

Chapter 12

Appendix

Nestle Way warehouses near I-78

The Lehigh Valley's freight infrastructure facilitates the movement of a significant volume of freight traffic through the year. The total volume is approximately 40.9 million tons. All three modes—truck, rail, and air—support the movement of goods in the region, yet trucking far surpasses the others in total volume and in the value of goods being moved. This plan provides an overview of the role all three modes play in goods movement in the Lehigh Valley and offers forecasts for anticipated share by the year 2040. Highlights of the data include:

Freight Overview – In 2011, 40.9 million tons of goods moved into, within and out of the Lehigh Valley. By 2040, this volume is expected to increase by 96%, to 80.2 tons. Much of this increase will be in goods being moved *into and out of* the region. The value of these goods being moved is approximately \$51.1

billion in 2011 and is expected to grow to \$129.6 billion in 2040—a growth of 154%.

Mode Split – The overwhelming majority (78%) of goods (in terms of value) destined to points within the Lehigh Valley currently arrive by truck. This is expected to continue through 2040. For goods being shipped out of the region, the reliance on motor carriers is even stronger, at 94% (**Figure 1**). Mode share by tonnage for inbound and outbound goods is similar (**Figure 2**). **Figures 3** and **4** show the 2040 inbound and outbound trips by value and tonnage, respectively. While the overall share of rail is forecasted to decrease from 2011 to 2040, the share of inbound rail is expected to increase from 2011 to 2040 in terms of tonnage, but decrease in terms of value.

Figure 1
Lehigh Valley Freight —
Inbound and Outbound Trips by Value (2011)

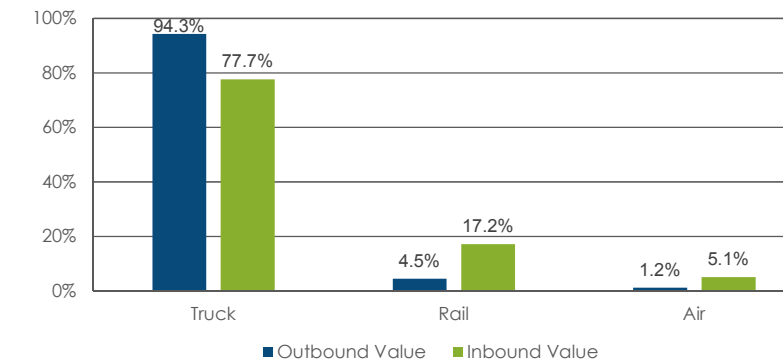


Figure 3
Lehigh Valley Freight —
Inbound and Outbound Trips by Value (2040)

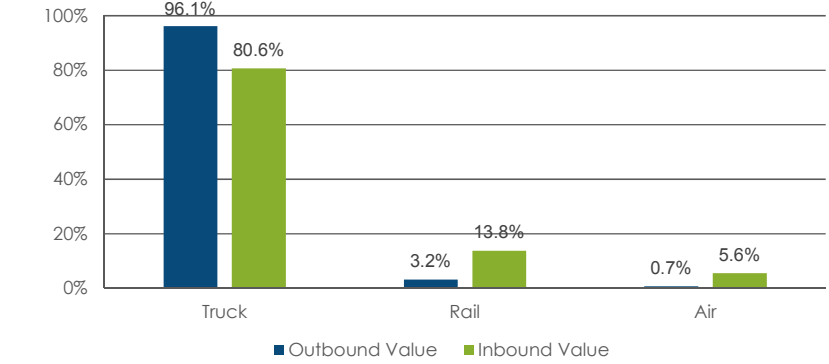


Figure 2
Lehigh Valley Freight —
Inbound and Outbound Trips by Tonnage (2011)

