

2.3 Multimodal Transportation Safety

Overview

A strong focus on improving safety is a vital component of any effective plan or project related to the multimodal transportation system. The most tragic consequences of potential transportation safety deficiencies are the immeasurable costs of traffic-related fatalities or injuries in terms of their emotional impacts and the devastation that can change lives, families, and communities forever. Added to this, however, are costs associated with emergency response, health care, or insurance; lost wages or productivity; incident-related traffic congestion or detours; delays to the trucking industry and the movement of goods countywide.

With respect to such issues, and based on the specific needs and concerns identified for Erie County, this 2040 LRTP plans for and prioritizes multimodal transportation safety improvements by assessing the following areas of concern:

- Crash History
- Highway-Rail Crossings
- School Zone Safety

Baseline Perspectives

Crash History

Historical crash data for Erie County was obtained from PennDOT's crash database for the five-year period spanning 2005 through 2009 (*Exhibit 2.3.1*). Crash locations were reviewed to help identify notable crash clusters (i.e., specific areas, corridors, or intersections with a higher number of crashes relative to other locations countywide). Crash characteristics were also compiled to help identify notable trends or patterns based on crash type, weather conditions, probable causes, etc. These reviews were specifically geared for comparison to and consistency with Pennsylvania's Comprehensive Strategic Highway Safety Improvement Plan (CSHSIP).

Within the Erie LRTP, Multimodal Transportation Safety overlaps with Federal Planning Factor #2: "Increase the Safety of the transportation system for motorized and non-motorized users." At the state level, a focus on safety is inherent in the PA Mobility Plan, aligns directly with PennDOT's Smart Transportation principle of "safety always, and maybe safety only", and is consistent with Pennsylvania's Strategic Highway Safety Plan.



On average, there are more than 7 reportable crashes per day throughout Erie County, resulting in a total estimated economic loss of more than \$1.5 billion for the 5-year period from 2005 to 2009. In 2009 alone, that amounted to a one-year equivalent of approximately \$1,012 to every man, woman, and child in Erie County.

The "Vital Six" Safety Focus Areas

Developed in 2006, Pennsylvania's Comprehensive Strategic Highway Safety Improvement Plan (CSHSIP) targeted high-fatality Safety Focus Areas (SFAs) to identify improvement strategies that would have the most impact on reducing highway fatalities on Pennsylvania's roadways. Of the 16 SFAs targeted, the CSHSIP identified the "Vital Six" as:

1. Reducing Aggressive Driving
2. Reducing Impaired (DUI) Driving
3. Increasing Seat belt Usage
4. Infrastructure Improvements (Reducing Roadway Departure and Intersection Crashes)
5. Improving the Crash Records System
6. Improving Pedestrian Safety

Trends identified as part of this 2040 LRTP confirmed that the "Vital Six" are equally relevant at the county level.



Exhibit 2.3.1 - Crash Related Injuries (2005-2009)

