PENNSYLVANIA STATE TRANSPORTATION ADVISORY COMMITTEE

DEFINING A CORE PA TRANSPORTATION SYSTEM

FINAL REPORT

AUGUST 3, 2006

The Pennsylvania State Transportation Advisory Committee (TAC)

The Pennsylvania State Transportation Advisory Committee (TAC) was established in 1970 by Act 120 of the State Legislature, which also created the Pennsylvania Department of Transportation (PennDOT). The Committee consults with and advises the Secretary of Transportation and the State Transportation Commission and undertakes in-depth studies on important issues as appropriate. Through its public members, the Committee also serves as a valuable liaison between PennDOT and the general public.

The Advisory Committee consists of the following members: The Secretary of Transportation; the heads (or their designees) of the Department of Agriculture, Department of Education, Department of Community and Economic Development, Public Utility Commission, Department of Environmental Protection, and the Governor's Policy Office; two members of the State House of Representatives; two members of the State Senate; eighteen public members; seven appointed by the Governor, six by the President Pro Tempore of the Senate, and the Speaker of the House of Representatives.

Public members, with experience and knowledge in the transportation of people and goods, are appointed to represent a balanced range of backgrounds (industry, labor, academia, consulting, and research) and the various transportation modes. Appointments are made for a three-year period and members may be reappointed. The Chair of the Committee is annually designated by the Governor from among the public members.

The Advisory Committee has two primary duties. First, the Committee "consults with and advises the State Transportation Commission and the Secretary of Transportation on behalf of all transportation modes in the Commonwealth." In fulfilling this task, the Committee assists the Commission and the Secretary "in the determination of goals and the allocation of available resources among and between the alternate modes in the planning, development and maintenance of programs, and technologies for transportation systems." The second duty of the Advisory Committee is "to advise the several modes (about) the planning, programs, and goals of the Department and the State Transportation Commission."

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Chapter 1

- What this study is
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TAC General Perspectives on a Core PA Transportation System

The subject of this study is both important and extraordinary. Transportation system management and the federal and state priority for more intermodal approaches require a framework for defining a priority transportation system. That is the important part. The extraordinary part is that this is the first effort in Pennsylvania to define a single multimodal system of statewide significance. The State Transportation Advisory Committee is an advisory body. By law, it does not have decision- or policy-making authority. TAC, however, recognizes its responsibility for having the "first word" on this important and emerging issue. Several baseline considerations therefore are offered at the outset to provide a proper foundation and perspective for the reader.

The Limits of TAC's Analysis and This Study

In undertaking this study, the TAC emphasized that its work would be limited to the three elements summarized below. Defining any priority transportation system is ultimately a matter of policy. The National Highway System, for example, was defined by the states and then legislated by the U.S. Congress.

By conceptualizing a Core System, TAC is providing a foundation for PennDOT to ultimately refine and implement such a state system and to encourage similar approaches regionally. The contents of this report—TAC's illustrative system definition, recommendations, and other considerations—are advisory, providing a starting point. It is recognized, however, that the Department will need to adapt and adjust a Core PA Transportation System to best meet the overall mobility needs of the Commonwealth. The scope of TAC's study effort includes:

1. **Defining an Illustrative Core System**—the TAC Task Force has offered an **illustrative** Core System. This report makes a clear distinction between that illustrative Core System and factors or considerations that merit further evaluation and review. As such, certain facilities that are not included in this initial core system may be included through future refinement following a more exhaustive analysis and evaluation. System definition in other states like Florida has been a multi-year process, underscoring the need for in-depth evaluation beyond the illustrative concept.

2. **Offering Other Considerations for Defining Modal Criteria**—In addition to criteria for each mode for the illustrative Core System, other considerations are offered. These considerations are indeed as important as the illustrative core system criteria. TAC recommends that PennDOT formally evaluate these considerations as part of future system refinement.
3. **Recommendations for Core System Refinement**—TAC has recommended a four-phase process for system refinement and implementation. The recommended framework should prove to be productive. It includes early outreach, evaluation, and system refinement and a subsequent implementation phase.

The Policy Aspects of Core System Definition

Readers should understand that the illustrative Core System is an initial concept. As noted above, the ultimate Core System will be the responsibility of PennDOT and its various partners and stakeholders as part of a structured process with authority for final decisions resting fully with PennDOT. This sequential approach to Core System development is an element of the Department's Long-Range Transportation Plan—the PA Mobility Plan—implementation.

This is Not a Funding Study

One potential misperception of this study is that it impacts transportation funding or that it includes funding recommendations. That is not the case. This study has in no way determined any funding priorities or established criteria for future funding. It is recognized that at some point in time the Core System may be used to guide transportation investment. Those decisions, however, are not a part of this study and are beyond TAC's authority. Current efforts, including the Transportation Funding and Reform Commission (TFRC) and the PA Mobility Plan, will set broad direction for future funding. The Core System concept that TAC is recommending should be considered in relation to the pending Mobility Plan and the deliberations of the TFRC.

System of Statewide Significance – A Definitional Note

The Core PA Transportation System attempts to include facilities of statewide significance as defined primarily as inter-regional, interstate, and international movement of people and goods. It is assumed that a similar, complementary process will occur at some point at a regional/local level. Clearly, there are transportation facilities and services that are critically important regionally. That does not make them any less important than statewide facilities. It simply acknowledges that the mobility or access role of such facilities is not interregional connectivity. The state core system in general should connect

major “nodes” (e.g., economic centers). Regional or local priority facilities, conversely, provide mobility within a node—region or locale. Also, it should be noted that the illustrative Core System does not include facilities or services that are planned for the future. Once a core system is part of a formal state plan, future improvements could and possibly should be part of the system.

A Brief Note on System Redundancy

One challenging aspect of this conceptual evaluation was addressing the matter of system redundancy in defining modal criteria. System redundancy has various dimensions that are too detailed to be incorporated as part of this study. Nonetheless, future consideration should be given to factors such as critical modal alternatives in various corridors—particularly in the event of any interruption of service, security issue, etc. Major regional transit lines, for example, provide critical mobility and also serve to relieve congestion on parallel highways. System redundancy is noted here simply to point out the difficult challenge of system definition. System definition is not merely the amalgamation of various modal criteria, but truly must reflect a careful evaluation of how the system functions.

Chapter 2

- Purpose
- Objectives
- Process

Report Summary

The identification of a Core PA Transportation System (CPTS) is identified as a desired breakthrough in Pennsylvania's pending Long-Range Transportation Plan—The Pennsylvania Mobility Plan (www.pamobilityplan.com). This is the first effort to define a multimodal system for the Commonwealth. This early process of issue analysis and identification is consistent with the statutory authority of TAC and PennDOT, as the mission of each relates to Pennsylvania's transportation system (singular).

The TAC is recommending an illustrative core system that is defined through:

- the identification of economic centers and connecting corridors;
- a tiered hierarchy of facilities with statewide and regional significance;
- modal criteria based on the unique characteristics of each mode; and
- policy and other considerations, recognizing that the Core System should be flexible and reflective of Commonwealth priorities in economic development and other areas that have a bearing on the development of the supporting transportation system.

The illustrative Core System represents what TAC believes is a starting point or springboard for PennDOT to develop a more definitive system. A Core System will ultimately be useful to PennDOT and its modal and planning partners in their collaborative planning, programming, and financing of transportation projects and facilities. This study, however, is neither a final and definitive picture of the Core System, nor does it establish funding parameters or recommendations around the Core System. Any references to funding herein only relate to presumed future uses of a Core System.

Transportation operations are taking on greater importance. TAC believes that the Core System may prove beneficial as transportation operators increasingly collaborate in sharing data and applying technology. The idea of an "illustrative" Core System is to provide a foundation or starting point for structured refinement and phased-in use. Goods movement, improved operations, and intermodal connectivity are a few areas that emphasize the need for a system-level approach to evaluating the performance of the transportation system and planning accordingly. TAC's recommended Core System approach also recognizes the importance of corridors in Pennsylvania's oversight and management of the transportation system. The Core System concept attempts to identify facilities and services that are of statewide significance. It is recognized that other facilities are indeed significant on a regional or local level. The TAC anticipates that PennDOT will work with its planning partners in

advancing the concept at the regional/local level as well.

Study Objectives

The TAC set the following objectives for this study:

1. To recommend the purpose and role of the CPTS, in its early conceptual phase, over a short term period for refinement, and over a longer time period of implementation.
2. To identify modal criteria to initially define the illustrative CPTS and other considerations for its later refinement.
3. To develop an illustrative CPTS.
4. To offer recommendations regarding various aspects associated with the future refinement of the CPTS...

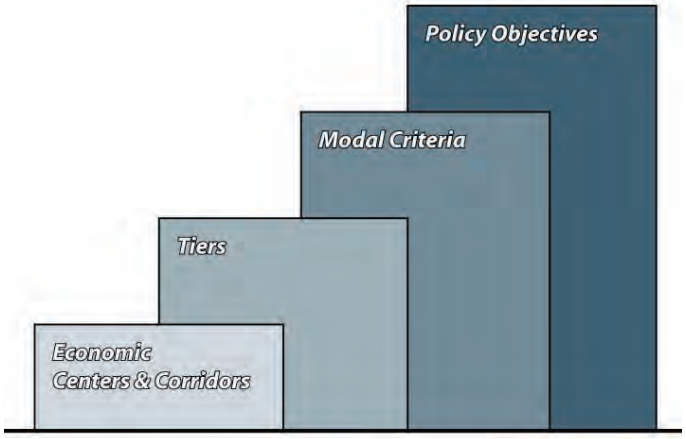
Core System Definition

The graphic to the right depicts the illustrative core system by a series of iterative definitional steps.

1. **Economic Centers & Criteria** - The Task Force endorsed this approach to core system identification from among the five options reviewed. The economic centers and corridors approach was selected because it is aligned with the Pennsylvania Mobility Plan vision, goals, and objectives. Economic Centers are the foundation for system definition by relating areas of concentrated economic activity and production to transportation.

2. **The Tiered Approach** - The core system is organized into three layers, or tiers. The first tier consists of the transportation facilities and services that connect the state's 15 major economic hubs, or metropolitan planning organization (MPO) core cities. Lower order tiers connect economic centers and activity centers with less population and employment. Most references to Tier 1 correlate with the state Core System.

3. **Modal Criteria** - For the core system's highest tier, criteria has been defined for each mode with an overall emphasis on inter-regional movement. Modal criteria definition is clearly the most challenging aspect of system definition. It will require greater evaluation beyond this study. TAC recommends other considerations for the various modes that are covered in the modal criteria section of this report.



4. **State Policy** - The core system should be flexibly adjusted to promote the application of certain state policy objectives, such as those that promote the development of brownfield sites, Keystone Opportunity Zones, Keystone Innovation Zones, etc., which may be applied statewide, or in certain areas of the Commonwealth. Policy considerations are valid for future refinements to the Core System, particularly those that reflect economic development, environmental considerations, disadvantaged populations, and other considerations that represent important Pennsylvania priorities that can be positively impacted by transportation decisions. The Commonwealth's emphasis on improving public transportation, for example, was recognized in this study by going beyond the inter-city criteria in our evaluation of this important mode as part of the CPTS.

Illustrative Modal Criteria Summary

This section summarizes the modal criteria and what facilities of statewide significance are included based on that criteria. Given the various distinctions of each mode, a one-size fits all approach will not work in defining modal criteria. The TAC has opted to keep its modal definition strictly related to facilities of statewide significance and intercity movement. The TAC recognizes, however, that these distinctions are not easily or clearly made. There are legitimate shades of gray with regard to modal criteria that need to be evaluated in depth as the Core System is refined.

Table 1 below summarizes TAC's recommended Tier 1 core system modal criteria. More detailed descriptions can be found in Chapter 5. Corresponding Chapter 5 page numbers are shown below.

Table 1: "Tier 1" Modal Criteria Summary

Mode	Page	Recommended TAC Criteria	Core System Facilities
Aviation	27	"Advanced" Commercial Service airports within one hour drive time from the nearest MPO core city.	• Thirteen advanced commercial service airports that presently have commercial service.
Highways	36	Highest-order facilities that directly connect the urbanized areas of the 15 MPO core cities as well as MPO cities immediately outside of the state.	• All interstates; US and PA routes that provide direct connections to MPO core cities. • National Highway System (NHS) connectors. These are designated links between the NHS and major facilities such as freight terminals, airports, and train stations.

Mode	Page	Recommended TAC Criteria	Core System Facilities
Passenger Rail	35	Intercity passenger rail service between the state's MPO core cities as well as MPO cities immediately outside of the state.	• All existing Amtrak service, including Capitol Limited, NE Corridor, Keystone, Pennsylvanian, and Lake Shore Limited.
Public Transportation	31	Inter-city bus and rail service between MPO pairs both within and outside Pennsylvania. Systems with 5% or more work trips as a percentage of total work trips. Transit routes and services in major transportation corridors that provide significant levels of congestion relief and necessary/beneficial intermodal redundancy.	• Various inter-city bus services, such as Greyhound from Pittsburgh to Philadelphia and MARTZ Trailways from Scranton to New York City. • The Delaware Valley region with 11.3% workers taking transit and the six county Pittsburgh region with 6.3% workers taking transit.[1] • Express and/or feeder services between the MPO core cities such as the new service between York and Harrisburg. • Transit services that connect PA to other states and cities such as SEPTA services to Wilmington, DE, and Trenton, NJ.
Ports & Waterways	42	Waterways that connect Tier 1 regions with other states and international markets.	• All three of Pennsylvania's water ports and their related waterways: Philadelphia (ocean), Pittsburgh (inland river), and Erie (Great Lakes).
Rail Freight	39	Rail lines that carry a minimum of 10 million net tons annually and connect Tier 1 regions within Pennsylvania and to those outside of Pennsylvania.	• Class 1 Rail lines such as Norfolk Southern's Pittsburgh line and CSX's Lake Shore Subdivision. • The Bessemer and Lake Erie Railroad that runs between Pittsburgh and Erie.

[1] Source: U.S. Census Transportation Planning Package—year 2000 data. The Pittsburgh region as defined includes Allegheny, Armstrong, Beaver, Butler, Washington and Westmoreland counties.

Chapter 3

- How a core system would be used

Purpose of the Core System

The designation of a Core Pennsylvania Transportation System can have relevance to transportation planning and programming, operations and maintenance, and system performance monitoring. Table 2 highlights several purposes for defining a core system.