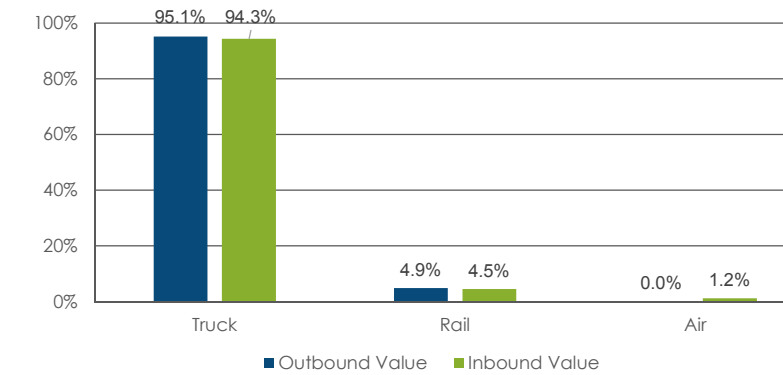
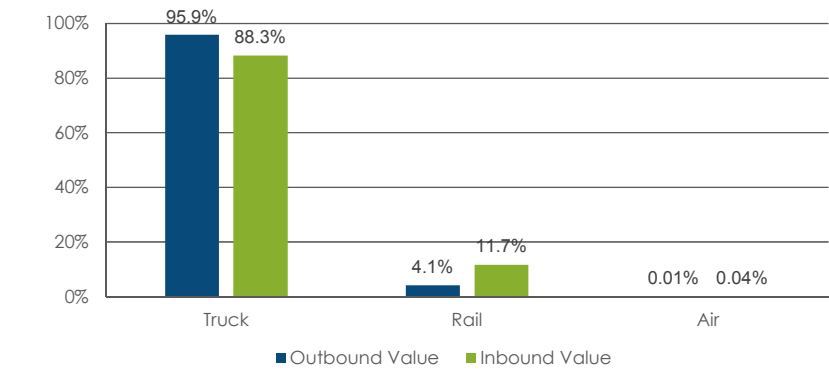


Figure 4
Lehigh Valley Freight —
Inbound and Outbound Trips by Tonnage (2040)



Source: IHS Global Insight

Commodity Types/Highway – The top five commodity types entering the region via truck account for nearly two-fifths by weight and half by value of all commodities in both 2011 and

projected to 2040. For the top five commodities being shipped from the region in 2011, the rates are 57% and 62%, respectively. These commodities include:

		Tonnage	Value
TRUCK INBOUND 2011	1	Petroleum Refining Products	Warehouse and Distribution Center
	2	Warehouse and Distribution Center	Petroleum Refining Products
	3	Processed Milk	Processed Milk
	4	Liquefied Gases, Coal or Petroleum	Motor Vehicles
	5	Soft Drinks or Mineral Water	Rail Intermodal Drayage to Ramp
TRUCK OUTBOUND 2011	1	Broken Stone or Riprap	Warehouse and Distribution Center
	2	Warehouse and Distribution Center	Rail Intermodal Drayage from Ramp
	3	Portland Cement	Soft Drinks or Mineral Water
	4	Soft Drinks or Mineral Water	Current Carrying Wire Equipment
	5	Dog, Cat or Other Pet Food, N.E.C. ¹	Rail Intermodal Drayage to Ramp

¹ Not Elsewhere Classified
Source: IHS Global Insight

Commodity Types/Rail – The top five commodity types entering the region via rail account for nearly half by weight and two-thirds by value of all commodities in both 2011 and

projected to 2040. For the top five commodities being shipped from the region by rail in 2011, the rates are 80% and 84%, by tonnage and value, respectively. These commodities include:

		Tonnage	Value
RAIL INBOUND 2011	1	Miscellaneous Shipments, N.E.C. ¹	Miscellaneous Shipments, N.E.C. ¹
	2	Grain	Plastic Matter or Synthetic Fibers
	3	Misc. Industrial Organic Chemicals	Paper
	4	Plastic Matter or Synthetic Fibers	Misc. Industrial Organic Chemicals
	5	Wet Corn Milling or Milo	Inorganic Pigments
RAIL OUTBOUND 2011	1	Semi-trailers Returned Empty	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers
	2	Portland Cement	Industrial Pumps
	3	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	Plastic Matter or Synthetic Fibers
	4	Plastic Matter or Synthetic Fibers	Liquefied Gases, Coal or Petroleum
	5	Freight Forwarder Traffic	Miscellaneous Food Preparations, N.E.C. ¹

¹ Not Elsewhere Classified
Source: IHS Global Insight

INTRODUCTION

This plan details the commodity flows into, out of and within the Lehigh Valley. Understanding the movement of goods in the region is critical for the development of a comprehensive freight plan that is responsive to current and future infrastructure needs and helps improve economic and social conditions in the Lehigh Valley. In order to understand these needs, this plan first provides an overview of the data used for this analysis, then details the freight profile of the region by mode. Unless otherwise noted, all results are based on the CDM Smith analysis of Transearch data.

