EXECUTIVE SUMMARY REPORT

Cumberland and Perry Counties SAFETY AND CONGESTION MANAGEMENT SYSTEM STUDY

Submitted to

TRI-COUNTY REGIONAL PLANNING COMMISSION
112 MARKET STREET
HARRISBURG, PA 17101

Submitted by

Orth-Rodgers & Associates, Inc.
4999 Louise Drive
Mechanicsburg, PA 17055
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in association with

GTS Technologies, Inc.
A-TECH Engineering, Inc.

Submitted: November 20, 2002

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This project was financed [*in part*]by a grant from the Commonwealth of Pennsylvania, Department of Community Economic Development (DCED).

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CHAPTER I

EXECUTIVE SUMMARY REPORT

A. Study History and Project Purpose

Data from the census show that 70 percent of the workers who live in Perry County work for employers located outside of the County. The subsequent commuting patterns have created safety and congestion problems in the area, particularly as traffic moves between Perry and Cumberland Counties through PA Route 34 (Sterretts Gap), PA Route 274, PA Route 850, PA Route 944 (Wertzville Road), US Routes 11/15, Interstate 81, PA Route 849, and US Routes 22/322. A group of municipalities concerned with this problem organized to form the Cumberland/Perry Counties Joint Task Force on Transportation and Planning (CPTF), which is the group responsible for initiating and securing funding for this study. This study was financed (in part) by a grant from the Commonwealth of Pennsylvania, Department of Community and Economic Development.

The Cumberland and Perry Joint Task Force includes representatives of the Tri-County Regional Planning Commission, PENNDOT, and representatives from the following 17 municipalities in Perry and Cumberland Counties:

Four municipalities in northeastern Cumberland County:

Middlesex Township	Hampden Township
Silver Spring Township	East Pennsboro Township

Thirteen municipalities in southeastern Perry County:

Bloomfield Borough	Newport Borough
Carroll Township	Oliver Township
Centre Township	Penn Township
Duncannon Borough	Rye Township
Howe Township	Watts Township
Marysville Borough	Wheatfield Township
Miller Township	

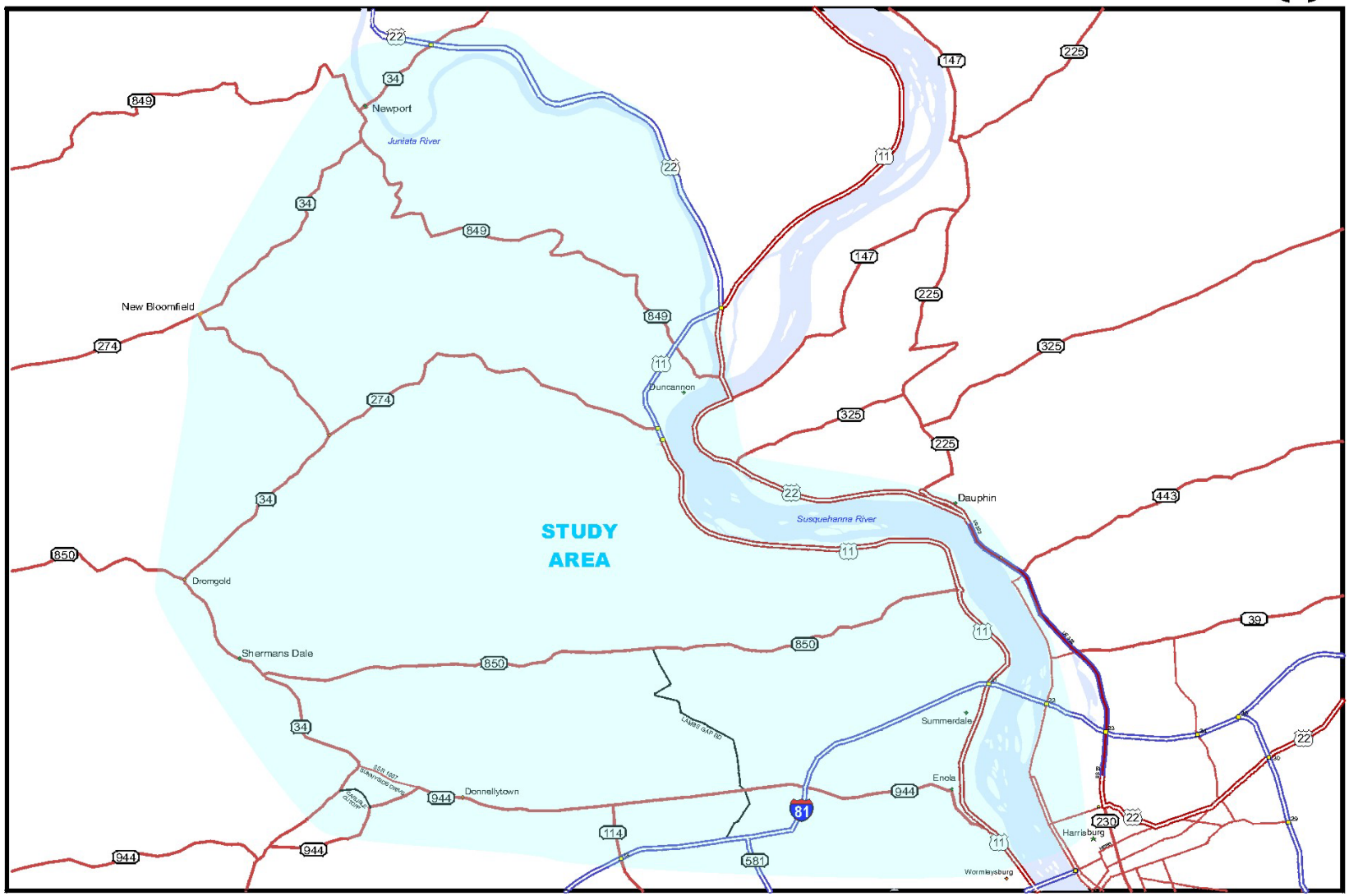
A study area map is shown on Figure I-1

FIGURE I-1

Study Area

Safety and Congestion Management System Study

CUMBERLAND AND PERRY COUNTIES, PENNSYLVANIA



The main purpose of this safety and congestion management systems study is to quantify existing safety and congestion problems with respect to commuting between and through Perry and Cumberland/Dauphin Counties, and to suggest improvements to the transportation system. Concurrently, the study will identify existing or potential future transportation impacts from land development near major corridors in the study area. Although the study will cover a broad geographic area (including four municipalities in Cumberland County and 13 municipalities in Perry County), study efforts will focus on improvements to the roadway corridors noted above. Development activity and existing zoning regulations that impact these corridors will provide a context within which to evaluate necessary transportation improvements. Recommended future improvements to the roadway corridors will be based on future traffic volumes that result from the proposed development activity and the existing zoning regulations.

