

### 4.3.21 Transportation Accident

Transportation accidents described herein include incidents involving road, air, and rail travel. Effects of the release of hazardous materials due to any of these accidents are described in the Environmental Hazard profile (Section 4.3.15).

#### 4.3.21.1 Location and Extent

Major roadways in the Lehigh Valley include I-78, I-476, the US-22 corridor, US-222, and PA Routes 29, 33, 100, 143, 145, 309, 329, 378, 863, 873, and 987. The Lehigh Valley has over 4,000 miles of roadways, split as shown in Table 4.3.21-1.

**Table 4.3.21-1: Lehigh Valley Transportation Network**

Category	Miles
Interstate Highway	57
Freeways/Expressways	35
Principal Arterials	188
Minor Arterials	223
Major Collectors	419
Minor Collectors	106
Local Roads	3,015
<b>Total</b>	<b>4,044</b>

Source: PennDOT, Pennsylvania Highway Statistics, 2010 Highway Data

Transportation accidents can occur at any point along these roadways, with many occurring at the intersection of two or more roadways. A regional study has been conducted to identify high priority traffic safety locations. Table 4.3.21-2 and Figure 4.3.21-1 show these locations (LVPC, 2011).

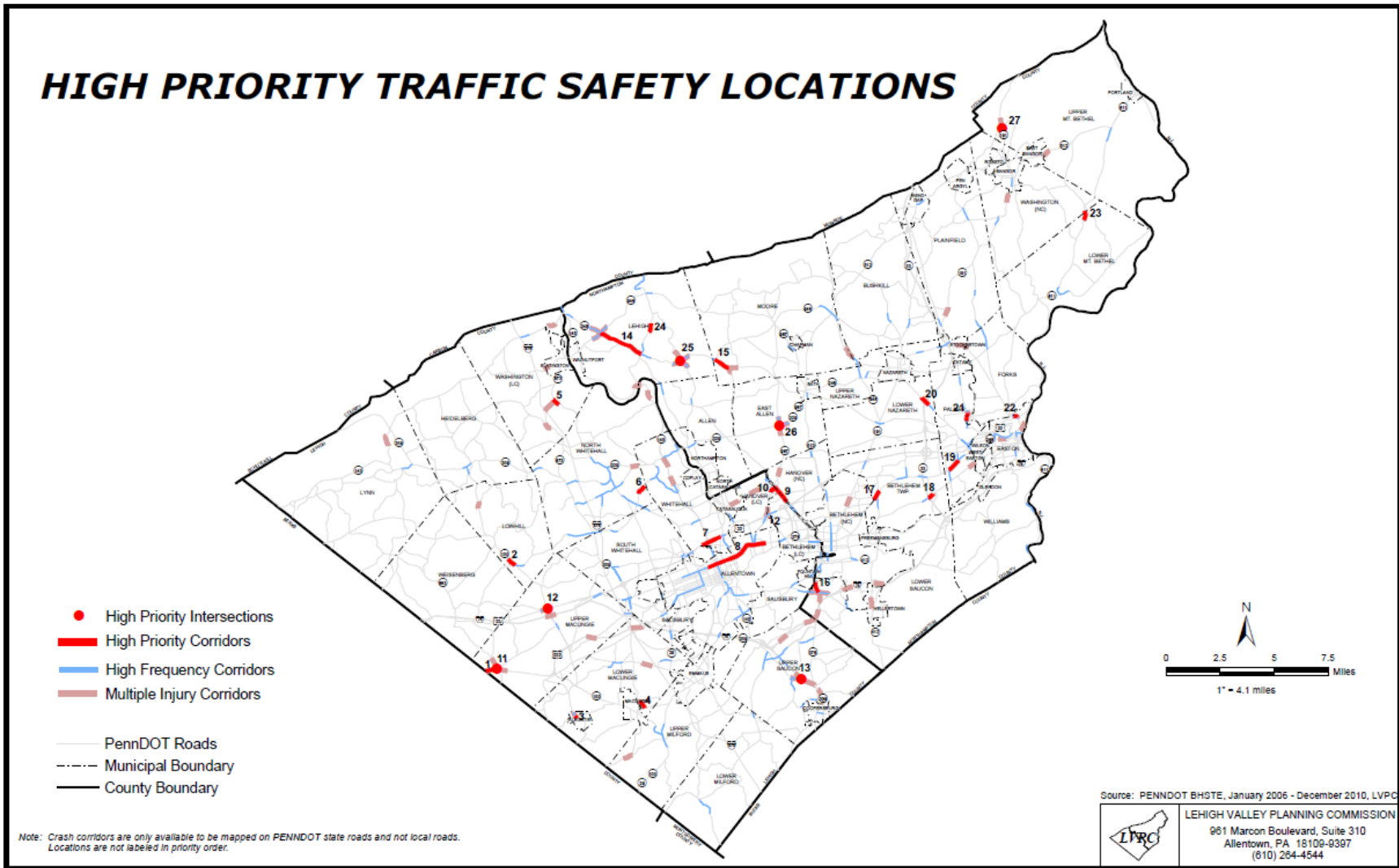
**Table 4.3.21-2: High Priority Traffic Safety Locations**

