High-Profile Rail Clearances in the State of Pennsylvania

Report 6

Executive Summary

Prepared for: Pennsylvania Department of Transportation
Prepared by: Transmode Consultants, Inc. and Apogee Research

November 10, 1992

High-Profile Rail Clearances in the State of Pennsylvania

Executive Summary

The Need

- The freight transportation system is becoming increasingly containerized, both in the U.S. and throughout the world.
- Virtually 100% of the freight moving in international maritime trade that can be containerized has already been converted.
- New doublestack technology (one container on top of another) was developed by the railroads for the inland delivery of this containerized international freight in the mid 1980s. By the late 1980s, almost all of it was moving doublestack.
- The cost saving of doublestack was the initial driving force. Two containers can move by doublestack for about the same cost as one in conventional service. But there are important service improvements as well.
- The low cost and improved service of moving containers have now begun to attract domestic longhaul truckload traffic to rail.
- J.B. Hunt, the most innovative of the truckload carriers, has formed an intermodal company in partnership with the Santa Fe Railroad and has entered into long-term contracts with most of the major railroads to provide intermodal service for the company's domestic truckload movements.
- Hunt has now issued a public offering of stock to raise the capital to finance the purchase of 20,000 new 53-foot, high-cube containers (9' 6.5" high, rather than the 8' 6" international maritime standard) for use in domestic intermodal service (truck and rail in combination).
- Other truckload carriers (such as Schneider National and Werner Enterprises) have been scrambling to line up long-term contracts with the railroads for the haulage of their domestic 9' 6.5" intermodal containers to make sure that they don't get left behind.

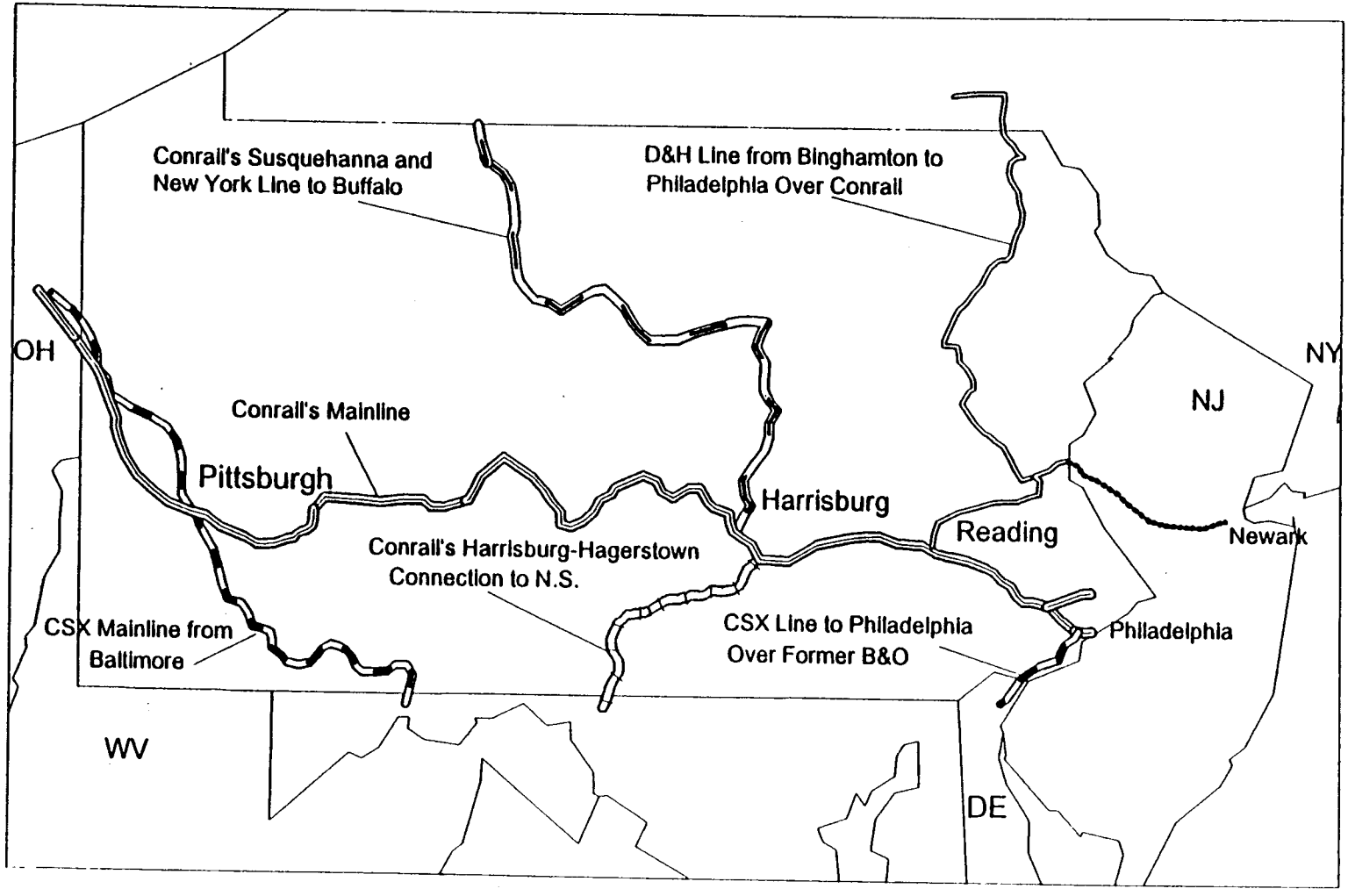
The Facilities

- The railroads need vertical clearances on their lines of 20-feet, 8 inches to handle the new domestic doublestack cars with their high-cube containers. These clearances now exist in virtually all of the western States and most of the States in the East, but not in Pennsylvania. Pennsylvania cannot even handle the smaller international doublestacks.
- Without doublestack rail service the ports serving Philadelphia cannot hope to compete for the international liner trade--particularly the new Canadian markets.
- Tri-level autorack cars, for carrying new automobiles, also require higher clearances. These newer railcars cannot reach Philadelphia and central New Jersey. Older, less efficient autorack cars must use impossibly circuitous routes to reach a handful of locations in eastern Pennsylvania, New Jersey, Delaware and northern Maryland.
- Also, there are a number of Pennsylvania-based industries (such as Air Products, Fuller Industries and Joy Products) that construct very large equipment for export which are difficult to ship by highway that could use special horizontal clearances.

The Markets

- Working with the railroads and the affected industries we have selected three routes (out of five initially identified) that can and should be cleared to a height of 20' 8" to handle intermodal, auto traffic and wide loads.
- The first is Conrail's main east/west route from Philadelphia through Harrisburg and Pittsburgh to the Ohio line. This route would allow access to the Midwest and western markets from Pennsylvania and make it possible for the ports in Pennsylvania to compete against other East Coast ports for inland and West Coast traffic.
- The second is the Canadian Pacific's Delaware and Hudson line through Buffalo to Binghamton, with trackage rights over Conrail's line through Scranton, Allentown and Reading, from which it uses the Conrail Main Line to South Philadelphia. This line provides the shortest rail access to Toronto from any U.S. port and allows CP to compete on moves to Chicago.

Rail Corridors Considered for Overhead Clearance



- The third route is CSX's line through Delaware, Baltimore, Washington, western Maryland and western Pennsylvania to Newcastle, Pennsylvania, where it connects to CSX's lines to the Midwest and the South.
- Each of these three lines connects Pennsylvania to important regional markets in the South, the Midwest or Canada and each will serve domestic intermodal traffic, international traffic, automobile traffic and high and wide "super-loads."
- The ports serving Pennsylvania will, for the first time in twenty years be in a position to compete with other East Coast ports, including Halifax, Montreal, New York, Baltimore and Norfolk.

The Costs

- The costs of providing the clearances over each of the routes were prepared by the individual railroads and these costs were reviewed in detail by Transmode's engineering team and adjusted to account for shared trackage and for differences in overhead rates and add-ons. These costs are shown in the table on the following page.
- In addition to the cost of eliminating obstructions within Pennsylvania each of the railroads is committed to clearing their right-of-way beyond the Commonwealth's borders to a point where the connection can be made to other major markets. Conrail has $3.1 million of clearing which remains to be done in eastern Ohio. CP has recently spent $1 million to provide clearances in the State of New York all the way to Buffalo. CSX has determined that the cost of clearing its tunnel underneath the Baltimore Harbor is $24.8 million. It also faces costs for increasing track capacity and clearing obstructions in western Maryland of $9.9 million. These additional investments must be made if the routes are to be usable.
- Investments in new intermodal facilities (e.g. terminals) must also be made in the Commonwealth of Pennsylvania to handle the increased traffic. These investments exceed $21.8 million.

Costs and Benefits of Overhead Clearance Projects in Pennsylvania

Route Description	Railroad's Estimated Line Cost	Railroad's Estimated Terminal and Capacity Costs	Transmode's Estimated Total Cost	Common-wealth's Share from RR Proposal	Net Present Value of Cost Savings	Comments
Conrail's Main Line from Philadelphia to the Ohio line	$58.4[1]	$12.0	$58.4	$25.1	$224.5	The costs shown cover 84 structures. Conrail will also spend $3.1 million clearing obstructions in other states.
Canadian Pacific's line through Binghamton to Buffalo	$18.7[2]	$0.5	$12.6	$9.3	$25.4	Costs cover 25 structures. CP has recently spent $1 million clearing obstructions in the State of New York.
CSX's line through Baltimore and western Pennsylvania	$8.9	$2.5	$9.9	$3.0	$132.4	Costs cover 18 structures in E. PA in W. PA and plans to spend $32 million clearing obstructions in Maryland.
Totals[3]	$86.0	$15.0	$80.9	$37.4	$382.3	

Footnotes: 1) Includes cost of improvements made to joint trackage w/CP's D&H Line from Birdsboro to So. Philadelphia
2) Includes cost of improvements made to joint trackage w/CSX Line from Park Junction to Penrose
3) Costs of additional horizontal clearances of $1.01 million and the benefits associated with them are not included here, but are handled separately. The benefits associated with handling "super-loads" are included in the benefits measure.

The Savings

- Transportation savings of up to $200 per container, before delivery, are available on a Conrail Chicago to Philadelphia shipment that would switch from non-union truckload truck to doublestack rail. If the truck movement required to move the shipment to and from the intermodal terminals is in the direction of travel and is less than about 100 miles, most of this saving will be passed on to the shipper. Only 50 of the 1000 or so longhaul truck drivers who will be replaced by switching to doublestack come from Pennsylvania. Most come from other regions.
- On shipments to or from the West Coast the savings are even greater. For Pennsylvania shippers currently shipping through Newark, New Jersey, there is also a savings in mileage. A mileage savings is also available for Canadian shippers who switch from the ports of Halifax or New York to Philadelphia.
- For shipments of light density products (i.e., those which can make use of the greater space available in a 53' long, 9' 6.5" high domestic container) it is possible to realize an additional 20 percent gain in productivity over a standard 45-foot rail piggyback trailer. Similar gains in productivity, along with reductions in mileage are available for auto shippers in tri-level autorack cars.
- Savings in capital carrying costs on inventory are available to former piggyback shippers which can take advantage of the savings in transit time and reliability of doublestack, which almost match that of truck. Loss and damage claims are also reduced.
- These savings have been traced out market by market and summed for each year from 1995, when we anticipate that the cleared lines could be ready for use, to the year 2000. The net present value of the direct transport and logistics cost savings associated with each of the lines is shown in the previous table.
- Note that these savings are only those which will be realized by Pennsylvania shippers, receivers and carriers. A corresponding amount will be saved by Pennsylvania's trading partners.