This project includes a significant public outreach component that includes three public meetings/presentations. Each public meeting included both an "open house" format plans display, an oral presentation, and a question and answer session.

B. Analysis of Existing Transportation and Demographic Conditions

Overview of Regional Traffic Conditions

Peak hour traffic congestion occurs at several locations within the project study area during the commute into and from the Harrisburg/Camp Hill/Mechanicsburg employment centers and commercial areas.

Primary congestion occurs as traffic flows accumulate from local roads and streets within the study area to east-west cross-routes including PA Route 849, PA Route 274, PA Route 850, and from points beyond the study area including Blain, Juniata County, Liverpool, and beyond. Traffic accumulates to create morning peak hour backups on PA Route 34 from Sterretts Gap to Shermans Dale, and on sections of US Routes 11/15. Motorists that desire to turn onto PA Route 944 (between Sunnyside Drive and PA Route 114) from the side streets experience difficulty entering into the heavy stream of traffic.

Major destinations of vehicles originating in Perry County include the Harrisburg Government centers of employment, which can be reached via Front Street in Harrisburg and US Routes 11/15 in Wormleysburg; the Camp Hill business complex via the same roads, and the recently completed East Penn Drive (Center Street); and the commercial districts in Mechanicsburg (Hampden and Silver Spring Townships) along Gettysburg Pike and Carlisle Pike via Interstate 81, PA Route 581, PA Route 114, and to a lesser extent

Lambs Gap Road. Access to the Carlisle Business District and industries also occurs by way of PA Route 34 from Perry County.

The volume of out-of-state traffic through the project study area builds to a peak throughout the week and is greatest during the Friday evening peak period as Marylanders and Virginians cross through the area to weekend vacation sites in north-central, central, and west-central Pennsylvania.

Crash Analysis

From its Crash Record System, PENNDOT has provided crash data for the study area state-maintained roadways for a five-year period (from January 1, 1995 through December 31, 1999). A database of the crash records received from PENNDOT for the five-year period was established. The crash database for each corridor provides the ability to extract cross-tabulations of crashes sorted by location, type, frequency, causation factor, etc.

Within this document, the current crash rates for each study area roadway corridor are compared to those crash rates experienced on similar highways across the state. The comparison of the crash rates on similar roadways is useful in determining the relative overall safety of each roadway corridor. The statewide average crash rate, which is expressed in crashes per million vehicle miles traveled, takes into consideration the average amount of traffic that travels on that roadway and the number of crashes that occur on that roadway. Dangerous segments of roadway can be identified and comparisons can be made between roadways of similar characteristics and functional classifications by using the statewide average crash rate as a benchmark.

It should be noted that the Pennsylvania Department of Transportation defines crashes as those that involve a fatality, injury, or require towing of one or more vehicles. Therefore, the Crash Record System includes data from those "reportable" incidents. Analysis of this data showed 2,580 reported motor vehicle crashes on the study area roadways within the five-year analysis period.

Table I-1 summarizes the crash rate comparisons for each of the study area roadway corridors: PA Route 34, PA Route 944, US Routes 11/15, PA Route 274, PA Route 850, PA Route 849, Interstate 81, US Routes 22/322.

Table I-1
CRASH RATE COMPARISON

Roadway Corridor	Length (miles)		Crash Rate (Crashes/MVM)		
	Total	Over Statewide Crash Rate	Statewide Average	Observed	Percent Difference
PA Route 34	23.99	13.30	1.42	1.74	23 percent
PA Route 944	14.92	6.36	1.48	1.39	-6 percent
US Routes 11/15	16.60	9.68	0.98	0.71	-27 percent
PA Route 274	11.22	7.46	1.53	2.41	58 percent
PA Route 850	16.38	8.40	1.45	1.70	17 percent
PA Route 849	11.95	5.98	1.53	2.06	34 percent
Interstate 81	12.65	4.03	0.46	0.35	-25 percent
US Routes 22/322	11.23	5.31	0.49	0.46	-5 percent

Note: Percent difference (observed rate/statewide rate)

Demographic Information

The study area has seen significant growth in recent years. Significant residential development has occurred in almost all of the 17 municipalities in the past two decades, and large-scale commercial development has taken place along major arterials in the Cumberland County portion of the study area. The Cumberland County municipalities make up two-thirds of the population of the study area. Hampden and East Pennsboro together contain almost half of the total population in the study area. With just over 5,000 people, Carroll Township is the largest Perry County municipality in the study area.

Reflecting population trends, residential development was consistent throughout the 1990s in most study area municipalities. An average of 655 new homes were built annually, or over 6,500 from 1990 to 1999. More than half of these were constructed in East Pennsboro and Hampden Townships, and a full three-fourths occurred in the Cumberland County part of the study area.

The population of the four Cumberland County townships is expected to increase by almost 16,000 from 2000 to 2020, while the Perry municipalities are projected to receive over 8,000 new residents. Continuing the trend of the 1990s, the majority of the growth anticipated in the Cumberland County Townships is projected to be concentrated in East Pennsboro and Hampden Townships.