Name	From	To	Municipality
<b>LEHIGH COUNTY</b>			
<b>Corridors</b>			
Route 222	Berks County line	Route 863	Upper Macungie Township
Route 100	Windy Road	Kernsville Road	Lowhill Township
North Main Street	East Penn Avenue	East 2 <sup>nd</sup> Street	Alburtis Borough
Brookside Road	Indian Creek Road	Buckeye Road	Lower Macungie Township
Old Post Road	Route 873	Rip Court	Washington Township (L)
Willow Street	Shelby Drive	Bridge Street	North Whitehall Township
Route 22	Mickley Road	Fullerton Avenue	Whitehall Township
Union Boulevard/Tilghman Street	North Plymouth Street	North 11 <sup>th</sup> Street	City of Allentown
Schoenersville Road	Industrial Drive	Airport Road	City of Bethlehem/Hanover Township (L)
Airport Road	Grove Road	Schoenersville Road	Hanover Township (L)

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Name	From	To	Municipality
<b>Intersections</b>			
Schantz Road/Route 863			Upper Macungie Township
Route 100/Tilghman Street			Upper Macungie Township
Route 309/Lanark Road			Upper Saucon Township
<b>NORTHAMPTON COUNTY</b>			
<b>Corridors</b>			
Route 248	Blue Mountain Drive	Mountain View Drive	Lehigh Township
Route 248	Valley View Drive	Allen Drive	Moore Township
Route 378	Kohler Drive	Seidersville Road	Lower Saucon Township
Easton Avenue	Butztown Road	5 <sup>th</sup> Street	Bethlehem Township
Freemansburg Avenue	Route 33	Hope Road	Bethlehem Township
William Penn Highway	Stones Crossing Road	South Greenwood Avenue	Palmer Township
Route 248	Ramp L	Ramp K	Lower Nazareth Township
Tatamy Road	Bushkill Park Drive	Northwood Avenue	Palmer Township
Cattell Street/Knox Avenue	West Lafayette Street	Sullivan Trail	City of Easton
Route 611	Hester Drive	Richmond Road	Lower Mt. Bethel Township/Washington Township (N)
Blue Mountain Drive	Cedar Drive	Wood Drive	Lehigh Township
<b>Intersections</b>			
Route 248/Walnut Drive			Lehigh Township
Route 329/Route 512			East Allen Township
Route 191/Lake Minsi Drive			Upper Mt. Bethel Township

Figure 4.3.21-1: High Priority Traffic Safety Locations



Source: LVPC, 2011



In addition, in response to the collapse of the I-35W Bridge in Minneapolis in August 2007, PennDOT assessed the structural integrity of all bridges in the Commonwealth. Table 4.3.21-3 shows the total number of bridges in the Lehigh Valley, as well as the number of those that are structurally-deficient (in parentheses). Each structurally-deficient bridge poses a risk for transportation accidents.