The Impacts

- The construction industry in the Commonwealth will be immediately impacted by the expenditure of funds on new construction associated with clearing the obstructions. More than 1200 new construction jobs would be created in the first year. The secondary impact of these expenditures could account for the creation of another 3500 jobs throughout the State. Construction jobs will be reduced in 1994 and 1995 as construction on bridges and tunnels is completed.

- By 1995, the transportation and logistics costs saved by Pennsylvania-based users of the more efficient rail system will begin to translate directly into a "Pennsylvania" advantage in the marketplace. Lower costs of transport for exporters of Pennsylvania products will make Pennsylvania goods less expensive and more attractive to buyers.
- With the transportation and logistics cost savings identified above, Pennsylvania producers will be more competitive and can use a portion of the money saved to expand their plant and to increase their work force. They will eventually grow faster than competitors in other regions and increase their output. This translates into a more than $2.5 million increase in State tax revenues by the year 2000.
- This increased output translates directly into about 1000 new manufacturing jobs in 1995, which will grow to 2700 jobs by the year 2000.
- Pennsylvania consumers also benefit. The delivered costs of consumer goods will be lowered. This will make Pennsylvania a more attractive place to live and work by lowering the cost of living within the State.
- Pennsylvania will also be in a position to capitalize on its central geographic position, highly efficient labor force and low cost land to serve the region as the distribution capital of the Mid-Atlantic Region. Harrisburg is within a 200-mile radius of 44 million people with personal consumption expenditures of $515 billion. The improvements in transportation access make feasible the relocation of portions of the wholesale distribution industry currently located in New Jersey, Maryland, New York and Virginia to new, highly efficient "Just-In-Time" distribution centers in central and eastern Pennsylvania. We estimate that by the year 2000 this could translate into as many as 2500 new jobs for warehouse workers and distribution employees, principally truck drivers. Although long-haul, truckload, non-union carriage will be reduced, there will be a marked increase in short-haul trucking activity for distribution.
- The impacts on the Philadelphia area ports could also be dramatic. Without doublestack rail service no modern port can hope to compete for export/import cargo. With efficient doublestack rail providing access to the Midwest and to Canada, Philadelphia as a seaport can be expected to attract its share of traffic. It could replace Halifax as Canada's port of choice. It has already become the port of choice for the movement of fruit, refrigerated products and frozen goods. It is also favored as the port for handling break-bulk products and especially very large or very heavy loads. We estimate that by the year 2000 that traffic will have increased by more than 50% from 1995 when the new doublestack rail service is placed into operation.

The Rationale for Investment

- The State of Pennsylvania is justified in contributing public funds to the investment for a variety of very compelling reasons:
  1) All three projects show total public benefits far in excess of costs, though the benefit to cost ratio varies from 3.84 for the Conrail Main Line through Pennsylvania, to 2.02 for the CP's D&H line through Binghamton and 13.37 for CSX's line through Baltimore and western Pennsylvania. Note that if the costs of clearing obstructions in Maryland is included, the CSX ratio goes to 3.16.
  2) The State's share of the investment is required if the individual railroads are to realize a reasonable return on their direct share of the investment.
  3) The presence of all three railroads creates a competitive situation which insures that maximum benefits flow through to users and to the public. For port traffic, no other eastern port has a similar situation.
  4) The more quickly all three projects can be placed into operation, the better the competitive position of the Commonwealth *vis a vis* other states and other regions.
  5) The Commonwealth's presence in the negotiations helps to insure full participation and fair play between shippers, carriers and the public.
  6) Because of the unusually large percentage of through truck traffic in Pennsylvania, small investments in railroads can save much larger expenditures for highways, bridges and their maintenance. They also reduce the congestion created by this through traffic.
- By participating in this set of projects the Commonwealth is contributing to improved intermodalism and increased efficiency of the entire productive capacity of the United States.

Summary of Major Conclusions

The most important findings are summarized below:

- The expenditure of almost $81 million on construction over the next three years will result in some 900 new construction jobs available in 1993. Around 2100 additional jobs in service and support industries will be required to support this additional growth in the economy of the Commonwealth. Construction will require about 3 years to complete.

- The construction of all three projects will result in $53 million of savings in transportation and logistics costs by Pennsylvania industry in 1995. This will rise to more than $114 million in the year 2000--a net present value of $382 million.
- By 1995, about 2700 new jobs will be available in construction, manufacturing, transportation and distribution as a direct consequence of the transportation and logistics cost savings associated with the project, with an additional 6400 jobs in secondary services.
- The continuing and growing transportation and logistics costs savings will lead to 6600 new jobs in manufacturing, transportation and distribution by the year 2000, with 16,000 secondary service and support industry jobs.
- The projects will result in additional tax revenues to the Commonwealth of almost $50 million in net present value.
- The Port of Philadelphia will, for the first time since containerization, have the opportunity to be a full-scale participant in the movement of international marine containers in competition with other major ports on the Mid-Atlantic coast.
- The Commonwealth will participate in the rapidly growing longhaul domestic container markets--the most revolutionary development in surface freight transportation in the last 25 years. The implications for Pennsylvania-based manufacturing and distribution industries are profound.
- There will be the potential for establishing Pennsylvania as the center of a restructured wholesale distribution industry which eliminates excess inventory by consolidating operations into regional centers using modern, computer-directed, overnight distribution operations for "Just-In-Time" delivery. Although Pennsylvania already participates in this industry there could be dramatic growth, with implications for attracting jobs from surrounding states.

If the Commonwealth chooses not to invest in the new facilities a number of things could happen as a result.

1. There would likely be a decision by one or more of the railroads not to invest in the clearances required to compete in the doublestack container market because of an inadequate return on their investment.
2. This would reduce competition in the marketplace and lower the share of savings realized by Pennsylvania-based industries.
3. Some markets might receive no doublestack service. If, for example, CP dropped out, the Port of Philadelphia could not capture any of the Canadian market. If CSX failed to participate, the southern markets could not be reached with service from Philadelphia.
4. Each railroad serves a distinct set of markets as well as common markets. All are needed if competitive service is to be available to Pennsylvania as a whole.

High-Profile Rail Clearances in the State of Pennsylvania
Findings of the Study

Presentation

to

Members of the Pennsylvania Legislature and Staff

Made by

Transmode Consultants, Inc.

and

Apogee Research

Harrisburg, Pennsylvania

November 17, 1992

There were six principal objectives of the study.

- Identify candidate corridors
- Explore rail and shipper support for each corridor
- Estimate the cost of each candidate option
- Determine benefits of each option
- Assess economic impacts of each option
- Facilitate negotiations with the affected rail carriers

Revolutionary change has occurred in the transportation industry over the last few decades.

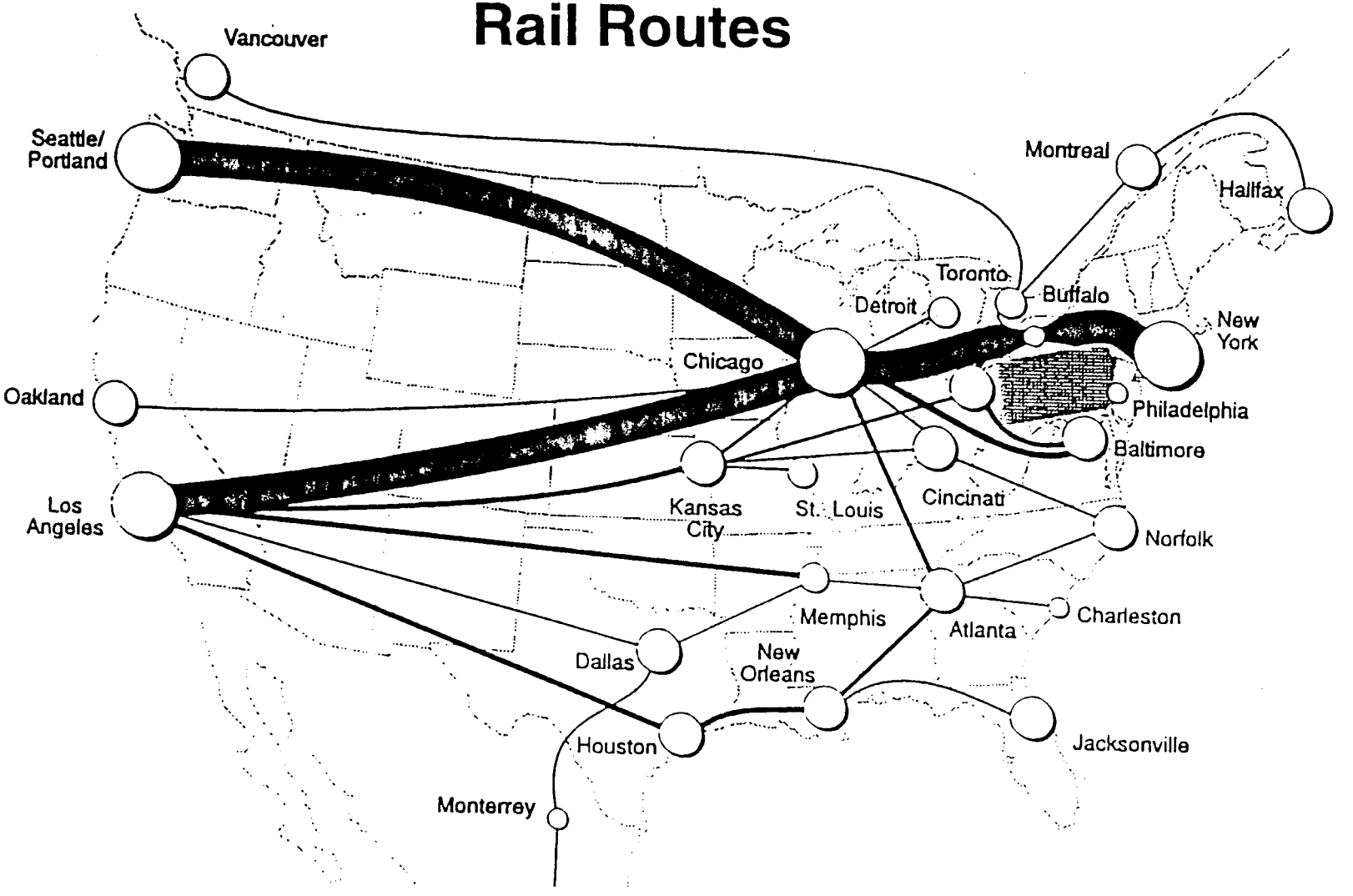
- The international shipping industry switched to containers in the 1960s and has grown rapidly ever since.
- Trucking was transformed by deregulation from dominance by the unionized Less-Than-Truckload sector to dominance by the nonunion truckload sector.
- Rail has modernized its operations, spun off its low-density lines to short line railroads and developed doublestack technology to handle maritime containers. It is now beginning to adapt that technology to handle even larger domestic containers.
- Truckload motor carriers are contracting with the railroads to use these new domestic containers.

Pennsylvania--The Keystone State--cannot accommodate the new container technology.

