

Executive Summary

Wilmington-Harrisburg Freight Study



Submitted to:
The Wilmington-Harrisburg Freight Study Steering Committee
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Table of Contents

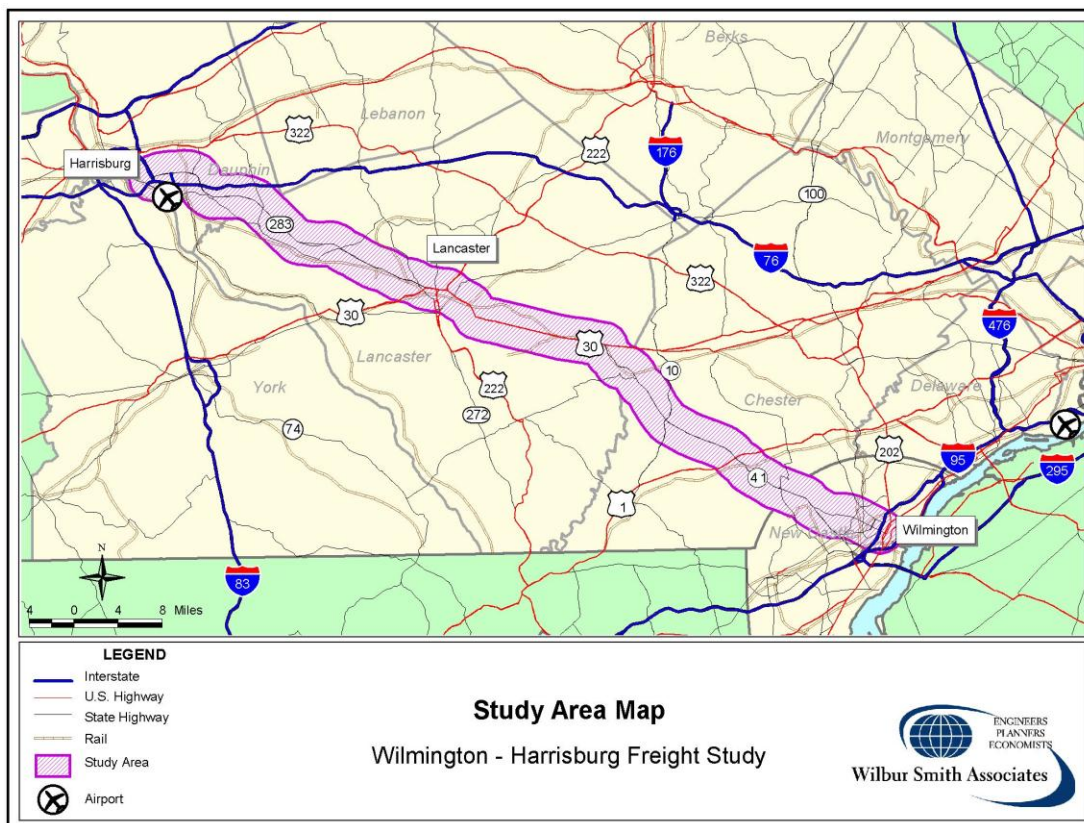
1. Introduction	3
2. Corridor Freight Traffic	4
3. Railroad Scenario	6
Dedicated Rail Freight Mainline (Perryville, MD – Newark/Wilmington, DE)	6
New Castle County Intermodal Terminal	6
Brandywine Valley Railroad	7
Shellpot Bridge	8
4. Shipper Scenario	8
Alternate Modes of Travel	9
Off-Peak Deliveries	9
Warehouse/Distribution Centers for Local Deliveries	9
Alternative Routes	9
Satisfaction Questions and Comments	10
Recommendations for Shipper Scenario	10
5. Combination of Proposed Local Roadway Improvements Scenario	11
Improving Freight Traffic Flow	11
Managing Freight Traffic Flow	11
6. Pennsylvania Turnpike Scenario	13
Truck Toll Reduction -- Value Pricing Study	13
Longer Combination Vehicles (LCV)	13
7. Final Recommendations	14

Wilmington-Harrisburg Freight Study Executive Summary

1. Introduction

The Wilmington-Harrisburg Freight Study (WHFS) addresses the issue of the increasing truck and intermodal freight traffic along the Corridor between the Ports of Wilmington and Philadelphia and the Harrisburg/Carlisle area, with special attention being paid to the intermediate Lancaster County market and overhead traffic. The principal routes involved are Route 41 (PA & DE), US 30, and PA 283. [See Exhibit 1-1.]

**Exhibit 1-1
Wilmington-Harrisburg Freight Study Region**



The first phase of this study described the existing conditions and base level freight traffic in the corridor. The second phase identified planned enhancements along the corridor and developed forecasts of Year 2010 and 2025 freight volumes. The third and final phase developed four scenarios outlining strategies for more efficient and safe movement of freight along the Corridor, with recommendations for specific actions and areas needing future study. These four scenarios, as selected by the Steering Committee, are:

- **Railroad Scenario** – explores the extent to which investment in the railroad system can provide a more efficient transportation network in the Corridor.