12.1 IHS GLOBAL INSIGHT TRANSEARCH DATA OVERVIEW

IHS Global Insight's Transearch data is the source of this analysis. Transearch is a privately-maintained comprehensive market research database for intercity freight traffic flows compiled by IHS Global Insight. The development of the Transearch database involves the fusion of various freight traffic data sources into a common framework for planning and analysis. The database provides detailed U.S. and cross-border origin-destination freight shipment data at the state, Business Economic Area (BEA), county, metropolitan area and zip-code level detail by commodity type (by Standard Transportation Commodity Classification (STCC) code) and major modes of transportation. Forecasts of commodity flows up to 30 years are available for the following four modes: air, truck, water and rail. The data is compiled from the following sources:

- Commodity Flow Survey (CFS)
- Carload Waybill Sample
- USACE Waterborne Commerce Statistics

- Federal Aviation Authority (FAA) Airport Activity Statistics
- Bureau of Census FTD
- American Association of Railroads (AAR) Freight Commodity Statistics
- Inter-industry trade patterns

Transearch has some limitations to how this data should be used and interpreted:

- **Mode Limitations** – The Rail Waybill data used in Transearch is based on data collected by Class I railroads. The waybill data contains some information for regional and short line railroads, but only in regards to interline service associated with a Class I railroad. The rail tonnage movements provided by the Transearch database, therefore, are conservative estimates.
- **Use of Multiple Data Sources** – Transearch consists of a national database built from company-specific data and other available databases. To customize the dataset for a given region and project, local and regional data sources are often incorporated. This incorporation requires the development of assumptions that sometimes compromise the accuracy of the resulting database.
- **Data Collection and Reporting** – The level of detail provided from some specific companies when reporting their freight shipment activities limits the accuracy of Transearch. If a shipper moves a shipment intermodally, for example, one mode must be identified as the primary method of movement. Suppose three companies make shipments from the midwest U.S. to Europe using rail to New York then water to Europe. One company may report the shipment as simply a rail move from the midwest to New York; another may report it as a water move from New York to Europe; the third may report the

shipment as an intermodal move from the midwest to Europe, with rail as the primary mode. The various ways in which companies report their freight shipments can limit the accuracy of Transearch.

- **Limitations of International Movements** – Transearch does not report international air shipments through the regional gateways. Additionally, specific origin and destination information is not available for overseas waterborne traffic through marine ports. Overseas ports are not identified, and Transearch estimates the domestic distribution of maritime imports and exports. Transearch data also does not completely report international petroleum and oil imports through marine ports.

Transearch's county-to-county market detail is developed through the use of Global Insight's Motor Carrier Data Exchange inputs and Global Insight's Freight Locator database of shipping establishments. Freight Locator provides information about the specific location of manufacturing facilities, along with measures of facility size (both in terms of employment and annual sales) and a description of the products produced. This information is aggregated to the county level and used in allocating production among counties.

Much of the Motor Carrier Data Exchange inputs from the trucking industry are provided by zip code. The zip code information is translated to counties and used to further refine production patterns. A compilation of county-to-county flows and a summary of terminating freight activity are used to develop destination assignments.

12.1.1 Why use Transearch Data

Despite the limitations listed above, Transearch is used for the purposes of this analysis because of the following reasons:

- Transearch is updated on a more regular basis than the Freight Analysis Framework (FAF) data, compiled by the Federal Highway Administration;
- Transearch has the ability to provide commodity information at smaller geographies, such as counties and Traffic Analysis Zones (TAZs), as opposed to the FAF, which provides information only at the Bureau of Economic Analysis (BEA) zones; and
- Transearch has access to economic information via other IHS companies that allows IHS Global Insight to ensure the freight information obtained is more accurate.

12.2 FREIGHT OVERVIEW

Table 1 shows the total freight movements within, into and out of the Lehigh Valley for 2011 and 2040 by mode. Truck and rail are the dominant modes of transportation, with truck accounting for more than 85% of commodity movements in 2011 and 2040. However, in 2040, the share of rail is projected to decrease from 10% to 8% in terms of tons, and 11% to 8% in terms of value. Overall, freight traffic in the Lehigh Valley grows by 96% from 2011 to 2040 in terms of tons, and 154% from 2011 to 2040 in terms of value. The compounded annual growth rate for tons and value is 2.4% and 3.3%, respectively.

In 2011, the top commodity originating in the Lehigh Valley in terms of tonnage is warehousing and distribution centers (these are goods moving through retail and wholesale distribution channels). The top commodity coming into the Valley in terms of tonnage in 2011 is broken stone or riprap.

In 2011 and 2040, the top commodity coming into and leaving from the Lehigh Valley in terms of value is rail intermodal drayage. **Table 2** illustrates the top ten commodities to, from and within the Lehigh Valley.