- All of the major ports in the West and the South can handle containers.
- All of the major freight corridors between the West and the Central States can handle doublestack trains connecting the West Coast with the Midwest.
- Most of the ports in the Southeast can handle containers and are connected into the doublestack rail network.
- New York is the largest port on the East Coast and it is served by doublestack service which connects it to the Midwest and to Canada.

- Philadelphia is the only major port in the Middle Atlantic region that is not served by rail doublestack container service.
- Pennsylvania also is a barrier to high and wide loads moving by highway.

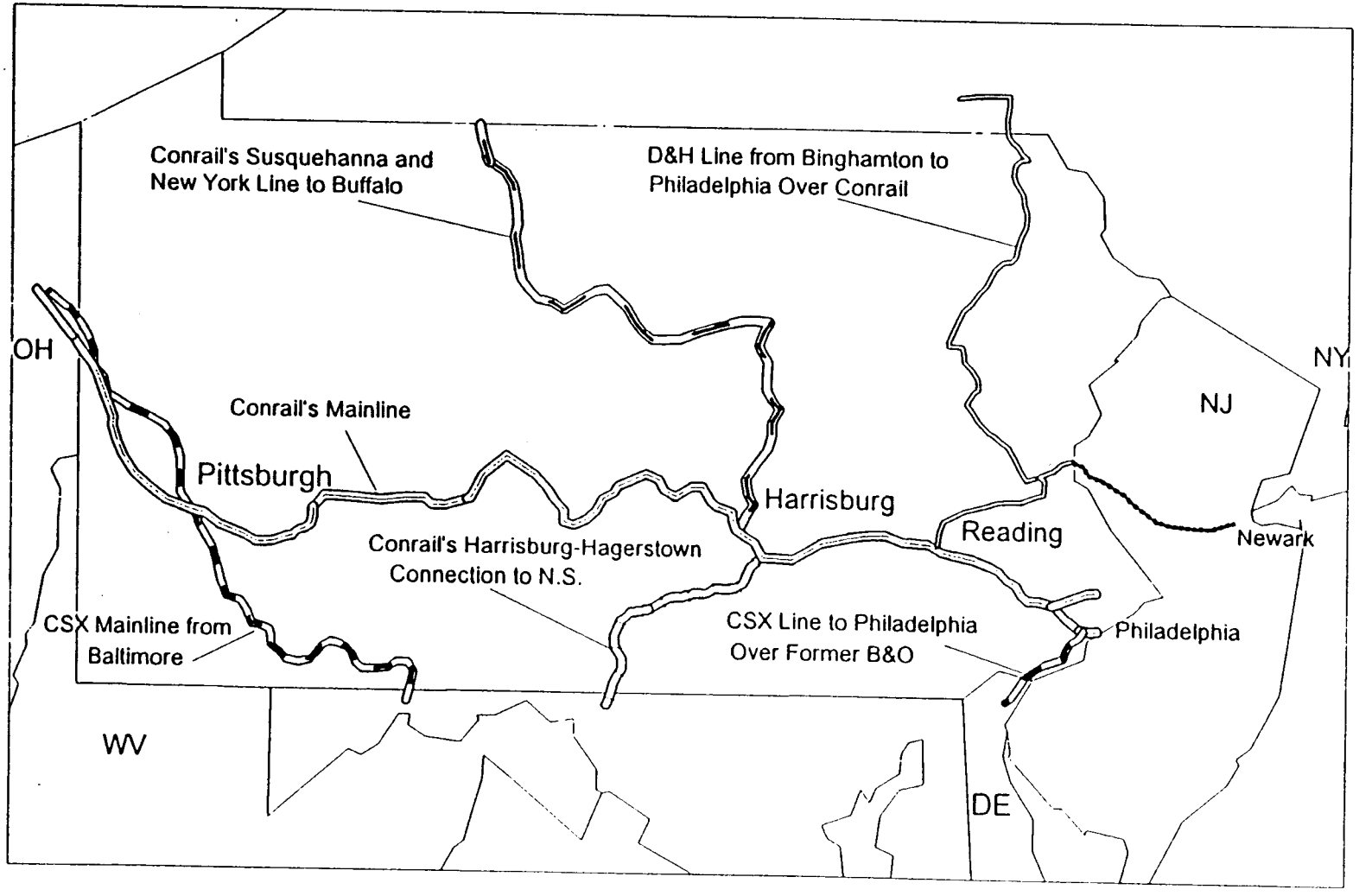
Doublestack Service via Major North American Rail Routes



There are five rail corridors that could be candidates for overhead clearance.

1. The Conrail Mainline from the west all the way to Philadelphia.
2. Conrail's Susquehanna and Buffalo line from Harrisburg to the State Line.
3. Conrail's line connecting Harrisburg to Hagerstown and the Norfolk Southern gateway.
4. CSX's line connecting Philadelphia to Baltimore
5. Canadian Pacific's D&H trackage rights from Philadelphia over Allentown to Binghamton.

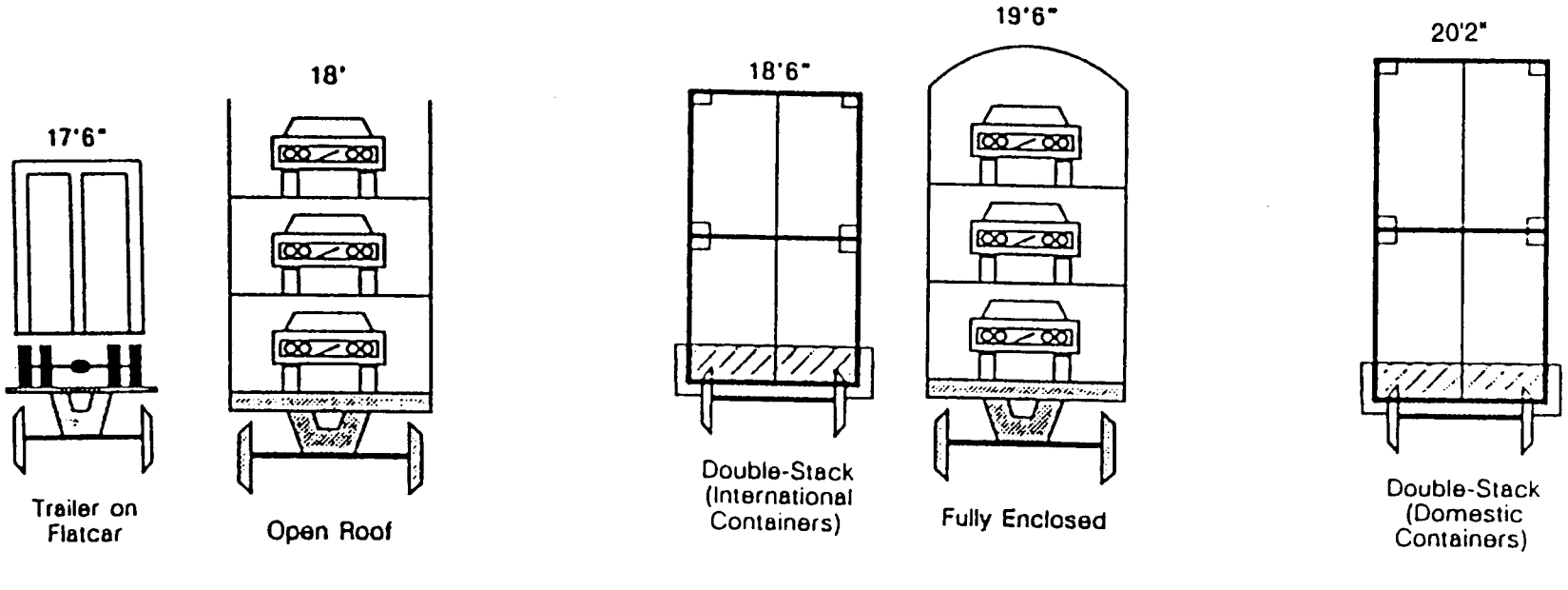
Rail Corridors Considered for Overhead Clearance



The standards governing overhead clearances are currently being negotiated between the railroads, their suppliers and the major shippers.

- The original standard was the profile of a standard boxcar. The clear height was 17 feet.
- More recently the ability to carry Trailer-on-Flat-Car (TOFC) and Container-on-Flat-Car (COFC) in a doublestack configuration re-established the height standard to 19'6".
- Automotive tri-level cars and domestic doublestack have now raised the height envelope to around 20' 8".

Evolution of the Rail Load Hauling "Envelope"



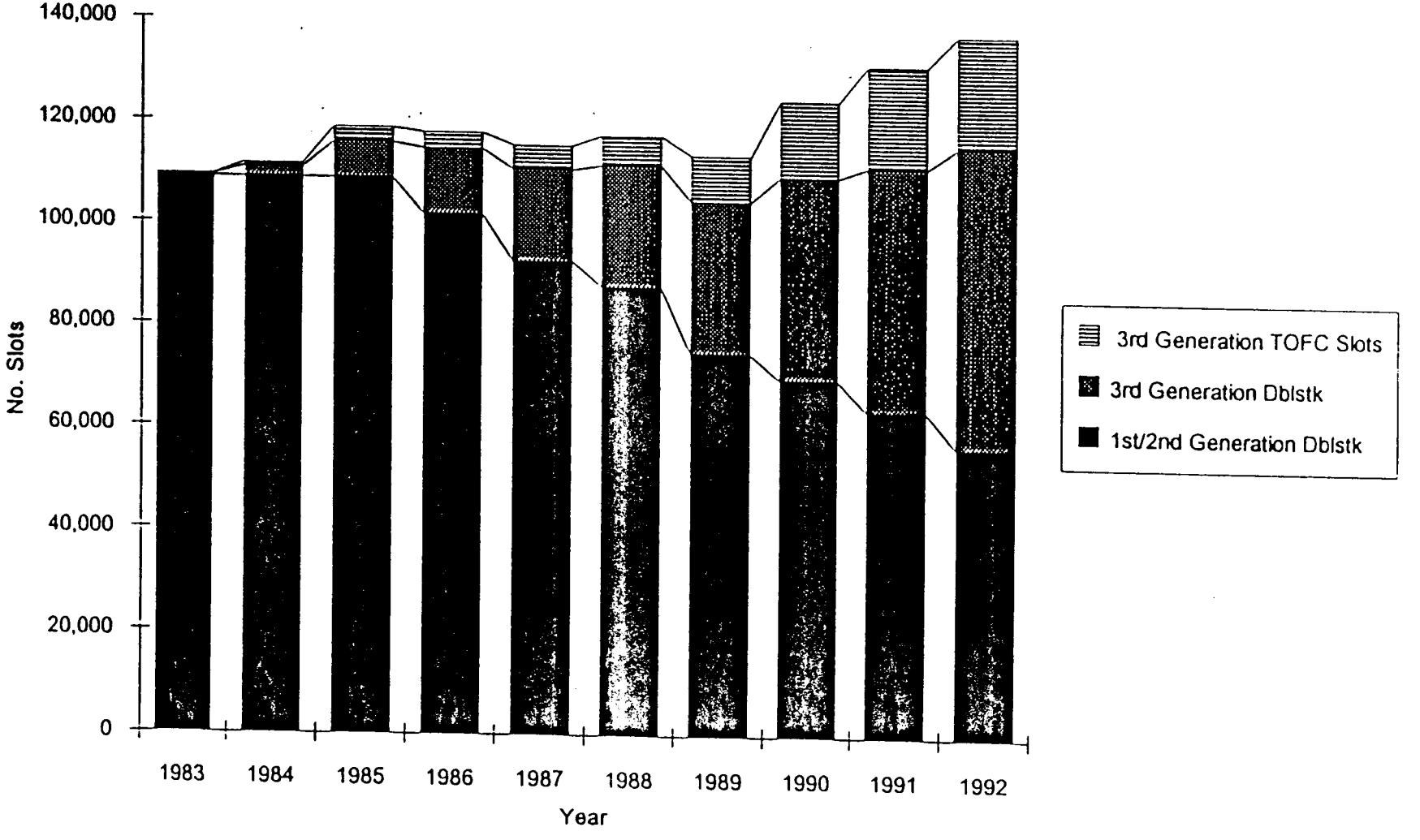
1960 1970 1980 1990

Time →

New Domestic Container Car Designs

	Traditional Steamship Line Container	New Domestic Container
Bottom Container	9'6" (max.)	9'6-1/2 "(Std.)
Top Container	9'6" (max.)	9'6-1/2 "(Std.)
Inter Box Connector (15 lbs)	1-1/4"	1-1/4"
Well to Top of Rail	1' 3/4"	1' 2"
Total Height	20' 2"	20' 4"

