ALTERNATIVES TO MAINTAINING THE CROSSING

CROSSING CLOSURE

Eliminating redundant and unneeded crossings should be a high priority. Barring highway or railroad system requirements that require crossing elimination, the decision to close or consolidate crossings requires balancing public necessity, convenience and safety. The crossing closure decision should be based on economics; comparing the cost of retaining the crossing (maintenance, accidents, and cost to improve the crossing to an acceptable level if it would remain, etc.) against the cost (if any) of providing alternate access and any adverse travel costs incurred by users having to cross at some other location. Because this can be a local political and emotional issue, the economics of the situation cannot be ignored. This subject is addressed in a 1994 joint FRA/FHWA publication entitled *Highway-Railroad Grade Crossings: A Guide To Crossing Consolidation and Closure*, and a March 1995 AASHTO publication, *Highway-Rail Crossing Elimination and Consolidation*.[1]

Whenever a crossing is closed, it is important to consider whether the diversion of highway traffic may be sufficient to change the type or level of traffic control needed at other crossings. The surrounding street system should be examined to assess the effects of diverted traffic. Often, coupling a closure with the installation of improved or upgraded traffic control devices at one or more adjacent crossings can be an effective means of mitigating local political resistance to the closure.

GRADE SEPARATION

The decision to grade separate a highway-rail crossing is primarily a matter of economics. Investment in a grade separation structure is long-term and impacts many users. Such decisions should be based on long term, fully allocated *life cycle* costs, including both highway and railroad user costs, rather than on initial construction costs. Such analysis should consider the following:

- eliminating train/vehicle collisions (including the resultant property damage and medical costs, and liability);
- savings in highway-rail grade crossing surface and crossing signal installation and maintenance costs;
- driver delay cost savings;
- costs associated with providing increased highway storage capacity (to accommodate traffic backed up by a train);
- fuel and pollution mitigation cost savings (from idling queued vehicles);
- effects of any “spillover” congestion on the rest of the roadway system;

[1] *See footnotes 20 and 21.*

- the benefits of improved emergency access;
- the potential for closing one or more additional adjacent crossings; and
- possible train derailment costs.

A recently released report, entitled "Grade Separations-When Do We Separate,[2]" provides a stepwise procedure for evaluating the grade separation decision. The report also contains a rough screening method based on train and roadway vehicular volumes. However, as pointed out in the report, the screening method should be used with caution and should be calibrated for values appropriate for the particular jurisdiction.

TRAFFIC SEPARATION STUDY APPROACH TO CROSSING CONSOLIDATION

Both the FRA [3] and the AASHTO [4] have provided guidelines for crossing consolidation. State DOTs, road authorities and local governments may choose to develop their own criteria for closures based on local conditions. Whatever the case, a specific criteria or approach should be used, so as to avoid arbitrarily selecting crossings for closure. An example is provided by the North Carolina DOT.[5]

To improve crossing safety and provide a comprehensive approach to crossing consolidation, the traffic separation study approach is a worthwhile option. As part of a comprehensive evaluation of traffic patterns and road usage for an entire municipality or region, traffic separation studies determine the need for improvements and/or elimination of public highway-rail grade crossings based on specific criteria. Traffic separation studies progress in three phases: preliminary planning, study and implementation.

Crossing information is collected at all public crossings in the municipality. Evaluation criteria include: collision history, current and projected vehicular and

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[2] G. Rex Nichelson, Jr. & George L. Reed. *Grade Separations - When Do We Separate*. 1999 Highway-rail Grade Crossing Conference. Texas Transportation Institute. College Station Texas. 17-19 October 1999. www.tti.edu, or www.tamu.edu.

[3] *Highway-Railroad Grade Crossings, a Guide to Crossing Consolidation and Closure.* Federal Railroad Administration/Federal Highway Administration. July 1994, www.fhwa.dot.gov or www.fra.dot.gov.

[4] *Highway-Rail Crossing Elimination and Consolidation, A Public Safety Initiative*. National Conference of State Railway Officials. March 1995, www.fhwa.dot.gov or www.fra.dot.gov.

[5] *Consolidating Railroad Crossings: on Track for Safety in North Carolina*. Rail Division, Engineering & Safety Branch. North Carolina Department Of Transportation. 2000, North Carolina DOT, available at: http://www.dot.state.nc.us/.

train traffic, crossing condition, school bus and emergency routes, types of traffic control devices, feasibility for improvements and economic impact of crossing closures. After discussions with the local road authority, railroad, State DOT, municipal staff and local officials these recommendations may be modified. Reaching a "consensus" is essential prior to scheduling presentations to governing bodies and citizens.

Recommendations may include: installation of flashing-lights and gates, enhanced devices such as four-quadrant gates and longer gate arms, installation of concrete or rubber crossings, median barrier installation, pavement markings, roadway approach modifications, crossing or roadway realignments, crossing closures and/or relocation of existing crossings to safer locations, connector roads, and feasibility studies to evaluate potential grade separation locations.

The most dynamic aspect of the public involvement process occurs at crossing safety workshops and public hearings. A goal of these forums is to exchange information and convey the community benefits of enhanced crossing safety, including the potential consequences to neighborhoods of train derailments containing hazardous materials resulting from crossing accidents. Equating rail crossings to highway interchanges, something the average citizen can relate to, greatly assist in reinforcing the need for eliminating low-volume and/or redundant crossings.