**Table 4.3.21-3: Bridges in the Lehigh Valley**

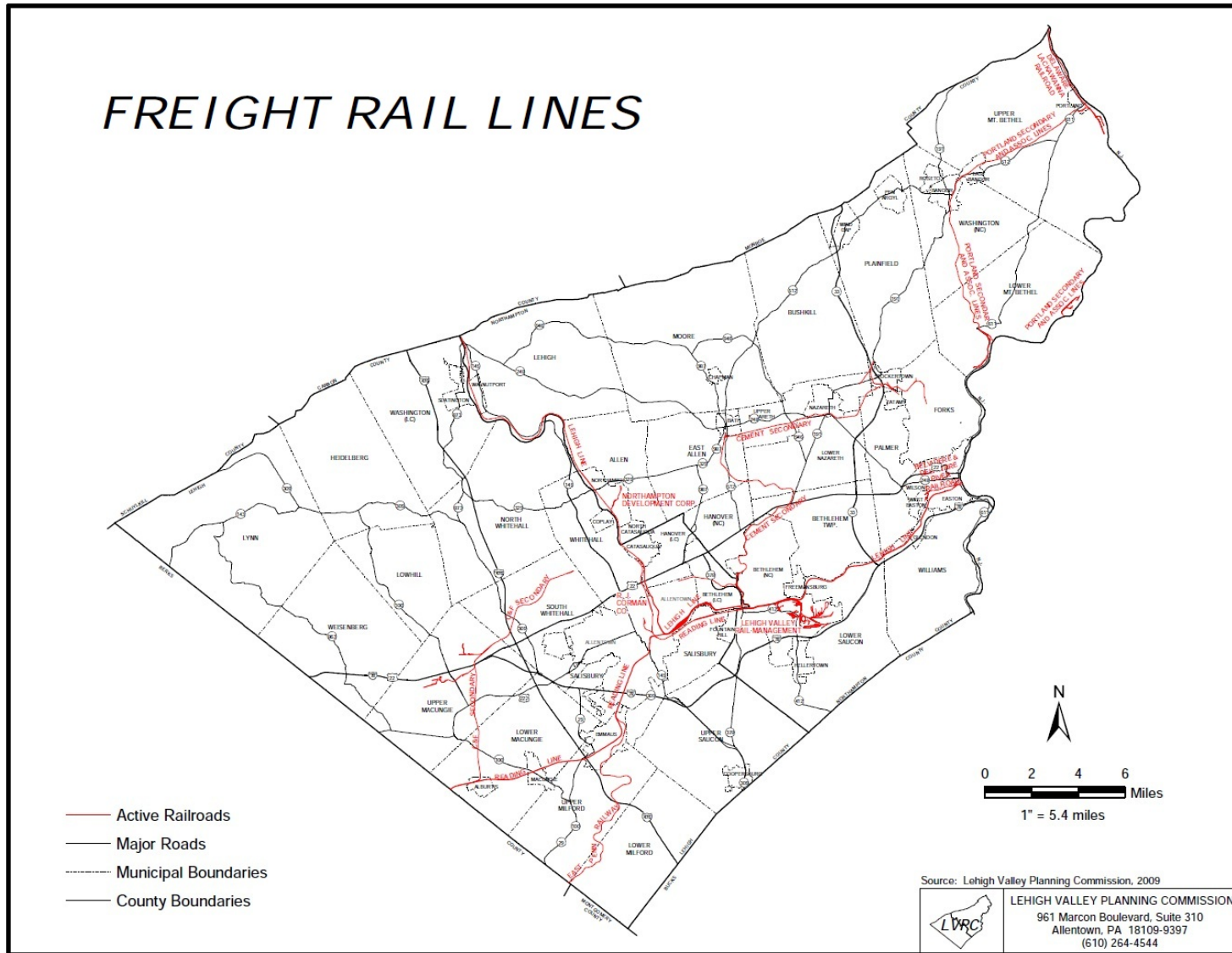
County	On State Roads	On Local Roads
Lehigh	349 (62)	118 (40)
Northampton	310 (63)	131 (24)
<b>Total</b>	<b>659 (125)</b>	<b>249 (64)</b>

Source: PADOT, 2005

As of March 2012, there were 4,813 structurally-deficient bridges throughout Pennsylvania (PADOT, 2005). PennDOT has plans in place to rebuild more than 600 of these by 2014 and beyond. No data regarding the schedule to repair or rebuild the Lehigh Valley's structurally-deficient bridges was available.