Intermodal Equipment Capacity



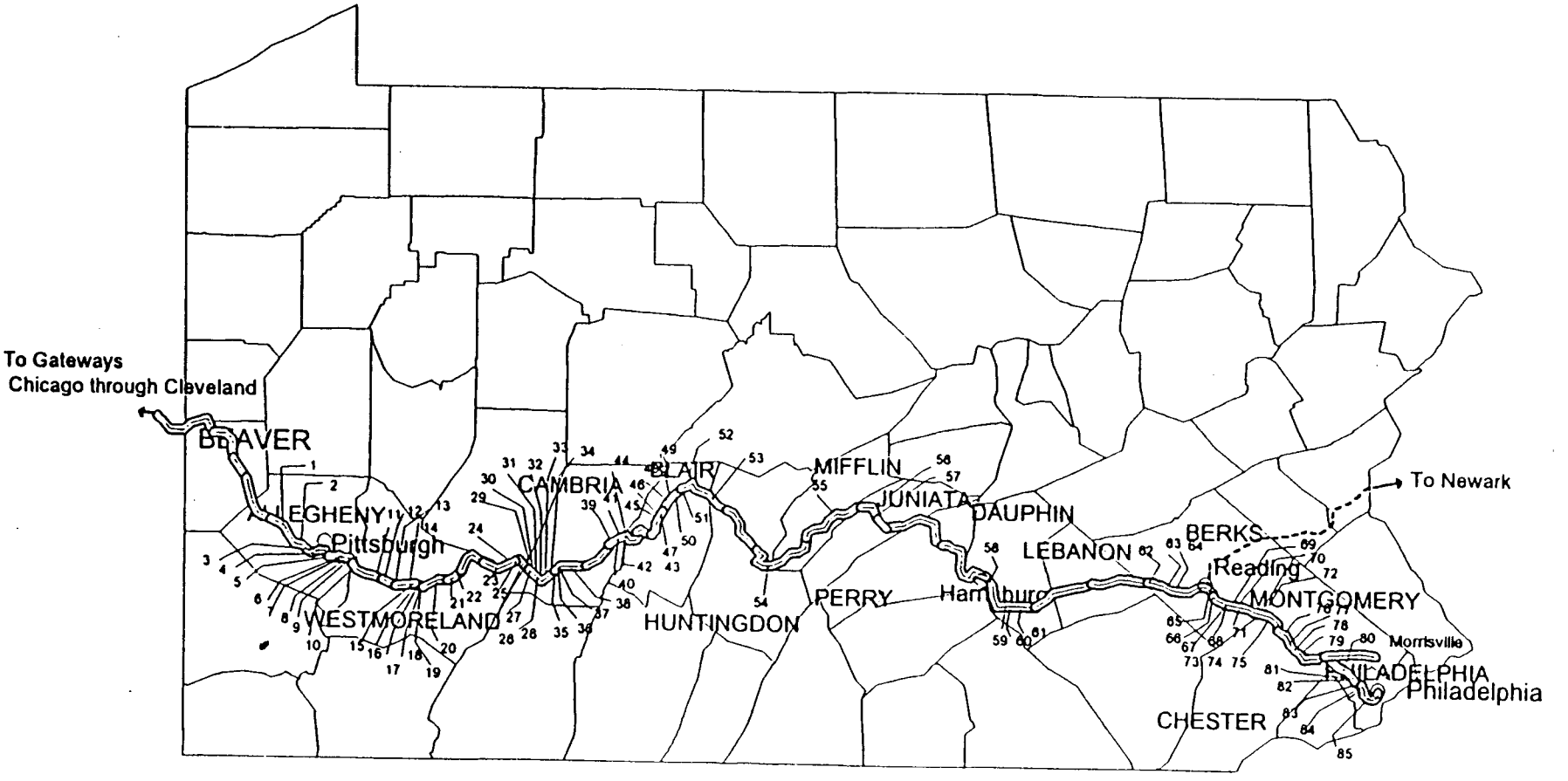
- Tunnels and bridges also have to be able to handle the "chording" of these heights horizontally on curves.
- Shippers of very large loads have even more stringent lateral clearances.

For the purpose of developing cost estimates for this study we have set a vertical clearance standard of 20' 8". The railroads will attempt to clear obstructions to 20'11" where is can be done without additional cost.

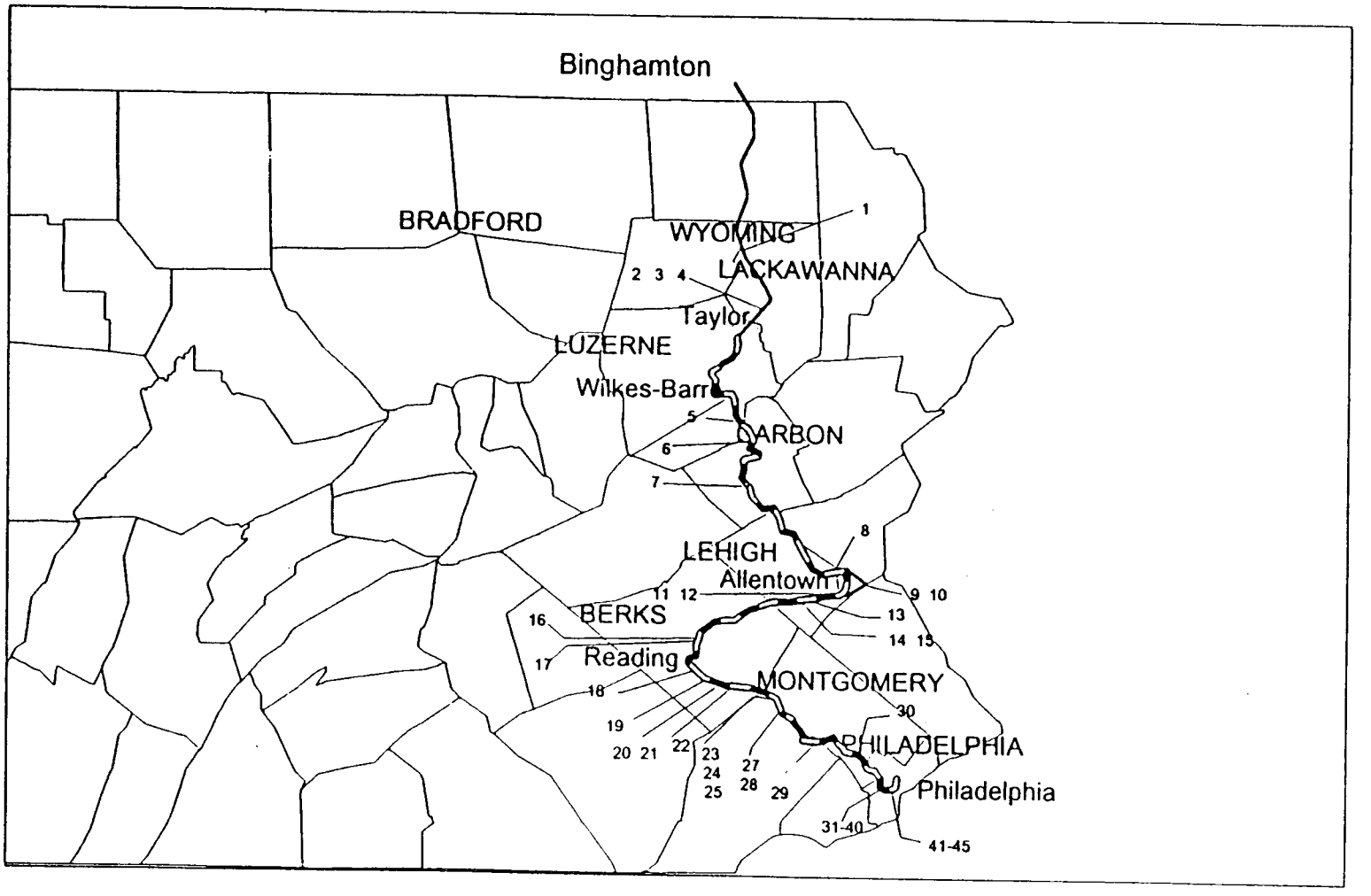
The costs of each option have been explored by both the railroads involved and by Transmode's engineering team.

- Two of the options--the Susquehanna and Buffalo line and the Conrail connection from Harrisburg to Hagerstown were dropped from further consideration.
- For the remaining options the obstructions were identified and the cost of overcoming them was estimated.
- An upper limit, a lower limit and a best estimate of the cost was prepared for each of the options.
- The incremental cost of increasing horizontal clearances on certain routes was also prepared.

