



ERIE RAIL FREIGHT TERMINAL
Independent Study

ERIE RAIL FREIGHT TERMINAL STUDY

Final Feasibility Report | FINAL March 9, 2016

Prepared By:



Prepared For:



Table of Contents

- EXECUTIVE SUMMARY..... 1
- I. INTRODUCTION TO THE STUDY..... 7
- II. INTERMODAL OVERVIEW..... 7
- III. RAIL FREIGHT TERMINAL CONSIDERATIONS..... 8
- IV. MARKET ANALYSIS 9
 - A. Methodology..... 10
 - B. Market Analysis Results..... 12
- V. OPERATIONS ANALYSIS 13
 - A. Minimum Intermodal Terminal Operation 13
 - 1. Train Service..... 13
 - 2. Infrastructure..... 14
 - 3. Equipment 15
 - 4. Manpower..... 17
 - B. Opportunities for Additional Service Offerings 18
 - 1. Intermodal Terminal Service: Loading and Unloading of Railcars 18
 - 2. Container and Trailer Storage 18
 - 3. Container, Trailer, and Chassis Maintenance 18
 - C. Intermodal Terminal Operators/Opportunities/Competition 18
- VI. CONCLUSIONS OF MARKET AND OPERATIONS ANALYSES 19
 - A. Summary of Market Analysis and Preliminary Income Statement Analysis..... 19
 - B. Business & Industry Survey..... 20
 - C. Would it work in Erie County? 22
 - 1. Purpose and Need..... 22
 - 2. Can the Market Support an Intermodal Rail Freight Terminal? 22
 - 3. Would additional services be required?..... 23
- VII. GOVERNANCE 24
- IX. CONCLUSIONS..... 25

Table of Contents (continued)

List of Figures

Figure 1: ERT Market Area Counties Map

List of Tables

Table 1: Transearch® Market Analysis Freight Shipments

Table 2: Shipping volume and Frequency by Number of Firms

List of Appendices

Appendix A: Glossary

Appendix B: STCC List

Appendix C: Market Area Counties

Appendix D: Truck Mode Scenarios

Appendix E: IMX & FTZ Scenarios

Appendix F: Survey Questions

Appendix G: Research Summary of Similar Facilities

EXECUTIVE SUMMARY

Erie County; Erie Regional Chamber and Growth Partnership; and the Pennsylvania Department of Transportation (PennDOT) District 1-0 undertook this feasibility study to explore the potential for a rail freight terminal in Erie County, Pennsylvania. The purpose of the study was to consider the potential viability of a rail freight terminal to attract private investment and the functional opportunities the terminal could present. Erie County, the Chamber, and PennDOT decided to undertake this study, using economic development funds available through PennDOT, due to continued local business and industry interest in a rail freight terminal. Following the decision to end a previous study being conducted by another party considering a terminal in Harborcreek Township, the Chamber polled area business and industry leaders. Over 90% of these leaders, felt that a rail freight terminal in Erie County would be beneficial to the local economy.

In order to assess whether an Erie County Rail Freight Terminal was financially feasible and attractive, an assessment of the market demand and the potential for the market to support the operational and capital costs of the proposed facility was completed. This preliminary market analysis was completed as a high-level study only; it was not a full assessment of market potential, as would be required to secure funding for such a facility.



MARKET ANALYSIS

The first step was to determine the potential market area, which is typically either the origin or destination point for shipping of commodities a distance of 500-miles or more. Both a Competition-Free Market Area (CFMA) and a Competitive Market Area (CMA) were defined. The CFMA was defined as a 60-mile radius from Erie. The CMA was defined as the area between the 60-mile radius CFMA and the existing intermodal terminals in Buffalo, NY; Pittsburgh, PA; and Cleveland, Ohio. The distance to each of these existing terminals is approximately 120 miles.

Once the market areas were determined, a nationwide freight database (2015 Transearch® access database) was used to assess the possible freight market. The database was filtered using the CFMA and CMA regions along with regions more than 500-miles away. In addition, the database was filtered to include only truck transport modes. Based on this data, scenarios were developed for 2015 CFMA outbound and inbound, 2015 CMA outbound and inbound, rail intermodal (IMX) mode, and Foreign Trade Zone (FTZ) mode. The following table presents the results of the scenarios.

SCENARIO #	SCENARIO DESCRIPTION	FREIGHT UNITS SHIPPED ANNUALLY
1	Truck Mode CFMA Outbound	203,150
2	Truck Mode CFMA Inbound	100,150
3	Truck Mode CMA Outbound	300,560
4	Truck Mode CMA Inbound	441,375
5	Intermodal Mode CMA Outbound	107,890
6	Intermodal Mode CMA Inbound	113,235
	Truck Only Totals	1,045,235
	Total All Units	1,266,360

Note: "Units" means a standard semi-trailer load.

TERMINAL OPERATIONS

A Preliminary Income Statement was then prepared to evaluate the economics for a terminal. This Preliminary Income Statement was based on a “Minimum Intermodal Terminal Operation” scenario. This Minimum Intermodal Terminal Operations scenario included the following four main components: train service, infrastructure, equipment, and manpower. Specifically, assumptions were as follows:

- Daily train service to and from the Erie area intermodal terminal will be available.
- Once a day train service to and from the potential intermodal terminal (“set out” and “pick up” every 24 hours).
- Minimum of at least two days’ worth of railcars capacity on site.
- No switching capacity is provided.
- No container yard is included.
- Two lanes inbound and two lanes outbound with a small booth similar to a large toll booth for the unit inspectors to use for paper work, computer inputs, and document handling.
- Two pieces of lift equipment (one active; one reserve).
- Four hostler tractors based on one active primary piece of lift equipment.
- No switch engine is included.
- The placement of a container or trailer on or off a railcar can range from 1.5 – 5 minutes per container or trailer. Lift rates between 15 – 30 units an hour per piece of active lift equipment are common in the intermodal terminal industry. For the “Minimum Intermodal terminal Operation” 20 units an hour was used as the capacity of a single piece of lift equipment.
- This analysis used a loading window of 16 hours per day for the available production time.
- A maintenance facility is included to provide protection from the weather, parts storage, and materials.
- 24 hour operation will be assumed; using three 8-hour shifts.
- Each piece of lift equipment requires an operator and at least one ground man to direct the operator and help in securing and releasing containers and trailers from the railcar. Each piece of lift equipment is supported by a group of hostler tractors and their drivers. This support group is made up of two to five hostlers per piece of lift equipment depending on volume and size of the facility.
- The hostler tractor drivers, one mechanic and one support person per shift will be included for the equipment maintenance requirements.
- Railcar inspectors are included.
- A terminal manager, a gate inspector, a load clerk, and a billing clerk per shift are also included.
- Only terminal costs were considered.
- Additional line haul costs and / or switching costs are not included.

FEASIBILITY CONCLUSIONS

Based on the results of the Preliminary Income Statement, approximately 400 to 500 lifts per day would be required to cover the operating costs of a Minimum Intermodal Terminal Operation in Erie County. The operating costs include a rail freight lift operation only; no additional services. This number of lifts would not cover the capital (development, land purchase, etc.) costs. Approximately 800 lifts per day would be required under the assumed scenario to cover both operating and capital costs.

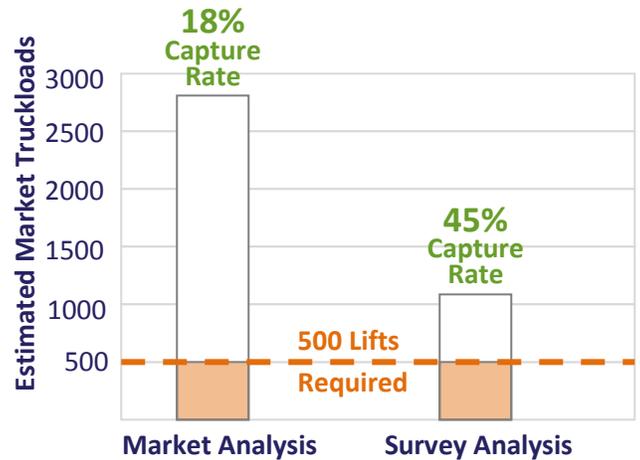
The analysis showed that the CFMA could supply approximately 800 units (trucks) per day and the CMA approximately 2,000 units per day. Therefore, approximately 18% of the 2,800 units per day from the combined CFMA and CMA would need to be captured by the proposed facility. The 800 lifts would require a capture rate of approximately 30% of the combined market areas.

In addition to the Market Analysis and Preliminary Income Statement, an online Business and Industry Survey was developed using Survey Monkey. The survey was made available for online access on the Erie Regional Chamber and Growth Partnership website and the Erie County website. To invite participation in the survey a post card was mailed to 625 businesses in Pennsylvania, 89 businesses in Ohio and New York, and 24 chambers in Ohio and New York (all within the CFMA).

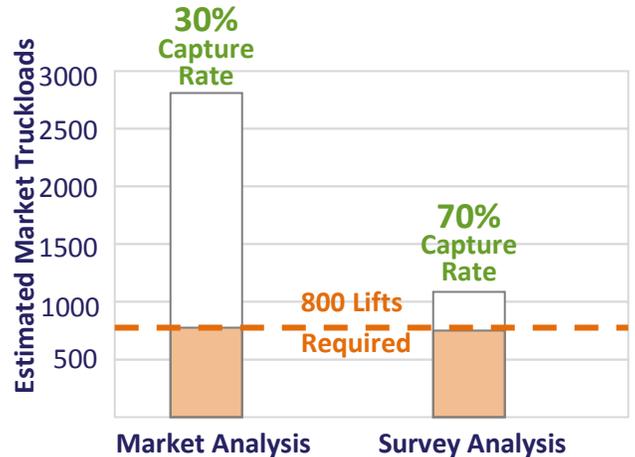
Fifty completed surveys were received, including surveys from 13 larger firms that all ship more than 500 miles. These 13 companies responded that they would anticipate approximately, between all 13 firms, 40 to 45 inbound and 30 to 35 outbound shipments (lifts) per day from their facilities through the proposed rail freight terminal. This equates to approximate 6 loads per day per customer.

Finally, based on the number of freight generators in the Pennsylvania portion of the CMA and CFMA (pulled from a Transearch® Pennsylvania Freight Generators database), the volume of freight shipped by any transportation mode (truck, rail, air, water) by these generators, the volume of freight shipped via truck alone (from the Transearch® database Market Analysis), and the sizes of the CMA and CFMA, it was estimated that there are 186 potential customers in the combined

OPERATIONAL COST CAPTURE RATES



OPERATIONAL AND CAPITAL COST CAPTURE RATES



market areas. Using an assumed 6 loads per day per customer, the estimated 186 customers could generate 1,116 loads (lifts). In order to obtain just the 500 lifts per day required to meet operating costs (per the Market Analysis and Preliminary Income Statement) a capture rate of 45% (500 lifts required ÷ 1,116 potential lifts) would be necessary. A capture rate this high (45%) would appear very challenging. To cover capital and operating costs, a capture rate of over 70% (800 ÷ 1,116) of the market would be required.

Considering the volume of freight currently shipped by rail/intermodal, both the Market Analysis deduction and the survey based deduction would require relatively high capture rates to support a lift-only operation.

Based on this analysis, development of a lift-only rail freight terminal in Erie County, Pennsylvania, which is a relatively small freight market surrounded by existing intermodal rail freight terminals that are approximately 120 miles away (Pittsburgh, PA; Cleveland, OH; and Buffalo, NY), would require a combination of the following:

- **SERVICES:** A facility that offered multiple services, in addition to lifts, in order to meet revenue and cash flow needs.
- **VOLUME:** Greater existing volume of freight generated within the CFMA, and/or committed industry partner to ensure demand.
- **CONDITIONS:** Alternative economic conditions that provide incentives for truck to rail delivery conversions, such as, higher gas prices, and reduced truck driver capacity/availability.
- **MARKETING:** An aggressive marketing campaign would be required to sell the terminal's competitive advantages to area businesses.
- **RAIL PARTNER:** A partnership with a rail carrier that could provide timely and consistent service comparable to trucking would be required. No such partnership has been developed to date.

To further examine the study findings, five potentially similar intermodal facilities were researched. The data collected about these facilities confirmed the assumption that the above noted modifications would be necessary to improve the market feasibility of an intermodal rail freight terminal.

As conditions exist today, the development of a lift-only rail freight terminal in Erie County, Pennsylvania is not infeasible, but would be quite challenging and require substantial time and monetary investment from the developing party. However, with a significant shift in any of the above mentioned requirements, the feasibility of an Intermodal Rail Freight Terminal in Erie County could change. Further consideration could be given to alternative business models for a rail terminal, such as, a logistics/industrial park, or an inland port concept that would both reduce the reliance on the number of lifts required and improve the profitability of the facility.

I. INTRODUCTION TO THE STUDY

This independent feasibility study to explore the potential for a rail freight terminal in Erie County, Pennsylvania was undertaken by a partnership composed of Erie County, the Erie Regional Chamber and Growth Partnership, and the Pennsylvania Department of Transportation (PennDOT) Engineering District 1-0.

The study considered the feasibility of advancing and developing transportation related infrastructure to support economic growth in Erie County. The study analyzed the potential feasibility of a rail freight terminal to attract private investment and the functional opportunities the terminal could present to a rail carrier. The study included a market assessment and a preliminary income evaluation to assess the viability of a rail freight terminal and its potential impact on the shipment of products and commodities to and from the region's businesses and industries.

A previous Erie rail terminal development project that evaluated construction of a rail terminal in Harborcreek, PA was halted due to public opposition. However, this opposition was based primarily on the proposed location and the lack of transparency during project development. Follow-up discussions with area businesses and industries made it clear that there was still interest in improving the link between truck and rail transportation in Erie County. For that reason, this study was initiated to provide an independent, publicly transparent analysis of the feasibility of an Erie County, PA Rail Freight Terminal.

II. INTERMODAL OVERVIEW

There is a nationwide intermodal network made up of the class I railroads (such as CSX and Norfolk Southern) and major intermodal terminals throughout the United States and Canadian provinces. Key intermodal destinations are located throughout the major industrial areas of the country and larger consumer population areas. Erie, Pennsylvania is currently not directly connected to this nationwide intermodal network. This lack of direct intermodal network connectivity limits the Erie area from participating in the economics of rail intermodalism in the global supply chain. The only access Erie has to this international supply chain is via truck to a class I carrier's intermodal terminal or through the inland logistics operations of warehousing.

For an Erie located intermodal terminal to be successful, there needs to be either a large enough demand for the class I carriers to consider including Erie in the intermodal service network or Erie to act as a satellite operation with a rail connection back to the class I carriers' rail network. This connection has often been called a "spoke" back to a "hub" terminal. This rail connection would be to a point on the class I carrier's mainline network where a "set out" and "pickup" can be made, or to a class I carrier's rail terminal/yard where this same set out and pickup could be made. The train service on this connecting line could be provided by the class I carrier if some level of service already exists, or be provided by a short line or regional carrier. This short line or regional carrier may already have the appropriate rail interchange and operating agreements to provide this extension of the class I carrier's intermodal network. This operation would function similarly to a port facility and, therefore, has been called an inland port.

There are disadvantages to this spoke approach versus the direct connection to the national intermodal network. With Erie's port operations on the Great Lakes, and the use of the inland waterways to transport freight, an inland port connected as a spoke to the national intermodal network could provide an excellent complement to the movement of freight to and from Erie. This inland port could also provide other freight handling opportunities in the Erie area. These opportunities are discussed further in this document within **Section V.B. Opportunities Additional for Service Offerings**. Disadvantages of the spoke system are discussed in **Section V.A.1. Train Service**.

III. RAIL FREIGHT TERMINAL CONSIDERATIONS

Considerations for any type of economic development, whether it is a private business or a transportation facility serving private businesses, must begin with an assessment of the market area and the potential for that market area to support the proposed facility. **Appendix A, Glossary**, contains a list of terms used in this report. **Section III. Market Analysis** of this report documents the analysis that was completed to assess the potential market for an Erie County Rail Freight Terminal.

The assessment of market area for a rail freight terminal must consider the entire area in which service is possible. This area includes the region in which, due to proximity, competition for service is not likely to occur along with that region in which the facility will have to compete with other terminals. Logically if a proposed terminal is too close to existing terminals, the market area will not be large enough to service all of the facilities. However, competing railroads sometimes have intermodal terminals in close proximity to each other to provide an alternative that may have different pricing and services.

In general, the market area for a typical rail freight intermodal facility is that area which is either the origin or destination point for shipping of commodities typically over distances of 500-miles or more. The distance that equates to about one-day of trucking (500-miles) is the distance at which rail begins to be competitive with over the road trucking of commodities.

Additional considerations for locating an intermodal facility are related to size and highway access. The typical configuration of an intermodal terminal requires a site that is more than a mile long and over 200 plus acres in size. The site must have good highway access, because trucking to and from the facility (drayage) will still be required.

While the selected 500-mile distance may be the point at which rail starts to become competitive with over the road trucking, there are other reasons why rail transport is more desirable. Some of these reasons are inherent to the trucking industry and some to the advantages of rail. The trucking industry currently faces obstacles related to the number of hours truckers can work per day and insurance regulations that limit recruitment of drivers under 25-years of age. Proposed changes to truckers' hours of service may result in higher costs, increased shipping times, and the need for more drivers and equipment. Driver shortages are already fairly common due to the aforementioned insurance requirements. As of 2014, the

Rail Freight Terminal

Any location where freight ... originates, terminates, or is handled in the transportation process. Terminals are central and intermediate locations in the movements of ... freight. They often require specific facilities or equipment to accommodate the traffic they handle.

Reference: The Geography of Transport Systems, Third Edition; Rodrigue, Dr. Jean-Paul and Dr. Brian Slack; 2013.

median age of truckers in the United States was 43.1; extremely high considering that most do not work past the age of 60. Combined with increasing urban congestion, these obstacles mean increased travel time and increased operating costs for trucking companies, which result in higher shipping costs for customers.

Operating costs for railroads are generally lower than trucks, because trains are much more energy and fuel efficient than trucks. Also, one train can carry the same freight as up to 280 trucks. Railroads currently transport 16% of all US freight and estimates show a 50% increase in freight rail tonnage by 2020. Therefore, strategic placement of a rail freight intermodal terminal can have a very beneficial impact on a region's economy.

IV. MARKET ANALYSIS

As part of this study, a preliminary market analysis was completed to determine whether development of an Erie Rail Freight Terminal was economically feasible. The market analysis was not conducted as a full assessment such as would be required to secure funding for such a facility, but rather was intended as a first step to determine whether it even makes sense to pursue such an endeavor. The analysis used freight information available through the Transearch® IHS Database.

Transearch® is a planning tool used to forecast US freight flows by origin, destination, commodity, and transportation mode. Transearch® is the most comprehensive US and cross-border freight database available. The tool is an annual database of U.S. county-level freight movement data used for freight modeling and forecasting produced by the Trade & Transportation consulting practice within IHS Consulting.