Table 1
Lehigh Valley Total Freight Traffic (2011 and 2040)

Mode	2011 (Tons)			2040 (Tons)		
	Inbound	Within	Outbound	Inbound	Within	Outbound
Truck	20,850,097	882,163	14,917,293	36,015,952	2,490,577	35,384,751
Rail	3,425,024	14,444	768,909	4,758,132	18,836	1,504,563
Air	8,513		1,667	17,187		2,978
Other ¹	9		82	36		274
Grand Total	24,283,643	896,607	15,687,950	40,791,308	2,509,413	36,892,566
Mode	2011 (Value) (Millions)			2040 (Value) (Millions)		
	Inbound	Within	Outbound	Inbound	Within	Outbound
Truck	\$21,708	\$2,640	\$19,329	\$48,984	\$7,644	\$58,764
Rail	\$4,806	\$7	\$930	\$8,380	\$8	\$1,954
Air	\$1,426	\$0	\$242	\$3,408	\$0	\$437
Other	\$0	\$0	\$0	\$0	\$0	\$1
Grand Total	\$27,939	\$2,647	\$20,501	\$60,773	\$7,652	\$61,156

Note: All 2040 values are in 2011 dollars and not inflated to 2040

¹ "Other" is classified as: Other + Mail + Foreign Trade Zones

Table 2
Lehigh Valley Top Commodities (2011 and 2040)

Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
2011 Origin					
Warehouse & Distribution Center	3,936,956.79	25.10%	Rail Intermodal Drayage from Ramp	\$4,472.62	21.82%
Portland Cement	1,833,492.23	11.69%	Warehouse & Distribution Center	\$4,407.44	21.50%
Rail Intermodal Drayage from Ramp	1,057,437.43	6.74%	Rail Intermodal Drayage to Ramp	\$1,976.42	9.64%
Soft Drinks or Mineral Water	1,047,825.74	6.68%	Soft Drinks or Mineral Water	\$633.40	3.09%
Broken Stone or Riprap	893,932.07	5.70%	Current Carrying Wiring Equipment	\$528.09	2.58%
Asphalt Paving Blocks or Mix	646,259.00	4.12%	Miscellaneous Shipments N.E.C. ¹ excluding Freight Forwarders and Shippers	\$501.10	2.44%
Concrete Products	493,228.41	3.14%	Miscellaneous Plastic Products	\$340.67	1.66%
Dog, Cat or Other Pet Food, N.E.C. ¹	479,864.69	3.06%	Primary Iron or Steel Products	\$316.40	1.54%
Rail Intermodal Drayage to Ramp	467,273.63	2.98%	Valves or Pipe Fittings	\$302.11	1.47%
Ready-mix Concrete, Wet	339,165.31	2.16%	Candy or Other Confectionery	\$286.00	1.40%
All Other Commodities	4,492,515.05	28.64%	All Other Commodities	\$6,736.99	32.86%
2011 Destination					
Broken Stone or Riprap	6,369,182.67	26.23%	Rail Intermodal Drayage from Ramp	\$2,880.62	10.31%
Warehouse & Distribution Center	2,081,925.79	8.57%	Warehouse & Distribution Center	\$2,330.73	8.34%
Petroleum Refining Products	2,049,639.34	8.44%	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	\$2,022.41	7.24%
Processed Milk	1,194,684.01	4.92%	Petroleum Refining Products	\$1,874.92	6.71%
Bituminous Coal	820,674.12	3.38%	Rail Intermodal Drayage to Ramp	\$1,810.43	6.48%
Gravel or Sand	685,777.01	2.82%	Processed Milk	\$1,058.42	3.79%
Rail Intermodal Drayage from Ramp	681,049.19	2.80%	Pharmaceuticals	\$731.86	2.62%
Grain	567,454.88	2.34%	Miscellaneous Manufacturing Products	\$549.84	1.97%
Rail Intermodal Drayage to Ramp	428,030.12	1.76%	Plastic Matter or Synthetic Fibers	\$535.18	1.92%
Liquefied Gases, Coal or Petroleum	423,872.15	1.75%	Motor Vehicles	\$513.08	1.84%
All Other Commodities	8,981,353.54	36.99%	All Other Commodities	\$13,631.86	48.79%