Table 2: Core System Purposes

Conceptual	Short-Term Use & Early Applications	Long-Term Use & Applications
• Identify an illustrative core system with the involvement of planning and modal partners. • The concept provides a focal point for analyzing how modes work as a system, where there are disconnects or bottlenecks, and how the multiple organizations responsible for this system (singular) can best collaborate in its planning, improvement, operations, and maintenance.	• Organize the Department's efforts in planning and programming • Focus on intermodal transportation • Coordinate the priorities of regional plans • Provide a means to focus economic development and transportation • Communicate the Department's long-range direction	• Integrate with such planning programs as: o 12-Year Program o District Business Plans o Regional long-range transportation plans and TIPs o Modal Program and revenue development • Provide a basis and framework for future system performance monitoring • "Rationalize" state versus regional responsibilities

A Core System Is:

"An integrated transportation system made up of modal facilities that are of highest importance for moving people and goods between regions within Pennsylvania, as well as between the Commonwealth and other states and nations."

The ultimate purpose of the core system will be to help advance the vision and goals identified in the PA Mobility Plan (Pennsylvania's multimodal long range transportation plan). To do this, a Core PA Transportation System should:

- **Better distinguish state and regional significant facilities and functionality**–PennDOT must focus on facilities that are most important for statewide mobility.

- **Improve Intermodal transportation** - Identify those points of connection between passenger and freight modes that require improvement. Intermodal planning and data will also help to coordinate capital planning with other public and private transportation operators.
- **Coordinate regional plans** - The Core System can be used to achieve greater consistency across Pennsylvania's transportation planning regions.
- **Improve the linkage of economic development and transportation** - Shippers, economic development organizations, tourism agencies and others can relate to the Core System approach and provide related perspectives as to the transportation needs that support economic health and development.
- **Improve linkages to areas outside of the state** - The core system recognizes not only the importance of vital transportation connections between our major economic centers within the Commonwealth, but also to the ones beyond our borders such as New York, NY and Baltimore, MD.
- **Communicate the Commonwealth's long-range planning direction** - The core system focus will help to convey the Mobility Plan's vision: "To provide the best performing transportation system for people, business, and places."
- **Recognize the growing pace of transportation operations and Intelligent Transportation Systems** - Technology and information systems will increasingly become a more central part of transportation operations and system management. Each mode has made advances with information technology. A core system could help in the coordinated implementation of IT across the modes. Smart highways and cars, along with high-tech system operations for rail and other modes, point to the increased need for sharing information throughout the system.
- **Provide a basis and framework for future system performance monitoring** - A core system enables meaningful system-level performance monitoring and evaluation. At some point in the future, a state of the transportation system report is conceivable and consistent with the Mobility Plan's direction.

Chapter 4

- Options
- Decisions
- Direction

Concepts Considered and Preferred Direction

On February 6, 2006, the TAC Task Force reviewed five options for defining a Core PA Transportation System:

1. Existing network and modal classifications
2. Existing classifications with usage thresholds applied
3. All transportation facilities with usage thresholds applied
4. A percentage of the total state system
5. Economic centers and corridors.

The TAC concluded that option 5, economic centers and corridors, represented the most appropriate **starting point** for core system identification.

Advantages of the Economic Centers and Corridors Approach

- Aligns with the major directions of the Pennsylvania Mobility Plan, the Commonwealth's long-range transportation plan (LRTP). More specifically, it aligns with the Mobility Plan's emphasis on improving the transportation and economic development linkage.
- Builds on the corridors-based approach pioneered by PennDOT's previous LRTP - PennPlan MOVES!
- Emphasizes multimodal and intermodal transportation.
- Helps in evaluating Pennsylvania transportation systematically with its focus on movements of people and goods between population areas and activity centers.
- Uses objective definitions for the system's hubs and corridors.
- Recognizes state (economic development) and federal (defense) priorities.
- Addresses interregional travel, including goods movement, business travel, personal travel, and mass evacuation.
- The selected approach was later shared with PennDOT senior staff involved in planning and programming. It was also favorably received in this “test” of the preferred alternative.

Limitation of an Economic Centers and Corridors Approach

- Centers and corridors provide a foundation for system definition, but do not completely define the system.
- In a sense, the centers and connecting corridors are a base map for the CPTS but do not define the criteria by mode. As such, TAC has defined criteria by mode, presented in Chapter 5.

Chapter 5

- Tiers
- Nodes

An Illustrative Core System for Pennsylvania

The starting point for defining the core system is the primary linkages and nodes (points) in the state's transportation system that serve its most significant economic centers. The TAC employed the tiered approach to core system definition (see sidebar). Table 3 and Figure 1 below further illustrate the tiered approach in greater detail.

Table 3: Core System Nodal Definitions by Tier

Tier	What It Includes	Examples
1	• The state's 15 largest economic centers, or Metropolitan Planning Organization (MPO) core cities as its hubs (MPO cities are logical geographical starting points for agglomerations of the state's population and employment bases).	• The 15 include: Allentown, Altoona, Erie, Harrisburg, Johnstown, Lancaster, Lebanon, Philadelphia, Pittsburgh, Reading, Scranton/Wilkes-Barre, Sharon, State College, Williamsport, and York. • Approximately 85 percent of the Commonwealth's population lives in the corresponding Metropolitan Statistical Areas (MSAs).
2 A	• Smaller Economic Centers	• Areas outside of major economic centers that contain significant clusters of non-service sector employment (e.g., Carlisle, Butler, Pottstown, Washington).
2 A	• Urban clusters of micropolitan statistical areas	• There are 21 micropolitan statistical areas in the Commonwealth, including at least one in each Rural Planning Organization (RPO) region. Examples include DuBois, Gettysburg, Indiana and Sayre.
2 B	• Activity centers that respectively support the state's 15-largest economic centers. These include: • Intermodal Freight hubs • Intermodal Passenger hubs	• Rutherford Yard • Harrisburg Transportation Center, 30th Street Station • NAVICP, Tobyhanna • Hershey Park, Steamtown

Core System Tiers

The three-tiered approach used in Core System definition defines facilities of statewide, regional, and local significance. The TAC has identified modal criteria for the highest tier.

Lower order tiers (2 and 3) involve those facilities or services outside of TAC's definition of a statewide core system and serve as a logical starting point for PennDOT and its planning partners to consider in identifying facilities of regional significance for improved interconnection with the statewide core system.

As the Core System is refined over time, the tiers themselves may be the object of adjustment, compatible with the Department's future planning and programming goals.

Tier	What It Includes	Examples
	• Defense facilities • Major tourism destinations	
3	• The activity centers that support the Tier 2 economic centers	• Tier 3 activity centers support Tier 2 economic hubs.

It must be emphasized that *the nodes alone do not comprise the core system*, but rather identify the framework from which modal linkages and connecting services can be identified. Figure 1 below illustrates the concept of core system hubs (nodes, or points) for each of the three tiers.

Figure 1: Nodes by Tier

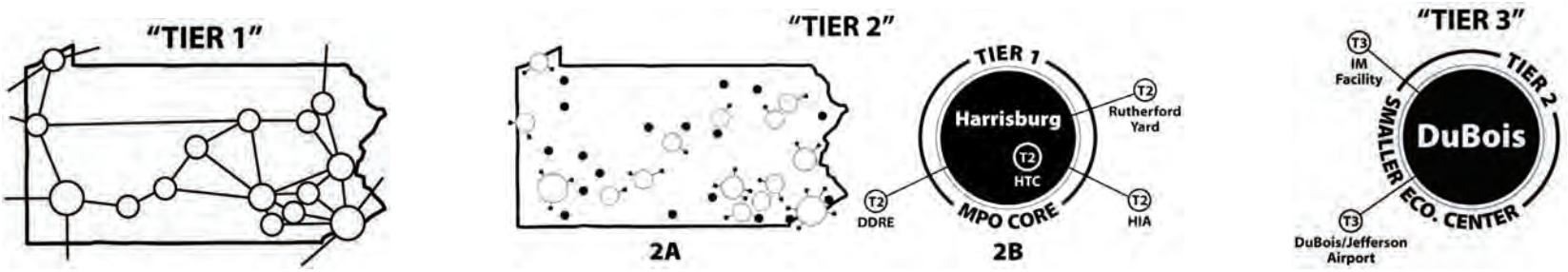


Figure 2 provides a graphic example by tier of an illustrative core system for the greater Harrisburg region. Table 4 that follows provides additional explanation related to the inclusion of certain core system facilities and services.

Figure 2: Illustrative Core System - Greater Harrisburg Example

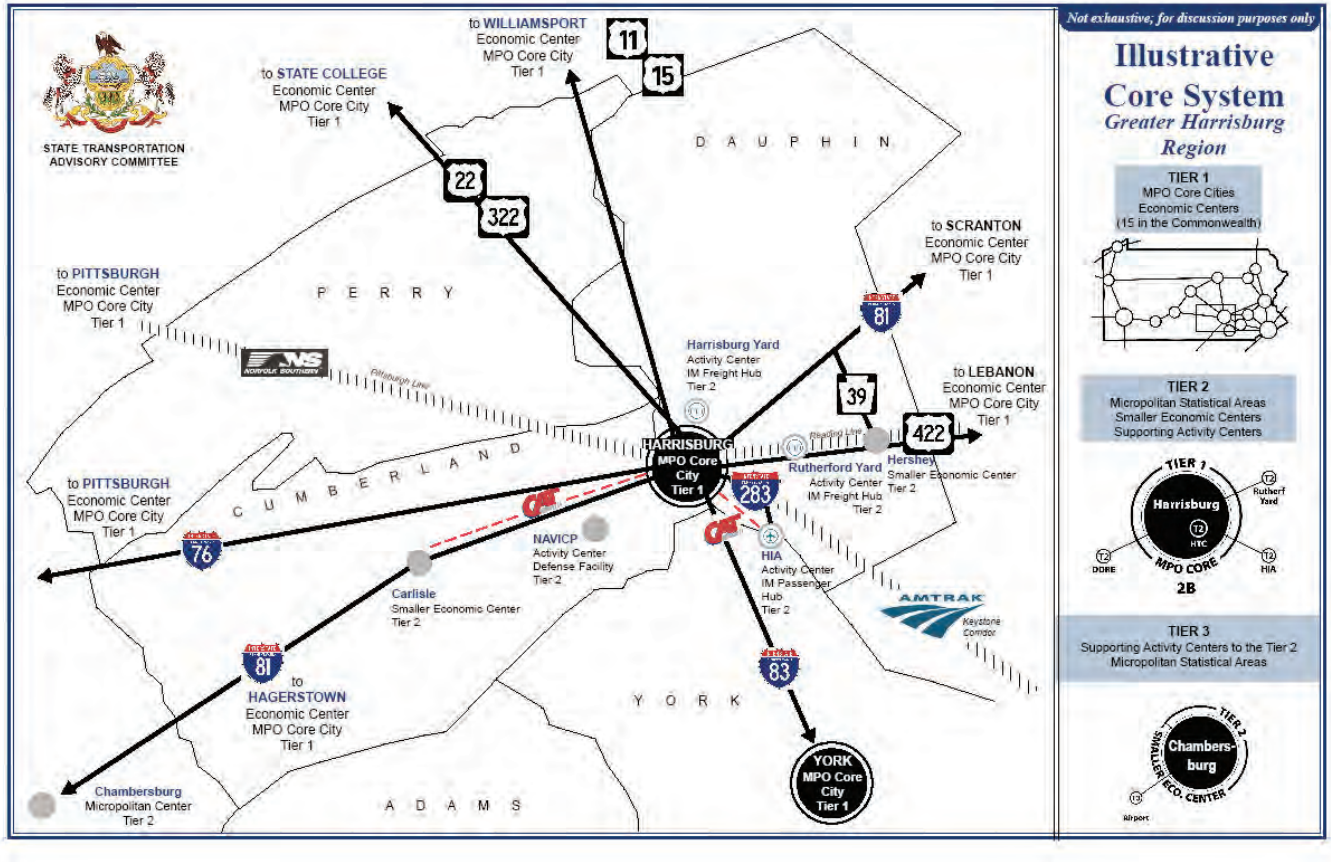


Table 4: Illustrative Core System - Greater Harrisburg Example[2]

Tier	Facility or Service	Why It's on the CPTS	
1	Interstate 76	Connects Tier 1 MPO Core Cities: ⏩	Harrisburg, Pittsburgh and Philadelphia
1	Interstate 81		Harrisburg, Scranton, and Hagerstown, Md.
1	Interstate 83		Harrisburg and York
1	US 15		Harrisburg and Williamsport
1	US 22/322		Harrisburg and State College
1	US 422		Harrisburg and Lebanon
1	PA 39	Connects a top tourism destination (Hershey Park) with the Tier 1 roadway network	
1	Amtrak Keystone service	Connects Tier 1 MPO core cities (Harrisburg - Lancaster - Philadelphia).	
1	NS Pittsburgh line	Connects Tier 1 regions (Harrisburg and Pittsburgh) and carries greater than 10 million net tons annually	
2	Express Capital Area Transit (CAT) service to Carlisle	Connects a Tier 1 MPO core city (Harrisburg) to a smaller economic center (Carlisle).	
2	Harrisburg International Airport (HIA) Connector (SR 3032)	Connects a Tier 1 MPO core city (Harrisburg) with an intermodal passenger hub (HIA).	

[2] For greater map clarity, several Tier 1 features are not shown, such as US 15 to Frederick, Md.; PA 283 to Lancaster; I-76 to Philadelphia; or the NHS connectors for example are not visible at this scale. The graphic itself is not intended to be exhaustive.

Tier 1 Economic Centers (MPO Core Cities)

For transportation planning purposes, Pennsylvania is organized into 23 planning regions, including 15 Metropolitan Planning Organizations, or MPOs. The MPOs are defined as urbanized areas with a total population in excess of 50,000. The cities that serve as the focal point of the MPO regions are the largest economic centers in the state, and comprise the highest nodal tier in the core system hierarchy. Pennsylvania's MPO core cities, along with the state's lower-order economic centers, are shown on the accompanying maps. The use of these centers is an effective proxy for the bulk of people and goods movement as about 85 percent of the population reside in the corresponding metropolitan areas. Travel demand is largely a function of population and land use.

Tier 2 Economic Centers (and associated Activity Centers)

As previously noted, the core system's second tier of nodes includes the state's smaller economic centers and supporting activity centers. Table 5 below describes these hubs in more detail.