Study Area Employment

Tri-County Regional Planning Commission (TCRPC) estimated that there were over 57,000 jobs in the study area in 1995. This figure represents an increase of more than 4,000 jobs since 1990. TCRPC projects further growth into the 21st century, to over 80,000 jobs in the study area by 2020. The large majority of job growth in the coming decades is anticipated to be concentrated in the Cumberland part of the study area.

Development Trends

The vast majority of this type of development, especially retail and office, is concentrated in the Cumberland townships. Significant new retail uses are found along the major arterials including U.S. Route 11, the Carlisle Pike, and at I-81 interchanges. Extensive office parks have been completed in the last five years and have space available for further development. Recent residential, commercial, and industrial development has contributed significantly to the population and employment increases described above.

C. Future Traffic Volumes and Conditions

Future Traffic Volumes – Year 2020

The estimation of future traffic volumes for this study involved the use of a travel projection model that utilizes existing trends and basic demographic inputs. These inputs are then translated into traffic volumes that are distributed to the study area highway system.

The Tri-County Regional Planning Commission (TCRPC) has a functional travel demand model that has been used to develop travel projections on other projects, such as Capital Area Transit's Corridor ONE Study. The TCRPC travel demand model was used to prepare a set of traffic projections for the year 2020 for this study.

The year 2020 average daily traffic volumes show that traffic volumes on the study area roadways are generally 30 to 35 percent greater than the year 2001 existing traffic volumes. This translates to 1.5 to 2 percent annual increase in traffic volume.

Future Traffic Conditions – Year 2020

Table I-2 shows the number of intersections (out of 23 analyzed intersections) that experience poor levels of service during the evening peak hour under existing conditions, under year 2020 no-build conditions, and under year 2020 with the recommended improvements (the recommended improvements are described beginning on page I-9). The levels of service shown for the no-build scenario represent the intersection levels of service with no improvements to the existing roadway system.

In general, rural roadways and intersections are designed to attain a Level of Service 'C', and urban roadways and intersections are designed to attain a Level of Service 'D'. Level of Service 'A' is the best (free-flowing conditions and low delays), and Level of Service 'F' is the worst (unacceptable traffic congestion and long delays).

TABLE I-2
EXISTING AND FUTURE OVERALL INTERSECTION LEVELS OF SERVICE

Intersection	PM Peak Hour		
	Year 2001 Existing	Year 2020 No-Build	Year 2020 With Recommended Improvements
Number of intersections at LOS 'd' or worse:	13	16	4
Number of intersections at LOS 'f':	5	11	1

Note: A total of 23 intersections were analyzed

With the recommended improvements in place, the traffic conditions on the study area roadways show great improvements.

D. Improvements to Existing Roadways and Intersections

Numerous safety and congestion problems currently exist on the study area roadway corridors. By the year 2020, the increase in development and the resulting growth in traffic volume on the more heavily traveled study area roadways (such as PA Route 34, US Routes 11/15, PA Route 944, and PA Route 274) will only worsen the existing problems, and will create a handful of new safety and congestion issues. In order to solve the existing and projected safety and congestion problems within the study area, capacity and safety improvements to the existing roadways and intersections must be implemented.

Congestion Management System Screening

Before the roadway improvements were formulated, the study area roadway corridors underwent Congestion Management System (CMS) screening process. CMS screening is an integral part of the

National Environmental Policy Act (NEPA) process and meets the intent of the law by providing the following:

- Systematic interdisciplinary approach to improvement alternative selection
- Concentrates on issues pertaining to mobility and congestion
- Provides a broad range of alternatives for advancement into detailed study

Other non-traditional methods of reducing congestion also need to be implemented along with any physical transportation improvements in order to lengthen the service life of the implemented improvements. The non-traditional methods include but are not limited to the following strategies: congestion pricing, flex time, telecommuting, increased ride-sharing and transit use, and intelligent transportation systems. If implemented properly, these congestion management strategies will lengthen the service life of any physical capacity improvement and could even delay the need for additional physical capacity improvements (i.e., more lanes).

Environmental Features

The environmental features of the study area are a very important consideration when determining the proposed improvements to the study area transportation system. The National Environmental Policy (NEPA) Act of 1969 requires that all Federal agencies evaluate the environmental consequences of any major action, including transportation projects. Since nearly all major transportation projects utilize Federal funds, the NEPA laws are applicable, and environmental consequences must be investigated.

Improvement Packages

In developing the implementation plan, the project team met with the Planning and Programming Unit at PENNDOT District 8-0. It was determined that individual projects should be grouped together based on improvement type and geographical location into "improvement packages". The improvement packages are more likely to be implemented than the various individual improvement concepts.

The improvement packages that have been placed on the implementation plan for the study area have been grouped into three categories, depending on the type of improvement that it is proposed. The three categories are as follows:

1. Capacity and Safety Improvement Packages in the Study Area
2. Betterment Projects in the Study Area
3. Related Projects Outside the Study Area

The majority of the improvement packages are categorized as a "Capacity and Safety Improvement". Most of the improvement packages contain specific proposed projects that mitigate an explicit transportation problem, such as a severe safety problem or recurring traffic congestion. The betterment projects in the study area are generally lower cost, spot safety improvements that can be implemented via regular PENNDOT betterment programs. The related projects outside the study area (944-OUT) include projects that are located outside the study area borders that should be completed as part of the implementation plan to ensure that the finished package results in a complete and coherent transportation system in the design year.

The general locations of the improvement packages that have been included in the implementation plan are shown in Figure I-2 on the following page.

Summary of Areas of Concern and Recommended Improvement Packages

The locations of the existing and projected safety and traffic congestion problem areas within the study area have been identified from the traffic and crash data that has been collected, from the results of the crash and traffic analyses, from field visits to the study area, and from conversations with law enforcement officials and residents of the study area. In addition to the factors just mentioned, the recommended improvement packages were also formulated by consulting the Congestion Management System (CMS) screening process and the environmental concerns summary as a guide.