No passenger rail service is available in the Lehigh Valley. However, two Class 1 railroads (i.e., large freight railroad companies such as CSX Transportation and Norfolk Southern Railway) and six short line railroads operate within the Lehigh Valley (LVPC, 2010). Figure 4.3.21-2 shows freight rail lines in the Lehigh Valley.

Figure 4.3.21-2: Freight Rail Lines in the Lehigh Valley

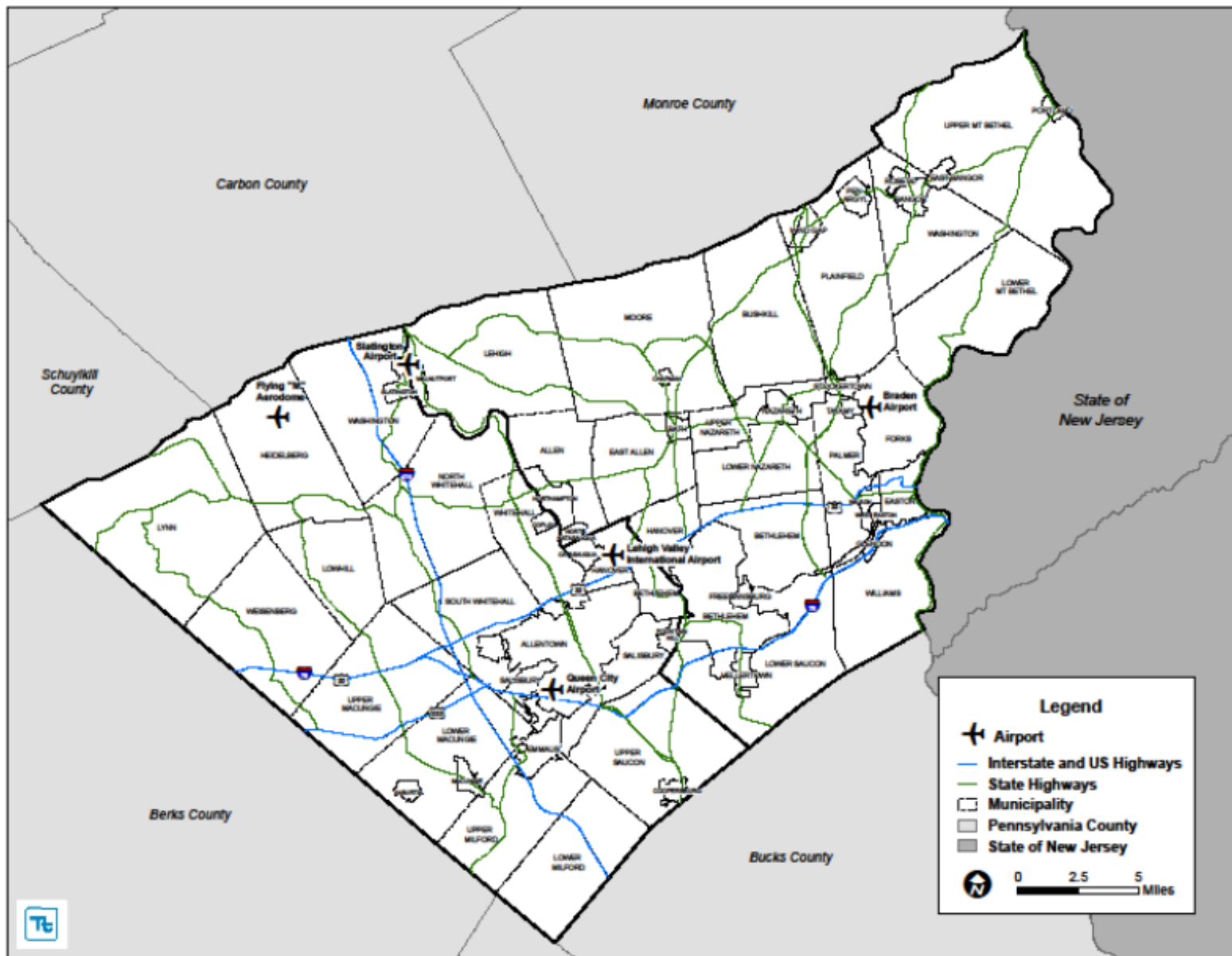


Source: Lehigh Valley Surface Transportation Plan 2011-2030, www.lvpc.org



There are also several airports in the Lehigh Valley. The most notable is the Lehigh Valley International Airport (LVIA), which provides passenger, cargo, and general aviation services. Other airports in the Lehigh Valley include the Queen City Airport in Allentown, Braden Airpark in Forks Township, the Slatington Airport, and the Flying “M” Aerodrome in Heidelberg Township. Figure 4.3.21-3 shows the locations of these airports. In addition, there are large international airports in Newark, NJ, New York City, NY, and Philadelphia, PA, with associated air traffic patterns in the skies above the Lehigh Valley, which may experience problems in flight and crash in the Lehigh Valley.

Figure 4.3.21-3: Airports in the Lehigh Valley



### 4.3.21.2 Range of Magnitude

Roadway accidents in the Lehigh Valley range from minor crashes to more serious incidents that involve injuries and/or fatalities, and/or result in the release of hazardous materials (see Section 4.3.15). The Lehigh Valley Planning Commission captured all injuries in the Traffic Safety in the Lehigh Valley 2004-2008 report, but only “major injuries” in the Traffic Safety in the Lehigh Valley 2006-2010 report. Table 4.3.21-4 shows the number of injuries and fatalities from the 54,230 automobile crashes for 2004-2010 (the most current data). Table 4.3.21-5 shows the number of injuries and fatalities of pedestrians from pedestrian/motorist crashes.

**Table 4.3.21-4: Injuries and Fatalities from Automobile Crashes**

Year	Injuries (Major)	Fatalities
2004	5,969	74
2005	5,865	81
2006	5,949 (198)	71
2007	5,370 (175)	59
2008	4,793 (157)	64
2009	(144)	59
2010	(158)	51
<b>Total</b>	<b>27,946+ (832+)*</b>	<b>459</b>