Table 5: Defining the Core System's Tier 2 Economic and Activity Centers

Hub	Description	Rationale
Activity Centers Within MPO Core Cities ***Hubs, Terminals, Nodes***	• Facilities used in the transfer of goods and people • Defense facilities • Tourism hubs • Economic clusters	• Personal mobility; economic activity • Urban center revitalization • National Defense and Homeland security • Strategic facilities important for national defense
Smaller Economic Centers	• Significant population and employment areas contained within MPO regions.	• High concentrations of population and employment outside of the MPO core city, defined by high numbers of non-service sector employment.
Core Urban Clusters in Micropolitan Statistical Areas	• Classification created in 2003 to define areas neither "metropolitan" nor "rural" • Office of Management and Budget (OMB) defines a micropolitan statistical area as one or more counties with a core urban cluster that has a minimum population of 10,000 but less than 50,000.	• There are 21 such areas in the Commonwealth, including at least one in each RPO region. • While not as large as MPO core cities, these areas are economic centers in their own right.

Activity Centers within MPO Core Cities

There are many types of "activity centers" surrounding an economic center. For the purposes of core system definition, the TAC defined these activity centers as nodes that contribute to the performance of the MPO core city as one of the state's economic centers. The underlying logic is the importance of access and Intermodal connectivity between these centers and the transportation system. Activity centers then, include the following:

1. Intermodal Facilities (passenger and freight)
2. Defense Facilities
3. Tourism Hubs
4. Economic Clusters

Intermodal Facilities

Intermodalism has been a primary focus of our national and state transportation policy since 1991, when ISTEA emphasized it as part of transportation planning. One of the guiding principles of the CPTS is its focus on intermodalism and sustaining and improving connectivity among the state's transportation modes. With the inclusion of intermodal facilities as part of a statewide core system, PennDOT can more systematically identify intermodal bottlenecks and chokepoints. Over the long term, the system is intended to support investment strategies that appropriately consider the strategic benefits of each mode in providing mobility and access.

- **Activity Center Examples**: Harrisburg Transportation Center, Philadelphia International Airport, Pitcairn Intermodal Yard.

Defense Facilities

The inclusion of defense facilities (major installations) in the state core system is important in terms of the essential mobility requirements associated with national defense. These hubs are also significant employment and often intermodal transportation hubs. Military installations must have the strategic access that is supported by a statewide core system.

- **Activity Center Examples**: There are several major military installations in Pennsylvania, not including smaller munitions dumps that have been kept open in reserve. Examples of major bases include:
    - Defense Distribution Region East (York County)
    - Fort Indiantown Gap (Lebanon County)

- Naval Inventory Control Point (Cumberland County)
- Tobyhanna (Monroe County)
- Willow Grove Air Base (Montgomery County).

Tourism Hubs

The TAC highlighted the addition of tourism and tourism destinations as significant hubs for inclusion in the state core system. As an employment sector, tourism is a $25 billion dollar industry in Pennsylvania, employing more than 40,000 and ranking as the Commonwealth's second-largest employment sector. In 2005, the Commonwealth attracted more than 130 million visitors, making the Keystone State the fifth most-visited state in the nation. The number of hotel rooms reserved—a barometer of the travel and tourism industry—was 26 million in 2005, or 5.1 percent more than in 2000, according to the Pennsylvania Tourism Office.

Since the state Department of Community and Economic Development (DCED) does not presently maintain a ranking of the state's most visited tourism sites, the TAC recommends using tourism spending by county as a proxy for the top tourism areas for consideration in the CPTS.[3] This approach is similar to North Carolina, where that state's Department of Commerce identified the top 25 tourist attractions as part of that state's main activity centers.

Activity Center Examples: Hershey Park, Gettysburg National Military Park, Allegheny National Forest, Presque Isle, Independence Mall.

[3] Tourism destinations or hubs within the counties could be inferred in most cases (e.g., Gettysburg in Adams County, etc.)

Core Urban Clusters of Micropolitan Statistical Areas

The Office of Management and Budget (OMB) in 2003 established "Micropolitan Statistical Areas" as a new geographical category. They represent the smaller counterparts to the Metropolitan Statistical Areas (MSAs). They consist of an area centered on a core city or town with a population of 10,000 to 49,999. The new designation recognizes changes outside cities and suburbs that have been brought on by development, migration, and the economic shift from farming and manufacturing to service industries.

The micropolitan areas are defined using the county as a geographical building block. For example, a Micropolitan Statistical Area centered on Sayre Borough would include Bradford County in its entirety. There are 21 Micropolitan Statistical Areas in Pennsylvania, with at least one in each Rural Planning Organization (RPO).

Micropolitan areas do not have the population or employment base of the state's larger MSAs, yet they are recognized as significant employment centers (and "Tier 2" economic centers in the statewide core system). As a group, Pennsylvania's micropolitan statistical areas have experienced greater increases in population growth rates over the past 15 years. Recent population estimates put Pennsylvania's combined micropolitan statistical area population at 1.59 million, up over six percent since 1990. Several of the state's micropolitan areas are experiencing population declines, yet there are a few (such as Gettysburg) that are experiencing growth in excess of state rates.

- **Urban Cluster Examples**: Chambersburg, Indiana, Pottsville, Selinsgrove (see sidebar).

"The government has created a new label for these communities, which increasingly fill the gaps on the map between major cities. The new term — Micropolitan Statistical Areas — recognizes that even small places far from metro areas are economic hubs that draw workers and shoppers from miles around."

Pennsylvania's Urban Clusters of Micropolitan Statistical Areas

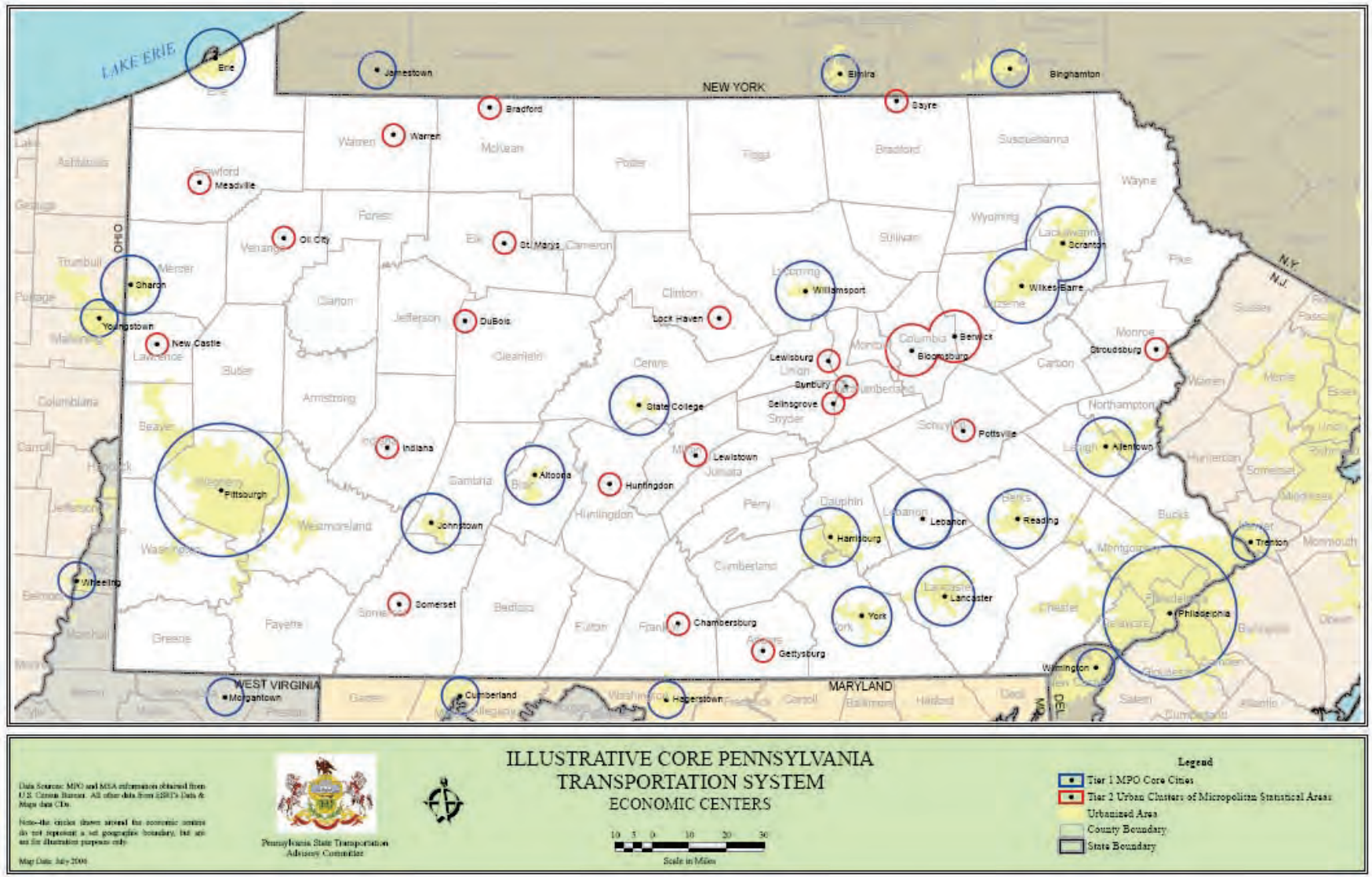
- Bloomsburg
- Berwick
- Chambersburg
- DuBois
- East Stroudsburg
- Gettysburg
- Huntingdon
- Indiana
- Lewisburg
- Lewistown
- Lock Haven
- Meadville
- New Castle
- Oil City
- Pottsville
- Sayre
- Selinsgrove
- Somerset
- St. Marys
- Sunbury
- Warren

Economic Clusters/Smaller Economic Centers

The TAC recognized that a "Tier 1" MPO core city is not necessarily the only nucleus of economic activity within its MPO area. A database of employers from InfoUSA was mapped to identify other potential clusters of economic activity. Employers in the following goods-generating or warehousing sectors were mapped: farm products, mining, manufacturing, warehousing, and wholesale trade. These sectors were included due to a presumed role of the transportation system (especially roadways) for their economic success, and, in the case of goods producing industries, due to their contribution to the economic base of the state and of their region. Retail and service sector industries tend to be more oriented toward local customers and thus less dependent for their inter-regional competitiveness on the performance of the roadway and rail freight infrastructure.

The identification of the smaller economic centers began with a screening for visible clusters of employers that displayed some spatial separation from the urban core of an MPO core city. Second, clusters that were along an interstate highway connecting Tier 1 nodes were not included, as they would not be expected to lead to the identification of an *additional* core system facility. Finally, a check of economic significance was completed by computing the estimated total number of employers and total employment within a five-mile radius of the selected center point of the cluster. Due to data limitations, it was not possible to yield a very precise employment count; most firm employment was expressed in the form of a range, for which a mid-point of the range was used. Nonetheless, the data is viewed as adequate for comparison purposes among employment centers.

- **Small Economic Center Examples**: Butler, Carlisle, Hanover, Pottstown, Washington.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Berwick
Bloomsburg
Stroudsburg
Lewisburg
Sunbury
Selinsgrove
State College
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Cumberland
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Chambersburg
Gettysburg
Harrisburg
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ILLUSTRATIVE CORE PENNSYLVANIA
TRANSPORTATION SYSTEM
ECONOMIC CENTERS
Legend
Tier 1 MPO Core Cities
Tier 2 Urban Clusters of Micropolitan Statistical Areas
Urbanized Area
County Boundary
State Boundary
Pennsylvania State Transportation Advisory Committee
Scale in Miles

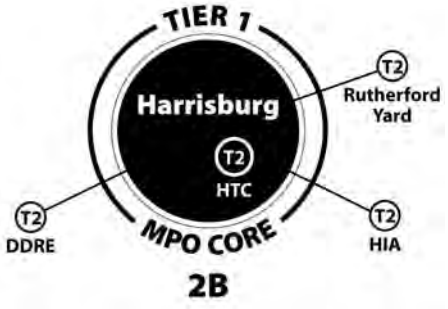
Chapter 6

- What makes a facility or service "core?"

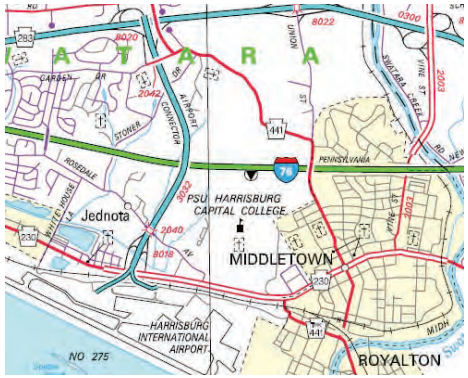
Modal Criteria

Building on the system nodes, the basic architecture of the core system concept (for both statewide and regional facilities) is the transportation modes that link economic centers and activity centers. This will provide a useful framework in the future for relating Tier 1 facilities of statewide significance to Tier 2 facilities of regional significance.

Figure 3: Sample Economic Center and Supporting Activity Centers



The TAC recommends illustrative modal criteria as described in the following sections. It is recognized that these criteria may be modified beyond this study.



Aviation

Pennsylvania faces the challenge of promoting commercial air service to various markets. Aviation is a strategic component of economic development, moving people and high value goods in a global economy. The Bureau of Aviation has classified all 137 public airports including "Advanced," "Intermediate," "Basic," and "Limited/Special Use" facilities. The state's two largest commercial service airports in Philadelphia and Pittsburgh have their own unique air service profile, while the state's five medium-sized airports (Erie, Harrisburg, Lehigh Valley, State College, and Wilkes-Barre/Scranton) are served by multiple airlines yet face the challenge of traveler diversion to other airports. Many of the smaller commercial airports struggle to retain *any* commercial service. Table 6 displays the air facilities included in the illustrative core system. Tier 1 criteria reflect those facilities of statewide significance.

The Tier 2 definitions related to facilities of a more regional function.