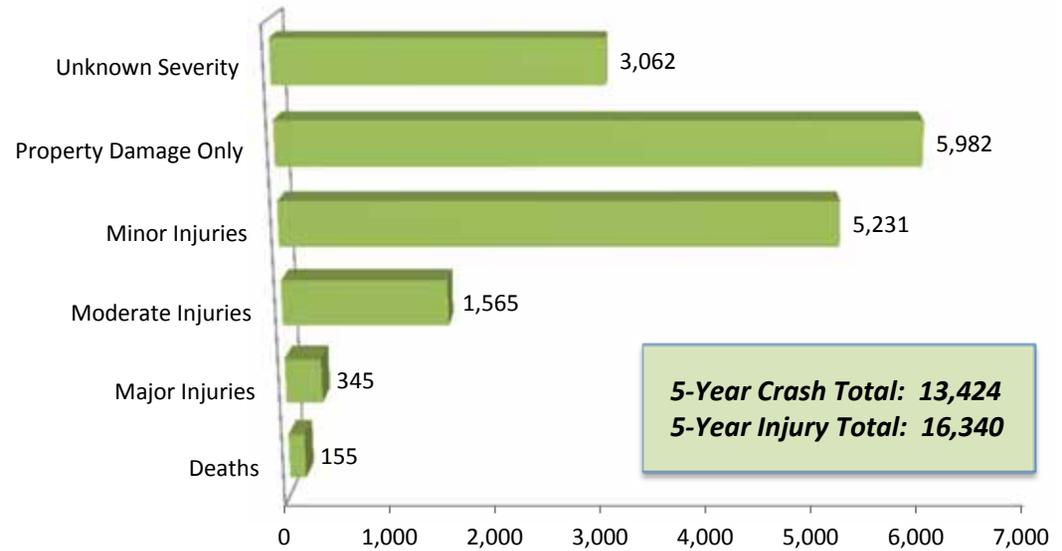
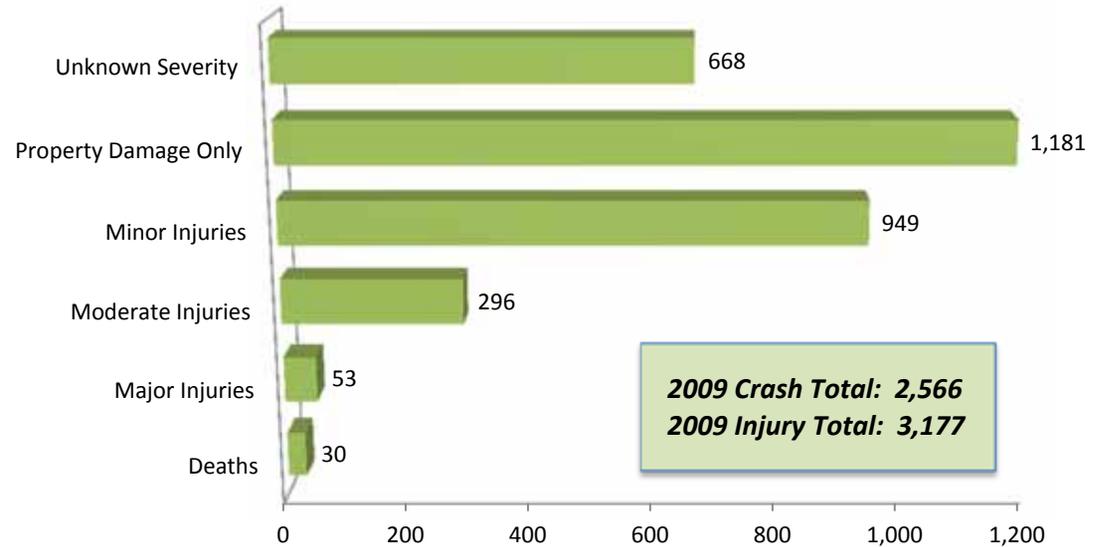


Exhibit 2.3.2 - Crash-Related Injuries (2009 Only)