- *Shipper Scenario* – gain a better understanding of the supply chain patterns of key shippers and identify potential strategies for improved freight flow.
- *Combination of Proposed Local Roadway Improvements* – look at the combination of Roadway proposals along the Corridor to examine their impact on freight movements.
- *Pennsylvania Turnpike Scenario* – explore what is required to entice through trucks to use the PA Turnpike, rather than the shorter, toll free route over the Corridor.

2. Corridor Freight Traffic

Public perception is that the Delaware River Ports send numerous trucks through the Corridor every day filled with freight not serving local markets. Therefore, this study began as an analysis of strategies to divert port traffic traversing the Corridor to other routes and modes. Through a series of detailed interviews conducted with shippers at Delaware River Ports, it was discovered that the ports generate less than 10% of the Corridor truck volumes. It was further discovered that the vast majority of the freight traffic was either originating or terminating (and often both) in the counties along the Corridor (New Castle, Chester, Lancaster, and Dauphin).

The WHFS Technical Report #1 provides detailed estimates of the volume of freight traversing Routes 41, 30, and 283. Port related traffic was obtained through a series of detailed interviews conducted with shippers at Delaware River ports. For the remainder of the truck volumes, Reebie Associate's TRANSEARCH® freight database was used. TRANSEARCH is a nationwide database updated annually with freight movements by origin, destination, commodity, and mode of travel. Forecasts for the years 2010 and 2025 were developed in the WHFS Technical Report #2. Forecasts of international traffic through the ports were derived from expansion plans and goals obtained from the ports and principal shippers. Forecasts of the non-port related corridor freight volumes were developed using regional commodity based factors from an econometric model developed at York College in York, PA. Given the uncertainty in long-range forecasts, the 2025 values were bracketed with a high and low value. Summaries of the base level and forecasted truck volumes, subdivided by road, are contained in Exhibit 2-1.

Exhibit 2-1
Average Daily Truck Volumes and Forecasts in Study Corridor*
Year 2025

Type	Road	Base** Trucks	Year 2010		Low		High	
			Trucks	Pct	Trucks	Pct	Trucks	Pct
Port		279	297	6.5%	324	16.1%	324	16.1%
Non-Port***								
	Route 41	3,052	3,942	29.1%	4,487	47.0%	5,602	83.5%
	US 30	13,722	16,764	22.2%	18,924	37.9%	22,551	64.3%
	PA 283	8,601	10,599	23.2%	11,967	39.1%	14,426	67.7%

*Source: Wilmington-Harrisburg Freight Study, Report #2, Table 1

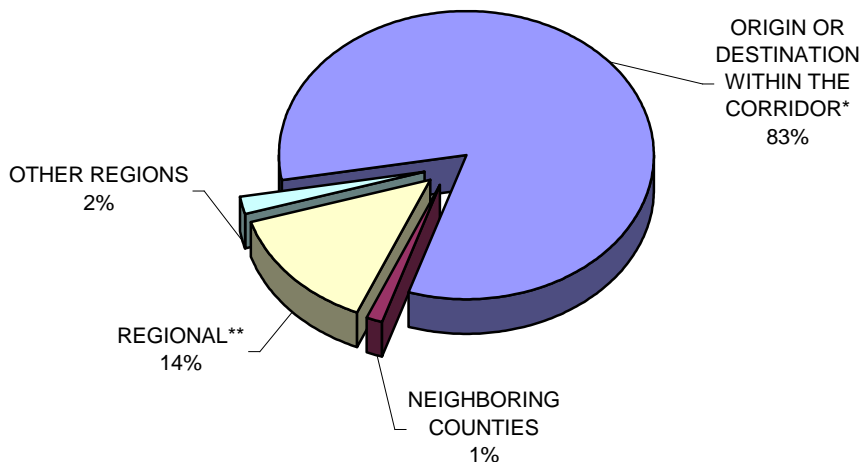
**For Port Traffic the Base Year is 2001. For Non-Port Traffic the Base Year is 2000.

***Non-Port traffic converted from Annual to Daily using 260 days/year

The primary reason for developing the base estimates and forecasts is to gain a perspective on the nature of the freight moving on the Corridor and the potential for diverting this freight to alternative modes or routes, thereby relieving part of the congestion and improving safety along the Corridor. Diverting freight traffic requires an understanding of the origin-destination patterns for the movements. Exhibit 2-2 shows that eighty-three percent (83%) of the non-port related

traffic utilizing the Corridor has either an origin or termination in New Castle, Chester, Lancaster, or Dauphin County. Ninety-eight percent (98%) originates or terminates in Pennsylvania, Delaware, or Southern NJ. Only two percent (2%) of the trucks using the Wilmington-Harrisburg Corridor are not conducting business within the region. Thus, the vast majority of trucks in the Corridor are there because of local businesses.

**Exhibit 2-2
Distribution of Traffic
Base-Year Non-Port Freight Volumes on Corridor**



* Includes traffic originating or terminating in New Castle County, DE, and Chester, Lancaster, or Dauphin Counties, PA

** The remainder of PA, DE, and Southern NJ

Exhibit 2-2 is useful in understanding the nature and importance of trucks utilizing the Corridor, but it is less useful in identifying the traffic base that can potentially be diverted to other modes or routes. Exhibit 2-3 separates the long haul traffic from the shorter regional moves to establish the base traffic level that could be diverted. Exhibit 2-3 contains the number of long haul trucks moving over Route 41, US 30, and PA 283 between Delaware, New Jersey, and Chester County in the east and several mid-western states in the west. **The key message in Exhibit 2-3 is that there is an average of 3,331 daily trucks on Route 41; two-thirds serving local markets along the Corridor and one-third serving long haul markets.** The long haul estimates climb from 1,125 on Route 41 to 1,522 on US 30 and PA 283.

