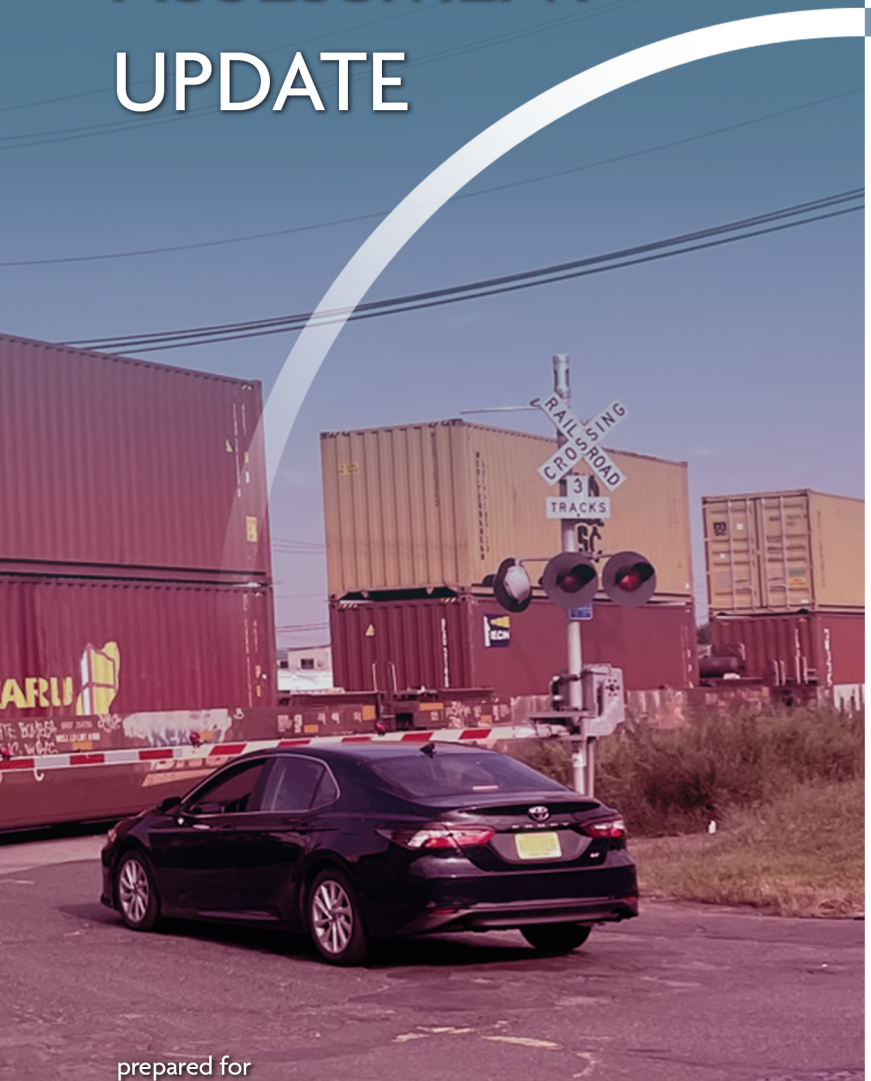
FREIGHT RAIL GRADE CROSSING ASSESSMENT UPDATE

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY



prepared for
North Jersey Transportation Planning Authority

prepared by
Cambridge Systematics, Inc.

with
Jacobs Solutions Inc.
BJH Advisors, LLC
AmerCom Corporation

June 30, 2023

Disclaimer

This report has been prepared by the North Jersey Transportation Planning Authority (NJTPA) with financing by the Federal Transit Administration and the Federal Highway Administration of the U.S. Department of Transportation. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The NJTPA is solely responsible for its contents.

About the NJTPA

The North Jersey Transportation Planning Authority (NJTPA) is the federally authorized Metropolitan Planning Organization (MPO) for the 13-county northern New Jersey region, home to 7 million people. It evaluates and approves transportation improvement projects, provides a forum for cooperative transportation planning, sponsors and conducts studies, assists county and city planning agencies and monitors compliance with air quality goals.

The NJTPA Board includes 15 local elected officials representing 13 counties—Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren—and the cities of Newark and Jersey City. The Board also includes a Governor's Representative, the Commissioner of the New Jersey Department of Transportation (NJDOT), the Executive Director of NJ TRANSIT, the Chairman of the Port Authority of New York & New Jersey and a Citizen's Representative appointed by the Governor.

List of Acronyms

AADT	Average Annual Daily Traffic
CR	Conrail
CSX	CSX Transportation
DOT	Department of Transportation
EPA	Environmental Protection Agency (U.S.)
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
GIS	Geographic Information Systems
GPS	Global Positioning System
HazMat	Hazardous Materials
IIJA	Infrastructure Investment and Jobs Act
LEP	Low English Proficiency
MPO	Metropolitan Planning Organization
NJDOT	New Jersey Department of Transportation
NJGIN	New Jersey Geographic Information Network
NJRTM-E	North Jersey Regional Transportation Model-Enhanced
NJTPA	North Jersey Transportation Planning Authority
NS	Norfolk Southern
OBC	Over-Burdened Communities
PM	Particulate Matter
SAP	State Action Plan

TAC	Technical Advisory Committee
Twp.	Township
USDOT	United States Department of Transportation

Table of Contents

List of Tables

List of Figures

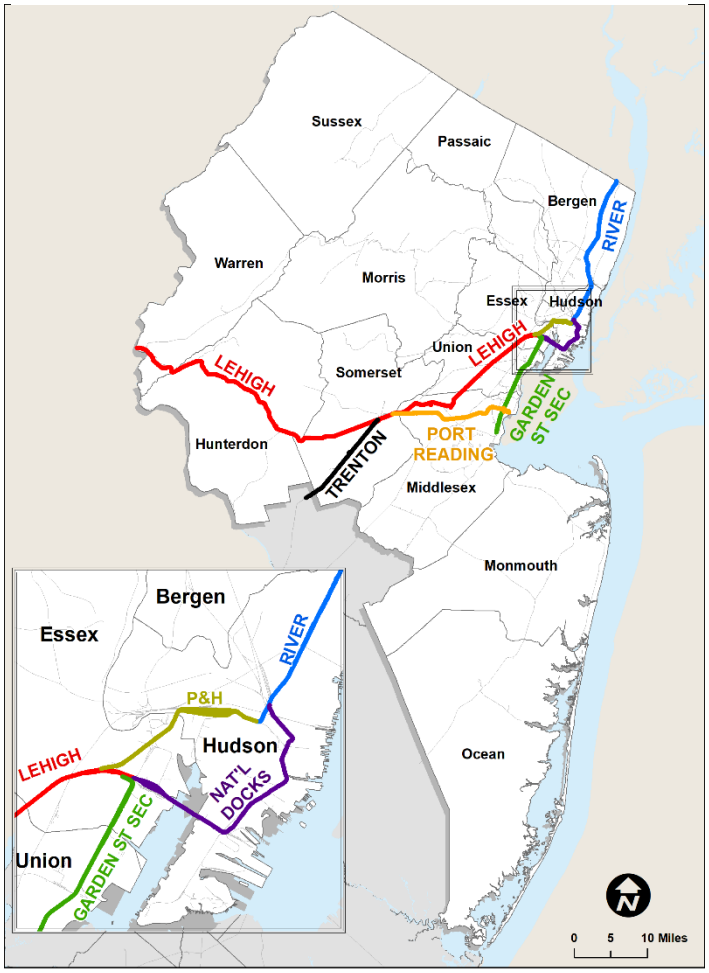
Executive Summary

In 2008, the North Jersey Transportation Planning Authority (NJTPA) completed an assessment of road-rail grade crossings along the busiest freight rail corridors in the region. The study assessed safety and quality of life impacts and prioritized crossings for improvements to reduce the negative impacts.

Since the completion of the 2008 Study, some of the crossings have been improved, and major capital investments to eliminate some problematic grade crossings are advancing toward implementation.[1] At the same time, rail traffic volumes have increased, railroads have been changing their operations and scheduling in recent years to generally operating longer trains in many areas, motor vehicle traffic volumes have increased in some locations and shifted in others, population has increased in many urban communities, and increased emphasis on equity in the transportation planning discipline are all factors that necessitate a re-evaluation of the impacts of rail grade crossings in communities across the region.

The Freight Rail Grade Crossing Assessment Update Study employed more recent data and tools to document the current conditions and operations of at-grade crossings along the major freight rail lines in the NJTPA region. These lines include the Conrail and Norfolk Southern portions of the Lehigh Line, CSX River Line, CSX Trenton Subdivision, Conrail Port Reading Secondary, Conrail Garden State Secondary, Conrail National Docks Secondary, and Conrail Passaic and Harsimus Branch. The Study also adjusted and enhanced evaluation criteria used to score and prioritize the grade crossings in terms of planning needs that account for a broader range of community and equity impacts. The Study developed recommendations for addressing issues at the top 10 grade crossings, and provided

Figure ES.1 Map of Study Area Rail Lines



[1] " Port Reading Secondary South Main Street Grade Crossing Elimination Project," NJTPA and Somerset County, available from: https://www.southmainstreetgradecrossing.com/ (accessed May 9, 2023).

key inputs to new and forthcoming planning tools to be developed by the NJTPA.

Key highlights of the methodological approach include:

- Gathering secondary data from the Federal Railroad Administration's Grade Crossing Inventory database, NJDOT's grade crossing inspection reports, and operations information from the railroads;
- Collecting in-the-field primary data via site visits and photography of all 65 crossings in the study area and 24-hour video monitoring at 12 representative crossing locations to observe road and rail operations, crossing activations, duration of closures, traffic impacts, and motorist, pedestrian, and cyclist behaviors;
- Updating and enhancing the evaluation criteria used in the 2008 study to account for current needs and priorities, and to leverage best practices used in other states and regions;
- Developing a list of Top Ten crossings listed in Table ES.1.

Table ES.1 Top Ten Grade Crossings

Rank	Crossing Name	Line	Municipality	County
1	Columbia Ave	CSX River Line	Dumont	Bergen
2	West Madison Ave	CSX River Line	Dumont	Bergen
3	Old Hook Rd	CSX River Line	Closter	Bergen
4	Inman Ave	Conrail Lehigh Line	Edison	Middlesex
5	Bergen Turnpike	CSX River Line	Ridgefield Park	Bergen
6	West Clinton Ave	CSX River Line	Bergenfield	Bergen
7	New Market Rd	Conrail Lehigh Line	Piscataway	Middlesex
8	Rahway Ave	Conrail Lehigh Line	Westfield	Union
9	Stelton Rd	Conrail Port Reading Sec	Piscataway	Middlesex
10	South Main St	Conrail Port Reading Sec	Bound Brook	Somerset

- Conducting a scan of best practices to identify strategies that address key issues and needs identified at the Top Ten crossings;

- Producing one-page profiles summarizing the existing conditions, key issues, and potential strategies at each of the Top Ten crossings;
- Producing two-page summaries of each of the 17 strategies identified in the study to describe the strategies, their respective objectives, and examples of implementation. These two-page summaries will be used by the NJTPA's Central Staff to seed a rail component of the NJTPA's Goods Movement Strategies for Communities Tool;
- Producing a geodatabase containing data and links to photographs for each crossing in the study area.
- Engaging a variety of stakeholders, including the study's Technical Advisory Committee, which consists of NJTPA Central Staff, NJDOT, and representatives from the counties of Bergen, Hudson, Hunterdon, Middlesex, Somerset, and Warren; the counties and municipalities where the Top Ten grade crossings are located; and the three railroads—Conrail, CSX, and Norfolk Southern. The stakeholder engagement helped the project team to gather and validate data, and review and validate the findings of the study's analysis.

1.0 Introduction

Road-rail grade crossings present a unique intersection of two or more transportation modes with vastly different physical and operational characteristics—trains and motor vehicles/pedestrians/bicyclists. As a result, safety at these intersections is of paramount concern. In the U.S., fatalities at public grade crossings have decreased 84 percent from 1975 to 2020, while at the same time, trespassing fatalities at crossings have risen 18 percent. Much of the success of the strong decrease in fatalities at grade crossings can be attributed to the Railroad Safety Act of 1970 which resulted in a study to eliminate and protect grade crossings. Since 1974, the Railway-Highway Crossings Program (Section 130) has provided funds for the elimination of hazards at railway-highway crossings. The increase in trespassing fatalities at grade crossings highlights the need to address safety issues at active crossings related to human behavior and expand safety programs beyond the installation of active warning devices or upgrades.

In 2008, the Railroad Safety Improvement Act required 10 States with the highest reported accident rates to develop State Action Plans (SAP). In 2015, the Fixing America's Surface Transportation (FAST) Act required the Federal Railroad Administration (FRA) to issue rules to the other 40 States and the District of Columbia to complete SAPs as well. In 2019, FRA issued a Notice of Proposed Rulemaking and in December 2020, FRA issued §234.11, the Rule for State Highway Rail Grade Crossing Action Plans. These plans were due to FRA by February 14, 2022.

In addition to safety concerns and planning requirements, grade crossings, and the rail traffic that passes through them, can generate other external impacts on adjacent communities. The noise associated with locomotive horns; intermittent mobility and accessibility limitations when grade crossings are closed to automobile, bus, bicycle, and pedestrian traffic; and the emissions from queuing highway traffic as well as diesel locomotives can have substantial negative effects on many communities. This is particularly the case in urban areas, where the population residing and/or working in close proximity to crossings can be relatively large.

These issues and concerns are not new. In 2008, the NJTPA completed the Freight Rail Grade Crossing Assessment Study that evaluated the safety and quality of life impacts of grade crossings along the region's major freight rail lines. The study assessed the impacts and prioritized crossings for improvements to reduce the negative impacts.

Since the completion of the 2008 Study, some of the crossings have been improved. Yet, rail traffic volumes have increased, railroads have been changing their operations and scheduling in recent years to generally operating with a similar train frequency but far longer trains in many areas, motor vehicle traffic volumes have increased in some locations and shifted in others, population has increased in many urban communities, and increased emphasis on equity in the transportation planning discipline are all factors that necessitate a re-evaluation of the impacts that rail grade crossings have in communities across the region. Additionally, freight rail traffic is anticipated to continue to grow in the future, increasing the necessity of reviewing the existing grade crossings.

1.1 Objectives of the Update

For the reasons stated above, the NJTPA initiated the Freight Rail Grade Crossing Assessment Update Study to accomplish the following objectives:

- Complete a review of the 2008 Freight Rail Grade Crossing Assessment Study by individuals who led the development of that study and other professionals with national experience in developing rail grade crossing safety plans, and assess opportunities to update, enhance, or otherwise improve the methodological approach to evaluating and prioritizing grade crossings.
- Develop and implement a data collection approach that uses state-of-the-art technology and is strategically implemented to gather needed information, while also respecting the study's available budget.
- Develop a prioritization approach that accounts for the safety and community effects that are of key importance to NJTPA and communities in the region, and that the methodology itself is transparent and makes use of available data. This prioritization produced a list of Top Ten grade crossings in the NJTPA region that exhibit deficiencies or needs across an array of safety, physical, operational, and equity and community effects criteria.
- Identify strategies and best practices from throughout the United States and associate strategies with needs at the top priority grade crossings and other freight rail and community impact issues in the NJTPA region.
- Engage the Technical Advisory Committee (TAC), railroads, subregions, and other stakeholders to gather data and information, and to review and validate preliminary findings of the study.
- Develop summary documentation, including one-page profiles of the existing conditions and key issues at each of the Top Ten priority grade crossings, two-page summaries of each of the strategies identified in the best practices scan, and the final report summarizing the work performed and conclusions of the study.

1.2 Study Area Definition

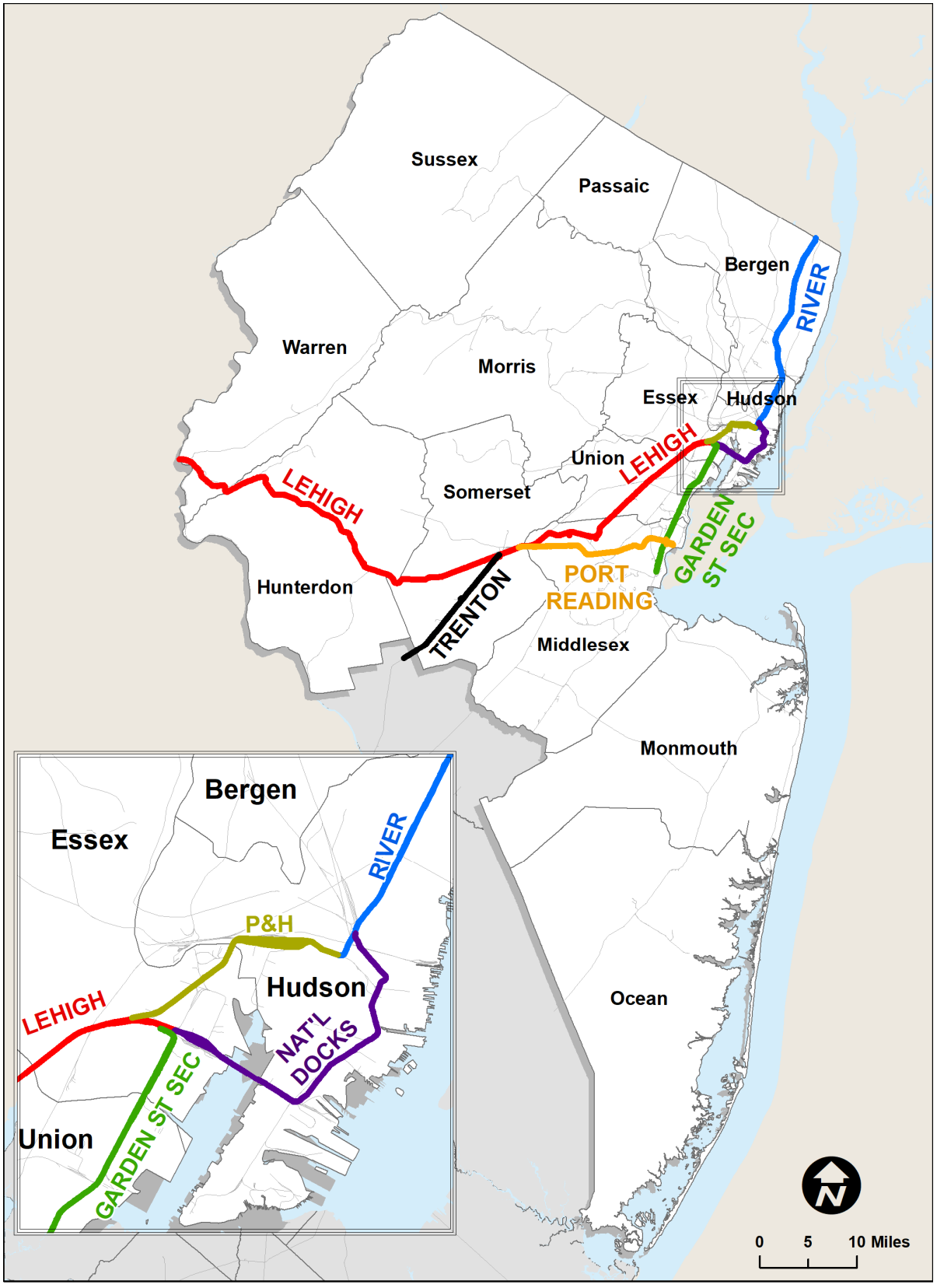
The study focuses on the primary freight rail network within the 13-county NJTPA region. The rail lines included in the study, listed in Table 1.1, and mapped in Figure 1.1, include the Conrail Lehigh Line, Norfolk Southern Lehigh Line, CSX River Line, CSX Trenton Subdivision, Conrail Port Reading Secondary, Conrail National Docks Secondary, Conrail Garden State Secondary, and Conrail Passaic and Harsimus Branch. On these lines, there are 65 public crossings.

Table 1.1 Public Crossings on Study Area Corridors

Railroad	Line	Segment Start/End	Number of Public Crossings
Conrail and Norfolk Southern	Lehigh Line	Oak Island Yard to Pennsylvania border	24
Conrail	Garden State Secondary (formerly Chemical Coast Secondary)	Full length	3
Conrail	National Docks Secondary	Full length	1
Conrail	Passaic & Harsimus Branch	Full length	0
Conrail	Port Reading Secondary	Full length	10
CSX	River Line	North Bergen to New York border	22*
CSX	Trenton Subdivision	Manville Yard to Somerset-Mercer County Line	5
Total			65

*Includes two crossings that are pedestrian-only.

Figure 1.1 Map of Study Area Rail Lines



1.3 Organization of this Report

The most significant findings from each of the major steps in the work process have been documented and compiled into this report, which is organized as follows:

- Section 2: Methodological Overview, a high-level walkthrough of the approach to the study;
- Section 3: Data Collection Summary, a summary of the secondary data sources gathered from various agencies and stakeholders, the process and results of primary data collection performed during the course of the study, and the geodatabase developed to contain geographic information systems (GIS) data gathered and developed during the study;
- Section 4: Evaluation Criteria and Scoring, an overview of the criteria developed by the project team, reviewed by the study's Technical Advisory Committee, and used to evaluate the grade crossings in the study area, and summary of the results of the scoring;
- Section 5: Issues, Needs and Recommended Strategies, a summary of the issues and needs identified, identification of strategies to address those issues and needs, and an overview of needs and strategies applicable to the Top Ten crossings;
- Section 6: Stakeholder Engagement and Communication Materials, a description of the activities undertaken to engage public- and private-sector stakeholders during the study, and the communication materials developed during the study that will help the NJTPA's Central Staff and member agencies to communicate the study's findings and implement improvements at the Top Ten and other crossings;
- Appendix A: Evaluation Scoring Sheets, contains the scores for each crossing in each of the evaluation criteria;
- Appendix B: One-page profiles of each of the Top Ten crossings, summarizing existing conditions, needs, and potential strategies to address those needs; and
- Appendix C: Two-page summaries of each of the strategies identified in the study, which the NJTPA's Central Staff will incorporate into the NJTPA's Goods Movement Strategies for Communities tool.

In addition to this report, other deliverables have been provided to the NJTPA under this contract, including:

- A geodatabase that includes all geodata and photos gathered or developed under this contract; and
- The evaluation spreadsheet tool used to calculate and assign evaluation scores to the crossings.

2.0 Review of 2008 Assessment and Methodological Best Practices

The first task of the Freight Rail Grade Crossing Assessment Update Study was to review the methodology used in the 2008 Freight Rail Grade Crossing Assessment Study, review best practices in assessing safety and other issues at grade crossings, and to develop an approach to gathering data and evaluating crossings.

2.1 Review of the 2008 Freight Rail Grade Crossing Assessment Study

The goal of the 2008 Freight Rail Grade Crossing Assessment Study was to establish a quantitative, objective framework through which existing grade crossings could be evaluated.[2] The need to develop an objective framework for evaluating grade crossings was predicated upon several key understandings including:

- Lack of an industry-accepted evaluation framework/policy to identify root causes of issues at grade crossings.
- Frequent disconnect between perceived issues/causes and actual root causes.
- Anticipated increases in rail and roadway activity are expected to result in increased gate closure times and associated roadway traffic delays. While the actual increase in activity will depend upon a number of factors such as market demands and available line capacity, daily activity could potentially double on some lines, particularly those with low existing activity levels.
- Understanding that grade separation is not the only option for addressing issues at grade crossings -- there are a range of solutions that can be applied to improve grade crossing conditions that can be tailored to address specific root causes of operational, mobility and quality of life issues.

The primary objective of this study was to create a toolbox that the NJTPA could use within and beyond the current study to:

- Identify and prioritize issues.
- Generate solution sets to address specific issues and concerns.
- Suggest creative financing mechanisms where appropriate for the benefit of all stakeholders and communities through which the subject rail lines run.

