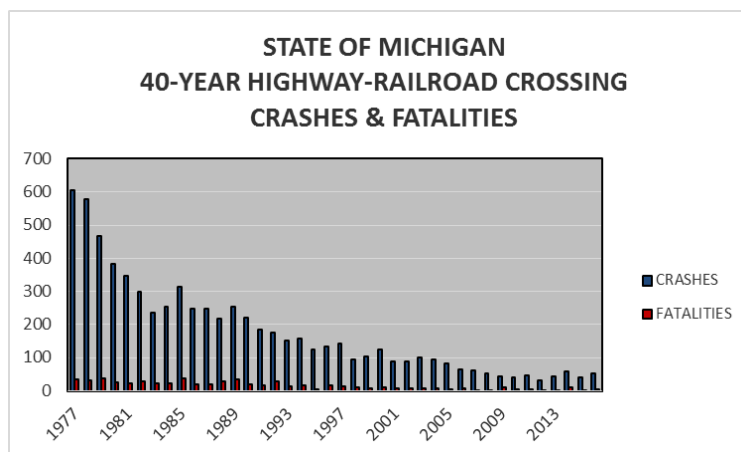
In addition, Michigan's Section 130 process enables the railroad's train crews to notice and report anything unusual and potentially hazardous to the DOT. The state also works closely with localities and offers incentives to local authorities to close railroad crossings wherever possible, given that roughly 4,400 of the state's 4,600 crossings are on roads for which local transportation agencies are responsible.

The state also holds an annual rail conference that offers new staff the opportunity to meet their railroad partners face-to-face. Whenever a new railroad public project engineer is identified, the state holds a meeting with the railroad to ensure that all parties are familiar with their processes. Michigan also has an in-house Railroad Project Management System that allows users to track and move projects through the entire process, allowing electronic sign offs as needed.



Michigan Grade Crossing

Photo courtesy Kris Foondle, Michigan DOT



Michigan has seen major benefits result from this coordinated approach. Foondle reported that a majority of projects are authorized within 4-to-6 weeks of receiving a railroad estimate, and most projects are delivered within 12-to-18 months of the original order date. A majority of crossings now have active warning systems and, most importantly, Michigan has seen a 90 percent reduction in crashes and fatalities in the 40 years since

Section 130 has been used in the state.

Key Strategies to Consider for Your Section 130 Program

In summary, state DOTs and their railroad counterparts may want to consider several key strategies to improve their project delivery. These are imbedded in the *Railroad-DOT Mitigation Strategies* product. More information, including draft agreements can be found at:

http://shrp2.transportation.org/Pages/R16_RailroadDOTMitigationStrategies.aspx

Key strategies include the following:

- Begin to coordinate at the project concept or early planning stage, particularly for any project that may create horizontal or vertical constraints on the railroad right-of-way or that may be contemplated to interfere even briefly with train operations.

- Have one DOT and railroad central point of contact empowered to coordinate highway and railroad project issues. With them, establish ongoing formal communication channels between the highway agency and the railroad.
- Use standard designs and legal agreements whenever possible.
- Adopt master agreements in which both parties agree to standard provisions within all projects to streamline the project agreement process. Any preliminary engineering agreements and formal agreements should allow railroads to be compensated for engineering advice provided during preliminary development—even if a project is not eventually constructed.
- If a project is delayed for any reason, basic assumptions should be reviewed after initial coordination to ensure that conditions or railroad activities haven't changed.
- Schedule regular review meetings in which both sides review successes and issues; hold preconstruction meetings so that the contractors, highway agencies, utilities, and railroads have common expectations for the construction project.
- Conduct formal crossing diagnostics on an annual basis with DOT, regulators, and railroad personnel. Do not program a crossing project without a formal diagnostic study.
- Conduct safety-related communications and outreach to communities.
- Replace at-grade crossings with grade-separation structures; close crossings where appropriate.
- Consider developing a memorandum of understanding that will address programming crossings across an entire corridor.
- Simplify administrative processes, such as payment by lump-sum amounts to the railroad for reconstructing the grade crossing, to minimize administrative costs and expedite agreement processing and project delivery.
- Adopt standard billing agreements that reduce the administrative costs for railroads and highway agencies.
- Improve data collection and storage related to railroad crossings and other grade-separated projects.
- Develop or use electronic agreement processing whenever possible to keep all parties informed and updated on upcoming activities. The electronic workflow can also expedite the processing of agreements.
- Develop a railroad project development guide and/or manual specifically for Section 130 programs, as well as a related training program for project managers and others engaged on a regular basis with railroads or DOTs.