The database includes market-to-market flow data for more than 450 individual commodities and seven modes of transportation, including:

- For-hire truckload
- For-hire less-than-truckload
- Private truck
- Conventional rail carload
- Rail/highway intermodal
- Air
- Water

The database includes flow volumes present in terms of annual short tons, units (varies depending on mode of transport; for trucks, "units" means number of trucks), and dollar value. Flow volumes are based on primary shipment data obtained from many of the nation's largest rail and truck freight carriers combined with information from public, commercial, and proprietary sources. This information is used to generate a base year estimate of freight flows at the county level. Flows are segregated according to Standard Transportation Commodity Codes (STCC). **See Appendix B, STCC List.** The STCC is a 2-digit and 4-digit numbering system that identifies the product (commodity) being shipped.

Transearch® also identifies the destination and origin region for each commodity. Regions generally correspond to state and county; however, in some instances counties are grouped according to U.S. Bureau of Economic Analysis (BEA) regions.

For this study the modes of transportation analyzed were truck modes and rail/highway intermodal modes. The truck highway network was developed by the Oak Ridge National Laboratory (ORNL), and adapted by them for the county market structure of the Transearch® database. Highway routes were selected based on a single, lowest impedance path between any pair of counties. Rail routes were established by an IHS routing model that incorporates carrier and junction information contained in the waybill traffic data, and contains both regional and short line, as well as class I railroad track, in its network.

A. Methodology

The first step in the market analysis was setting the market area for the proposed Erie Rail Freight Terminal. Both a Competition-Free Market Area (CFMA) and a Competitive Market Area (CMA) were defined. The CFMA was defined as a 60-mile radius from Erie, which is about half way between Erie and existing terminals in Buffalo, New York; Pittsburgh, Pennsylvania; and Cleveland, Ohio. In this area it is likely that most traffic, depending on direction of travel, would use the Erie terminal instead of the Pittsburgh, Cleveland, or Buffalo terminals. **See Figure 1, ERT Market Area Counties Map** and **Appendix C, Market Area Counties**. The CMA is defined as the area between the 60-mile radius of the CFMA and the existing terminals in Buffalo, NY; Pittsburgh, PA; and Cleveland, Ohio. The distance to each of these existing terminals is approximately 120 miles. **See Figure 1, ERT Market Area Counties Map** and **Appendix C, Market Area Counties**.

Once the market areas were mapped, a determination was made as to what counties fell entirely or almost entirely within each of the market areas. A list of each county for each market area was then developed. This list was then updated with region numbers corresponding to the regions used in the Transearch® database. **See Appendix C, Market Area Counties**.

The next step in the analysis was to determine what Transearch® Regions would be more than 500-miles from Erie County, Pennsylvania. In addition, a conservative determination was made to eliminate regions / counties that are located within a state that does not currently have an intermodal rail terminal or that is not located near an existing intermodal rail terminal in another state. This final part of the selection of regions was somewhat subjective; however, the conservative approach was taken, because the focus of this study is to determine the feasibility to support an intermodal rail freight facility in Erie County, PA.

The 2015 Transearch® Access Database was then filtered using the CFMA and CMA regions along with the regions more than 500-miles away. In addition, the database was initially filtered to include only truck transport modes. Based on this data, four truck-only scenarios were developed:

- 2015 CFMA outbound
- 2015 CFMA inbound
- 2015 CMA outbound
- 2015 CMA inbound

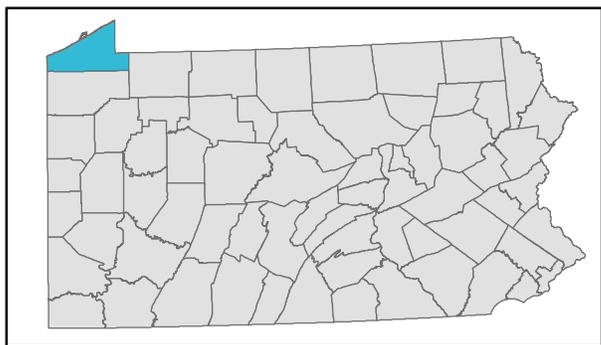
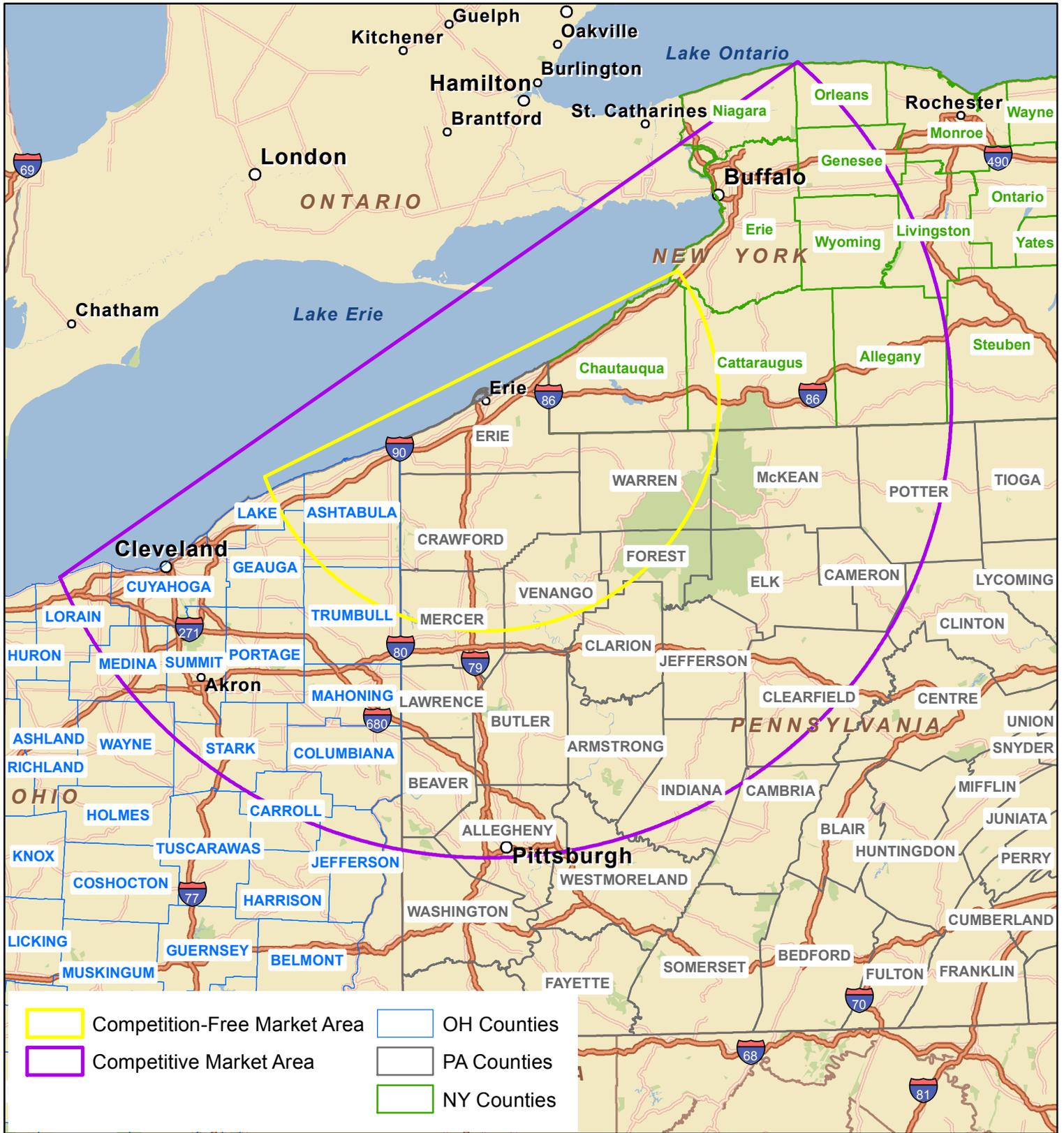


Figure I: Market Area Counties Map

Erie Rail Terminal Study

City of Erie
Erie County, Pennsylvania



Source: ESRI



The results were then sorted by STCC codes and grouped into generalized commodity groupings. This allowed summaries to be developed for each scenario showing the generalized commodity groups along with the tons, dollar amount, and units (truck loads) of freight generated in each scenario. **See Appendix D, Truck Mode Scenarios.** Scenarios were then developed using the same filter criteria for the rail intermodal (IMX) mode and for the Foreign Trade Zone (FTZ) mode. Under the IMX mode there were no IMX shipments from or to the CFMA. All IMX shipments in the database were to the CMA and specifically to areas in New York surrounding Erie County in New York; to Ohio around Geauga/Carroll counties; and to Allegheny County in Pennsylvania. For the FTZ, there were no FTZ shipments from either the Competition-Free or Competitive Market Areas. All shipments were to the CFMA or CMA from Mexico. Specifically the FTZ shipments were to Butler, Indiana, Westmoreland, and Allegheny Counties in PA; there were no shipments to Ohio or New York. **See Appendix E, IMX and FTZ Scenarios.**

B. Market Analysis Results

This discussion is not intended to cover all the details of the ever evolving intermodal market. It is intended as a brief introduction and overview in context to the Erie area opportunities. This market study should be seen as a starting point, a benchmark or “Straw Man.” As mentioned, the conservative approach to the market analysis utilized a portion of the Transearch® database, which was filtered into six different scenarios. Four scenarios that only included shipments made using a truck as the transport mode. The other two scenarios included existing shipments made using intermodal as the mode of transportation. This second set that included intermodal is a secondary potential market that might be available after an intermodal terminal was established. These initial database selections are used to represent the entire current potential intermodal market. There is a certain capture rate of this market that would be sensitive to both rate and transit time. Table 1 summarizes the six scenarios completed in the initial cut of the Transearch database.

TABLE 1: TRANSEARCH® MARKET ANALYSIS FREIGHT SHIPMENTS		
Scenario #	Scenario Description	Freight Units Shipped Annually
1	Truck Mode Competition Free Area Outbound	203,150
2	Truck Mode Competition Free Area Inbound	100,150
3	Truck Mode Competition Area Outbound	300,560
4	Truck Mode Competition Area Inbound	441,375
5	Intermodal Mode Competitive Area Outbound	107,890
6	Intermodal Mode Competitive Area Inbound	113,235
	Truck Only Totals	1,045,235
	Total All Units	1,266,360
<i>Note: "Units" means a standard semi-trailer load.</i>		

Following development of the database scenarios, the Operations Analysis was initiated. The Operations Analysis utilized the unit quantities in the database scenarios to evaluate whether there would be sufficient truckloads available to support the proposed facility. A preliminary income statement was prepared to evaluate the economics for a terminal.

V. OPERATIONS ANALYSIS

There is a certain base volume level that needs to be achieved to meet a financially feasible operation, commonly referred to as “Minimum Intermodal Terminal Operation.” There are other operating approaches that have different mixes of infrastructure, equipment, and manpower that may provide a different economic model; however, the Minimum Intermodal Terminal Operations approach provides a baseline to evaluate whether the CMA and CFMA could support a terminal. Some of these approaches take more capital investment up front than others to allow for a lower operating cost. Others take more operating expense and less capital investment that might be seen as a “Pay As You Go” approach. Future capital investments could then be made in equipment and systems as the terminal operation grows to reduce operational costs once a terminal has been established. For the purposes of this feasibility study the “Pay As You Go” approach was taken, minimizing capital investment risk as a terminal start up.

The study's initial efforts established the “Minimum Intermodal Terminal Operation” from an operational stand point. This study estimated potential costs of that operation at various volume levels within the initial potential market study and compared these costs to an anticipated range of potential revenue, driven strictly from the loading and unloading operation of the “Minimum Intermodal Terminal Operation.” An estimated capital cost was developed and included in the evaluation.

A. Minimum Intermodal Terminal Operation

There are basic components that are needed for an intermodal terminal operation. The “Minimum Intermodal Terminal Operation” scenario will include the four main components of train service, infrastructure, equipment, and manpower. Provided below is discussion of each component. The study used an average volume of units per day approach to establishing the “Minimum Intermodal Terminal Operation.”

1. Train Service

The nationwide intermodal network provides train service to most intermodal terminals and ports within the nationwide network. This network is used extensively by many of the major trucking companies. It is a major delivery mechanism for international freight shipped in international containers. Larger domestic containers are also used to take advantage of the economics available from intermodal, especially through the use of specially designed “double stack” railcars. Class I carriers leverage the use of dedicated intermodal trains and terminals to move these containers. This dedicated train service is usually only available to and from the intermodal network of terminals. This keeps the specialized railcars in a dedicated train service, thereby increasing the utilization of the assets. Any train service extension, such as the spoke discussed in **Section II. Intermodal Overview**, will increase overall transit time of the shipment, increase the number of railcar handlings or moves, and increase the complexity of the service from its origin to destination. This increase in transit time puts a spoke terminal at a disadvantage for time sensitive freight within the intermodal market.

In the development of the business case for the intermodal terminal in the Erie area, it is assumed that the opportunity for daily train service to and from the Erie area intermodal terminal will be available.

Train service to and from an intermodal terminal is the number one driver of infrastructure, equipment, and manpower. Hours of operation are driven by the availability of the loading and unloading work. The truck delivery to and from the intermodal is also a driver of the operational requirements of the intermodal terminal. In the “Minimum Intermodal Terminal Operation” it is assumed that once a day train service to and from the potential intermodal terminal will be provided. Therefore a “set out” and “pick up” every 24 hours. The impacts of not receiving train service every day creates the need for additional parking capacity within a terminal. Another impact could be the increase in traffic to be handled on a daily basis if the frequency of service was less than once a day or every 24 hours. For the “Minimum Intermodal Terminal Operation,” daily service to and from the facility is assumed.

2. Infrastructure

Within the infrastructure requirements there are four major areas, the loading/unloading/storage tracks, the unit parking and staging areas, the gate and truck entrance, and areas for maintenance of equipment and potentially trailer, containers, and chassis (discussed under "Equipment").

a. Loading and Unloading Tracks/Storage Tracks

Using the plan of having train service every 24 hours that provides a “set out” of the inbound railcars and a “pickup” of the outbound railcars the minimum requirement is to have at least two days’ worth of railcars capacity on site. The most efficient way to do this would be to have all of this capacity within the reach of the lift equipment. This reduces the switching operation to a minimum and the plan would be to have the delivering carrier provide any minimal repositioning of railcars as part of the “set out” and “pick up” movements completed each 24 hours. No switching capacity is provided in this initial “Minimum Intermodal Terminal Operations.” Options for switching capacity are discussed in the equipment section below. The selection of type of lift equipment will drive the final design of the track side area for loading and unloading. For the “Minimum Intermodal Terminal Operation” this trackside area will be sized to accommodate the space needed for the safe operation of both types of traditional rubber tire lift equipment, a side loader, and / or an overhead gantry crane.

b. Unit Parking Bays

The number of parking or staging bays for trailers and containers is a driven by train service, gate entrance hours of operation, and customer timing for pickup or delivery of the unit to and from the intermodal facility. Another function of an intermodal terminal can be that of a “Container Yard (CY).” A CY is a term used for a location or facility where mostly empty containers are stored or staged for future freight movements or for disposition to another area of the country for use. These types of facilities receive their revenue based on

daily storage charges and or for performing maintenance function on the containers and chassis for future freight movements. This service is not included in the “Minimum Intermodal Terminal Operation.” No unit parking bays are estimated for this function. The ability to provide these services within the intermodal terminal or an adjacent area is advantageous to the terminal and may improve the financial viability of the overall business case of the intermodal operation. Other ancillary services that can enhance the financials of the “Minimum Intermodal Terminal Operation” are discussed in **Section V.B. Opportunities for Additional Service Offerings.**

c. Gate and Truck Entrance

The gate and truck entrance area is the point where the unit is interchanged from the trucking company providing the drayage to and from the intermodal terminal. At this location in the intermodal terminal the inbound or outbound unit is inspected for damages and road ability, in addition to driver credentials, bill of lading, and any security issues are addressed. The industry is moving to as automated a process as possible for the interchange of the unit. There are automatic gate systems (AGS) systems that use multiple high speed cameras, biometric devices for driver identification, and electronic interchange documents for bill of lading transactions all of which are functions of the delivering railroad carrier as well as the shipper/consignee. Many of the systems are put in place as volumes rise at a terminal or to minimize manpower at the facility. There is still a minimum manpower requirement for handling exceptions, manual interchanges and administrative duties. For the “Minimum Intermodal Terminal Operation” it is assumed that very little automation and use of electronic systems will be present at the start up, and a manpower plan that minimizes the capital investment of the initial intermodal terminal operating system would be provided. Based on this initial discussion on gate activities and purpose, assumptions include a small administrative building located adjacent to the gate and truck entrance area. The number of inbound and outbound lanes required to meet the various volume levels tested, at a minimum, are assumed at two lanes inbound and two lanes outbound with a small booth similar to a large toll booth for the unit inspectors to use for paper work, computer inputs, and document handling. The administration building will house all the administrative manpower, computer equipment, and depending on overall manpower for the operation, potentially a wash and locker facility for the outside operators.

3. Equipment

There are three main types of equipment used at an intermodal terminal. One is the lift equipment used to take trailers and containers on and off railcars. The second is the hostler tractors used to move the trailers and containers on chassis to and from trackside to parking bays or staging areas within the terminal. The third one is some sort of railcar switching equipment either in the form of a switch engine or a rubber tired railcar mover that can

be placed on and off the tracks. Many times the lift operator provides the switching operation, if a switch engine is needed to support the operation. It is not uncommon for these pieces of equipment to be leased. In the “Minimum Intermodal Terminal Operation” it was intended to minimize the need to switch railcars other than when the delivering carrier arrives to do the “set out” and “pick up” moves every 24 hours. Therefore, a switch engine and its cost are not included in the “Minimum Intermodal Terminal Operation.”

For lift equipment it is difficult for an operation to survive on one piece of lift equipment. The service interruption of a single piece of lift equipment going out of service could destroy the high service requirements of a competitive intermodal operation. For the “Minimum Intermodal Terminal Operation” two pieces of lift equipment are assumed at start up. The second piece of lift equipment maybe a lesser quality machine to be used as a backup provided an excellent preventive maintenance program is in place for the primary piece of lift equipment. The placement of a container or trailer on or off a railcar can range from 1.5 – 5 minutes per container or trailer. Lift rates between 15 – 30 units an hour per piece of active lift equipment are common in the intermodal terminal industry. For the “Minimum Intermodal terminal Operation” 20 units an hour was used as the capacity of a single piece of lift equipment. Volume, loading/unloading windows, and hours of operation are the key drivers in deciding how many pieces of active lift equipment are required to meet the service requirements within a 24 hour cycle. This analysis used a loading window of 16 hours per day for the available production time. This allows four hours on either end of the loading window for variation in equipment arrival and train service.

For the hostler tractor operations the number of tractors required to support a single piece of active lift equipment varies between 2 and 5 in the industry. To take advantage of the lift equipment through put capacity of 20 lifts per hour, the operation needs to have enough tractors engaged to keep the lift equipment busy. Again the need for a spare or two is recommended to avoid any service interruptions in keeping the lift equipment busy. As with the lift equipment volumes, loading/unloading windows, and hours of service are the key drivers in deciding how many hostler trackers are needed to support the lift equipment operation. The initial sizing effort of the “Minimum Intermodal Terminal Operation” starts with a total of four hostler tractors based on one active primary piece of lift equipment and a backup unless volume dictates more than one piece of active lift equipment is required.