[2] https://www.njtpa.org/NJTPA/media/Documents/Planning/Regional-Programs/Studies/Freight%20Rail%20Grade%20Crossing%20Assessment%20Study/03-Grade-Crossing-Summary-I.pdf

The literature review conducted for the 2008 assessment identified five findings:

- States typically used one of two types of collision frequency models. These were either a crash prediction index—an absolute index yielding the expected number of collisions over a given time period, or a hazard index—representing the relative risk (frequency and/or consequence) of one crossing compared to any other crossing.
- Models most often included information related to operating profiles and capacity (in terms of both quantity and configuration) factors on both the rail and highway environment.
- Indexes generally included a Federal Railroad Administration (FRA) crash history profile extending over study periods varying between 5 and 10 years.
- Formulas that incorporated the effect of traffic control / warning devices at a crossing were commonly employed in the indexing process.
- Models generally avoided factors for which data were either costly or technically difficult to obtain or forecast.

The literature review also found that models were structured with variables for individual rail lines, which are often not applicable to other rail corridors or regions. The lack of development towards flexible methodologies makes it more difficult to apply models more widely and on state-wide evaluations. One solution to this is to utilize geographic information systems (GIS) platforms for more uniformity and the ability to combine datasets.

Additionally, the literature review did not find community and quality of life issues commonly included in evaluation criteria processes. This includes both a lack of community issues considered as part of the needs assessment process and the use of Technical Advisory Committees (TACs) to assist in designing various analysis tools. The 2008 assessment included these considerations.

2.1.1 Key Aspects of the 2008 Methodology

The 2008 Assessment evaluated 64 grade crossings along five rail corridors using weighted criteria. Each of the criteria and its assigned weight was determined through the literature search and discussions with the TAC. The criteria are each scored on a scale from “0” to “5”, with 0 representing a “non-issue” and 5 representing a “significant issue at that specific location.” Each criterion was assigned a weight between “1” and “5,” determined by the fourteen members of the TAC.

2.2 Methodological Framework for Assessment Update

Rail crossing infrastructure, rail traffic volumes, populations, and attention to community considerations, particularly regarding equity, have evolved since 2008, requiring an update to the NJTPA’s Freight Rail Grade Crossing Assessment Study. The methodological approach to

evaluating and prioritizing grade crossings also needed to be updated, which is explored in this section. To prepare for this update, the study team gathered effective practices from across the country and developed an updated methodological approach to complete Task 2 (data collection) and Task 3 (score and prioritize grade crossings).

2.2.1 Methodological Effective Practices

Federal Railroad Administration (FRA) Highway-Grade Crossing Safety Business Plan (2019)[3]

This business plan highlights the FRA's overall approach to grade crossing management and identifies key technology-based solutions. Overall, grade crossing accidents have remained steady/slightly increased between 2009 and 2018. At the same time, human behavior is responsible for 93 percent of accidents. The report emphasized a range (low-to-high technology) of upgrades for grade crossings and identified funding opportunities. Multiple low- and high-technology solutions are identified, including ongoing pilot programs.

Highway-Railway Grade Crossing Action Plan and Project Prioritization - Noteworthy Practices Guide, FHWA/FRA (2016)[4]

This guidebook, created by the FHWA and FRA, serves as a reference for states to use when developing grade crossing action plans. In addition to describing the suggested format, the guidebook emphasizes flexibility for each state in how plans are developed. This includes key variables for consideration in characterizing grade crossings. Key best practices from this guide include:

- States tailoring risk formulas to their own needs
- Incorporation of benefit-cost analysis
- Supplementing federal funds with state funds
- Investment of planning dollars in inventory improvements
- Applying innovative improvements to project execution

The guide includes a state action plan (SAP) summary table, which offers noteworthy practices for each SAP. One of these noteworthy practices included stakeholder engagement, which included public comment in some states. Involving the public in these discussions, particularly those that live and travel around railroad crossings frequently, is a strategy to incorporate equity into the process.

[3] https://railroads.dot.gov/sites/fra.dot.gov/files/2020-02/Grade%20Crossing%20Business%20Plan.pdf

[4] https://safety.fhwa.dot.gov/hsip/xings/fhwasa16075/fhwasa16075.pdf

Develop an Improved Selection Methodology for Safety Improvements at Public Highway-Railroads Grade Crossings Project, Iowa DOT (2018)[5]

Iowa Department of Transportation (DOT) commissioned this study to evaluate and improve its current methodology for grade crossing improvement projects. The existing methodology for prioritization involves a benefit-cost analysis and considers vehicular and rail traffic, number of highway lanes and railroad tracks, accident history/costs, and anticipated costs of improvements. In the case of Iowa, projects that receive highest priority are those which address grade crossings with a predicted accident threshold of 0.075 accidents per year. An evaluation of the current methodology yielded the following issues:

- Iowa DOT's monetary values assigned to the values of grade crossing injuries and fatalities are inconsistent with USDOT guidelines, as well as with other Iowa DOT department values.
- The current benefit-cost analysis does include discounting of future benefits, such as future traffic levels.
- The current benefit-cost analysis likely underestimates crashes at grade crossings with no crash history, given the omission of certain variables.
- The current annual accident threshold of 0.075 is too narrow, given that most accidents occurred at a threshold of at or above 0.03. The majority of those crossings between 0.03 and 0.075 also had benefit-cost ratios of over 1.0.
- Field reviews of grade crossings are often completed late in the process.

The study goes on to recommend a new benefit-cost methodology utilizing the Texas Priority Index and Texas Passive Crossing Index formulas, which together incorporate additional variables into the calculation process. This new benefit-cost methodology is detailed in the next section.

Use of a Benefit-Cost Ratio to Prioritize Projects for Funding, Iowa DOT (2020)[6]

This report documents Iowa's benefit-cost ratio methodology used to prioritize grade crossings for upgrades. The process consists of the following steps:

- Step 1: Calculate Exposure - Considers AADT and train traffic
- Step 2: Calculate Predicted Accidents - Considers traffic and additional variables as mentioned in previous Iowa study. Iowa's typical threshold for predicted accidents is .075 accidents per year for upgrade eligibility. If additional funding is left over, those additional

[5] http://publications.iowa.gov/28265/1/TR-732_Final%20Report_Develop%20an%20Improved%20Selection%20Methodology%20for%20Safety%20Improvements.PDF

[6] https://www.iowadot.gov/iowarail/assistance/130/130SelectionProcess_final.pdf

crossings below this threshold are evaluated by dividing the estimated cost improvement by an exposure index to identify lower-cost projects for completion.

- Step 3: Calculate Severity - Considers number of train movements and environmental factors to refine predicted accidents to include estimates of injuries, fatalities, and property damage.

- Step 4: Calculate Societal Cost - Considers costs to society based on severity factors identified in Step 3.

- Step 5: Calculate Benefit - Considers the adjustments to societal costs as a result of proposed improvements, including accident reductions. The timeline of the benefit is based on the lifespan of the proposed improvement.

- Step 6: Calculate Cost - Considers the dollar cost of the improvement, including public share of maintenance over its lifespan.

- Step 7: Calculate Benefit-Cost Ratio: Divides derived benefit by cost.

The report admits that the process has multiple shortfalls. The most significant is that the entire process is heavily based on the Predicted Accident figure, which, on its own, does not take into account accident severity, and also omits key variables.

Prioritization of Prominent Road-Rail Conflicts in Washington State, Washington Joint Transportation Committee (2017)[7]

This report, developed for the Washington Joint Transportation Committee, identified a methodology to prioritize grade crossings for improvement projects. The methodology consists of a number of steps to filter out grade crossings:

- Step 1 involves assigning a number of points, weighted by importance, based on factors of mobility (total vehicle/rail volumes), safety (number of mainline tracks and availability of alternate grade-separated crossings nearby), and community (previous identification of the crossing and classification level of the roadway). The crossings with the highest scores for each category, and subsequently, cumulative highest scores, are then selected.

- Step 2 involves further assigning of points on a sliding scale based on safety (including presence of alternate grade-separated crossings, proximity to emergency services, and number of mainline tracks), mobility (roadway freight classification, existing and future vehicle volumes, and crossing sensitivity, network sensitivity, and gate down time), and community (employment/freight facility density, and community quality of life indicators).

[7] http://leg.wa.gov/JTC/Documents/Studies/Road%20Rail%20Study%202016/FinalReport_Road%20RailConflicts_January%202017.pdf

- Step 3 involves prioritizing crossings identified separately from Steps 1 and 2. When applied across Washington, approximately half of identified crossings were in the Seattle area, with the remaining half located in multiple corridors across the state.

In Step 2, the community evaluation category considers equity-related metrics, such as percent minority, percent low-income, daily emissions, and noise. Each of these factors is weighted differently, with the economic factors weighted higher than the human health factors. This is important to include as traffic volumes are not the only impact on a local community. The report suggests MPOs and local communities need to develop solutions to specific community-related solutions, such as a crossing that is critical to development of an area or a crossing near a care facility with patrons that are highly susceptible to air pollution. The report goes on to propose a related online database and prioritization tool.

Development of Railroad Highway Grade Crossing Consolidation Rating Formula, Iowa State University (2015)[8]

This study developed a weighted index to review and prioritize grade crossings based on the scope of the Iowa rail and road network. With the purpose of expanding the prioritization process to include variables beyond traditional highway safety, the proposed weighted index considers the following: AADT, Heavy Truck AADT, Proximity to Emergency Medical Services, Proximity to Schools, Roadway Classification, Site Distance, and Availability of Alternate Routes. Each of these factors was then weighted differently, based on whether they are in an urban or rural location. The goal of this research is to provide an additional prioritization step to potentially complement Iowa's benefit-cost analysis approach.

Equity in Grade Crossing Safety, Cambridge Systematics (2021)[9]

This presentation evaluates the inequitable impact of grade crossing rail lines in underserved communities with a particular focus on Cook County, Illinois. Many rail lines built over a century ago bisect communities with high percentages of underserved populations, such as low-income and minority populations, and impede access to employment opportunities and critical community services. Equity is the relative distribution of impacts (benefits and costs) and whether that distribution is considered fair and appropriate. The goal of evaluating the equity of grade crossing safety is to bring more equitable solutions to underserved communities.

Grade crossing safety can be inequitable in several ways, including:

- High amounts of train delay, high number of crossings, high occurrence of blocked crossings, and reoccurring maintenance issues (e.g., false activations) each of which can lead to compliance issues.

[8] https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1102&context=intrans_reports

[9] Cambridge Systematics presented to Cook County, Illinois, 2021

- Inconsistent enforcement of traffic safety laws and failure of the courts to impose appropriate penalties on violators thereby failing to discourage motorists from making poor decisions.

- Fewer active warning devices, more passive crossings, fewer grade separations, and less safe means to cross rail lines.

Analysis of Cook County found that low-income rates (defined as percent of the population below 200 percent of the poverty line) are higher near rail lines and low-income areas have more crossings and more track-miles per square mile. There is also a higher risk of crashes at crossings in low-income areas that is evident when examining factors other than exposure. The risk can be correlated with increased density of rail lines and crossings, slower train speeds, and more gate down time. Proximity to rail yards indicates switching activity that can be of unpredictable duration and frequency. While the low-income areas have lower exposure (number of daily trains and AADT), exposure does not consider train speeds, and crossings in low-income areas may have a high number of (slow) trains or a high amount of traffic, but less likely to have both. This suggests that gate down time and delay are variables that can be used to evaluate risk. Beyond these basic considerations, determining causality is recommended for further examination.

Minnesota Rail Grade Crossing Safety Project Selection (2016)[10]

The Minnesota DOT completed a Statewide Grade Crossing Study in 2016 with the purpose of identifying the crossing characteristics most important to predicting grade crossing safety.

The crash prediction models' theory that the occurrence of a prior crash at a grade crossing is a good predictor of a future crash at that same location is not consistent with the data for Minnesota. More than 50 percent of crossings with an injury crash had no prior crashes. FRA Accident Prediction Model is highly influenced by the occurrence of prior crashes and the most recent application in 2014 was only able to identify 21 crossings (0.8 percent) as a priority and most were ultimately determined to be poor candidates for safety investment. The Texas Hazard Index uses the number and speed of trains, roadway traffic volume, and prior crashes. This index was used to develop the Fiscal Year 2017 safety program. It was determined that this model was a poor fit with Minnesota's crash data based on documentation of relatively low crash density at the identified priority crossings. The crash data analysis documented a number of important facts that should be considered in the future when rail safety projects are being developed.

- For passive warning devices, the average crash densities are very similar for crossings with STOP signs and crossings without STOP signs. MnDOT suggests considering replacing STOP signs with YIELD signs.

- At crossings with passive warning, the most common factor contributing to fatal crashes are motorists NOT stopping (83 percent).

[10] https://www.dot.state.mn.us/research/TS/2016/201625.pdf

- At crossings with active warning devices, the addition of gates as compared to flashing lights only results in lower densities of total and fatal plus injury crashes. Relative to fatal crashes, densities at crossings with and without gates are identical. At crossings with gates, 50 percent of fatal crashes involved motorist bad driving behavior, either driving around or through the gates.

After a thorough review of action prediction models and alternatives, the risk factors found to have the highest correlation with crashes included:

- Roadway and train volumes
- Roadway and railroad speed limits
- Number of mainline tracks
- Crossing angle
- Distance to nearby intersections
- Distance to nearest crossings
- Sight distance limitations

The report suggested the use of threshold values to determine the importance of a risk factor. For example, active crossing with a minimum volume threshold of 2,500 vehicles per day and 10 trains per day. For passive crossings, the minimum threshold is 150 vehicles per day and 4 trains per day. The minimum thresholds for the volume cross product are 20,000 at active crossings and 750 for passive crossings.

2.2.2 *Effective Practices Conclusions*

Equity Criteria

Of the cases reviewed, Washington State and Cambridge Systematics reports had the most information on equity and rail grade crossing safety to consider. Washington State's report had several community-focused indicators that touch on equity that could be included in the NJTPA's "community/quality of life" category, such as percent minority, percent low-income, and daily emissions. Additionally, several states included a stakeholder engagement in their plan development. While the NJTPA utilized a TAC in its last update, the public and community organizations could be included in the development of this plan, particularly overburdened areas within the region. Overburdened areas could include areas with high numbers of crashes and/or equity focused areas such as high percentages of low-income and/or communities of color with grade crossings. Cambridge Systematics' presentation to Cook County also suggests incorporating risk factors for underserved populations into crossing prioritization, including gate down time, delay, and train speed. "Prevailing train speed" is included in the 2008 criteria, however, faster

speeds are given a higher score and are therefore considered riskier. This presentation found that slower train speeds were correlated to higher risk. This updated plan should also evaluate appropriate mitigation strategies for underserved communities.

The majority of the data needed for the equity criteria are available through the Census, such as income or poverty, race and ethnicity, or households without a car. Additionally, New Jersey has designated overburdened communities (OBC) that identify census block groups that meet thresholds for low-income, minority or members of a tribal community, or households with Limited English proficiency (LEP). This data is publicly available as a downloadable shapefile on NJDOT's website.

Cost-Benefit Analysis

The FHWA/FRA's Noteworthy Practices guide (2016) suggests the inclusion of a cost-benefit analysis in prioritization of projects. Iowa DOT created the newest cost-benefit methodology in their 2020 report.

Risk Index

In determining the risk index to utilize, the Minnesota case suggests checking whether crash history should be utilized, particularly highly weighted, due to the fact that they found this unhelpful in predicting where future crashes would occur. In determining the prioritization methodology, the factors that Minnesota DOT found to be most correlated with crashes should be considered. Additionally, the Minnesota DOT report suggests using threshold values to determine the importance of a risk factor, which is similar to the 2008 NJTPA methodology.

3.0 Data Collection Summary

In order to create a comprehensive evaluation and prioritization of at-grade rail crossings, the study team conducted a robust data collection program to assemble the data and details required to thoroughly evaluate each grade crossing from a safety, physical, operational, and community impact/equity perspective. These data include:

- **Secondary** sources, which are data that are collected by other organizations, and available in the public domain or by request; and
- **Primary** sources, which were collected in the field by members of the project team.

3.1 Secondary Data Used in the Study

The secondary data sources used in this study are listed in Table 3.1. Several of the data sources listed below are publicly available, particularly US Census data, the NJTPA's priority equity areas, rail line and crossing location geodata, and crossing attributes contained within the FRA's rail crossing database. In addition, the team reached out to various other data owners to request and acquire additional data, including grade crossing inspection reports from NJDOT and current or recent rail operations data and information from the railroads that operate on the lines included in the study.

Table 3.1 Secondary Data Gathered and Used in the Study

Source	Description	Permissions, Etc.
FRA	• Rail crashes and near misses by type • Frequency of train activity • Proportion of Actuations during Peak Roadway Activity Periods • School Buses Using Crossing • Roadway - volume level • Prevailing Travel Speed • Quiet Zones **Backup (consulted to fill in gaps from other sources):** • Hazard index • Function road classification • Proximate/Adjacent Traffic Signals • Local Rail Operations/ Switching Involving the Grade Crossing	
NJDOT/NJGIN	• NJDOT Grade Crossing Inspection Forms • Hazard Index (AADT, daily train crossings) • Roadway volumes • Functional Class of Roadway • Active vs. Passive Control at Crossing • Proximate/Adjacent Driveways and Roadways (Existing and Anticipated) • Proximate/Adjacent Traffic Signals (Existing and Anticipated) • Existence /Severity of Vertical Curve	HazMat placard fees: Sensitive data, can only publish as high-level summaries

	• Existence/Severity of Horizontal Curve • Proximity to Other Rail Crossings • Proximity to Other Grade Crossings on Same Rail Line • Level of Accommodation and Control for Pedestrian • Proximity to Adjacent Grade Separated Crossings and Alternate Routes • HazMat placard fees • Safety voyager • Urban/rural GIS layer **Backup:** • Projected Change in Rail Traffic	
US Census	• Population and population density	
EPA	• New Jersey "Green Book" of particulate matter (PM) nonattainment areas (by county)	
NJ Office of GIS	• Land use GIS layer • Urban/rural GIS layer • Emergency facility locations	
Railroads	• Operations (trains per day, types of equipment, switching) • Future growth by corridor/projected change in rail traffic	
NJTPA	• GIS base map geodata • Equity priority areas	
YouTube	• Railfan videos (duration of closure)	

3.2 Primary Data Collection

The secondary data gathering exercise provided a wealth of information about the physical, operational, community impacts and equity, and safety attributes at each of the crossings in the study area. However, there were some inconsistencies between data sources, some outdated data attributes, and other gaps that needed to be addressed through primary, or in-the-field, data collection. The study team conducted two primary data collection activities, including site visits and video surveillance.

3.2.1 Site Visits

Members of the study team visited each of the 65 grade crossings in the study area during a span of two weeks in September 2022. During these visits, the study team members confirmed physical attributes of the crossings that were reported in the NJDOT inspection reports and FRA grade crossing inventory database and took note of any attributes for which data were missing or seemingly out-of-date. The team took photographs from 8 different angles to document the existing conditions at each crossing: looking along the rail line through the crossing in each direction; looking along the roadway through the crossing in each direction; and looking diagonally across the crossing from each quadrant. The photographs were taken with a GPS-equipped camera and/or using ArcGIS Field Maps to automatically capture latitude and longitude coordinates and geolocate the position.

The team also made other observations, such as estimated level of bicycle and pedestrian (i.e., active transportation) activity, proximity of adjacent driveways and/or intersections, severity of

horizontal and vertical curves, and any obstructions to sight distances. At several of the locations visited, members of the project team were able to observe trains passing through crossings, and took note of the duration of closure, effects upon traffic operations, etc. Representatives from the railroads and subregions were invited to join the project team in the field, if desired.

Figure 3.1 Project Team Visiting Rail Grade Crossings in the Study Area in September, 2022

3.2.2 Video Surveillance using Miovision

The site visits were used to validate and fill in many of the data gaps. However, more information regarding the frequency of activations, durations of crossing closures, and any unsafe activities (e.g., trespassing, passing through closed gates, etc.) were desired.

Miovision cameras have been successfully deployed at grade crossings on other studies to record gate closure times and durations, as well as traffic volumes on the crossed roadway. The recorded video also allows for viewing of the effect of the closure on traffic queue formation and dissipation. Based upon previous grade crossing assessments, it was recognized that a majority of the subject crossings are located on lower volume roadways. Accordingly, installing Miovision cameras at all 65 locations were not deemed to be useful to this study. However, there are a number of locations with known issues and high roadway volumes where obtaining video was beneficial in informing the study.

The study team, after evaluating the available data and photographs collected, selected twelve (12) locations for the installation of the Miovision cameras. Because operational conditions (number of tracks, rail traffic and operating speed, duration of closing, etc.) have consistency

across several segments of each line in the study area, the 12 locations were identified as representatives of key corridor segments.

The cameras were placed strategically to record railroad and roadway operations to the greatest extent possible. The cameras recorded roadway and rail activity for a continuous 24-hour period. Table 3.2 lists the locations and dates where video data were collected.

Table 3.2 Miovision Video Camera Deployments

Crossing/Roadway	County	Municipality	Camera Location/Orientation	Date
CSX River Line (Bergen Turnpike)	Bergen	Ridgefield Park	Southeast corner, looking northwest up rail line and catching southbound queue on Main St.	12/01/2022
CSX River Line (Madison Avenue)	Bergen	Dumont	West side facing east	12/01/2022
CSX River Line (Old Hook Rd)	Bergen	Closter	West side looking east	12/01/2022
Conrail Garden State Secondary (Woodbridge Ave)	Middlesex	Woodbridge	East side looking west	12/01/2022
Conrail Port Reading Secondary (New Brunswick Ave)	Middlesex	South Plainfield	Northeast corner looking south, including adjacent intersection	11/17/2022
Conrail Lehigh Line (Rahway Ave)	Union	Westfield	Northeast corner looking west, including Rahway and Lamberts Mill intersection	12/01/2022
Conrail Port Reading Secondary (St. Georges Ave)	Middlesex	Woodbridge	West side facing southeast	12/01/2022
Conrail Lehigh Line (Cedar Ave)	Middlesex	Middlesex	Southwest corner facing northeast	12/20/2022
CSX Trenton Subdivision (Belle Mead-Blawenburg Rd)	Somerset	Montgomery Twp.	Southeast corner facing north	11/17/2022
Conrail Lehigh Line (Inman Ave)	Middlesex	Edison	East side facing west	12/20/2022

Norfolk Southern Lehigh Line (Valley Rd)	Somerset	Hillsborough Twp.	South side looking northwest (capture curve)	11/17/2022
Norfolk Southern Lehigh Line (Main St.)	Hunterdon	Readington Twp.	Southwest corner looking north	11/17/2022

Once the video data was collected from each of the sites, AmerCom personnel reviewed 24-hour video from each of the crossings to obtain the necessary data. Necessary data included the time of each train crossing, duration of closure, length of trains (number of cars), direction of the trains, number of vehicles queued in each direction, and general behavior before, during and after the train crossing. General behavior includes whether drivers, pedestrians and bicyclists stay clear when the gates are down prior to the train's arrival or whether they "race" or "cut" through the crossing to beat the train. All of these data were compiled into an Excel spreadsheet, and incorporated into the geodatabase and evaluation spreadsheet as appropriate.