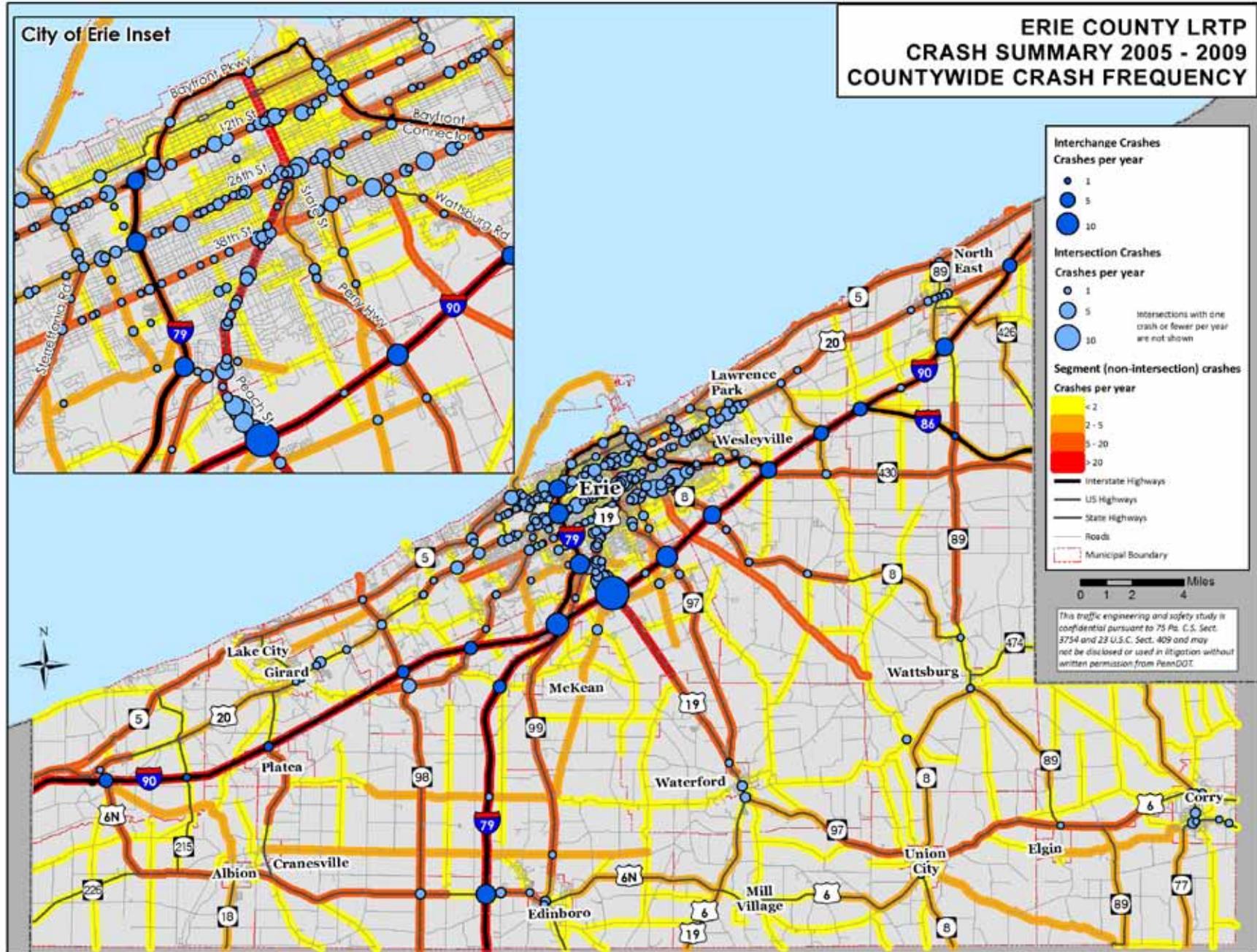
Summary crash trends within Erie County were generally found to be consistent with related statewide trends. For example:

- Speed-related factors were cited in 43% of all countywide fatalities, and alcohol-related factors were cited in 37%.
- Unbelted occupants (i.e., not wearing a seat belt) were involved in just under 8% of all countywide crashes, but almost 42% of all fatalities and over 27% of major injuries.
- Angle, Hit Fixed Object, and Rear End crash types, which are often associated with roadway departure or intersection crashes, comprised more than 80% of the countywide crash total.
- Pedestrian or bicycle related crashes combined to account for just under 5% of the countywide crash total, but almost double that percentage in fatalities.
- Motorcycle crashes accounted for only 3% of the countywide total, but 12% of the fatalities.

Compiled crash totals and crashes with certain characteristics (e.g., injury or fatality involvement, alcohol involvement, pedestrian or bicycle involvement, etc.) were also grouped in terms of interchange, intersection, or roadway segment locations throughout the county. Following recent trends per AASHTO's 2010 Highway Safety Manual, summary data included reviews based on crash frequency, i.e. the average number of crashes per year. It generally followed that where traffic volumes were higher, crash frequency was also typically higher, such as along the interstates (I-79 or I-90) or several major corridors through the City of Erie (e.g., Peach Street or 12th, 26th, and 38th Streets) (*Exhibit 2.3.3*).