The lift equipment and hostler tractor will require regular preventative maintenance. A maintenance facility would be required that provides protection from the weather, parts storage, and materials. The working bay needs to be large enough to house the piece of lift equipment selected for the operation. Proper facilities for managing the solid and liquid wastes generated from the maintenance operations are also required. For the “Minimum Intermodal Terminal Operations” a single bay maintenance facility with proper storage and wash and locker facilities will be included.

4. Manpower

Manpower is required for the lift operation, hostler tractors, equipment maintenance, clerical staff, and overall terminal management. Train service, volume, and hours of operation to meet service requirements drive manpower requirements. The requirements have been developed on a per shift basis. At start-up a 24 hour operation is assumed; using three 8-hour shifts to establish a conservative breakeven point. Many intermodal operations are designed around a two shift operation in 24 hours. This allows for one less interruption due to shift change per day. This is usually handled with minimum overtime using a larger workforce. Employee benefits and such may yield a different manpower arrangement.

a. Lift Operation Manpower

Manpower planning for the lift operations has been developed for each piece of lift equipment deployed. Each piece requires an operator and at least one ground man to direct the operator and help in securing and releasing containers and trailers from the railcar. Each piece of lift equipment is supported by a group of hostler tractors and their drivers. This support group is made up of two to five hostlers per piece of lift equipment depending on volume and size of the facility that drives cycle time to deliver a container or trailer to and from the parking or staging area of the terminal. To keep the lift equipment fully utilized to the initial 20 lifts per hour design rate, a container or trailer needs to be delivered to the lift equipment trackside every three minutes. To provide a preventive maintenance program for the initial two pieces of lift equipment, and the hostler tractors, one mechanic and one support person per shift will be included for the equipment maintenance requirements. One other area within the loading operation is the inspection of the railcars. Railcar inspection for safety related components is done before a railcar is loaded. This work is completed by a qualified railcar inspector. Railcar inspectors are included in the operational requirement.

b. Clerical and Terminal Management

The clerical functions of the operation include entrance and exit gate inspection of the inbound and outbound units, terminal unit inventory, bill of lading, train manifests and load plans, equipment maintenance billing, payroll, and terminal supervision and overall management of the operation. Volume of traffic is the big driver of the manpower needed to provide the administrative services to keep the flow of documentation. There is a base requirement of staff to start with that may be able to do some work sharing of the activities. Based on past experience on productivity measures the analysis used a multiplier to estimate the number of clerical positions needed to meet the various volume levels tested. The startup management and clerical manpower includes a terminal manager, a gate inspector, a load clerk, and a billing clerk per shift.

B. Opportunities for Additional Service Offerings

1. Intermodal Terminal Service: Loading and Unloading of Railcars

The major function of the intermodal terminal is to provide the ability to load and unload containers and trailers from specially designed railcars. This is the basis of the initial “Minimum Intermodal Terminal Operation” as discussed above.

2. Container and Trailer Storage

Another service that can be provided at an intermodal terminal is the storage or staging of trailers and containers, assuming space is not a premium concern. Many inland terminals provide this service as an equipment depot. This service could be very beneficial to a regional or local trucking company as well. The use of the intermodal terminal as a depot for equipment is one of the reasons these spoke-like terminals have been called inland ports.

3. Container, Trailer, and Chassis Maintenance

Intermodal terminals often contain space for maintenance of equipment. Containers, trailers, chassis, drayage tractors, and even over the road trucking company tractors can be maintained within an intermodal operation as support or ancillary service to the operation. Appropriate facilities are required. Many equipment owners of containers and trailers contract these services to keep their assets in service as much as possible. The intermodal industry as a whole has an extensive maintenance program and agreements in place for these services within the various intermodal terminals and operators.

C. Intermodal Terminal Operators/Opportunities/Competition

Often intermodal terminal operations are provided by contractors hired by the terminal owner. Many of these contractors come from a trucking company background. Some operators are licensed trucking companies that have completed the appropriate training in the use of the lift equipment required to load and unload the trailers and containers from the railcars.

The use of a regional or local trucking company to operate the intermodal terminal services provides the opportunity to participate in the nationwide intermodal network as a freight service option in the trucking company’s portfolio. If the trucking company wants to use the spoke connection to the nationwide intermodal network as an addition to its portfolio of services, it must remember that it is both an asset to the class I carrier’s and larger trucking company’s service, as well as a potential competitor. There is a freight market segment that a regional or local trucking company might leverage, but there is a certain transit time maximum or boundary that would provide incremental freight not currently within the market reach of the current class I carrier’s intermodal terminals.

VI. CONCLUSIONS OF MARKET AND OPERATIONS ANALYSES

A. Summary of Market Analysis and Preliminary Income Statement Analysis

Based on the results of the preliminary income statement developed for the "Minimum Intermodal Terminal Operation" scenario, approximately 500 lifts per day would be required to cover the operating costs of a lift-only, minimum operations intermodal rail freight terminal in Erie County. This number of lifts would not cover the capital (development, land purchase, etc.) costs. Operating costs in this scenario are based upon industry standards for similar facilities across the nation and have not been adjusted for site location particulars. In addition, the assumed operating costs include a rail freight lift operation only; no additional services, such as warehousing, repair services, etc. were included in the analysis. Inclusion of these types of services would be expected to reduce the amount of operating costs that would need to be covered by lifts alone. In order for both the operating and capital costs to be covered, approximately 800 lifts per day would be required under the assumed scenario.

Note that only terminal costs were considered in the economic analysis for this feasibility study. Additional line haul costs and / or switching costs are not included in this initial effort.

The results of the Market Analysis, based on the IHS Transearch database, showed that the CFMA (60-miles from Erie) could supply approximately 800 units (trucks) per day. One unit or truckload is equivalent to one lift at a proposed rail freight facility. The CMA (60-miles to 120-miles from Erie) could supply approximately 2,000 units per day.¹

In order to obtain approximately 400 to 500 lifts at the proposed facility, approximately 18% of the 2,800 units per day from the combined CFMA and CMA would need to be captured by the proposed facility. The 800 lifts would require a capture rate of approximately 30% of the combined market areas.

According to the Federal Highway Administration's (FHWA's) Freight Analysis Framework² 30% to 35% of Freight shipped 500 to 999 miles is shipped by rail / intermodal and approximately 40% of Freight shipped 1,000 to 2,000 miles is shipped by rail / intermodal. Considering the volume of freight currently shipped by rail / intermodal, the 18% capture rate (covers operating costs only) for existing freight moving by truck distances of 500-miles or more would appear reasonable; however, the 30% capture rate (covers capital and operating costs) would appear challenging as it would require an optimal amount of truck to rail conversions.

¹ This is ONLY freight currently moving by truck for distances of 500-miles or greater. This does not include freight currently moving by air, water or rail. Also, within the CMA there are three existing rail freight terminals in Pittsburgh, Cleveland and Buffalo that currently move freight. Any freight currently being handled by these terminals would not be included in the market area freight numbers; however, freight being currently handled by one of the existing terminals could be potentially converted to use the proposed Erie rail freight terminal.

² U.S. DOT, Bureau of Transportation Statistics, "2012 Transportation Statistics Annual Report," Chapter 3, Moving Goods.

In order to further evaluate the preliminary results, a survey of business and industry was conducted to help gauge interest in a rail freight terminal and obtain more specific information on who might use such a facility. The results of this survey are presented in the following section.

B. Business & Industry Survey

An online Business and Industry Survey was developed using Survey Monkey. The intended purpose of the survey was to learn more about the following as it relates to existing freight movements:

- Type of Business/Industry
- Commodity Type and Sensitivity
- Volume and Mode
- Origin and Destination
- Service Needs
- Potential Rail Freight Movements
- Freight Shippers within the CFMA

The survey was made available for online access on the Erie Regional Chamber and Growth Partnership website and the Erie County website. A copy of the survey questions can be referenced in **Appendix F, Survey Questions**.

To invite participation in the survey a post card was mailed to the following:

- 625 businesses in the Pennsylvania counties within the study's CFMA
- 24 chambers in the Ohio and New York counties within the study's CFMA
- 89 businesses in the Ohio and New York counties within the study's CFMA

To supplement the postcard mailing, Erie County, the Erie Regional Chamber and Growth Partnership, and PennDOT held a press conference on April 8, 2015. The press conference was intended to be a call to action for transportation managers to participate in the survey and to share the details of the survey with the general public.

The outreach efforts yielded 50 completed surveys from businesses; 84% of which were from Erie County, PA. Most of the respondents were manufacturers (48%) with the majority of the "Other" respondents being firms that would not be likely to use a rail freight terminal (consultants, insurance agencies, fitness center). Small firms shipping less than 5,000 truckloads (units) per year made up most (51% inbound and 46% outbound) of those surveyed and most (33%) said transportation costs were less than 5% of their companywide costs. Approximately 80% said transportation costs were less than 15% of their total company costs, indicating that most of the responding firms are not heavily dependent on transportation for their operations. Only five responding firms stated that transportation costs were more than 25% of their company costs.

Most of the surveyed firms utilize just-in-time services; however, 51% use just-in-time for less than 25% of their shipments. Only 14% use just-in-time for most of their shipments. Of the respondents, 30% stated that additional

warehousing would not reduce their need for just-in-time services. Typically, just-in-time needs are not well met by rail; trucks are much better suited to adjust to the needs of these types of shipments.

The majority (59% inbound and 62% outbound) of the responding companies do have at least one truck shipping per day. Most do not ship anything on a daily basis – 39% shipped nothing outbound and 41% nothing inbound daily (of these firms, some were not shippers and some only shipped one truck every few weeks or one per month).

The most important factors to the responding firms with regard to their freight shipments are:

- Transit time
- Consistency of service
- Cost of service

Historically, over-the-road trucks are better able to control transit time and add service frequencies, when needed, than railroads. Rail is typically more cost effective than trucks for shipments over 500-miles.

In addition, half (50%) of the responding firms ship less than 500-miles, as mentioned previously 500-miles is where railroad shipping becomes competitive with trucks. Shipments of less than 500-miles are not likely to utilize railroads. Thirteen larger firms that all ship more than 500 miles responded to the survey. These firms currently use trucks and trucks-to-rail as their primary shipping mechanisms. Nine of these firms currently use intermodal rail and five of those stated that just-in-time service accounts for less than 25% of their freight shipping needs. Two of the nine stated that just-in-time service is needed 75% to 100% of the time for their business (rail transportation is not conducive to just-in-time service). Table 2 classifies the amount of freight that each firm that ships more than 500 miles is currently shipping.

TABLE 2: SHIPPING VOLUME AND FREQUENCY BY NUMBER OF FIRMS							
	Units Shipped Per Year					Shipping Frequency	
	>500,000	>100,000	>50,000	>10,000	>5,000	Daily	Once Per Week
Outbound	3	1	2	1	2	12	1
Inbound	3	0	3	2	2	10	4

When asked whether the firm would use a proposed Erie Rail Freight Terminal and if yes, how many truckloads would be anticipated per day through the terminal, eight firms responded that they would ship less than 5 truckloads per day outbound through the terminal, one would ship between five and 10 trucks, one would ship between 10 and 15, and one would ship one truck per month, and the other two did not respond. Similarly, in the inbound direction nine would send less than five truckloads per day through the proposed facility, one would ship between five and 10 trucks, one would anticipate one truckload per month, one would have no inbound shipments, and one firm did not respond.

C. Would it work in Erie County?

1. Purpose and Need

The purpose of an intermodal rail freight terminal in Erie County would be to provide more transportation options for manufacturers and other industries in the northwestern Pennsylvania, northeastern Ohio, and southwestern New York tri-state area. Additionally, transportation options for freight could help spur economic growth of the region and existing businesses.

2. Can the Market Support an Intermodal Rail Freight Terminal?

Based on the Market Analysis and Preliminary Income Statement, a lift-only, minimum operation, rail freight terminal in Erie County, PA would be viable if 500 (capital costs not covered) to 800 (capital costs covered) lifts (truckloads) per day could be achieved. This would require capturing between 18% to 30% of the total existing freight shipments in the Competition-Free and Competitive Market Areas combined.

In order to further assess the potential market, a survey of market area businesses and industries was conducted to ascertain the volume of freight they currently ship and whether they would consider using an Erie based rail freight terminal. Out of 50 total respondents, 13 were larger freight shippers whom currently use intermodal rail for freight shipments and who would consider utilizing the proposed terminal. These 13 shippers responded that they would anticipate approximately 40 to 45 inbound and 30 to 35 outbound shipments (lifts) per day from their facilities through the proposed rail freight terminal. The remaining lifts would need to be covered by smaller freight shippers in the market area.

An analysis, using extrapolation, was completed using the survey results to estimate the number of potential customers in the CFMA and the CMA. This data was then used to estimate the potential market and a capture rate based on the survey results.

Based on a Pennsylvania-only Freight Generators database provided by Transearch®, within the CFMA 725 freight shippers generate 84 million tons of freight (shipped any distance and by any mode). At approximately 20 tons per truckload (or lift), this equates to four million loads / lifts (84 million tons ÷ 20 tons / load). Note that this four million loads is currently shipped via any mode (truck, air, rail, waterway) and any distance.

Per the market analysis completed for this study, approximately 285,000 loads are shipped via truck only for distances of greater than 500 miles (the target for intermodal rail) from the CFMA. Therefore, approximately 7% (285,000 ÷ 4 million) of the CFMA can be assumed to ship by truck for more than 500 miles. Of the 725 PA-only freight generators in the CFMA, approximately 50 (7% of 725) could be assumed Erie Rail Freight Terminal customers (companies that ship by truck now and ship more than 500 miles). To estimate the number of possible customers within the entire CFMA (Pennsylvania, Ohio, and New York), the study considered that of the nine

counties in the CFMA, 6 or 67% are in Pennsylvania. Therefore, it can be extrapolated that 75 ($50 \div 67\%$) potential customers exist in the CFMA.

Similarly, for the CMA, 2,540 companies ship 434 million tons of freight within the Pennsylvania portion of the CMA. This 434 million tons is shipped via any mode and any distance, and equates to approximately 22 million loads or lifts ($434 \text{ million} \div 20 \text{ tons}$).

Based on the market analysis, 467,000 loads are shipped more than 500 miles from and to the Pennsylvania portion of the CMA. It can be assumed that 2% ($467,000 / 22 \text{ million}$) of the Pennsylvania CMA ship by truck for distances greater than 500 miles. This would mean approximately 49 potential ERT customers within the Pennsylvania portion of the CMA. There are 39 counties in the CMA (Pennsylvania, Ohio, and New York), 17 or 44% are in Pennsylvania. Therefore, 111 potential customers ($49 \div 44\%$) exist within the entire CMA. Combined with the CFMA, there would be 186 potential Erie Rail Freight Terminal customers in the CMA and CFMA combined.

To estimate the number of potential lifts per day that could be reasonably expected to be generated by these 186 potential customers, the survey results were used. As stated, based on the survey, 13 businesses would potentially use the Erie Rail Freight Terminal to ship (inbound and outbound) approximately 70 to 80 loads (lifts) per day. This averages to 5 ($70 \div 13$) to just over 6 ($80 \div 13$) loads per day per surveyed potential customer. Using an assumed 6 loads per day per customer, the estimated 186 CMA and CMFA could generate 1,116 loads (lifts). In order to obtain just the 500 lifts per day required to meet operating costs (per the Market Analysis and Preliminary Income Statement) a capture rate of 45% ($500 \text{ lifts required} \div 1,116 \text{ potential lifts}$) would be necessary. A capture rate this high (45%) would be very challenging. To cover capital and operating costs, a capture rate of over 70% ($800 \div 1,116$) of the market would be required. A 70% capture rate would not be considered reasonable. Both the market analysis deduction (18% to 30% capture rate) and the survey based deduction (45% to 70% capture rate³) would require relatively high capture rates to support a lift-only, minimum operation.

3. Would additional services be required?

It is anticipated that for a rail freight terminal to be viable in Erie County, additional services would be a necessity, as would possible public subsidy of capital costs and potential public support of operation costs. Including services such as warehousing, truck repair, freight brokerage, etc. into the terminal's services would make the facility more attractive to potential customers. These services would also provide additional revenue beyond the lifts; thereby reducing the number of lifts required to make the facility viable. However, it is important to note that as the number and types of additional services increase, capital costs and operating costs also increase.

³ The survey results were limited to only 50 out of a possible 738 invitees (7% response rate); therefore, the market potential generated by the survey based deduction would be anticipated to be highly conservative. However, it is unlikely that even a more robust survey response would change the results drastically from the market based deduction. The fact is that Erie's market is small, most freight is shipped less than 500 miles, and high capture rates would be necessary.

VII. GOVERNANCE

Governance of intermodal terminals is often complex in that it requires cooperation and decisions by numerous politically independent but otherwise interdependent private and public stakeholders. For example regional/local municipalities and authorities need to make decisions concerning land use and infrastructure investments; private companies must commit to utilize the intermodal terminal and, in some cases, the profits of private investors may need to be maintained and grown.

The establishment of policies, and continuous monitoring of their proper implementation, must be managed by the members of the governing body of the organization (in this case the rail freight terminal). The governing body must also have in place the mechanisms required to balance the powers of the members (with the associated accountability), and their primary duty of enhancing the prosperity and viability of the organization.

For an intermodal terminal there are several governance structures that may be placed into control of the organization. These include:

- Public ownership - investment in infrastructure and planning for future expansion is carried out by a public authority using public monies. The private sector can be offered leasing opportunities with negotiable terms and durations.
- Private ownership - private capital is used for infrastructure and future expansion.
- Public operation - public authority provides the handling equipment, contracts with labor forces, operates the terminal.
- Private operation - private companies manage and carry out operations.
- Public / private partnership - typically public ownership and private operation; private operation is under a concession agreement; concessions can vary considerably in terms of duration and conditions; most are long term (15 to 30 years). In some the public agencies provides equipment (i.e., gantry cranes); in others the concession holder invests in equipment; some are required to use public employees; some use private workers.

It is not the intent of this study to dictate or recommend the type of governance structure that may be appropriate for a proposed Erie Rail Intermodal Terminal. Rather the intent is to provide guidance to decision-makers. Further analysis and discussions are required in order for a final determination to be made on governance of the facility.

IX. CONCLUSIONS

The Federal Railroad Administration (FRA) Website⁴ states that the U.S. is becoming a more urbanized country. This urbanization is predicted to increasingly converge into larger networks of metropolitan areas called megaregions. Erie, PA is part of the Great Lakes Megaregion⁵. It is forecast that by 2050, 75 percent of U.S. inhabitants will live in these megaregions and 80 percent of population growth will occur there. As a result, more passenger and freight traffic will move into these regions, and traffic congestion and loss of productivity, as well as their related effects, will diminish the quality of life in and around megaregions.