Table 6: Modal Criteria - Aviation

Criteria/Factors	Rationale	Results
• **Tier 1** - Commercial service airports within a 60-minute drive of an MPO core city • **Tier 2** - Advanced General Aviation airport within a 30-minute drive of an MPO core city. Also included as Tier 2 airports are commercial service airports that serve a Tier 2 economic center; e.g., DuBois, Bradford. • **Tier 2** - Advanced/Intermediate General Aviation airport within a 30-minute drive of a core urban cluster of a Micropolitan Statistical Area.	• A regional approach for commercial service • PennDOT Bureau of Aviation (BOA) classifies "Advanced" and "Intermediate" airports using a number of factors such as aircraft operations, based aircraft and airfield facilities.	• Thirteen airports with commercial service as of the time of this report: o Altoona-Blair County o Arnold Palmer Regional o Erie International o Harrisburg International o Johnstown-Cambria County o Lancaster o Lehigh Valley International o Philadelphia International o Pittsburgh International o University Park o Venango Regional o Wilkes-Barre/Scranton Int'l o Williamsport Regional

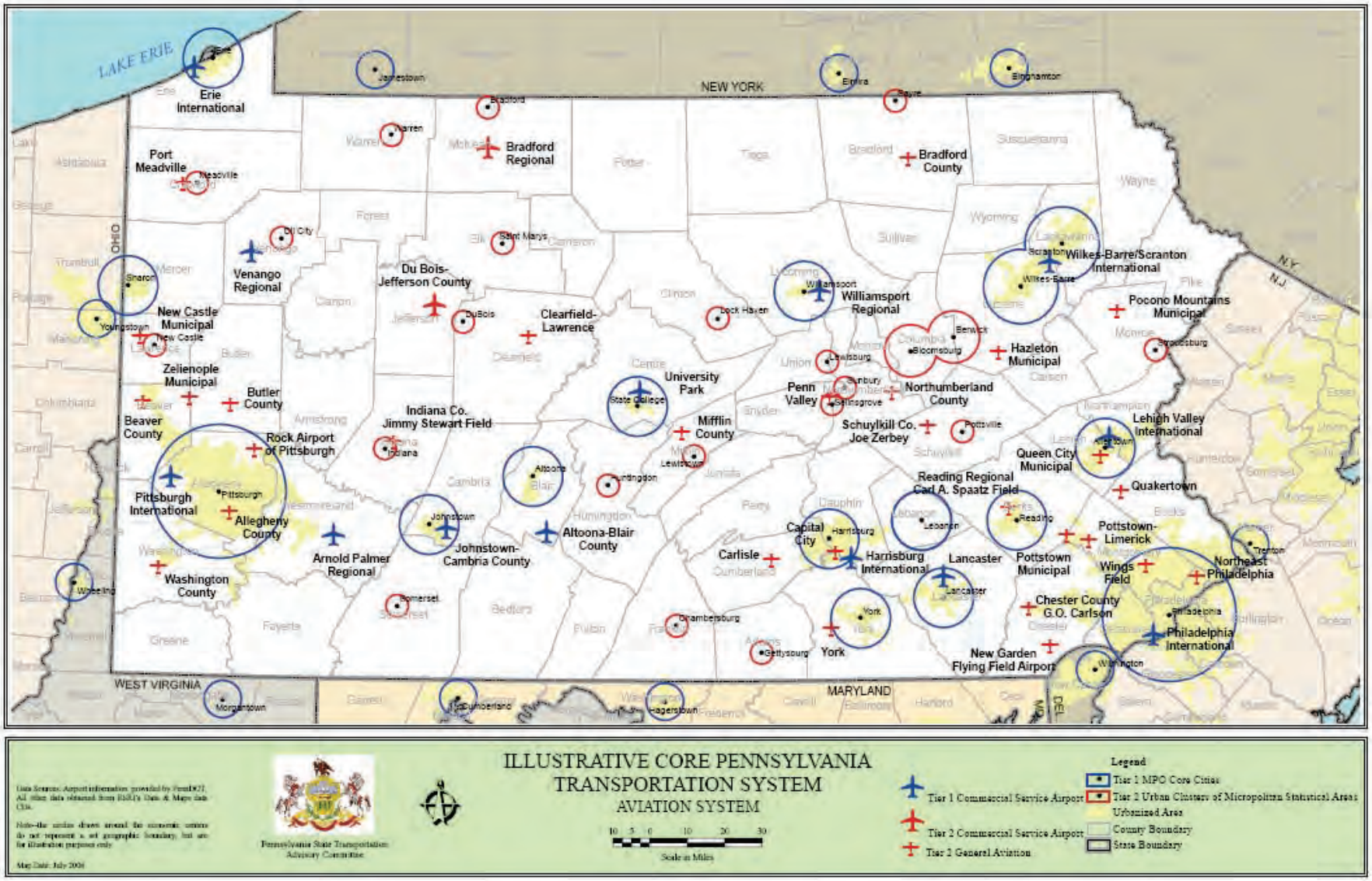
Other Considerations for future refinement of the Aviation portion of the Core System:

- **General Aviation (GA) Airports**— GA airports are often not only intercity but also international, providing essential services to many Pennsylvania business users. Future consideration should be given on whether to include select GA airports on the CPTS that meet a certain threshold of based aircraft and operations. Aviation is arguably the most dynamic of all the modes for security and other reasons. The very structure of aviation may change rapidly in relation to new types of aircraft and business travel needs in ways that greatly elevate General Aviation.

  General aviation (GA) airports help to fuel Pennsylvania's economy with an estimated $13 billion annually and nearly 300,000 jobs. The GA reliever airports are particularly critical because they reduce delays at Commercial Service Airports. For example, each GA aircraft with 6 passengers delays two airliners with 300 passengers. Because of GA airport development, traffic at our largest airports can operate more efficiently.

- **Federal and State Policy**—the FAA stresses the importance of reliever airports and system planning. Relievers are deemed important because they provide critical capacity that makes the overall system perform better and more safely (redundancy). Future refinement of the CPTS likewise should consider whether the FAA reliever designation should apply. State policy and programs also focus on making important improvements to key general aviation airports.

- **The Unique Economic Roles of Airports** - Future consideration should be given to economic activity centers specific to airports. An airport that serves a priority economic cluster, for example, could be considered as part of Core System refinement. DuBois Airport serves a Tier 2 city but is also strategically important to the state's powdered metals industry. In a similar way some GA airports serve both business and major tourism facilities (e.g., Connellsville GA service to Nemacolin Woodlands, etc).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Williamsport Regional
Wilkes-Barre/Scranton International
Pocono Mountains Municipal
New Castle Municipal
Zelienople Municipal
Butler County
Beaver County
Rock Airport of Pittsburgh
Indiana Co. Jimmy Stewart Field
University Park
Penn Valley
Northumberland County
Hazleton Municipal
Mifflin County
Schuylkill Co. Joe Zerbey
Lehigh Valley International
Queen City Municipal
Reading Regional Carl A. Spaatz Field
Quakertown
Pittsburgh International
Allegheny County
Arnold Palmer Regional
Johnstown-Cambria County
Altoona-Blair County
Capital City
Harrisburg International
Carlisle
Lancaster
Pottstown Municipal
Pottstown-Limerick
Wings Field
Northeast Philadelphia
Washington County
Chester County G.O. Carlson
Philadelphia International
New Garden Flying Field Airport
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ILLUSTRATIVE CORE PENNSYLVANIA TRANSPORTATION SYSTEM
AVIATION SYSTEM
Tier 1 Commercial Service Airport
Tier 2 Commercial Service Airport
Tier 2 General Aviation
Legend
Tier 1 MPO Core Cities
Tier 2 Urban Clusters of Micropolitan Statistical Areas
Urbanized Area
County Boundary
State Boundary
Scale in Miles
Pennsylvania State Transportation Advisory Committee

Public Transportation

Pennsylvania recognizes the importance of public transportation to commuters, seniors, students, employers, and health and human service providers. Public transit is also important to the Commonwealth's energy conservation goals, quality of life, and environmental goals and concerns. The importance of public transportation is reflected in the Commonwealth's substantial funding commitments and the current activity of the Transportation Funding and Reform Commission.

First, the starting point for defining public transportation on the core system is the foundation inter-city criterion which would include various transit services between Tier 1 core cities such as express bus or feeder services. The TAC also recommends that the Core System include those areas in which 5 percent or more of work trips are made using public transportation. TAC recognizes that public transit in these places represents a substantial part of the overall commuting profile and that any severe cutback in services would have an adverse impact on the overall transportation system. Finally, TAC recommends that transit routes that provide important intermodal redundancy in major corridors should be designated as part of the Core System.

Table 7: Modal Criteria - Public Transportation

Criteria/Factors	Rationale	Results/Examples
Tier 1 • Intercity service between MPO core cities both within and immediately outside of Pennsylvania • Areas with 5% or higher public transit trips as a percentage of total work trips.	• In addition to its function in linking core MPO cities, a related benefit is the provision of public transportation services to many local communities without any such service.[4] • Transit service is often essential for students, seniors, persons with limited incomes, and persons with disabilities.	• Examples include: o MARTZ intercity bus charters o Reading-Philadelphia (Bieber)[5] o Erie-Pittsburgh (Greyhound) o Scranton-Elmira (Capitol) o State College-Harrisburg (Fullington)

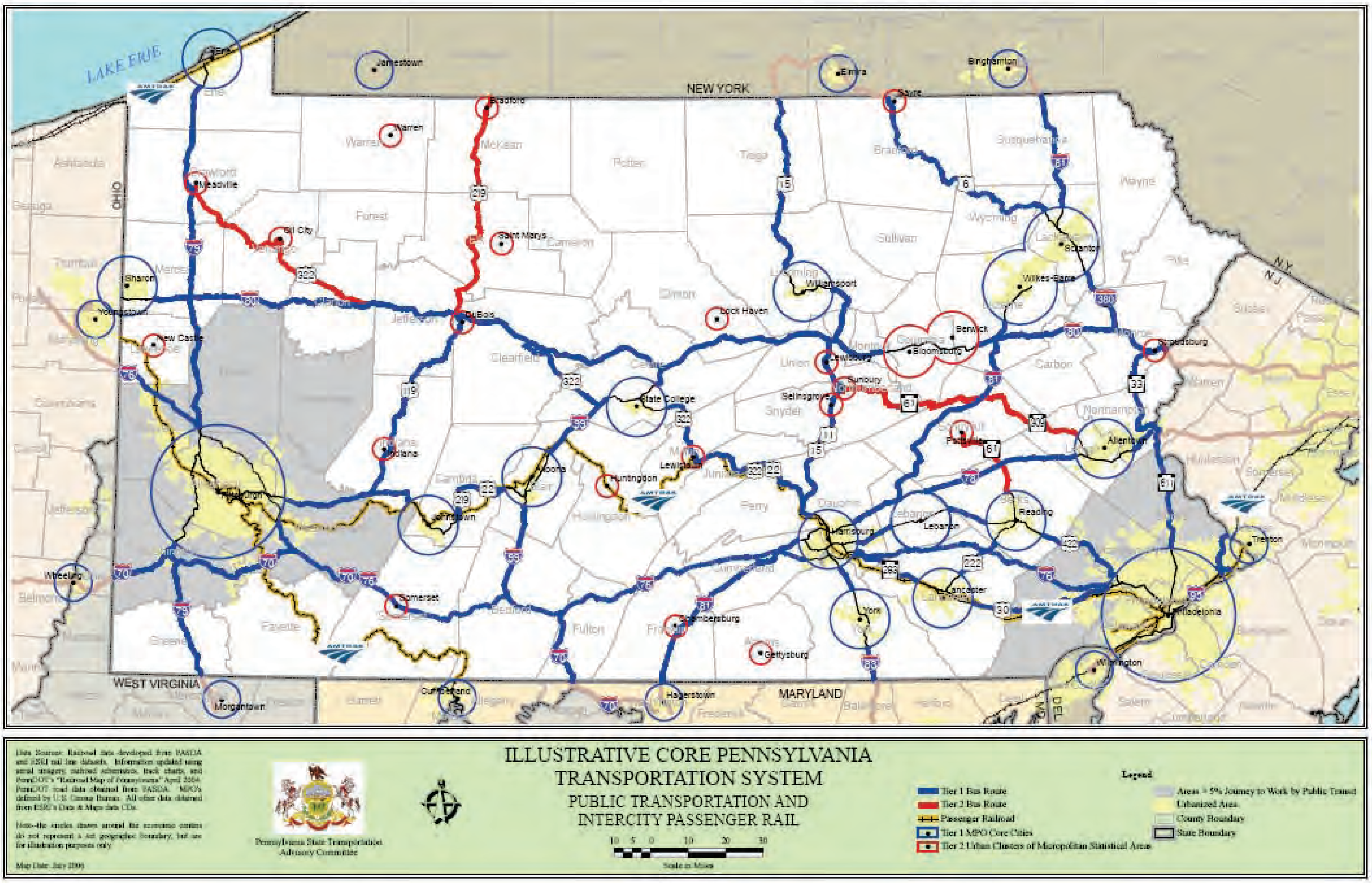
[4] Former Greyhound service from Chicago to New York, with a meal stop in Milesburg/State College, was an example of such service, but was discontinued in October 2005.

[5] Carl Bieber's service between Reading and Philadelphia is the largest such service in the state, with over 52,000 total passengers from 2003-2004.

Criteria/Factors	Rationale	Results/Examples
• Routes or services in major multimodal corridors in which transit provides a critical back-up or redundancy with major highway facilities.		o SEPTA intercity rail between Philadelphia and Trenton which connects with NJ Transit and Amtrak. Lines like SEPTA R1 Airport Line also fit the Tier 1 criteria as a route that is part of a major transportation corridor that includes I-76.
• **Tier 2** - Includes services and facilities that serve "activity centers" supporting the state's "Tier 1" MPO core cities.	• Emphasizes intermodal connectivity over demand in keeping with Core System criteria of inter-regional movement.	• In a Harrisburg example, this would include CAT service to: o HIA (passenger hub) o DDRE (defense facility) o Hershey Park (top 20 tourism destination) o Carlisle (smaller economic center).
• **Tier 3** - Includes remaining "local" or intra-city service.	• Includes lower order transfers within a region	• In a Harrisburg example, this would include CAT service from Harrisburg to: o Colonial Park o Enola o Mechanicsburg, etc

Other Considerations for future refinement of Public Transportation's portion of the Core System:

- **Regional Versus Statewide Significance** - In terms of the Core PA Transportation System it is recognized that public transit is essentially a regional/local transportation mode. As such, the TAC recommends that PennDOT and the MPO/RPOs give careful consideration to public transit in defining facilities and services of regional significance. Every county of the state has public transit, underscoring that it is a backbone mode of passenger transportation as is our road and bridge network.
- **Non-Conventional Inter-City Transportation** - The Core System criteria could include other non-conventional forms of inter-city transportation not covered by inter-city bus, such as airport limousine/connector service or special purpose shuttles, such as those that move between Carlisle and State College, etc. (Many people are making inter-city trips "under the radar" by means not being captured by inter-city bus.)
- **Public Transit Serving the Tier 1 Economic Centers**— A conceptual modal criterion raised near the completion of the study was to use the 15 MPO Core Cities/Economic Centers as the framework for public transportation and the CPTS. The TAC Task Force recognized the apparent attractiveness of that factor since the economic centers are the foundation for core system definition. The Task Force, however, opted to not apply it as part of Tier 1 definition. Many of the transit services in these 15 areas are highly important locally but do not satisfy the other transit related Tier 1 criteria. Moreover, the foundation criteria for the core system also emphasize the connection between these economic centers rather than the economic centers alone. PennDOT should still explore this concept in refining the Core System and its implementation irrespective of the Tier slotting for various public transit systems or services.
- **Miscellaneous** - Issues related to the environment, aging, and energy also make the consideration of public transit's growing importance as an element of Pennsylvania mobility and access essential.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State College
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York
Trenton
Philadelphia
Wilmington
Wheeling
Somerset
Chambersburg
Gettysburg
Morgantown
Cumberland
Hagerstown
Data Sources: Railroad data developed from PASDA and ESRI rail line datasets. Information updated using aerial imagery, railroad schematics, track charts, and PennDOT's "Railroad Map of Pennsylvania" April 2004. PennDOT road data obtained from PASDA. MPO's defined by U.S. Census Bureau. All other data obtained from ESRI's Data & Maps data CDs.
Note–the circles drawn around the economic centers do not represent a set geographic boundary, but are for illustration purposes only.
Pennsylvania State Transportation Advisory Committee
ILLUSTRATIVE CORE PENNSYLVANIA
TRANSPORTATION SYSTEM
PUBLIC TRANSPORTATION AND
INTERCITY PASSENGER RAIL
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Scale in Miles
Legend
Tier 1 Bus Route
Tier 2 Bus Route
Passenger Railroad
Tier 1 MPO Core Cities
Tier 2 Urban Clusters of Micropolitan Statistical Areas
Urbanized Area
County Boundary
State Boundary

Passenger Rail

Amtrak is Pennsylvania's primary provider of inter-city passenger rail service, with its mix of daily, commuter, and long distance trains. Amtrak serves 24 stations throughout Pennsylvania, including Philadelphia's 30th Street Station, the second busiest in the national Amtrak system. Of the nearly 5 million passengers who boarded an Amtrak train in Pennsylvania last year, 3.7 million were at the 30th Street Station.[6] The Commonwealth has been progressive in supporting Amtrak passenger rail service throughout the state, and particularly on the 104-mile Keystone corridor between Philadelphia and Harrisburg to reduce travel time and improve service reliability. Since 2000, nearly $100 million has been invested in the line, and ridership has experienced year over year increases (20 percent in FY03 and 18.5 percent in FY04) to a 2005 total of 1.07 million. Several years ago TAC conducted a study of intercity rail recognizing the potential importance of this mode for the future.

Table 8: Modal Criteria - Passenger Rail

Criteria/Factors	Rationale	Results
Tier 1 • Passenger rail service between the state's "Tier 1" MPO core cities and beyond. This includes Amtrak presently. In the future other intercity lines could also be included following these criteria recognizing that there could be other inter-city operators in addition to Amtrak.	• Intercity rail aligns with the core system criteria of transportation facilities and services that link major economic centers • Provides system redundancy providing a viable alternative in major corridors such as Philadelphia to Harrisburg. • Demand for inter-city rail appears to increase with fuel price increases.	• Amtrak service, including[7]: o Keystone corridor o North East corridor o Capitol Limited (through Connellsville) o Lake Shore Limited (through Erie) o Pennsylvanian

[6] Amtrak FY05 Fact Sheet

[7] Amtrak's *Three Rivers* service between Chicago and New York through Pittsburgh and Philadelphia was discontinued in March 2005

Highways and Bridges

Pennsylvania's highways and bridges are the backbone of our transportation system carrying the greatest volumes of freight and passenger movement. The Interstate Highway System has yielded tremendous economic impact for the Commonwealth by bringing markets closer together and reducing the overall cost of transportation. With the identification of the National Highway System (NHS) in 1995 (and its related NHS connectors) PennDOT has worked to ensure that its highest order roadways operate at an acceptable condition and that they effectively link the most significant intermodal freight and passenger hubs throughout the Commonwealth. The highway portion of the Core PA Transportation System also focuses mainly on the National Highway System (NHS) and the NHS connectors that link our high volume roads with key Intermodal facilities.

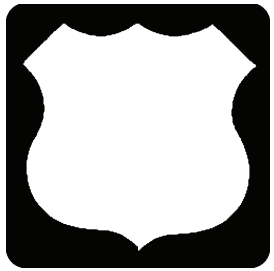


Table 9 and the accompanying map display the highways included in the state's illustrative core system.

Table 9: Modal Criteria - Highways

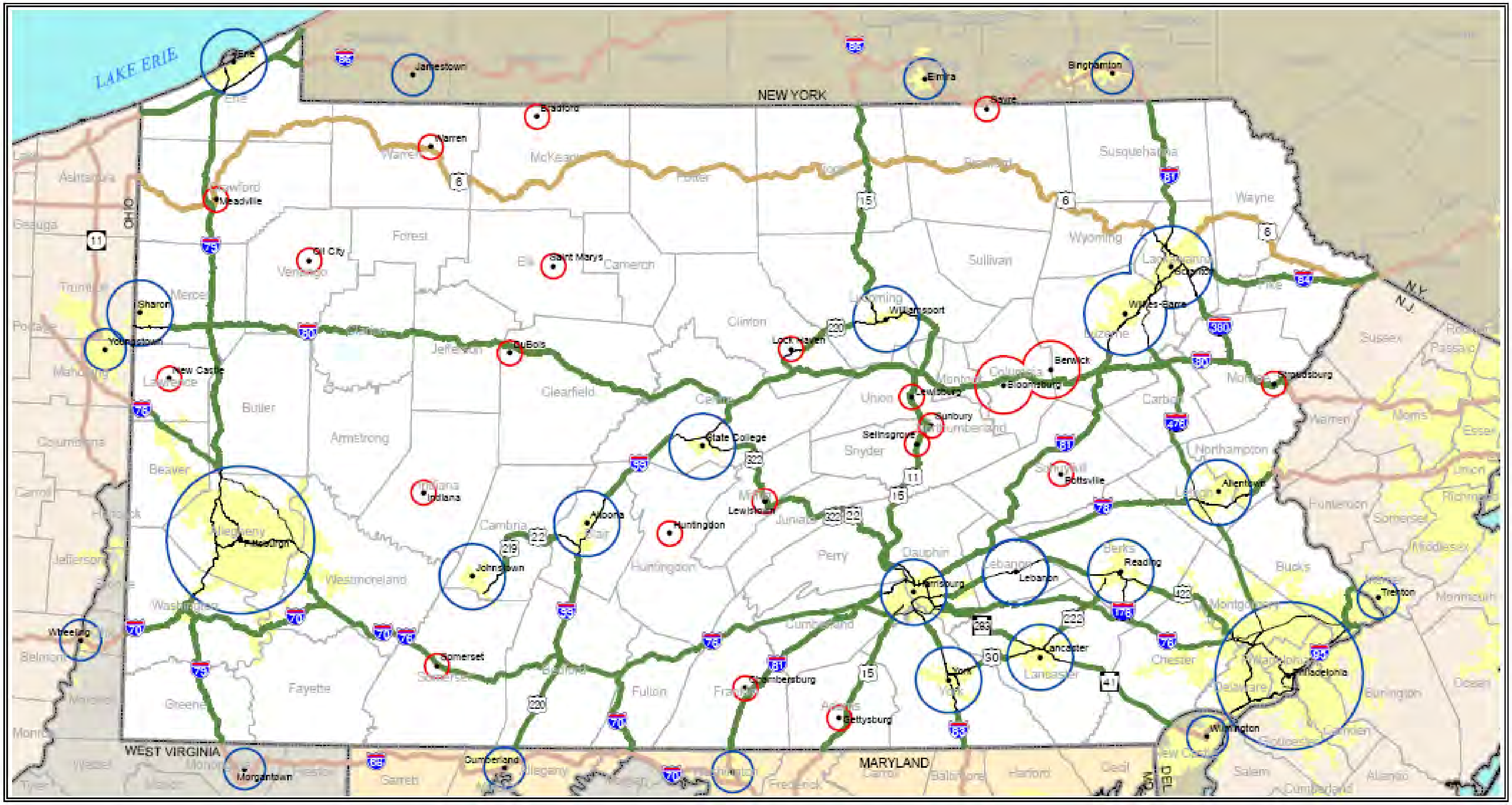
Criteria/Factors	Rationale	Results
Tier 1 • Core System Highways are the highest order facilities that directly connect the urbanized areas of the "Tier 1" MPOs. This is made up mainly of Interstate highways, U.S. routes, and similar facilities.	• Includes connections to all 15 Pennsylvania MPO core cities, as well as MPO cities immediately outside the state. • Represents and reflects current priorities related to the highways that carry the greatest traffic volumes.	• Includes all interstates (which represent 6.2 percent of PennDOT's roadway lane miles, or approximately 2500 miles), as well as: o US 15 statewide o US 22 and US 219 from Altoona to Johnstown o US 30 from Lancaster to York o US 220 from Bedford to Cumberland, MD o US 222 from Lancaster to Reading o US 322 from Harrisburg to State College o US 422 from Harrisburg to Philadelphia via Lebanon and Reading

Criteria/Factors	Rationale	Results
		o PA 283 from Harrisburg to Lancaster o PA 41 from Lancaster to Wilmington, DE
Tier 1 • NHS connectors	• Provides critical links between the intermodal facilities (or Tier 2 activity centers) described elsewhere and the interstates (which are a subset of the NHS). • Provides mobility to places of passenger and freight transfer.	• Slightly over 98 miles of NHS connectors have been identified for all intermodal terminals that meet FHWA criteria. A complete listing of these connectors is included in the report appendix.

Other Considerations for future refinement of the Highway portion of the Core System:

- **Bridges** Security and Emergency Response - The TAC recognizes the importance of bridges to emergency evacuation and response. That factor, however, alone is not seen at this time as a basis for inclusion on the Core System. Security and disaster preparedness should be addressed as part of future system refinement.
- **Bridge Detour Length** Bridges with substantial associated detour lengths should also be included for future Core System consideration in light of their safety and security implications.

- **US 6** US 6 is shown on the report project mapping as illustrative of a Tier 2 roadway, linking the smaller economic centers of the state's northern tier. This rural highway is one important for the movement of agricultural-related and other transportation (such as tourism). The farming communities of the state's northern tier rely on US 6 for the transport of products such as corn, feed and fertilizer. The roadway also serves the timber industry (with logs and hardwood lumber being shipped) as well as activities related to the extraction of oil and gas. The TAC also identified the importance of US 6 in a March 1991 study, when it included the roadway as part of a statewide core highway network.



Data Sources: Railroad data developed from PASDA and ESRI rail line datasets. Information updated using aerial imagery, railroad schematics, track charts, and PennDOT's "Railroad Map of Pennsylvania" April 2004. PennDOT road data obtained from PASDA. MPO's defined by U.S. Census Bureau. All other data obtained from ESRI's Data & Maps data CD.

Note-the circles drawn around the economic centers do not represent a set geographic boundary, but are for illustration purposes only.

Map Date: July 2006

Pennsylvania State Transportation Advisory Committee

ILLUSTRATIVE CORE PENNSYLVANIA TRANSPORTATION SYSTEM

HIGHWAYS

10 5 0 10 20 30

Scale in Miles

Legend

- Tier 1 Highway
- Tier 2 Highway - Illustrative Example
- Out of State Roadway
- Tier 1 MPO Core Cities
- Tier 2 Urban Clusters of Micropolitan Statistical Areas
- Urbanized Area
- County Boundary
- State Boundary

Rail Freight

The rise in importance of Pennsylvania rail freight has been underscored in recent years by deregulation, consolidation and mergers. Rail freight's efficiency and effectiveness as an alternative shipping mode has also been enhanced through such technological advances as containerization, double-stacking, and more recent developments such as the use of RoadRailer. Earlier this year, Intermodal surpassed coal as the railroad industry's top generator of revenue. And for the first time in many years, railroads are now beginning to earn their cost of capital.

Pennsylvania boasts more operating railroads than any other state in the nation, and with the rise of rail freight's effectiveness, it becomes more important for public agencies such as PennDOT and its partners to plan for connectors and improved access to rail facilities. Recent studies such as the Mid-Atlantic Rail Operations Plan (MAROPS) highlighted many of the capacity challenges that the rail freight industry is experiencing, yet rail freight as a mode may become an essential part of an overall strategy for extending the capacity and life cycles of our overall transportation system.

Table 10 below and the accompanying map illustrate the rail freight portion of Pennsylvania's core transportation system.

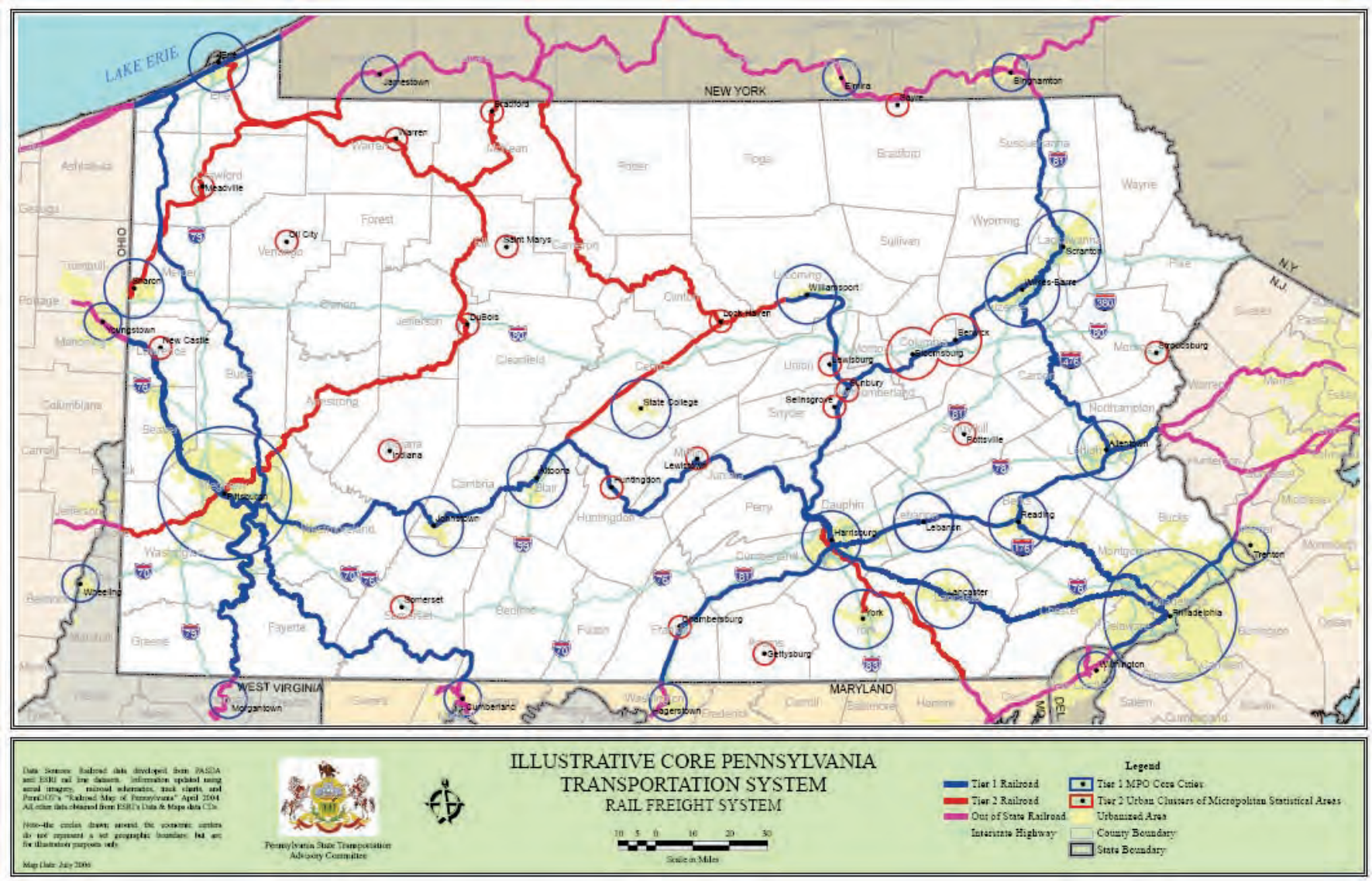
Table 10: Modal Criteria - Rail Freight

Criteria/Factors	Rationale	Tier 1 Results
• **Tier 1** - Rail lines that connect Tier 1 regions within PA and to those outside PA with greater than 10 million net tons annually. • **Tier 2** - Rail lines with greater than 1 million net tons.	• Greatest measure of business density or business volume per area served.	• Includes significant freight rail lines including: o B&LE Mainline o CP Freight Mainline o CR Delair Branch - Philly to S. Jersey o CSX Lakeshore subdivision o CSX Keystone subdivision o CSX Washington to NJ (Philly Sub and Trenton Sub) o NS Pittsburgh Line o NS Fort Wayne Line

