



# **NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY FREIGHT RAIL GRADE CROSSING ASSESSMENT STUDY**

## **EXECUTIVE SUMMARY**

Market forces are creating the need to move more and more freight to, from, and through the northern New Jersey region, exerting additional pressure on the transportation system. Increased traffic on the regional rail and roadway networks is manifesting itself in the form of increased delay to motorists, decreased mobility and adverse affects to overall quality of life. While recent emphasis on rail safety programs and technologies has served to reduce incidents and crashes at grade crossings, more must be done to improve safety wherever possible and additional issues not directly related to safety that remain.

### ***A Focus on the Major Rail Freight Lines in the Region***

This study evaluated a total of 64 grade crossings along five (5) rail corridors serving the area – the Chemical Coast, the Port Reading Secondary, the River Line, the West Trenton Line (Trenton Subdivision) and the Lehigh Line. These rail lines provide the primary connections among the Port District --which contains the State's major freight carload classification and intermodal yards --the dense petro-chemical operations in Union County, and the national rail network. Hence, the greatest increases in rail activity are expected to occur on these lines. Planned rail network capacity expansions such as the double tracking of portions of the Lehigh Line through New Jersey, and elimination of capacity constraints will serve to eliminate the bottlenecks that meter rail traffic to and from the Northern New Jersey region, and create the potential for increased activity on the local portions of the rail network.

The team visited all 64 crossings, inventorying the equipment and features of each location. Rail activity, road activity, average number of and length of times of gate closures, proximity to schools and residential areas, crash history, and the availability of alternate routes were among the information catalogued.

### ***An Ongoing Tool for Assessing Rail Crossings***

The NJTPA Grade Crossing Assessment Study establishes a quantitative, objective framework through which existing grade crossings can be evaluated, as well as a range of solutions that can be applied to improve grade crossing conditions. These solutions can be tailored to address specific root causes of operational, mobility and quality of life issues. The end results of this study reflect the extensive involvement of key public agencies, the railroads, the Counties, the municipalities and the general public.



Working closely with the study's Technical Advisory Committee, a series of considerations that included safety, mobility, road and rail operations, and community concerns were combined with a weighting scheme to develop a prioritized list of rail crossings that should be studied further. This framework can be applied to other rail crossings in the NJTPA region or the State.

If a crossing was ranked as one of the highest scoring locations, this does *not* automatically imply that a safety concern exists there. The ranking takes into account numerous factors and considerations beyond safety such as impacts on mobility and quality of life. Ranking near the top of the relative score list therefore indicates that further investigation is warranted to identify specific solutions(s) that would be appropriate for addressing the specific issues that contributed most significantly to the higher score.

### ***Identifying Issues and Solutions***

Through the field work, literature/internet reviews, and previous experience, the consultant team recognized that each grade crossing is different – different in terms of road, rail and pedestrian movements, different in terms of geometrics, different in terms of surrounding land uses, different in terms of the current operations and equipment at the crossing, etc. These varying characteristics generate different issues and considerations for each crossing. Similarly, a wide range of potential options existed to address the issues.

The approach taken in organizing and assessing to dealing with the many different crossings, issues and options was to create a standard quantified framework for evaluating crossings with the goal of identifying root issues. The findings were entered into a “Issues and Solutions” matrix as a tool to facilitate discussions regarding grade crossings. The issue categories include:

- ***Roadway issues*** – visibility, road congestion/blockage, roadway geometry, and truck “bottoming out” (roadway crest within the crossing).
- ***Pedestrian issues*** – visibility and lack of sidewalks/walking surfaces within the crossing.
- ***Rail operations issues*** – visibility, train speed restrictions and local switching in the immediate area of the crossing.
- ***Community issues*** – general safety concerns, noise, and emergency response/access or times.

Similarly, solution sets potentially suitable for further investigation include:

- ***Modification of the crossing*** – quiet zones, wayside horn installation/use, crossing equipment upgrades and modifications, enhancement of crossing signage at and within the crossing, trimming trees and shrubs in the immediate



vicinity of the crossing, grade separating the crossing and installing median/raised barrier medians.

- **Modification of the roadway at or in the vicinity of the crossing** – reconfiguration of the roadway, modification/addition of road signage, installation/modification/preemption of traffic signals, elimination/closure of the road, and implementations of turn prohibitions (e.g., right turn only permitted from a nearby driveway).
- **Modification of rail operations** – increase train speed, elimination/re-routing of the rail line, relocation of train signals/modification of train controls, and modification of train operations (e.g., change train times).
- **Modifications for pedestrians at or in the vicinity of the crossing** – addition of pedestrian gates, widen pavement to match adjacent sidewalks, “herd” pedestrians to designated crossing locations, grade separation of pedestrian crossings (e.g., create over- or underpasses for pedestrians), and elimination of pedestrian movements at the crossing.
- **Implementation and augmentation of community-wide programs** – Conducting “Operation Lifesaver” education programs (education programs designed to elevate knowledge regarding rail crossings and rights of way and promote safe practices), relocation of rail-using businesses to other sites, and shifting emergency response routes to other roadways.

### ***Moving Forward – Problem Statements for the Five Top Ranked Crossings***

The five locations that received the highest score in the evaluation process were:

- Inman Avenue, Lehigh Line, Middlesex County, Edison Township
- Cedar Avenue, Lehigh Line, Middlesex County, Middlesex Township
- Old Hook Road, River Line, Bergen County, Dumont Township
- Route 601, Trenton Subdivision, Somerset County, Montgomery Township
- St. George Avenue, Port Reading, Middlesex County, Woodbridge Township

Meetings were held with each of the municipalities within which these crossings reside, with the goal of validating the scoring process as applied to the subject crossing and soliciting additional input related to operational issues or concerns that did not arise from the evaluation process. The meetings initiated a dialogue that will serve as a starting point in subsequent investigations and selection/implementation of a solution to the specific issues identified. Formal problem statements were subsequently prepared for further investigating the need for, and nature of, solutions to be implemented at these crossings.

As these problem statements progress, additional meetings and problem statements can be developed based on the rankings resulting from this study. Further, if conditions change – for example, there is a substantial increase in either the road or rail traffic on a line or in a location, the rankings can be reviewed and revised accordingly.



The framework developed in this study provides a fact-based foundation for addressing a subject that has concerned a wide range of stakeholders and the general public. This study is not an end unto itself, but rather a foundation for determining the need for grade crossing improvements and designing improvements most appropriate for addressing specific identified issues.