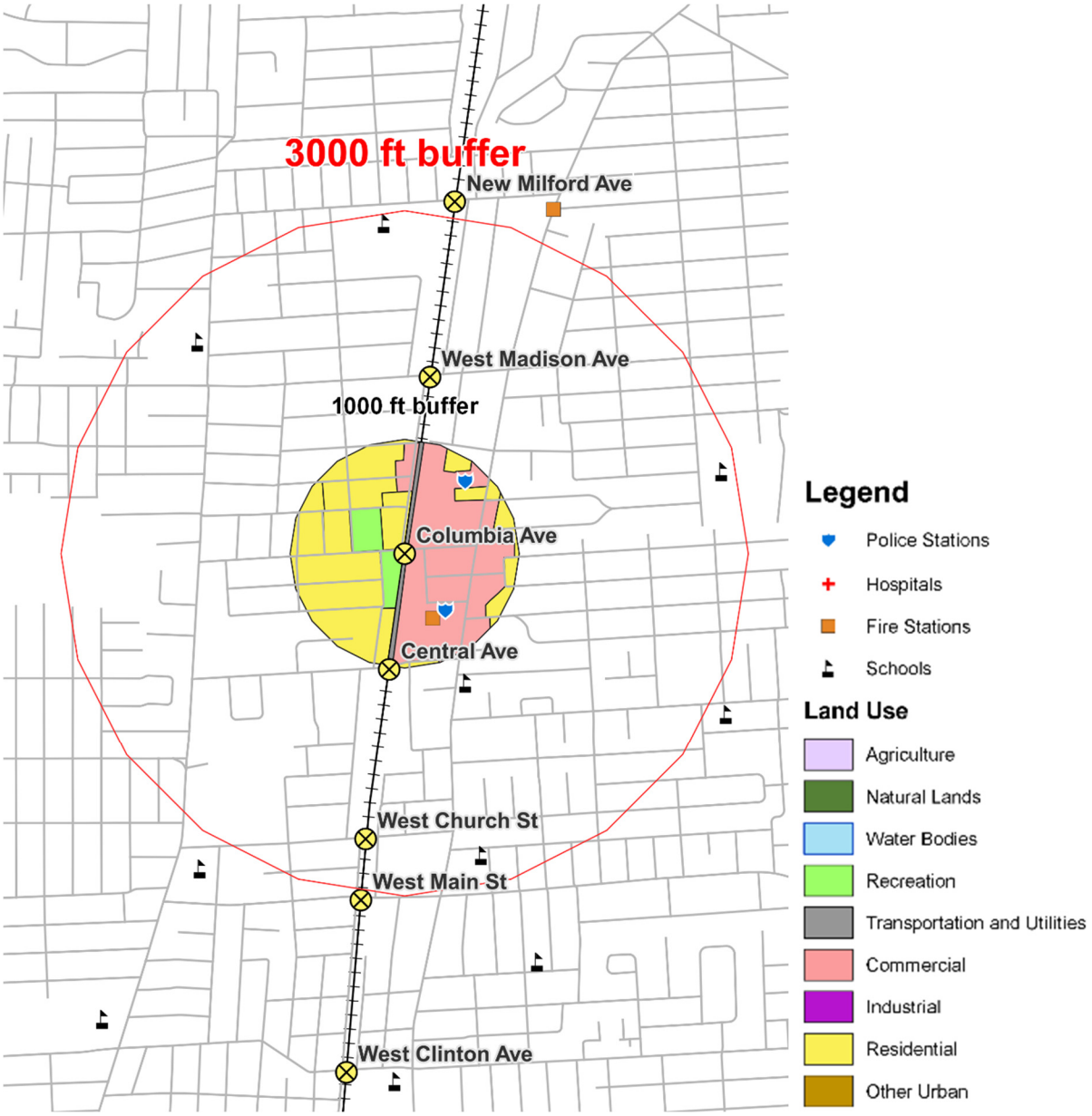
Figure 3.2 shows a still image from the video file collected at Bergen Turnpike in Ridgefield Park, Bergen County. The image shows a train passing through the crossing (top) and a queue of traffic on Main Street (right).

Figure 3.2 Still Image from Video File at Bergen Turnpike

3.3 Geodatabase Development

All of the data gathered from primary and secondary sources were incorporated into an Excel database for use in the evaluation and scoring task described in Section 4. Attributes associated with the crossings were also included in a geodatabase to aid analysis and allow the development of thematic maps for use in crossing profile documents. Figure 3.3 shows an example of a thematic map produced using the geodatabase developed for the study.

Figure 3.3 Map Showing Land Use, Emergency Services, and Transportation Infrastructure Near a Grade Crossing



4.0 Evaluation Criteria and Scoring

The study team reviewed the scoring criteria used in the 2008 assessment and discussed changes. Table 4.1 below reflects updated evaluation criteria and data sources for each criterion. Scoring approaches to determine if a crossing receives a score of one to five are outlined in Table 4.1.

As with the 2008 assessment, assigned weights were assigned in collaboration with the study's Technical Advisory Committee (TAC). The TAC includes representatives from: Bergen, Hudson, Hunterdon, Somerset and Warren counties, NJDOT, the Governor's Authorities Unit and the NJTPA. The NJTPA hosted its first assessment update meeting virtually with the TAC on May 5, 2022. Using the online polling tool Mentimeter, members of the TAC provided their suggested assigned weights for each of the updated criteria on a scale of 1 to 5, with 1 being minimally important, and 5 being significantly important. The weight scores provided by the TAC were averaged and then rounded and will be used as the assigned weight for this assessment update, as shown in Table 4.1. These weights guided the development of scores for each category of criteria—safety history and profile; physical features and controls at the crossing; rail, roadway and pedestrian operational characteristics; and community/equity considerations. The category scores were multiplied by the assigned weight, and then summed across all criteria in order to calculate a total score for each crossing.

Table 4.1 Evaluation Criteria and Weights

Evaluation Criteria	Data Source	Scoring	Assigned weight
Safety History and Profile			
FRA Crash History	FRA	1: Sites where one crash with no injuries occurred between the period 2012 and 2021 2: Sites where two crashes occurred with no injuries (2012 to 2021) 3: Sites with three or more crashes with no injuries (2012 to 2021) If one or more injuries resulted from a crash, a site's score is increased by 1. If one or more fatalities occurred, a site's score is increased by 2. If significant recent improvements were made at a site since the crash occurrence, its score is reduced by 1.	**5.0**
Hazard Index	NJDOT, Miovision, FRA	The index is the product of three factors including the vehicle average daily traffic (AADT), the number of daily (24 hours) train crossings, and a protection factor. A site score is assigned by placing this product within one of 5 pre-determined ranges: less than 14,999 (1 Score), 15,000 to 24,999 (2 Score), 25,000 to 39,999 (3	**5.0**

		Score), 40,000 to 59,999 (4 Score), 60,000 and greater (5 Score). The protection factor is based on active safety devices available at the crossing site. The protection factor is 0.1 for a site with fully automated crossing gates, lights and cross bucks, 0.6 for a site with no gates but with lights and cross bucks, and 1.0 for a passive site.	
Physical Features and Controls at the Crossing			
Functional Class of Roadway	NJDOT GIS, FRA	1: Local Street Class 2: Minor Collector Class 3: Major Collector Class 4: Minor Arterial Class 5: Principal Arterial Class	**3.5**
Active vs. Passive Control at Crossing	NJDOT, field validation	1: A fully activated at-grade crossing 3: A crossing site with a combination of active and passive traffic control devices, excluding crossing gates 5: A passive crossing site	**4.0**
Proximate/ Adjacent Driveways and Roadways (Existing and Anticipated)	NJDOT GIS	0: No driveway/roadway 1: Driveway/roadway ≥200 ft. 3: Driveway/roadway within 101-199 ft. 5: Driveway/roadway ≤100 ft.	**3.0**
Proximate/ Adjacent Traffic Signals (Existing and Anticipated)	2008 study, review FRA for updates (existing), NJDOT GIS, municipalities (pending projects)	0: No traffic signal 1: Traffic signal ≥200 ft. 3: Traffic signal within 101-199 ft. 5: Traffic signal ≤100 ft.	**3.5**
Existence /Severity of Vertical Curve (Crest and or Sag)	2008 study, review NJDOT GIS for updates	0: No curve 1-5: Rating determined in the field based on perceived curve severity	**3.5**
Existence/Severity of Horizontal Curve	NJDOT GIS	0: No curve 1-5: Rating determined in the field based on perceived curve severity	**3.5**
Sight Distance to Back of Queue	Field validation (2-3 sites)	Based on severity, distance from crossing to back of queue during a closure. 1: Minor	**3.5**

		3: Moderate 5: Severe	
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	Railroads, FRA	0: A site where these activities do not occur. 5: A site where local rail operations and switching activities occur.	**3.0**
Frequency of Activity - Activations/ Trains Per Day	FRA, Miovision	1: 0 to 5 activations and trains per day 2: 6 to 10 activations and trains per day 3: 11 to 20 activations and trains per day 4: 21 to 40 activations and trains per day 5: greater than 40 activations and trains per day	**4.0**
Duration of Closure – Average Time	Railfan videos, Miovision	1: 0 to 60 seconds 2: 61 to 120 seconds 3: 121 to 180 seconds 4: 181 to 240 seconds 5: greater than 240 seconds	**3.5**
Projected Change in Rail Traffic	Railroads, NJDOT	0: location where changes in rail traffic in the future are not expected 3: where rail traffic projections show a moderate increase 5: where rail traffic projections show a significant increase	**3.0**
School Buses Using Crossing	FRA	0: where no crossings occur 3: where minor use of the crossing occurs 5: where major use of a crossing occurs	**4.0**
Roadway - volume level	FRA	Not scored because roadway volume is included in hazard index, keeping for information	**0**
Prevailing Operating Speed	FRA	1: 25 mph or less 2: 26 mph – 35 mph 3: 36 mph – 40 mph 4: 41 mph – 50 mph 5: greater than 50 mph	**2.5**

Projected Changes in Roadway Traffic	NJRTM-E zones	0: location where increases in roadway traffic are not projected 3: where roadway traffic projections show a moderate increase 5: where roadway traffic projections show a significant increase	**3.0**
Projected Changes in Pedestrian & Cyclist Traffic	NJRTM-E zones	0: location where increases in pedestrian/cyclist traffic are not projected 3: where roadway pedestrian/cyclist projections show a moderate increase 5: where roadway pedestrian/cyclist projections show a significant increase	**3.0**
Pedestrian & Cyclist Level of Activity	Miovision, field visits	0: location where pedestrian/cyclist activity is low 3: where pedestrian/cyclist activity is moderate 5: where pedestrian/cyclist activity is significant. At locations where sidewalks exist, the minimum score assigned is “1.”	**3.5**
Level of Accommodation and Control for Pedestrian	FRA, NJDOT	0: site where the level of control is extensive and includes pedestrian crossing gates 3: where the level of control is modest and where crossing gates are not available 5: where pedestrian controls and accommodations are absent	**3.5**
Proximity to other Grade Crossings (composite)	NJDOT GIS	Proximity to Adjacent Grade Separated Crossings and Alternate Routes: 1: 0.24 miles or less 2: 0.25 miles and 0.49 miles 3: 0.50 miles and 0.74 miles 4: 0.75 miles and 0.99 miles 5: 1 mile or greater Proximity to Other Rail Crossings (NJ TRANSIT, Shortline, Active Spurs): 1: 0.24 miles or less 2: 0.25 miles and 0.49 miles 3: 0.50 miles and 0.74 miles	**3.0**

		4: 0.75 miles and 0.99 miles 5: 1 mile or greater Bisected rail lines at grade crossing: 0: Not present 2: Present	
Community/Equity Considerations			
Equity Communities	NJTPA	Index made up of 10 equity indicators. 1: 1-10 census tract composite score 3: 11-29 census tract composite score 5: 30-40 census tract composite score	**3.5**
Population Density	Census	1: 0 - 500 population/sq. mile 3: 501 - 2000 population/sq. mile 5: > 2001 population/sq. mile	**3.5**
PM Emissions	EPA	0: EPA attainment area 5: EPA non-attainment area	**3.0**
Proportion of Actuations during Peak Roadway Activity Periods	FRA, Miovision	The score (on a scale of 1-5) is generally equivalent to the percentage of crossings during the 6 heaviest roadway travel periods divided by 20. For example, if 40 percent of the crossings occur during the peak periods, then the score applied would be a 2 (out of 5).	**4.0**
Emergency Response Constraints	NJ Office of GIS	1: A setting where a closely spaced grid of roadways exists for use as alternate travel paths with minimal additional travel time and distance, impediments to emergency 5: A rural setting, where the roadway is the only travel way available and alternate routes would require extensive additional travel time/distance Additional emergency response considerations may be added to this indicator, such as proximity to fire, police stations, and hospitals. This will be determined by the availability of relevant data.	**4.5**
Proximity to School	NJ Office of GIS	0: Location with no school along the subject roadway or in the immediately surrounding area 5: Locations with a school immediately adjacent	**3.5**

Adjacent Sensitive Land Uses (i.e. residential, schools, parks, etc.)	NJ Office of GIS	0: Crossings in an industrial or commercial setting, or those in rural areas surrounded by undeveloped open space 5: Crossings in a residential setting, or with sensitive land uses directly adjacent to the crossing Intermediate scores are assigned based upon the type, density and proximity of the sensitive uses.	**3.0**
Overnight Noise	FRA, NJ Office of GIS	1: Locations without any proximate residential land uses or overnight rail activity 5: Crossings that are not part of a quiet zone, and are abutted by residential uses	**3.0**

Using these criteria and weights, and all of the data gathered and collected, the project team convened a virtual workshop to review each crossing and apply scores and identify a list of "Top Ten" crossings. The Top Ten crossings may have especially high scores across one or a few criteria, or moderately high scores across many criteria. The project team reviewed the scoring results and presented them to the TAC for review and comment. The ranked list of all 65 crossings is shown in Table 4.2 below. The complete scores for each criterion for each crossing are provided in Appendix A.

Table 4.2 Ranked List of All 65 Crossings

Rank	Crossing Name	Line	Municipality	County
1	Columbia Ave	CSX River Line	Dumont	Bergen
2	West Madison Ave	CSX River Line	Dumont	Bergen
3	Old Hook Rd	CSX River Line	Closter	Bergen
4	Inman Ave	Conrail Lehigh Line	Edison	Middlesex
5	Bergen Turnpike	CSX River Line	Ridgefield Park	Bergen
6	West Clinton Ave	CSX River Line	Bergenfield	Bergen
7	New Market Rd	Conrail Lehigh Line	Piscataway	Middlesex
8	Rahway Ave	Conrail Lehigh Line	Westfield	Union
9	Stelton Rd	Conrail Port Reading Sec	Piscataway	Middlesex
10	South Main St	Conrail Port Reading Sec	Bound Brook	Somerset
11	New Bridge Rd	CSX River Line	Bergenfield	Bergen

12 (tied)	Cedar Ave	Conrail Lehigh Line	Middlesex	Middlesex
12 (tied)	Haworth Ave	CSX River Line	Haworth	Bergen
14	New Milford Ave	CSX River Line	Dumont	Bergen
15	New Brunswick Ave	Conrail Port Reading Sec	South Plainfield	Middlesex
16	Harriot Ave	CSX River Line	Harrington Park	Bergen
17	Front St	Conrail Lehigh Line	South Plainfield	Middlesex
18	Broadway	CSX River Line	Norwood	Bergen
19	Durie Ave	CSX River Line	Haworth	Bergen
20	West Main St	CSX River Line	Bergenfield	Bergen
21	Prospect Ave	Conrail Lehigh Line	Piscataway	Middlesex
22	Mt Vernon St	CSX River Line	Ridgefield Park	Bergen
23	West Church St	CSX River Line	Bergenfield	Bergen
24 (tied)	La Roche Ave	CSX River Line	Harrington Park	Bergen
24 (tied)	South Ave	Conrail Lehigh Line	Middlesex	Middlesex
26	St Paul	Conrail Northern Branch	Jersey City	Hudson
27	New Brunswick Ave	Conrail Lehigh Line	South Plainfield	Middlesex
28	St. George Ave	Conrail Port Reading Sec	Woodbridge	Middlesex
29	Lafayette Rd	CSX River Line	Harrington Park	Bergen
30	Central Ave	CSX River Line	Bergenfield	Bergen
31	Blanch Ave	CSX River Line	Norwood	Bergen
32	Main St	NS Lehigh Line	Readington Twp	Hunterdon
33	Perryville Rd	NS Lehigh Line	Union Twp	Hunterdon
34	Clinton Ave	Conrail Lehigh Line	South Plainfield	Middlesex

35	Clinton Ave	CSX River Line	Northvale	Bergen
36	Tingley Ln	Conrail Lehigh Line	Edison	Middlesex
37	Haworth (Ped Xing)	CSX River Line	Haworth	Bergen
38	13th Ave	NS Lehigh Line	Manville	Somerset
39	Bogota (Ped Xing)	CSX River Line	Bogota	Bergen
40	Baekeland Ave	Conrail Port Reading Sec	Piscataway	Middlesex
41	Woodbridge Ave	Conrail Garden State Sec	Sewaren	Middlesex
42	Rahway Ave	Conrail Port Reading Sec	Woodbridge	Middlesex
43	Blair Rd	Conrail Port Reading Sec	Woodbridge	Middlesex
44	Stanton Station Rd	NS Lehigh Line	Readington Twp	Hunterdon
44	South Clinton Ave	Conrail Port Reading Sec	South Plainfield	Middlesex
46	Chapel Ave	Conrail National Doc Sec	Jersey City	Hudson
47 (tied)	Hamden Rd	NS Lehigh Line	Clinton Twp	Hunterdon
47 (tied)	Lehigh Rd	NS Lehigh Line	Branchburg Twp	Somerset
49	Maurer Rd. (State St)	Conrail Garden State Sec	Perth Amboy	Middlesex
50	Kicenuik Rd	NS Lehigh Line	Clinton Twp	Hunterdon
51	Auten Rd	NS Lehigh Line	Hillsborough Twp	Somerset
52	Milos Way/Hess Driveway (School St)	Conrail Garden State Sec	Woodbridge	Middlesex
53	Beekman Ln	NS Lehigh Line	Hillsborough Twp	Somerset
54	Still Valley Rd	NS Lehigh Line	Pohatcong	Warren
55	Valley Rd	NS Lehigh Line	Hillsborough Twp	Somerset
56	Roycefield Rd	NS Lehigh Line	Hillsborough Twp	Somerset
57	Sunnymead Rd	CSX Trenton Line	Montgomery Twp	Somerset

58	Landsdown Rd	NS Lehigh Line	Franklin Twp	Hunterdon
59	Helen St	Conrail Port Reading Sec	South Plainfield	Middlesex
60	Belle Mead-Blawenburg Rd	CSX Trenton Line	Montgomery Twp	Somerset
61	Spring Hill Rd	CSX Trenton Line	Montgomery Twp	Somerset
62	Province Line Rd	CSX Trenton Line	Montgomery Twp	Somerset
63 (tied)	Hollow Rd	CSX Trenton Line	Montgomery Twp	Somerset
63 (tied)	South Ave	Conrail Port Reading Sec	South Plainfield	Middlesex
65	Rockafellow Mills Rd	NS Lehigh Line	Readington Twp	Hunterdon

Grade Crossing Improvements Case Study

Cedar Avenue ranked second in NJTPA's 2008 Freight Rail Grade Crossing Assessment Study, but now ranks 12th, due, in part, to recent improvements.

Cedar Avenue in Middlesex ranked 2nd in NJTPA's 2008 Freight Rail Grade Crossing Assessment Study. This crossing is especially complicated because of its configuration—both the Conrail Lehigh Line, which is one of the region's busiest freight rail lines, and NJ Transit's Raritan Valley commuter rail line cross Cedar Avenue within 75 feet of one another. This crossing's high ranking supported the advancement of plans to address safety issues at this crossing. Unfortunately, before the realization of these improvements, a crash on the NJ Transit Raritan Valley Line resulted in two fatalities at this location in 2020.

In 2021, the NJ Transit Raritan Valley Line crossing of Cedar Avenue was resurfaced with enhanced pavement markings installed including striping of the roadway shoulders and cross-hatching of the pavement adjacent to the tracks on either side of the rail line. Supplementing the pavement markings, enhanced advance warning signage was installed on both the northbound and southbound approaches of Cedar Avenue.

In 2022, traffic signals were installed in close proximity to the grade crossings on both the northbound and southbound approaches of Cedar Avenue. These signals are connected to and synchronized with the gates at the crossing, changing to a red ball indication in advance of a train passing through the crossing. NJ Transit is currently monitoring the operations and effectiveness of the signals.

These improvements to the physical condition of the crossing and its safety features have reduced the hazard index score at this crossing. Beyond these improvements, in coordination with NJ Transit, NJDOT is currently advancing a feasibility study evaluating alternatives for elimination of the grade crossing.

5.0 Issues and Recommended Strategies

In reviewing the data analysis and the scoring outcomes, a list of key issues or needs were identified. The issues include:

- **Safety –** There is a need to address factors that contribute to crashes, injuries, and fatalities
- **Trespassing –** There is a need to reduce occurrences of trespassing on rail rights of way, which contributes to safety issues.
- **Infrastructure –** There is a need to ensure that the infrastructure at the crossings (gates, lights, rail and pavement conditions) are present, operational, and in good working condition;
- **Congestion –** There is a need to address the effects grade crossings have on traffic congestion on several major collectors, arterial roadways, and commercial town center districts. Congestion impacts economic activity, emergency response times, and mobility and accessibility. As trains get longer and population growth contributes to increased road traffic, congestion may worsen;
- **Environment –** Congestion increases vehicle emissions and the effects of transportation on the natural and human environment.
- **Community and Equity –** Community effects such as noise, particulate emissions are common considerations, as well as the effects that blocked crossings can have on personal mobility, access to schools and jobs, etc. Many of the crossings evaluated in this study are in areas that score highly on the NJTPA's equity composite index, suggesting that disadvantaged populations may be especially burdened by the community impacts of grade crossings.
- **Roadway Issues –** Pavement conditions, horizontal and vertical curves, unusual or unsafe configurations at adjacent intersections, and other roadway issues were observed at several crossings, which may contribute to safety concerns.
- **Active Transportation –** In many locations, sidewalks terminate at the rail right-of-way. In some cases, overgrown vegetation, pavement conditions, or lack of clear pedestrian accommodations (e.g., marked crosswalks, pedestrian gates and signals, etc.) may lead to unsafe conditions for pedestrians. Poor pavement conditions and rough transitions between pavement, flangeway headers, and rails create unsafe conditions for cyclists in some locations. Figure 5.1 is an example of a timber flangeway header in poor condition, observed at West Main Street in Bergenfield, Bergen County.

Figure 5.1 A Timber Flangeway Header in Poor Condition Can Be a Hazard to Cyclists

- **Rail Operations –** There are a few locations where rail switching may impact the speed with which trains pass through crossings. In addition, the trend toward longer trains leads to longer durations of closure and greater traffic congestion and mobility and accessibility concerns.

A scan of effective practices was implemented to identify strategies that can address these issues. The scan uncovered 17 strategies that could be explored at the Top Ten crossings and/or other locations where the issues cited above are present. The strategies are listed and described in Figure 5.2. Strategy descriptions and issues each strategy addresses, noting many strategies address more than one issue, are noted in Table 5.1.

More detailed descriptions of the strategies, including examples of their use, are provided in the package of strategy two-page summaries, submitted to the NJTPA under separate cover. The NJTPA's Central Staff are expected to incorporate those strategy summaries into its Goods Movement Strategies for Communities tool.[11]

[11] "Goods Movement Strategies for Communities," NJTPA, available from: https://goodsmovement.njtpa.org/home (accessed May 9, 2023).

