Executive Summary

Part I
Introduction to the I-80 Corridor Study

Part II
Needs

Part III
Environmental Overview

Part IV
Public Involvement

Part V
Transportation Solutions

Table of Contents

<table>
<thead>
<tr>
<th>Final Report</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>Study Conclusions – Existing Conditions of the Roadway</td>
<td>6</td>
</tr>
<tr>
<td>Study Conclusions – Transportation Solutions</td>
<td>6</td>
</tr>
<tr>
<td>Introdution to the I-80 Corridor Study</td>
<td>1</td>
</tr>
<tr>
<td>Coordination with Pennsylvania Turnpike Commission</td>
<td>1</td>
</tr>
<tr>
<td>Need #1: Congestion</td>
<td>4</td>
</tr>
<tr>
<td>Need #2: Safety</td>
<td>4</td>
</tr>
<tr>
<td>Need #3: Deteriorating Pavement and Bridges</td>
<td>5</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>7</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>9</td>
</tr>
<tr>
<td>Community Resources</td>
<td>11</td>
</tr>
<tr>
<td>Program Overview</td>
<td>13</td>
</tr>
<tr>
<td>Stakeholder Interviews</td>
<td>13</td>
</tr>
<tr>
<td>Public Meetings</td>
<td>15</td>
</tr>
<tr>
<td>A. TSM, ITS and Transit Initiatives</td>
<td>17</td>
</tr>
<tr>
<td>B. TFM (Transportation Systems Management)</td>
<td>17</td>
</tr>
<tr>
<td>C. ITS (Intelligent Transportation Systems)</td>
<td>18</td>
</tr>
<tr>
<td>D. Transit</td>
<td>21</td>
</tr>
</tbody>
</table>
Table of Contents

Part V

B. Highway Improvement Solutions
   – Pennsylvania Turnpike Commission
     Committed Improvements
     – I-80 Corridor Study Improvements
     – Machine Widening
     – Interchange Improvements
       – Exit 293 (I-80/I-380)
       – Exits 298 and 299 (Shawnee
         Jonestown)
       – Exit 305 (I-380/Shawnee
         Center)
       – Exit 306 (Interstate 295 South
         Entrance/Exit 295)
       – Exit 315 (Delaware River
         Bridge)
     – Exit 302 (I-78/I-380/Route 209
         Southbound)
     – Exit 303 (North Street)
     – Exits 304, 305 and 306
       (Southbound US 209, Business 209,
        Main Street, and Dreher Avenue)
     – Exit 307 (Broad Street/Park Avenue)

Conclusion

Part VI

1. Congestion Priorities
2. Safety Priorities
3. Other Interchanges
4. Deteriorating Pavement and Bridges
5. Conclusion

List of Maps

Exit 302
(Brydnersville/Bartonsville)

Exit 303
(Ninth Street)

Exits 304, 305 and 306
(Southbound US 209, Business 209/
Main Street, and Dreher Avenue)

Exit 307
(Broad Street/Park Avenue)

Final Report

Option 1
Option 2
Option 3
Option 4
Option 5
Option 1A
Option 1B
Option 2
Option 3
Option 4
List of Maps

46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
Executive Summary

Interstate 80 (I-80) is a vital component of our national and state transportation system. It also satisfies regional and local transportation needs for mobility, recreation and commerce. The eastern end of the I-80 corridor in Pennsylvania is the gateway to over 300 miles of one of the most important transportation and goods-movement corridors in the state. Regionally, I-80 is the transportation link between the New York/New Jersey Metropolitan area and the Scranton/Wilkes-Barre/Pocono region. From the Delaware River Water Gap crossing, I-80 connects the Monroe County region to I-380, US 209, I-76 and I-81, and PA Route 33. As the region’s population and economy grow, the I-80 corridor will continue to play an important role in the region. The focus of this corridor study and planning effort is the 18-mile stretch of I-80 from the Borough of Delaware Water Gap (Exit 310) to I-380 (Exit 293) in Monroe County. This section of I-80 supports the economic backbone of Monroe County and the Stroudsburg-Pocono region. The I-80 Corridor Study is a transportation planning study intended to provide the required background information for programming specific environmental/preliminary engineering studies and design/construction projects throughout the I-80 corridor. The study involved extensive environmental field work, traffic analysis, engineering and coordination with the public. Coordination with various stakeholders and area municipalities resulted in a series of proposed transportation improvements designed to address safety issues and mobility needs. In addition, study team members met with legislative and municipal officials, and engaged in a robust media campaign in advance of public meetings held at two different locations in Monroe County. During the I-80 Corridor Study, the Pennsylvania Legislature passed Act 44. Under this initiative, a 50-year lease and funding agreement between the Pennsylvania Turnpike Commission (PTC) and the Pennsylvania Department of Transportation (PennDOT) was signed into law. The Act created a “public-public” partnership in which the PTC was directed to seek approval from the Federal Highway Administration to convert I-80 into a toll facility in order to pay for necessary transportation improvements along the I-80 statewide corridor. As part of the lease agreement, the PTC is currently developing a capital plan of infrastructure improvements for the length of I-80 in Pennsylvania, including pavement rehabilitation projects, bridge replacements, interchange improvements and ITS improvements. As a result of this agreement, the I-80 Corridor Study team coordinated the prioritization of the roadway improvements in Monroe County with the PTC’s engineering consultant.