To compete in the global marketplace and to enhance quality of life, effective investments in U.S. transportation infrastructure must be made and innovative transportation solutions must be considered. Rail transportation investments are an effective way to meet future transportation challenges while at the same time provide significant public benefits such as reductions in road congestion, highway fatalities, fuel consumption and greenhouse gasses, logistics costs, and public infrastructure maintenance costs.

FRA forecasts that rail shipments will increase 46% between 2011 and 2040 (1.7% annually) and that the major rail commodities will continue to be coal, trailers/containers, chemicals, and farm products⁶. Over the next 40 years, 100 million more people will generate four billion more tons of freight.⁷

However, based on the existing data collected as a result of this study, high market capture rates would be required to support even a "Minimum Intermodal Terminal Operations" scenario.

The minimal scenario would be a lift only operation with no additional services offered. Capture rates of over 18% of the assumed market would be necessary to cover the operations costs alone. In order to cover both capital and operations costs, a market capture rate of at least 30% would be required. These high capture rates would be very challenging in today's economic climate where gas prices have fallen and where new services, such as Uber-like⁸ truck apps, are entering the market. These new services are aimed at reducing empty truck miles, making trucking more efficient, and will chip away at the truck driver shortage currently facing the industry as fewer trucks will be able to carry more freight.

Based on this analysis development of a rail freight terminal in Erie County, Pennsylvania, which is a relatively small freight market, would require a facility that offered multiple services, in addition to lifts, in order to meet revenue and cash flow needs. An aggressive marketing campaign would be required to sell the terminal's competitive advantages to area

⁴ <https://www.fra.dot.gov/Page/P0362>

⁵ Dewar, Margaret & David Epstein, "Planning for 'Megaregions' in the United States," *Journal of Planning Literature* 2007, N.22, PG. 108-123

⁶ Federal Railroad Administration, "Freight Railroad Backgrounds," April 2013.

⁷ U.S. DOT, Federal Railroad Administration, "National Rail Plan: Moving Forward," September 2010.

⁸ Uber-like truck apps allow shippers to connect with not-full trucks leaving the shipper's area destined for the shipper's ultimate destination. This allows shippers to ship freight on an ad-hoc, on-demand basis. Plus, it results in fuller truckloads, reducing empty miles, requiring fewer trucks, and reducing emissions.

businesses. In addition, a partnership with a rail carrier that could provide timely and consistent service comparable to trucking would be required. No such partnership has been developed to date.

While freight shipments are anticipated to increase over the next 30 years, it is true that Erie County is a small freight market surrounded by existing intermodal rail freight terminals that are only 120 miles away (Pittsburgh, PA; Cleveland, OH; and Buffalo, NY). Based on this analysis, while development of a rail freight terminal in Erie County, Pennsylvania is not infeasible, it would be quite challenging, require a facility offering more than just lifts to attract businesses (higher capital costs and operating costs), and require substantial time and monetary investment from the developing party.

In order to develop a better understanding of what was done to develop and ensure the viability of similar types of intermodal terminals, research of five similar facilities was conducted. This research generally showed the following (a more detailed summary of the research, include what facilities were investigated, is included in Appendix G):

- A large, steady and sustainable freight volume is necessary.
- A large anchor is needed in many cases to make the facilities viable.
- Most facilities are constructed, owned and operated by the railroads.
- Most sites offer additional services.
- Some sites were located near an international water port

Appendix A

Glossary

Boxcar - An enclosed railcar, typically forty to fifty feet long, used for packaged freight and some bulk commodities.

Broker - An agent who arranges interstate movements of goods by other carriers; arranger of exempt loads for owner-operators and/or carriers

Cargo - Freight that is loaded into a container or on a trailer.

Carload - Quantity of freight required to fill a railcar or specified quantity necessary to qualify a shipment for a carload rate.

Carrier - An individual or company engaged in the transportation of goods.

Class I Railroad - Railroad with operating revenues of more than \$259.4 million annually.

Commodity - Any article of commerce that is shipped.

Container - A large rectangular or square container/box of a strong structure that can withstand continuous rough handling from ship to shore and back. The receptacle that resembles a truck trailer without wheel (chassis) that is lifted onto flat cars and opens from one side to allow cargo to be stacked and stowed into it. Containers are designed for all modes of intermodal transport. Most containers are 20, 45, 48, or 53 feet in length.

Container Yard - Also referred to as a CY, is a railroad or privately owned yard used for storage of containers when not in use.

Crane - A large machine that straddles the railroad track or vessel for the purpose of loading and unloading containers and trailers to and from railcars or vessels.

Dedicated Train - A train that, by design, transports a specific commodity or type of cars. In the case of intermodal, intermodal trains only carry trailers and/or containers.

Drayage - Transportation of freight from a cargo facility terminal to a customer's facility. There are 6 types of drayage:

Cross-town or Inter-Carrier Drayage - A movement of an intermodal unit "across town" from one railroad to another for continuance of the move.

Door-to-door Drayage - Retail drayage involving over-the-road movement of a unit to a customer location.

Expedited Drayage - A movement of an intermodal unit over-the-road to get it there on time. This exceptional drayage usually involves time-sensitive freight.

IMX or Intra-Carrier Drayage - A movement of an intermodal unit from a carrier's rail hub to the same carrier's intermodal hub. IMX drayage extends the reach of an intermodal hub.

Pier Drayage - An over-the-road movement of an intermodal unit from a carrier's rail hub to a port's dock or pier.

Shuttle Drayage - A movement of an intermodal unit either loaded or empty from a hub to another parking lot because the railroad has run out of room at the hub.

Drayman - A person employed to pick up or drop off a container or trailer at an intermodal terminal.

FAK - An acronym for Freight of All Kinds, which is a shipping classification usually referring to three or more different commodities shipped as a single freight class.

Flatcar - A freight car having a floor without any housing or body above. Frequently used to carry containers and/or trailers or oversized/odd-shaped commodities. The three types of flatcars used in intermodal are conventional, spine and stack cars.

Flatbeds - A trailer with a main deck that is free of walls or ceiling constraints accommodating a wide variety of unusually sized freight.

For Hire Carrier - A company that provides truck transportation of freight belonging to others and is paid for doing so. There are two types of for-hire carriers:

Common Carriers - Carriers required to serve the general public when the need to do so is there, at reasonable rates, and without discrimination.

Contract Carriers - Carriers that serve specific shippers with whom the carriers have a contract and are therefore not available for carrying freight for the general public.

A for-hire carrier may be both a common and a contract carrier, but must file separate registrations to obtain both licenses.

Freight - Cargo that is being transported.

Freight Consolidation - The process of combined multiple separate consignments into a single lot or container load constituting a more economical shipping unit for shipment over all or some of the transportation segments. Upon completion of the "consolidated" shipment segment, the process must be reversed- the individual consignments must be separated out for delivery or on-shipment to the respective individual consignees.

Freight Consolidator - A party serving as an indirect carrier, though the term may also refer to a party other than a carrier who is physically contracted to perform freight consolidation services, for example a container freight station.

Freight Forwarder - An individual or company who assembles small shipments into one large shipment which is then tendered to a for hire carrier.

Intermodal - The movement of freight, in a container or on a trailer, by more than one mode of transportation. The movement can be made from rail to truck to ship in any order.

Intermodal Terminal - A railroad facility designed for the loading and unloading of containers and trailers to and from flatcars for movement on the railroad and subsequent movement on the street or highway.

Lift - The process of moving a container or trailer to/from a railcar, vessel, or chassis.

Logistics - The management of the flow of resources, not only goods, between the point of origin and the point of destination in order to meet the requirements on a bill of lading. Logistics involves the integration of information, lading via land transportation, inventory, warehousing, material handling, and packaging and often security.

LTL - An acronym for less than truckload, in which a shipment does not fill an entire truckload. Specialized carriers provide service exclusively for this type of shipment. These services are priced by weight, density, value, and ease of handling in combination with distance. The National Motor Freight Classification standards are commonly used in order to identify the best pricing for a particular commodity on a particular shipping lane.

Market Area - The area that can be reasonably expected to be served by an intermodal terminal. This includes both the origin and destination points of commodities. The Market Area can be generally thought of as competition-free and competitive.

Competition-Free Market Area - Those points of origin / destination that are within close proximity to the intermodal terminal. Generally points of equal distance from another intermodal facility or closer. For the Erie Rail Terminal this was defined as approximately 60-miles from Erie, which is about half way between Erie and existing terminals in Buffalo, NY; Pittsburgh, PA; and Cleveland, Ohio.

Competitive Market Area - Those points of origin / destination that could be served by another intermodal terminal, but that due to certain factors (such as highway access, services provided, costs, etc.) could be attracted to the intermodal terminal under study. For the Erie Rail Terminal this was defined as the area between the 60-mile radius Competition-Free Market Area and the existing terminals in Buffalo, NY; Pittsburgh, PA; and Cleveland, Ohio.

Mode of Transport - The different ways of moving freight: road, rail, maritime and inland waterway.

Motor Carrier - A freight carrier using a motorized highway/road conveyance.

Multimodal Transport - The transportation of freight under a single contract but performed by more than one mode of transport. Intermodal transport is a particular type of multimodal transport.

NEC - Not Otherwise Classified

OTR - An acronym for Over the Road, which is the movement of freight by truck.

Private Carrier - A company which maintains its own trucks or equipment to transport its own freight.

Rail Freight Terminal - A location where freight either originates, terminates, or is handled in the transportation process. Terminals are central and intermediate locations in the movements of freight. They often require specific facilities or equipment to accommodate the traffic they handle.

STCC (Standard Transportation Commodity Codes) - The STCC system is a 7-digit coding structure designed to classify all commodities or articles which move or may move in freight transportation.

Trailer - A rectangular shaped box with permanent wheels attached for the transport of goods on rail, highway, or a combination of both.

Transit Time - A time period for freight to move between two points (i.e., from shipper to consignee).

Transload - To physically transfer product from one transportation vehicle to another.

Transportation Broker - Anon-asset based company which sells & manages freight transportation services on behalf of their clients. Transportation brokers typically arrange and manage, on behalf of their clients, the entire transportation process of a freight shipment. Their service includes finding a qualified carrier (with the proper insurance and operating authorities) who can move the freight in a timely manner, negotiating a good rate and then managing the entire process from pickup through to delivery.

Truckload - Full truckloads, also known as FTL or sometimes TL, utilizing van or flatbed trailers, depending upon shipment configuration.

Truckload Carrier - Trucking company which dedicates trailers to a single shipper's cargo.

Warehousing - The storing of freight. Warehousing is sometimes needed, and can be provided, to complement inbound and outbound transportation services. There are 4 distinct types of warehousing available, depending upon load content: for finished goods; for raw materials; for consumer fulfillment; and for vendor-managed inventory or VMI.

Waybill - A document covering a shipment and showing the forwarding and receiving station, the names of consignor and consignee, the car initials and number, the routing, the description and weight of the commodity, instructions for special services, the rate, total charges, advances, and waybill reference for previous services and the amount prepaid.

Appendix B

STCC List

STCC	Commodity Name
0100	Farm Products
0110	Field Crops
0112	Cotton, Raw
0113	Grain
0114	Oil Kernels, Nuts Or Seeds
0115	Field Seeds
0119	Misc. Field Crops
0120	Fresh Fruits Or Tree Nuts
0121	Citrus Fruits
0122	Deciduous Fruits
0123	Tropical Fruits
0129	Misc Fresh Fruits Or Tree Nuts
0130	Fresh Vegetables
0131	Bulbs, Roots Or Tubers
0133	Leafy Fresh Vegetables
0134	Dry Ripe Vegetable Seeds
0139	Misc Fresh Vegetables
0140	Livestock Or Livestock Prod
0141	Livestock
0142	Dairy Farm Products
0143	Animal Fibers
0150	Poultry Or Poultry Products
0151	Live Poultry
0152	Poultry Eggs
0190	Misc Farm Products
0191	Horticultural Specialties
0192	Animal Specialties
0199	Farm Prod, NEC
0800	Forest Products
0840	Barks Or Gums, Crude
0842	Barks Or Gums, Crude
0860	Misc Forest Products
0861	Misc Forest Products
0900	Fresh Fish Or Marine Products
0910	Fresh Fish Or Marine Products
0912	Fresh Fish Or Whale Products
0913	Marine Products
0980	Fish Hatcheries
0989	Fish Hatcheries
1000	Metallic Ores
1010	Iron Ores
1011	Iron Ores
1020	Copper Ores
1021	Copper Ores
1030	Lead Or Zinc Ores
1031	Lead Ores
1032	Zinc Ores
1033	Lead And Zinc Ores Combined
1040	Gold Or Silver Ores

STCC	Commodity Name
1041	Gold Ore
1042	Silver Ore
1050	Bauxite Or Other Alum Ores
1051	Bauxite Or Other Alum Ores
1060	Manganese Ores
1061	Manganese Ores
1070	Tungsten Ores
1071	Tungsten Ores
1080	Chromium Ores
1081	Chromium Ores
1090	Misc Metal Ores
1092	Misc Metal Ores
1100	Coal
1110	Anthracite
1111	Anthracite
1120	Bituminous Coal Or Lignite
1121	Bituminous Coal
1122	Lignite
1300	Crude Petrol. Or Natural Gas
1310	Crude Petrol. Or Natural Gas
1311	Crude Petroleum
1312	Natural Gas
1320	Natural Gasoline
1321	Natural Gasoline
1400	Nonmetallic Minerals
1410	Dimension Stone, Quarry
1411	Dimension Stone, Quarry
1420	Broken Stone Or Riprap
1421	Broken Stone Or Riprap
1440	Gravel Or Sand
1441	Gravel Or Sand
1450	Clay Ceramic Or Refrac Minerals
1451	Clay Ceramic Or Refrac Minerals
1470	Chem Or Fertilizer Minerals
1471	Chem Or Fertilizer Mineri Crude
1490	Misc Nonmetallic Minerals
1491	Misc Nonmetallic Minerals, NEC
1492	Water
1900	Ordnance Or Accessories
1910	Guns, Howitzers, Mortars, Etc.
1911	Guns, Howitzers, Mortars, Etc.
1920	Ammo, Over 30mm
1925	Guided Missiles Or Space Vehicle
1929	Ammo Or Related Parts, NEC
1930	Tracked Combat Vehic Or Parts
1931	Tracked Combat Vehic Or Parts
1940	Military Fire Control Equipt
1941	Military Fire Control Equipt

STCC	Commodity Name
1950	Small Arms,30mm Or Less
1951	Small Arms,30mm Or Less
1960	Small Arms Ammo,30mm Or Less
1961	Small Arms Ammo,30mm Or Less
1990	Misc Ordnance Or Accessories
1991	Misc Ordnance Or Accessories
2000	Food Or Kindred Products
2010	Meat Or Poultry, Fresh Or Chilled
2011	Meat, Fresh Or Chilled
2012	Meat, Fresh Frozen
2013	Meat Products
2014	Animal By-Prod, Inedible
2015	Dressed Poultry, Fresh
2016	Dressed Poultry, Frozen
2017	Processed Poultry Or Eggs
2020	Dairy Products
2021	Creamery Butter
2023	Condensed, Evap Or Dry Milk
2024	Ice Cream Or Rel Froz Desserts
2025	Cheese Or Special Dairy Products
2026	Processed Milk
2030	Canned Or Preserved Food
2031	Canned Or Cured Sea Foods
2032	Canned Specialties
2033	Canned Fruits, Vegetables, Etc.
2034	Dehydr Or Dried Fruit Or Veg
2035	Pickled Fruits Or Vegetables
2036	Processed Fish Products
2037	Frozen Fruit, Veg Or Juice
2038	Frozen Specialties
2039	Canned Or Pres Food, Mixed
2040	Grain Mill Products
2041	Flour Or Other Grain Mill Products
2042	Prepared Or Canned Feed
2043	Cereal Preparations
2044	Milled Rice, Flour Or Meal
2045	Blended Or Prepared Flour
2046	Wet Corn Milling Or Milo
2047	Dog, Cat Or Other Pet Food, NEC
2050	Bakery Products
2051	Bread Or Other Bakery Prod
2052	Biscuits, Crackers Or Pretzels
2060	Sugar, Beet Or Cane
2061	Sugar Mill Prod Or By-Prod
2062	Sugar, Refined, Cane Or Beet
2070	Confectionery Or Rel Prod
2071	Candy Or Other Confectionery
2080	Beverages Or Flavor Extracts
2082	Malt Liquors
2083	Malt
2084	Wine, Brandy Or Brandy Spirit
2085	Distilled Or Blended Liquors

STCC	Commodity Name
2086	Soft Drinks Or Mineral Water
2087	Misc Flavoring Extracts
2090	Misc Food Preparations
2091	Cottonseed Oil Or By-Prod
2092	Soybean Oil Or By-Products
2093	Nut Or Veg Oils Or By-Products
2094	Marine Fats Or Oils
2095	Roasted Or Instant Coffee
2096	Margarine, Shortening, Etc.
2097	Ice, Natural Or Manufactured
2098	Macaroni ,Spaghetti, Etc.
2099	Misc Food Preparations, NEC
2100	Tobacco Products
2110	Cigarettes
2111	Cigarettes
2120	Cigars
2121	Cigars
2130	Chewing Or Smoking Tobacco
2131	Chewing Or Smoking Tobacco
2140	Stemmed Or Redried Tobacco
2141	Stemmed Or Redried Tobacco
2200	Textile Mill Products
2210	Cotton Broad-Woven Fabrics
2211	Cotton Broad-Woven Fabrics
2217	Cotton Broad-Woven Fabrics
2220	Man-Made Or Silk Woven Fibre
2221	Man-Made Or Glass Woven Fibre
2222	Silk-Woven Fabrics
2230	Wool Broad-Woven Fabrics
2231	Wool Broad-Woven Fabrics
2240	Narrow Fabrics
2241	Narrow Fabrics
2250	Knit Fabrics
2251	Knit Fabrics
2270	Floor Coverings
2271	Woven Carpets, Mats Or Rugs
2272	Tufted Carpets, Rugs Or Mats
2279	Carpets, Mats Or Rugs, NEC
2280	Thread Or Yarn
2281	Yarn
2284	Thread
2290	Misc Textile Goods
2291	Felt Goods
2292	Lace Goods
2293	Paddings, Upholstery Fill, Etc
2294	Textile Waste, Processed
2295	Coated Or Imprinted Fabric
2296	Cord Or Fabrics, Industrial
2297	Wool Or Mohair
2298	Cordage Or Twine
2299	Textile Goods, NEC
2300	Apparel Or Related Products