Figure 5.2 Strategies to Address Grade Crossing Issues

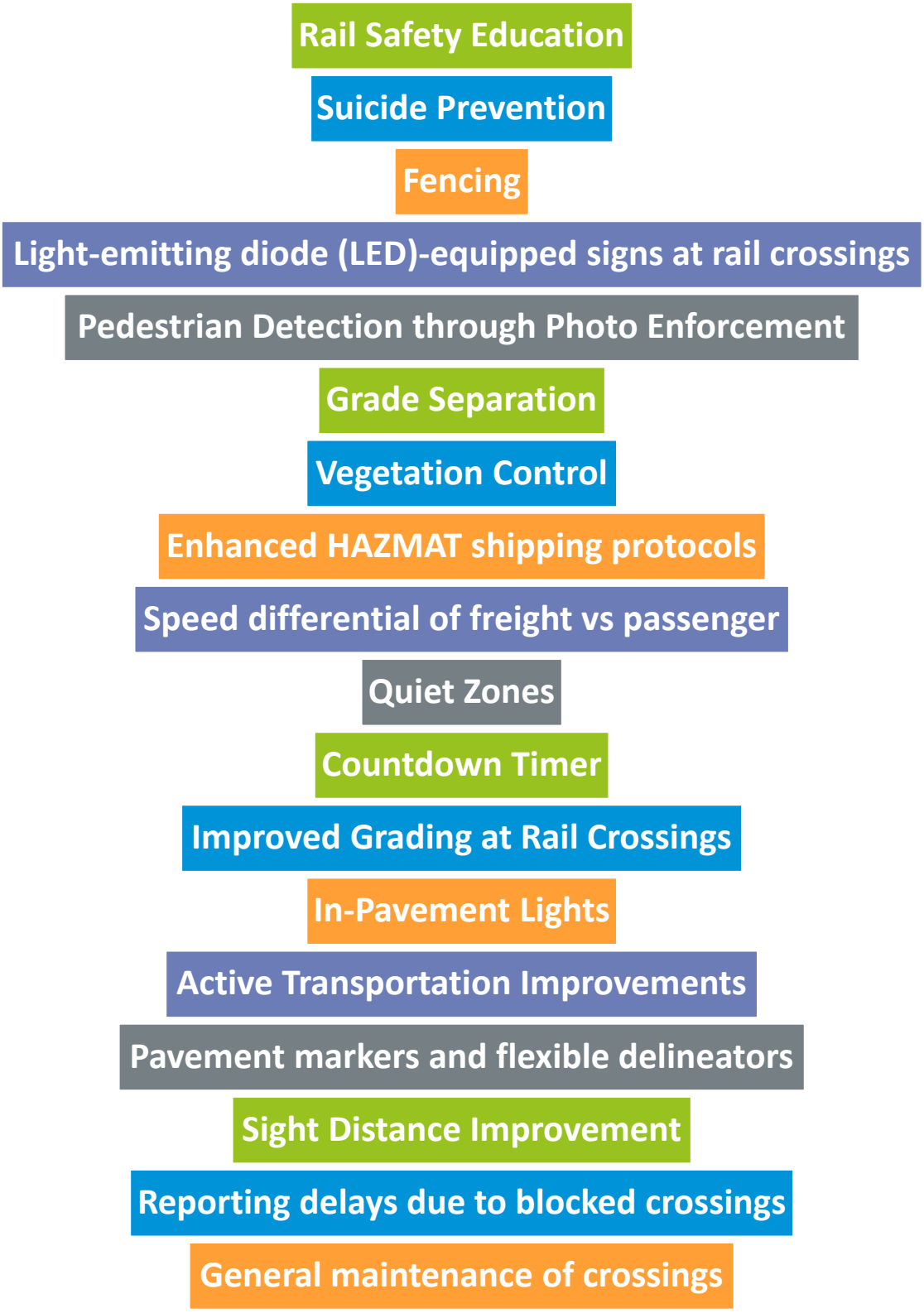


Table 5.1 Issues-Strategies Relationship Matrix

Strategy	Description	Goal	Challenges	Examples	Safety	Trespassing	Infrastructure	Congestion	Environmental	Community/ Equity	Roadway Issues	Active Transportation	Rail Operations
Rail Safety Education	Public awareness of rail operations and how to move safely through grade crossings may be a contributing factor to some crashes. For example, many in the public are unaware that freight trains cannot stop quickly enough to avoid colliding with a vehicle or other object in a crossing. More education can help motorists, pedestrians, cyclists, and others to understand risks, recognize and respond to safety signals and signage, and to travel safely when passing through at-grade crossings.	Reduce the number and severity of collisions at grade crossings		Operation Lifesaver is a non-profit organization that coordinates a nationwide network of volunteers to educate people about rail safety. It partners with federal transportation agencies, national transportation organizations, railroads, and other organizations. Operation Lifesaver offers free presentations to schools, businesses, and civic organizations.	X	X				X		X	
Suicide Prevention	Suicide prevention was not historically included among efforts to reduce grade crossing and trespass deaths. Since 2011, data on this and active prevention methods have been studied.	Reduce the number of deaths by suicide involving rail.		The Federal Railroad Administration (FRA) has sponsored research to identify, implement, and evaluate appropriate mitigation strategies. The Massachusetts Bay Transportation Authority (MBTA) conducted one such campaign with the Samaritans. This campaign included digital signage and posters in stations to promote the helpline.	X	X						X	
Fencing	Fencing surrounding rail rights-of-way can physically block trespassers from accessing the tracks. The most successful high security fencing solutions prevent this from all directions (over, under, through, and around).	Reduce the number of trespassers in rail rights-of-way.	Additional cost of high-security fencing can be prohibitive.	New Jersey Transit (NJT) began installing high security fencing in 2002. NJT's *Policy on Right of Way Signage and Fencing* names a manufacturer and states the specifications of the fence. The only known breach (as of 2015) was in one location where trespassers used stacked pallets to scale the fence.	X	X						X	
Light-emitting diode (LED)-equipped signs at rail crossings	Installation of LED-enhanced signs can help drivers be more aware of the dangers of stopping on railroad tracks. Research has shown a 41% decrease in the frequency of vehicles stopping on the tracks after LED signage was installed.	Reduce the numbers of vehicles blocking crossings by sitting on the tracks.	Supporting research was conducted at one crossing.	The Federal Railroad Administration (FRA) sponsored research to assess the impacts of LED signage installation. Signage was installed at the Brighton Street Crossing in Belmont, Massachusetts which had a history of being blocked by vehicles. Analysis of vehicle traffic showed a 41% decrease in vehicles stopping on the tracks after the LED-enhanced signs were installed.	X						X		
Pedestrian Detection through Photo Enforcement	Artificial Intelligence (AI) technology can be utilized to research and analyze pedestrian detection at highway rail grade crossings. This can be used to identify trespassers instances as well as develop avoidance solutions.	Determine frequency of trespasser instances and develop appropriate solutions.	Photo enforcement is not utilized in New Jersey. A red-light camera pilot in New Jersey ended in 2014 and other efforts at the state level seek to prevent other states' photo enforcement from fining New Jersey drives.	Rutgers University and New Jersey Transit (NJT) were selected by the Federal Transit Administration (FTA) to receive a $357,000 grant to study pedestrian detection. Data gathered through this effort aims to help transit agencies develop trespasser avoidance solutions.	X	X						X	

Strategy	Description	Goal	Challenges	Examples	Safety	Trespassing	Infrastructure	Congestion	Environmental	Community/ Equity	Roadway Issues	Active Transportation	Rail Operations
Quad Gates	4 Quadrant Gates, or Quad Gates, are designed to block all lanes of traffic on both sides of the track. They include a closure delay on the exit side to allow vehicles which get stuck to get off the tracks. They have been shown to reduce collisions at-grade crossings by 98%.	Reduce the number of drivers going around gate arms at grade crossings.	Quad gates are significantly more expensive compared to traditional gates. Usage of quad gates is relatively small. Quad gates are not foolproof.	Despite a relatively small implementation rate, the Brightline passenger rail corridor in Florida plans to install quad gates on nearly half of their crossings in urban areas. In Palm Beach County alone, 35 quad gates are planned to be installed out of 80 total crossings. Locations were determined based on calculated risk and the context of the surrounding area.	X		X				X	X	
Prevention of Blocked Crossings for Emergency Response	Blocked highway rail-grade crossings can prevent emergency responders from accessing situations in need of their services. Increasingly longer trains or unexpected stoppages (such as trespassers) block access for longer periods of time.	Reduce delays for emergency responders due to blocked crossings.	States and federal courts have prevented statutes allowing for trains to be ticketed for blocking crossings. There is no federal standard for train length or how long a stopped train can block crossings.	Several states have developed regulations on blocked crossings to reduce the time a crossing is blocked. In 2019, the Oklahoma Governor signed an emergency bill prohibiting a railcar from stopping and blocking vehicular traffic at a railroad intersection with a public highway for longer than 10 minutes. Two towns used the authority to issue tickets and BNSF quickly filed suit against the Oklahoma Corporation Commission and the towns. N.J. Rev Stat. 39:4-94 (2022) states that "No employee of a steam or electric railroad company shall operate a locomotive, train or crossing gate in such a manner as to unnecessarily prevent or interfere with the use of a highway for the purpose of travel." The associated fine is $85.	X			X		X	X		
Grade Separation	Grade separation is when a roadway is re-aligned over or under a railway to eliminate hazards. Benefits of grade separations include improved safety, reduced noise, and a decrease in traffic congestion.	Improve safety and traffic (rail and vehicle) operations.	Grade separation is costly and can involve significant right-of-way acquisition.	California is improving the worst grade crossing in the state at a cost of $156M at the intersection of Rosecrans and Marquardt avenues in Santa Fe Springs. One train crosses this intersection every seven minutes, causing vehicular traffic to be stopped for 21 hours per week. Efforts to construct this grade separation have taken more than a decade with construction expected to be completed in 2025.	X		X	X			X		X
Vegetation	Vegetation overgrowth can damage railroad tracks and equipment as well as limit visibility and cover signage.	Proper maintenance of rail rights-of-way to prevent vegetative overgrowth.		Canada's *Transport Canada's Rules Respecting Track Safety* require railways to maintain free-draining ballast and ensure track inspectors can properly access the condition of rail infrastructure. Canadian Pacific's vegetation management program includes the yearly herbicide treatment of ballast as well as mechanical cutting of vegetation to ensure proper visibility and the prevent of trees railing onto the railway.	X				X				

Strategy	Description	Goal	Challenges	Examples	Safety	Trespassing	Infrastructure	Congestion	Environmental	Community/ Equity	Roadway Issues	Active Transportation	Rail Operations
Enhanced HAZMAT shipping protocols	HAZMAT shipments pose a greater risk to the public in the event of an incident or delay. Improving transparency and regulations for HAZMAT shipments can improve safety surrounding such movements.	Reduce potential HAZMAT shipping incidents.	Rail incidents may happen anywhere along the rail lines, not just at grade crossings. Incidents may be difficult to access to mitigate.	Manufacturers of railcar equipment have developed Emergency Response Kits (ERKs) that are aimed towards fire departments, emergency-response contractors, and railway dangerous goods officers. One such company is Midland Manufacturing whose kit provides the tools and parts needed to cap hazmat leaks from the top of pressurized railcars. Legislation at the national level has aimed at requiring Class I railroads to generate accurate, real-time, and electronic train consist information for hazardous material transportation. This also includes provisions for the railroads to provide fusion centers with such information during an incident.	X					X			X
Speed differential of freight vs passenger	Passenger and freight trains operate at different speeds which can complicate rail corridor design and use. For example, the higher-speed passenger trains use improved suspensions, low center of gravity, and tilting technology which allows them to operate at higher speeds on curves.	Determine appropriate design criteria to maximize rail design for freight trains.	Reconstruction of existing railways may prove challenging due to space constraints (e.g., available right of way near curve) as well as the impact on rail operations during construction.	The Federal Railroad Administration has developed a framework for superelevation design to address the issue of passenger versus freight train speed differentials. This documentation includes standards set by Class I railroads as well as passenger operators such as Amtrak and Caltrain.	X								X
Quiet Zones	Under Train Horn Rule (49 CFR Part 222), locomotive engineers much begin to sound train horns for at least 15 seconds in advance of all public grade crossings. Quiet Zones provide an opportunity to mitigate the effects of this noise. In order to designate a Quiet Zone, localities much mitigate the increased the risk due to the lack of a train horn.	Reduce noise pollution associated with train horns at grade crossings.	Quiet Zones require mitigation measures to reduce risk which may be costly such as closing a grade crossing or installing quad gates.	NJTPA has developed a *Quiet Zone Designation in New Jersey* brochure to inform and guide the process of designating Quiet Zones. The FRA maintains a database of existing Quiet Zones which includes 11 locations in New Jersey.	X				X	X		X	X
Countdown Timer	Installing a countdown timer at grade crossings can inform other users (i.e., vehicle drivers or pedestrians) of how much longer the train will take to pass a crossing. Alternatively it could also provide information for how long it will be before the train will arrive.	Reduce need for highway users and pedestrians to feel a need to beat the train and understand how long a crossing may be blocked for.	Does not help vision impaired pedestrians. May have the opposite impact of increasing the desire to beat the train. Trains may operate at variable speeds and lengths which can make it difficult to determine appropriate countdown time.		X						X	X	

Strategy	Description	Goal	Challenges	Examples	Safety	Trespassing	Infrastructure	Congestion	Environmental	Community/ Equity	Roadway Issues	Active Transportation	Rail Operations
Improved Grading at Rail Crossings	Grading differences between the roadway asphalt and the physical rail line may cause vehicle slowdowns or for a larger vehicle to become stuck.	Improve grading at rail grade crossings to provide a safer and smoother roadway surface.	Varying elevations may not allow for significant improvements. Construction around grade crossings may temporarily impact both rail and roadway traffic.		X		X	X			X		
In Pavement Lights	Deployment of in-pavement lighting can reduce the likelihood of a driver violating the active safety equipment.	Reduce driver violations at rail grade crossings.	Testing of such technology has been minimal and greater benefits may be achieved with alternative solutions.	The Federal Railroad Administration (FRA) conducted a study in Elk City, Oklahoma to determine the impacts of in-pavement lighting solutions. Testing of this technology saw an 8.4% decrease in violations per activation.	X						X		
Active transportation improvements	Improve mobility for pedestrians, cyclists, and other active transportation users through measures such as improved sidewalks and increased warning signage.	Reduce active transportation-related incidents.	Options may include a variety of active and passive devices and each crossing will need to be evaluate to determine the best solution(s).	Miami-Dade County conducted a study of pedestrian improvements and found that they are context-sensitive. This study included the development of a toolbox to help determine the most effective strategies at a crossing.	X							X	
Pavement markers and flexible delineators.	Installation of pavement markers and flexible delineators can help to reduce incidents of vehicles turning onto railroad tracks or rights-of-way at grade crossings.	Reduce number of vehicles turning onto tracks or right-of-way.	Markers and delineators must be maintained due to normal wear and tear (e.g., delineators hit by vehicles) in order to maintain their effectiveness.	In Newark, Delaware, additional pavement markings were added to make motorists aware of both where they should and should not go. The grade crossing here is especially challenging due to it including two different crossings separated by a median.	X						X		
Sight Distance Improvement	Similar to highways, a sight triangle or clearing sight distance should be kept clear of obstructions in order for a driver or pedestrian to see if a train is approaching.	Increase visibility of approaching train.	Existing infrastructure (e.g., buildings) may block the proposed clear area. Approach angle of roadway versus railroad track may require a larger cleared area.	AASHTO has developed modules to help calculate the sight triangle required at grade crossings. This is dependent upon such factors as train speed, vehicle speed, and vehicle lengths. WSDOT's Design Manual also includes examples of how to determine the appropriate sight distance.	X						X	X	
Gridlock due to blocked crossings.	When trains block a grade crossing for a significant period of time, this can create gridlock for vehicle traffic.	Reduce gridlock associated with blocked grade crossings.	Alternative routes may not be available to avoid blocked crossings.	The Federal Railroad Administration has developed a reporting website for the public and law enforcement to report blocked crossings. The information requested includes time, date, duration, and location. In Surrey and Langley, signage was installed to inform motorists of where a train is and how long the delay may be. This allows users to determine if they want to avoid the delay due to the train and if they want to utilize an alternate route.	X			X	X	X	X		

Strategy	Description	Goal	Challenges	Examples	Safety	Trespassing	Infrastructure	Congestion	Environmental	Community/ Equity	Roadway Issues	Active Transportation	Rail Operations
General maintenance of crossings	Appropriate maintenance of crossings can help to maintain safety benefits associated with installed improvements.	Reduce the number of grade crossings which have fallen into disrepair.	Funding availability to maintain and improve crossings is limited.	The University of Kentucky evaluated the impact of pressures due to rail and road traffic on rail grade crossings to determine the impact on longevity. Asphalt underlays were found to minimize long term settlements at crossings, reducing the need for more frequent maintenance.	X		X				X	X	

6.0 Stakeholder Engagement and Communication Materials

The study team engaged a variety of public-sector and private-sector stakeholders over the course of the study in order to gather data and insights to inform the development of the study, and to solicit reviews and validations of draft findings. In addition, the study produced communication materials that will facilitate future discussions between the NJTPA, subregional, municipal, railroad, and other stakeholder groups on matters related to rail grade crossing safety, physical and operational conditions, community and equity issues, and implementation of strategies identified in this study.

Engagement activities included:

- Formation of a Technical Advisory Committee (TAC), consisting of representatives from several of the NJTPA's member agencies. The TAC was convened to review the proposed methodological approach early in the study, and a second time to review preliminary findings of the crossing evaluation and scoring and an early version of the issues and strategies lists. The TAC was also tapped to review the draft deliverables. NJDOT, a member of the TAC, was engaged early in the study to solicit information contained within grade crossing inspection reports that are developed and maintained by the Department.

- The study team reached out to the railroads, including Conrail, CSX, and Norfolk Southern, to request data and information regarding current or recent train volumes, average speeds on the segments in the study area, and other operational characteristics. The railroads were also notified of the schedule for field visits to the grade crossings.

- County and municipal officials were engaged in the communities where the Top Ten crossings are located. These officials were presented with draft versions of the crossing profiles for their respective crossing(s) and asked to review, validate, and/or provide additional relevant information that ought to be documented in the study.

In addition to this summary report, the study produced documents that are intended to communicate findings of the study with stakeholders and the public. These include:

- One-page profile documents summarizing existing conditions, key issues contributing to each crossing's ranking among the top ten, and potential strategies to address the key issues; and

- Two-page summaries of the strategies identified in Section 5 of this report, including descriptions of the strategies' objectives, and examples of where and how the strategies have been implemented to address issues in New Jersey or in other locations. The NJTPA's Central Staff will incorporate these two-page summaries into a forthcoming rail component of the NJTPA's Goods Movement Strategies for Communities Tool.

While the crossing profiles and strategies lists focused on issues observed at the Top Ten crossings, it is important to note that the guidance produced in this study is applicable to issues observed at other crossings in the study area as well. The findings of this study ought to encourage, rather than discourage, public agencies and railroads to identify and apply strategies to address issues observed at crossings throughout the region.

Appendix A: Evaluation Score Cards for all 65 Grade Crossings

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Columbia Ave.

Line: CSX River Line **Rank: 1**

Municipality: Dumont

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	3	3.5	10.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	1.7	3	5
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	3	3	9
Number of emergency response within a 3,000 ft radius	3	1.5	4.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		288.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: West Madison Ave.

Line: CSX River Line **Rank: 2**

Municipality: Dumont

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	4	3.5	14
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	1	3	3
Number of emergency response within a 3,000 ft radius	4	1.5	6
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		286

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Old Hook Rd.

Line: CSX River Line **Rank: 3**

Municipality: Closter

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		267.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Inman Ave.

Line: Conrail Lehigh **Rank: 4**

Municipality: Edison

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	1	2.5	2.5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		267.4

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Bergen Turnpike

Line: CSX River Line **Rank: 5**

Municipality: Ridgefield Park

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	5	3	15
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	5	3.5	17.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	1.3	3	4
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		266

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: West Clinton Ave.

Line: CSX River Line **Rank: 6**

Municipality: Bergenfield

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	2	3.5	7
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		265

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: New Market Rd.

Line: Conrail Lehigh **Rank: 7**

Municipality: Piscataway

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	1.0	3	3
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		259.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Rahway Ave.

Line: Conrail Lehigh **Rank: 8**

Municipality: Westfield

County: Union

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	5	4	20
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	1.67	3	5
	Total Weighted Score		258.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Stelton Rd.

Line: Conrail Port Reading Secondary **Rank: 9**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	5	3.5	17.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	3	3.5	10.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	2	4	8
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		255

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: South Main St.

Line: Conrail Port Reading Secondary **Rank: 10**

Municipality: Bound Brook

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	1	4	4
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	5	3	15
Pedestrian & Cyclist Level of Activity	4	3.5	14
Level of Accommodation and Control for Pedestrian	3	3.5	10.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	1	3	3
Number of emergency response within a 3,000 ft radius	4	1.5	6
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		253.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: New Bridge Rd.

Line: CSX River Line **Rank: 11**

Municipality: Bergenfield

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	3	3.5	10.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		252.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Cedar Ave.

Line: Conrail Lehigh **Rank: 12**

Municipality: Middlesex

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	2	3.5	7
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	3.3	3	10
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		251.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Haworth Ave.

Line: CSX River Line **Rank: 12**

Municipality: Haworth

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	2	3	6
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	1.3	3	4
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	1	3	3
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		251.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: New Milford Ave.

Line: CSX River Line **Rank: 14**

Municipality: Dumont

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	3	3.5	10.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	1	3	3
Number of emergency response within a 3,000 ft radius	2	1.5	3
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		250.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: New Brunswick Ave.

Line: Conrail Port Reading Secondary **Rank: 15**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	3	3.5	10.5
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	2	4	8
Duration of Closure – Average Time	2	3.5	7
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	3	4	12
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		250

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Harriot Ave.

Line: CSX River Line **Rank: 16**

Municipality: Harrington Park

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	2	3	6
Number of emergency response within a 3,000 ft radius	2	1.5	3
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		246

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Front St.

Line: Conrail Lehigh **Rank: 17**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		**241.5**

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Broadway

Line: CSX River Line **Rank: 18**

Municipality: Norwood

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	2	5	10
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		241

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Durie Ave.

Line: CSX River Line **Rank: 19**

Municipality: Haworth

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	3	3.5	10.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	5	3	15
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		238.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: West Main St.

Line: CSX River Line **Rank: 20**

Municipality: Bergenfield

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	2	1.5	3
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		238

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Prospect Ave.

Line: Conrail Lehigh **Rank: 21**

Municipality: Piscataway

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	3	3.5	10.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	1.0	3	3
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		235

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Mt. Vernon St.

Line: CSX River Line **Rank: 22**

Municipality: Ridgefield Park

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	1.7	3	5
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	1	3	3
Number of emergency response within a 3,000 ft radius	2	1.5	3
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		232

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: West Church St.

Line: CSX River Line **Rank: 23**

Municipality: Bergenfield

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	2	1.5	3
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		231

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: La Roche Ave.

Line: CSX River Line **Rank: 24 (tied)**

Municipality: Harrington Park

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	3	3.5	10.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	3	3.5	10.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	1	3	3
Number of emergency response within a 3,000 ft radius	2	1.5	3
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		227.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: South Ave.

Line: Conrail Lehigh **Rank: 24 (tied)**

Municipality: Middlesex

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	2	5	10
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	0	3	0
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		227.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: St. Paul Ave.

Line: Conrail Northern Branch **Rank: 26**

Municipality: Jersey City

County: Hudson

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	5	3	15
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	5	3.5	17.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	1	2.5	2.5
Projected Changes in Roadway Traffic	3	3	9
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	3	3.5	10.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		227

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: New Brunswick Ave.

Line: Conrail Lehigh **Rank: 27**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	3	3.5	10.5
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		225

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: St. George Ave.

Line: Conrail Port Reading Secondary **Rank: 28**

Municipality: Woodbridge

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	5	3.5	17.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	5	3.5	17.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	1	4	4
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		224.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Lafayette Rd.

Line: CSX River Line **Rank: 29**

Municipality: Harrington Park

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	2	1.5	3
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		224

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Central Ave.

Line: CSX River Line **Rank: 30**

Municipality: Bergenfield

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	3	3.5	10.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	1.7	3	5
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	2	3	6
Number of emergency response within a 3,000 ft radius	3	1.5	4.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		223

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Blanch Ave.

Line: CSX River Line **Rank: 31**

Municipality: Norwood

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		222.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Main St.

Line: NS Lehigh **Rank: 32**

Municipality: Readington Twp.

County: Hunterdon

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	5	3	15
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		221

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Perryville Rd.

Line: NS Lehigh **Rank: 33**

Municipality: Union Twp.

County: Hunterdon

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	3	3.5	10.5
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	3	4	12
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		218.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Clinton Ave.

Line: Conrail Lehigh **Rank: 34**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	5	4	20
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	0	3.5	0
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	4	3	12
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	5	3.5	17.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	0	4	0
Roadway - Volume Level	4	0	0
Prevailing Operating Speed	1	2.5	2.5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	5	3.5	17.5
Level of Accommodation and Control for Pedestrian	2.33	3.50	8.17
Proximity to Other Grade Crossings (composite)	3.0	3	9
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	0	3.5	0
PM Emissions	3	3	9
Proportion of Actuations during Peak Roadway Activity Periods	0	4	0
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	3	1.5	4.5
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		202.67

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Clinton Ave.

Line: CSX River Line **Rank: 35**

Municipality: Northvale

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	3.3	3	10
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		214.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Tingley Ln.

Line: Conrail Lehigh **Rank: 36**

Municipality: Edison

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	3	5	15
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	5	3	15
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		212.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Haworth Ave. (Pedestrian Crossing)

Line: CSX River Line **Rank: 37**

Municipality: Haworth

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	5	3	15
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	0.7	3	2
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	1	3	3
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		209.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: 13th Ave.