PA Route 34

Capacity Concerns:

- PA Route 34 between PA Route 850 and Sunnyside Drive
- Intersection of PA Route 34 and Sunnyside Drive
- At PA Route 34 intersections with: Windy Hill Road, PA Route 850, and Fox Hollow Road

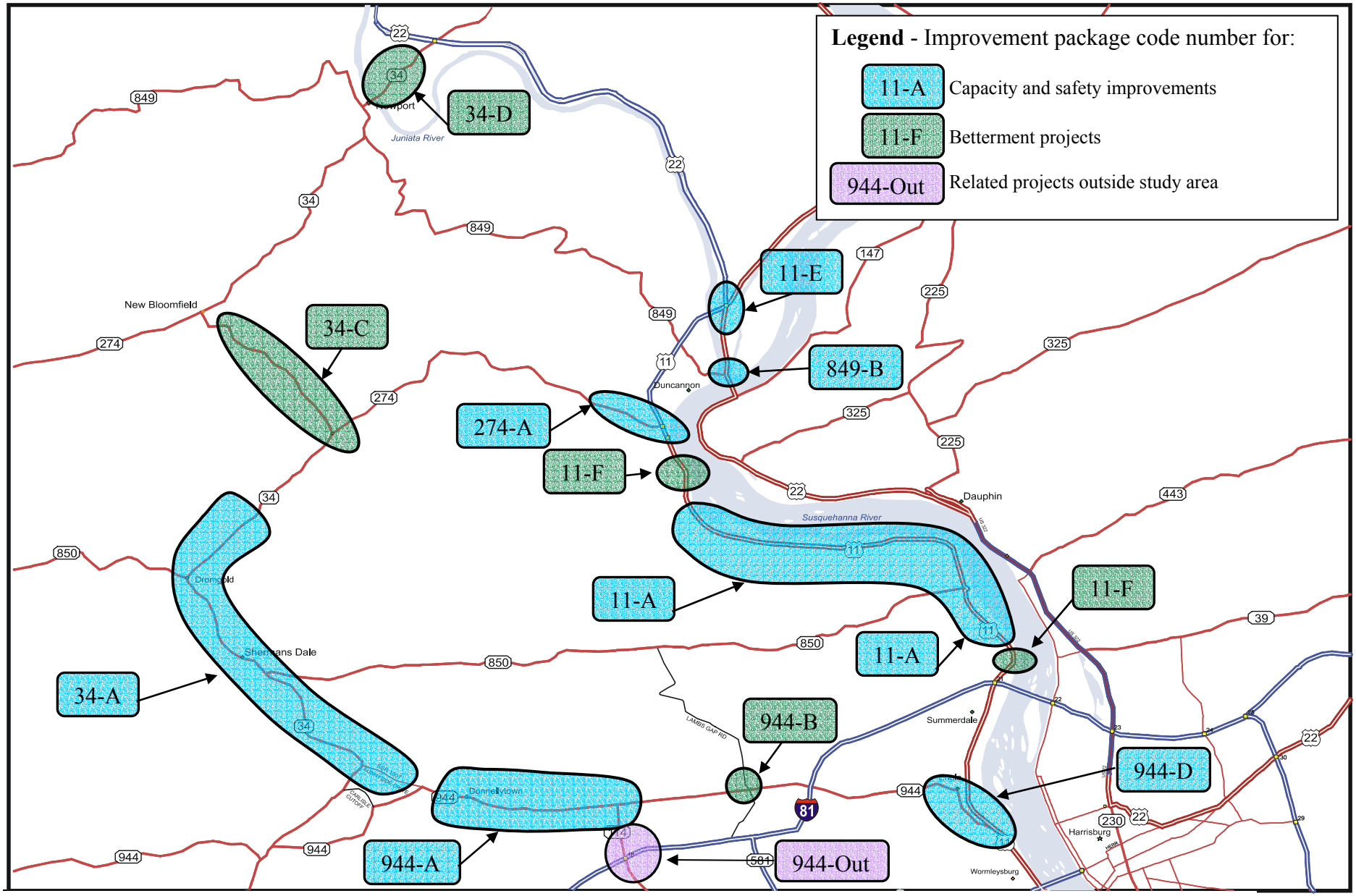
Safety Concerns:

- Sight distance problems at PA Route 34 intersections with: Sunnyside Drive, PA Route 850, Windy Hill Road, Juniata Parkway, and Shortcut Road
- Shopping center access near intersection of PA Route 34 and PA Route 850
- Confusing intersection at Mecks Corner (Dellville Road and SR 2006 intersection)
- Left-turning vehicle concerns at PA Route 34 intersections with: Rambo Hill Road, Richwine Road, and Fox Hollow Road

General Locations of Proposed Improvements on Implementation Plan – Overall Map

- **Safety and Congestion Management System Study**

CUMBERLAND AND PERRY COUNTIES, PENNSYLVANIA



Proposed Solutions (PA Route 34, continued):

Improvement Package 34-A:

- Redesign and reconstruct the intersection at Sterretts Gap (Sunnyside Dr. and PA Route 34)
- Install a two-way center left-turn lane on PA Route 34 between the Shermans Dale bridge and Richwine Road
- Install northbound left-turn lanes at the PA Route 34 intersections with Fox Hollow Road and Rambo Hill Road
- Install traffic signal, and relocate/reconstruct the shopping center driveways at the PA Route 34 and PA Route 850 intersection in Shermans Dale
- Relocate Windy Hill Road to tie in with Souder Road and install traffic signal at the intersection

Improvement Package 34-C:

- Restripe Mecks Corner (PA 34, PA 274, Dellville Road) intersection
- Realign horizontal and vertical curve at the PA Route 34 intersection at Barnett Road

Improvement Package 34-D:

- Cut back embankment and install retaining wall at the PA Route 34 intersection with Shortcut Road
- Modify sight distance obstructions at the PA Route 34 intersection with the Juniata Parkway

PA Route 944

Capacity Concerns:

- PA Route 944 between Sunnyside Drive and PA Route 114
- Delays experienced with the heavy turning movements at the intersection of PA Route 944 and PA Route 114
- Delays experienced on PA Route 944 at the intersection of PA Route 944 and US Routes 11/15

Safety Concerns:

- Sight distance problems at PA Route 944 intersections with: Rich Valley Road, Deer Lane, Lambs Gap Road and PA Route 114.
- Dangerous conditions at the offset intersections of Magaro Road/Carol Lane and PA Route 944

Proposed Solutions:

Improvement Package 944-A:

- Construct a two-way center-left turn lane on PA Route 944 between Sunnyside Drive and PA Route 114 while improving the intersection sight distance at deficient locations, and perform a traffic signal warrant study at the Sunnyside Drive intersection
- Construct a second (2nd) northbound left-turn lane on PA Route 114 at the PA Route 944 intersection

Improvement Package 944-B:

- Flatten crest vertical curve adjacent to the intersection of PA Route 944 and Lambs Gap Road

Improvement Package 944-D:

- Restripe and sign the southbound approach of US Routes 11/15 at the intersection of PA Route 944
- Realign offset intersection of PA Route 944 and Magaro Road/Carol Lane

PA Route 849

Safety Concern:

- Occurrence of illegal left-turns from PA Route 849 eastbound to US Routes 22/322 westbound

Proposed Solutions:

Improvement Package 849-B:

- Modify concrete island at the PA 849 & US 22/322 intersection to discourage illegal left turns

PA Route 274

Safety Concerns:

- Sight distance problems at the PA 274 intersections with: Mecks Corner Cutoff (SR 2006) and Faculty Road
- Confusion involving motorist right-of-way at the intersection of the US 11/15 Southbound off-ramp and PA 274

PA Route 274 (Safety Concerns, continued):

- Low clearance height on PA Route 274 at the US Routes 11/15 overpass
- Substandard (narrow) roadway and shoulders on PA 274 between Mutzbaugh's Market and US 11/15

Proposed Solutions:

Improvement Package 274-A:

- Widen shoulders and replace guide rails on PA Route 274 between US 11/15 and Dellville Rd
- Restripe intersection to delineate stop bars and turning movements at the intersection of PA Route 274 and the Southbound off ramp of US Routes 11/15
- Improve overhead clearance on PA Route 274 beneath the US Routes 11/15 overpass

Improvement Package 34-C:

- Flatten crest vertical curve and lessen skew angle of the PA 274 with the Mecks Corner Cutoff

US Routes 11/15

Capacity Concerns:

- General capacity problems on US Routes 11/15 between Interstate 81 and PA Route 274
- Significant delays experienced at the US Routes 11/15 intersections with: Susquenita High School driveway, Sheetz driveway, PA Route 850

Safety Concerns:

- Sight distance problems at the US Routes 11/15 intersection with PA Route 850
- Large amount of northbound right-turning vehicles at the Sheetz driveway
- Confusion involving motorist right-of-way at the intersection of the US Routes 11/15 Southbound off-ramp and PA Route 274
- Safety issues in the Perdix area include parked vehicles, pedestrians along the roadway, very narrow shoulders, and poor emergency vehicle access to the Perdix firehouse
- Frequent rock slides along the mountainous sections of US Routes 11/15
- Access management issues on US Routes 11/15 in Marysville
- Insufficient acceleration / deceleration lanes and weaving areas at the US Routes 11/15 interchanges with US Routes 22/322

Proposed Solutions:

Improvement Package 11-A:

- "Main Street" Concept in Perdix and Marysville –
  - Construct bicycle lanes and/or walking paths in coordination with the Susquehanna Greenway and the right-of-way acquisition for the proposed sewer system in Perdix. Access to the riverfront should also be provided.
  - Construct pedestrian facilities (e.g., crosswalks and pedestrian warning signs).
  - Prohibit parking immediately along US Routes 11/15 and construct a parking access road (in coordination with the right-of-way acquisition for the proposed sewer system in Perdix). Recessed (cut-out) parking spaces (away from the edge of the road) should be provided in areas that can accommodate them.
  - Convert certain side streets that intersect US Routes 11/15 in Marysville to one-way roadways.
  - Continue the public involvement process for the "Main Street" concept to ensure that all stakeholders in the affected communities have input into the improvements that will be considered in the preliminary engineering phase of the project.
- Install an emergency flashing signal at the Perdix Firehouse.
- Install a traffic signal, construct an eastbound right-turn lane, and install a no left-turn sign at the PA Route 850 intersection in Marysville.
- Install a traffic signal at the Susquenita High School Driveway.
- Construct a separate northbound right-turn lane at the Sheetz Driveway intersection.
- Install "Share-a-Ride" signs on US Routes 11/15 north of I-81 and south of PA Route 274. This should be implemented in conjunction with construction of the Park-N-Ride lot near the PA Route 274 interchange with US Routes 11/15.

US Routes 11/15 - Proposed Solutions (Improvement Package 11-A, continued):

- Perform a Route Relocation Study to investigate the re-designation of US Routes 11/15 as "Business US Routes 11/15", and the prohibition of through truck traffic (US Routes 11/15 between Interstate 81 and PA Route 274 would be for local trucks only). The Route Relocation Study will need to include a Business Impact Survey that would determine the financial impacts of a route re-designation to the owners of the business along US Routes 11/15.

Improvement Package 11-E:

- At the US 22/322 & US 11/15 interchange, force eastbound traffic into left lane

Improvement Package 11-F:

- Provide protection for rock falls at the mountains along US 11/15

PA Route 114 - Improvement Package 944-OUT (outsides study area):

- At the PA 114 / I-81 ramps intersections, examine the adequacy of capacity, queuing storage, and traffic flow progression.
- Examine the adequacy of the capacity of the two-lane section of PA 114 between I-81 and PA 944

E. Growth Management Recommendations

Cumberland and Perry Counties exhibit distinctly different land use characteristics within the study area. Cumberland County municipalities – particularly East Pennsboro and Hampden Townships, which have absorbed much of the suburban development moving outwards from Harrisburg and along the I-81 / US Route 11 corridor – have experienced significant population growth in the last two decades. The municipalities in Perry County are much more rural; they added 4,700 new persons since 1980, as opposed to the growth of 16,300 persons in the Cumberland County portion of the study area. Further, the vast majority of retail and office development in the study area within the last two decades has been concentrated within Cumberland County.