Criteria/Factors	Rationale	Tier 1 Results
		o NS Lehigh Line - northern NJ to Bethlehem o NS Reading Line - Allentown to Reading o NS Harrisburg Line - Philadelphia to Hbg via Reading) o NS Port Road Branch - Hbg to Wilmington, DE o NS Lurgan Branch o NS Morrisville Line o NS Conemaugh Line

Other Considerations for future refinement of Rail Freight's portion of the Core System:

- **Revenue Generating Stations vs. Economic Centers** - The Department and its partners may wish to consider the connections between revenue generating stations outside of economic centers (such as the Bailey Mine in Greene County) in addition to Tier 1 hubs.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Interstate Highway
Tier 1 MPO Core Cities
Tier 2 Urban Clusters of Micropolitan Statistical Areas
Urbanized Area
County Boundary
State Boundary
Scale in Miles
Pennsylvania State Transportation Advisory Committee

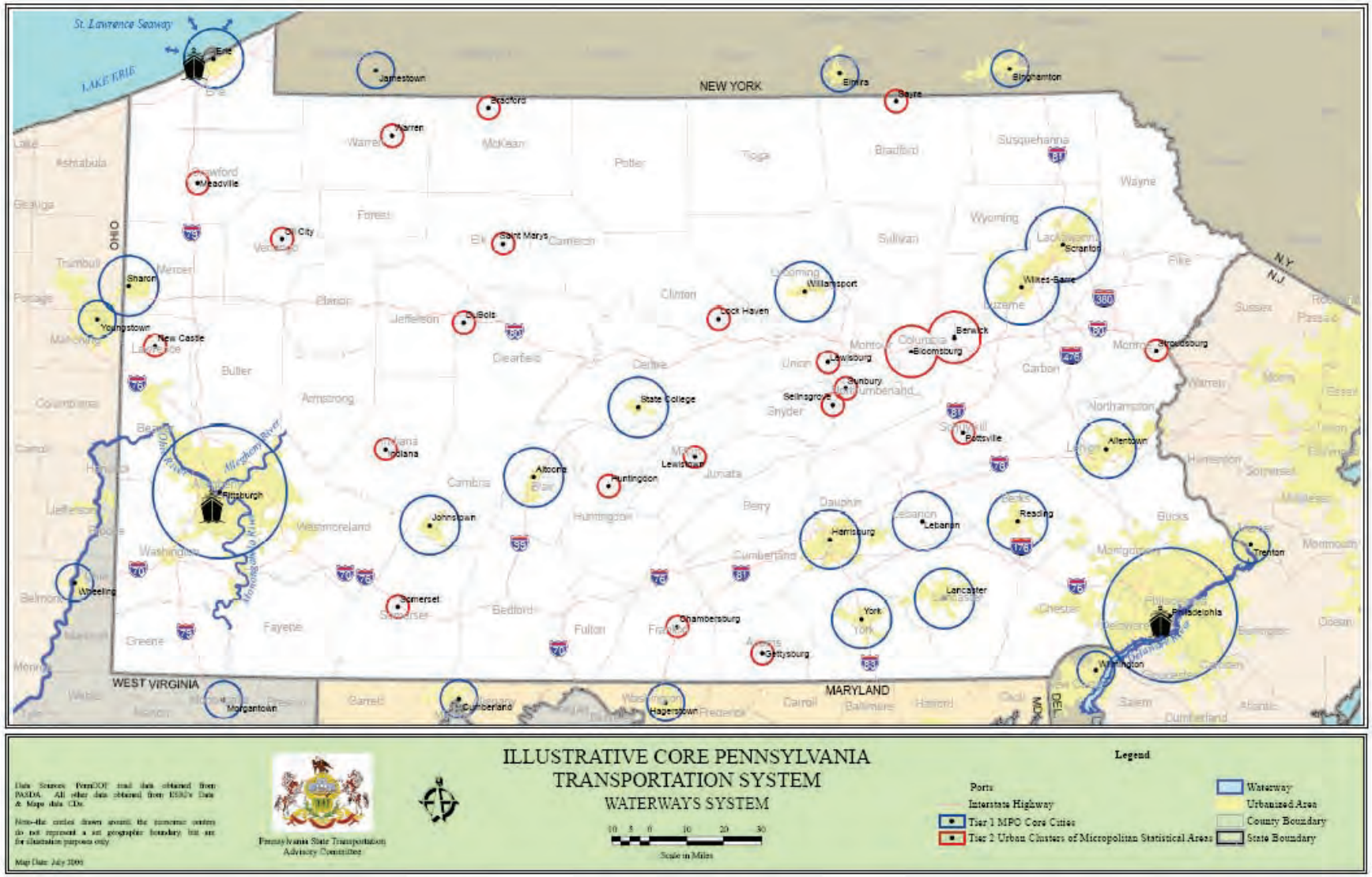
Ports & Waterways

Pennsylvania is the only state in the nation with three distinct water ports: an Ocean port in Philadelphia, an inland river port in Pittsburgh, and a port on the Great Lakes system in Erie. As the volume of Pennsylvania's world trade continues to increase[8], the significance of our water ports as economic and transportation hubs is also underscored. The effective operation of these facilities and their connection to other modes has major implications for Pennsylvania business and commerce. Pennsylvania's maritime transportation is faced with a number of challenges, including increasing waterborne (and landside) congestion, accommodating larger vessels, aging infrastructure and security needs. As Pennsylvania's gateways to the global economy, the loss of capacity or diminution of Pennsylvania's water ports would compromise the Commonwealth's competitive position.

Table 11: Modal Criteria - Ports & Waterways

Criteria/Factors	Rationale	Results
Tier 1 • Waterways that connect Tier 1 regions with other state and international markets • The growth of international commerce makes our water ports a major distribution node and point of connectivity with highway and rail facilities.	• The Commonwealth's three water ports are major economic activity centers. • Connects Port waterside and landside facilities to economic centers in Pennsylvania and with those outside the state.	• The Ports of Philadelphia, Pittsburgh, and Erie are included as part of the illustrative Core PA Transportation System.

[8] According to the Army Corps of Engineers, Pennsylvania ranks seventh nationally in total waterborne traffic, with 115 million short tons.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Pottsville
Allentown
Stroudsburg
Indiana
Altoona
Huntingdon
Lewistown
Johnstown
Pittsburgh
Harrisburg
Lebanon
Reading
Trenton
Philadelphia
Lancaster
York
Chambersburg
Gettysburg
Somerset
Wheeling
Morgantown
Cumberland
Hagerstown
Washington
ILLUSTRATIVE CORE PENNSYLVANIA TRANSPORTATION SYSTEM
WATERWAYS SYSTEM
Legend
Ports
Interstate Highway
Tier 1 MPO Core Cities
Tier 2 Urban Clusters of Micropolitan Statistical Areas
Waterway
Urbanized Area
County Boundary
State Boundary
Pennsylvania State Transportation Advisory Committee
Scale in Miles

Chapter 7

- What other states are doing
- Ideas for PA
- Next steps

Implementation Plan

Lessons learned from other states and implications for PA

Reviewing the experiences of several priority or core systems developed in other states allows PennDOT to better understand the path to implementing its system. Each state DOT reviewed (Florida, Ohio, and North Carolina) demonstrated a different approach to priority system definition and use. This is to be expected due to the size of the network and the priorities of each state. Each state's system was examined under a set of characteristics that helped show how each facility on the system was selected and later how the entire system was phased-in and then monitored and reevaluated. Since these states have only implemented their systems within the last few years, a truly effective "best practices" is somewhat limited. This section therefore allows a comparison of conditions similar to those expected in Pennsylvania.

The majority of the states reviewed had established a core system based on the desire to compete economically with the need to improve mobility and other operational concerns of lesser importance. Differences were most apparent in how the core systems were intended to be used. Florida and Ohio designated their systems as a means to project prioritization, selecting facilities that had passed select criteria. Planning and decision-making was the intended use for North Carolina's Multimodal Investment Network (NCMIN) whose programming and project development process is highly centralized compared with Pennsylvania. Competition for funding was a consideration; for Ohio their Macro Highway Corridor facilities were given precedence over non-core facilities, while Florida has allocated 75 percent of discretionary capacity funds solely to their Strategic Intermodal System (SIS). For Florida, a finance strategy was adopted later after the system designation of facilities (criteria and thresholds) was established.

Facilities were selected for each state's system through measures, and in some cases thresholds, that designated facilities based on the percent capacity of trips or volumes experienced. Both North Carolina and Florida had a true multimodal approach to designating their system, while Ohio was focused on criteria for highway investments. For Ohio, a Corridor designation does not mean that every project or need on the core system will be addressed prior to needs on other roadways or other projects identified through statewide systems analysis. North Carolina's NCMIN created a three-tiered approach grouping transportation facilities or services based on interest, functional classification, type of trip served, use, and benefit to particular agencies (state, regional, local). Selection criteria helped

determine which facilities fit into which tier and was based on a technical committees recommendations.

Of the three states examined, only Florida had established phases to manage their program from development through implementation. Important considerations for successfully phasing-in the plan involved a mixture of strong leadership within the Department, establishing committees (especially technical), committed staff members and dedicated stakeholders, planning partners, as well as public involvement. Acceptance and consensus were seen as the most important obstacles to overcome because of potential sensitivities when creating a priority system. For example, financial issues had first impeded Florida's progress until they decided to ignore the funding question until the end, while the time it took to operationalize the NCMIN was expedited by the fact that the state has a highly centralized transportation planning process where MPOs and other regional planning partners are less concerned about the perceived loss of funding for their regions.

A weakness in most of the priority systems was their lack of performance monitoring. Arguably, this may be due to the core systems being only recently established and to the fact that most of the systems are closely tied to other long-range transportation plan (LRTP) objectives with their own monitoring programs and outcomes. Florida, whose SIS is generally separated from their LRTP, was still developing a performance indicator framework that will look at program, system, modal and the project prioritization performance. For North Carolina, each tier level in the NCMIN is monitored through several operational and general system characteristics including annual average daily traffic (AADT), number of deficient bridges, annual fatalities, etc. Each tier level is then assigned an overall rating or score based on these measures. The NCMIN was still investigating whether a decline in performance indicated that additional funding was needed to bring the system to the desired level of service.

Use of data and data analysis also varied among the state's system. Florida SIS has been greatly supported by the centralized GIS database which has been storing information to guide decisions made by FDOT and its partners throughout the SIS planning and program development process. Mapping capabilities in turn have helped aid the public's understanding of the purpose and rationale of the system. The NCMIN system is supported based on quantitative analysis through mining the HERS-ST[9] database. Estimated future costs and total system needs are generated offline from this data. This method allows for comparing scenarios and testing impacts from policy decisions, however it is only a simple sketch-planning tool.

Periodic reevaluation of the each state's system tended to be somewhat consistent. All three DOTs have a process for reevaluating their facilities (either adding, deleting or sustaining facilities) on their

[9] Highway Economic Requirements System - State version

system usually every four to five years. This process usually included a full round of committee reviews and stakeholder involvement sessions prior to final decision-making. Some states also conducted interim reviews of their criteria and data analysis. For Ohio and North Carolina, their priority system is closely linked with the long-range transportation plans, allowing re-evaluation of the system to coincide with the update of the plan.

Overall the systems reviewed each share experiences that could benefit Pennsylvania's endeavors. By utilizing components from each of these programs, PennDOT has the advantage of many years of experience with which to begin developing and implementing its own Core PA Transportation System.

Table 12: Experience in Other States

State	Purpose	How Used	Rationale for Facility Selection	How Implemented	Performance Monitoring	System Evaluation	Other
Florida	• To enhance economic competitiveness • Accommodate a desired level of mobility • Military importance	• To prioritize projects from a statewide, multimodal perspective. • To place more emphasis on regional and corridor-level planning. • To help redefine the roles and responsibilities in managing Florida's transportation system.	• All Strategic Intermodal System (SIS) facility types analyzed by volumes. • Facilities must provide intercity or interregional service with connection to other modes. • Established criteria with thresholds for facilities. • Facilities have high percentage of U.S. activity.	• Developed in three phases over three years: <u>Phase I:</u> • Determine what comprises the core transportation system • Ignore the funding question <u>Phase II:</u> • Develop plan of implementation • Define roles and responsibilities <u>Phase III:</u> • Legislature to shape the finance	• Currently framework is being established — does not have sufficient data yet to have a full model. • Developing a web-based GIS/IMS based tool that allows viewing of SIS facilities.	• Annual evaluation and five-year evaluation process for all facilities.	• Of the Discretionary Funds, 75% goes to SIS and 25% to other. • Core system is somewhat separate from long-range plan implementation.