¹ Not Elsewhere Classified

**Table 2 (cont.)
Lehigh Valley Top Commodities (2011 and 2040)**

Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
2011 Intra					
Rail Intermodal Drayage from Ramp	396,599.55	44.23%	Rail Intermodal Drayage from Ramp	\$1,677.49	63.38%
Rail Intermodal Drayage to Ramp	202,948.87	22.64%	Rail Intermodal Drayage to Ramp	\$858.41	32.43%
Broken Stone or Riprap	109,020.25	12.16%	Warehouse & Distribution Center	\$77.17	2.92%
Warehouse & Distribution Center	68,929.13	7.69%	Soft Drinks or Mineral Water	\$6.15	0.23%
Portland Cement	30,800.43	3.44%	Liquefied Gases, Coal or Petroleum	\$3.10	0.12%
Miscellaneous Nonmetallic Minerals, N.E.C. ¹	18,837.21	2.10%	Portland Cement	\$2.72	0.10%
Soft Drinks or Mineral Water	10,192.41	1.14%	Plywood or Veneer	\$2.71	0.10%
Asphalt Paving Blocks or Mix	9,587.82	1.07%	Air Freight Drayage from Airport	\$2.12	0.08%
Grain	8,045.52	0.90%	Textile Scrap or Sweepings	\$1.37	0.05%
Textile Scrap or Sweepings	6,344.20	0.71%	Candy or Other Confectionery	\$1.33	0.05%
All Other Commodities	35,301.82	3.94%	All Other Commodities	\$14.19	0.54%
2040 Origin					
Warehouse & Distribution Center	10,701,206.26	29.01%	Rail Intermodal Drayage from Ramp	\$19,390.16	31.71%
Rail Intermodal Drayage from Ramp	4,584,307.17	12.43%	Warehouse & Distribution Center	\$11,980.05	19.59%
Soft Drinks or Mineral Water	3,161,628.81	8.57%	Rail Intermodal Drayage to Ramp	\$6,211.03	10.16%
Portland Cement	2,776,442.76	7.53%	Current Carrying Wiring Equipment	\$2,254.46	3.69%
Broken Stone or Riprap	1,778,396.03	4.82%	Soft Drinks or Mineral Water	\$1,912.19	3.13%
Rail Intermodal Drayage to Ramp	1,468,439.01	3.98%	Solid State Semiconducts	\$1,469.07	2.40%
Concrete Products	946,898.46	2.57%	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	\$968.02	1.58%
Asphalt Paving Blocks or Mix	899,858.39	2.44%	Valves or Pipe Fittings	\$862.75	1.41%
Ready-mix Concrete, Wet	833,005.39	2.26%	Miscellaneous Plastic Products	\$703.03	1.15%
Semi-trailers Returned Empty	697,762.37	1.89%	Pens or Parts	\$602.96	0.99%
All Other Commodities	9,044,620.86	24.52%	All Other Commodities	\$14,802.48	24.20%

¹ Not Elsewhere Classified

**Table 2 (cont.)
Lehigh Valley Top Commodities (2011 and 2040)**

Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
2040 Destination					
Broken Stone or Riprap	8,825,350.97	21.64%	Rail Intermodal Drayage from Ramp	\$5,210.36	68.09%
Warehouse & Distribution Center	6,146,812.22	15.07%	Rail Intermodal Drayage to Ramp	\$2,057.46	26.89%
Petroleum Refining Products	2,271,406.31	5.57%	Warehouse & Distribution Center	\$308.02	4.03%
Processed Milk	1,941,875.59	4.76%	Soft Drinks or Mineral Water	\$25.79	0.34%
Rail Intermodal Drayage from Ramp	1,734,508.83	4.25%	Portland Cement	\$5.06	0.07%
Rail Intermodal Drayage to Ramp	1,066,567.95	2.61%	Plywood or Veneer	\$4.88	0.06%
Grain	860,980.35	2.11%	Malt Liquors	\$4.05	0.05%
Clay Ceramic or Refrac Minerals	838,196.19	2.05%	Shipping Containers	\$3.49	0.05%
Gravel or Sand	799,927.40	1.96%	Air Freight Drayage from Airport	\$2.20	0.03%
Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	787,033.73	1.93%	Broken Stone or Riprap	\$2.18	0.03%
All Other Commodities	15,518,648.22	38.04%	All Other Commodities	\$28.60	0.37%
2040 Intra					
Rail Intermodal Drayage from Ramp	1,231,855.49	49.09%	Rail Intermodal Drayage from Ramp	\$5,210.36	68.09%
Rail Intermodal Drayage to Ramp	486,433.26	19.38%	Rail Intermodal Drayage to Ramp	\$2,057.46	26.89%
Warehouse & Distribution Center	275,139.32	10.96%	Warehouse & Distribution Center	\$308.02	4.03%
Broken Stone or Riprap	242,923.68	9.68%	Soft Drinks or Mineral Water	\$25.79	0.34%
Portland Cement	57,259.27	2.28%	Portland Cement	\$5.06	0.07%
Miscellaneous Nonmetallic Minerals, N.E.C. ¹	56,062.72	2.23%	Plywood or Veneer	\$4.88	0.06%
Soft Drinks or Mineral Water	42,755.61	1.70%	Malt Liquors	\$4.05	0.05%
Ready-mix Concrete, Wet	16,096.33	0.64%	Shipping Containers	\$3.49	0.05%
Asphalt Paving Blocks or Mix	12,312.58	0.49%	Air Freight Drayage from Airport	\$2.20	0.03%
Concrete Products	11,792.42	0.47%	Broken Stone or Riprap	\$2.18	0.03%
All Other Commodities	76,782.79	3.06%	All Other Commodities	\$28.60	0.37%