The differences between counties extend to land use controls as well. Cumberland County municipalities use the full range of land use controls – comprehensive plans, zoning ordinances, and subdivision and land development ordinances. As of 2002, three of the 13 Perry County municipalities did not have zoning ordinances, and zoning was only recently enacted in several others. The difference in the utilization of land use controls in the two counties is not surprising, inasmuch as many municipalities only become skilled in the use of these controls when confronted by periodic development.

The congestion which exists on study area roadways today will not be affected by any of the measures recommended in this study. However, these growth management measures can help to temper traffic growth in the future. Further, they can help to extend the life of any transportation improvements which are constructed in the future. Indeed, growth management measures can assume even greater importance in the wake of new improvements. Within a metropolitan area, development in outlying areas often accelerates following the construction of improvements (as travel times decrease). As greater volumes of

traffic are attracted to the improved roadway, congestion can once again become a problem. Growth management measures can help avoid this built-in obsolescence.

The following are the growth management recommendations of this study:

Land Use:

- Institute and/or update comprehensive planning and zoning in the study area municipalities; the municipalities should also consider regional comprehensive planning and zoning.
- Review land use plans in each municipality for opportunities for low-density zoning districts. Two common types of low-density zoning are agricultural zoning, at 10 to 20 acres or more per lot, and conservation districts.
- Plan for environmentally sensitive features, through reducing development density in areas with steep slopes, wetlands and floodplains.
- Consider Transfer of Development Rights (TDR) and conservation subdivisions to protect open space.
- Adopt village center zoning to concentrate development in areas planned for infrastructure within townships, and support efforts to the boroughs to attract more development and redevelopment.
- Coordinate growth management efforts in the Cumberland/Perry study area with the Regional Growth Management Plan of the Tri-County Regional Planning Commission.

Transportation:

- Adopt access management overlay districts to improve traffic operations along arterials.
- Adopt traffic impact study ordinance to better identify and address the impact of new developments.
- Upgrade pedestrian and bicycle facilities.

The above land use recommendations should be implemented independent of any transportation improvements in order to better manage future growth and to create better and more livable communities. Table I-3 summarizes the applicability of these recommendations for each of the study area municipalities. The improvements that are placed on the implementation plan (see Sections D and F) are not affected by the land use recommendations of this report.

Although municipalities can individually carry out many of the growth management strategies listed above, and in Table I-3, the same inter-municipal coordination that was critical to the workings of the Cumberland Perry task force is recommended for the implementation of these strategies. At a minimum step, the municipal representatives should continue to meet and discuss the effects of the planning strategies that will be implemented. This coordination could be guided by the Tri-County Regional Planning Commission and the West Shore Council of Governments. These same entities could supervise a re-evaluation of land use and traffic conditions every five years in the future.

Table I-3
GROWTH MANAGEMENT RECOMMENDATIONS

Municipality	Comprehensive Planning	Zoning	Environmental Planning	Village Center	Traffic Impact Study Ordinance	Access Management
Cumberland County						
East Pennsboro Township	Update comprehensive plan	Existing low-density zones; consider regional TDR with other Cumberland municipalities	Existing adequate wetland and slope protection provisions	Much of township developed, but consider mixed use redevelopment	Existing; update ordinance	Adopt overlay district for US 11/15 between I-81and PA 944
Hampden Township	Update comprehensive plan	Existing low-density zones; consider regional TDR with other Cumberland municipalities	Consider wetland and slope protection provisions	Much of town developed, but consider mixed use redevelopment	Adopt ordinance	Adopt overlay district for PA 944
Middlesex Township	Update comprehensive plan; consider joint planning with Silver Spring Township	Increase size of lots in RF zone; consider regional TDR with other Cumberland municipalities	Consider adjusted tract acreage provisions	Revise linear Village Center zone along US 11 to nodal form; update VC design requirements	Existing; update ordinance	Adopt overlay district for US 11, PA 34, PA 944
Silver Spring Township	Update comprehensive plan; consider joint planning with Middlesex Township	Existing low-density zones; consider regional TDR with other Cumberland municipalities, or municipal-wide TDR	Existing slope provisions; consider adjusted tract acreage provisions	Strengthen existing Village Overlay zone with TDR incentive; consider increasing commercial % in VO zone	Revise existing; lower threshold for commercial uses	Existing
Perry County						
Bloomfield Borough	Update comprehensive plan; engage in joint planning with Centre and Carroll Townships	Existing low-density zone; given the Borough's goal to be regional center, low density not critical here	NA	Promote revitalization; consider increasing density, with TDR credits sent from Centre; encourage mixed use buildings	Update existing; require TIS for commercial uses, smaller subdivisions	NA

Municipality	Comprehensive Planning	Zoning	Environmental Planning	Village Center	Traffic Impact Study Ordinance	Access Management
Carroll Township	Update comprehensive plan; engage in joint planning with Centre Township and Bloomfield Borough	Consider agricultural zone	Adopt adjusted tract acreage provisions	Consider proximate to Carroll Elementary School. Update design guidelines for VC at Shermans Dale	Update existing	Adopt district for PA 34
Centre Township	Prepare comprehensive plan, or joint plan with Carroll Township and Bloomfield Borough	Adopt zoning ordinance, including agricultural zone	Adopt adjusted tract acreage provisions	Coordinate with Bloomfield on promotion of borough as regional center	Existing	Consider district for PA 34, PA 274 in future; currently not critical
Duncannon Borough	Update comprehensive plan; engage in joint planning with Penn and Wheatfield Townships	No action necessary	NA	Promote revitalization; encourage mixed-use buildings	Revise; require for commercial uses	NA
Howe Township	Update comprehensive plan; engage in joint planning with Newport Borough and Oliver and Miller Townships	Increase size of lots in RA zone	Adopt adjusted tract acreage provisions	Consider VC on PA 34, proximate to intersection with US 22/322	Adopt ordinance	Adopt district along PA 34
Marysville Borough	Update comprehensive plan; engage in joint planning with Rye Township	No action necessary	Adopt adjusted tract acreage provisions	Promote revitalization; encourage mixed-use buildings; increase density	Adopt ordinance	Adopt district along US 11/15
Miller Township	Prepare comprehensive plan, or joint plan with Howe and Oliver Townships and Newport Borough	Adopt ordinance, including low density zone	Adopt adjusted tract acreage provisions	Not applicable at this time	Not applicable at this time	Not applicable at this time
Newport Borough	Update comprehensive plan; engage in joint planning with Howe, Oliver and Miller Townships	No action necessary	NA	Promote revitalization; encourage mixed-use buildings	Adopt ordinance	NA