**Exhibit 2-3
Percentage Long Haul Trucks Versus Total Trucks By Route**

Route	2000 Base*	Long Haul	Percentage
Route 41	3,331	1,125	33.8%
US 30	14,001	1,522	10.9%
PA283	8,880	1,522	17.1%

* From Exhibit 2-1. Includes Port Traffic.

The Steering Committee, recognizing that most of the traffic is serving local businesses and supporting the local economy, devised strategies in two broad categories. The railroad and PA Turnpike scenarios address the long haul, through traffic by exploring the potential to divert it from the Corridor. The shipper and local improvement scenarios are focused on enhancing the efficiency of freight flows that are necessary to support local businesses.

3. Railroad Scenario

The rail scenarios explore the extent to which investments in the freight railroad system can provide a more efficient transportation network in the Wilmington-Harrisburg Corridor. This is accomplished by exploring several different rail improvements, including addition of a freight only line along Amtrak's Northeast Corridor, construction of a Norfolk Southern Railroad (NS) Triple Crown terminal in New Castle County, increased use of the Brandywine Valley Railroad, and a look at the ramifications of the recently approved improvements to the Shellpot Bridge.

Dedicated Rail Freight Mainline (Perryville, MD – Newark/Wilmington, DE)

The Norfolk Southern Railroad (NS) is the only freight railroad operating single line service between Harrisburg and Wilmington/Newark, DE area. Trains departing Harrisburg move southeast parallel to the Susquehanna River to Perryville, MD and then northeast to Wilmington. The track from Perryville to Wilmington is owned by Amtrak and is part of the Northeast Corridor (NEC) passenger system, one of the most congested passenger rail lines in the country. Largely for capacity reasons (but also for safety reasons), freight trains are not usually operated on the NEC between 6 A.M. and 10 P.M. Thus, NS has an eight-hour window in the middle of the night to operate trains over this segment of track.

The solution is to construct a freight only rail line adjacent to Amtrak's NEC line. This has been previously proposed in the Delaware Freight Rail Plan and the I-95 Corridor Coalition Mid-Atlantic Rail Operations Study, with the cost ranging between \$60 and \$135 million. Analysis in the WHFS identified 1125 average daily trucks traversing the entire Corridor that have sufficient length of haul to potentially divert to rail service [see Exhibit 2-3]. A typical diversion rate for the percentage of truck traffic captured by new rail service is 5-10% and a more aggressive rate is 25%. Construction of this freight only rail line could divert to rail somewhere between 56 and 281 trucks per day off of the Wilmington-Harrisburg Corridor. The WHFS Steering Committee should participate in, or at least monitor, any further studies related construction of this freight only line to insure that Corridor concerns are included.

New Castle County Intermodal Terminal

One scenario that appears to have some measurable potential for diverting truck traffic from the Corridor is the construction of an intermodal terminal in New Castle County. Currently, most intermodal loads originating and terminating in the Wilmington area are "grounded" (taken off the train) in Harrisburg, PA. One carrier identified that would benefit from a Wilmington intermodal terminal is Triple Crown Services – the RoadRailer®-based intermodal company headquartered in Fort Wayne, IN. Triple Crown is unlike conventional intermodal operations in that the trailers are themselves the body of the railcar. The RoadRailer trailer operates over the highway as a conventional trailer and then attaches to a rail "bogie" which provides steel wheels for travel by rail.

The cost of new intermodal terminal construction is approximately \$250,000 per acre (not including land acquisition costs), with most recent terminals consuming in excess of 200 acres. Thus a conventional intermodal terminal economics require a \$30,000,000 investment and approximately 130 trailers of freight *in each direction* to break-even. Conversely, RoadRailer

operations have a much-lower break-even point. Terminal construction costs average between \$70,000 and \$150,000 per acre, and can be erected on as little as 50 to 60 acres.

In the Wilmington-Harrisburg Corridor, Triple Crown already represents a significant presence. The firm moves between 60 and 70 trailers per day by truck between their Rutherford (Harrisburg) terminal and the Wilmington region. Triple Crown representatives indicated a willingness to explore the opportunity of a New Castle Intermodal Terminal with public sector representatives, and to assist in a subsequent public-private partnership analysis of the concept. Triple Crown also suggested that the availability of a New Castle terminal might allow them to divert additional traffic from Southern Delaware and Southern New Jersey to rail intermodal that is currently uneconomical to service from Harrisburg. In addition, the availability of lower cost transportation service in a region such as New Castle County could provide an added incentive to commercial development similar to other intermodal terminal development initiatives across the country. A more detailed study of this concept, including representatives from state and local government, the railroads, area shippers and Triple Crown could help to quantify the inherent benefits of such a project, and to identify the menu of available funding sources for its completion.