STCC	Commodity Name
2310	Mens Or Boys Clothing
2311	Mens Or Boys Clothing
2330	Womens Or Childrens Clothing
2331	Womens Or Childrens Clothing
2350	Caps, Hats Or Millinery
2351	Millinery
2352	Caps Or Hats Or Hat Bodies
2370	Fur Goods
2371	Fur Goods
2380	Misc Apparel Or Accessories
2381	Gloves, Mittens Or Linings
2384	Robes Or Dressing Gowns
2385	Raincoats Or Other Rain Wear
2386	Leather Clothing
2387	Apparel Belts
2389	Apparel, NEC
2390	Misc Finished Textile Goods
2391	Curtains Or Draperies
2392	Textile House Furnishings
2393	Textile Bags
2394	Canvas Products
2395	Textile Prod, Pleated, Etc.
2396	Apparel Findings
2399	Misc Fabricated Textile Products
2400	Lumber Or Wood Products
2410	Primary Forest Materials
2411	Primary Forest Materials
2420	Sawmill Or Planing Mill Products
2421	Lumber Or Dimension Stock
2429	Misc Sawmill Or Planing Mill
2430	Millwork Or Prefab Wood Products
2431	Millwork Or Cabinetwork
2432	Plywood Or Veneer
2433	Prefab Wood Buildings
2434	Kitchen Cabinets, Wood
2439	Structural Wood Prod, NEC
2440	Wooden Containers
2441	Wood Cont. Or Box Shooks
2490	Miscellaneous Wood Products
2491	Treated Wood Products
2492	Rattan Or Bamboo Ware
2493	Lasts Or Related Products
2494	Cork Products
2495	Hand Tool Handles
2496	Scaffolding Equip Or Ladders
2497	Wooden Ware Or Flatware
2498	Wood Prod, NEC
2499	Misc Wood Products
2500	Furniture Or Fixtures
2510	Household Or Office Furniture
2511	Benches, Chairs, Stools
2512	Tables Or Desks

STCC	Commodity Name
2513	Sofas, Couches, Etc.
2514	Buffets, China Closets, Etc.
2515	Bedsprings Or Mattresses
2516	Beds, Dressers, Chests, Etc.
2517	Cabinets Or Cases
2518	Childrens Furniture
2519	Household Or Office Furn, NEC
2530	Public Building Or Related Furniture
2531	Public Building Or Related Furniture
2540	Lockers, Partitions Or Shelv
2541	Wood Lockers, Partitions, Etc.
2542	Metal Lockers, Partitions, Etc.
2550	Pallets
2551	Pallets
2590	Misc Furniture Or Fixtures
2591	Venetian Blinds, Shades, Etc.
2599	Furniture Or Fixtures, NEC
2600	Pulp, Paper Or Allied Products
2610	Pulp Or Pulp Mill Products
2611	Pulp Or Pulp Mill Products
2620	Paper
2621	Paper
2630	Fiber, Paper Or Pulpboard
2631	Fiber, Paper Or Pulpboard
2640	Converted Paper Or Ppbd Products
2642	Envelopes
2643	Paper Bags
2644	Wallpaper
2645	Die-Cut Paper Or Ppbd Products
2646	Pressed Or Molded Pulp Goods
2647	Sanitary Paper Products
2649	Misc Converted Paper Products
2650	Containers Or Boxes, Paper
2651	Containers Or Boxes, Paper
2654	Sanitary Food Containers
2655	Fibre Cans, Drums Or Tubes
2660	Paper Or Building Board
2661	Paper Or Building Board
2700	Printed Matter
2710	Newspapers
2711	Newspapers
2720	Periodicals
2721	Periodicals
2730	Books
2731	Books
2740	Misc Printed Matter
2741	Misc Printed Matter
2760	Manifold Business Forms
2761	Manifold Business Forms
2770	Greeting Cards, Seals, Etc.
2771	Greeting Cards, Seals, Etc.
2780	Blankbook, Loose Leaf Binder

STCC	Commodity Name
2781	Blankbook, Loose Leaf Binder
2790	Svc Indus For Print Trades
2791	Svc Indus For Print Trades
2800	Chemicals Or Allied Products
2810	Industrial Chemicals
2811	Ind, Inorg, Or Org Chemicals
2812	Potassium Or Sodium Compound
2813	Industrial Gases
2814	Crude Prod Of Coal, Gas, Petroleum
2815	Cyclic Intermediates Or Dyes
2816	Inorganic Pigments
2818	Misc Industrial Organic Chemicals
2819	Misc Indus Inorganic Chemicals
2820	Plastic Mater Or Synth Fibres
2821	Plastic Mater Or Synth Fibres
2830	Drugs
2831	Drugs
2840	Biofuels
2841	Soap Or Other Detergents
2842	Specialty Cleaning Preparations
2843	Surface Active Agents
2844	Cosmetics, Perfumes, Etc.
2850	Paints, Lacquers, Etc.
2851	Paints, Lacquers, Etc.
2860	Gum Or Wood Chemicals
2861	Gum Or Wood Chemicals
2870	Agricultural Chemicals
2871	Fertilizers
2879	Misc Agricultural Chemicals
2890	Misc Chemical Products
2891	Adhesives
2892	Explosives
2893	Printing Ink
2899	Chemical Preparations, NEC
2900	Petroleum Or Coal Products
2910	Prod Of Petroleum Refining
2911	Petroleum Refining Products
2912	Liquefied Gases, Coal Or Petroleum
2950	Paving Or Roofing Materials
2951	Asphalt Paving Blocks Or Mix
2952	Asphalt Coatings Or Felt
2990	Misc Coal Or Petroleum Products
2991	Misc Coal Or Petroleum Products
3000	Rubber Or Misc Plastics
3010	Tires Or Inner Tubes
3011	Tires Or Inner Tubes
3020	Rubber Or Plastic Footwear
3021	Rubber Or Plastic Footwear
3030	Reclaimed Rubber
3031	Reclaimed Rubber
3040	Rub Or Plas Hose Or Belting
3041	Rub Or Plas Hose Or Belting

STCC	Commodity Name
3060	Misc Fabricated Products
3061	Misc Fabricated Products
3070	Misc Plastic Products
3071	Misc Plastic Products
3072	Misc Plastic Products
3100	Leather Or Leather Products
3110	Leather
3111	Leather, Finished Or Tanned
3120	Industrial Leather Belting
3121	Industrial Leather Belting
3130	Boot Or Shoe Cut Stock
3131	Boot Or Shoe Cut Stock
3140	Leather Footwear
3141	Leather Footwear
3142	Leather House Slippers
3150	Leather Gloves Or Mittens
3151	Leather Gloves Or Mittens
3160	Leather Luggage Or Handbags
3161	Leather Luggage Or Handbags
3190	Leather Goods, NEC
3199	Leather Goods, NEC
3200	Clay, Concrete, Glass Or Stone
3210	Flat Glass
3211	Flat Glass
3213	Laminated Safety Glass
3220	Glassware, Pressed Or Blown
3221	Glass Containers
3229	Misc Glassware, Blown Or Pressed
3240	Portland Cement
3241	Portland Cement
3250	Structural Clay Products
3251	Clay Brick Or Tile
3253	Ceramic Floor Or Wall Tile
3255	Refractories
3259	Misc Structural Clay Products
3260	Pottery Or Related Products
3261	Vitreous China Plumbing Fixtures
3262	Vitreous China Kitchen Articles
3264	Porcelain Electric Supplies
3269	Misc Pottery Products
3270	Concrete, Gypsum, Or Plaster
3271	Concrete Products
3273	Ready-Mix Concrete, Wet
3274	Lime Or Lime Plaster
3275	Gypsum Products
3280	Cut Stone Or Stone Products
3281	Cut Stone Or Stone Products
3290	Abrasives, Asbestos Products, Etc.
3291	Abrasive Products
3292	Asbestos Products
3293	Gaskets Or Packing
3295	Nonmetal Minerals, Processed

STCC	Commodity Name
3296	Mineral Wool
3299	Misc Nonmetallic Minerals
3300	Primary Metal Products
3310	Steel Mill Products
3311	Blast Furnace Or Coke
3312	Primary Iron Or Steel Products
3313	Electrometallurgical Products
3315	Steel Wire, Nails Or Spikes
3316	Cold Finishing Of Steel Shapes
3320	Iron Or Steel Forgings
3321	Iron Or Steel Castings
3330	Nonferr Primary Smelter Products
3331	Primary Copper Smelter Products
3332	Primary Lead Smelter Products
3333	Primary Zinc Smelter Products
3334	Primary Aluminum Smelter Products
3339	Misc Prim Nonferr Smelter Products
3350	Nonferrous Metal Basic Shapes
3351	Copper Or Alloy Basic Shapes
3352	Aluminum Or Alloy Basic Shapes
3356	Misc Nonferrous Basic Shapes
3357	Nonferrous Wire
3360	Nonferrous Metal Castings
3361	Aluminum Or Alloy Castings
3362	Copper Or Alloy Castings
3369	Misc Nonferrous Castings
3390	Misc Primary Metal Products
3391	Iron Or Steel Forgings
3392	Nonferrous Metal Forgings
3399	Primary Metal Products, NEC
3400	Fabricated Metal Products
3410	Metal Cans
3411	Metal Cans
3420	Cutlery, Hand Tools Or Hardware
3421	Cutlery, Not Electrical
3423	Edge Or Hand Tools
3425	Hand Saws Or Saw Blades
3428	Builders Or Cabinet Hardware
3429	Misc Hardware
3430	Plumbing Or Heating Fixtures
3431	Metal Sanitary Ware
3432	Plumbing Fixtures
3433	Heating Equip, Not Electrical
3440	Fabricated Structural Metal Products
3441	Fabricated Structural Metal Products
3442	Metal Doors, Sash, Etc.
3443	Fabricated Plate Products
3444	Sheet Metal Products
3446	Architectural Metal Work
3449	Misc Metal Work
3450	Bolts, Nuts, Screws, Etc.
3452	Bolts, Nuts, Screws, Etc.

STCC	Commodity Name
3460	Metal Stampings
3461	Metal Stampings
3480	Misc Fabricated Wire Prod
3481	Misc Fabricated Wire Products
3490	Misc Fabricated Metal Products
3491	Metal Shipping Containers
3492	Metal Safes Or Vaults
3493	Steel Springs
3494	Valves Or Pipe Fittings
3499	Fabricated Metal Products, NEC
3500	Machinery
3510	Engines Or Turbines
3511	Steam Engines, Turbines, Etc.
3519	Misc Internal Combustion Engines
3520	Farm Machinery Or Equipment
3522	Farm Machinery Or Equipment
3523	Farm Machinery Or Equipment
3524	Lawn Or Garden Equipment
3530	Constr Machinery Or Equipment
3531	Constr Machinery Or Equipment
3532	Mining Machinery Or Parts
3533	Oil Field Machinery Or Equipment
3534	Elevators Or Escalators
3535	Conveyors Or Parts
3536	Hoists, Industr Cranes, Etc.
3537	Industrial Trucks, Etc.
3540	Metalworking Machinery
3541	Machine Tools, Metal Cutting
3542	Machine Tools, Metal Forming
3544	Special Dies, Tools, Jigs, Etc.
3545	Machine Tool Accessories
3548	Metalworking Machinery
3550	Special Industry Machinery
3551	Food Prod Machinery
3552	Textile Machinery Or Parts
3553	Woodworking Machinery
3554	Paper Industries Machinery
3555	Printing Trades Machinery
3559	Misc Special Industry Mach
3560	General Industrial Machinery
3561	Industrial Pumps
3562	Ball Or Roller Bearings
3564	Ventilating Equipment
3566	Mech Power Transmission Equipment
3567	Industrial Process Furnaces
3569	Misc General Industrial
3570	Office Or Computing Machinery
3572	Typewriters Or Parts
3573	Electronic Data Proc Equipment
3574	Accounting Or Calculating Equipment
3576	Scales Or Balances
3579	Misc Office Machines

STCC	Commodity Name
3580	Service Industry Machines
3581	Automatic Merchandising Machines
3582	Commercial Laundry Equipment
3585	Refrigeration Machinery
3589	Misc Service Industry Machinery
3590	Misc Machinery Or Parts
3592	Carburetors, Pistons, Etc.
3599	Misc Machinery Or Parts
3600	Electrical Equipment
3610	Electric Trans Or Distributors
3611	Electric Measuring Instrmnts
3612	Electrical Transformers
3613	Switchgear Or Switchboards
3620	Industrial Electrical Equipment
3621	Motors Or Generators
3622	Industrial Controls Or Parts
3623	Welding Apparatus
3624	Carbon Prod For Electric Uses
3629	Misc Electrical Industrial Equipment
3630	Household Appliances
3631	Household Cooking Equipment
3632	Household Refrigerators
3633	Household Laundry Equipment
3634	Electric Housewares Or Fans
3635	Household Vacuum Cleaners
3636	Sewing Machines Or Parts
3639	Misc Household Appliances
3640	Electric Lighting Or Wire Equipment
3641	Electric Lamps
3642	Lighting Fixtures
3643	Current Carrying Wiring Equipment
3644	Noncurrent Wiring Devices
3650	Radio Or Tv Receiving Sets
3651	Radio Or Tv Receiving Sets
3652	Phonograph Records
3660	Communication Equipment
3661	Telephone Or Telegraph Equipment
3662	Radio Or Tv Transmitting Equipment
3670	Electronic Components
3671	Electronic Tubes
3674	Solid State Semiconducts
3679	Misc Electronic Components
3690	Misc Electrical Machinery
3691	Storage Batteries Or Plates
3692	Primary Batteries
3693	X-Ray Equipment
3694	Elec Eq For Intern Comb Engine
3699	Electrical Equipment, NEC
3700	Transportation Equipment
3710	Motor Vehic Or Equipment
3711	Motor Vehicles
3712	Passenger Motor Car Bodies

STCC	Commodity Name
3713	Motor Bus Or Truck Bodies
3714	Motor Vehicle Parts Or Accessories
3715	Truck Trailers
3720	Aircraft Or Parts
3721	Aircraft
3722	Aircraft Or Missile Engines
3723	Aircraft Propellers Or Parts
3729	Misc Aircraft Parts
3730	Ships Or Boats
3732	Ships Or Boats
3740	Railroad Equipment
3741	Locomotives Or Parts
3742	Railroad Cars
3750	Motorcycles, Bicycles Or Parts
3751	Motorcycles, Bicycles Or Parts
3760	Missile Or Space Veh Parts
3769	Missile Or Space Veh Parts
3790	Misc Transportation Equipment
3791	Trailer Coaches
3799	Transportation Equipment, NEC
3800	Instrum, Photo Equipment, Optical Eq
3810	Engrg, Lab Or Scientific Equipment
3811	Engrg, Lab Or Scientific Equipment
3820	Measuring Or Controlling Equipment
3821	Mech Measuring Or Control Equipment
3822	Automatic Temperature Controls
3830	Optical Instruments Or Lenses
3831	Optical Instruments Or Lenses
3840	Medical Or Dental Instruments
3841	Surgical Or Medical Instruments
3842	Orthopedic Or Prosthetic Supplies
3843	Dental Equipment Or Supplies
3850	Ophthalmic Or Opticians Goods
3851	Ophthalmic Or Opticians Goods
3860	Photographic Equip Or Supplies
3861	Photographic Equip Or Supplies
3870	Watches, Clocks, Etc.
3871	Watches, Clocks, Etc.
3900	Misc Manufacturing Products
3910	Jewelry, Silverware, Etc.
3911	Jewelry, Precious Metal, Etc.
3914	Silverware Or Plated Ware
3930	Musical Instruments Or Parts
3931	Musical Instruments Or Parts
3940	Toys, Amusement, Athletic Equipment
3941	Games Or Toys
3942	Dolls Or Stuffed Toys
3943	Childrens Vehic Or Parts, NEC
3949	Sporting Or Athletic Goods
3950	Office Or Art Materials
3951	Pens Or Parts
3952	Pencils, Crayons, Or Artists Materials

STCC	Commodity Name
3953	Marking Devices
3955	Carbon Paper Or Inked Ribbons
3960	Costume Jewelry Or Novelties
3961	Costume Jewelry Or Novelties
3962	Feathers, Plumes, Etc.
3963	Buttons
3964	Apparel Fasteners
3990	Misc Manufactured Products
3991	Brooms, Brushes, Etc.
3992	Linoleum Or Other Coverings
3993	Signs Or Advertising Displays
3994	Morticians Goods
3996	Matches
3997	Furs, Dressed Or Dyed
3999	Manufactured Prod, NEC
4000	Waste Or Scrap Materials
4010	Ashes
4011	Ashes
4020	Waste Or Scrap
4021	Metal Scrap Or Tailings
4022	Textile Scrap Or Sweepings
4023	Wood Scrap Or Waste
4024	Paper Waste Or Scrap
4025	Chemical Or Petroleum Waste
4026	Rubber Or Plastic Scrap
4027	Stone, Clay Or Glass Scrap
4028	Leather Waste Or Scrap
4029	Misc Waste Or Scrap
4100	Misc Freight Shipments
4110	Misc Freight Shipments
4111	Misc Freight Shipments
4120	Special Commodities
4121	Special Commodities
4192	Special Commodities
4200	Shipping Containers
4210	Shipping Containers
4211	Shipping Containers
4220	Semi-Trailers Returned Empty
4221	Semi-Trailers Returned Empty
4230	Empty Equipment, Reverse Route
4231	Empty Equipment, Reverse Route
4300	Mail Or Contract Traffic
4310	Mail And Express Traffic
4311	Mail And Express Traffic
4320	Other Contract Traffic
4321	Other Contract Traffic
4400	Freight Forwarder Traffic
4410	Freight Forwarder Traffic
4411	Freight Forwarder Traffic
4500	Shipper Association Traffic
4510	Shipper Association Traffic
4511	Shipper Association Traffic

STCC	Commodity Name
4600	Misc Mixed Shipments
4610	Fak Shipments
4611	Fak Shipments
4620	Mixed Shipments, Multi-Stcc
4621	Mixed Shipments, Multi-Stcc
4700	Small Packaged Freight Shipments
4710	Small Packaged Freight Shipments
4711	Small Packaged Freight Shipments
4804	Waste Nonflammable Compressed Gases
4805	Waste Flammable Compressed Gases
4807	Waste Flammable Liquids
4808	Waste Flammable Liquids
4809	Waste Flammable Liquids
4810	Waste Flammable Liquids, Misc
4812	Flammable Liquids
4813	Waste Combustible Liquids
4814	Combustible Liquids
4815	Waste Combustible Liquids
4816	Waste Flammable Solids
4817	Waste Flammable Solids
4818	Waste Oxidizing Materials
4820	Waste Poisonous Liquids
4821	Waste Poison B, Organic
4823	Waste Poisonous Materials
4825	Waste Etiologic Agents
4829	Waste Radioactive Materials
4830	Waste Corrosive Materials
4831	Waste Corrosive Materials
4832	Waste Corrosive Materials
4835	Waste Corrosive Materials
4836	Waste Corrosive Materials
4845	Waste Other Regulated Materials, Group C
4850	Freight All Kinds, Hazardous Wastes
4860	Waste Other Regulated Materials Group E
4861	Waste Miscellaneous Hazardous Materials
4862	Waste Misc Hazardous Materials
4863	Waste Miscellaneous Hazardous Materials
4866	Waste Miscellaneous Hazardous Materials
4870	Hazardous Waste, N.O.S.
4875	Waste Stream Other Regulated
4900	Hazardous Materials
4901	Ammunition & Class A Explosives
4902	Class B Explosives
4903	Class C Explosives
4904	Non Flammable Compressed Gases
4905	Flammable Compressed Gases
4906	Flammable Liquids
4907	Flammable Liquids
4908	Flammable Liquids
4909	Flammable Liquids
4910	Flammable Liquids
4912	Combustible Liquids