Line: NS Lehigh **Rank: 38**

Municipality: Manville

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	3	3.5	10.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		208

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Bogota Pedestrian Crossing

Line: CSX River Line **Rank: 39**

Municipality: Bogota

County: Bergen

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	5	5	25
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	3	3.5	10.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		**206.5**

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Baekeland Ave.

Line: Conrail Port Reading Secondary **Rank: 40**

Municipality: Piscataway

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	5	3	15
Frequency of Activity -Activations/Trains Per Day	1	4	4
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	5	4	20
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		195

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Woodbridge Ave.

Line: Conrail Garden State Secondary **Rank: 41**

Municipality: Woodbridge

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	3	3.5	10.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	5	3.5	17.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	0	3.5	0
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		192.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Rahway Ave.

Line: Conrail Port Reading Secondary **Rank: 42**

Municipality: Woodbridge

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		190

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Blair Rd.

Line: Conrail Port Reading Secondary **Rank: 43**

Municipality: Woodbridge

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	4	5	20
Physical Features and Controls at the Crossing			
Functional Class of Roadway	4	3.5	14
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		177.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Stanton Station Rd.

Line: NS Lehigh **Rank: 44**

Municipality: Readington Twp.

County: Hunterdon

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	3	3.5	10.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	3.0	3	9
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		174.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: South Clinton Ave.

Line: Conrail Port Reading Secondary **Rank: 44**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	2	5	10
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	3	3.5	10.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	2	4	8
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	1.7	3	5
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		174.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Chapel Ave.

Line: Conrail National Docks Secondary **Rank: 46**

Municipality: Jersey City

County: Hudson

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	1	3	3
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	3	3	9
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		171.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Hamden Rd.

Line: NS Lehigh **Rank: 47 (tied)**

Municipality: Clinton

County: Hunterdon

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	5	3	15
	Total Weighted Score		170

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Lehigh Rd.

Line: NS Lehigh **Rank: 47 (tied)**

Municipality: Branchburg Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	3.3	3	10
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	5	3	15
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		170

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Maurer Rd. (State St.)

Line: Conrail Garden State Secondary **Rank: 49**

Municipality: Perth Amboy

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	5	3	15
Frequency of Activity -Activations/Trains Per Day	1	4	4
Duration of Closure – Average Time	5	3.5	17.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	1	2.5	2.5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	3	3.5	10.5
Proximity to Other Grade Crossings (composite)	3.0	3	9
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	5	3.5	17.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		169.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Kicenuik Rd.

Line: NS Lehigh **Rank: 50**

Municipality: Clinton

County: Hunterdon

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	2	3.5	7
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	3.0	3	9
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		167.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Auten Rd.

Line: NS Lehigh **Rank: 51**

Municipality: Hillsborough Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	3	3.5	10.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	3.0	3	9
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	5	3.5	17.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		167

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Milos Way Hess Driveway (School St.)

Line: Conrail Garden State Secondary **Rank: 52**

Municipality: Woodbridge

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	3	3.5	10.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	0	4	0
Duration of Closure – Average Time	5	3.5	17.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	3	3.5	10.5
Proximity to Other Grade Crossings (composite)	3.3	3	10
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		165.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Beekman Ln.

Line: NS Lehigh **Rank: 53**

Municipality: Hillsborough Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	3	4	12
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		164

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Still Valley Rd.

Line: NS Lehigh **Rank: 54**

Municipality: Pohatcong

County: Warren

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	3	3.5	10.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	3	2.5	7.5
Projected Changes in Roadway Traffic	3	3	9
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		161

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Valley Rd.

Line: NS Lehigh **Rank: 55**

Municipality: Hillsborough Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	3	3.5	10.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	3	3.5	10.5
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		159.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Roycefield Rd.

Line: NS Lehigh **Rank: 56**

Municipality: Hillsborough

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	1	3.5	3.5
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		158

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Sunnymead Rd.

Line: CSX Trenton **Rank: 57**

Municipality: Montgomery Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	2	3.5	7
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	2	3.5	7
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	2	4	8
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	1	3	3
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	3	3	9
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.7	3	8
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		157.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Landsdown Rd.

Line: NS Lehigh **Rank: 58**

Municipality: Franklin Twp.

County: Hunterdon

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	0	3	0
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	5	3.5	17.5
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	1.7	3	5
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	1	1.5	1.5
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		157

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Helen St.

Line: Conrail Port Reading Secondary **Rank: 59**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	3	5	15
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	1	4	4
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	3	4	12
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	2	2.5	5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	1.3	3	4
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		155

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Belle Mead-Blawenburg Rd.

Line: CSX Trenton **Rank: 60**

Municipality: Montgomery Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	2	3.5	7
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	0	3	0
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	1	3	3
School Buses Using Crossing	3	4	12
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	3	3	9
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	3.3	3	10
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		151

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Belle Mead-Blawenburg Rd.

Line: CSX Trenton **Rank: 60**

Municipality: Montgomery Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	2	3.5	7
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	0	3	0
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	1	3	3
School Buses Using Crossing	3	4	12
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	3	3	9
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	3.3	3	10
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	3	3	9
	Total Weighted Score		151

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Spring Hill Rd.

Line: CSX Trenton **Rank: 61**

Municipality: Montgomery Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	2	3.5	7
Existence/Severity of Horizontal Curve	1	3.5	3.5
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	1	3	3
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.3	3	7
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		147.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Province Line Rd.

Line: CSX Trenton **Rank: 62**

Municipality: Montgomery Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	2	5	10
Physical Features and Controls at the Crossing			
Functional Class of Roadway	2	3.5	7
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	1	3	3
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	0	2.5	0
Projected Changes in Roadway Traffic	3	3	9
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	3	3.5	10.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		140.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Hollow Rd.

Line: CSX Trenton **Rank: 63 (tied)**

Municipality: Montgomery Twp.

County: Somerset

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	5	3	15
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	1	3.5	3.5
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	3	4	12
Duration of Closure – Average Time	4	3.5	14
Projected Change in Rail Traffic	1	3	3
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	1	4	4
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	3	3	9
Overnight Noise (composite)	4.33	3	13
	Total Weighted Score		139.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: South Ave.

Line: Conrail Port Reading Secondary **Rank: 63 (tied)**

Municipality: South Plainfield

County: Middlesex

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	0	5	0
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	3	3	9
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	3	3.5	10.5
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	1	4	4
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	1	2.5	2.5
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	1.7	3	5
Community/Equity Considerations			
Equity Communities	5	3.5	17.5
Population Density	3	3.5	10.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	2	4	8
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	2.33	3	7
	Total Weighted Score		139.5

NJTPA Freight Rail Crossing Assessment Update

Crossing Name: Rockafellow Mills Rd.

Line: NS Lehigh **Rank: 65**

Municipality: Readington Twp.

County: Hunterdon

Criteria	Raw Score	Weight	Total Score
Safety History and Profile			
FRA Crash History	1	5	5
Hazard Index	1	5	5
Physical Features and Controls at the Crossing			
Functional Class of Roadway	1	3.5	3.5
Active vs. Passive Control at Crossing	1	4	4
Proximate/Adjacent Driveways and Roadways (Existing and Anticipated)	1	3	3
Proximate/Adjacent Traffic Signals (Existing and Anticipated)	0	3.5	0
Existence /Severity of Vertical Curve (Crest and or Sag)	0	3.5	0
Existence/Severity of Horizontal Curve	0	3.5	0
Sight Distance to Back of Queue (duration of queue clearance)	1	3.5	3.5
Rail, Roadway and Pedestrian Operational Characteristics			
Local Rail Operations/ Switching Involving the Grade Crossing	0	3	0
Frequency of Activity -Activations/Trains Per Day	4	4	16
Duration of Closure – Average Time	3	3.5	10.5
Projected Change in Rail Traffic	3	3	9
School Buses Using Crossing	0	4	0
Roadway - Volume Level	0	0	0
Prevailing Operating Speed	4	2.5	10
Projected Changes in Roadway Traffic	1	3	3
Projected Changes in Pedestrian & Cyclist Traffic	1	3	3
Pedestrian & Cyclist Level of Activity	1	3.5	3.5
Level of Accommodation and Control for Pedestrian	5	3.5	17.5
Proximity to Other Grade Crossings (composite)	2.0	3	6
Community/Equity Considerations			
Equity Communities	1	3.5	3.5
Population Density	1	3.5	3.5
PM Emissions	0	3	0
Proportion of Actuations during Peak Roadway Activity Periods	3	4	12
Number of emergency response within a 1,000 ft radius	0	3	0
Number of emergency response within a 3,000 ft radius	0	1.5	0
Proximity to School	0	3.5	0
Residential Land Percentage in the Buffer	1	3	3
Overnight Noise (composite)	3.67	3	11
	Total Weighted Score		135.5

Appendix B: Top Ten Grade Crossing Profiles

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#1 Columbia Avenue

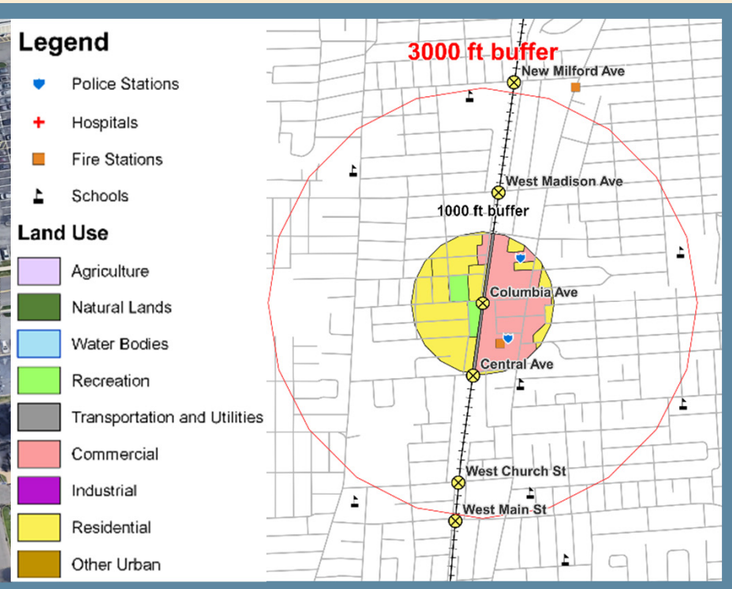
DUMONT, BERGEN COUNTY

Nearest Cross-Streets:	• Cortland Avenue • Addon Road
Railroad and Line:	CSX River Line
Trains per Day (year):	23 (2022)
Average Annual Daily Traffic (year):	11,832 (2017)
Population Density within 1,000 feet radius:	10,818 per square mile
Residential Land as percent of land within 1,000 feet radius:	49%
Crashes reported from 2011-2021 (fatalities):	2 (1)
Emergency Services within 3,000 feet:	3

KEY ISSUES AND/OR NEEDS

Key issues and concerns at Columbia Avenue include:

- The volume of pedestrian activity in the area due to its proximity to the commercial district and neighborhood park. There is an elevated risk of pedestrian safety issues and/or trespassing.
- This area has a high equity composite score, which tracks 10 socioeconomic and demographic factors, suggesting that disadvantaged populations may be especially impacted by issues at this crossing.
- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur. One fatality occurred when driver drove around gates and was struck by a train.
- Potential effects on emergency services such as police and fire response, due to the crossing's proximity to 3 emergency services facilities.
- Community impacts such as noise. This crossing is not located in a quiet zone, is in a densely-populated community, and has a high proportion (about 49% of the land area within 1,000 feet radius) of residential land use.



SAFETY FEATURES AT THIS CROSSING

Columbia Avenue has dual gates, lights, and crossbucks present.

POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

Promote grade crossing safety through education programs such as Operation Lifesaver.

Fencing and/or other separation at neighboring business to prevent encroaching within right-of-way of the crossing.

Quad gates to prevent vehicles queuing across the crossing and drivers going around gate arms.

Pedestrian improvements to address safety and walkability:

- Pedestrian gates.
- Improved sidewalk infrastructure approaching crossing in both directions.

Establishment of a quiet zone to reduce noise impacts on surrounding residential areas

- This would require other improvements to this and potentially other nearby crossings.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#2 West Madison Avenue

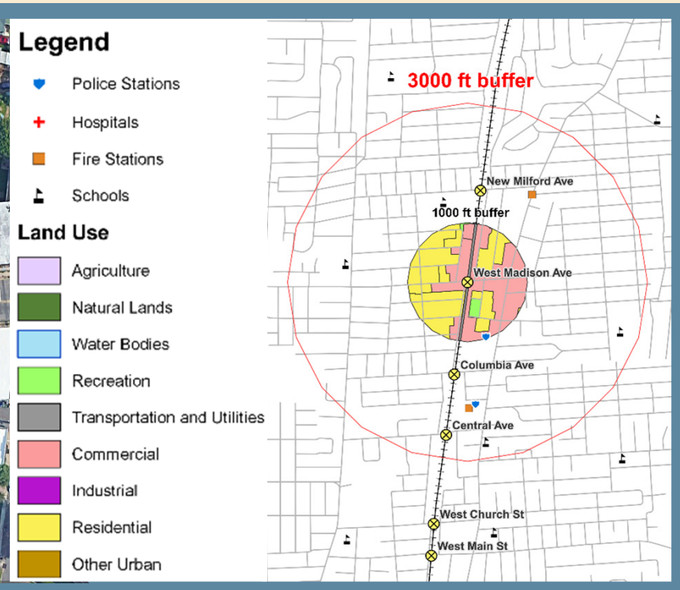
BERGENFIELD AND DUMONT, BERGEN COUNTY

Nearest Cross-Streets:	• Cortland Avenue • West Shore Road
Railroad and Line:	CSX River Line
Trains per Day (year):	23 (2022)
Average Annual Daily Traffic (year):	17,640 (2017)
Population Density within 1,000 feet radius:	11,823 per square mile
Residential Land as percent of land within 1,000 feet radius:	50%
Crashes reported from 2011-2021 (fatalities):	1 (0)
Emergency Services within 3,000 feet:	4

KEY ISSUES AND/OR NEEDS

Key issues and concerns at West Madison Avenue include:

- The volume of pedestrian activity in the area due to its proximity to the commercial district and high school. There is an elevated risk of pedestrian safety issues and/or trespassing.
- Vehicular traffic impacts due to high traffic volume (17,640 average daily) and high average duration of closures (3 minutes, 36 seconds).
- Potential effects on emergency services such as police and fire response, due to the crossing's close proximity to 4 emergency services facilities.
- Community impacts such as noise. This crossing is not located in a quiet zone, is in a densely-populated community, and has a high proportion (about 50% of the land area within 1,000 feet radius) is residential.



SAFETY FEATURES AT THIS CROSSING

West Madison Avenue has dual gates, pedestrian gates, and pedestrian walkways painted onto the asphalt surface. Crossbuck signs and lights are also present.

POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

Promote grade crossing safety through education programs such as Operation Lifesaver.

Fencing to protect pedestrians from passing trains.
- Particularly north of West Madison Avenue alongside the arboretum.

Quad gates to prevent vehicle queuing across the crossing.

Other pedestrian improvements to address safety and walkability.
- For example, crosswalks at Veterans Plaza, Cortland Ave, and/or West Shore Ave could allow pedestrians to cross more safely when traffic queues are long.

Establishment of a quiet zone to reduce noise impacts on surrounding residential areas
- This would require other improvements to this and potentially other nearby crossings.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#3 Old Hook Road

CLOSTER, BERGEN COUNTY

Nearest Cross-Streets:	• Schraalenburgh Road • Oradell Reservoir
Railroad and Line:	CSX River Line
Trains per Day (year):	27 (2022)
Average Annual Daily Traffic (year):	32,640 (2017)
Population Density within 1,000 feet radius:	2,627 per square mile
Residential Land as percent of land within 1,000 feet radius:	22%
Crashes reported from 2011-2021 (fatalities):	0 (0)
Emergency Services within 3,000 feet:	0

KEY ISSUES AND/OR NEEDS

Key issues and concerns at Old Hook Road include:

- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur.
- Vehicular traffic impacts due to high traffic volume (32,640 average daily) and high average duration of closures (3 minutes, 7 seconds). Roadway traffic is also projected to increase.
- Limited sight distance at the back of the queue as drivers approach the crossing.
- Community impacts such as noise. This crossing is not located in a quiet zone and received a high overnight noise composite score

SAFETY FEATURES AT THIS CROSSING

Old Hook Road has dual gates, overhead lights, and crossbucks present.

POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

Promote grade crossing safety through education programs such as Operation Lifesaver.

Quad gates to prevent vehicle queuing across the crossing.

Advance signage to increase visibility of approaching train for drivers in the back of the queue.

Establishment of a quiet zone to reduce noise impacts on surrounding residential areas.

- This would require other improvements to this and potentially other nearby crossings.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#4 Inman Avenue

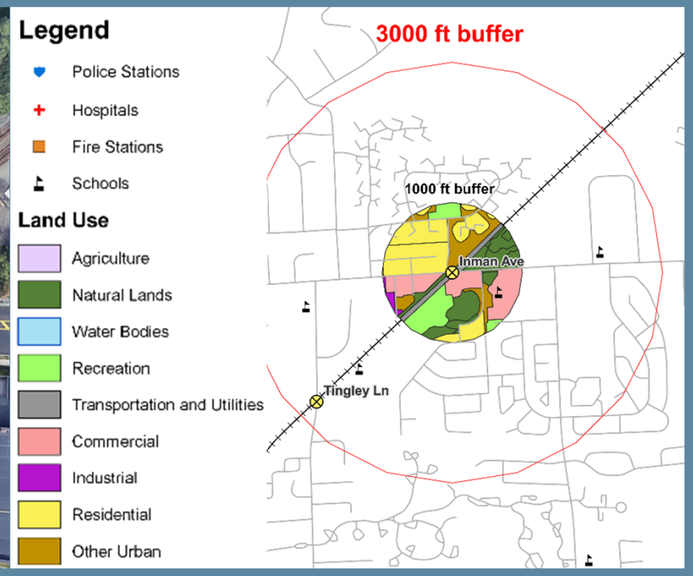
EDISON, MIDDLESEX COUNTY

Nearest Cross-Streets:	• Westgate Drive • Shamrock Way
Railroad and Line:	Conrail Lehigh Line
Trains per Day (year):	35 (2022)
Average Annual Daily Traffic (year):	20,472 (2017)
Population Density within 1,000 feet radius:	3,121 per square mile
Residential Land as percent of land within 1,000 feet radius:	30%
Crashes reported from 2011-2021 (fatalities):	1 (0)
Emergency Services within 3,000 feet:	0

KEY ISSUES AND/OR NEEDS

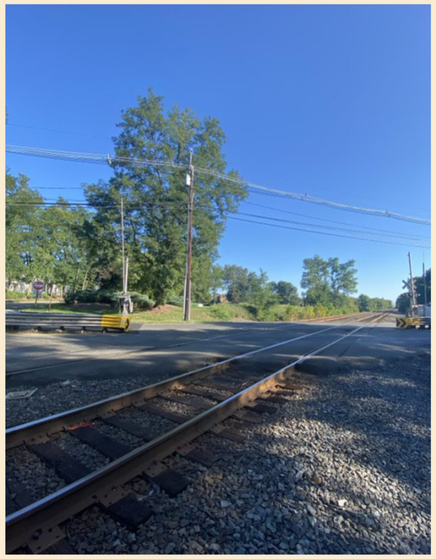
Key issues and concerns at Inman Avenue include:

- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur.
- This area has a high equity composite score, which tracks 10 socioeconomic and demographic factors, suggesting that disadvantaged populations may be especially impacted by issues at this crossing.
- Limited sight distance at the back of the queue as drivers approach crossing.
- Vehicular traffic impacts due to high traffic volume (20,472 average daily).
- Poor pavement condition and big pothole causing traffic to slowdown, also impacting cyclist safety.
- Lack of active transportation (e.g., bicycle and pedestrian) infrastructure.



SAFETY FEATURES AT THIS CROSSING

Inman Avenue has quad gates, and a concrete barrier exists on both sides of the crossing in the middle of Inman Avenue.



POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

Promote grade crossing safety through education programs such as Operation Lifesaver.

Improve grading at rail crossings to prevent vehicle slowdowns or larger vehicles from becoming stuck.

Active transportation improvements to address safety and walkability:

- Pedestrian crosswalk/sidewalk infrastructure should be placed around and continue through crossing to provide clear designation of pedestrian walkable.
- Pavement surface needs smoothing to improve safety for cyclists.

Advance signage to increase visibility of approaching train for drivers in the back of the queue.

General maintenance of crossings and road approaching crossing to address pavement condition and pothole.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#5 Bergen Turnpike

RIDGEFIELD PARK, BERGEN COUNTY

Nearest Cross-Streets:	• Main Street • Industrial Way
Railroad and Line:	CSX River Line
Trains per Day (year):	24 (2022)
Average Annual Daily Traffic (year):	6,768 (2017)
Population Density within 1,000 feet radius:	8,518 per square mile
Residential Land as percent of land within 1,000 feet radius:	26%
Crashes reported from 2011-2021 (fatalities):	5 (0)
Emergency Services within 3,000 feet:	1

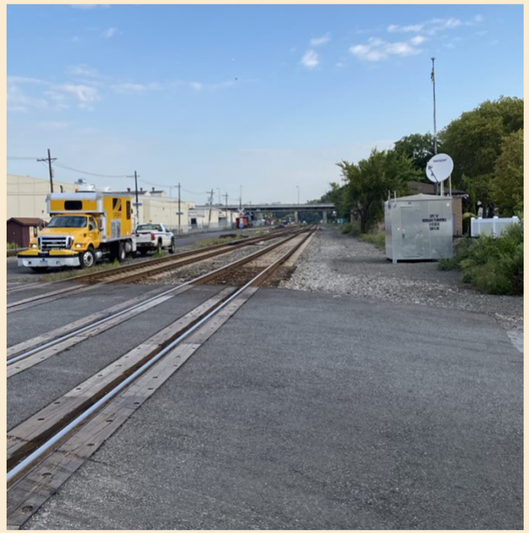
KEY ISSUES AND/OR NEEDS

Key issues and concerns at Bergen Turnpike include:

- Queueing at eastern intersection during crossing. Sight distance issues at the back of the queue as drivers approach crossing. No pavement marking or signage on either legs of the intersection.
- Visible path from pedestrians. Pedestrians crossing east to west in a.m. (three in first ten minutes).
- This area has a high equity composite score, which tracks 10 socioeconomic and demographic factors, suggesting that disadvantaged populations may be especially impacted by issues at this crossing.
- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur. One crash where train collided with vehicle at crossing and high average duration of closures 5 minutes, 6 seconds.
- Community impacts such as noise. This crossing is not located in a quiet zone.

SAFETY FEATURES AT THIS CROSSING

Bergen Turnpike has gates, lights and crossbucks present.



POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

Promote grade crossing safety through education programs such as Operation Lifesaver.

Install pavement markers and flexible delineators

- Railroad pavement markings and/or signage on both legs of intersection.
- Reduce incidents of vehicles turning onto railroad tracks or rights-of-way at grade crossings.

Advance signage to increase visibility of approaching train for drivers in the back of the queue.

Pedestrian improvements to address safety and walkability:

- Pedestrian crosswalk/sidewalk infrastructure should be placed around and continue through crossing to provide clear designation of pedestrian walkable space and to allow pedestrians to cross more safely when traffic queues are long.

Establishment of a quiet zone to reduce noise impacts on surrounding residential areas.