Sources: Lehigh Valley Planning Commission. *Traffic Safety in the Lehigh Valley 2004-2008*. November 2009; Lehigh Valley Planning Commission. *Traffic Safety in the Lehigh Valley 2006-2010*. December 2011.

Note: \* Because of the difference in reported statistics between the two reports covering the time identified, it is not possible to determine exact figures of injuries or major injuries.

**Table 4.3.21-5: Injuries and Fatalities of Pedestrians**

Year	Injuries (Major)	Fatalities
2004	263	10
2005	266	10
2006	266 (21)	6
2007	240 (10)	7
2008	268 (11)	4
2009	(5)	8
2010	(13)	8
<b>Total</b>	<b>1,303+ (60+)*</b>	<b>53</b>

Sources: Lehigh Valley Planning Commission. *Traffic Safety in the Lehigh Valley 2004-2008*. November 2009; Lehigh Valley Planning Commission. *Traffic Safety in the Lehigh Valley 2006-2010*. December 2011.

Note: \* Because of the difference in reported statistics between the two reports covering the time identified, it is not possible to determine exact figures of injuries or major injuries.



Rail accidents fall into three categories (PAHMP, 2010):

- Derailement: an accident in which a train leaves the rails
- Collision: an accident in which a train strikes an object (e.g., another train, vehicle, etc.)
- Other: an accident caused by another reason, such as a fire, explosion, or obstruction of the rails

Rail accidents can vary widely in terms of injuries, fatalities, property damage, and interruption of service, depending on the nature and severity of the accident.

Aircraft accidents can vary from a single-engine aircraft having a “hard landing” and causing damage to the aircraft, to the crash of a small turboprop or jet aircraft, to the crash of a large jet aircraft (e.g., Boeing 727).

The worst-case transportation accident within the Lehigh Valley would be a tractor trailer carrying an extremely hazardous substance (see Section 4.3.15) overturning and suffering a massive release of its cargo on a major roadway; this incident would block traffic on the Lehigh Valley’s major transportation routes, and could threaten the health and safety of individuals on the roadways and in surrounding neighborhoods. In addition, a release could cause the closure of critical facilities in the Lehigh Valley.