Brandywine Valley Railroad

The Bethlehem Steel Corporation owns eight subsidiary railroad companies in Pennsylvania, Maryland, and Indiana under a marketing company called BethIntermodal, Inc. Of particular interest to the WHFS is the Brandywine Valley Railroad (BVRV), which parallels Route 41 and operates between a connection with the Norfolk Southern at Coatesville, PA and a connection with CSX at Wilmington, DE and between Chadds Ford, PA and Nottingham, PA. Discussions with BethIntermodal and the BVRV have yielded two areas of interest with respect to the WHFS. The first is expanded service to local businesses, either through transload facilities or direct rail service. The second is to use BVRV as a rail link between CSX in Wilmington and NS in Coatesville.

The BVRV operates transload facilities in Coatesville and Avondale. At a transload facility, rail cars and trucks interchange freight. The BVRV handles about 600 carloads of transloaded grains, agricultural products, and meat annually, most of it received from CSX in Wilmington. The greatest potential benefits the BVRV can contribute to freight flows in the Wilmington-Harrisburg Corridor would be increased transloading and direct rail service of traffic moving between Chester and New Castle Counties and the mid-western states. Lancaster and Dauphin Counties are not relevant since the BVRV does not extend west of Coatesville. Potential diversions to rail, as estimated in the WHFS, range from an average of 70 to 150 trucks per day. The WHFS Steering Committee should designate someone to open discussion with BethIntermodal to further define this scenario. As a next step, the Steering Committee and BethIntermodal should initiate a study that: targets specific commodities and industries for direct rail or transloading service; builds a case showing benefits to shippers of switching to these services; determines the traffic levels necessary for this service to be profitable to BVRV and NS and/or CSX; and, identifies and estimates the costs of rail enhancements necessary to support this service (new track, new transloading facilities, new equipment).

Another potential benefit of the BVRV is as a rail connection between CSX in Wilmington and NS in Coatesville. CSX and NS (via Amtrak) run parallel to each other from Perryville, MD through Delaware and into Philadelphia. The two do not connect until Philadelphia. The BVRV has suggested it could act as a bridge between CSX and NS for traffic moving from CSX to NS

points such as Lancaster, Harrisburg, King of Prussia, and Reading. This would avoid trips through Philadelphia, helping relieve congestion in the rail yards. This may have value for the railroads, but it would seem to be of little benefit to the Wilmington-Harrisburg Corridor. There would be no benefit to the Corridor of rerouting interchanges that currently take place in Philadelphia. The benefit to the Corridor would come from truck to rail diversions attracted to this new service, but these diversions would be minimal, if there were any, since the rail route is not significantly enhanced. In fact, the route over the BVRV may even be slower than the route through Philadelphia since an additional railroad and interchange are being added to the route and the distance is not greatly reduced.

Shellpot Bridge

Norfolk Southern serves the Port of Wilmington, which is located on the southern bank of the Christiana River. NS has a rail yard (Edgemoor Yard) on the northern side of the river. Crossing the Christiana River is the Shellpot Bridge, is a swing-style railroad drawbridge originally constructed in 1888 and upgraded in 1951. Service was discontinued over the bridge in December 1994, forcing freight trains serving the Port of Wilmington to head south, access the NEC track, travel through the Wilmington Transit Center, and then head back down to the Edgemoor Yard. Since the freight trains cannot interfere with Amtrak's passenger service, this arrangement adds delay and limits the times that trains can serve the Port. To enhance the competitiveness of the Port of Wilmington and improve rail freight service to the Delmarva Peninsula, the State of Delaware and NS have agreed to rehabilitate the Shellpot Bridge.

What does this mean for the Wilmington-Harrisburg Corridor? Interviews conducted with shippers at all Delaware River ports, including the Port of Wilmington, identified an average of 280 port related trucks per day utilizing the Corridor. Only 30% of those trips were passing through the Corridor (versus 70% local). Most of the traffic passing through is destined for western PA (e.g.: 12 trucks per day hauling steel to Bedford.) There were only twenty-one daily loaded trucks of Port generated traffic identified as currently moving through the Corridor and having sufficient length of haul for rail to be an option. Ten of these trucks are hauling fresh fruit, which historically does not move by rail. Improvements to the Shellpot Bridge should have minimal impact on Port of Wilmington generated freight flows in the Corridor.

While the Shellpot Bridge rehabilitation will have little impact on the Corridor with respect to port traffic, reopening this bridge could have an impact on freight moving along the corridor to and from the Delmarva Peninsula. Commodities on the Peninsula include chemicals, grain, and poultry products. This traffic would be able to move by rail up the Peninsula, over the Shellpot Bridge, and into Edgemoor Yard where it is staged for movement on the NEC and out toward Harrisburg. Of course, construction of a freight only rail line down to Perryville, MD would greatly enhance the potential for truck to rail diversions.

4. Shipper Scenario

The purpose of the Shipper Scenario is to better understand the supply chain patterns, concerns, and issues of key shippers using the Corridor. Several area shippers were contacted and asked questions pertaining to mode of travel, time of day and seasonal distribution patterns, opinions of the current freight system, and the opportunity to suggest improvements or changes.