Exhibit 2.3.3 - 2005-2009 Crash summary By Crash Frequency



Highway-Rail Crossings

Based on an inventory by the US Department of Transportation's (USDOT) Federal Railroad Administration (FRA), approximately 179 public at-grade highway-rail intersections were identified in Erie County. Conditions at these crossings (e.g., the historic number of accidents, types of warning devices, daily train volumes, or daily highway crossing volumes) can be reviewed via the FRA's Web Accident Prediction System (WBAPS). The WBAPS data is not intended to rank crossings as most to least dangerous. It does, however, provide one method of comparative insight to help determine which at-grade crossings might require additional evaluation or specialized attention.

Based on outreach and coordination as part of the 2040 LRTP, improving and expanding opportunities for multimodal and intermodal freight movements throughout Erie County is a priority to maintain and improve the economic vitality of the region. One outcome, or a sign of success, would be an increase in both train and truck traffic volumes within the county. Coupled with background increases in overall traffic volumes, the hazard potential at any at-grade highway-rail crossing could likewise increase.

For these reasons, future planning efforts should embrace or explore local knowledge, site planning, potential traffic pattern changes, crossing volume reductions, and data sources such as the FRA's WBAPS model, to give special attention to ensure and improve safety at all of the county's highway-rail crossings. Such efforts will help to apply scarce highway-rail crossing resources where they might be best utilized.



School Zone Safety

Some of the youngest users of the county's transportation system can be found walking, riding a bicycle, or riding a bus to and from school. Traffic congestion, speeding, and/or driver inattentiveness coupled with the youth and inexperience of school-aged children creates a potentially hazardous environment. Because of this the maintenance and improvement of school zone safety is imperative. Projects that enhance sidewalks and crosswalks ; signing; pavement markings: lighting and traffic signals; or narrow crossing distance all help to calm traffic and improve safety. The 2040 LRTP considers project elements such as these to evaluate a project's ability to improve the safety a school zone or school related activities.

The success of the plan in improving multimodal safety will be measured by ranking projects based upon:

- *Motorized Crashes* – Frequency of motorized crashes in the project area compared to countywide trends.
- *Non-Motorized Crashes* – Frequency of non-motorized crashes in the project area compared to countywide trends.
- *Highway-Rail Crossing* – Ability to help reduce the hazard potential for a highway-rail crossing.
- *School Activity* – Ability to help improve a school zone or school-related activities.

Future Planning Perspectives

From a multimodal transportation safety perspective, future planning efforts specific to Erie County should begin to address the various issues identified here in a manner consistent with PennDOT's "Vital Six" Safety Focus Areas of:

1. Reducing Aggressive Driving
2. Reducing Impaired (DUI) Driving
3. Increasing Seat belt Usage
4. Infrastructure Improvements (Reducing Roadway Departure and Intersection Crashes)
5. Improving the Crash Records System
6. Improving Pedestrian Safety

Crash Reduction: Reference and maintenance of crash data can help to identify priority areas where limited funds might be best allocated at various levels of planning (e.g., long-range, TIP updates, local priorities, etc.). Overall goals should focus on reducing crash frequencies for motorized travelers, pedestrians, and bicyclists countywide.

Highway-Rail Crossing Safety: Highway-rail crossings should also be given special attention where needed, with recognition that future development possibilities such the Erie Inland Port or Port of Erie could increase railroad and truck traffic. Opportunities to incorporate the cost and prioritization of highway-rail crossing improvements or other rail safety improvements into any future development plans should explored.

School Zone Safety: Opportunities to improve school zone safety should also be emphasized over time. While these issues could be addressed with standalone projects, in many cases it may be more practical or efficient to incorporate relevant aspects into more broadly scoped projects such as corridor improvements, streetscaping initiatives, or traffic signal improvement programs.

Exhibit 2.3.4 - Erie County School Locations