Municipality	Comprehensive Planning	Zoning	Environmental Planning	Village Center	Traffic Impact Study Ordinance	Access Management
Oliver Township	Update comprehensive plan; engage in joint planning with Newport Borough and Howe and Miller Townships	Adopt ordinance, including agricultural and conservation zone	Adopt adjusted tract acreage provisions	Concentrate development proximate to Newport	Adopt ordinance	Consider district along PA 34 in future; currently not critical
Penn Township	Update comprehensive plan; engage in joint planning with Duncannon Borough and Wheatfield Township	Increase lot size in agricultural zone. Existing Forest Conservation zone is adequate	Adopt adjusted tract acreage provisions	Consider VC in Cove or Perdix; consider concentrating development proximate to Duncannon Borough	Adopt ordinance	Adopt district along US 11/15
Rye Township	Engage in joint planning with Marysville Borough	Increase lot size in agricultural zone. Existing Forest Conservation zone is adequate	Adopt adjusted tract acreage provisions	Concentrate development proximate to Marysville Borough	Expand existing ordinance	Consider district along PA 850; currently not critical
Watts Township	Engage in joint planning with New Buffalo Borough	Include conservation zone in ordinance	Adopt adjusted tract acreage provisions	Concentrate development around New Buffalo Borough	Adopt ordinance	Adopt district along US 11/15
Wheatfield Township	Update comprehensive plan; engage in joint planning with Duncannon Borough and Penn Township	Increase lot size in agricultural zone	Adopt adjusted tract acreage provisions	Currently little potential for VC	Adopt ordinance	Consider district along PA 274; currently not critical

Inter-municipal coordination could be most effectively implemented through inter-municipal planning. As recently provided for the in the Pennsylvania Municipalities Planning Code (Article XI), municipalities may enter into "intergovernmental cooperative agreements." Municipalities can coordinate in preparing a regional comprehensive plan, which, in turn, can serve as the basis for other inter-municipal activities, such as zoning ordinances and transfer of development rights programs. Cooperative implementation agreements also include a process for review and approval of developments of regional significance (although the host municipality ultimately exercises subdivision and land development powers). A cooperative, inter-municipal planning process is thus recommended to supplement the transportation strategies outlined elsewhere in this study.

F. Implementation Plan

As part of the Cumberland and Perry Counties Safety and Congestion Management System study, it is appropriate to develop an implementation plan for the $39 million program of improvements for the corridor. An implementation plan consists of two parts – how and when the improvement packages associated with the plan are to be constructed and who is to pay for the projects. At this point, neither component is finalized. As with any major undertaking, the Implementation Plan will evolve over time because the roles of private/public partnerships and funding capabilities are continuously changing. Therefore, it is imperative that the Cumberland and Perry Counties Joint Task Force on Transportation and Planning remain a functioning group to act as the main advocate for the Implementation Plan. Funding of the Implementation Plan will require continued participation from the task force and a concerted effort to obtain financing for the projects.

Improvement Packages

The recommended improvement packages that are placed in the implementation plan are summarized in Section D under the heading "*Summary of Areas of Concern and Recommended Improvement Packages"*.

Estimated Improvement Cost

Preliminary cost estimates were formulated for each proposed improvement concept and each improvement package. Regarding the assumptions used in developing the cost estimates, it should be noted that the estimates are planning level estimates. More detailed cost estimates will have to await the development of more detailed engineering designs. Further, it should also be recognized that individual improvement proposals might have to be modified somewhat as engineering proceeds. It is also possible

that alternate schemes may be developed in the course of engineering, further refining the cost estimates. The estimated costs shown in Table I-4 are reflective of 2002 construction costs.

Table I-4 summarizes the cost breakdown of the improvement packages that have been placed on the implementation plan. The total cost of the implementation program is estimated to be nearly $39 million.

Table I-4
SUMMARY OF COST ESTIMATES FOR IMPROVEMENT PACKAGES IN THE IMPLEMENTATION PLAN

Improvement Package	Category	Total Approximate Cost	Preliminary Ranking
34-A	C & S	$8,990,000	1
944-A	C & S	$14,500,000	2
11-A	C & S	$8,437,000	3
274-A	C & S	$3,638,000	4
849-B	C & S	$35,000	5
944-D	C & S	$760,000	6
11-F	Bet	$745,000	7
944-B	Bet	$580,000	8
11-E	C & S	$88,000	9
34-C	Bet	$912,000	10
34-D	Bet	$237,000	11

C & S = Capacity and Safety
Bet = Betterment

Implementation Plan Responsibility and Funding

Clearly, the pace of the implementation plan will be dictated by the availability of funding. Further, it is also clear that many of these questions will not be fully answered within the time frame of this study. Therefore, as a first step, the Task Force should remain "convened" and active in seeking the answers to these key questions. It is possible that the Task Force may need to be expanded to include members of the development community or other groups or agencies. As before, the goal of the Task Force must always be the improvement of the transportation picture within the goals of the community.

The second step is the assignment of funding responsibilities for the various projects. Normally, for state highways, the major source of funds has traditionally been PENNDOT and the federal government. However, there is strong competition for the limited amount of funds available and PENNDOT is searching for ways to "stretch" their funds to address their needs.