Alternate Modes of Travel

It is hardly surprising that the predominant mode of freight transportation used by businesses in the Wilmington-Harrisburg Corridor is truck. Trucks accounted for 81% of the total tonnage originated and 84% of the tonnage terminated in the Philadelphia-Wilmington region while rail accounted for 4% of the originations and 6% of the terminations. The national average is 78% for trucks and 13% for rail. With respect to the WHFS, the only modal options are truck and rail. The WHFS Steering Committee needs to work with both the freight railroads (CSX, NS and BVRT) and local businesses to boost the low level of rail usage. Specific strategies were discussed in Section 3.

Off-Peak Deliveries

The Corridor follows the typical pattern of having the highest concentration of freight shipments coinciding with the morning rush hour. Approximately 35% inbound freight arrives between 7 and 10 AM in preparation for the day's activities. The outbound traffic is even more heavily skewed toward the morning hours as goods are pushed out the door for daytime delivery to customer.

Off-peak and nighttime movement and delivery of freight can be an effective and efficient method for increasing throughput and reducing delays on the congested road network. It not only benefits the community, but also the benefits businesses by freeing up staff from daytime logistics duties and helps truck drivers avoid congestion. Off-peak deliveries will not work for every business due to production schedules, customer commitments, and the nature of their business. But it is a simple, low cost program that should be encouraged in the Wilmington-Harrisburg Corridor for non-residential areas.

Warehouse/Distribution Centers for Local Deliveries

Warehouses and distribution centers (DC) are an important component in the freight transportation network. Temporary storing of goods, consolidating shipments accumulated in local pick-up and delivery trucks to long haul trucks, and redistributing goods between long haul trucks are some of the activities that occur. The strategy is to pack the trucks as fully and efficiently as possible to maximize the utilization of each vehicle. These facilities tend to be located near large production or consumption areas, or at the crossroads of major freight routes, or both. A typical operation might see truckload carriers arriving at the dock and shifting their loads to smaller trucks or delivery vans for distribution to the customer. These long haul trucks then pick-up outbound loads for their backhaul move.

One concept is to find an appropriate location for clustering warehouses and distribution centers serving the Corridor. This would become the focal point for distribution of goods in smaller delivery vans to local businesses and markets, thereby taking some of the local heavy trucks off of the existing Corridor. This idea has been used in other localities, where an actual zoning designation of Warehouse Location was created. The ideal location would be along a major roadway and also have rail access.

Alternative Routes

Between Wilmington and Harrisburg, Route 41, US 30, and PA 283 form the most direct route. Travel between the Port of Wilmington and Harrisburg using US 202 and the PA Turnpike

instead of the Corridor, was included in this study and also studied by the Delaware Valley Regional Planning Commission. The PA Turnpike route is 18 miles further, and depending on the time of day, 10 minutes longer. This adds additional expense from extra fuel, driver hours, and tolls. Annual operating costs, with the additional mileage and the PA Turnpike toll, for three round trips per week were estimated by DVRPC to be 32% higher than using the Corridor. The WHFS found that reducing tolls by 50% for trucks would only lead to a diversion of 32 trucks from the Corridor.

The Pennsylvania Official Transportation and Tourism Map shows Routes 41 and US 30 as Major Through Traffic Routes. The alternative parallel routes, especially those parallel to Route 41, are all designated as Secondary Traffic Routes. These include Routes 896, 82, and 472 which are even less suitable for truck traffic than Route 41.

In conclusion, the Corridor provides the best route for freight traffic between Wilmington and Harrisburg, with few good alternatives available.

Satisfaction Questions and Comments

Not a scenario, per say, but the questionnaire included questions about satisfaction with the current freight system and an opportunity to provide comments. The following are excerpts of comments received on the questionnaire. The comments address the question of “Are there strategies or improvements you would recommend to help relieve congestion along Routes 41, 30, and 283 between Wilmington and Harrisburg?” Comments added by the consultant for clarification are enclosed in brackets [].

- “Build a true by-pass to help take the long-haul traffic off of 41 & 30.”
- “Increase the use of rail from the Port of Wilmington to Harrisburg.”
- “Reduce toll rates on PA Turnpike to encourage use.”
- “Closing 41 to truck traffic is not a viable option!”
- “Everyone knows what needs to be done to relieve congestion on Rt 41, 30, 283 and Rt 23, but no one has the resolve to hold the “smoking gun”.” [Construct a by-pass]
- “Usually, travel between Lancaster & Harrisburg is not an issue for us.... Due to traffic congestion and limited lanes on Rt 30 E & 41, travel between Lancaster & Wilmington area can be a big problem.” [This shipper went on to say by telephone that the transportation system has limited their growth. There are contracts they do not bother bidding on due to limitations in the transportation system.]

Recommendations for Shipper Scenario

The concepts discussed in this shipper scenario are not concepts that can be realistically be mandated, rather they are strategies that need to be sold the local businesses as being beneficial to both the community and the business. The WHFS Steering Committee should develop a brochure promoting the use of “Community Friendly Logistics.” This would consist of good logistics practices that have tangible benefits to companies and community. These include off-peak deliveries, alternate modes and routes, and consolidation of loads.

5. Combination of Proposed Local Roadway Improvements Scenario

Two major efforts underway that likely will have a large impact on freight flows are the Route 30 Corridor Improvement Project and the PA Route 41 Improvement Project. There has also been a series of suggestions put forth by concerned citizens for improving safety and relieving congestion on Route 41. Both topics were reviewed as scenarios.