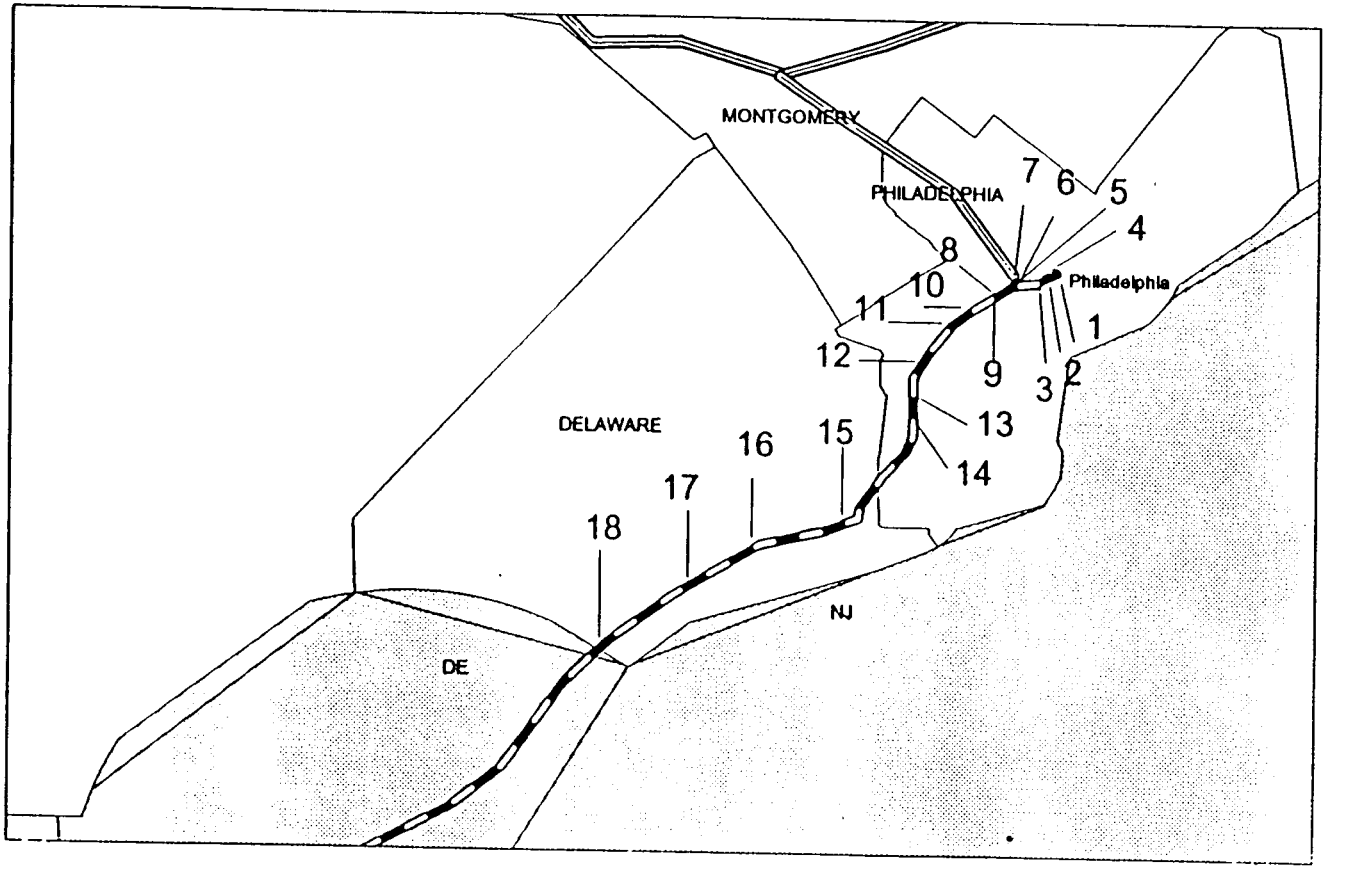
Conrail's Pennsylvania Main Line



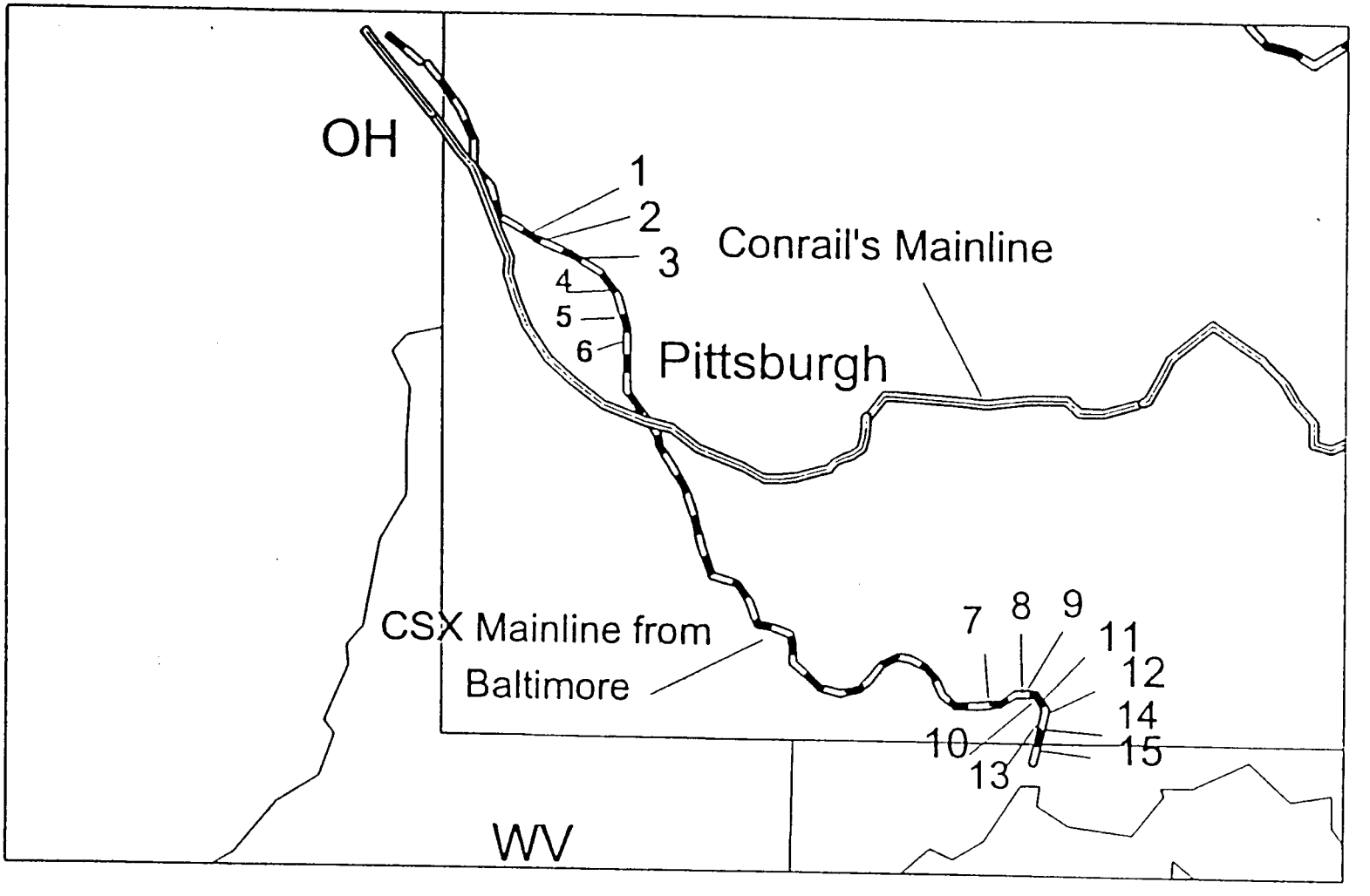
CPs D&H Line through Binghamton over Conrail



CSX's Line to Baltimore



CSX in Western Pennsylvania



Best Estimate of the Costs for Each Option

Option	Philadelphia & E. PA	Harrisburg & Central PA	Pittsburgh & W. PA	Totals
CR Main Line	12.8	.9	44.7	58.4
CP D&H	12.6			12.6
CSX through Baltimore	4.2		5.7	9.9
Incremental Cost of Horizontal Clearances	1.1			1.1
Totals	30.7	.9	50.4	82.0

Costs and Benefits of Overhead Clearance Projects in Pennsylvania

Route Description	Railroad's Estimated Line Cost	Railroads Estimated Terminal and Capacity Costs	Transmode's Estimated Total Cost	State's Share from RR Proposal	Net Present Value of Cost Savings	Comments
Conrail's mainline from Philadelphia to the Ohio Line	**$58.4[1]**	**$12.0**	**$58.4**	**$25.1**	**$224.5**	**The costs shown cover 84 structures. Conrail will also spend $3.1 million clearing obstructions in other states.**
Canadian Pacific's line through Binghamton to Buffalo	**$18.7[2]**	**$0.5**	**$12.6**	**$9.3**	**$25.4**	**Costs cover 25 structures. CP has recently spent $1 million clearing obstructions in the State of New York.**
CSX's line through Baltimore and Western Pennsylvania	**$8.9**	**$2.5**	**$9.9**	**$3.0**	**$132.4**	**Costs cover 18 structures in E. PA in W. PA and plans to spend $32 million clearing obstructions in Maryland.**
Totals[3]	$86.0	$15.0	$80.9	$37.4	$382.3	

Footnotes: 1) Includes cost of improvements made to joint trackage w/CP's D&H Line from Birdsboro to So. Philadelphia

2) Includes cost of improvements made to joint trackage w/CSX Line from Park Junction to Penrose

3) Costs of additional horizontal clearances of $1.01 million and the benefits associated with them are not included here, but are handled separately. The benefits associated with handling "super-loads" are included in the benefits measure.

Summary of Costs

	Conrail's Original Proposal					Costs in Railroad Proposals								Transmode's Summary by Line		
						New CR/CP Proposal				Terminal & Capacity Addn's						
	CR	CP/ AP	PA	US	Total	CR	CP	PA	CSX	CR	CP	CSX	Total	Estimated Line Cost	Estimated Terminal Cost	Total Cost
Ohio/PA Border-Reading (Valley Junction)	38.50	--	16.50	--	55.00	37.50	0.00	16.10	--	12.00*	--	--	53.60	33.64	12.00	45.64
NY/PA Border-Allentown (Burn)	--	5.20	2.20	--	7.40	0.00	2.95	1.26	--	--	.50**	--	4.21	3.14	0.50	3.64
Reading (Valley Junction)-Allentown (Burn)						0.35	0.35	0.30	--	--	--	--	1.00	1.80	--	1.80
Norristown-Morrisville	0.40	--	--	1.60	2.00	1.40	0.00	0.60	--	--	--	--	2.00	2.00	--	2.00
Reading-Philadelphia (Greenwich Yard)	--	--	17.80	--	17.80	0.00	0.00	16.12	--	--	--	--	16.12	18.04***	--	18.04
So. Philadelphia - PA/MD Line	--	--	--	--	--	--	--	--	2.04	--	--	2.50	4.54	1.70	2.50	4.20
PA/MD Line-New Castle PA	--	--	--	--	--	--	--	--	6.79	--	--	--	6.79	5.66	--	5.66
TOTAL	38.90	5.20	36.50	1.60	82.20	39.25	3.30	34.38	8.83	12.00	0.50	2.50	88.26	65.98	15.00	80.98

Notes:

* Terminal costs of $12 million for Pittsburgh and Harrisburg included in CR figures.