¹ Not Elsewhere Classified

12.3 FREIGHT PROFILE

In order to understand freight movements within the Lehigh Valley, it is critical to understand how goods are moving within the region by different modes.

12.3.1 Truck Movements

Truck is the predominate mode of freight transportation in the Lehigh Valley in terms of both tonnage and value. **Table**

3 shows truck movements by direction in the MPO region. As shown in the table, the goods transported to and from the Lehigh Valley by truck are of low value when measured by average value/ton and high weight in both 2011 and 2040. In terms of the average value per ton, freight moving within the Valley has a higher value per ton on average compared to freight leaving or entering the region in both 2011 and 2040.

Table 3
Lehigh Valley Truck Freight Traffic (2011 and 2040)

Direction	Tons – 2011		Value (Millions) – 2011		Average Value/Ton
	Amount	Percent	Amount	Percent	
Inbound	20,850,097	57%	\$21,708	50%	\$1,041
Within	882,163	2%	\$2,640	6%	\$2,992
Outbound	14,917,293	41%	\$19,329	44%	\$1,296
Direction	Tons – 2040		Value (Millions) – 2040		Average Value/Ton
	Amount	Percent	Amount	Percent	
Inbound	36,015,952	49%	\$48,984	42%	\$1,360
Within	2,490,577	3%	\$7,644	7%	\$3,069
Outbound	35,384,751	48%	\$58,764	51%	\$1,661

Source: IHS Global Insight

12.3.1.1 Inbound Commodities to the Lehigh Valley by Truck

With regards to the commodities coming into the region via truck, the top five commodities account for 49% by weight and 46% by value of commodities (**Table 4**). In 2040, the share of

the top five commodities does not change much in terms of weight but increases to 49% in terms of value. Broken stone and riprap is the top commodity coming into the Valley in 2011 and 2040 in terms of weight. In terms of value, rail intermodal is the top commodity in both 2011 and 2040.

Table 4
Top Five Lehigh Valley Inbound Truck Commodities by Tonnage and Value (2011 and 2040)

2011					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Broken Stone or Riprap	6,285,623	30%	Rail Intermodal Drayage from Ramp	\$2,881	13%
Warehouse & Distribution Center	2,081,926	10%	Warehouse & Distribution Center	\$2,331	11%
Petroleum Refining Products	2,035,701	10%	Petroleum Refining Products	\$1,859	9%
Processed Milk	1,194,684	6%	Rail Intermodal Drayage to Ramp	\$1,810	8%
Gravel or Sand	685,777	3%	Processed Milk	\$1,058	5%
All Other Commodities	8,566,386	41%	All Other Commodities	\$11,768	54%
Total	20,850,097	100%	Total	\$21,708	100%
2040					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Broken Stone or Riprap	8,696,069	24%	Rail Intermodal Drayage from Ramp	\$7,336	15%
Warehouse & Distribution Center	6,146,812	17%	Warehouse & Distribution Center	\$6,881	14%
Petroleum Refining Products	2,261,336	6%	Rail Intermodal Drayage to Ramp	\$4,511	9%
Processed Milk	1,941,876	5%	Solid State Semiconducts	\$3,040	6%
Rail Intermodal Drayage from Ramp	1,734,509	5%	Petroleum Refining Products	\$2,065	4%
All Other Commodities	15,235,351	42%	All Other Commodities	\$25,151	51%
Total	36,015,952	100%	Total	\$48,984	100%

Source: IHS Global Insight

12.3.1.2 Outbound Commodities from the Lehigh Valley by Truck

With regards to the commodities leaving the Valley via truck, the top five commodities account for 58% by tonnage and 62% by value of commodities from the Lehigh Valley (**Table 5**). In 2040, this increases to 64% and 71%, respectively. In both

2011 and 2040, warehouse and distribution center is the top commodity by tonnage, while rail intermodal drayage continues to be the top commodity by value.