Improving Freight Traffic Flow

The Route 30 Corridor Improvement Project is being lead by McCormick, Taylor & Associates, Inc. and sponsored by PennDOT. This is a multi-year study focusing on the nine and a half-mile section of US 30 from Route 896 Route 41. The goals of the study are to reduce congestion and improve safety conditions on US 30. A wide range of improvement alternatives for increasing roadway capacity in the corridor—from widening the roadway to the construction of a new highway—will be developed, along with improvements to the intersection of Route 41 and US 30, and a no-build analysis. From a freight standpoint, a US 30 bypass would be highly desirable. It would allow unencumbered passage of westbound trucks to Lancaster City, Harrisburg, and points west and eastbound trucks to Philadelphia, Wilmington, and other eastern locations. A bypass would take many of the 1522 trucks per day reported in Exhibit 2-3 off of the existing US 30 and away from the tourist attractions, restaurants, shops, and hotels.

The Route 41 study is being sponsored by PennDOT and FHWA and is being conducted by KCI Technologies, Inc. The Route 41 study addresses improvements for the 9.5-mile section of PA Route 41 between PA 926 and the Delaware state line in Chester County. It does not address the remainder of Route 41 to Gap. The Route 41 Improvement Project began in fall of 1993 and it currently is under environmental study and preliminary engineering. The alternatives currently under evaluation include various alignments of bypasses around Avondale and Chatham. The anticipated posted speed limit on the bypasses is 45 mph versus the 35 mph on the existing segments through Avondale and Chatham. Given the added circuitry, this will not amount to much transit-time savings. The real transit-time savings should come from eliminating the narrow roads and congestion in Avondale and Chatham. These bypasses would be of benefit to ease congestion and improve freight flow, but without a more complete bypass, the impact of these changes on truck traffic will be minimal.

Members of the WHFS Steering Committee are already participating in these studies. A role the Steering Committee could play is to engage area shippers on how a bypass could be designed to benefit them. Should there be connections to the existing route, and if so, where? Could local shippers utilize warehouses or DCs to make pick-ups or final delivery in smaller cargo vans or trucks, and if so, where should these warehouses and DCs be located? The bypass will attract the through traffic, but by working with area shippers it may be possible to shift some of the local trucks off of the existing roads, thereby enhancing safety for tourist and the horse and buggies.

Managing Freight Traffic Flow

Managing freight traffic flow includes a ban on through trucks, installing traffic calming measures, and increasing enforcement of traffic laws.

A ban on trucks that pass through a region without serving customers in the region is a strategy that has been used successfully in some parts of the country. Truck bans are usually imposed on roads ill suited to handle heavy trucks, with safety and reduction of hazardous conditions the principal motivators. These bans are invoked at the state level, generally by the Department of Transportation.

Should the WHFS Steering Committee support or oppose a ban on through truck traffic on Route 41? First of all, a truck ban is likely infeasible because Route 41 is designated as part of the National Highway System (NHS). Second, any truck ban in which “through traffic” is narrowly defined as Chester County, would have a very negative impact on business in Lancaster, Dauphin, York, and New Castle Counties. Third, any ban must include all other parallel rural roads in the area so that traffic is not diverted to even less suited roads. Finally, the Steering Committee should recognize that a truck ban on Route 41 would have less of an impact on US 30 since many of the nearly 14,000 trucks per day (Exhibit 2-1) use US 30 east to/from the Philadelphia area and do not use Route 41. Also, a large portion of the trucks banned from Route 41 would use Route 202 to US 30 and still avoid the PA Turnpike toll. In conclusion, the WHFS Steering Committee should not consider or support a ban on through trucks on Route 41.

Traffic Calming refers to any of a number of strategies to impede the flow of vehicles on the roadways with the goals of reducing speed and enhancing safety. The most common techniques are: speed humps and bumps; traffic circles; median islands; curb extensions, chokers, and road closures; speed trailer and reader board programs; and, traffic enforcement programs. Traffic calming strategies involving geometrical changes to the roadway are aimed at reducing capacity. Therefore, unless significant numbers of vehicles are diverted to other routes or modes of travel, these techniques will increase congestion and delay on the roads.

If traffic calming were implemented on Route 41, there would be increased usage by cars and trucks of parallel routes such as 82, 472, 896, 30/202, and the PA Turnpike. The hope is that this traffic (especially the trucks) would choose to pay the toll and use the PA Turnpike, but this is really only practical for traffic moving to Harrisburg and points west. Trucks serving business in Chester, Lancaster, York, or southeastern Dauphin Counties would still need to move over Route 41 or other parallel rural roads. This will increase delays and costs for all vehicles and any increase in transit time or cost is a detriment to local businesses and economic development. Though not related to freight, the other argument against traffic calming is that it impedes the movement of emergency response vehicles. The WHFS Steering Committee should not consider or support traffic calming measures on the primary routes of this study. The primary reasons are negative affects on area businesses and increased traffic on other parallel, rural roads.