#### 4.3.21.3 Past Occurrence

Major accidents are reported by the Lehigh and Northampton County EMA to PEMA. Table 4.3.21-6 shows a summary of these accidents from 2001-2009 (the years for which data is available, 2010-2011 not available). While this reflects the accidents that are reported to the counties and Commonwealth, there are significantly more minor accidents that are not reported. The dramatic increase in accidents from 2006 to 2007 is due to increased reporting of accidents in the state.

**Table 4.3.21-6: Summary of Major Accidents**

Year	Vehicle Accidents	Bus Accidents	Railroad Incidents	Aircraft Accidents
2001	12	2	2	2
2002	25	1	2	1
2003	26	1	0	0
2004	21	3	3	2
2005	22	10	4	2
2006	35	20	2	0
2007	146	61	4	3
2008	142	40	3	2
2009	102	34	2	1
2010	567			
2011	667			
Total	531+	172+	22+	13+

Source: PEIRS reports 2001-2009; Knowledge Center report 2010-2011

Table 4.3.21-7 summarizes significant transportation accidents in the Lehigh Valley from 2001 through 2011.

**Table 4.3.21-7: Accidents of Significance through 2011**

Date	Description
3/28/2001	Approximately 40 students were injured when two school busses collided in South Whitehall Township, Lehigh County.
10/28/2003	US-22 was closed in both directions in Bethlehem Township, Northampton County, due to a seven-car accident.
11/9/2004	A school bus in Upper Macungie Township, Lehigh County, carrying 30-40 students was involved in an accident and rolled over. There were several minor injuries on the school bus and the driver of the other car was killed.
6/14/2005	A school bus was involved in an accident in Bethlehem Township, Northampton County. Multiple injuries were reported, and a Level 1 Mass Casualty Incident was declared.
6/23/2005	A single engine aircraft crashed in Moore Township, Northampton County; the pilot was killed.
2/19/2008	A train struck and killed a pedestrian in Emmaus Borough, Lehigh County.
1/10/2009	A train struck a vehicle on PA-100 in Macungie Borough, Lehigh County. Two injuries were reported.
1/26/2009	A student was struck by a school bus in Northampton Borough, Northampton County, and later died from his injuries.

Source: PEIRS reports 2001-2009; Knowledge Center report 2010-2011

#### 4.3.21.4 Future Occurrence

Assuming that transportation accidents are as likely to occur in the future as they have occurred in the past and based on the available data, the Lehigh Valley can expect the following each year:

- Approximately 130 vehicle accidents (the actual number of vehicle accidents in the Lehigh Valley may be much higher, however this figure is based on vehicle accidents captured in PEIRS or Knowledge Center.)
- Approximately 45 bus accidents
- One to two aircraft incidents
- Two to three railroad incidents

Though historical data show two to three railroad incidents each year, the Pennsylvania Department of Transportation's *Pennsylvania Intercity Passenger and Freight Rail Plan* (February 2010) identifies strategic improvements to Pennsylvania's rail system, and includes major rail initiatives in the Lehigh Valley. In terms of passenger rail, the plan identifies a possible rail corridor from Harrisburg to New York City through Reading, Allentown, Bethlehem, and Easton. This corridor would also serve to link the individual corridors in eastern Pennsylvania. For rail freight, the Lehigh Valley is part of Norfolk Southern's Central Corridor, with an intermodal terminal in Bethlehem. When these improvements are made, the Lehigh Valley can expect a major increase in rail traffic, both passenger and freight. All things being equal, increased rail traffic volume will result in an increase in the number of rail accidents.

Based upon the Risk Factor Methodology Probability Criteria, the probability of a transportation accident described above is considered to be *highly likely* (see Table 4.4-1).

#### 4.3.21.5 Vulnerability Assessment

All critical infrastructures in the Lehigh Valley are vulnerable to transportation accidents. This vulnerability is manifested either through direct damage (e.g., a vehicle striking the facility) or through operators being injured or delayed in performing their duties due to congested or closed roadways. In the case of critical transportation infrastructure (e.g., bridges, key highways), the critical infrastructure may be the only property damaged by an accident. In addition, transportation accidents that result in the release of hazardous materials (as discussed in Section 4.3.15) may cause health effects and/or fatalities, depending on the material released.