Study Conclusions – Existing Conditions of the Roadway

The I-80 Corridor Study included traffic studies, crash data analysis, geometric deficiency survey and public involvement to illustrate and characterize the deficiencies of the existing system. Three (3) basic corridor-wide needs categories were documented:

1. Congestion
   - The existing roadway configuration will not accommodate existing traffic volumes at some locations and will fail system-wide with projected future increases in traffic.

2. Safety
   - The existing roadway configuration will not accommodate existing traffic volumes at some locations and will fail system-wide with projected future increases in traffic.

3. Public Involvement
   - The study involved extensive environmental field work, traffic analysis, engineering and coordination with the public. Coordination with various stakeholders and area municipalities resulted in a series of proposed transportation improvements designed to address safety issues and mobility needs. In addition, study team members met with legislative and municipal officials, and engaged in a robust media campaign in advance of public meetings held at two different locations in Monroe County. During the I-80 Corridor Study, the Pennsylvania Legislature passed Act 44. Under this initiative, a 50-year lease and funding agreement between the Pennsylvania Turnpike Commission (PTC) and the Pennsylvania Department of Transportation (PennDOT) was signed into law. The Act created a “public-public” partnership in which the PTC was directed to seek approval from the Federal Highway Administration to convert I-80 into a toll facility in order to pay for necessary transportation improvements along the I-80 statewide corridor. As part of the lease agreement, the PTC is currently developing a capital plan of infrastructure improvements for the length of I-80 in Pennsylvania, including pavement rehabilitation projects, bridge replacements, interchange improvements and ITS improvements. As a result of this agreement, the I-80 Corridor Study team coordinated the prioritization of the roadway improvements in Monroe County with the PTC’s engineering consultant.
Interchange improvement concepts were developed. The study team also looked at individual interchanges to develop improvement concepts that could provide measurable benefits and be funded and constructed independent of the mainline widening. Geometric deficiencies and environmental features were identified at key interchange areas and preliminary costs were estimated for each concept.

Traffic Analysis Summary Report
Analysis of Transportation Needs
Geometric Deficiency Survey
Environmental Overview
Historic Resource Survey
Archaeological Resource Reconnaissance Investigation
Public Involvement Summary
Preliminary Environmental Evaluation

These reports and other technical files supporting this I-80 Corridor Study have been digitally archived and can be accessed by contacting: Brian Graver, PennDOT District 5 Project Manager at 610-871-4560.

In the end, the I-80 Corridor Study is intended to be a comprehensive transportation planning tool designed to assist the rural planning organization – the Northeastern Pennsylvania Alliance (NEPA) – as well as PTC and PennDOT in the planning and programming of future transportation projects on the I-80 corridor.

The western portion of the study area has relatively new pavement, especially in the area of the I-80/I-380 interchange which is nearing the end of a total reconstruction project. However, the eastern portion of the study area has 1960s vintage concrete pavement that has been overlain numerous times with bituminous (blacktop) pavement. In addition, many of the bridges along this 18-mile section of I-80 are reaching the end of their available life span and are rated Structurally Deficient.

The I-80 roadway corridor will need to be reconstructed. The I-80 mainline and ramps will require reconstruction to correct the problem of deteriorating pavement, to add capacity, and to apply current design criteria to the roadway geometry. Each solution is designed to provide the minimum operational requirements, which include current interstate standards, 60 mph design speed on the mainline, and three through-lanes in each direction between interchanges.

The I-80 study corridor was evaluated to determine a mainline widening concept for the roadway. The 18-mile corridor was divided into two distinct sections based on geometric and environmental characteristics: 1. the western rural section and 2. the eastern urban section. In each section, mainline widening concepts were developed and key environmental features were identified at key interchange areas and preliminary costs were estimated for each concept.