Increased enforcement is directed at speed limits, over-weight vehicles, and roadside safety inspections. Increased speed limit enforcement would come through additional local or state police stationed along Route 41. Over-weight vehicle enforcement would require increased operating hours for existing weigh stations. Roadside safety inspections require sufficient land with good sight distance to allow for safe stopping and inspections. All of these measures are promoted as strategies to improve safety on Route 41. Ensuring that both trucks and cars operate within the posted speed limits and that trucks are within the legal weight limits and are in good operating condition can only have a positive impact on road safety. However, there would likely be minimal impact to reducing congestion or encouraging through trucks to utilize the PA Turnpike. The rationale behind this is that the truckers most likely to break the laws are also the most likely to avoid paying tolls. Increasing enforcement is a good idea, but it is largely a local effort and should not be a concern of the WHFS Steering Committee.

6. Pennsylvania Turnpike Scenario

This scenario explores options for diverting existing Wilmington-Harrisburg Corridor truck traffic to the PA Turnpike. Moving from the Port of Wilmington to Harrisburg over US 202 and the PA Turnpike is approximately 20 miles and 10 minutes longer than using Route 41, US 30, and PA 283. The PA Turnpike route is also more expensive due to the longer distance and the toll. To help offset these additional costs, two alternatives were considered: a value pricing study looking at the impact of lower truck tolls on part of the PA Turnpike; and, allowing longer combination vehicles on the PA Turnpike and connecting roads.

Truck Toll Reduction -- Value Pricing Study

Wilbur Smith Associates was asked by the Pennsylvania Turnpike Commission (PTC) to evaluate the potential amount of existing truck traffic on Route 41 in Chester County that would shift to the PA Turnpike due to a reduction in truck toll rates between Interchanges 19/247 (Harrisburg East) and 23/312 (Downingtown). Using a detailed intercept survey conducted by the Delaware Valley Regional Planning Commission (DVRPC), it was determined that less than 18% of the current truck trips on Route 41 would be able to take advantage of this discount.

WSA performed a manual diversion analysis that estimates the likelihood of a vehicle choosing the PA Turnpike over Route 41. This analysis included the costs associated with travel time, operating costs, and any toll costs. Toll rate reductions ranging from 10% to 50% were tested, in 10% increments. For a 10% toll reduction only 2 truck trips were diverted to the PA Turnpike and for a 50% reduction on 33 truck trips diverted. These results reaffirm the conclusions reached by DVRPC in their own analysis of the potential to shift traffic from the Route 41 corridor to the Turnpike. A summary document DVRPC developed concluded that the "US 202/PA Turnpike option is time and cost prohibitive even for the minority of total PA 41 shipments that could use the route to serve their origins and destinations."

Longer Combination Vehicles (LCV)

The typical trucks hauling freight in the Wilmington-Harrisburg Corridor that have been discussed in this report are the standard 5-axle, 18-tire trucks. There are also 6-axle trucks, usually consisting of a tractor and two 26-28 ft trailers, which are allowed to operate on the PA Turnpike and area interstates. Longer Combination Vehicles (LCV) refers to seven or more axles. These include Rocky Mountain Doubles (one 45-48 ft trailer and one 26-28 ft trailer), Turnpike Doubles (two 45-48 ft trailers), and triples (three 26-28 ft trailers). This scenario addressed whether allowing LCVs on the PA Turnpike, connecting interstates, and selected access roads would divert truck traffic from the Corridor.

The US Department of Transportation submitted a report on the Comprehensive Truck Size and Weight Study to Congress in August 2000. According to this study, if a National Network (consisting of interstates, primary toll roads, and key connectors) was open to LCVs, there would be a decrease of 77% in 5-axle truck use, an increase of 2600% in LCV use, and an overall decrease of 23% in total truck use, based on vehicle miles traveled. Furthermore, freight rail usage would decline by 20%. The study went on to identify significant economic savings associated with pavement, congestion, energy, and shipper costs. There were substantial increases in bridge and roadway geometric costs.

While the benefits of LCVs on the Wilmington-Harrisburg Corridor are potentially large, the obstacles are even larger. Obtaining the approval to operate LCVs on the PA Turnpike and connecting roads (specifically US 202) will meet with enormous and numerous obstacles. These include:

- A current freeze on new LCV operations at the federal level
- Strong opposition from the Pennsylvania Turnpike Commission (PTC)
- Strong opposition from concerned citizen and lobbyist groups (including the Coalition Against Bigger Trucks and Citizens for Reliable and Safe Highways (CRASH))
- Strong opposition from the freight railroads
- Regulatory changes and Legislative approval from multiple states
- Safety concerns
- Cost of geometrical improvements to sections of the roadway
- Cost of possible bridge upgrades
- Cost of constructing areas to assemble and break-down the LCVs

It is very unlikely that LCVs will be allowed to operate on the PA Turnpike in the near future, but should the WHFS Steering Committee decide to further explore this option, a task force should be formed to:

- Identify all the specific PA, DE, and Federal regulations that would have to be changed.
- Initiate a study to identify all necessary geometrical, bridge, and facility changes along with the estimated costs. This would include the PA Turnpike, US 202, PA 100 and any roads necessary to access the assembly/breakdown yards.
- Further refine and identify the benefits to the Corridor.

7. Final Recommendations

The committee established for this study is a unique multi-jurisdictional collection that spans city, county, and state boundaries and includes both public and private sector interests. This is the only group that is focused on the big picture freight and economic concerns of the entire Corridor. This Committee realizes the dependencies that exist between roads, modes, and regions in an efficient freight network.