State	Purpose	How Used	Rationale for Facility Selection	How Implemented	Performance Monitoring	System Evaluation	Other
Ohio	• To enhance economic competitiveness and spur development • Accommodate a desired level of mobility • Military importance.	• To prioritize projects based on needed improvements to the corridor, relative to similar needs to other roads in the region. • Core Transportation elements such as the Macro Highway Corridors are assigned additional "track points." Facilities with the most points get funding.	• Macro highway Corridor segments must achieve safety, operational, and design adequacy standards. • Corridors include Interstates, controlled access routes, and four lane divided highways that carry higher traffic volumes and traverse longer distances between major urban areas, or across the state.	• No real phasing occurred. • Corridors were identified in 1993 but the system was given special "track points" in 1998. Corridors updated and criteria established with the LRTP.	• No measures established to date.	• System reevaluated with every five-year update to "Access Ohio" LRTP.	• Core system is tied to state's long-range plan implementation.

State	Purpose	How Used	Rationale for Facility Selection	How Implemented	Performance Monitoring	System Evaluation	Other
North Carolina	• To better demonstrate the severity/ shortfall of resources needed to raise the transportation system to a desired level of service.	• The North Carolina Multimodal Investment Network (NCMIN) is primarily used as a planning and decision-making tool to analyze and prioritize investments across all modes.	• All facilities defined by a three-tiered (i.e., statewide, regional, and sub regional) classification based on functional classification, type of trip served, use and benefit to particular agencies (state, regional, local). • Selection criteria helped determine which facilities fit into which tier and was based on a technical committee's recommendations.	• Started with dedicated senior managers and preliminary technical research (2001). • Consultant team was hired. • Established several committees. • Enlisted numerous NCDOT staff members. • Involved over 40 stakeholder groups. • Conducted public involvement. • Created two leadership teams to advance implementation. • NCMIN was adopted in 2004.	• Each tier level in the NCMIN is monitored through several operational and general system char-acteristics.	• Data regarding the entire NCMIN is "refreshed" and updated every two years. • Every four years the entire system is reevaluated and a major plan is developed outlining what facilities should be added and/or removed.	• Core system is tied to state's long-range plan implementation.

Recommended Implementation Next Steps

To transition from an illustrative Core System concept into a functioning system TAC recommends a phased approach that would include:

Phase I: Awareness Raising/Listening Sessions

Phase II: Evaluation & Refinement

Phase III: Operationalize the CPTS

Phase IV: System Monitoring & Evaluation

Each Phase is briefly described below. TAC has refrained from being overly prescriptive, recognizing PennDOT's appropriate role in finalizing the approach or methodology to Core System refinement and implementation.

Phase I: Awareness Raising/Listening Sessions

The Florida experience indicates that successfully implementing a priority system requires significant outreach to a broad array of interests in order to overcome potential sensitivities. To achieve this buy-in and to provide guidance toward all phases in implementing the Core System, an Advisory Group should be established. This group might include stakeholders from each of the modes included in the system, both internal and external to PennDOT, as well as a large number of planning partners who would be encouraged to adopt the Core System concept. Additionally, PennDOT District representatives, who will ultimately become stewards of the system, should help guide how the system is refined, implemented, and evaluated.

From the experiences of other DOTs, it would appear that the first step would be a broad dissemination of the findings of this initial effort. This may include the need to educate the wider audience of unfamiliar stakeholders on the purpose of the system. This would also include presenting and discussing the rationale behind the organization and structure of the system.

Phase II: Evaluation & Refinement

Feedback from Phase I stakeholders will help develop a set of preliminary criteria along with other factors and considerations for defining a core system. System reevaluation would then be utilized to adjust the Core System criteria and facilities as warranted based on an evaluation of Phase I results and any subsequent analysis. The refinement of criteria will likely require an iterative process. This would necessitate sharing one or more draft systems, likely requiring a significant outreach effort. The TAC

Phase I: Awareness Raising/Listening Sessions

The purpose of the first phase of implementation would be to use the illustrative Core System as a foundation for a structured statewide dialogue with PennDOT Districts, transportation users, modal operators, planning partners and others. The input received will be used in Phase II.

Phase II: Evaluation and Refinement

Phase 1 results would be used to refine criteria and move from an illustrative Core System to a more definitive Core System. This phase would also result in the specific direction for phasing in the use of the Core System to existing processes, as well as new uses.

recommended illustrative core system would be the starting point. Once the criteria are finalized and a core system is defined, it will be ready to be implemented.

Phase III: Operationalize the CPTS

Phasing-in the Core System would require establishing implementation directions for the short- and longer-term. Depending on the Core System's role this could involve areas such as the following:

- Planning—statewide and regional
- Coordinated Capital Planning (across modes)
- Goods Movement
- Transportation Operations/ITS
- District Business Plans
- Regional Long-Range Plans
- Neighboring State's Core System.

As the core system implementation is phased in, it will require the effort of personnel across many bureaus within PennDOT, as well as the planning and modal partners and others defined in Phase I and Phase II. To facilitate timely implementation; roles and responsibilities should be established to define who is involved and the process for developing the Core System.

Phase III: Operationalize CPTS

Phase III represents "full implementation" as defined by PennDOT recognizing that the Core System approach will likely be phased-in many aspects and be dynamic in its implementation based on the ultimate phasing approach.

Phase IV: System Monitoring & Evaluation

Once the Core System is implemented, it will need to be evaluated in terms of performance and periodically refined. Monitoring efforts can help address the performance of the system over time as a tool for decision-makers and a reference to the general public.

At the heart of the monitoring endeavor would be measures to evaluate facilities and/or monitor performance across the entire core system. Measures could be similar to indicators proposed under PennDOT's "State of the System Report." These outcome-based system-wide indicators would track long-term objectives as identified in the Pennsylvania Mobility Plan (LRTP).

Phase IV: System Monitoring & Evaluation

The ultimate objective of the Core System is that Pennsylvania's entire Transportation System is performing to best meet the needs of users. This Phase would be multi-year in its development and getting to the point of having routine performance information of value.

This monitoring process may take some time and could be resource-intensive. It will be important to define system data needs and what can realistically be obtained. To help this, possible resource sharing protocols could be established. Reporting procedures should also be developed, identifying the frequency of reporting as noted in the best practices as typically occurring in one year intervals.

Monitoring the Core System can also assist in the determination of procedures that evaluate what new facilities to be included in the system, or older facilities to be deleted, as part of a greater re-evaluation process. The proposed schedule for implementing the Core System is outlined in Figure 4 on the following page.

Figure 4: A Conceptual Timeline for Advancing the Proposed Core PA Transportation System

Key Monthly Milestones in the Development of a Core System	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Phase I Awareness/Outreach																		
• Establishment of a Working Group (WG)	■																	
• WG Education/Affirmation of Direction		■																
Phase II: Evaluation/Refinement																		
• Presentation and Refinement of Criteria			■	■	■													
• Development of a draft System					■	■	■											
• Outreach with Broad Stakeholders								■	■	■								
Phase III: Operationalize																		
• Draft Options for Operationalizing with WG Input										■	■	■	■					
• Outreach on Options for Operationalizing CPTS													■	■	■			
• Work Group Recommendations															■	■	■	■
• Direction set on Operationalizing the Core System																		■
Phase IV: System Monitoring																		
• System monitoring timing is to be determined.																		

Other Factors/Considerations

Chapter 8

- Additional decisions to be made

This illustrative core system uses a three-tiered approach as an organizing principle for various levels of economic centers and their accompanying activity centers. As the core system concept eventually moves from one that is illustrative to one that is more refined and operationalized, there are several considerations—both nodal and modal—for moving forward:

- **The Use of Standard Criteria:** The illustrative core system uses standard criteria across the state's various regions. The working definitions of activity centers, for example, are applied uniformly across the state, regardless of their function or level of existing demand. The Department should consider the pros and cons of applying flexible criteria, recognizing that the state's regions have differing needs and priorities. One size may not fit all.
- **Tier 2 Activity Centers:** These are currently defined as defense facilities, major tourism destinations, and major intermodal passenger and freight hubs. State policy objectives, such as those that encourage the development of brownfield sites, KOZ, KIZ, etc, could also be applied statewide, or in certain areas of the Commonwealth. The priorities of regional long range transportation plans and district business plans should be considered as part of adjusting the Core System to reflect various priorities that transportation can impact.
- Other state DOTs have elevated other kinds of nodes as candidate "activity centers" in their respective state core systems, such as spaceports and high speed rail stations (Florida), primary and secondary regional trade centers (Minnesota), and universities (North Carolina). As state policies and priorities change, the core system could be adjusted to reflect such dynamic issues.
- **The Identification of Smaller Economic Centers:** The use of these smaller nodes—as compared to the Tier One MPO core cities and urban clusters of the micropolitan statistical areas—represents perhaps the most subjective element of the illustrative core system. The TAC study team used the InfoUSA business database to aggregate non-service-sector employment into a geographic reference point. The employment dataset is aggregated into classes (e.g., 50-100 employees, etc.) which were then used to identify clusters of employment sectors outside of the MPO core cities and micropolitan urban clusters.

- **Bridge Detours:** The TAC included bridges as part of the illustrative core system's roadway network. There may be value for PennDOT to consider certain higher-order structures with significant detour lengths as part of the state's core system. (The PA 61 bridge over the Susquehanna River in Sunbury is an example of such a structure that is not part of the illustrative core system but could be included via future refinement if detour length is introduced as a system criterion.)
- **System Expansion:** Any expansion of the core system to include extraneous factors could diminish its effectiveness as a planning tool. As it is refined, care should taken to limiting the core system criteria to those that are most meaningful to the Commonwealth's mobility and related priorities.
- **Gap Closure:** The Core Pennsylvania Transportation System, as a network overlaid on pre-existing priority networks such as the National Highway System, reveal some disconnects, or gaps for closure. A few examples include intermodal facilities (such as Pittsburgh International Airport) which connect to NHS facilities (such as PA 60) not presently defined as being part of the Tier 1 core system. Conversely, the TAC's illustrative core system includes intermodal hubs not presently recognized by the FHWA's guidelines and criteria for connection to NHS facilities.[10] As the CPTS is refined over time, consideration should be given to reconciling priority networks.
- **Tier 2 and Tier 3 Modal Criteria:** This TAC Study is primarily focused on Tier 1 modal criteria. Working with modal criteria at the regional level through the planning partners (particularly for public transportation) will be necessary in future steps.

[10] To illustrate, the Port of Erie is included on the illustrative core system, yet it does not meet FHWA's primary guidelines and criteria as a significant intermodal facility for connection to the NHS, as it must handle more than 50,000 TEUs, or Twenty Foot Equivalents annually.

Appendix

Table 13 provides a listing of all the NHS connectors identified for inclusion in the illustrative core system.

Table 13: NHS Connectors on the Illustrative Core System

County	Intermodal Facility	NHS Route	Connectors	Mileage
Allegheny	Pittsburgh International Airport	PA 60	BUS 60	7.0
Allegheny/ Washington	West Elizabeth Mon River Terminal Cluster	PA 51	PA 837	5.3
Allegheny	Neville Island Freight Cluster	I-79/ PA 51	Grand Ave/ Neville Road	5.8
Allegheny	NS Doublestack Intermodal Terminal	I-76; I-376	PA 48/ Wall Ave	4.5
Allegheny	Greyhound/ Amtrak Terminal	I-579; I-279	Grant St.; 7th Ave.; 10th St Bypass; 11th St	1.3
Allegheny	PAAC East Busway Wilkinsburg Station	I-376	Ardmore Blvd; Penn Ave	1.3
Allegheny	PAAC South Hills Village LRT Station	US 19	Fort Couch Rd; Village Drive	0.7
Allegheny	PAAC Castle Shannon LRT Station	US 19	Mt. Lebanon Blvd Castle Shannon	1.5
Berks	Atlantic Pipeline Co.	US 422	SR 3012; SR 3016	1.5
Blair	Petroleum Products Corp. Terminal	PA 378	PA 764; Burns Avenue	1.0
Bucks	Novolog	US 1	South PA Ave	2.6
Bucks	NS Morrisville	US 1	Oxford Valley Rd	1.3

County	Intermodal Facility	NHS Route	Connectors	Mileage
Bucks	Warminster Station	PA 132	Jacksonville Rd	0.4
Bucks	Woodbourne Station	PA 332	Woodbourne Rd.	3.6
Cambria	McQuade Trucking Terminal	US 219	MacRidge Ave	0.7
Centre	Centre Regional Bus Terminal	US 322	Atherton	9.0
Chester	Paoli Station	US 30; PA 252	North Valley Rd	2.5
Dauphin	Rutherford Yard	US 322	Grayson; Rupp; Paxton; Penhar	1.9
Dauphin	Lucknow Terminal	US 22/322	Wildwood Park Dr; PA 39; Industrial Rd.	3.0
Dauphin	Harrisburg Transportation Center	I-81; I-83	Cameron; Paxton; Sycamore; Chestnut; Market; Fifth; Walnut; Aberdeen; 13th; 2nd Street	6.9
Delaware	Penn Terminals	I-95	Saville Ave.; PA 291; Steward Ave	2.0
Lehigh	Allentown/Bethlehem Piggyback Yard	PA 378	River Street	1.0
Montgomery	Ambler Station	PA 309	Butler Pike; Susquehanna Rd	1.7
Montgomery	Jenkintown Station	PA 73; PA 611	Greenwood Ave.; Summit Ave	2.1
Montgomery	Norristown Transportation Center	US 202	Main St.; Lafayette St.; Barbadoes St	0.2
Northampton	Beth IM Transload Center	I-78	PA 412	0.4
Philadelphia	Philadelphia International Airport	I-95	Scott Way; PA 291; Hog Island; Island Ave; Enterprise Ave	10.3
Philadelphia	Tioga Fruit & Container Terminal	I-95	Delaware Ave; Allegheny Ave; Bath St; Castor	2.3
Philadelphia	South Philadelphia Complex	Columbus Blvd	Old Delaware Ave	0.5

County	Intermodal Facility	NHS Route	Connectors	Mileage
Philadelphia	CSX Twin Oaks Auto	US 322	Bethel Road	0.4
Philadelphia	CSX Eastside Bulk	I-76	Moore St.; Moorefield St.; Passyunk Ave.; Wharton St.	1.8
Philadelphia	Greyhound Bus Lines (11th & Arch)	I-676; Market Street	8th St.; 10th St.; Arch St.	0.5
Philadelphia	Frankford Terminal	I-95; US 1; PA 73	Bustleton Ave.; Bridge St.; Frankford Ave	4.5
Philadelphia	Fern Rock Transportation Center	PA 611	Nedro St.; 11th St.; Godfrey St	1.1
Washington	Donora Industrial Park River Terminal	I-70	PA 837/PA 88 Coyle Curtain Rd	7.7

(Note: Many significant intermodal facilities, such as Philadelphia's 30th Street Station and Suburban Station Area, do not appear in this table, since they are already directly served by existing NHS routes.)