- This would require other improvements to this and potentially other nearby crossings.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#6 West Clinton Avenue

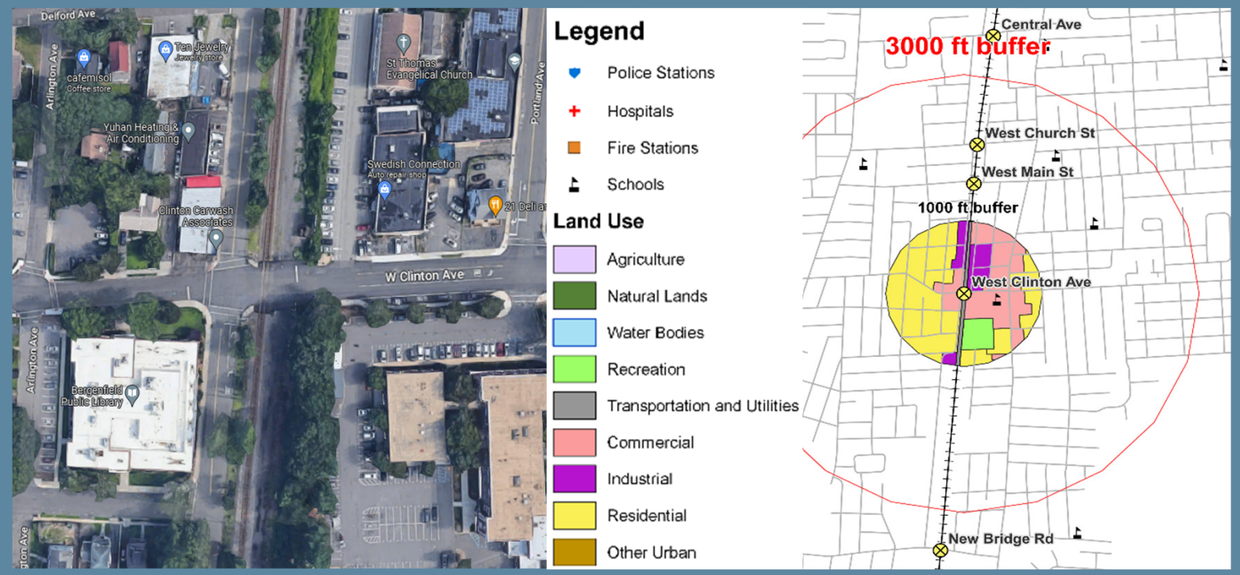
BERGENFIELD, BERGEN COUNTY

Nearest Cross-Streets:	• S. Front Street • S. Railroad Avenue
Railroad and Line:	CSX River Line
Trains per Day (year):	23 (2022)
Average Annual Daily Traffic (year):	15,096 (2017)
Population Density within 1,000 feet radius:	9,771 per square mile
Residential Land as percent of land within 1,000 feet radius:	53%
Crashes reported from 2011-2021 (fatalities):	1 (0)
Emergency Services within 3,000 feet:	0

KEY ISSUES AND/OR NEEDS

Key issues and concerns at West Clinton Avenue include:

- The volume of pedestrian activity in the area due to its proximity to a middle school and public library. There is an elevated risk of pedestrian safety issues and/or trespassing.
- Vegetation overgrowth in pedestrian walkway going westbound along W Clinton Ave.
- Vehicular traffic impacts due to high traffic volume (15,096 average daily) and high average duration of closures (3 minutes, 57 seconds).
- This area has a high equity composite score, which tracks 10 socioeconomic and demographic factors, suggesting that disadvantaged populations may be especially impacted by issues at this crossing.
- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur.
- Community impacts such as noise. This crossing is in a densely-populated community and has a high proportion (about 53% of the land area within 1,000 feet radius) is residential.



SAFETY FEATURES AT THIS CROSSING

West Clinton Avenue has gates, pedestrian gates, pedestrian walkways painted onto the asphalt surface (S Front Street), crossbuck signs, and lights present.

POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

Promote grade crossing safety through education programs such as Operation Lifesaver.

Install pavement markings to inform drivers that railroad crossing is approaching.

Advanced signage to increase visibility of approaching train for drivers in the back of the queue.

Quad gates to prevent vehicle queuing across the crossing.

Pedestrian improvements to address safety and walkability:

- Increased warning signage.
- Continue crosswalk on both sides of street towards school.

Establishment of a quiet zone to reduce noise impacts on surrounding residential areas.

- This would require other improvements to this and potentially other nearby crossings.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#7 New Market Road

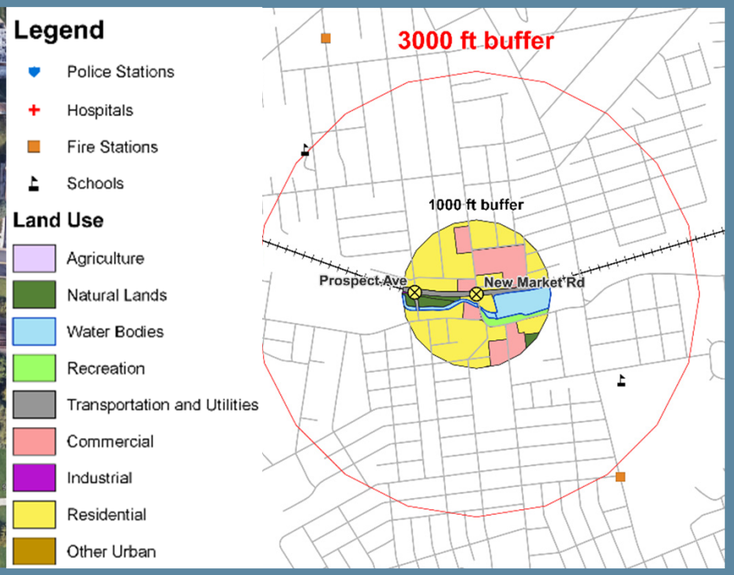
PISCATAWAY, MIDDLESEX COUNTY

Nearest Cross-Streets:	• Sherwood Drive • William Street
Railroad and Line:	Conrail Lehigh Line
Trains per Day (year):	35 (2022)
Average Annual Daily Traffic (year):	11,520 (2016)
Population Density within 1,000 feet radius:	4,440 per square mile
Residential Land as percent of land within 1,000 feet radius:	57%
Crashes reported from 2011-2021 (fatalities):	0 (0)
Emergency Services within 3,000 feet:	0

KEY ISSUES AND/OR NEEDS

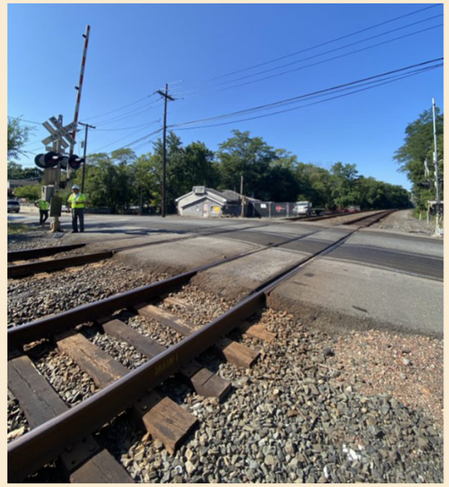
Key issues and concerns at New Market Road include:

- A community park and other businesses are within very close proximity to the rail crossing. There may be an elevated risk of pedestrian safety issues, trespassing and/or encroaching within rail right-of-way.
- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur.
- Limited sight distance at the back of the queue as drivers approach crossing.
- This area has a high equity composite score, which tracks 10 socioeconomic and demographic factors, suggesting that disadvantaged populations may be especially impacted by issues at this crossing.
- Lack of pedestrian infrastructure approaching and through crossing. Pedestrian crosswalk/sidewalk should continue through crossing to provide clear designation of pedestrian walkable space.
- Community impacts such as noise. This crossing is not located in a quiet zone. It is in a densely-populated community and has a high proportion (about 57% of the land area within 1,000 feet radius) of residential land use.



SAFETY FEATURES AT THIS CROSSING

New Market Road has dual gates, pedestrian gates, crossbucks, and lights present.



POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

Promote grade crossing safety through education programs such as Operation Lifesaver.

Fencing and/or other separation at neighboring businesses to prevent encroaching within right-of-way of the crossing.

Quad Gates to prevent conflicts between vehicular traffic and increased rail traffic.

Pedestrian improvements to address safety and walkability:

- Improved Sidewalks and increased warning signage. Pedestrian crosswalk/sidewalk should continue through crossing to provide clear designation of pedestrian walkable space.

Establishment of a quiet zone to reduce noise impacts on surrounding residential areas.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study.

This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#8 Rahway Avenue

WESTFIELD, UNION COUNTY

Nearest Cross-Streets:	• Lamberts Mill Road • Terminal Avenue (Clark)
Railroad and Line:	Conrail Lehigh Line
Trains per Day (year):	40 (2022)
Average Annual Daily Traffic (year):	21,024 (2016)
Population Density within 1,000 feet radius:	4,248 per square mile
Residential Land as percent of land within 1,000 feet radius:	42%
Crashes reported from 2011-2021 (fatalities):	0 (0)
Emergency Services within 3,000 feet:	0

KEY ISSUES AND/OR NEEDS

Key issues and concerns at Rahway Avenue include:

- Limited sight distance at the back of the queue as drivers approach crossing.
- Vehicular traffic impacts due to high traffic volume (21,024 average daily) and moderate average duration of closures (2 minutes, 38 seconds).
- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur.
- High frequency of trains per day and rail traffic is projected to increase. In particular, there are many trains passing through during the morning peak period.
- Vegetation overgrowth into street.
- No sidewalks approaching or in the crossing, despite a moderate level of pedestrian activity in the area.

SAFETY FEATURES AT THIS CROSSING

Rahway Avenue has gates, lights, Crossbuck signs, and railroad pavement markings present.

POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

- Promote grade crossing safety through education programs such as Operation Lifesaver.
- Additional advanced signage to increase visibility of approaching train for drivers in the back of the queue.
- Quad gates to prevent vehicle queuing across the crossing.
- Proper maintenance of vegetation overgrowth into street near crossing.
- Pedestrian improvements to address safety and walkability:
  - Pedestrian crosswalk/sidewalk infrastructure should be placed around and continue through crossing to provide clear designation of pedestrian walkable space.
  - Provide pedestrian gates.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#9 Stelton Road

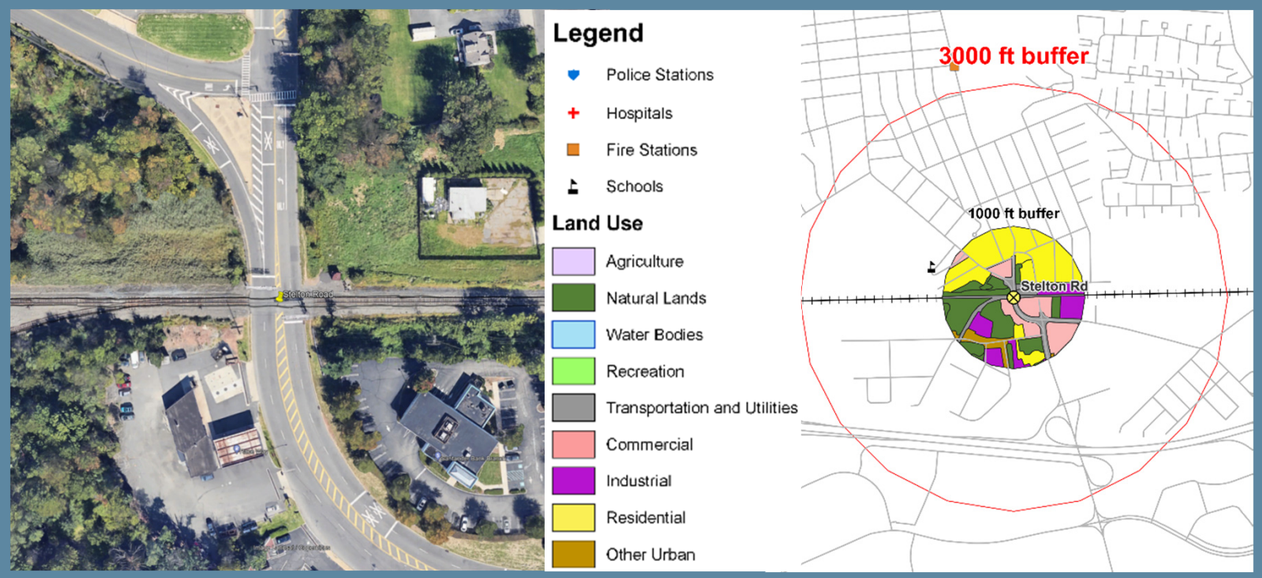
PISCATAWAY, MIDDLESEX COUNTY

Nearest Cross-Streets:	• S. Washington Ave. • S. Washington Ave.
Railroad and Line:	Conrail Port Reading Secondary
Trains per Day (year):	8 (2022)
Average Annual Daily Traffic (year):	40,125 (2017)
Population Density within 1,000 feet radius:	2,823 per square mile
Residential Land as percent of land within 1,000 feet radius:	36%
Crashes reported from 2011-2021 (fatalities):	2 (0)
Emergency Services within 3,000 feet:	0

KEY ISSUES AND/OR NEEDS

Key issues and concerns at Stelton Road include:

- There is an elevated risk of pedestrian safety issues and/or trespassing due to businesses within walking distance of the crossing and close proximity to an elementary school.
- Lack of active transportation infrastructure approaching and through crossing. Pedestrian crosswalk/sidewalk should continue through crossing to provide clear designation of pedestrian walkable space.
- Limited sight distance at the back of the queue as drivers approach crossing.
- Vehicular traffic impacts due to high traffic volume (40,125 average daily).
- Ranked high on the hazard index, which accounts for vehicle annual average daily traffic (AADT), the number of daily (24 hours) train crossings, and the safety features present at the crossing. A high score on the hazard index suggests there is an elevated risk of a potential crash to occur. One crash where vehicle struck train for failure to stop at an activated railroad crossing.
- Community impacts such as noise. This crossing is not located in a quiet zone.



SAFETY FEATURES AT THIS CROSSING

Stelton Road has gates, crossbuck signs, overhead lights, and cantilevers.

POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

- Promote grade crossing safety through education programs such as Operation Lifesaver.
- Additional fencing separating businesses (gas station and bank) on south side of crossing.
- Quad gates to prevent vehicle queuing across the crossing and drivers from not stopping at crossing.
- Pedestrian improvements to address safety and walkability:
  - Pedestrian crosswalk/sidewalk infrastructure should be placed around and continue through crossing to provide clear designation of pedestrian walkable space.
  - Provide pedestrian gates.
- Establishment of a quiet zone to reduce noise impacts on surrounding residential areas.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
Defining the Vision. Shaping the Future.

FREIGHT RAIL GRADE CROSSING PROFILES: TOP TEN CROSSINGS WITH THE MOST NEEDS

#10 South Main Street

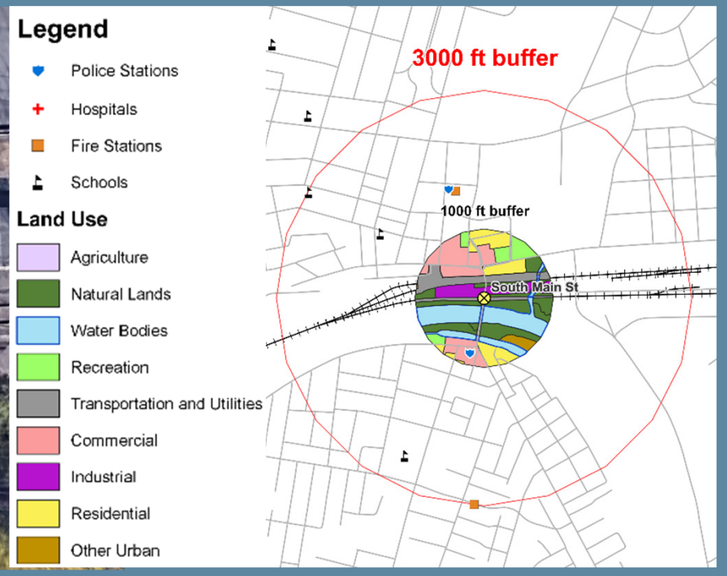
BOUND BROOK, SOMERSET COUNTY

Nearest Cross-Streets:	• Railroad Avenue • Raritan River
Railroad and Line:	Conrail Port Reading Secondary
Trains per Day (year):	4 (2022)
Average Annual Daily Traffic (year):	19,104 (2017)
Population Density within 1,000 feet radius:	7,067 per square mile
Residential Land as percent of land within 1,000 feet radius:	13%
Crashes reported from 2011-2021 (fatalities):	0 (0)
Emergency Services within 3,000 feet:	4

KEY ISSUES AND/OR NEEDS

Key issues and concerns at South Main Street include:

- No pedestrian gates. Sidewalks are present, but in poor condition. Poor asphalt condition at the crossing as well, impacting cyclist safety.
- Vehicular traffic impacts due to high traffic volume (19,104 average daily).
- High volume of pedestrian and cyclist activity in the area and is projected to increase. There is an elevated risk of pedestrian safety issues and/or trespassing.
- Potential effects on emergency services such as police and fire response, due to the crossing's close proximity to 4 emergency services facilities.
- This area has a high equity composite score, which tracks 10 socioeconomic and demographic factors, suggesting that disadvantaged populations may be especially impacted by issues at this crossing.
- Heavy queuing at crossing and limited sight distance at the back of the queue as drivers approach crossing. Particularly, under the Lehigh Line Bridge No advance pavement marking or signage to inform drivers are approaching crossing.



SAFETY FEATURES AT THIS CROSSING

South Main Street has dual gates, crossbuck signs and lights present.

POTENTIAL STRATEGIES TO ADDRESS ISSUES AND/OR NEEDS

Strategies that could address the issues identified at this crossing location include:

- Promote grade crossing safety through education programs such as Operation Lifesaver.
- Advanced signage and pavement markings to increase visibility of approaching train for drivers in the back of the queue.
- Quad gates to prevent vehicle queuing across the crossing.
- Active transportation improvements to address safety and walkability:
  - Pedestrian gates and improve sidewalk approaching crossing in northbound direction.
  - Resurfacing for improved cyclist safety.
- General maintenance of crossing or improved grading at crossing to address poor asphalt condition of crossing and provide a safer and smoother roadway surface.
- Advance the grade separation.

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org. This profile is one of a series of profiles, representing the ten (10) freight rail grade crossings in the NJTPA region with the greatest needs, according to analysis performed as part of the Freight Rail Grade Crossing Assessment Update Study. This document was prepared by the NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

Publication Date: June 2023

Appendix C: Summary of Potential Strategies

Railway Safety Improvements

Strategy: Rail Safety Education

Applies to educating the public about how to be safe around railways.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Equity


Active Transportation

Description

Educating the public about how to be safe around trains helps to prevent collisions between trains and cars or active transportation users. This in turn prevents associated injuries and fatalities as well as associated delays at the crash site.

Goal

Improve public safety education and awareness related to rail operations and reduce collisions between trains and the public.

Usually Combined With

- Safety
- Trespassing
- Community/Equity
- Active Transportation Improvements

Implementers

- Government Agencies
- Railroad operators

Supporting Stakeholders

- Law Enforcement
- Emergency Services
- Healthcare
- Suicide Prevention Organizations

Action Items

- Identify best practices in rail safety education.
- Determine target audience (i.e., communities near rail networks, schools).
- Implement appropriate solutions to increase public education.

Examples

Operation Lifesaver

National

https://community.oli.org/state/nj#about

Operation Lifesaver, Inc. (OLI) is a non-profit organization and nationally-recognized leader of rail safety education. Since 1972, OLI has been committed to preventing collisions, injuries and fatalities on and around railroad tracks and highway-rail grade crossings, with the support of public education programs in states across the U.S. OLI is currently the only non-profit organization dedicated to saving lives through free rail safety education and currently has programs in 47 states and DC.

Detection & Management of Active Transportation Users

NJTPA Goods Movement Strategies for Communities

Strategy: Suicide Prevention

Applies to areas with recorded cases of suicide by train.

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Trespassing


Active Transportation

Description

Suicide prevention was not historically included among efforts to reduce grade crossing and trespass deaths. Since 2011, data on this and active prevention methods have been studied. On average there have been 259 suicide fatalities per year on the U.S. rail system between 2012 and 2022. The state of New Jersey accounts for 5% of these fatalities over this time period but has reported an increased share since 2017. As of 2022, 10% of suicide fatalities involving the rail system occur in New Jersey.

Goal

Reduce the number of deaths by suicide involving rail.

Usually Combined With

- Fencing

Implementers

- Government Agencies
- Railroad operators

Supporting Stakeholders

- Law Enforcement
- Emergency Services
- Healthcare
- Suicide Prevention Organizations

Action Items

- Determine best practices for suicide prevention based on existing data.
- Identify locations with high suicide attempts involving rail.
- Implement appropriate solutions to reduce injuries and fatalities to include suicide prevention programs and public awareness.

Examples

Suicide Prevention Programs

Massachusetts

https://dailyfreepress.com/2016/01/21/mbta-samaritans-inc-launch-you-are-not-alone-campaign/

The Federal Railroad Administration (FRA) has sponsored research to identify, implement, and evaluate appropriate mitigation strategies. The Massachusetts Bay Transportation Authority (MBTA) conducted one such campaign with the Samaritans. This campaign included digital signage and posters in stations to promote the helpline.

Detection & Management of Active Transportation Users

NJTPA Goods Movement Strategies for Communities

Strategy: Fencing

Applies to locations with frequent trespassing along rail right-of-way.

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Trespassing


Active Transportation

Description

Fencing surrounding rail right-of-ways can physically block trespassers from accessing the tracks. The most successful high security fencing solutions prevent this from all directions (over, under, through, and around).

Goal

Reduce the number of trespassers in rail right-of-ways.

Usually Combined With

- Suicide Prevention
- Active Transportation Improvements

Implementers

- Property owners and developers
- Railroad operators

Supporting Stakeholders

- Property owners adjacent to rail right-of-way

Action Items

- Identify locations with frequent trespassing activity from pedestrian and active transportation users.
- Evaluate if fencing can reduce trespassing activities and implement as appropriate.

Challenges

- Additional cost of high-security fencing can be prohibitive.

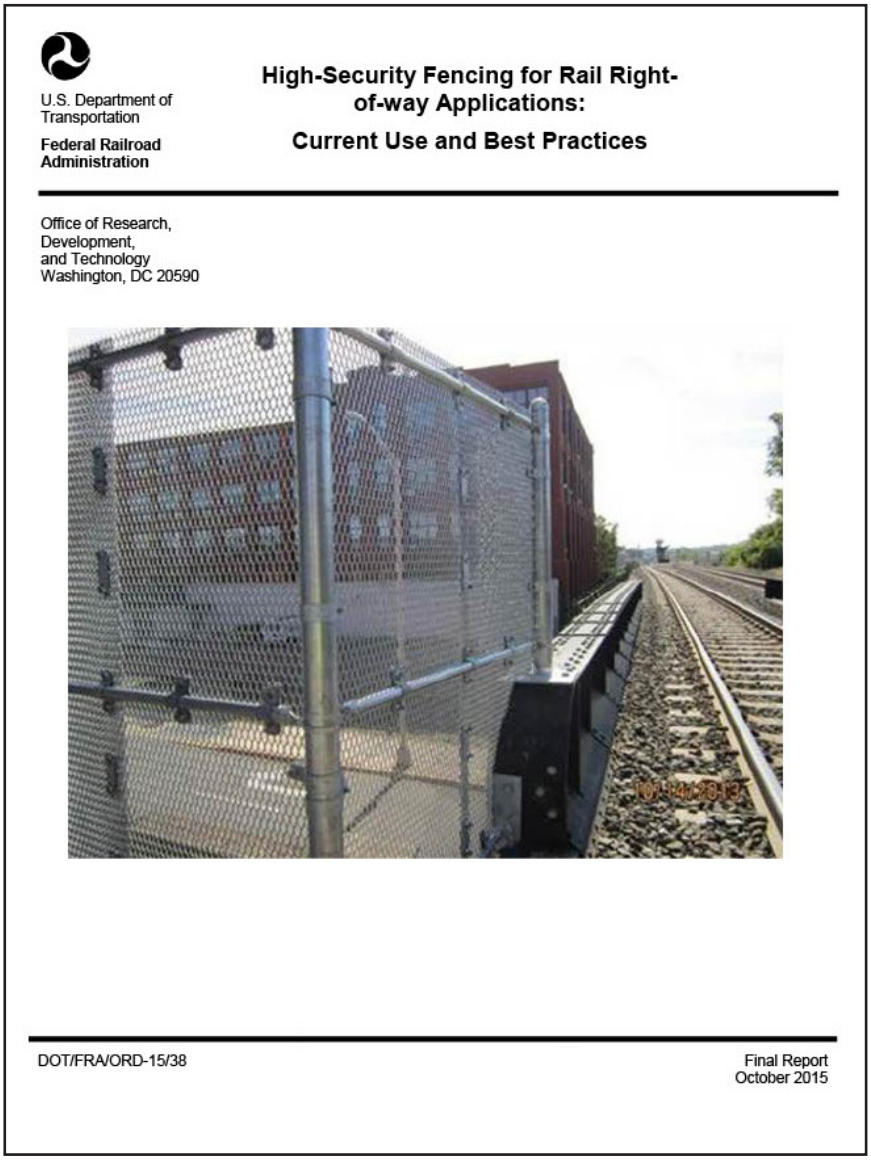
Examples

Fencing Use and Best Practices

New Jersey

https://railroads.dot.gov/elibrary/high-security-fencing-rail-right-way-applications-current-use-and-best-practices

New Jersey Transit (NJT) began installing high security fencing in 2002. NJT's Policy on Right of Way Signage and Fencing names a manufacturer and states the specifications of the fence. The only known breach (as of 2015) was in one location where trespassers used stacked pallets to scale the fence.