This Steering Committee provides a good basis for increasing involvement. One of the ways of increasing involvement is to create task forces in the form of sub-committees that focus on specific areas or activities. This might include producing newsletters that report on the progress and improvements in the region's freight system, identifying projects for subsequent Transportation Improvement Programs (TIP) or long range plans, and coordinating with shippers and receivers by working together with local traffic clubs.

The first steps of the Steering Committee should be to establish a goal, a set of objects, and a set of proposed strategies. The goal might be to: **“Plan and develop a reliable and sustainable freight system in the Wilmington-Harrisburg Corridor.”** The objectives towards achieving this goal should attempt to balance: enhancing freight mobility; improving the quality of life;

improving safety, and; enhancing economic development. The proposed set of strategies has been the focus of this report.

The strategies themselves fall into the four scenario categories: railroad, shipper, proposed local improvements, and the PA Turnpike. A tasks force for each could be created.

The rail task force should:

- Initiate contact with the I-95 Corridor Coalition and lend additional arguments and support for a dedicated freight line along Amtrak's NEC.
- Initiate a study of a New Castle County rail terminal with the support of NS, DelDOT, and WILMAPCO.
- Initiate a study of increased utilization of the Brandywine Valley Railroad with the support of the BVRV. This effort involves working with shippers to identify new direct rail and transload opportunities.

The shipper task force must open a dialog with local industries and farmers to devise freight movement strategies that benefit all. These might include:

- Alternate modes of travel (need to coordinate with the BVRV effort)
- Off-peak deliveries
- Warehouse/Distribution Centers for clustering freight activities
- Alternate routings over the roads (these appear to be minimal)
- Develop a "Community Friendly Logistics" brochure and work with local businesses as outlined in Section 4.6

The task force on proposed local improvements needs to insure that the vitality of the entire corridor is maintained as local improvements are designed or planned. This includes:

- US 30 bypass or widening
- Route 41 bypasses
- Through truck ban
- Traffic calming

The PA Turnpike scenarios seem to hold the least promise. Regardless of how much the tolls are discounted, unless they are eliminated they will still be greater than the cost of using the Corridor. The LCV concept has great potential to divert truck traffic to the PA Turnpike, but the opposition, legislative, and legal battles would make this an extremely difficult concept to implement.

Each of the Corridor Metropolitan Planning Organizations (MPO) should work individually and together to continue the momentum generated from this study. The following summarizes, for each scenario, the role of each MPO and the impact on that MPO's area. Roles are defined as none, monitor, support, or lead the effort. Impact is categorized as low, medium, or high.

DVRPC (Role/Impact)

- Rail Freight Line along NEC (Support/Medium)
- New Castle County Intermodal Terminal (Support/Medium)
- Brandywine Valley RR (Lead/Medium)
- Industry Solutions – Community Friendly Logistics (Lead/Medium)
- U.S. 30 Bypass – (Monitor/High)
- PA 41 Bypasses – (Lead/High)

- Truck Ban – (Monitor/High)
- Traffic Calming – (Monitor/High)
- Increased Speed/Weight Enforcement – (None/Low)
- PA Turnpike/Tolls – (Support/Low)
- PA Turnpike/LCV's – (Monitor/High)

Lancaster County Transportation Coordinating Committee (Role/Impact)

- Rail Freight Line along NEC (Lead/Medium)
- New Castle County Intermodal Terminal (Support/Medium)
- Brandywine Valley RR (Support/Low)
- Industry Solutions – Community Friendly Logistics (Lead/Medium)
- U.S. 30 Bypass – (Lead/High)
- PA 41 Bypasses – (Monitor/Low)
- Truck Ban – (Monitor/High)
- Traffic Calming – (Monitor/High)
- Increased Speed/Weight Enforcement – (None/Low)
- PA Turnpike/Tolls – (Support/Low)
- PA Turnpike/LCV's – (Monitor/High)

Harrisburg Area Transportation Study (Role/Impact)

- Rail Freight Line along NEC (Support/Medium)
- New Castle County Intermodal Terminal (Support/Medium)
- Brandywine Valley RR (Support/Low)
- Industry Solutions – Community Friendly Logistics (Lead/Medium)
- U.S. 30 Bypass – (Monitor/High)
- PA 41 Bypasses – (None/High)
- Truck Ban – (Monitor/High)
- Traffic Calming – (Monitor/Medium)
- Increased Speed/Weight Enforcement – (None/Low)
- PA Turnpike/Tolls – (Support/Low)
- PA Turnpike/LCV's – (Monitor/High)

WILMAPCO (Role/Impact)

- Rail Freight Line along NEC (Support/Medium)
- New Castle County Intermodal Terminal (Lead/Medium)
- Brandywine Valley RR (Support/Medium)
- Industry Solutions – Community Friendly Logistics (Lead/Medium)
- U.S. 30 Bypass – (Monitor/Low)
- PA 41 Bypasses – (Monitor/Low)
- Truck Ban – (Monitor/High)
- Traffic Calming – (Monitor/High)
- Increased Speed/Weight Enforcement – (None/Low)
- PA Turnpike/Tolls – (None/Low)
- PA Turnpike/LCV's – (Monitor/High)

This study and the work of the Steering Committee have drawn attention to the interdependencies and importance of the freight system to this region. The momentum should not be lost.