STCC	Commodity Name
4913	Combustible Liquids
4914	Combustible Liquids
4915	Combustible Liquids
4916	Combustible Solids
4917	Flammable Solids
4918	Oxidizing Materials
4919	Organic Peroxides
4920	Poisons A
4921	Poisons B, Organic
4923	Poisons B, Inorganic
4925	Irritating Materials - Etiologic Agts
4926	Radioactive Materials
4927	Radioactive Materials, Fissile Cl iii
4928	Radioactive Materials, Fissile Cl ii
4929	Radioactive Materials, Fissile Cl I
4930	Corrosive Materials
4931	Corrosive Materials
4932	Corrosive Materials
4933	Corrosive Materials
4934	Corrosive Materials
4935	Corrosive Materials
4936	Corrosive Materials
4940	Other Regulated Materials Group A
4941	Other Regulated Materials Group A
4944	Other Regulated Materials Group B
4945	Other Regulated Material
4950	Mixed Loads
4960	Division 9 Environmentally Hazardous
4961	Other Regulated Materials Group E
4962	Other Regulated Materials Group E
4963	Other Regulated Materials Group E
4966	Other Regulated Materials Group E
5000	Secondary Traffic
5010	Warehouse & Distribution Center
5020	Rail Intermodal Drayage
5021	Rail Intermodal Drayage To Ramp
5022	Rail Intermodal Drayage From Ramp
5030	Air Freight Drayage
5031	Air Freight Drayage To Airport
5032	Air Freight Drayage From Airport
6000	Unclassified

Appendix C
Market Area Counties

Counties located in the Competitive-Free Market Area

Pennsylvania	New York	Ohio
ERIE	Erie	ASHTABULA
McKEAN	Chautauqua	TRUMBULL
WARREN	Cattaraugus	GEAUGA
CRAWFORD		LAKE
FOREST		
VENANGO		
MERCER		
CLARION		

Counties located in the Competitive Market Area

Pennsylvania	New York	Ohio
ERIE	Orleans	ASHTABULA
POTTER	Niagara	STARK
McKEAN	Genesee	SUMMIT
WARREN	Livingston	TRUMBULL
CRAWFORD	Wyoming	CARROLL
ELK	Erie	COLUMBIANA
CAMERON	Chautauqua	WAYNE
FOREST	Allegany	CUYAHOGA
VENANGO	Steuben	GEAUGA
CLINTON	Cattaraugus	JEFFERSON
MERCER		LAKE
CLARION		LORAIN
JEFFERSON		MAHONING
CLEARFIELD		MEDINA
BUTLER		PORTAGE
ARMSTRONG		
LAWRENCE		
INDIANA		
BEAVER		
CAMBRIA		
WESTMORELAND		
ALLEGHENY		
WASHINGTON		

Appendix D
Truck Mode Scenarios

Scenario1_ERT_CompFreeOutbound2015
CompFreeOutbound2015SUMMARY

Tons	Value	Units	Commodity Group
81.4161262	8173744.901	5.875304817	aircraft
861.6790508	885256.7852	37.72946801	Alcohol / Liquors / Soft Drinks
2.388813696	12824.30072	0.154876669	Animals/Livestock
9267.043854	21688150.89	401.2881146	Bread / Bakery / Candy
2975.797979	3190244.358	128.2018954	Canned, dried, or pickled foods
16824.28639	47563570.17	1176.246532	Chemicals / Plastics / Drugs
423.7860355	1621239.061	23.85660495	Construction Materials
1.0633789	970.85822	0.046269152	Cooking Oils
63979.68091	59228908.74	2818.930247	Dairy / Dairy products
812.0314693	2776659.821	35.34279986	Dry foods / pastas / etc.
73.58362316	152123.1503	4.770730489	Eggs and other farm products
5426.245365	49854631.65	323.014369	Electric instruments / Parts / Supplies
36970.74042	411916507.2	2900.635647	Engines / Machinery
228.4755704	1560676.942	11.52932064	Fabrics / apparel / drapery / etc.
2300.4281	2457314.732	89.92976788	Forest products / lumber
81.45586789	225410.7842	3.547743082	Fresh or Frozen meat / meat products
10.94254979	19232.50028	0.516358172	Fruits
2090.49527	9193355.398	138.0807109	Furniture
33.69927226	298944.6761	1.732691348	games / toys / sports equipment
410.382966	2101080.725	22.03828336	Glass
64.62535679	26387.48974	2.808254418	Grain Mill products
197.8265519	107410.3042	12.84973118	Grains, nuts, seeds
5.050168626	224369.3509	0.22158091	Guns and Ammunition
4131.318064	21481324.04	231.9153131	Hardware (screws, etc.)
1136.134755	11872129.22	67.50309485	Household equipment / appliances
1367.755935	29798412.85	86.16040492	Industrial parts
49.94073716	186707.907	2.630286205	Jewelry / clocks / etc.
18.94062801	144681.1028	1.242359184	Leather / Leather products
2063847.784	1906422541	154294.4343	Locomotives / railcars / parts
31.99099913	87199.67937	1.556114574	MAIL AND EXPRESS TRAFFIC
1257.698273	5032419.965	70.22300041	Metal doors / other metal products
423.8158761	3773750.069	22.78659525	Metal Hand tools & hardware
468.7064058	4957406.032	26.03696136	Metal plumbing/heating fixtures/supplies, misc
661.9116367	1503115.752	37.82471889	Metal shipping containers / safes
79870.2262	108479937.4	3222.449528	Minerals and Mineral Products / Metals / Metal Products
21.84126395	124648.3387	1.062408522	MISC FREIGHT SHIPMENTS
931.176505	5522240.054	47.574622	Misc. Household items
1320.977162	15782794.27	82.64738987	Motors / Generators
595.5862267	2612066.829	31.08626877	musical instruments / parts
306.3659144	51269.71418	16.1069469	Natural Gas
390.3437506	3887943.191	29.7840983	Office Equipment / Machines
608.1021454	1857892.117	29.22589372	Paints, etc.
2861.43269	6515513.426	143.653875	Paper / Paper Products / Pulp
7.21154008	30074.7283	0.37485381	Pens / crayons / ink etc.
601.5519158	1049873.419	26.19607159	Pet food / products
381190.8007	210141717	16067.87632	Petroleum / Petroleum Products

Scenario1_ERT_CompFreeOutbound2015
CompFreeOutbound2015SUMMARY

Tons	Value	Units	Commodity Group
4794.474323	28146151.24	279.8459881	Radio / TV / Etc.
2630.381414	19805648.83	208.7048227	Scientific / Medical equipment
18965.2993	5034122.039	784.3249572	Scrap materials (metal, ashes, etc.)
0	0	4150.507535	SEMI-TRAILERS RETURNED EMPTY
2.993019556	46505.55503	0.220764878	ships / boats
770.1976055	2988917.069	40.03375151	SIGNS OR ADVERTISING DISPLAYS
3153.757707	423655.9918	129.7291007	Stone, sand, gravel, etc.
2422.655893	13016601.06	200.92229	Tires / Rubber / Etc.
500.3768359	7994649.784	37.61348989	Tools / Misc Metal parts
12.20428244	11494.16496	0.706096456	Vegetables
1084.80952	9614431.144	77.55645019	Vehicles / Vehicle parts
299424.2046	335206791.2	14564.67057	WAREHOUSE & DISTRIBUTION CENTER
3018986.093	3386883641	203154.5345	TOTALS

Scenario2_ERT_CompFreeInbound2015

Tons	Value	Units	Commodity Group
0.080105639	1209.92509	0.005897432	aircraft
35459.76041	35762000.41	1543.287894	Alcohol / Liquors / Soft Drinks
72.05880525	132647.2016	4.671870273	Animals/Livestock
8306.255805	10586104.72	367.999445	Bread / Bakery / Candy
15449.77642	14060581.96	674.2739524	Canned, dried, or pickled foods
657746.9087	1094114501	32367.3079	Chemicals / Plastics / Drugs
51055.40631	23864569.09	3241.496238	Construction Materials
31446.56181	16429828.91	1367.714727	Cooking Oils
106500.9183	94155614.58	6725.934713	Dairy / Dairy products
4524.685263	6099393.955	196.8873095	Dry foods / pastas / etc.
2540.921738	6630063.11	132.0493469	Eggs and other farm products
8236.802491	73336232.01	498.3655751	Electric instruments / Parts / Supplies
23607.06931	207695157.5	1754.077345	Engines / Machinery
138.1247723	164002.2207	6.471986078	Explosives
1308.253122	9783831.448	71.71465304	Fabrics / apparel / drapery / etc.
16621.5775	39323588.72	724.6687409	Fish / Seafood
190129.4886	32107931.57	7553.059899	Forest products / lumber
13389.2956	43021841.92	583.2250015	Fresh or Frozen meat / meat products
13499.02916	19323817.6	586.5832981	Frozen Foods
50688.47239	61373467.54	2394.111698	Fruits
2809.493823	11919799.91	187.2475502	Furniture
2047.501078	17581678.98	105.4024335	games / toys / sports equipment
1165.929894	1968005.492	62.82451107	Glass & Glass Products
24129.00145	15507275.24	1070.911316	Grain Mill products
3283.712778	3506756.122	203.6733297	Grains, nuts, seeds
673.2254607	12236073.76	30.05011626	Guns and Ammunition
2999.413394	11174955.45	166.6589733	Hardware (screws, etc.)
10762.04074	69273371.93	630.7690889	Household equipment / appliances
1532.975155	31663670.03	96.22904896	Industrial parts
1897.197384	4157579.885	99.37981294	Jewelry / clocks / etc.
309.8515122	5500440.212	21.04665273	Leather / Leather products
4106.681494	13495460.89	308.2706825	Locomotives / railcars / parts
99.24777911	683834.971	4.8276365	MAIL AND EXPRESS TRAFFIC
1590.991967	4905516.115	88.79664815	Metal doors / other metal products
1778.305646	5378866.876	99.27223566	Metal Hand tools & hardware
278.2614043	1097547.331	15.70250192	Metal plumbing/heating fixtures/supplies, misc
226.8334048	541343.2765	12.95128188	Metal shipping containers / safes
19561.00186	70756102.5	799.886688	Minerals and Mineral Products / Metals / Metal Products
51.84700421	216701.5617	2.521955613	MISC FREIGHT SHIPMENTS
1895.597418	10149378.18	97.66394719	Misc. Household items
7.867733381	42661.59163	0.410111425	Morticians Goods
1864.790302	16131689.58	116.6712448	Motors / Generators
150.3866185	690835.0043	7.849340072	musical instruments / parts
7924.014341	83229392.46	587.6496626	Office Equipment / Machines
4559.384362	17443318.98	179.6489851	Ores / Coal
51.4538211	158485.2674	2.472913283	Paints, etc.

Scenario2_ERT_CompFreeInbound2015

Tons	Value	Units	Commodity Group
5079.235167	9762292.58	223.6325631	Paper / Paper Products / Pulp
419.0200282	1642576.941	21.71540207	Pens / crayons / ink etc.
1209.003818	579884.9401	52.64907354	Pet food / products
349525.8509	292771173	16607.87379	Petroleum / Petroleum Products
565.2995743	10092811.35	44.69859536	Photographic Equip or Supplies
6670.381419	97926936.53	392.445595	Radio / TV / Etc.
3264.389854	41942035.01	259.6689929	Scientific / Medical equipment
155.5483825	269325.9617	7.706219889	Scrap materials (metal, ashes, etc.)
0	0	6445.302574	SEMI-TRAILERS RETURNED EMPTY
7.500387403	85658.45246	0.553227974	ships / boats
2598.8336	9719716.935	135.0835922	SIGNS OR ADVERTISING DISPLAYS
25933.80932	2033715.763	1066.781326	Stone, sand, gravel, etc.
918.6450001	5357024.63	76.23367229	Tires / Rubber / Etc.
338.2678124	5426286.517	15.22130561	Tobacco products
605.6098728	8450479.343	45.91863832	Tools / Misc Metal parts
2870.739384	4833561.526	134.8099175	Vegetables
2957.210804	19695655.38	209.9934738	Vehicles / Vehicle parts
177174.2938	198347445.3	8618.158542	WAREHOUSE & DISTRIBUTION CENTER
1906772.094	2906313707	100151.1427	TOTALS

Scenario3_ERT_CompetitiveOutbound2015

Tons	Value	Units	Commodity Group
72.15618871	8565642.34	5.201640619	aircraft
2525.086496	2598009.008	110.5569841	Alcohol / Liquors / Soft Drinks
9.296981562	47636.97005	0.602761738	Animals/Livestock
38676.1741	91839736.59	1671.213187	Bread / Bakery / Candy
1962.187248	3093547.258	84.44528	Canned, dried, or pickled foods
180037.7407	417419474	10599.53177	Chemicals / Plastics / Drugs
117819.6321	115628921	6527.355809	Construction Materials
920.1591659	1073969.026	40.19820393	Cooking Oils
118176.8817	106383069	5204.391099	Dairy / Dairy products
1300.374941	4006367.383	56.4953786	Dry foods / pastas / etc.
561.8424629	770289.6569	36.34834794	Eggs and other farm products
156171.2053	929793765.3	9331.382807	Electric instruments / Parts / Supplies
66905.42991	694004486.7	5079.161345	Engines / Machinery
10.4940208	17571.30758	0.49170875	Explosives
7873.145323	40931300.64	440.5820564	Fabrics / apparel / drapery / etc.
3.42067382	25407.8912	0.147521534	Fish / Seafood
44868.0152	60656960.31	1746.357934	Forest products / lumber
1908.843868	4870903.749	82.95783593	Fresh or Frozen meat / meat products
1209.847137	2151046.44	52.5572429	Frozen Foods
48.73340531	123508.7846	2.312024707	Fruits
8165.889728	36844919.51	542.8574736	Furniture
2671.853007	23556169.45	137.6327344	games / toys / sports equipment
36599.55043	34272595.29	1959.367128	Glass
237765.22	157148209.7	12852.76915	Glass & Glass Products
3770.617144	3420902.658	163.7706978	Grain Mill products
4730.403149	8045506.026	306.8192838	Grains, nuts, seeds
302.8104303	11570267.97	13.51088626	Guns and Ammunition
36697.13115	177440318.4	2031.160775	Hardware (screws, etc.)
8114.024178	90418487.2	481.4982119	Household equipment / appliances
14062.20574	244830233.5	873.0825357	Industrial parts
1391.430682	9543648.673	93.60811341	Leather / Leather products
259718.0828	241493519.5	19363.23067	Locomotives / railcars / parts
3874.187963	11350045.17	188.4492669	MAIL AND EXPRESS TRAFFIC
34206.92393	93928807.87	1911.690473	Metal doors / other metal products
2133.950744	21755671.92	115.041052	Metal Hand tools & hardware
3563.374462	22274946.93	196.9745766	Metal plumbing/heating fixtures/supplies, misc
2486.96457	5359178.319	142.048987	Metal shipping containers / safes
429795.6975	709069159.2	17953.47251	Minerals and Mineral Products / Metals / Metal Products
1606.378449	6483096.57	78.13788153	MISC FREIGHT SHIPMENTS
9676.450089	51957700.48	496.1008735	Misc. Household items
111.513042	1824134.601	5.812700028	Morticians Goods
3997.765619	47449722.48	250.1215778	Motors / Generators
1024.423818	4548578.385	53.46919404	musical instruments / parts
1180.481717	197795.7909	62.06290018	Natural Gas
27375.12813	229465080	2073.098274	Office Equipment / Machines
11124.11033	8654254.084	439.9812988	Ores / Coal

Scenario3_ERT_CompetitiveOutbound2015

Tons	Value	Units	Commodity Group
15332.71094	54990186.67	736.9028282	Paints, etc.
79435.38362	165941548.2	3474.861443	Paper / Paper Products / Pulp
4760.403064	14722520.16	247.2953282	Pens / crayons / ink etc.
246.3962779	403516.7241	10.7299374	Pet food / products
306672.4766	81003129.06	13059.61001	Petroleum / Petroleum Products
3651.660414	64717383.65	288.7391207	Photographic Equip or Supplies
42684.71419	423291788.5	2508.113144	Radio / TV / Etc.
34173.04786	672141890.5	2713.413731	Scientific / Medical equipment
357712.4056	93024109.54	16512.24456	Scrap materials (metal, ashes, etc.)
0	0	61820.7175	SEMI-TRAILERS RETURNED EMPTY
75.37475746	1242883.574	5.559635758	ships / boats
16483.96939	61970346.79	856.8127725	SIGNS OR ADVERTISING DISPLAYS
4956.089135	571935.6653	203.8675962	Stone, sand, gravel, etc.
21770.31849	69611931	1812.19137	Tires / Rubber / Etc.
43555.43432	139352125.9	3625.043117	Tobacco products
5527.740906	80373666.88	417.6362489	Tools / Misc Metal parts
303.2149509	214713.9912	14.63830025	Vegetables
10204.34426	107062916.6	684.3137087	Vehicles / Vehicle parts
1803315.168	2018819693	87717.32887	WAREHOUSE & DISTRIBUTION CENTER
4638068.088	8786360849	300568.0794	TOTALS

Scenario4_ERT_CompetitiveInbound2015.xlsx

Tons	Value	Units	Commodity Group
143.7180182	25890836.26	10.25270933	aircraft
261420.6431	229409304.2	11389.99582	Alcohol / Liquors / Soft Drinks
926.2493035	1650667.589	60.05257134	Animals/Livestock
45141.91928	59879008.08	1998.405634	Bread / Bakery / Candy
181603.3295	167238515	7901.943997	Canned, dried, or pickled foods
2075062.762	3255058274	106166.3655	Chemicals / Plastics / Drugs
428516.2134	303057782.6	26793.5563	Construction Materials
123248.4879	67679089.43	5366.835882	Cooking Oils
494748.6502	438117929.8	31238.01069	Dairy / Dairy products
3954.207946	84991530.94	315.8150558	DENTAL EQUIPMENT OR SUPPLIES
20957.98139	28875110.96	911.9526274	Dry foods / pastas / etc.
31496.81521	89269030.71	1455.33721	Eggs and other farm products
70251.0065	615548790.1	4255.842927	Electric instruments / Parts / Supplies
201374.8591	1639645726	14900.6746	Engines / Machinery
1366.721216	1621145.405	64.03920397	Explosives
11933.91112	68356719.04	601.0663702	Fabrics / apparel / drapery / etc.
75799.58843	159934995.4	3306.668894	Fish / Seafood
422131.3891	79255828.46	16778.53223	Forest products / lumber
97425.50196	339472683.6	4239.848743	Fresh or Frozen meat / meat products
28981.17023	34011021.14	1260.313589	Frozen Foods
207273.4776	267571127.3	9793.612822	Fruits
33915.50677	148684010.3	2247.053853	Furniture
10955.92398	94347909.62	563.870535	games / toys / sports equipment
12567.47061	9361356.055	675.7412525	Glass & Glass Products
205049.1699	110375507.5	9005.899298	Grain Mill products
13176.29604	14552398.32	829.3946979	Grains, nuts, seeds
3744.209215	65385012.88	167.1266528	Guns and Ammunition
27779.65821	110480761	1546.204475	Hardware (screws, etc.)
54683.13799	355559198.4	3212.928651	Household equipment / appliances
5906.47161	109356482.8	367.9906115	Industrial parts
11455.81078	29071677.45	603.946153	Jewelry / clocks / etc.
2298.968407	35483565.7	153.2972209	Leather / Leather products
2736.874969	10446303.84	205.2615841	Locomotives / railcars / parts
20.04784173	398433.1865	1.466847042	Machinery
820.2061091	4042655.767	39.8966806	MAIL AND EXPRESS TRAFFIC
42490.03884	113023875	2374.077971	Metal doors / other metal products
8208.28943	28944308.73	455.676409	Metal Hand tools & hardware
40555.59032	124856369.9	2295.808419	Metal plumbing/heating fixtures/supplies, misc
16076.33131	38343471.59	915.5864844	Metal shipping containers / safes
110359.4594	326334159.9	4575.726824	Minerals and Mineral Products / Metals / Metal Products
3268.29356	10363095.21	158.9771936	MISC FREIGHT SHIPMENTS
15275.90428	85448089.75	783.6125227	Misc. Household items
1399.158878	22239751.35	72.93219399	Morticians Goods
9683.041119	88724898.08	605.82279	Motors / Generators
1390.426348	6379411.197	72.57247719	musical instruments / parts
42013.38698	503315612	3092.03662	Office Equipment / Machines