U.S. Department of Transportation

Federal Railroad Administration

High-Security Fencing for Rail Right-of-way Applications:

Current Use and Best Practices

Office of Research, Development, and Technology
Washington, DC 20590

DOT/FRA/ORD-15/38

Final Report
October 2015

Blocked Grade Crossing Management

Strategy: Light-Emitting Diode (LED)-Equipped Signs at Rail Crossings

NJTPA Goods Movement Strategies for Communities

Applies to grade crossings with frequent blockage by vehicles.

Geographic Area

Suburban

Urban

Type of Train

Freight

Passenger

Time of Day

Day

Night

Issues

Safety

Roadway Issues

Description

Installation of LED-enhanced signs can help drivers be more aware of the dangers of stopping on railroad tracks. Research has shown a 41% decrease in the frequency of vehicles stopping on the tracks after LED signage was installed.

Goal

Reduce the numbers of vehicles blocking crossings by sitting on the tracks.

Usually Combined With

- Countdown Timer
- In Pavement Lights
- Pavement markers and flexible delineators

Implementers

- Government Agencies
- Property owners and developers
- Railroad operators

Action Items

- Identify at-grade crossings with a high frequency of vehicles sitting on tracks.
- Install LED-enhanced signage at identified crossings.

Challenges

- Supporting research was conducted at one crossing.

Examples

LED Signage Impacts

Massachusetts

https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/18806/LED-Enhanced%20Signs_A.PDF

The Federal Railroad Administration (FRA) sponsored research to assess the impacts of LED signage installation. Signage was installed at the Brighton Street Crossing in Belmont, Massachusetts which had a history of being blocked by vehicles. Analysis of vehicle traffic showed a 41% decrease in vehicles stopping on the tracks after the LED-enhanced signs were installed.

Detection & Management of Active Transportation Users

NJTPA Goods Movement Strategies for Communities

Strategy: Pedestrian Detection through Photo Enforcement

Applies to rail right-of-ways with high pedestrian activity.

Geographic Area

Suburban

Urban

Type of Train

Freight

Passenger

Time of Day

Day

Night

Issues

Safety

Trespassing

Active Transportation

Description

Artificial Intelligence (AI) technology can be utilized to research and analyze pedestrian detection at highway rail grade crossings. This can be used to identify trespassers instances as well as develop avoidance solutions.

Goal

Determine frequency of trespasser instances and develop appropriate solutions.

Usually Combined With

- Suicide Prevention
- Fencing
- Active Transportation Improvements

Implementers

- Government Agencies
- Property owners and developers
- Railroad operators

Supporting Stakeholders

- Law Enforcement
- Emergency Services

Action Items

- Identify locations to monitor pedestrian activity near at-grade crossings.
- Utilize photo enforcement to determine pedestrian behavior.
- Determine appropriate solutions based on observed behavior.

Challenges

- Photo enforcement is not utilized in New Jersey.
- A red-light camera pilot in New Jersey ended in 2014 and other efforts at the state level seek to prevent other states' photo enforcement from fining New Jersey drives.

Examples

Pedestrian Detection

New Jersey

https://www.njtransit.com/press-releases/nj-transit-and-rutgers-university-selected-grant-study-improved-pedestrian-detection

Rutgers University and New Jersey Transit (NJT) were selected by the Federal Transit Administration (FTA) to receive a $357,000 grant to study pedestrian detection. Data gathered through this effort aims to help transit agencies develop trespasser avoidance solutions.

Railway Safety Improvements

Strategy: Quad Gates

Applies to grade crossings with significant occurrence of drivers going around gate arms.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Infrastructure


Roadway Issues


Active Transportation

Description

4 Quadrant Gates, or Quad Gates, are designed to block all lanes of traffic on both sides of the track. They include a closure delay on the exit side to allow vehicles which get stuck to get off the tracks. They have been shown to reduce collisions at-grade crossings by 98%.

Goal

Reduce the number of drivers going around gate arms at grade crossings.

Implementers

- Railroad operators

Supporting Stakeholders

- Government Agencies

Action Items

- Identify at-grade crossings that frequently have drivers going around gate arms.
- Prioritize at-grade crossings based on driver behavior.
- Install quad gates as funding allows.

Challenges

- Quad gates are significantly more expensive compared to traditional gates.
- Usage of quad gates is relatively small.
- Quad gates are not foolproof.

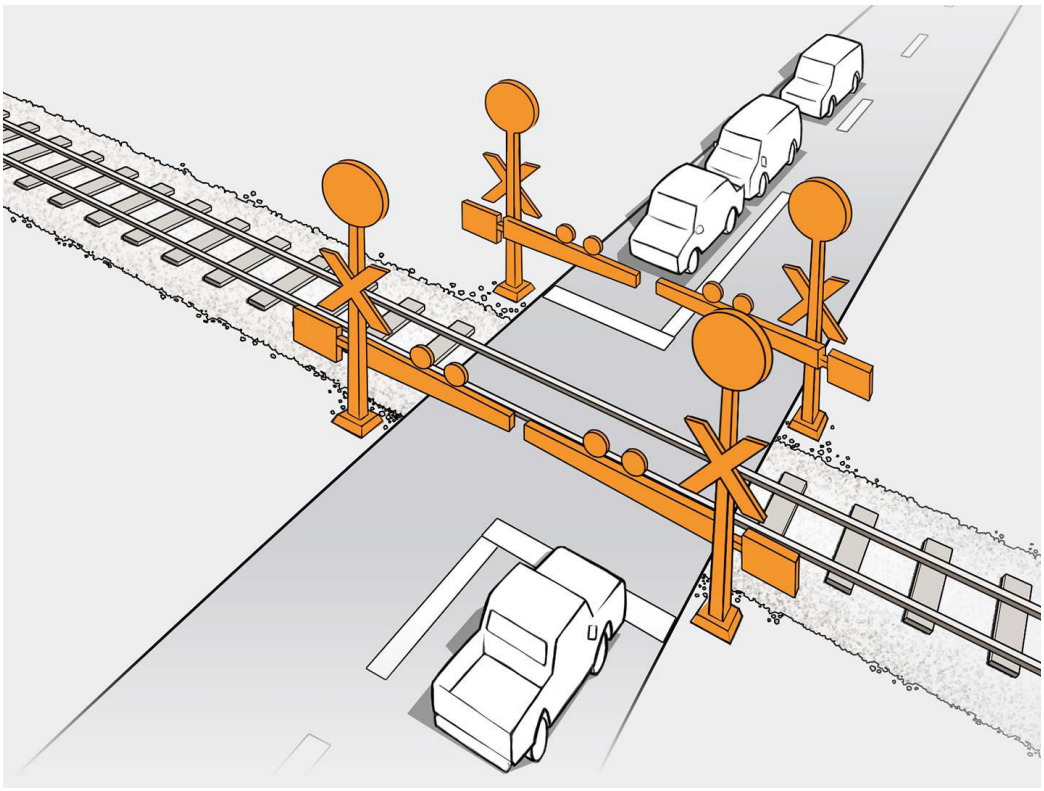
Examples

Quad Gate Installation

Florida

https://www.sun-sentinel.com/news/transportation/fl-reg-train-security-gates-20180214-story.html

Despite a relatively small implementation rate, the Brightline passenger rail corridor in Florida plans to install quad gates on nearly half of their crossings in urban areas. In Palm Beach County alone, 35 quad gates are planned to be installed out of 80 total crossings. Locations were determined based on calculated risk and the context of the surrounding area.



Blocked Grade Crossing Management

Strategy: Prevention of Blocked Crossings for Emergency Response

Applies to trains which block grade crossings for long periods of time.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Congestion


Equity


Roadway Issues

Description

Blocked highway rail-grade crossings can prevent emergency responders from accessing situations in need of their services. Increasingly longer trains or unexpected stoppages (such as trespassers) block access for longer periods of time.

Goal

Reduce delays for emergency responders due to blocked crossings.

Usually Combined With

- Grade Separation
- Gridlock due to blocked crossings

Implementers

- Law Enforcement
- Emergency Services

Supporting Stakeholders

- Railroad Operators
- Court Systems

Action Items

- Develop law imposing fine on train operators for prolonged block crossings where alternative routes are not available for emergency services
- Identify alternative routes for key grade crossings for emergency services
- Disseminate alternative route information to appropriate emergency services

Challenges

- States and federal courts have prevented statutes allowing for trains to be ticketed for blocking crossings.
- There is no federal standard for train length or how long a stopped train can block crossings.

Examples

Blocked Crossing Legislation

Oklahoma

https://about.bgov.com/news/rail-prevails-as-long-trains-block-first-responders-at-crossings/

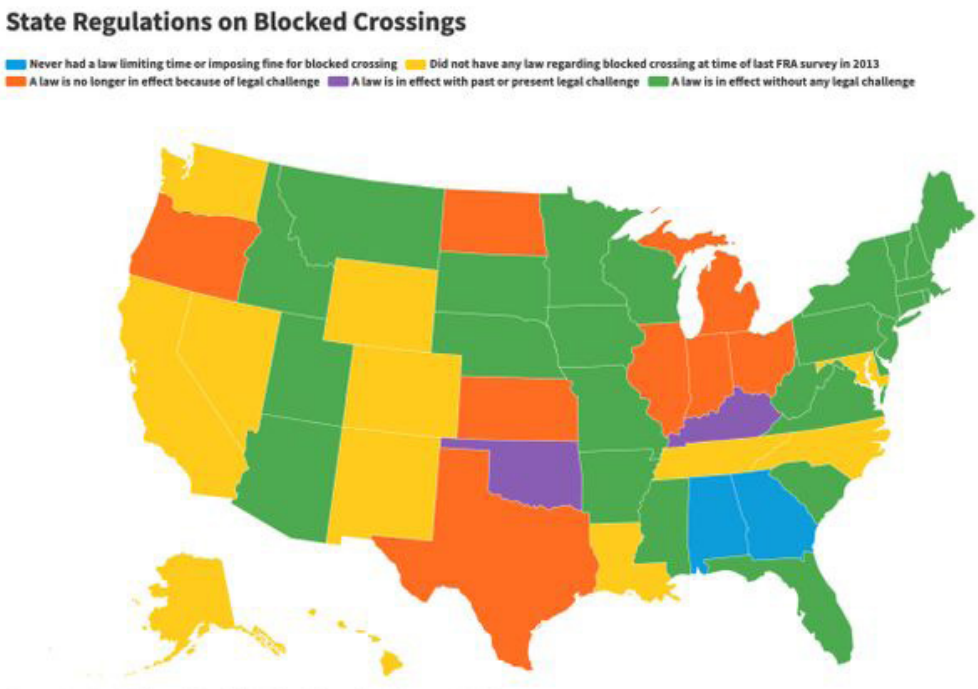
Several states have developed regulations on blocked crossings to reduce the time a crossing is blocked. In 2019, the Oklahoma Governor signed an emergency bill prohibiting a railcar from stopping and blocking vehicular traffic at a railroad intersection with a public highway for longer than 10 minutes. Two towns used the authority to issue tickets and BNSF quickly filed suit against the Oklahoma Corporation Commission and the towns.

Blocked Crossing Legislation (New Jersey)

New Jersey

https://casetext.com/statute/new-jersey-statutes/title-39-motor-vehicles-and-traffic-regulation/chapter-394-application-of-chapter/section-394-94-railroad-blocking-highway

N.J. Rev Stat. 39:4-94 (2022) states that "No employee of a steam or electric railroad company shall operate a locomotive, train or crossing gate in such a manner as to unnecessarily prevent or interfere with the use of a highway for the purpose of travel." The associated fine is $85.



Railway Design & Construction

Strategy: Grade Separation

Applies to grade crossings with significant vehicular and rail traffic causing delay.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Infrastructure


Congestion


Roadway Issues


Rail Operations

Description

Grade separation is when a roadway is re-aligned over or under a railway to eliminate hazards. Benefits of grade separations include improved safety, reduced noise, and a decrease in traffic congestion.

Goal

Improve safety and traffic (rail and vehicle) operations.

Usually Combined With

- Prevention of Blocked Crossings for Emergency Response
- Gridlock due to blocked crossings

Implementers

- Government Agencies
- Railroad operators

Supporting Stakeholders

- Property owners and developers
- Businesses

Action Items

- Research best practices and develop process to determine at-grade crossings suitable for grade separation.
- Implement grade separation solutions as appropriate and as funding allows.

Challenges

- Grade separation is costly and can involve significant right-of-way acquisition.

Examples

Grade Separation Construction

California

https://labusinessjournal.com/engineering/156m-grade-separation-project-under-way-for-states-worst-rail-road-crossing-in-santa-fe-springs/

California is improving the worst grade crossing in the state at a cost of $156M at the intersection of Rosecrans and Marquardt avenues in Santa Fe Springs. One train crosses this intersection every seven minutes, causing vehicular traffic to be stopped for 21 hours per week. Efforts to construct this grade separation have taken more than a decade with construction expected to be completed in 2025.

Grade Crossing and Track Maintenance

Strategy: Vegetation

Applies to maintenance along rail right-of-ways.

NJTPA Goods Movement Strategies for Communities

Geographic Area

Suburban

Urban

Type of Train

Freight

Passenger

Time of Day

Day

Night

Issues

Safety

Environment

Description

Vegetation overgrowth can damage railroad tracks and equipment as well as limit visibility and cover signage. Extreme overgrowth in the right-of-way may also impact surrounding infrastructure such as sidewalks.

Goal

Proper maintenance of rail right-of-ways to prevent vegetative overgrowth.

Usually Combined With

- Sight Distance Improvement
- General maintenance of crossings

Implementers

- Property owners and developers
- Railroad operators

Action Items

- Monitor rail right-of-ways for vegetative overgrowth.
- Coordinate with rail partners to address any overgrowth issues.

Challenges

- Vegetation must be consistently managed in order to prevent overgrowth.

Examples

Vegetation Management Procedures

Canada

https://www.cpr.ca/en/community/living-near-the-railway/vegetation-management

Canada's Transport Canada's Rules Respecting Track Safety require railways to maintain free-draining ballast and ensure track inspectors can properly access the condition of rail infrastructure. Canadian Pacific's vegetation management program includes the yearly herbicide treatment of ballast as well as mechanical cutting of vegetation to ensure proper visibility and to prevent trees falling onto the railway.

Railway Safety Improvements

Strategy: Enhanced HAZMAT shipping protocols

Applies to HAZMAT shipments by rail.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day

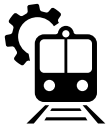

Day


Night

Issues


Safety


Equity


Rail Operations

Description

HAZMAT shipments pose a greater risk to the public in the event of an incident or delay. Improving transparency and regulations for HAZMAT shipments can improve safety surrounding such movements.

Goal

Reduce potential HAZMAT shipping incidents.

Implementers

- Government Agencies

Supporting Stakeholders

- Railroad operators
- Law Enforcement
- Emergency Services

Action Items

- Provide input to national, state, and local legislation aimed at greater transparency in HAZMAT shipping.

Challenges

- Rail incidents may happen anywhere along the rail lines, not just at grade crossings. Incidents may be difficult to access to mitigate.

Examples

Emergency Response Kits

National

https://www.federalregister.gov/documents/2017/01/19/2017-01240/hazardous-materials-fast-act-requirements-for-real-time-train-consist-information-by-rail

Manufacturers of railcar equipment have developed Emergency Response Kits (ERKs) that are aimed towards fire departments, emergency-response contractors, and railway dangerous goods officers. One such company is Midland Manufacturing whose kit provides the tools and parts needed to cap hazmat leaks from the top of pressurized railcars.

Real-Time Information

National

https://www.federalregister.gov/documents/2017/01/19/2017-01240/hazardous-materials-fast-act-requirements-for-real-time-train-consist-information-by-rail

Legislation at the national level has aimed at requiring Class I railroads to generate accurate, real-time, and electronic train consist information for hazardous material transportation. This also includes provisions for the railroads to provide fusion centers with such information during an incident.

Railway Design & Construction

Strategy: Speed Differential of Freight vs Passenger

Applies to rail corridor design when there is mixed traffic.

NJTPA Goods Movement Strategies for Communities

Geographic Area

Suburban

Urban

Type of Train

Freight

Passenger

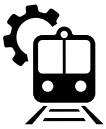
Time of Day

Day

Night

Issues

Safety



Rail Operations

Description

Passenger and freight trains operate at different speeds which can complicate rail corridor design and use. For example, the higher-speed passenger trains use improved suspensions, low center of gravity, and tilting technology which allows them to operate at higher speeds on curves.

Goal

Determine appropriate design criteria to maximize rail design for freight trains.

Implementers

- Railway operators

Action Items

- Identify corridors with operational challenges due to existing design.
- Evaluate solutions to reconstruct existing railways to maximize operations.

Challenges

- Reconstruction of existing railways may prove challenging due to space constraints (e.g., available right of way near curve) as well as the impact on rail operations during construction.

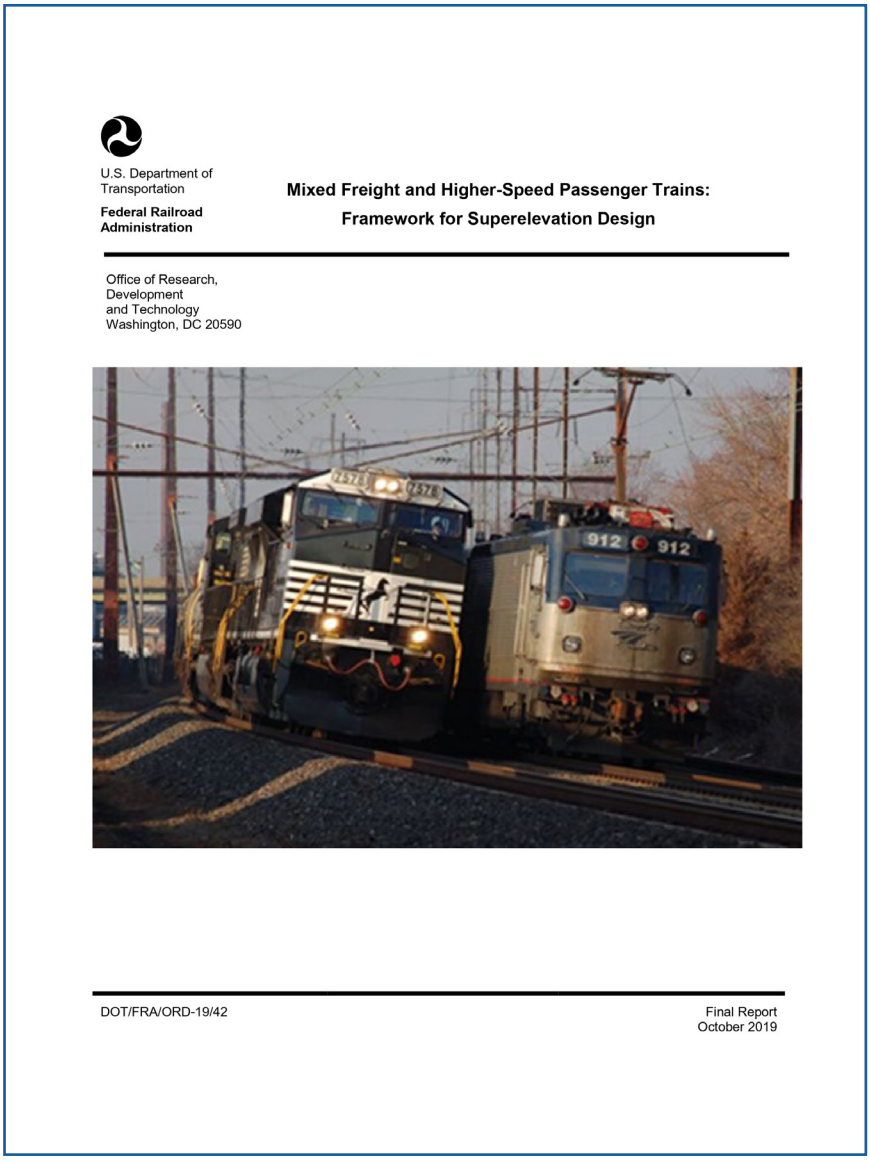
Examples

Superelevation Design Framework

National

https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/19085/Superelevation.pdf

The Federal Railroad Administration has developed a framework for superelevation design to address the issue of passenger versus freight train speed differentials. This documentation includes standards set by Class I railroads as well as passenger operators such as Amtrak and Caltrain.



U.S. Department of Transportation

Federal Railroad Administration

Mixed Freight and Higher-Speed Passenger Trains: Framework for Superelevation Design

Office of Research, Development and Technology
Washington, DC 20590

DOT/FRA/ORD-19/42

Final Report
October 2019

Railway Safety Improvements

Strategy: Quiet Zones

Applies to noise mitigation efforts.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Environment


Equity


Active Transportation


Rail Operations

Description

Under Train Horn Rule (49 CFR Part 222), locomotive engineers must begin to sound train horns for at least 15 seconds in advance of all public grade crossings. Quiet Zones provide an opportunity to mitigate the effects of this noise. In order to designate a Quiet Zone, localities must mitigate the increased risk due to the lack of a train horn.

Goal

Reduce noise pollution associated with train horns at grade crossings.

Usually Combined With

- Active Transportation Improvements
- General maintenance of crossings

Implementers

- Railway operators
- Government Agencies

Action Items

- Identify at-grade crossings suitable for Quiet Zones based on best practices.
- Work with localities and rail operators to implement Quiet Zones where appropriate.

Challenges

- Quiet Zones require mitigation measures to reduce risk which may be costly such as closing a grade crossing or installing quad gates.