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Analysis of Transportation Needs
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3. Deteriorating pavement and bridges

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The purpose of the I-80 Corridor Study is to identify transportation projects that will improve traffic operations, safety and provide an upgraded transportation facility for traffic volumes and congestion and the environmental impacts. The study, which includes an inventory of infrastructure deficiencies and needs, develop proposed solutions and alternatives, evaluate impacts and costs, and formulate a program to advance the best solutions that will provide measurable benefits in terms of safety, congestion, and reduce deteriorating pavement and bridge conditions. Identifying safety and congestion, and reducing the number of accidents along this section of I-80 have been the impetus for the study: The I-80 Corridor Study is the beginning of a series of actions that will address the transportation needs of the 18-miles from Exit 293 to Exit 310 in Monroe County. The study:

- Considers the corridor-wide transportation needs, identifying the areas and magnitude of problems within the corridor.
- Provides an inventory of environmental features within the corridor, so that the environmental and community issues of future projects can be predicted.
- Considers ways to make the highway corridor function more efficiently, such as Intelligent Transportation Systems (ITS) initiatives and public transit improvements.
- Presents highway improvement options for corridor widening and interchange improvements.
- Includes an implementation plan for the future I-80 projects, taking into consideration the corridor-wide traffic, environmental and funding issues.

The final product of the I-80 Corridor Study is the Final Report which summarizes the efforts listed above.

The final product of the I-80 Corridor Study is the Final Report which summarizes the efforts listed above. The final Report as a planning and programming tool for various transportation improvement projects. With this tool, informed and logical decisions can be made that will result in the sequential development of a capital plan of infrastructure improvements for the entire 311-mile corridor to be undertaken over the 50-year duration of the lease. These improvements include ITS solutions and highway and bridge improvement projects. The entire length of I-80 will be reconstructed during the 50-year lease period. As part of the capital plan, the PTC is developing a prioritized schedule of infrastructure improvements to be undertaken over the first 10 years after tolling begins.

As a result of the passage of Act 44, the PTC may become the end user of the I-80 Corridor Study Final Report. As a result, the I-80 Corridor Study team coordinated with the PTC’s consultant team to incorporate the infrastructure improvements developed for the PTC’s Capital Plan for I-80 in Monroe County and the improvements developed as part of the I-80 Corridor Study into the I-80 Corridor Study Implementation Plan. However, the improvement options and implementation plan presented in this report are consistent with the District’s needs for I-80 in Monroe County. The implementation plan presented in this report are consistent with the District’s needs for I-80 in Monroe County.
The I-80 Corridor Study included an evaluation of I-80 from Exit 293 (I-380) to Exit 310 (Delaware Water Gap) to determine the corridor-wide needs. Transportation needs are typically defined as the problems identified with the operation of the existing facility. Traffic studies, crash data analysis, geometric deficiency surveys and public involvement were performed to determine the transportation deficiencies in the existing 18-mile corridor. As a result of this evaluation, three corridor-wide needs were identified:

1. Congestion
2. Safety
3. Deteriorating Pavement and Bridges

**NEED #1: CONGESTION**

The section of I-80 in Monroe County is the most heavily traveled section of I-80 in Pennsylvania. This area encompasses the Pocono Mountain region which draws a considerable amount of tourist and recreational visitors, but which has also effectively become an outer suburb of the northern New Jersey/New York City metropolitan area. The influx of residents from the NYC area and elsewhere has made Monroe County and neighboring Pike County two of the fastest growing counties in all of Pennsylvania. I-80 acts as a major route for local commuters as it is one of the only east-west roads connecting the major population centers in Monroe County.

I-80 is also a major cross-continental route that is heavily used by trucks. Average daily truck volumes range from 20 to 30 percent throughout the corridor study area. In addition, rolling terrain and a lengthy five-mile, 4.5 percent grade east of I-380 affects truck operating speed which in turn adversely affects the overall operating characteristics of the road.

The I-80 Corridor Study included the collection of traffic volumes, the projection of the traffic volumes to the design year of 2030 and the determination of existing and projected traffic operations, quantified by the term “Level of Service” or LOS. There are six levels of service designated as “A” through “F”, with “A” representing the best operating conditions and “F” representing the worst. These LOS are based on a certain measure of effectiveness, such as average delay per vehicle or density of the traffic stream, relative to the roadway facility being analyzed. LOS can be quantified for various roadway facilities such as signalized and unsignalized intersections, two-lane and multi-lane highways, and freeway components such as freeway sections, ramp junctions and weaving sections.