A new guide with best practices has just been published by the FHWA. [The Highway-Grade Crossing Action Plan and Project Prioritization Noteworthy Practices](#) contains a model state action plan, identifies solutions for improving safety at crossings, and references several noteworthy practices used by states.

FHWA's Office of Safety

At both a June 2017 COI webinar and a meeting in February 2017, Kelly Morton, transportation specialist in the FHWA Office of Safety, provided COI members with an in-depth look at the Section 130 program

and answered some key concerns raised by them. She affirmed that the FAST Act now allows states to use Section 130 funding to eliminate hazards caused by idling trains.

Morton also clarified a number of issues for COI members during the webinar. They included:

- **Use of funding to address utilities at crossings:** If the activity is directly related to a Section 130 project that has specific rail safety improvements and requires right-of-way or relocating utilities, Section 130 funds could be used.
- **Use of funding to address rail corridors:** Section 130 does not fund corridor projects. The purpose of the Section 130 program is to eliminate hazards at grade crossings. If there are multiple crossings in a corridor, each crossing should be considered and evaluated separately according to the State's Section 130 program requirements and hazard index criteria.
- **Use of funding for light rail crossings:** Section 130 may not generally be used for light rail, streetcars or trolley lines unless it is a specific designated right-of-way.
- **Use of funds on non-federal aid highways or other intersections with railroads:** Any public crossing is eligible for Section 130 funds, including public pathways and public bike trails if it is a public crossing with a railroad – it does not have to be a highway.
- **Use of traffic management plans for Section 130:** A traffic management plan (TMP) is typically required, and would be generated as part of the planning and construction process according to general federal-aid requirements.



Train idling at crossing

Photo courtesy FHWA

More information and copies of a FHWA presentation on the Section 130 program can be found at: http://shrp2.transportation.org/documents/R16_COI_Section_130_Overview.pdf.

For more Information:

To learn more about *Railroad-DOT Mitigation Strategies* (R16), contact Joe Taylor at FHWA, joseph.taylor@dot.gov; or Kate Kurgan at AASHTO, kkurgan@aaashto.org; or Pam Hutton at AASHTO, phutton@aaashto.org.

[FHWA GoSHRP2 Railroad-DOT Mitigation Strategies \(R16\) Webpage:](#)

FHWA's product page includes presentations from various workshops, links to source documents, and a map showing which states are participating in the IAP program to implement *Railroad-DOT Mitigation Strategies* (R16).

[AASHTO SHRP2 Railroad-DOT Mitigation Strategies \(R16\) Webpage:](#)

AASHTO's product page offers case studies, training modules, presentations, factsheets, reference documents, and innovation library, and a list of other states implementing the R16 product.

Other References

- FHWA Rail-Highway Crossings Program (Section 130) Website
<https://safety.fhwa.dot.gov/hsip/xings/>
- FHWA Railroad-Highway Grade Crossing Handbook
www.fhwa.dot.gov/about/field.cfm
- FRA Railroad Crossing Safety & Trespass Prevention
www.fra.dot.gov/Page/P0841
- 23 USC 130
<https://www.gpo.gov/fdsys/pkg/USCODE-2015-title23/pdf/USCODE-2015-title23-chap1-sec130.pdf>
- FAST Act Apportionments
www.fhwa.dot.gov/fastact/funding.cfm
- FHWA Railway-Highway Crossings Program Reporting Guidance
www.fhwa.dot.gov/map21/guidance/guiderhcp.cfm
- Rail-Highway Crossings Program (Section 130) Questions & Answers
https://safety.fhwa.dot.gov/legislationandpolicy/fast/xing_qa.cfm
- Federal-Aid Essentials for Local Public Agencies
www.fhwa.dot.gov/federal-aidessentials/
- SHRP2 Railroad-DOT Mitigation Strategies Webpages
http://www.fhwa.dot.gov/goshrp2/Solutions/Renewal/R16/RailroadDOT_Mitigation_Strategies
- AASHTO SHRP2 *Railroad-DOT Mitigation Strategies* Product Webpage
http://shrp2.transportation.org/Pages/R16_RailroadDOTMitigationStrategies.aspx
- The Transportation Research Board's R16 research report, *Strategies for Improving the Project Agreement Process Between Highway Agencies and Railroads*, outlines recommended practices and offers eight different model documents to expedite negotiations.
- EDC-3 Improving DOT and Railroad Coordination (SHRP2 Railroad-DOT Mitigation Strategies)
<http://www.fhwa.dot.gov/everydaycounts/edc-3/coordination.cfm>