** Terminal improvements of $.5 million for CP are included in the cost estimates.

*** Joint line CP and CR

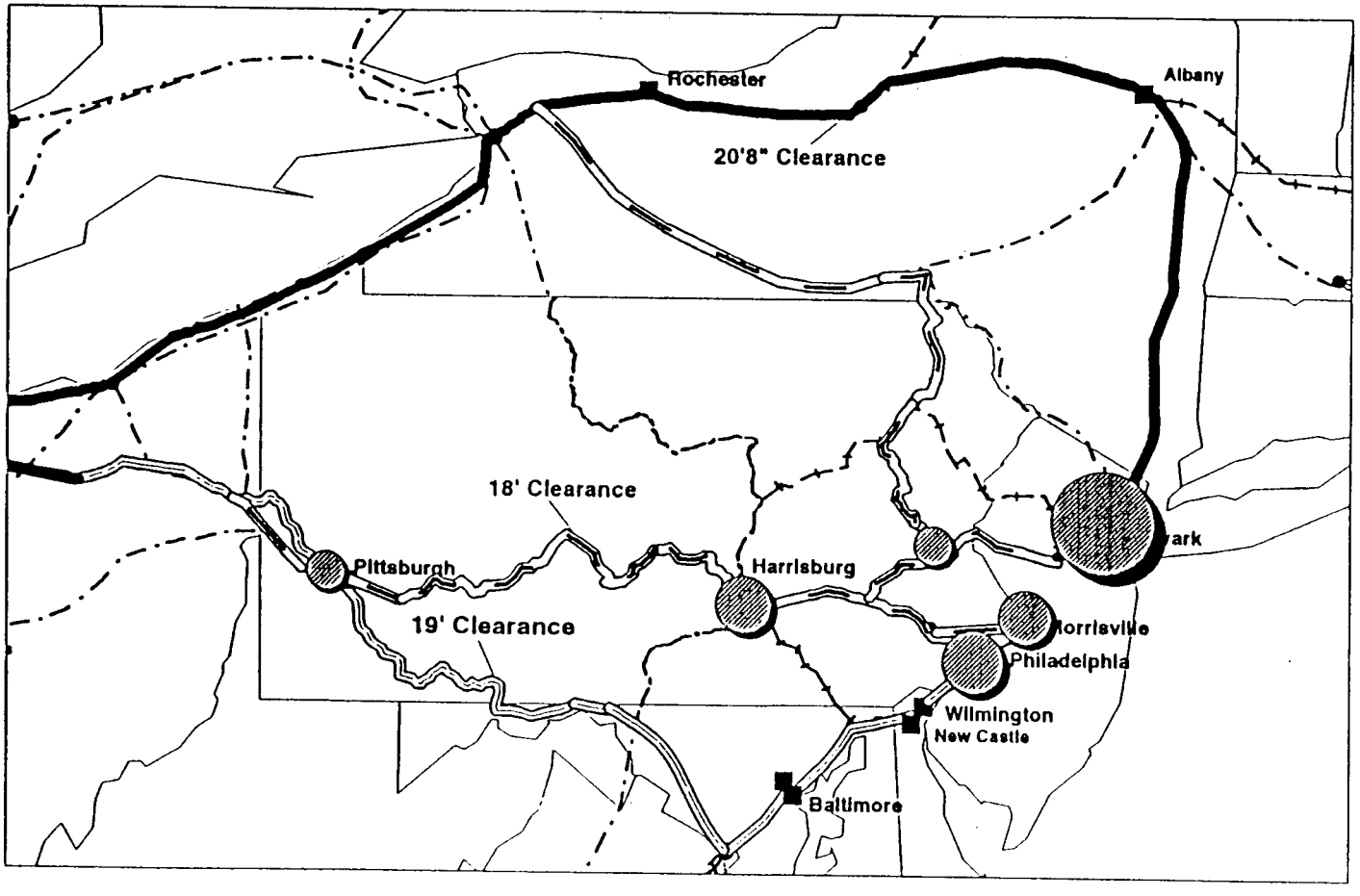
The benefit associated with each option has been determined for each type of traffic.

- Intermodal traffic can be diverted to the new doublestack services from a variety of existing domestic movements.
  - Existing Trailer-on-Flatcar or Container-on-Flatcar
  - Existing truckload movements
- International movements can also be diverted to doublestack.
  - Existing single-stack container movements
  - Existing truck movements of international trade
  - International containers diverted from other ports
  - Mini-landbridge traffic

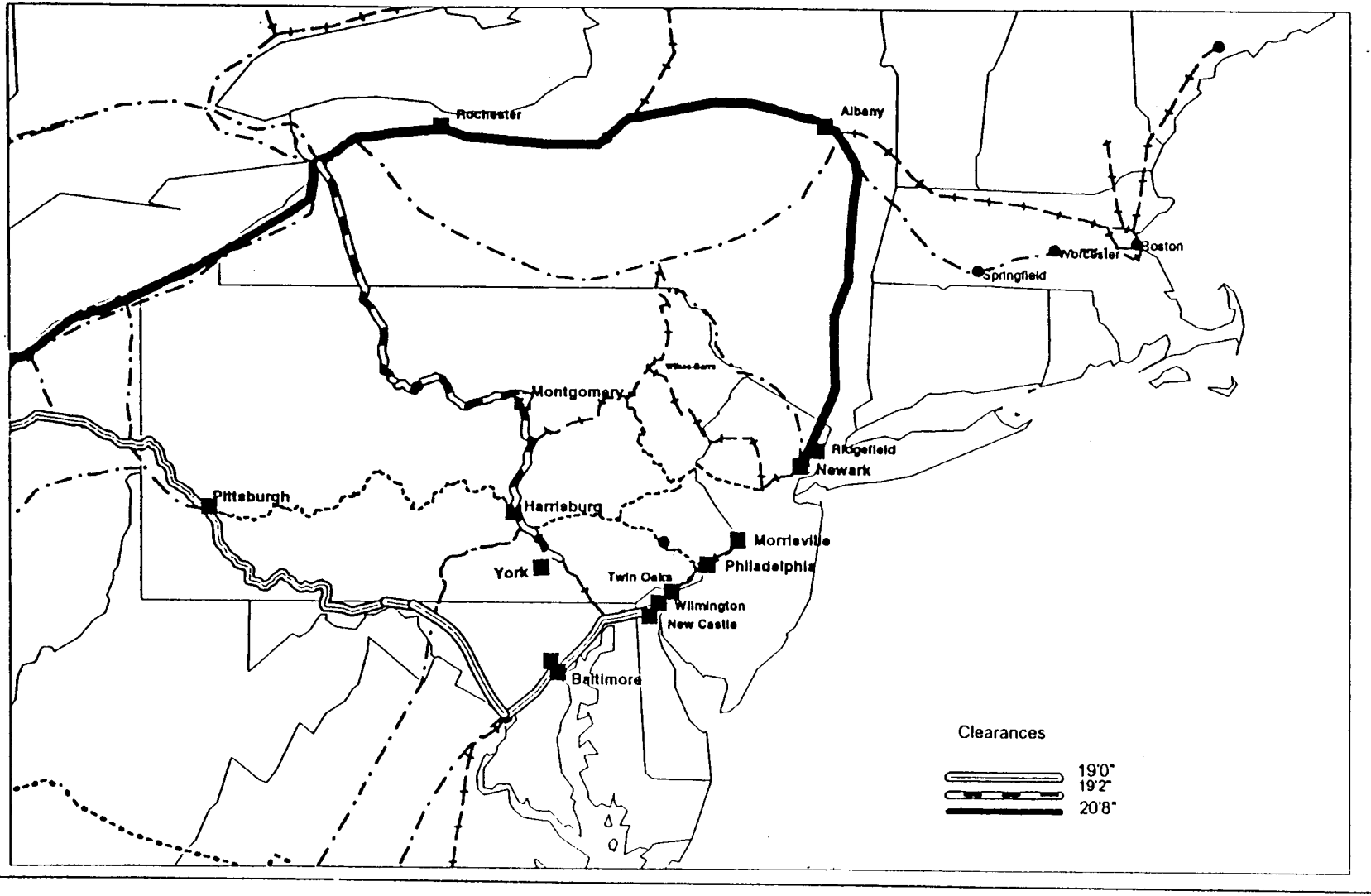
- Auto import/export
- Refrigerated traffic

- Domestic movement of setup automobiles in tri-level cars can benefit from more direct routes through the State.
- High and Wide movements from specific industries are detailed.

Current Routing of Doublestack Cars to Eastern Points



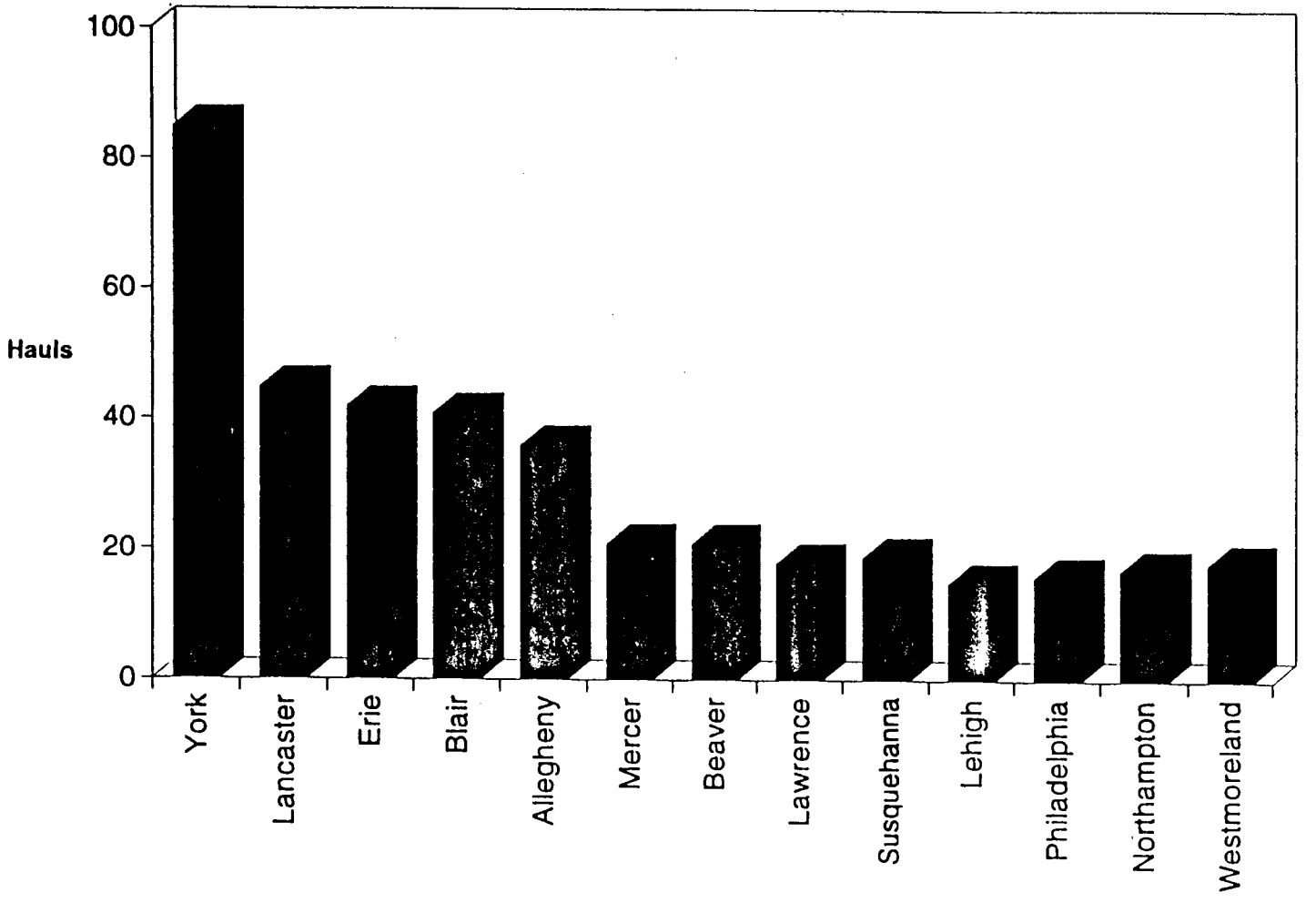
Current Routing of 19'2" Tri-Level Autorack Cars to Eastern Points