Scenario4_ERT_CompetitiveInbound2015.xlsx

Tons	Value	Units	Commodity Group
192069.5737	188811909.8	7567.91247	Ores / Coal
237.7547183	889528.7384	11.42668922	Paints, etc.
47685.1298	114316641.1	2187.665751	Paper / Paper Products / Pulp
4333.680201	21451262.07	223.8918669	Pens / crayons / ink etc.
8164.736115	3653499.961	355.5537097	Pet food / products
582684.0275	464443977.3	25312.19568	Petroleum / Petroleum Products
3454.402206	61728997.57	273.1417781	Photographic Equip or Supplies
48408.22003	831933272.4	2848.145405	Radio / TV / Etc.
41307.75481	433933325.4	3279.494645	Scientific / Medical equipment
716.2856657	1883182.384	35.31759427	Scrap materials (metal, ashes, etc.)
0	0	27243.04963	SEMI-TRAILERS RETURNED EMPTY
16687.53063	68273683.75	811.7192397	Shipping Containers
230.1564507	3947657.584	16.97632081	ships / boats
27526.78276	102900072.5	1430.802154	SIGNS OR ADVERTISING DISPLAYS
337501.8751	21958882.81	13883.06253	Stone, sand, gravel, etc.
13401.29999	75923150.61	1114.648461	Tires / Rubber / Etc.
3565.551465	56746993.76	160.4728543	Tobacco products
2516.74032	32810147.26	193.2729071	Tools / Misc Metal parts
91412.22688	115981778	4300.077075	Vegetables
130488.0007	893518389.6	9302.290263	Vehicles / Vehicle parts
1171643.119	1311659900	56991.37197	WAREHOUSE & DISTRIBUTION CENTER
8183623.123	15208819684	441374.5208	

Appendix E
IMX & FTZ Scenarios

Scenario5_ERT_Competitive_IMX_2015.xlsx
IMX to CMA SUMMARY

Tons	Value	Units	Commodity Group
6590.53588	7646932.75	659.053612	Alcohol / Liquors / Soft Drinks
2079.76761	5125395.35	207.976757	Bread / Bakery / Candy
2140.84677	1760840.41	167.248941	Canned, dried, or pickled foods
38222.31	135644019	3510.94712	Chemicals / Plastics / Drugs
18235.7502	27120333	1440.67782	Dry foods / pastas / etc.
2066.92102	7037604.8	121.583589	Eggs and other farm products
950.13977	10398672	43.188171	Electric instruments / Parts / Supplies
6787.85793	59278608.3	360.921852	Engines / Machinery
5133.98874	23880543.1	446.43378	Fabrics / apparel / drapery / etc.
1779.02623	927027.844	115.958198	Forest products / lumber
4803.84305	0	328.467896	Freight Forwarder Traffic
3388.4534	6641916.5	338.84534	Frozen Foods
1519.2275	1128763	151.92276	Fruits
20196.4727	76762085.4	1982.49666	Furniture
2895.12525	26032449.5	284.764882	games / toys / sports equipment
3461.63506	7197988.7	293.976222	Glass & Glass Products
3908.08888	1979106.5	301.80951	Grain Mill products
845.34176	1271189.57	84.53418	Grains, nuts, seeds
1862.83008	7886833.3	135.959167	Hardware (screws, etc.)
7985.17562	58479764.7	792.77366	Household equipment / appliances
464.01395	0	46.401398	Jewelry / clocks / etc.
840112.949	4253398505	73937.6141	MAIL AND EXPRESS TRAFFIC
1789.06275	3767227.9	128.014801	Minerals and Mineral Products / Metals / Metal Products
4430.8778	15071233	482.57087	MISC FREIGHT SHIPMENTS
5414.9631	0	541.49632	Mixed Shipments, Multi-stcc
4321.31937	33947812.8	432.131936	Office Equipment / Machines
792.76361	2367576	41.7244	Paints, etc.
13851.1742	27575980.5	1074.61173	Paper / Paper Products / Pulp
3819.8037	4631008.1	259.59831	Petroleum / Petroleum Products
463.33536	5052618.5	46.333538	Radio / TV / Etc.
986.15988	8839263.8	98.615989	Scientific / Medical equipment
4089.15805	1177749.26	408.915799	Scrap materials (metal, ashes, etc.)
0	0	22668.0158	SEMI-TRAILERS RETURNED EMPTY
14542.8006	550004.293	838.059691	Stone, sand, gravel, etc.
1161.0157	7233871.5	116.10157	Tires / Rubber / Etc.
403.81955	480124.41	40.381958	Vegetables
3060.20205	21051255.8	306.020202	Vehicles / Vehicle parts
1034556.76	4851344304	113236.148	TOTALS

Scenario5_ERT_Competitive_IMX_2015.xlsx
IMX from CMA SUMMARY

Tons	Value	Units	Commodity Group
11025.4983	16706650.6	799.025065	Alcohol / Liquors / Soft Drinks
3312.7732	7713826	331.27731	Bread / Bakery / Candy
1624.94092	860902.61	128.121563	Canned, dried, or pickled foods
53576.1821	131711756	3396.69891	Chemicals / Plastics / Drugs
5992.1211	4576197.2	287.617806	Construction Materials
2572.8169	7499905	257.28171	Dairy / Dairy products
32138.287	50008667.3	1809.11612	Dry foods / pastas / etc.
393.75549	1820645.9	87.501221	Electric instruments / Parts / Supplies
10435.9818	53494362.5	1030.12107	Engines / Machinery
4249.04106	22621983.9	272.372555	Fabrics / apparel / drapery / etc.
9140.79545	1016667.18	518.514031	Forest products / lumber
10182.505	0	574.818818	Freight Forwarder Traffic
446.39774	292178.97	44.639774	Fresh or Frozen meat / meat products
1694.2267	3320958.3	169.42267	Frozen Foods
1934.0574	5297733	87.911697	Fruits
4481.73657	20565135.2	421.824596	Furniture
2985.12437	24354407.8	331.680477	games / toys / sports equipment
464.09604	310260.56	46.409603	Glass & Glass Products
1821.04382	1742717.74	165.429646	Grain Mill products
430.11462	0	47.790512	Guns and Ammunition
538.12457	512834.06	53.812454	Locomotives / railcars / parts
790316.667	3998546481	65338.9994	MAIL AND EXPRESS TRAFFIC
496.61298	3069341.5	49.661297	Metal Hand tools & hardware
974.99622	10093728	48.749809	Metal plumbing/heating fixtures/supplies, misc
1928.46822	94551582.5	83.700535	Minerals and Mineral Products / Metals / Metal Products
1491.58264	5073484.35	175.480316	MISC FREIGHT SHIPMENTS
898.87579	6487775	44.94379	Misc. Household items
7310.20022	0	451.24695	Mixed Shipments, Multi-stcc
359.70926	892079	35.970924	Ores / Coal
1376.9053	4112105.8	83.448799	Paints, etc.
1560.42108	7409785.8	156.042106	Paper / Paper Products / Pulp
1418.989	529366.31	128.99901	Pet food / products
3349.42441	3243201.73	222.40277	Petroleum / Petroleum Products
50739.3039	14138139	3531.10493	Scrap materials (metal, ashes, etc.)
0	0	23706.5908	SEMI-TRAILERS RETURNED EMPTY
1577.52419	59661.483	98.59526	Stone, sand, gravel, etc.
24141.8658	150419292	1829.72181	Tires / Rubber / Etc.
14809.2659	121725496	1044.84767	Vehicles / Vehicle parts
1062190.43	4774779309	107891.894	TOTALS

Scenario6_ERT_Competitive_FTZ_2015.xlsx
 FTZ to CMA

Year	Origin Region	Destination Region	STCC	Mode	Tons	Value	Units	STCC4	Commodity	Commodity Group
2015	367	42003	36 12	13	0.19521545	956.35803	0	3612	ELECTRICAL TRANSFORMERS	Electric instruments / Parts / Supplies
2015	367	42019	36 12	13	0.02925771	231.12761	0	3612	ELECTRICAL TRANSFORMERS	Electric instruments / Parts / Supplies
					0.22447316	1187.4856	0			
2015	367	42003	25 31	13	0.01300854	154.57124	0	2531	PUBLIC BUILDING OR RELATED FURNITURE	Furniture
					0.01300854	154.57124	0			
2015	367	42003	32 11	13	0.04880728	4157.3027	0	3211	FLAT GLASS	Glass & Glass Products
2015	367	42019	32 11	13	0.01784618	1520.1008	0	3211	FLAT GLASS	Glass & Glass Products
2015	367	42063	32 11	13	0.01255419	1069.3396	0	3211	FLAT GLASS	Glass & Glass Products
2015	367	42129	32 11	13	0.01172429	998.6507	0	3211	FLAT GLASS	Glass & Glass Products
					0.09093194	7745.3938	0			
2015	367	42003	35 73	13	0.02526219	469.36011	0	3573	Electronic Data Proc Equipment	Office Equipment / Machines
					0.02526219	469.36011	0			
<i>Region 367 is Mexico</i>										
					0.35367584	9556.8108	0		TOTALS	

Appendix F
Survey Questions

Erie Freight Business & Industry Survey

Question 1: Name

Question 2: Business Name

Question 3: Job Title

Question 4: Please select the county where your business is located.

Question 5: Address

Question 6: Phone Number

Question 7: E-mail Address

Question 8: What is the nature of your company/business?

Answer Options

Manufacturing
Health care
Commercial/Retail
Public Service
Education
Farming
Freight Management
Trucking
Warehousing
Other (please specify)

Question 9: What percentage of your company's costs are transportation costs?

Answer Options

0-5%
5-10%
10-15%
15-20%
20-25%
25% or more

Question 10: Currently, what transportation mode(s) does your company use to ship freight from your western Pennsylvania location?

Answer Options

Truck
Air
Rail
Waterway/Port
Truck to Rail
Truck to Port
My company doesn't ship freight

Question 11: What statement(s) best describes your company/business's interest in intermodal rail freight?

Answer Options

Currently using intermodal rail freight facilities to ship from all company locations

Currently using intermodal rail freight facilities to ship from some company locations, and would like to convert more shipments to intermodal rail freight

Currently not using intermodal rail freight facilities to ship from all company locations, but would consider converting shipments to intermodal rail freight

Intermodal rail freight would not be applicable transportation means for my company or business

Question 12: What are the most common products/commodities that you ship? (check all that apply)

Answer Options

Locomotive/Railcars/Parts

Petroleum/Petroleum

Chemicals/Plastics/Drugs

Minerals/Metals/Metal Products

Engines/Machinery

Forestry Products

Stone/Sand/Gravel

Dairy/Dairy Products

Bread/Bakery/Candy

Scrap Metals

Hardware

Fruits

Alcohol/Liquors/Soft Drinks

Construction Materials

Other (please specify)

Question 13: What percentage of the products/commodities that your company/business ships are dry goods?

Answer Options

0 – 25 %

25- 50 %

50 – 75 %

75 – 100 %

Other (please specify)

Question 14: What percentage of your company/business relies on just-in-time transportation services?

Answer Options

- 0 – 25 %
- 25- 50 %
- 50 – 75 %
- 75 – 100 %
- Other (please specify)

Question 15: Would additional warehousing/storage reduce your need for just-in-time shipping?

Answer Options

- Yes
- No
- Somewhat
- Not applicable

Question 16: What is the average volume of freight shipped inbound to your company's Western Pennsylvania location per year?

Answer Options

- Less than 5,000 units
- More than 5,000 units
- More than 10,000 units
- More than 50,000 units
- More than 100,000 units
- More than 500,000 units

Question 17: What is the average volume of freight shipped outbound from your company's Western Pennsylvania location per year?

Answer Options

- Less than 5,000 units
- More than 5,000 units
- More than 10,000 units
- More than 50,000 units
- More than 100,000 units
- More than 500,000 units

Question 18: What is the frequency of inbound shipments to your Western Pennsylvania location?

Answer Options

- Daily
- Every other day
- Once a week
- Monthly
- Other (please specify)

Question 19: What is the frequency of outbound shipments from your Western Pennsylvania location?

Answer Options

- Daily
- Every other day
- Once a week
- Monthly
- Other (please specify)

Question 20: Name the top three (3) destinations to which your company ships freight (outbound).

Question 21: Name the top three (3) locations from which your company typically receives freight (inbound).

Question 22: What is the average distance the majority of your shipments (inbound or outbound) travel to reach their destination?

Answer Options

- Less than 500 miles
- More than 500 miles
- More than 700 miles
- More than 1000 miles

Question 23: How much of your company's product is moved as freight more than 500 miles?

Answer Options

- More than 80%
- More than 60%
- More than 40%
- More than 20%
- Less than 20%

Question 24: If you had access to a rail freight terminal, what would be your top three concerns in converting all or a portion of your freight shipments to rail?

Answer Options

Transit Time
Consistency of Service
Frequency of Service
Hours of Service
Cost of Service
Other (please specify)

Question 25: Assuming a rail freight terminal in Erie provided a cost-competitive option and service reliability, approximately how many truck loads per day would you estimate sending through the terminal (Outbound ONLY)?

Answer Options

Less than 5 trucks per day
Between 5 and 10 trucks per day
Between 10 and 15 trucks per day
More than 15 trucks per day
Other (please specify)

Question 26: Assuming a rail freight terminal in Erie provided a cost competitive option and service reliability, approximately how many truck loads per day would you estimate receiving through the terminal (Inbound Shipments ONLY)?

Answer Options

Less than 5 trucks per day
Between 5 and 10 trucks per day
Between 10 and 15 trucks per day
More than 15 trucks per day
Other (please specify)

Question 27: Are there other facilities or operations that could be incorporated with the rail terminal that would make it more appealing for your business (warehousing, truck repair, etc.)

Answer Options

Yes
No
Unsure
Please explain

Appendix G
Research Summary of Similar Facilities



BACKGROUND

A case study analysis was initiated by the study team in November 2015 and completed in January 2016. The analysis was pursued to further support initial conclusions documented in the team’s Draft Erie Rail Terminal Feasibility Study Report (May 2015). In summary, the conclusions of the report indicated that a rail terminal in Erie would require high market capture rates [Market Analysis deduction (18% to 30% capture rate of existing available freight) and the survey based deduction (45% to 70% capture rate)] financially supported by a lift-only operation, which would be challenging in a highly competitive and saturated market area. The report indicated that a combination of the following would improve profitability of a rail freight terminal in Erie County, PA:

- **SERVICES:** A facility that offered multiple services, in addition to lifts, in order to meet revenue and cash flow needs.
- **VOLUME:** Greater existing volume of freight generated within the Competition Free Market Area (CFMA)*, and/or committed industry partner, or anchor to ensure demand.
- **CONDITIONS:** Alternative economic conditions that provide incentives for truck to rail delivery conversions, such as, higher gas prices, and reduced truck driver capacity/availability.
- **MARKETING:** An aggressive marketing campaign would be required to sell the terminal's competitive advantages to area businesses.
- **RAIL PARTNER:** A partnership with a rail carrier that could provide timely and consistent service comparable to trucking would be required. No such partnership has been developed to date.

METHODOLOGY

To access our initial efforts, the study team research five intermodal facilities through telephone interviews with facility operators and conducting online searches for information. The research was intended to identify ownership, train service, operational details, projected volume, existing volume, services offered, and the initiating need for an operation.

A comparative matrix was developed to ensure the consistency of the information gathered and to capture the results of the research for each facility.

RESULTS

The following is a summary of the results of the research.

Ownership & Train Service

The following sites and the owner/operators of each included:

LOCATION	OWNER/OPERATOR
Rutherford, PA	Norfolk Southern owns, operates, and services the facility
Chambersburg, PA	CSX owns, operates, and services the facility
Cleveland, OH	CSX owns, operates, and services; lift operations are contracted to Parsec
Westmoreland County Logistics Park, PA	Westmoreland County Industrial Development Corporation (WCIDC) owned, Savage Safe Handling operates the facility (WCIDC receives a share of the gross revenue), serviced by Southwest PA Railroad (SWP)
Bethlehem, PA	Lehigh Valley Rail Management, LLC owns, operates, and services the facility

*The CFMA is generally described as within 60 miles of Erie, PA

Site Development Need

Key reasons for site development as compared to ERT included:

RESEARCHED FACILITIES	ERT COMPARISON
Growing intermodal traffic in the region	Little to modest growth
Conversion from original Conrail facilities	Existing tracks/facilities potentially available in Erie
Proximity to an international port	Located near a domestic port

Projected Costs & Lift Volumes

Projected Costs and Lift Volumes as compared to ERT:

RESEARCHED FACILITIES		ERT COMPARISON	
CAPITAL COSTS	LIFT VOLUME	CAPITAL COSTS	LIFT VOLUME
\$38 to \$45 million	70,000 to 100,000 units/year projected	\$9.2 to \$45.86 million	36,000 to 282,000 units/year projected
	120,000 to 160,000 units/year existing		NA

Operating costs were not provided and considered proprietary

Other Services

Three of the five sites do not offer additional logistic park type services. Those that do, noted the following other services: Warehousing, chemical and food grade tank wash rack, lumber trans loading operation, depot services for tanks and boxes, and rail car storage. Three of the four sites are located in industrial parks and haven't experienced additional development, but the Chambersburg site has had large box retailers locate within five miles of the facility.