**Table 5
Top Five Lehigh Valley Outbound Truck Commodities by Tonnage and Value (2011 and 2040)**

2011					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Warehouse & Distribution Center	3,936,957	26%	Rail Intermodal Drayage from Ramp	\$4,473	23%
Portland Cement	1,683,384	11%	Warehouse & Distribution Center	\$4,407	23%
Rail Intermodal Drayage from Ramp	1,057,437	7%	Rail Intermodal Drayage to Ramp	\$1,976	10%
Soft Drinks or Mineral Water	1,046,082	7%	Soft Drinks or Mineral Water	\$632	3%
Broken Stone or Riprap	893,932	6%	Current Carrying Wiring Equipment	\$528	3%
All Other Commodities	6,299,501	42%	All Other Commodities	\$7,312	38%
Total	14,917,293	100%	Total	\$19,329	100%
2040					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Warehouse & Distribution Center	10,701,206	30%	Rail Intermodal Drayage from Ramp	\$19,390	33%
Rail Intermodal Drayage from Ramp	4,584,307	13%	Warehouse & Distribution Center	\$11,980	20%
Soft Drinks or Mineral Water	3,158,881	9%	Rail Intermodal Drayage to Ramp	\$6,211	11%
Portland Cement	2,493,768	7%	Current Carrying Wiring Equipment	\$2,254	4%
Broken Stone or Riprap	1,778,395	5%	Soft Drinks or Mineral Water	\$1,910	3%
All Other Commodities	12,668,194	36%	All Other Commodities	\$17,018	29%
Total	35,384,751	100%	Total	\$58,764	100%

Source: IHS Global Insight

12.3.1.3 Intraregion Truck Commodity Movements in the Lehigh Valley

In contrast to movements into and out of the Valley, the top five commodities by tonnage and value account for more than 90% of the freight movements within the Valley (**Table 6**). Warehouse and distribution center, rail intermodal drayage and

Portland Cement are among the top five commodities being moved within the Lehigh Valley by both tonnage and value in 2011 and 2040.

**Table 6
Top Five Lehigh Valley Internal Truck Commodities by Tonnage and Value (2011 and 2040)**

2011					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Rail Intermodal Drayage from Ramp	396,600	45%	Rail Intermodal Drayage from Ramp	\$1,677	64%
Rail Intermodal Drayage to Ramp	202,949	23%	Rail Intermodal Drayage to Ramp	\$858	33%
Broken Stone or Riprap	109,020	12%	Warehouse & Distribution Center	\$77	3%
Warehouse & Distribution Center	68,929	8%	Soft Drinks or Mineral Water	\$6	0%
Portland Cement	30,800	3%	Portland Cement	\$3	0%
All Other Commodities	73,865	8%	All Other Commodities	\$18	1%
Total	882,163	100%	Total	\$2,640	100%
2040					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Rail Intermodal Drayage from Ramp	1,231,855	49%	Rail Intermodal Drayage from Ramp	\$5,210	68%
Rail Intermodal Drayage to Ramp	486,433	20%	Rail Intermodal Drayage to Ramp	\$2,057	27%
Warehouse & Distribution Center	275,139	11%	Warehouse & Distribution Center	\$308	4%
Broken Stone or Riprap	242,924	10%	Soft Drinks or Mineral Water	\$26	0%
Portland Cement	57,259	2%	Portland Cement	\$5	0%
All Other Commodities	196,966	8%	All Other Commodities	\$37	0%
Total	2,490,577	100%	Total	\$7,644	100%

Source: IHS Global Insight

12.3.2 Rail Movements

As shown in **Table 1**, rail contributes between 8% to 10% of the total freight movement into, out of and within the Valley. **Table 7** shows rail movements by direction in the Valley. As shown in the table, more than 80% of rail freight traffic is inbound to the Valley as opposed to 18% that leaves the Valley. The goods transported by rail are much lower in value than those moved by trucks.