Traffic projections and LOS analysis in the design year of 2030 predict that most of the corridor east of Exit 298 (Scotrun) will experience failing levels of service with the existing lane configuration.

I-80 in Monroe County has some unique travel characteristics:

- There is a very diverse composition of traffic flow on this road (commuters, tourists, local trips, and truckers).
- Although interstate highways were traditionally meant to be used primarily for intercity trips, I-80 serves as one of the main routes for local trips in Monroe County. A majority of the trips within the corridor are local trips (both starting and ending within the corridor).
- There is a significant seasonal fluctuation due to tourism. Traffic volumes are generally highest during the summer, with a smaller peak during winter ski season.
- Many residents have an unusually long commute to the northern New Jersey/New York City metropolitan area. Some commuters even maintain apartments in the NYC area in addition to their permanent homes in Monroe County, and will only travel back to Monroe County for the weekend.
- I-80 in New Jersey and at the Delaware River Bridge toll plaza experiences much greater levels of congestion, which may alter the commuting patterns of I-80 drivers. Congestion at the Delaware River Bridge toll plaza also affects traffic.
Due to these unique travel patterns, I-80 experiences its highest traffic levels during Friday evenings because of motorists returning home for the weekend from the northwestern New Jersey/New York City area. For that reason, the Corridor Study focuses on the Friday evening peak hour periods. However, it is important to note that I-80 also experiences smaller peaks during other time periods. For example, on Sunday evenings and Monday mornings, there is a noticeable increase in the volume of traffic on I-80 as weekend tourists and commuters travel towards northern New Jersey/New York City. An individual sections of I-80 move into the more detailed Preliminary Engineering stages, these other periods of congestion will need to be studied.

Most traditional transportation projects evaluate “average” weekend conditions; in other words, conditions that are prevalent throughout the workweek (a typical Tuesday, Wednesday, or Thursday). Because this project focuses specifically on Friday evening peak hour congestion, significant consideration was given to whether the traffic capacity of the corridor was equal to the demand. This finding would be worth the additional expenditure of addressing future growth problems that occur only once a week.

Traditionally, urban highways are designed to provide for a LOS D or better in the design year. Recently, however, the transportation industry has realized that it is difficult to achieve this without incurring enormous costs, especially in areas already experiencing severe adverse impacts on the surrounding community. It is now accepted that it is impossible to design for a LOS D (the highest peak hour(s), one factor that then becomes important is the number of hours that the day the facility is projected to operate at a LOS E or F. For example, if a roadway is projected to operate at a LOS E or F with three lanes for three hours of the day, but is projected to operate at a LOS E or F for the other 21 hours, it may be worthwhile to forgo the extra costs and implement an improvement with increasing the design to a four-lane roadway (just to achieve a minimum LOS D for all hours of the day).

The I-80 Corridor Study was intended to compare and contrast the ongoing Safe 80 Task Force efforts by looking at existing crash patterns throughout the entire corridor and identifying existing deficiencies or issues that should be addressed when developing improvement concepts for the I-80 corridor.

The crash analysis conducted for the I-80 Corridor Study shows that crash rates in the urban rural section of the study area are twice the statewide average. Several safety improvements have already been implemented due, in part, to the recommendations of Safe 80, including the 50 mph speed limit and a new shoulder added to the eastern portion of the study area.

Segments in the eastern, urban section of I-80 were found to have crash rates either at or below the statewide average. Some locations of crash clusters in the eastern section included:

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A comprehensive preliminary analysis of the environmental features within the I-80 corridor in Monroe County was conducted to assist with the evaluation of project alternatives and identify potential resource impacts for the proposed improvement concepts. Results of this analysis are presented in the I-80 Corridor Study Environmental Overview which is contained in the Appendix. The following presents a brief summary of the environmental features identified in the corridor which could have a significant effect on project design, cost and/or permitting requirements.

**Aquatic Resources**

The I-80 study area lies within the Lehigh and Middle Delaware-Mongaup-Brodhead sub-watersheds, which empty into the Delaware River. The eastern edge of the corridor falls within the Delaware Water Gap National Recreational Area, which also includes a designated National Wild and Scenic River, the Delaware (Middle) River system. The Delaware (Middle) River has been designated for its scenic attributes and supports a number of recreational uses including boating, fishing and hiking.