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

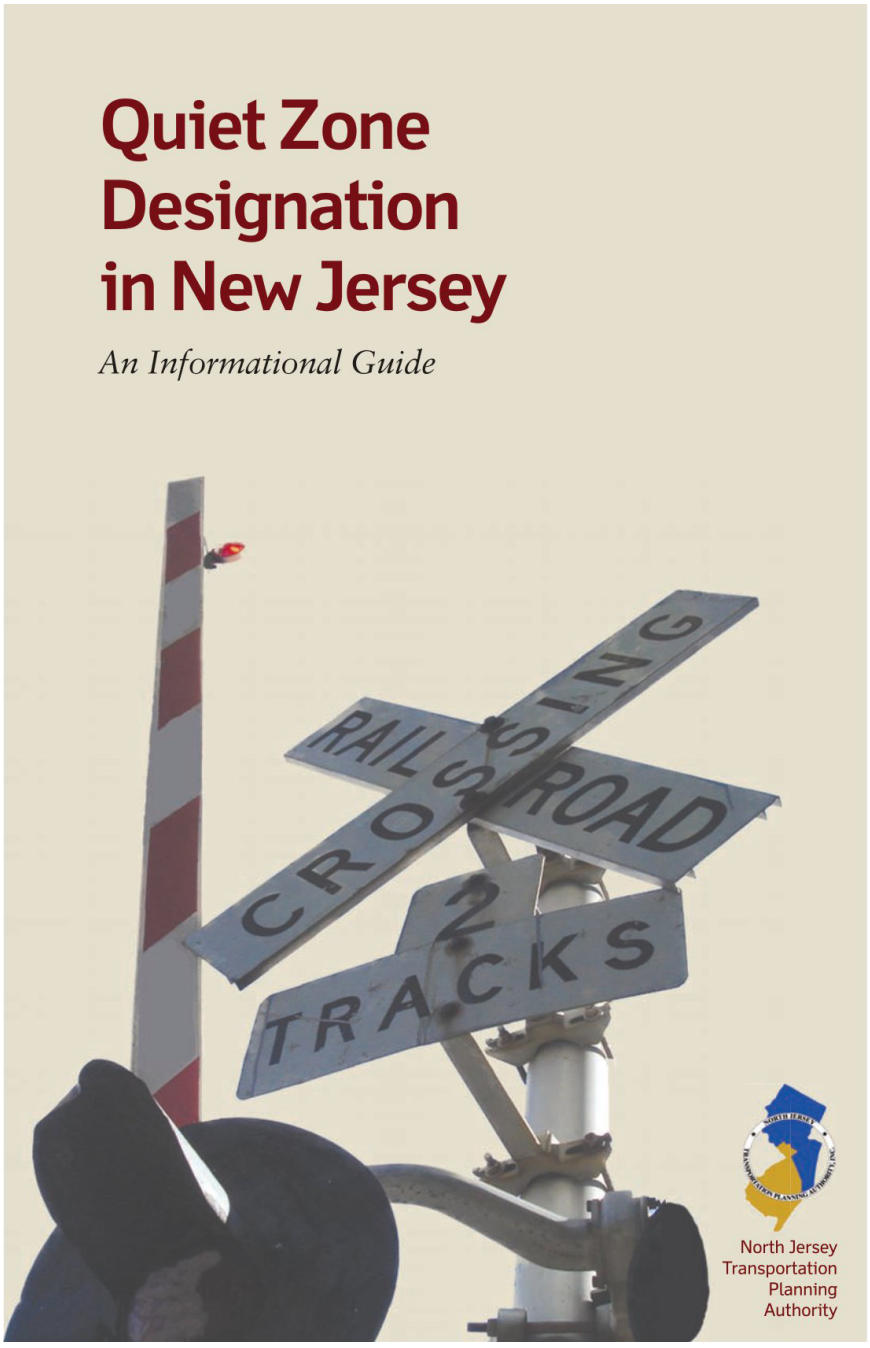
Examples

Quiet Zone Designation

New Jersey

UPDATE LINK

NJTPA has developed a Quiet Zone Designation in New Jersey brochure to inform and guide the process of designating Quiet Zones. The FRA maintains a database of existing Quiet Zones which includes 11 locations in New Jersey.



Blocked Grade Crossing Management

Strategy: Countdown Timer

Applies to grade crossings where pedestrians and vehicles frequently go around gate arms.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Roadway Issues


Active Transportation

Description

Installing a countdown timer at grade crossings can inform other users (i.e., vehicle drivers or pedestrians) of how much longer the train will take to pass a crossing. Alternatively it could also provide information for how long it will be before the train will arrive.

Goal

Reduce need for highway users and pedestrians to feel a need to beat the train and understand how long a crossing may be blocked for.

Usually Combined With

- Light Emitting Diode (LED)-equipped signs at rail crossings
- In Pavement Lights
- Pavement markers and flexible delineators

Implementers

- Government Agencies
- Railroad operators

Supporting Stakeholders

- Law Enforcement

Action Items

- Identify at-grade crossing locations where pedestrians and/or vehicles frequency go around gate arms.
- Install countdown timers at appropriate locations.

Challenges

- Does not help vision impaired pedestrians.
- May have the opposite impact of increasing the desire to beat the train.
- Trains may operate at variable speeds and lengths which can make it difficult to determine appropriate countdown time.

Examples

Countdown Timer Implementation

International

https://patents.google.com/patent/CN103909951A/en

International patents for a countdown timer system for use at rail grade crossings have been applied for, however, examples of this strategy being deployed had not been found at the time this guidance was published.

Railway Design & Construction

Strategy: Improved Grading at Rail Crossings

Applies to at-grade crossings with significant differentials between asphalt and the rail line.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Infrastructure


Congestion


Roadway Issues


Active Transportation

Description

Grading differences between the roadway asphalt and the physical rail line may cause vehicle slowdowns or for a larger vehicle to become stuck. This can also be a hazard for bicyclists who do not have the same shock absorbency as vehicles.

Goal

Improve grading at rail grade crossings to provide a safer and smoother roadway surface.

Usually Combined With

- Active Transportation Improvements
- General maintenance of crossings

Implementers

- Government Agencies
- Property owners and developers
- Railroad operators

Action Items

- Evaluate grading conditions at at-grade crossings.
- Develop a prioritization process to determine which at-grade crossings would benefit from improvements.

Challenges

- Varying elevations may not allow for significant improvements.
- Construction around grade crossings may temporarily impact both rail and roadway traffic.

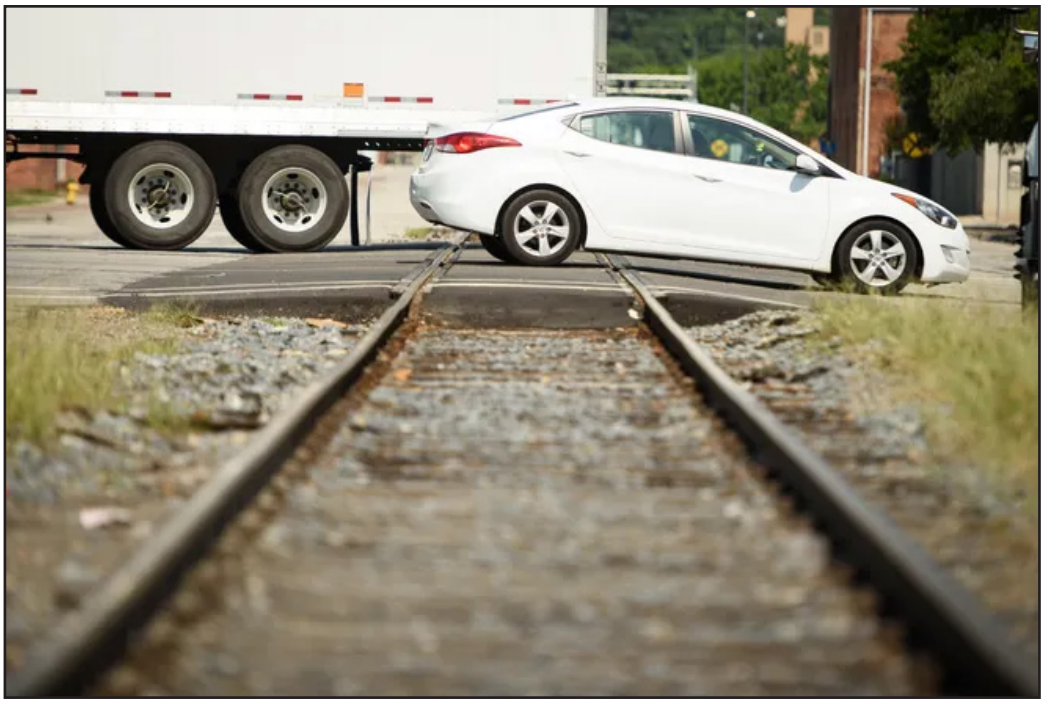
Examples

Impacts of Elevated Tracks

North Carolina

https://www.fayobserver.com/story/news/2019/07/03/dot-plans-to-fix-bumpy-downtown-fayetteville-railroad-crossing/4770524007/

Rail operators making improvements within their right of way may choose to raise the grade of the track when completing their work. However, this may create an extra bump for traffic as they go over the grade crossing. This bump can impact driver behavior as they cross over it. At Gillespie and Russell streets in North Carolina, state transportation officials hired a contractor to smooth out an elevated railroad crossing after CSX raised the grade. Drivers reported the need to slow down in order to accommodate the bump, which impacted traffic operations at this downtown crossing.



Source: Andrew Craft/The Fayetteville Observer.

Blocked Grade Crossing Management

Strategy: In Pavement Lights

Applies to at-grade crossings with frequent blockages by vehicles.

NJTPA Goods Movement Strategies for Communities

Geographic Area

Suburban

Urban

Type of Train

Freight

Passenger

Time of Day

Day

Night

Issues

Safety

Roadway Issues

Description

Deployment of in-pavement lighting can reduce the likelihood of a driver violating the active safety equipment.

Goal

Reduce driver violations at rail grade crossings.

Usually Combined With

- Light Emitting Diode (LED)-equipped signs at rail crossings
- Countdown Timer
- Pavement markers and flexible delineators

Implementers

- Government Agencies
- Property owners and developers
- Railroad operators

Action Items

- Identify locations where vehicle drivers frequently violate or disregard safety equipment.
- Deploy in-pavement lighting solutions at suitable locations.

Challenges

- Testing of such technology has been minimal and greater benefits may be achieved with alternative solutions.

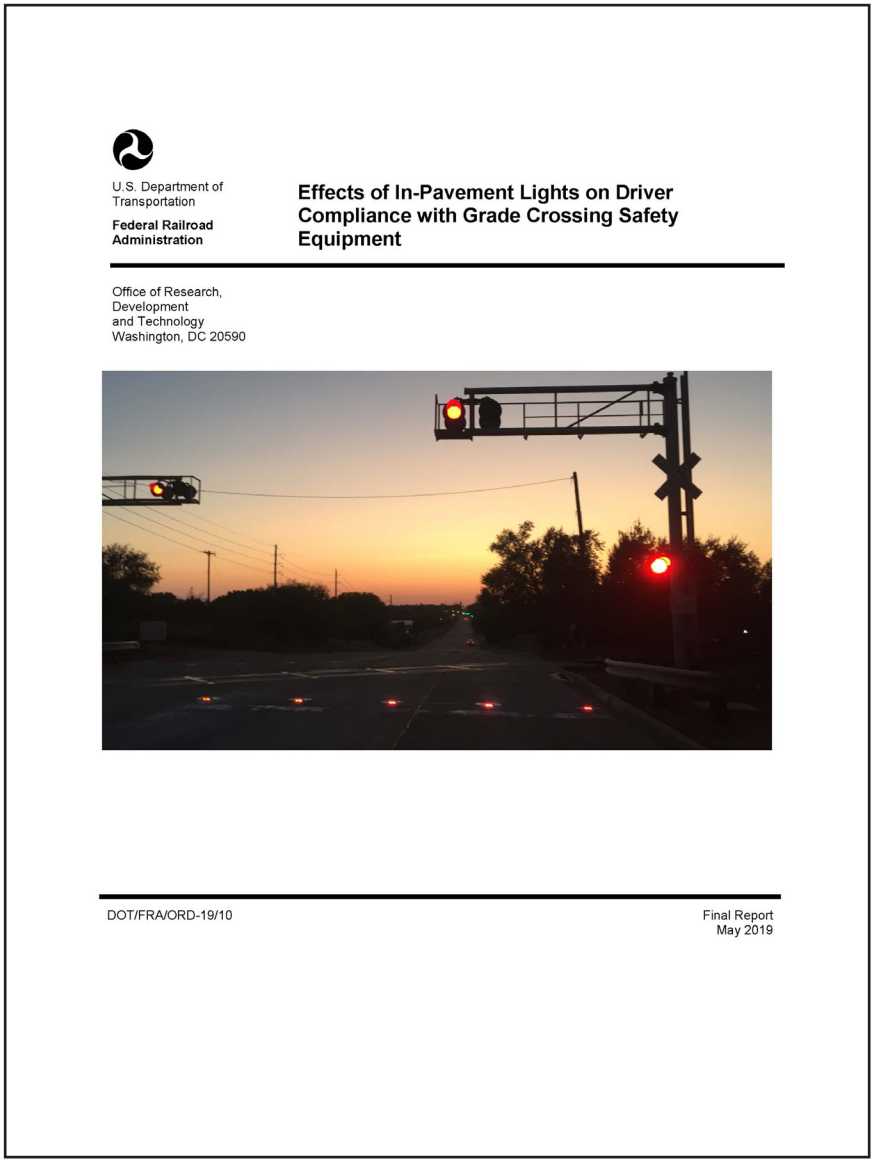
Examples

Impact of In-Pavement Lighting Solutions

Oklahoma

https://rosap.ntl.bts.gov/view/dot/40279

The Federal Railroad Administration (FRA) conducted a study in Elk City, Oklahoma to determine the impacts of in-pavement lighting solutions. Testing of this technology saw an 8.4% decrease in violations per activation.



U.S. Department of Transportation

Federal Railroad Administration

Effects of In-Pavement Lights on Driver Compliance with Grade Crossing Safety Equipment

Office of Research, Development and Technology
Washington, DC 20590

DOT/FRA/ORD-19/10

Final Report
May 2019

Detection & Management of Active Transportation Users

NJTPA Goods Movement Strategies for Communities

Strategy: Active Transportation Improvements

Applies to locations with a high number of active transportation users and minimal supporting infrastructure.

Geographic Area

Suburban

Urban

Type of Train

Freight

Passenger

Time of Day

Day

Night

Issues

Safety

Active Transportation

Description

Improve mobility for pedestrians, cyclists, and other active transportation users through measures such as improved sidewalks and increased warning signage.

Goal

Reduce incidents with active transportation users.

Usually Combined With

- Suicide Prevention
- Fencing
- Pedestrian Detection through Photo Enforcement
- General maintenance of crossings

Implementers

- Government Agencies
- Property owners and developers
- Railroad operators

Action Items

- Identify at-grade crossings with significant activity from active transportation users.
- Evaluate crossings to determine what improvements can be made to reduce interactions with trains.

Challenges

- Options may include a variety of active and passive devices and each crossing will need to be evaluated to determine the best solution(s).

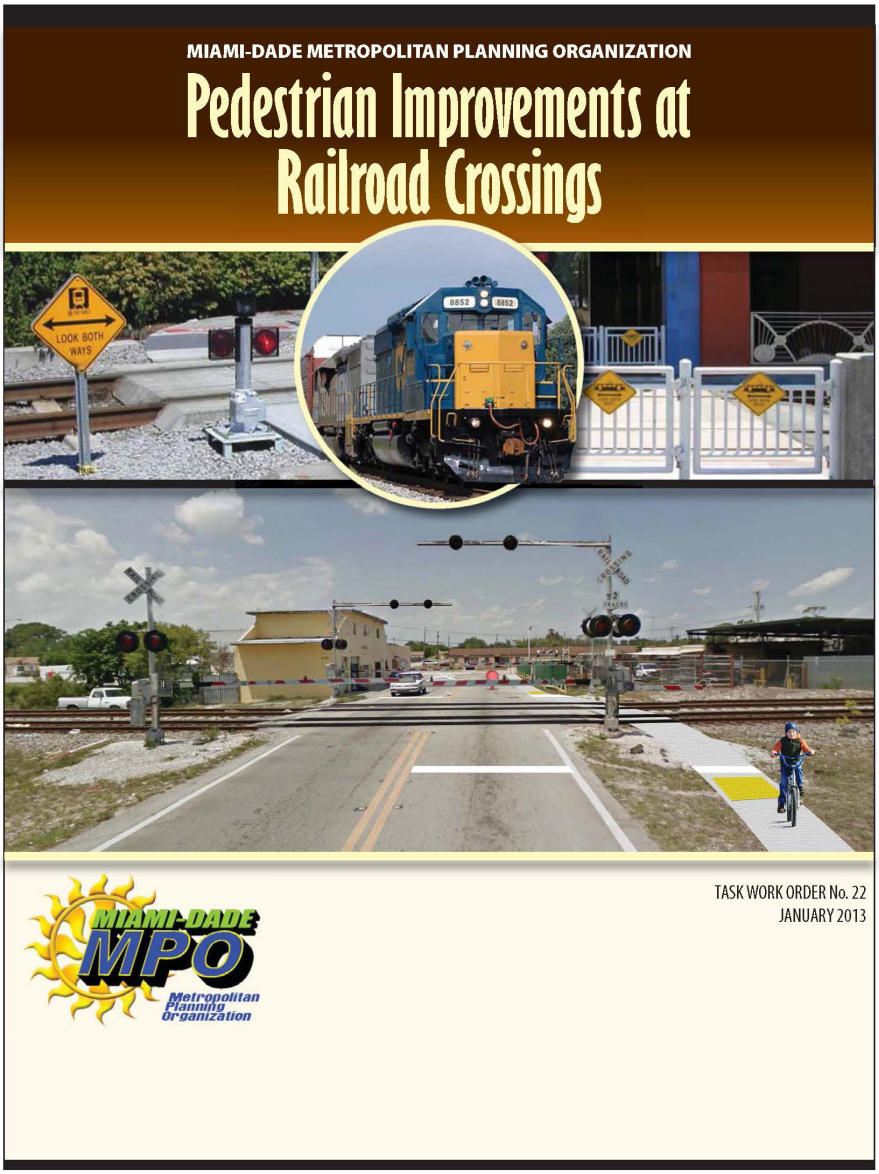
Examples

Active Transportation Improvement Strategies

Florida

https://miamidadetpo.org/library/studies/pedestrian-improvements-at-railroad-crossings-final-2013-01.pdf

Miami-Dade County conducted a study of pedestrian improvements and found that they are context-sensitive. This study included the development of a toolbox to help determine the most effective strategies at a crossing.



Blocked Grade Crossing Management

Strategy: Pavement Markers and Flexible Delineators

Applies to locations where vehicles turn onto track or right-of-ways.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Roadway Issues

Description

Installation of pavement markers and flexible delineators can help to reduce incidents of vehicles turning onto railroad tracks or right-of-ways at grade crossings.

Goal

Reduce number of vehicles turning onto tracks or right-of-way.

Usually Combined With

- Light Emitting Diode (LED)-equipped signs at rail crossings
- In Pavement Lights

Implementers

- Government Agencies
- Property owners and developers
- Railroad operators

Action Items

- Identify at-grade crossings with high frequency of vehicles turning onto tracks or right-of-way.
- Install pavement markers and flexible delineators to reduce incidents.

Challenges

- Markers and delineators must be maintained due to normal wear and tear (e.g., delineators hit by vehicles) in order to maintain their effectiveness.

Examples

Pavement Markings

Delaware

https://www.newarkpostonline.com/news/new-pavement-markings-aimed-at-improving-safety-of-train-crossing/article_94519033-6360-52e9-9122-de22d44ef840.html

In Newark, Delaware, additional pavement markings were added to make motorists aware of both where they should and should not go. The grade crossing here is especially challenging due to it including two different crossings separated by a median.

Railway Design & Construction

Strategy: Sight Distance Improvement

Applies to maintaining an unobscured sight distance.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Roadway Issues


Active Transportation

Description

Similar to highways, a sight triangle or clearing sight distance should be kept clear of obstructions in order for a driver or pedestrian to see if a train is approaching. The curvature of the track and angle of approach of the highway at the grade crossing will impact this clearing sight distance.

Goal

Increase visibility of approaching train.

Usually Combined With

- Vegetation

Implementers

- Property owners and developers
- Railroad operators
- Transportation departments

Action Items

- Identify train approaches with obstructed sight distances.
- Identify possible improvements to increase sight distance.
- Prioritize and implement improvements as funding allows.

Challenges

- Existing infrastructure (e.g., buildings) may block the proposed clear area. Approach angle of roadway versus railroad track may require a larger cleared area.

Examples

Calculation of Sight Triangles

National

http://rec-tec.com/F1Help/RTAST.htm

AASHTO has developed modules to help calculate the sight triangle required at grade crossings. This is dependent upon such factors as train speed, vehicle speed, and vehicle lengths.

Determining Sight Distance

Washington

https://wsdot.wa.gov/publications/manuals/fulltext/M22-01/1350.pdf

WSDOT's Design Manual also includes examples of how to determine the appropriate sight distance.

Blocked Grade Crossing Management

Strategy: Gridlock Due to Blocked Crossings

Applies to locations with significant delays for vehicles due to at-grade crossings.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Congestion


Equity


Roadway Issues

Description

When trains block a grade crossing for a long period of time, this impedes the movement of automobiles, transit, pedestrians, and cyclists who cannot pass through the crossing. This can lead to gridlock and/or unsafe attempts to cross while the gates are down.

Goal

Reduce the mobility and safety impacts associated with trains stopped at crossings.

Usually Combined With

- Prevention of Blocked Crossings for Emergency Response
- Grade Separation
- Countdown Timer

Implementers

- Government Agencies
- Railroad operators

Supporting Stakeholders

- Law Enforcement

Action Items

- Identify at-grade crossings with significant vehicle delay
- Identify alternative routes for these at-grade crossings
- Increase signage in advance of at-grade crossings to educate drivers of alternatives.

Challenges

- Alternative routes may not be available to avoid blocked crossings.
- Trains are getting longer, leading to more/longer potential blockages.

Examples

Reporting Website

National

https://www.fra.dot.gov/blockedcrossings/

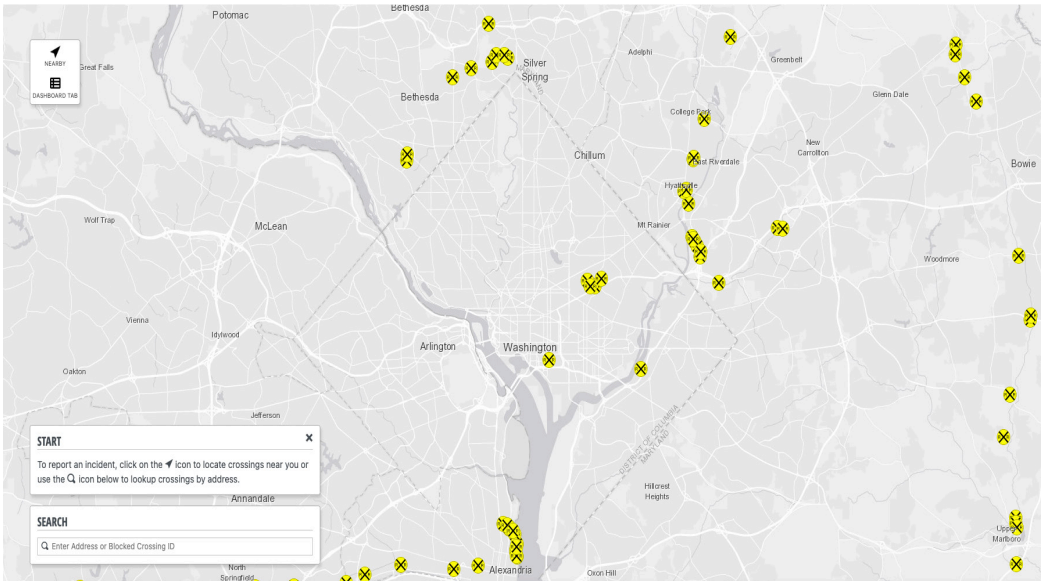
The Federal Railroad Administration has developed a reporting website for the public and law enforcement to report blocked crossings. The information requested includes time, date, duration, and location.

Delay Signage

Canada

https://www.hopestandard.com/news/new-signs-aim-to-ease-gridlock-at-train-crossings-with-details-on-incoming-trains/

In Surrey and Langley, signage was installed to inform motorists of where a train is and how long the delay may be. This allows users to determine if they want to avoid the delay due to the train and if they want to utilize an alternate route.



Grade Crossing and Track Maintenance

Strategy: General Maintenance of Crossings

Applies to maintenance at rail at-grade crossings.

NJTPA Goods Movement Strategies for Communities

Geographic Area


Suburban


Urban

Type of Train


Freight


Passenger

Time of Day


Day


Night

Issues


Safety


Infrastructure


Roadway Issues


Active Transportation

Description

Maintaining a state of good repair, including good pavement condition and fully operational lights, gates, and/or other infrastructure helps rail, motor vehicle, and active transportation operations run as safely and efficiently as possible.

Goal

Maintain a state of good repair at grade crossings.

Usually Combined With

- Vegetation
- Improved Grading at Rail Crossings
- Active Transportation Improvements

Implementers

- Government Agencies
- Property owners and developers
- Railroad operators

Action Items

- Identify crossings which have fallen into disrepair
- Develop a prioritization method to determine which crossings to improve
- Improve at-grade crossings as funding allows

Challenges

- Funding availability to maintain and improve crossings is limited.

Examples

Grade Crossing Longevity

Kentucky

https://static.tti.tamu.edu/conferences/rail13/presentations/bo7-crossing-surfaces/rose-paper.pdf

The University of Kentucky evaluated the impact of pressures due to rail and road traffic on rail grade crossings to determine the impact on longevity. Asphalt underlays were found to minimize long term settlements at crossings, reducing the need for more frequent maintenance.