Table 7
Lehigh Valley Rail Freight Traffic (2011 and 2040)

		Tons - 2011		Value (Millions) - 2011		Average Value/Ton
Direction	Amount	Percent	Amount	Percent		
Inbound	3,425,024	81%	\$4,806	84%		\$1,403
Within	14,444	0.30%	\$7	0.10%		\$485
Outbound	768,909	18%	\$930	16%		\$1,210
		Tons - 2040		Value (Millions) - 2040		Average Value/Ton
Direction	Amount	Percent	Amount	Percent		
Inbound	4,758,132	76%	\$8,380	81%		\$1,761
Within	18,836	0.30%	\$8	0.10%		\$425
Outbound	1,504,563	24%	\$1,954	19%		\$1,299

Source: IHS Global Insight

12.3.2.1 Inbound Commodities to the Lehigh Valley by Rail

With regards to the commodities coming into the region via rail, the top five commodities account for 53% by tonnage and 68% by value of commodities to the Lehigh Valley (**Table 8**). While coal is the top commodity by tonnage shipped by rail in 2011, it slips to second position in 2040.

Table 8
Top Five Lehigh Valley Inbound Rail Commodities by Tonnage and Value (2011 and 2040)

2011				
Commodity	Tons	Percent	Commodity	Value (Millions)
Bituminous Coal	660,971	19%	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	\$1,994
Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	394,544	12%	Plastic Matter or Synthetic Fibers	\$443
Grain	345,588	10%	Paper	\$354
Miscellaneous Industrial Organic Chemicals	226,376	7%	Miscellaneous Industrial Organic Chemicals	\$279
Plastic Matter or Synthetic Fibers	204,700	6%	Pharmaceuticals	\$220
All Other Commodities	1,592,845	47%	All Other Commodities	\$1,516
Total	3,425,024	100%	Total	\$4,806
2040				
Commodity	Tons	Percent	Commodity	Value (Millions)
Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	760,928	16%	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	\$3,835
Bituminous Coal	506,010	11%	Pharmaceuticals	\$798
Grain	451,823	9%	Plastic Matter or Synthetic Fibers	\$602
Miscellaneous Industrial Organic Chemicals	327,563	7%	Paper	\$503
Wet Corn Milling or Milo	281,226	6%	Miscellaneous Industrial Organic Chemicals	\$396
All Other Commodities	2,430,581	51%	All Other Commodities	\$2,247
Total	4,758,132	100%	Total	\$8,380

¹ Not Elsewhere Classified

Source: IHS Global Insight

12.3.2.2 Outbound Commodities from the Lehigh Valley by Rail

With regards to the commodities leaving the Valley via rail, the top five commodities account for more than 80% by tonnage and 84% by value of commodities from the Valley (**Table 9**).

9). There is no change in the top commodity by tonnage and value shipped outside of the region by rail between 2011 and 2040.

**Table 9
Top Five Lehigh Valley Outbound Rail Commodities by Tonnage and Value (2011 and 2040)**

2011					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Semi-trailers Returned Empty	311,800	41%	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	\$498	54%
Portland Cement	150,108	20%	Industrial Pumps	\$97	10%
Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	98,360	13%	Pharmaceuticals	\$80	9%
Plastic Matter or Synthetic Fibers	31,400	4%	Plastic Matter or Synthetic Fibers	\$68	7%
Freight Forwarder Traffic	24,200	3%	Miscellaneous Fabricated Textile Products	\$43	5%
All Other Commodities	153,041	20%	All Other Commodities	\$144	16%
Total	768,909	100%	Total	\$930	100%
2040					
Commodity	Tons	Percent	Commodity	Value (Millions)	Percent
Semi-trailers Returned Empty	697,762	46%	Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	\$956	49%
Portland Cement	282,672	19%	Industrial Pumps	\$348	18%
Miscellaneous Shipments, N.E.C. ¹ excluding Freight Forwarders and Shippers	188,923	13%	Pharmaceuticals	\$289	15%
Plastic Matter or Synthetic Fibers	42,674	3%	Plastic Matter or Synthetic Fibers	\$92	5%
Freight Forwarder Traffic	34,813	2%	Copper or Alloy Basic Shapes	\$32	2%
All Other Commodities	257,718	17%	All Other Commodities	\$236	12%
Total	1,504,563	100%	Total	\$1,954	100%

¹ Not Elsewhere Classified

Source: IHS Global Insight

Acknowledgements

UNITED STATES SENATORS:

Pat Toomey

Robert P. Casey, Jr.

UNITED STATES REPRESENTATIVES:

Charles W. Dent, 15th Congressional District

Matt Cartwright, 17th Congressional District

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Patrick M. Browne, 16th State Senatorial District

Lisa Boscola, 18th State Senatorial District

Mario Scavello, 40th State Senatorial District

PENNSYLVANIA STATE REPRESENTATIVES:

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Justin Simmons, 131st State Legislative District

Mike Schlossberg, 132nd State Legislative District

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