RESEARCH CONCLUSIONS

CASE STUDY RESEARCH ASSUMPTIONS	FEASIBILITY STUDY (MARKET ANALYSIS AND INDUSTRY SURVEY) ASSUMPTIONS
A large, steady and sustainable freight volume is necessary.	Based on the industry survey, no large, steady/ sustainable freight volumes were identified; on average survey respondents stated that up to 6 loads per day would be anticipated.
A large anchor is needed in many cases to make the facilities viable.	No large anchor appears available; the largest potential source identified anticipated 10-15 trucks per day outbound and 5 trucks per day inbound.
Most facilities are constructed, owned and operated by the railroads.	It has not yet been determined who would construct, own or operate an ERT facility; the railroads to date have not shown an interest in constructing or owning the site, but a potential partnership could be possible if the market is appealing.
Most sites offer additional services.	No additional services were proposed under the analyzed ERT scenario; however additional services were recommended for consideration
Some sites were located near an international water port	Erie is also located near a smaller domestic water port; however locating the ERT within the Port of Erie and using it for containers/trailer/brake bulk materials and potential unit trains could improve the financial viability of the ERT.



The Erie Rail Terminal Independent Study examined the feasibility of a “lift-only intermodal rail terminal”. As noted in the Background section of this handout, the Draft Feasibility Study Report concluded additional considerations would need to be incorporated into the model for a rail terminal to be potentially feasible in Erie County, PA. One such potential model could consist of the following:

APPROACH:

Rather than an independent intermodal terminal, the rail terminal could be incorporated into an overall Inland Port/Logistics Park development plan giving it a supporting framework.

OWNER/OPERATOR:

The Inland Port/Logistics Park could be initiated and operated in a similar nature as the Westmoreland County Logistics Park with partial ownership from a private development corporation, in this case DevelopErie, and public ownership by the Erie Port Authority. Together, this partnership would seek a dedicated rail carrier (or carriers) to service the Inland Port/Logistics Park. A third party could operator the site similar to the Westomoreland County Logistics Park case study that was operated by Savage Safe Handling.

FUNDING AND OVERSIGHT:

The above mentioned P3 partnership could possibly include funding contributions and regulatory compliance guidance from the Pennsylvania Department of Transportation (PennDOT), Engineering District 1-0 in cooperation with PennDOT’s Multimodal Department.

SERVICES:

Depending on potential users of the Logistic Park, additional services could be included in the business model, such as: containers/trailer/brake bulk materials and potential unit trains.

It should be noted, that this model has not been studied in depth and additional information and investigation would be necessary to fully consider the feasibility of this business model.

INTERMODAL SITE COMPARISON

	ERT	NORFOLK SOUTHERN – RUTHERFORD	CSX – CHAMBERSBURG	CSX - CLEVELAND	WESTMORELAND COUNTY LOGISTICS PARK	BETHLEHEM INTERMODAL
1. Research Conducted With:		MR. RUDY HUSBAND V.P. GOVT. RELATIONS NORFOLK SOUTHERN	MR. WILBY WHITT PRESIDENT, CSX INTERMODAL TERMINALS	MR. WILBY WHITT PRESIDENT, CSX INTERMODAL TERMINALS	MR. JOSEPH SISLEY MARKETING DIRECTOR/BUSINESS DEVELOPMENT DIRECTOR	PATRICK SABATINO, MANAGER, LEHIGH VALLEY RAIL MANAGEMENT
2. Date Interviewed:		11-20-15	12/8/2015	12/8/2015		12/17/2015
3. Other References		SEE ATTACHMENT A	SEE ATTACHMENT B	SEE ATTACHMENT C	SEE ATTACHMENT D	SEE ATTACHMENT E
4. Name of the facility:		NORFOLK SOUTHERN RUTHERFORD	CHAMBERSBURG, PA TERMINAL	CLEVELAND, OH TERMINAL	WESTMORELAND LOGISTICS PARK – RAIL FREIGHT TERMINAL (NEW STANTON, PA)	BETHLEHEM INTERMODAL IN THE BETHLEHEM COMMERCE CENTER
5. Date of start-up:		SUMMER 2000	SEPTEMBER 2007	JANUARY 2000	JUNE 2003	INITIAL START-UP IN 1996, NEW EXISTING LOCATION APPROX. 2003
6. What initially spurred the idea to develop the facility?		GROWING INTERMODAL TRAFFIC AND THE SALE OF CONRAIL	PART OF A LARGER NATIONAL GATEWAY INITIATIVE – THE NATIONAL GATEWAY PROJECT WILL IMPROVE THE FLOW OF RAIL TRAFFIC THROUGHOUT THE NATION BY INCREASING THE USE OF DOUBLE-STACK TRAINS, CREATING A MORE EFFICIENT RAIL ROUTE THAT LINKS MID-ATLANTIC PORTS WITH MIDWESTERN MARKETS. MORE DETAILS... <a href="http://nationalgateway.org/ba
ckground">HTTP://NATIONALGATEWAY.ORG/BA CKGROUND	EXPANDED AN EXISTING CONRAIL FACILITY AFTER CONRAIL WAS ACQUIRED	WHEN THE MAIN FACTORY BUILDING WAS MODIFIED FOR VOLKSWAGEN, THE STATE OF PENNSYLVANIA HAD PAID TO BUILD A NINE-MILE RAIL SPUR THAT CONNECTED TO THE MAIN LINE OF WHAT WAS THEN CONRAIL. WHILE SONY DIDN'T NEED THE RAIL SERVICE, WCIDC OFFICIALS KNEW THAT THERE WOULD BE A FUTURE USE FOR THE RAIL SPUR. SO, WCIDC BOUGHT THE SPUR IN 1995 TO MAKE SURE IT WASN'T ABANDONED OR LOST. BY 1999, SERIOUS PLANNING FOR AN INTERMODAL FACILITY WAS UNDERWAY. BY BUILDING A NEW FACILITY NEAR SONY AND THE WESTMORELAND TECHNOLOGY CENTER, THE INDUSTRIAL DEVELOPMENT CORPORATION WOULD GIVE SHIPPERS NEW OPTIONS AND ACCESS TO LESS EXPENSIVE RAIL SERVICE.	PROXIMITY TO PORT OF NY & NJ
7. Who owns the facility?		NORFOLK SOUTHERN RAILROAD	CSXIT	CSXIT	WESTMORELAND COUNTY INDUSTRIAL DEVELOPMENT CORPORATION (WCIDC)	LEHIGH VALLEY RAIL MANAGEMENT, LLC



INTERMODAL SITE COMPARISON

		ERT	NORFOLK SOUTHERN – RUTHERFORD	CSX – CHAMBERSBURG	CSX - CLEVELAND	WESTMORELAND COUNTY LOGISTICS PARK	BETHLEHEM INTERMODAL
8.	Who operates the facility?		NORFOLK SOUTHERN RAILROAD	CSX OPERATED (Support functions with CSXIT employees, lift operation contracted to Pac Rail Services)	CSXIT (support and lift operations are contracted to Parsec)	SAVAGE SAFE HANDLING (WCIDC receives a share of the gross revenues.) – Southwest Pennsylvania Railroad (SWP – short-line freight hauler)	LEHIGH VALLEY RAIL MANAGEMENT, LLC
9.	How was the site/facility funded?		START-UP COSTS ESTIMATED AT \$31 MILLION (MUCH LARGER SITE THAN POTENTIAL TERMINAL IN ERIE)	PRIVATE – STATE CONTRIBUTED APPROXIMATELY 20% AS PART OF THE GATEWAY INITIATIVE	PRIVATE	TEN MILLION DOLLARS IN DEVELOPMENT MONEY FOR THE INTERMODAL TERMINAL CAME FROM THE STATE OF PENNSYLVANIA (80%) AND THE FEDERAL GOVERNMENT (20%). THE FUNDS WERE PROVIDED THROUGH TEA 21 (TRANSPORTATION ENHANCEMENT ACT OF THE 21ST CENTURY). ANOTHER \$10 MILLION IN TEA 21 FUNDS WENT TO A NEW INTERCHANGE FROM US ROUTE 119, WHICH IMPROVED ACCESS TO THE TERMINAL.	PRIVATE PURCHASE
10.	What were the projected capital costs?	\$9.2 MILLION (at 36,000 units/year) \$45.86 MILLION (at 282,000 units/year)	OWNED THE SITE – MODIFICATIONS WERE MADE INCLUDING RELOCATING LINES.	\$45 MILLION	\$38 MILLION		CONFIDENTIAL
11.	What were the projected operational costs?	\$2.2 MILLION/ year (at 36,000 units/year) \$7.1 MILLION/ year (at 282,000 units/year)	UNKNOWN	CONFIDENTIAL	CONFIDENTIAL		CONFIDENTIAL
12.	What was the economic climate at start-up?		ORIGINALLY A CONRAIL INITIATIVE, BUT BOUGHT OUT BY NS. <ul style="list-style-type: none"> ABANDONED FORMER READING RAILROAD COMPANY RUTHERFORD YARDS GROWING INTERMODAL TRAFFIC THE SITE HAD POLITICAL SUPPORT, BASED ON THE PRESS RELEASE: “GOVERNOR RIDGE AND 	ECONOMIC CLIMATE WAS SUPPORTIVE	ECONOMIC CLIMATE WAS FAVORABLE		SUPPORTIVE

INTERMODAL SITE COMPARISON

		ERT	NORFOLK SOUTHERN – RUTHERFORD	CSX – CHAMBERSBURG	CSX - CLEVELAND	WESTMORELAND COUNTY LOGISTICS PARK	BETHLEHEM INTERMODAL
			PENNSYLVANIA TRANSPORTATION SECRETARY BRAD MALLORY ARE CURRENTLY IN MEXICO, MARKETING GOODS AND REPORTEDLY SECURING MORE BUSINESS FOR NORFOLK SOUTHERN TO ORIGINATE IN PENNSYLVANIA.”				
13.	Daily projected volume prior to build:	500 PER DAY (OR 182,500 ANNUALLY) NEEDED TO COVER OPERATIONAL COSTS	REFERRED US TO THE PRESS RELEASE – BUT NOT LISTED.	100,000 ANNUALLY	70,000 ANNUALLY	SEVERAL THOUSAND RAILCARS	UNKNOWN
14.	Has the site met or exceeded projected volume estimates?		SEE BELOW	YES	EXCEEDED	THE SITE WAS DESIGNED TO CONCENTRATE ON BUSINESS WITHIN A 100-MILE RADIUS; HOWEVER, OPPORTUNITIES HAVE EXTENDED MUCH FURTHER.	UNKNOWN
15.	Have operations been expanded since start-up?		YES	NO	YES		THE NY AND NJ PORT AUTHORITY IS INTERESTED IN USING THIS SITE AS AN INLAND PORT FOR INTERNATIONAL FRIEGHT, BUT IT WOULD REQUIRE A \$6 MILLION EXPANSION AND THE PURCHASE OR LEASE OF LAND FROM THE LEHIGH VALLEY INDUSTRIAL PARK. THE EXPANSION IS PHYSICALLY POSSIBLY, BUT IT IS UNCERTAIN IF IT IS ECONOMICALLY POSSIBLE. THE EXISTING FACILITY IS 50 MILES FROM THE NY AND NJ PORT.
16.	Daily lift volume:		SEE BELOW	VARIES	VARIES		3,000 CONTAINERS PER WEEK
17.	Annual lift volume:		NO SPECIFIC NUMBER PROVIDED – HUNDREDS OF THOUSANDS OF LIFTS	120,000	160,000		156,000 CONTAINERS PER YEAR (Capacity for 180,000 lifts/year)



INTERMODAL SITE COMPARISON

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18.	Additional services offered (onsite – supplemental revenue sources):		THE RUTHERFORD HUB DIFFERS FROM TRADITIONAL INTERMODAL FACILITIES IN THAT IT TRANSFERS CONTAINERS NOT ONLY BETWEEN ROAD AND RAIL, BUT BETWEEN TRAINS AS WELL.	NONE	NONE	<ul style="list-style-type: none"> CONNECTING TO THE RAIL NETWORK IS KEY IN THAT IT ENABLES THE RAIL FREIGHT TERMINAL TO OFFER INTERMODAL SERVICE AND TRANSPORTATION WITH CN, CSX, NS, AND WLE. TEMPERATURE-CONTROLLED WAREHOUSE DESIGNED FOR STORAGE AND DISTRIBUTION OF HIGH-VALUE SPECIALTY CHEMICALS AND OTHER PRODUCTS A TWO-BAY CHEMICAL AND FOODGRADE TANK WASH RACK A LUMBER TRANSLOADING OPERATION. CONTAINER DEPOT SERVICES FOR TANKS AND BOXES 	SWITCHING, TRANSLOAD AND RAILCAR STORAGE CAPABILITIES THAT ALLOW SHIPPERS TO USE MULTIPLE MODES OF TRANSPORTATION IN THEIR SUPPLY CHAINS
19.	What development has occurred in the vicinity of the facility since operations began? (What was there prior to and what is there now?)			LARGE BOX RETAILERS HAVE LOCATED WITHIN 5 MILES OF THE FACILITY	THE TERMINAL IS LOCATED IN AN INDUSTRIAL AREA OF THE CITY. THERE ISN'T DEVELOPABLE LAND NEARBY.		FORMER STEEL MILL IS NOW AN INDUSTRIAL PARK, LVIP VII AND MAJESTIC REALTY.
20.	Hours of Operation:	24/7	GATE HOURS: M - SU 24 HRS	24/7	24/7		24/7
21.	No. of employees per shift (if applicable):	APPROX. 10		VARIES	VARIES		CONFIDENTIAL
22.	What railroad(s) services the facility?	TBD	NORFOLK SOUTHERN	CSX	CSX	SOUTHWEST PENNSYLVANIA RAILROAD (SWP) – a short-line freight hauler that connects users of the facility to an international rail network.	Lehigh Valley Rail Management LLC
23.	What size train (# of cars) can be accommodated?	TBD	THE FACILITY CONSISTS OF TEN YARD TRACKS, ALL OF WHICH ARE APPROXIMATELY ONE MILE IN LENGTH. TWO ADDITIONAL TRACKS ALLOW THE LOADING AND UNLOADING OF CONTAINERS AND TRAILERS FROM AN OVERHEAD LIFT SYSTEM. A TOTAL OF OVER 101,000 TRACK FEET HAS BEEN LAID, WITH TWENTY #10 TURNOUTS	14,000'	14,000'	20,000' OF TRACK (ACCOMODATING 145 RAILCARS)	4.6 MILES OF TRACK (9,000 feet of track for conventional intermodal and over 14,000 feet for Triple Crown Services loading and unloading. Approx. 7 miles of track.



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			PLACED ON LADDER TRACKS AT BOTH ENDS OF THE FACILITY. TWO NEW CROSSOVERS AT MILEPOST 108 (CP-RUTH) AND 105 (CP-BEAVER) ALLOW ENTRY FROM BOTH MAIN TRACKS IN EITHER DIRECTION. FOUR INBOUND AND FOUR OUTBOUND LANES ACCOMMODATE TRUCKS ENTERING AND LEAVING THE TERMINAL. (PRIOR TO EXPANSION)				
24.	Equipment used during lift operation:	2 LIFTS, 3-5 HOSTLER TRACTORS PER LIFT	NORFOLK SOUTHERN C40-9W 9449 AND SEVERAL NEW TTX DOUBLESTACK WELLS, LOADED WITH EMP AND NACS CONTAINERS, AN OVERHEAD CRANE, A MOBILE CRANE, AND CHASSIS POSITIONED ALONG SIDE OF THE TRAIN (NOT A COMPLETE LIST – PRIOR TO EXPANSION)	2 RTG, 1 SIDE LOADER, 6 UTR, 1 SWITCH ENGINE	1 RTG, 3 REACH-STACKERS, 9 UTR		SIDE PACKERS
25.	Total size of facility in acres:	TBD		70 ACRES	65 ACRES	1200 ACRE INDUSTRIAL PARK	1600 ACRES (approx.. 100 acres for the actual terminal.)
26.	Acres of parking provided:	TBD		25 ACRES	25 ACRES		1,200 TRAILER PARKING SPACES WITH GATE FACILITIES AND A TRUCK SCALE
27.	Acres of container storage provided:	NOT INCLUDED	CONCRETE TRAILER STORAGE PADS THAT HOLD 576 FIFTY-THREE FOOT TRAILERS (PRIOR TO EXPANSION)	NONE	NONE		
28.	Does the facility require use of containers/trailers leased from the facility, outside containers/trailers only, or a combination of both?	OUTSIDE CONTAINERS ONLY		COMBINATION OF BOTH OUTSIDE AND LEASED (FROM THE FACILITY) CONTAINERS / TRAILERS	COMBINATION OF BOTH OUTSIDE AND LEASED (FROM THE FACILITY) CONTAINERS / TRAILERS		
29.	Main clients:	TBD		CONFIDENTIAL	CONFIDENTIAL	LUMBER AND PLASTIC PELLETS ARE THE PRIMARY CARGOES	
30.	Was a feasibility study conducted prior to operations?			YES	YES		
31.	Are operating costs covered by lift operation?	YES		OPERATING COSTS ARE BUNDLED INTO THE LINE-HAUL RATE	OPERATING COSTS ARE BUNDLED INTO THE LINE-HAUL RATE		
32.	Are capital costs covered by lift operation?	NO		CAPITAL COSTS ARE BUNDLED INTO THE LINE-HAUL RATE	CAPITAL COSTS ARE BUNDLED INTO THE LINE-HAUL RATE		



INTERMODAL SITE COMPARISON

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33. OTHER COMMENTS PROVIDED:		<ul style="list-style-type: none"> Freight needs in the Erie region are sufficiently met by facilities already in Buffalo, Cleveland, and Pittsburgh Much of the information requested above is considered proprietary by NS. 15 to 20 years ago intermodal was considered competitive with trucks at 1,000 miles. Now, NS can be competitive at 400-500 miles and in some instances 200-300 miles. Pittsburgh (Pitcarin) site was not discussed because he also felt it would not be considered a similar size/type facility. Suggested research of two other sites: <ul style="list-style-type: none"> Neomodal Terminal off U.S. Route 62 and state Route 21, Navarre, Ohio: 28-acre site operated by Wheeling & Lake Erie Railway Co. and owned by Stark Development Board (http://www.cantonrep.com/article/20140201/NEWS/140209927) Bethlehem Intermodal managed by Lehigh Valley Railroad (http://www.lvrmlc.com/latestnews.html) 	<ul style="list-style-type: none"> CSX is contacted/notified almost daily regarding potential intermodal facilities by community organizations. In general communities are supportive of intermodal facilities, but location can trigger conflict. CSX has learned to work with stakeholders from the beginning of a project. Density is needed to make a terminal successful and the density probably isn't there in Erie, but Erie could consider a combo with the western Ohio hub - that could help build density. The eastern freight that goes to NY and NJ ports is probably too close to use Erie, but we shouldn't automatically discount freight to the east of Erie. Some of it could go through an Erie terminal. One of the most important factors in facility siting is the drayage distance. If trucks need to haul it too far to get on the train, it makes more sense to stay on the truck - unless the final destination is over 500 miles away. If someone is shipping closer than 500 miles but is only a few miles from the facility, they may still consider using it. Erie would need a high volume anchor in order to be successful. A good location would eventually justify its own train service and not just rely on exist service. DevelopErie's proposal was convincing enough that CSX was willing to entertain service in Erie. But they struggled to ensure how they actually would achieve a financial return. Their deal relied heavily on the NY/NJ port and added container storage and other ancillary service. The DevelopErie's proposal may also 			

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				have included a chassis pull.			