Following are the questionnaires regarding core systems completed by DOTs in other states.

Core Transportation System

Questionnaire Form

Date: 5/4/06
State: **Florida DOT**
Contact Person: Terry Kraft, 850-414-4801
Interviewers: Steve Buckley, Len Usvyat
Web site: http://www.dot.state.fl.us/planning/sis/

1. What was the primary purpose in the creation of your system?

- The development of this system started during the creation of LRTP in 2000
- Stakeholders and planning partners decided that they needed a priority system to ensure that regions can be economically competitive and the State needed a priority intermodal system to advance its economic competitiveness
- Florida DOT did not use Cambridge Systematics until after the decision was made to implement SIS
- "Florida's Strategic Intermodal System (SIS) was established in 2003 to enhance Florida's economic competitiveness by focusing limited state resources on those transportation facilities that are critical to Florida's economy and quality of life."[11]
- The need for a strategic intermodal transportation system was identified by several statewide transportation and transportation-related groups in 1999-2000 (listed below), which culminated in the establishment of a new long range objective under the Economic Competitiveness Goal in the 2020 Florida Transportation Plan (updated in 2000).
    - Freight Stakeholders Task Force (1999) recommended fast track funding and enhancements to freight mobility.
    - Florida Chamber Foundation's "Transportation Cornerstone" Report (1999) recommended focused investment in trade corridors and efficient intermodal connections between airports, cruise terminals, and major attractions.
    - Florida Strategic Plan For Economic Development, 2001-2006 - recommended improved modal options and connectivity between the different modes and terminals, as well as congestion relief.

[11] http://www.dot.state.fl.us/planning/SIS/aboutsis.asp#background

- Transportation and Land Use Study Committee (1999) recommended true multimodal planning and transportation systems, like the Florida Intrastate Highway System, but including all modes.
- Growth Management Study Commission (2000) recommended a more strategic and efficient protection of the State's transportation interests.[12]

2. How is the system being used in your state? (Funding, planning, prioritization of investments?)

- Initial criteria for the inclusion into the Core Transportation System (CTS) has to be objective and 80% of the involved parties have to be in agreement on them
- The State is divided into economic regions. From these key economic regions, the State defines what transportation routes, regardless of mode, are particularly important based on route's connectivity:
  - Region X to Region Y
  - State to State
  - State to Nation

3. What was the primary rationale for selecting facilities on the System?

- All facility types were analyzed by volume
- All facts on all facilities were distributed for analysis and objective decisions were made for inclusion into the System
- Established thresholds to include facilities into the SIS. Usually, facilities included are distinguished based on volumes at both ends of the roadway and percent of traffic volume on that segment compared to the total
- See the following link: http://www.dot.state.fl.us/planning/sis/atlas/criteria.pdf

[12] http://www.dot.state.fl.us/planning/SIS/aboutsis.asp#background

4. Was your System implemented in phases? If so, why and how?

- The development of the SIS was completed in several phases. Its creation was really based on a philosophy that SIS has to be implemented and that it will be a step-by-step approach. Critically, the question of money had to be ignored from the beginning. Once the importance of SIS became clear, it was then critical to identify agencies and define partners to be involved in the process. Development of SIS has to be founded on a constant communication amongst all groups involved.
- Underlying principles:
  - Principle 1: Development of the SIS will be accomplished:
    - In concert with the 2020 Florida Transportation Plan;
    - Consistent with the State Comprehensive Plan;
    - Coordinated with metropolitan planning organization plans, strategic regional policy plans, local government comprehensive plans and other related plans; and
    - Informed by public and stakeholder participation.
  - Principle 2: Development of the SIS will identify strategic statewide and regional facilities that serve people, delivery of services or goods, and result in seamless linkages between the facilities.
  - Principle 3: Development of the SIS will reflect a multimodal systems approach.
  - Principle 4: The SIS is only one element of Florida's transportation system. Development of the SIS will clarify the state's roles and responsibilities on and off the SIS. The SIS, and facilities not included on the SIS, should complement each other.[13]
- Phased approach:
  - Phase I:
    - Determine what should be in the core transportation by function
    - Ignore the financing question

[13] http://www.dot.state.fl.us/planning/sis/steering/default.htm

- Phase II:
  - Develop plan of implementation
  - Define how the system would be used
  - Define roles and responsibilities of all levels
  - Define financing policies
- Phase III:
  - Legislature to shape the finance

- Florida made a specific decision not to reorganize its DOT to accomplish this program. However, it was crucial to organize a multi-modal team within the DOT to have access to all the resources and have special flexibility to advance the projects
- To establish a CTS, you need the following group of people (http://www.dot.state.fl.us/planning/sis/phase1/p1advisors.htm):
  - Dedicated person
  - DOT's Secretary commitment
  - Consultant
  - Couple of people on the team
- In the beginning stages, it was very difficult to get consensus amongst groups, particularly because of potential sensitivities of the creation of "priority system." It was then very important to bring ***all*** parties to the table. Initially, it was also critical to establish ground rules for the discussions. FL DOT used a rule of 80% consensus and no funding discussions in Phase I. In order to get everyone's understanding and buy-in, over 36 meetings were held within a two-month period

5. How did you "operationalize" (phase-in) the System? How long did it take?

- Concept came up in Q4/2000
- Formed a committee in Q1/2002
- First meeting in 2/2002
- SIS adopted in 12/2002
- Identified key connectors to be included in SIS and got $100MM in funding in 2004
- Adopted the SIS plan and got extra 25% in dedicated funding

6. Is separate performance monitoring performed on this system? If so, what data is collected?

- The State is in the process of establishing Evaluation Criteria for SIS. FL DOT does not have sufficient data yet to have a full model, but is in the process of implementing it

7. How often are the components of the System re-evaluated?

- Annual evaluation and five-year evaluation process for all facilities
- Cambridge Systematics developed a web-based GIS/IMS based tool that allows viewing of SIS facilities: http://imsprod1.camsys.com/website/FL_SIS_NEEDS_TOOL_01/viewer.htm

General principles:

- Involve everyone in the development process
- Answer and analyze all questions
- Use GIS and real-time data during meetings
- Process is continuous and rapid
- DOT really should serve as a catalyst to the process
- CTS should be policy driven and supported by data as opposed to Data driving the establishment of CTS
- As a result of CTS, the State's DOT effectively ends up doing planning work
- SIS affects the land use and should follow "Smart Growth" principles
- Under SIS, DOT has more input into the projects being selected but all the processes really work the same way
- It is critical to have the support of state legislature—it was legislature that wrote all the rules with inputs from all groups involved

New projects worked on:

- FL DOT is in a process of establishing One-Click Project Evaluation Criteria model
- Florida DOT is also establishing Master SIS database
- Currently, FL DOT is working on this analysis up to 2045
- Strategic Plan: http://www.dot.state.fl.us/planning/SIS/strategicplan/default.htm#toc

Funding:

- Of the Discretionary Funds, 75% goes to SIS and 25% to other. Under pre-SIS assignment, 66% was given to SIS-based infrastructure
- With a SIS plan at hand, no one has to fight for the same funds—there are special funds allocated to CTS already

Additional questions raised during the conference call:

1. The State of Pennsylvania's traffic volumes are concentrated around Philadelphia and Pittsburgh. Implementation of CTS would then be mostly limited to those regions. How do we deal with that?
    - Similar issue happens in Florida around Miami region. The highway between Miami and Fort Lauderdale is not part of SIS because it falls under the same economic region.
2. In terms of additional funding, what happens with funding for transportation resources that are under the control of private entities:
    - Private agencies receive funding as well as long as their asset is part of SIS
    - While there may be public opposition to this issue, private entities must show that their asset will provide more benefit to the PUBLIC than if the money was given to another project.

Core Transportation System

Questionnaire Form

Date: 5/17/06
State: **Ohio DOT**
Contact Person: Jennifer Townley, Don Fisher, Kelly Brooker 614-466-7493
Interviewers: Len Usvyat
Web site: No web site; Chapter 4 and 12 of Access Ohio LRTP. http://www.dot.state.oh.us/planning/ACCESS%20OHIO/Final/Chapter4.pdf

1. ***What was the primary purpose in the creation of your System?***

- The Macro Highway Corridor system was not created per se but was actually identified using these criteria:
  a. Carry, or have the potential to carry, daily traffic volumes that exceed 15,000 PCE (Passenger Car Equivalents; 1 truck = 2 passenger cars);
  b. Be at least 30 miles in length or primarily carry trips greater than 30 miles
- In addition to the highway corridors, all other facilities within 10 mile radius within those corridors are included into the Core Transportation Network (airports, waterways, rail)
- It was first identified in early 1990's
- Particularly, all Appalachian corridors receive funding in Ohio

2. ***How is the System being used in your State? (Funding, planning, prioritization of investments?)***

- Funding occurs on the "track point" system. Various projects within the state received "points." Based on those points, Transportation Review Council determines which facility will get funding
- Core Transportation elements are just another point in the scale of "track points"

3. What was the primary rationale for selecting facilities on the System?

- See criteria noted above.

4. Was your System implemented in phases? If so, why and how?

- No real phasing occurred
- It was just determined which corridors will be part of the core system and then they got "assigned" that title and get special treatment when receiving funding

5. How did you "operationalize" (phase-in) the System? How long did it take?

- The corridors were identified in 1993 but the system was given special "track points" in 1998
- They are reevaluated with updates to "Access Ohio" LRTP

6. Is separate performance monitoring performed on this system? If so, what data is collected?

- No
- Almost none were ever removed from the Core System

7. How often are the components of the System re-evaluated?

- Every five years with Access Ohio

8. Any additional information you want to share?

- Economic development is a critical component

9. How did the state address redundancy in core system definition?

- Being defined in the Core System is just another factor in project evaluation

Core Transportation System

Questionnaire Form

Date: 5/22/06 (11:20am) Meeting lasted 40 minutes
State: **North Carolina DOT**
Contact Person: Alpesh Patel (919.715.5482 x382) AGPatel@dot.state.nc.us
Interviewers: Ryan Long
Web site: Linked to 2004 Long Range Statewide Multimodal Transportation Plan Update http://www.ncdot.org/doh/preconstruct/tpb/statewideplan/

1. What was the primary purpose in the creation of your System?

- While developing the 2004 Long Range Statewide Multimodal Transportation Plan Update it was noted that some type of new organizing method was needed to fully grasp the large assortment of needs within all of North Carolina's transportation system. This method became know as the North Carolina Multimodal Investment Network (NCMIN).[14]
- The NCMIN represents a change in the Department's business climate improving the way the DOT provided services and delivers projects to its customers.
- Furthermore, the NCMIN was developed as a means to better demonstrate the severity/ shortfall of resources needed to raise the transportation system to a desired level of service. This concept therefore helped fuel the public policy questions that eventually led the department toward a new long-term investment strategy focused on system maintenance and preservation over capacity expansion. The Department however did not have the tools to show the severity or gap in funding needed to bring the system to a higher level of service.

2. How is the System being used in your State? (Funding, planning, prioritization of investments?)

- Primarily used as a planning and decision-making tool to analyze and categorize transportation needs across all modes, as well as to determine long term investment priorities in North Carolina.

[14] Supplemental information from *North Carolina; Cross-Modal Identification of Need.* from TRB Circular E-C091. February 2006.

3. What was the primary rationale for selecting facilities on the System?

- The planning for North Carolina's major transportation projects is highly centralized through the Department (the MPOs play a smaller role in the State compared with Pennsylvania).
- The NCMIN therefore helps organize and show where investment in the transportation system is most needed based on quantitative analysis through mining the HERS-ST database. Estimated future costs and total system needs are generated offline from this data. This method allows for comparing scenarios and testing impacts from policy decisions, however it is only a simple sketch-planning tool.
- Staff input was gathered for non-highway needs and was less quantitative than the highway mode.

4. Was your System implemented in phases? If so, why and how?

- Not really. In 2002, based on early technical studies a new tiered methodology was introduced.
- The NCMIN created a three tiered approach grouping transportation facilities or services based on interest, functional classification, type of trip served, use and benefit to particular agencies (state, regional, local).
- Selection criteria helped determine which facilities fit into which tier and was based on a technical committees recommendations.
- This concept was part of the overall Long Range Statewide Multimodal Transportation Plan Update, which was adopted by North Carolina's Board of Transportation in September 2004.

5. How did you "operationalize" (phase-in) the System? How long did it take?

- Started with dedicated senior managers and leadership (after several staff changes occurred after 1999/2000)
- Conducted some preliminary internal technical research (2001)
- Consultant team was then hired to assist.
- Established several committees; a thirteen person technical steering committee representing all modes of transportation and senior level (six person) policy committee were formed.
- Enlisted numerous NCDOT senior managers, division engineers who oversee operations and maintenance in 14 divisions (similar to PennDOT's Districts) and planning branch staff members for assistance.
- Involved over forty stakeholders groups including the state's MPOs and RPOs.

- Conducted public involvement - Public and stakeholder interest was solicited through fourteen forums held over 2½ years and a major transportation summit.
- Created two leadership teams to advance implementation; both included members of executive management and the board of transportation.

6. Is separate performance monitoring performed on this system? If so, what data is collected?

- The performance of each tier level in the NCMIN is monitored through several operational and general system characteristics including ADT, number of deficient bridges, annual fatalities etc. Each tier level is then assigned an overall rating or score based on these measures.
- Additionally, the department has established several baseline standards (i.e., thresholds) where the tier level score gets evaluated against. As the performance of the tier indicators worsens overtime it gets additional resources to bring the system up to the desirable level.

7. How often are the components of the System re-evaluated?

- Data regarding the entire NCMIN is "refreshed" and updated every two years.
- Every four years the entire system is reevaluated and a major plan is developed outlining what facilities should be added and/or removed. The process additional includes numerous meetings with stakeholders and the public.

8. Any additional information you want to share?

- NCDOT has had good public support for the NCMIN since they identified early the need for better planning and funding of transportation assets.
- MPOs and other planning partners were less concerned about the perceived loss of funding for their regions. It is believed this was due to NCDOT's centralized planning role. The department anticipates however that the responsibility for planning and programming will increasingly fall on the regional planning partners overtime.