It is anticipated that the funding responsibility of the local municipalities for most of the improvement packages will be minimal because all of the improvement packages involve improvements to state-maintained roadways. However, a number of traffic signals are recommended for installation in certain municipalities. Traditionally, municipalities (or developers) are responsible for the funding of the installation of traffic signals. However, if a PENNDOT project is planned for a roadway, and if a traffic signal is required or asked for by the municipality during design, then PENNDOT will fund the construction of the signal. The improvement packages included in this implementation plan can be used as a means of obtaining PENNDOT funding for the construction of traffic signals thereby saving money for financially-strapped municipalities. Even if PENNDOT pays for the construction of the signal, the municipalities will still be responsible for funding of regular maintenance.

Portions of improvement package 11-A, which includes the "Main Street" concept on US Routes 11/15 in Perdix and Marysville, will likely not receive all of its funding through the traditional 80% federal / 20% state funding formula. Because of the nature of the proposed improvements, especially the "Main Street" concept, improvement package 11-A will likely be eligible for additional grants such as "Main Street" grants, Pennsylvania Department of Economic and Community Development (DECD) grants, the Susquehanna Greenway Trail funding, and other similar grants and funding. Additionally, funding for this improvement package will be part of the MPO (Metropolitan Planning Organization) process, and as such, a management agency will be needed to take the lead in order to implement the grants and to determine where each dollar is spent.

For this study, the opportunity to join forces with the private sector to obtain funding exists for the improvement package recommended for the eastern end of PA Route 274. The Perry County Business Campus One, which is located adjacent to PA Route 274 in Penn Township, is slated for development by private developers in the immediate future. Because this land will likely be developed as light industrial and office space, there will be definite traffic impacts to PA Route 274 between the business campus and US Routes 11/15. Given this situation, it is recommended that a "partnership" between the public and the private sectors be explored. Such a partnership would be more effective in securing federal and state funding for the improvement packages.

Public sector funding of highway projects is typically accomplished through the Twelve-Year Transportation Program that is managed cooperatively by the Tri-County Regional Planning Commission and the Pennsylvania Department of Transportation. The Twelve-Year Transportation Program is a fiscally constrained listing of transportation projects that are expected to utilize federal and/or state

transportation funds during the twelve-year period. The Twelve-Year Program is divided into three, four-year periods. After the three county planning commissions (Cumberland, Dauphin, and Perry) and the Tri-County Regional Planning Commission (TCRPC), in a joint effort with local municipal governments, review and make recommendations for project priorities to be considered in the program, the program is reviewed and then approved by the Harrisburg Area Transportation Study (HATS). Finally, the program becomes effective once it is adopted by the State Transportation Commission (STC) and then lastly by the Federal Highway Administration (FHWA). This process occurs every two years and represents the process by which the region decides to spend transportation dollars.

It is recommended that each improvement package be placed on the Twelve-Year Program as an individual line item so it can be tracked. However, to meet the requirements of the National Environmental Policy Act (NEPA) and the Clean Water Act (Section 404) at the federal level and the procedures of the Pennsylvania Department of Transportation established pursuant to State Law, certain improvement packages must obtain specific levels of environmental clearance. This process requires additional engineering and alternative analyses and environmental studies. These studies must also be listed on the Twelve-Year Program. It is in this part of the project development process that all alternates are evaluated and preliminary engineering occurs. The next step is the preparation of construction drawings and acquisition of the required right-of-way.

Strategies for Implementation

The outline below summarizes the strategies for implementation of the recommended improvements:

1. Continue to hold periodic meetings and maintain the Cumberland and Perry Counties Joint Task Force on Transportation and Planning (CPTF) – this will sustain credibility as a working regional group
    a. Monitor land development in the study area and the growth in traffic volumes in order to maintain validity of the recommended improvements
    b. Continued communication between members of the CPTF to identify other needs as they arise
2. Presentation of the recommended improvements to the HATS Technical Committee in January or February 2003
    a. Continued CPTF presence at HATS meetings
3. Placement of improvement packages into local/regional transportation plans
    a. Regional Transportation Plan (update is currently underway) – December 2003 completion
    b. Congestion Management System Plan (update currently underway) – December 2002 completion
    c. County Comprehensive Plans – updates currently underway
    d. Transportation Improvement Program (TIP) – next update begins May 2003
    e. Presentation to State Transportation Commission (STC) – possibly Fall 2003

4. Funding – other than the region's base allocation (which is the most competitive)
    a. Earmarked funds – work with area legislators to get funds assigned to the recommended improvement packages
    b. Overmatch – Provide 'local' funds (municipal, state or federal sources) for the local match in excess of the minimum 20% matching funds typically required for projects
5. Federal (base allocation) funds
    a. Submit application to HATS (as a regional group – CPTF) – sample applications are located in the Appendix of this document
    b. Municipalities should add letters of support to application
    c. Municipalities must balance priorities for their more local projects and support of the CPTF recommended improvement packages
6. State Betterment Funds
    a. Follow PENNDOT procedures

It should be noted that the recommended improvement packages should have the full support of the CPTF in order for HATS to give the projects a higher priority in their ranking system. The recommended improvement packages from this study will be competing with other transportation improvement projects in the Harrisburg region. The HATS Technical Committee takes input, evaluates the project proposals, and passes on their recommended priority list to the HATS Coordinating Committee. The HATS coordinating committee makes the final decisions on which projects get selected and the final rankings of the HATS priority list. The higher priority projects, as determined by HATS, will compete with other transportation improvement projects from the Harrisburg region in order to be placed on the Transportation Improvement Program (TIP).

G. Next Steps

In addition to maintaining the Task Force and executing the strategies for implementation, the next steps listed below should also be accomplished to help reach successful completion of the program.

1. Program and fund improvement packages.

2. Continue to examine environmental constraints within the recommended improvement areas. Mitigate all historical and environmental impacts and secure the necessary clearances.

3. Finalize roadway alignments and prepare construction plans.

4. Secure necessary right-of-way to complete each improvement. Develop zoning initiatives to keep prospective important locations from being commercialized or detrimental to the proposed implementation plan.

5. Construct the improvement packages within the necessary time frame to have all improvements completed by the year 2020.