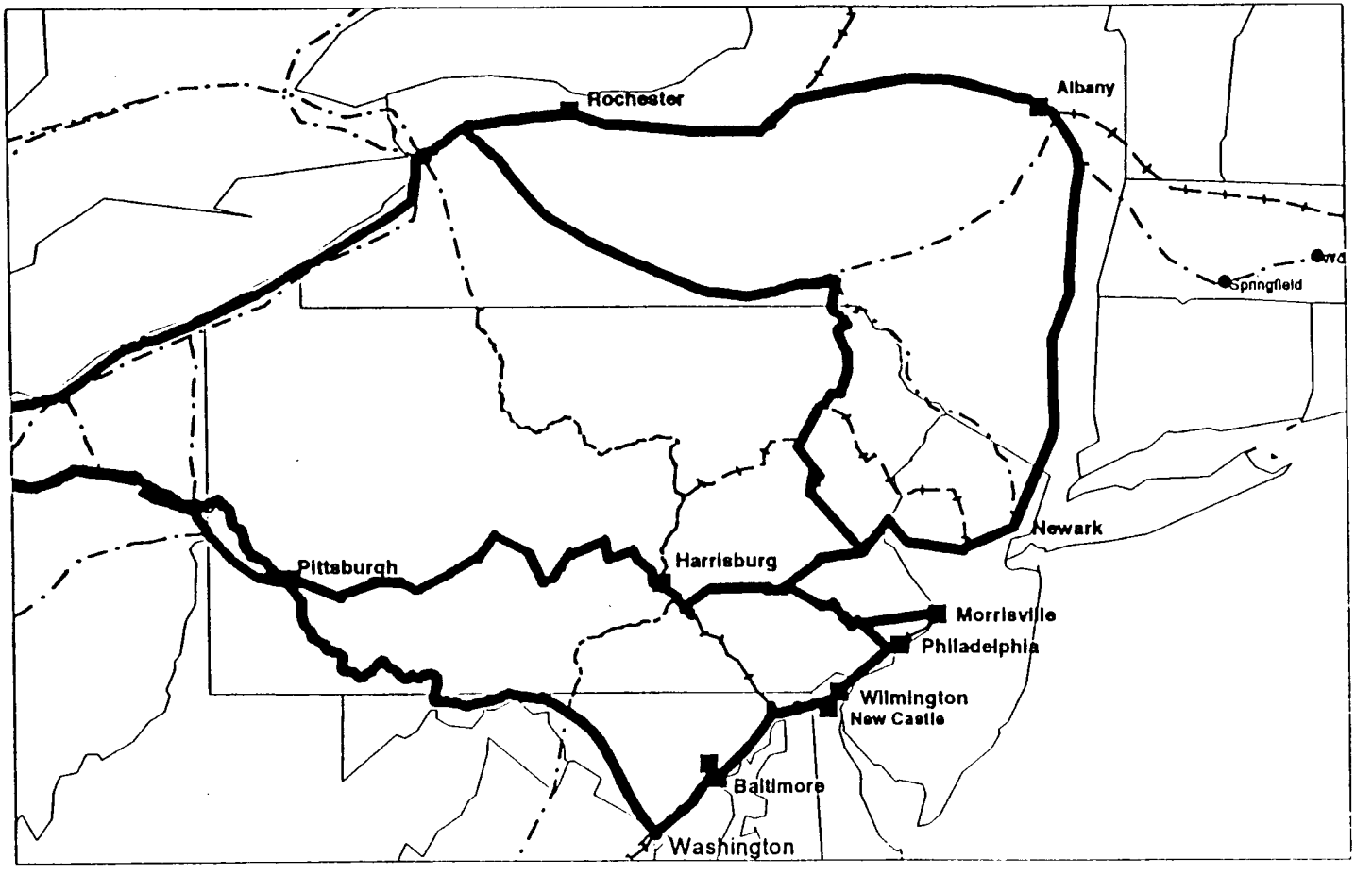
Highway "Superloads" Moving To/From and Through Pennsylvania in 1991

Origins	Destinations					
	Maryland	New Jersey	New York	Ohio	Pennsylvania	Total
Maryland	0	0	2	9	9	20
New Jersey	0	0	7	7	32	46
New York	10	7	1	37	12	67
Ohio	0	3	10	0	41	54
Pennsylvania	31	5	66	31	307	440
West Virginia	1	1		4	8	14
Total	42	16	86	88	409	641

"Superload" Origins Within Pennsylvania



Routings After Removing Overhead Obstructions



Benefit/Cost justification for each of the options has been completed.

- The State needs a clear and compelling rationale to justify the expenditure of public funds on private sector projects. This justification exists in the incidence of public benefits to shippers and the jobs that they produce.
- These public benefits include the savings in both transportation costs and the reduction of non-transport shipper logistics costs to shippers and receivers located within the State.
- Both transport cost and non-transport cost savings are translated into benefits to the citizens of the State in the form of increased economic activity, more jobs and enhanced per capita income of residents within the State.

The Benefits of the Project Greatly Exceed the Costs

Net Present Value of Cost

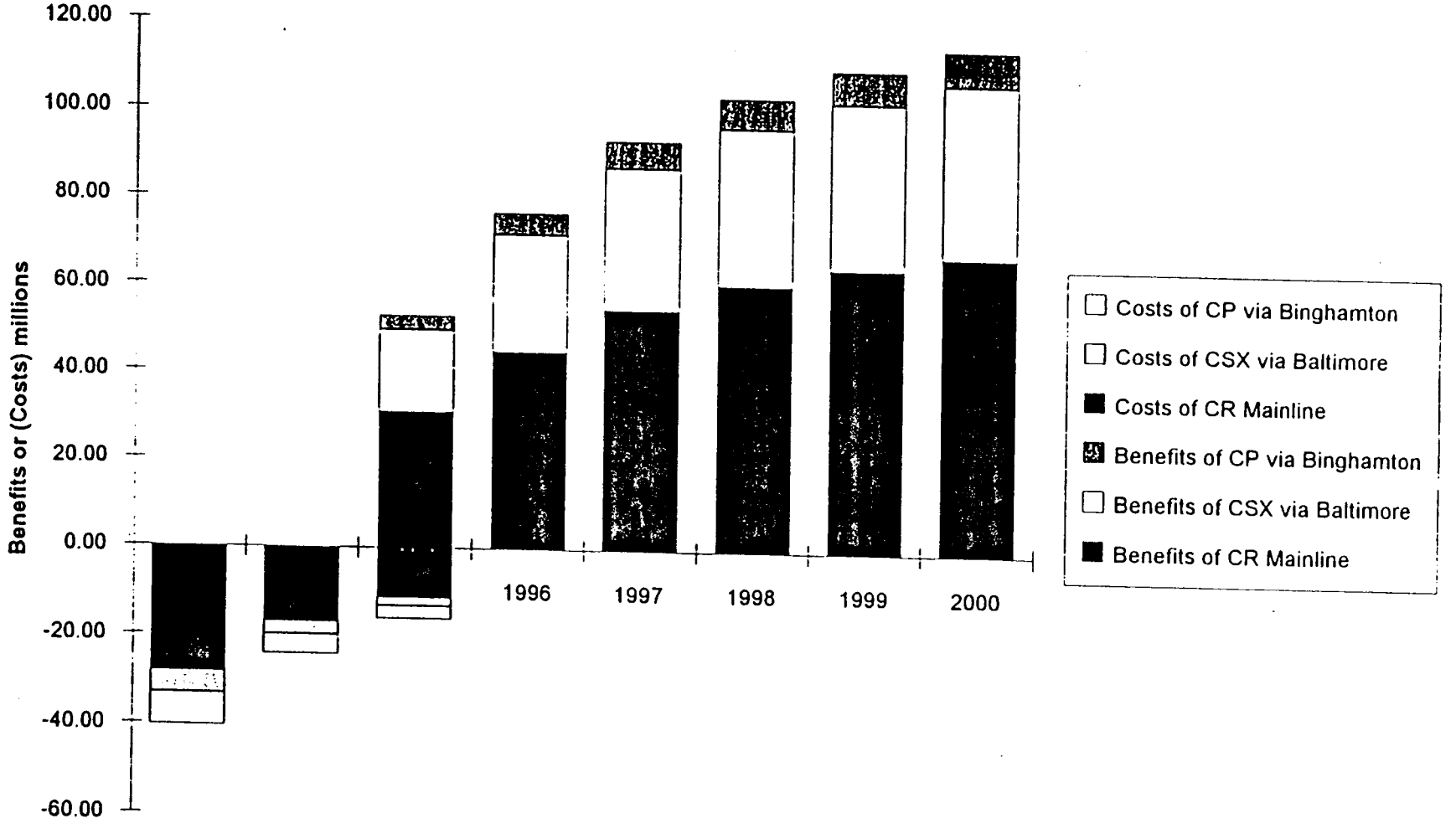
	1992	1993	1994	1995
CR Mainline	50.88	28.28	16.97	11.31
CSX via Baltimore	8.87	4.93	2.96	1.97
CP via Binghamton	13.10	7.28	4.37	2.91
Totals	72.85	40.49	24.29	16.20

Net Present Value of Benefit Stream

	1992	1993	1994	1995	1996	1997	1998	1999	2000
CR Mainline	224.46	0.00	0.00	30.82	44.79	54.76	60.80	64.68	67.66
CSX via Baltimore	132.39	0.00	0.00	18.75	26.74	32.32	35.65	37.75	39.34
CP via Binghamton	25.45	0.00	0.00	3.33	5.01	6.23	6.97	7.43	7.77
Totals	382.30	0.00	0.00	52.89	76.53	93.32	103.42	109.86	114.77

Note: Net present values computed with discount rate of 6.5%

Costs and Benefits Stream



The benefits associated with the incremental costs of horizontal clearances clearly exceed costs.

Costs: $1.1 million

Benefits:

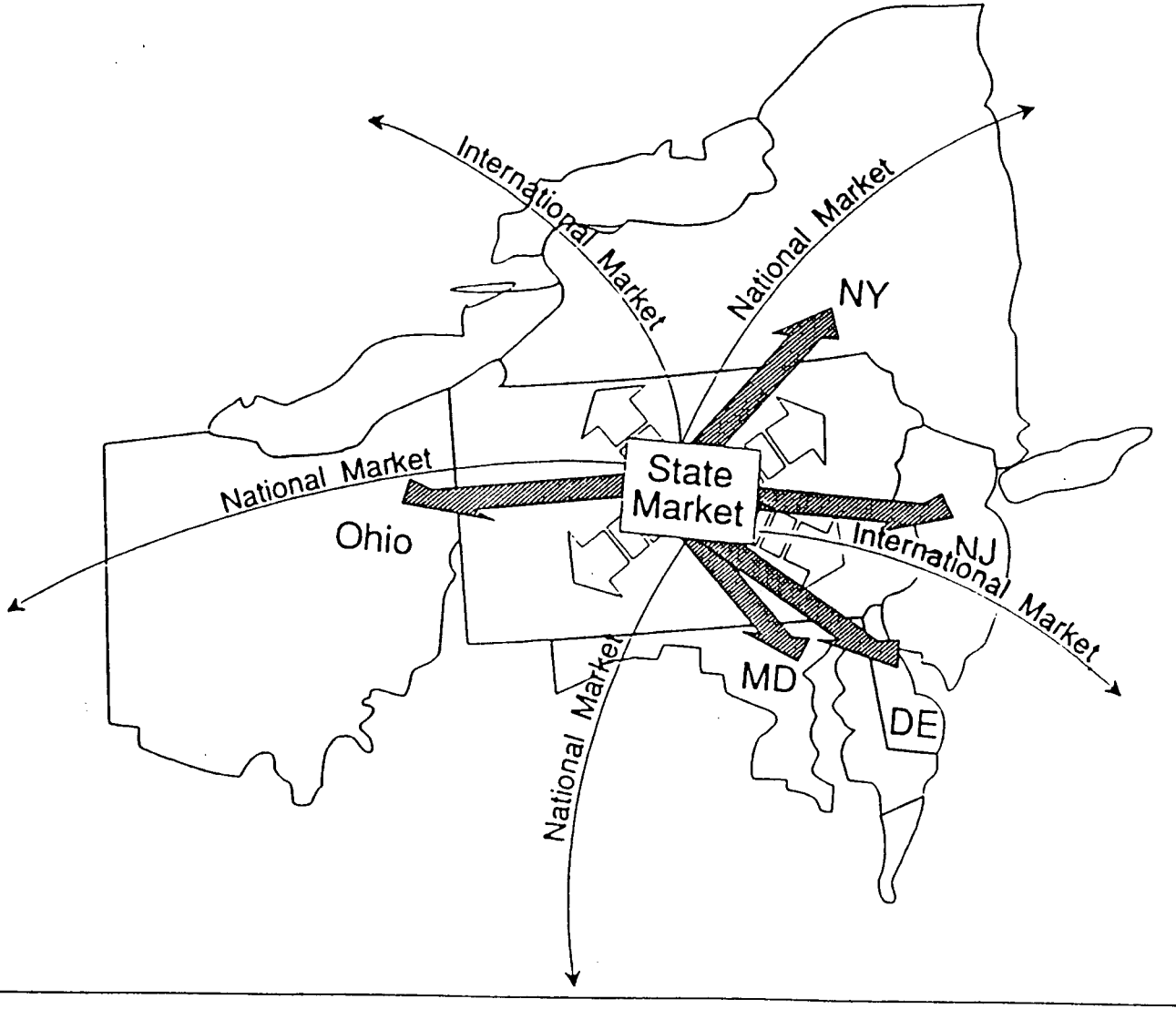
- Sales of LNG process systems and large sintering plants in excess of $60 million annually
- 500-600 jobs in Wilkes Barre and Catasauqua
- State taxes exceeding $7.6 million per year

We have assessed the impacts on the State's economic activity of constructing each of the options.

- Manufacturing will be able to take advantage of the clearances to use more efficient modes of transportation. The savings will allow manufacturers to expand their plants, increase output and employ a larger work force.
- International trade will be enhanced by having a port that is served by doublestack rail transportation. The access to Southern, Midwestern and Canadian markets will be greatly improved.
- The Port of Philadelphia can potentially attract trade that is currently being imported or exported through other ports.

- Domestic truckload trucking can take advantage of low cost domestic doublestack to serve the entire State with lower cost service.
- Low transportation costs will directly benefit the distribution industry which will continue to concentrate their facilities in Pennsylvania rather than New Jersey, New York or Maryland.
- High and wide shippers will be able to expand their markets.
- The life of existing highways in the State will be lengthened.

Markets Served By Pennsylvania Producers



Major "Export" Sectors of the Pennsylvania Economy

Industry Sector	Number of Firms	Employment	Export/Import Ratio	Transport Intensity
Coal Mining	551	18,462	6.45	.0306
Heavy Construction Contractors	1074	34,473	18.25	NA
Food Products Manufacturing	1081	80,977	1.16	.0548
Misc. Specialized Manufacturing	645	20,640	1.46	.0392
Primary Metals Manufacturing	513	84,106	1.04	.0597
Stone, Clay & Glass	830	40,842	1.28	.0462
Wholesale Durables	12,967	164,614	2.28	.0340

Pennsylvania-based manufacturers, especially those with needs for intermodal services, stand to gain the most.

- Cost savings translates into new jobs for those industries which realize reductions in transportation and logistics costs.

- These direct jobs support additional indirect jobs throughout the State's economy.

- Additional jobs provide increased tax revenues for the State.

Industrial Consequences of "High-Profile" Rail Service

	Impacts of 1980's "High-Profile Innovation"	Expected Impacts of 1990's "High-Profile Innovation"
Principal Services Effected	• containerized intermodal freight • automotive setups • auto parts	• containerized intermodal freight - dry bulk - fluid bulk - packaged goods - building materials • auto setups
Principal Shipper Beneficiaries	• international container shippers • major auto manufacturers • domestic container shippers in selected "backhaul" lanes	• express package shippers • mainstream domestic packaged goods shippers • Most major industrial manufacturers • selected bulk materials shippers • auto manufacturers
Geographic Incidence of Benefits	• West coast, Southwest and Midwest benefited • Northeast and to a lesser extend, Southeast penalized	• West coast, Southwest and Midwest will benefit, again • Southeast will also benefit • Northeast will be penalized

The project has substantial impact on jobs within the State.

Impacts on Employment and State Tax Revenues

	1995	2000
Employment opportunities as a direct result of increase in output	2,686 jobs	6,615 jobs
Indirect and induced employment	6,390 jobs	15,738 jobs
Incremental Tax Revenues Accruing to the State	$2.1 - $2.8 mil	$4.8-$6.4 mil

New jobs will begin right away, and grow overtime

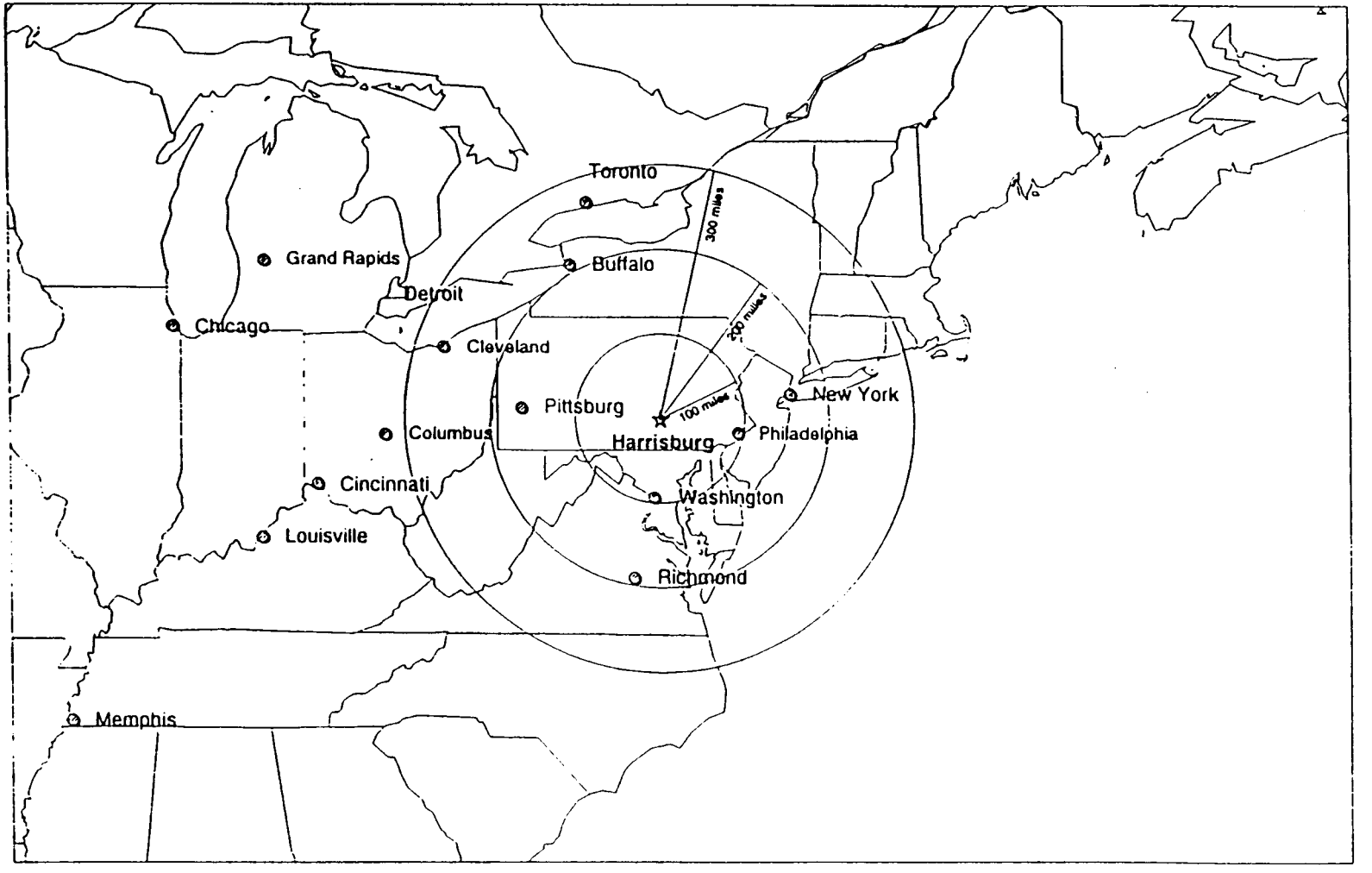
Increases in the Number of Jobs in Pennsylvania, by Sector

Year	1993	1995	2000
Construction	900	362	0
Railroads		109	218
Motor Carriers		715	1,201
Manufacturing		1,000	2,696
Wholesale Distribution		500	2,500
(Services and Growth)		6,390	15,738
Totals	900	9,076	22,353

Estimated Impact of the Project on Jobs by Segment of the Industry

	Pickup and Delivery	City Terminals	Break Bulk Terminals	Line Haul	Linehaul Subject to Diversion	Gain (Loss) in Jobs 1995	Gain (Loss) in Jobs 2000	% Union
ICC-Regulated Carriers								
Parcel Carriers	X	X	X	X	20	180	251	95
LTL Transcontinental	X	X	X	X	2	37	52	98
LTL Regional	X	X		X	0	118	165	70
TL Dry Van				X	70	-50	-70	3
TL Other				X	3	-4	-6	10
Other Carriers								
State-Regulated	X	X		X	0	0	0	10
Ag Exempt				X	5	-3	-4	2
Intermodal Drayage				X	0	337	674	20
Private Carriage	X	X	X	X	2	100	139	15
					Totals	715	1201	

Distribution Centers Located in Pennsylvania can serve the entire Northeast



Markets for Pennsylvania-Based Distribution Centers

Radius from Harrisburg:	100 mile	200 mile	300 miles
Population	17 mil	44 mil	66 mil
Personal Consumption	$205 bil	$515 bil	$685 bil
Food Products	$14.5 bil	$36.4 bil	$48.4 bil
Truckloads of Food/Day	595/day	1492/day	1983/day
Apparel	$4.8 bil	$12.2 bil	$16.2 bil
Truckloads of Apparel/Day	40/day	100/day	133/day
Paper products	$.9 bil	$2.2 bil	$3 bil
Truckloads of Paper Products	73/day	184/day	244/day
Motor Vehicles	$7.9 bil	$19.7 bil	$26.2 bil
Motor Vehicles by Truck	75	188	249
Truckloads All Products/day	2997/day	7511/day	9985/day

There are several major conclusions to the study.

- Three of the five rail overhead clearance options studied warrant development.
- The three options involve all three of the principal railroads which serve the State.
- Each option serves a different set of primary markets of vital interest to the State.
- The net present value of the benefits of each exceed the costs by a substantial amount.
- The best results for the State occur when all three projects are pursued simultaneously.

Our recommendations have been broken down into three major areas.

- Financial recommendations concern the manner in which public funds furnished by the State are advanced and controlled.
- Operational recommendations treat the freight operations that will be involved and the manner in which the State should be involved.
- Administrative recommendations cover the steps that should be followed and the protocol for participation by the parties.