In addition to the Delaware River, the corridor was found to support 26 high quality cold-water fisheries (HQ-CWF) streams and an Exceptional Value (EV) watercourse (Sand Spring Run). According to the Pennsylvania Fish and Boat Commission (PFBC), the majority of these watercourses are also known to support natural trout reproduction. These stream classifications afford the designated watercourse special protective consideration by the regulatory agencies when considering the design and effects of projects within their watershed. The most stringent of these is placed on EV watercourses, where Pennsylvania Department of Environmental Protection (PADEP) regulations do not permit uses along the stream leading to any degradation of the stream quality.

National Wetlands Inventory (NWI) mapping and cursory field investigations revealed the presence of over 90 wetlands within the project corridor. The majority of the wetlands are palestine forested systems associated with the streams and floodplains in the study area. Isolated wetlands, those not connected or in close proximity to watercourses, are also present in the western end of the study area near the Exit 293 (I-80/I-380) interchange. These wetlands are primarily palustrine scrub/shrub and forested systems.
### TABLE 1 – PLANT SPECIES AND NATURAL COMMUNITIES OF SPECIAL CONCERN

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
<th>Habitat</th>
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<tbody>
<tr>
<td>Polygala nuttallii</td>
<td>Nuttall's milkwort</td>
<td>FE</td>
<td>Plants</td>
</tr>
<tr>
<td>Myrica gale</td>
<td>Sweet gale</td>
<td>PT</td>
<td>Plants</td>
</tr>
<tr>
<td>Muhlenbergia</td>
<td>Muhly</td>
<td>PE</td>
<td>Plants</td>
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<tr>
<td>Ledum medeoloides</td>
<td>Labrador tea</td>
<td>PR</td>
<td>Plants</td>
</tr>
<tr>
<td>Isotria</td>
<td>Pogonia</td>
<td>FT</td>
<td>Plants</td>
</tr>
<tr>
<td>Glyceria obtusa</td>
<td>Coastal thread rush</td>
<td>PR</td>
<td>Plants</td>
</tr>
<tr>
<td>Carex longii</td>
<td>Long's sedge</td>
<td>PU</td>
<td>Plants</td>
</tr>
</tbody>
</table>

### Natural and Wild Areas

There are a number of variety of natural areas located within or in close proximity to the project corridor. The majority of these areas are found in the eastern end of the corridor. The exception is the Delaware Water Gap National Recreation Area, which is located at the eastern limits of the project corridor.

The Delaware Water Gap National Recreation Area possesses 40 miles of the middle Delaware River and almost 70,000 acres of land along the river's New Jersey and Pennsylvania shores. At the south end of the park, the river cuts eastward through the Appalachian Mountains at the scenic Delaware Water Gap. This area hosts the Appalachian Trail, a National Scenic Trail entering Pennsylvania along I-80, and provides a variety of recreational opportunities including canoeing, hiking, camping, fishing and hunting.

Pennsylvania State Game Land - No. 38 is split by I-80 just east of the Exit 303 to Exit 306 presents a potential wildlife corridor. This land is used for hunting and trapping and can be used for trucking and horseracing during certain times of the year.

As State Game Land No. 38 is split by I-80 just east of the Exit 303 to Exit 306, it is considered a Section (4) resource.

### Geology

The geology in the vicinity of Exit 303 to Exit 306 presents a potential concern for any activities requiring locations in close proximity to the study area. The Delaware Water Gap Historic District, the Delaware Water Gap National Recreation Area, and the land areas above and below the river cut by I-80 are all considered to be of special importance and given special consideration. The Delaware Water Gap National Recreation Area, which is located at the eastern limits of the project corridor, supports the highest concentration of globally significant bird species and natural communities in Pennsylvania. Portions of this corridor, which is protected through the efforts of Monroe County, the Nature Conservancy, The Nature Conservancy, and the Commonwealth of Pennsylvania. Dozens of plant and animal species of special concern inhabit these communities. This corridor study area supports kettlehole bogs in the vicinity of the Exit 293 (I-80-306) interchange. This natural community is considered to be of special importance and given special regulatory protection.

### CULTURAL RESOURCES

#### Historic Structures

The greatest density of historic resources is found in the eastern part of the corridor study area, which is associated with commercial and industrial facilities such as existing and former service stations, fabrication businesses, scrap yards and waste facilities.

#### Historical Sites

The most significant area in the eastern part of the corridor is the Delaware Water Gap National Recreation Area. This natural area includes excellent recreational opportunities including canoeing, hiking, camping, fishing and hunting.

Pennsylvania State Game Land - No. 38 is split by I-80 just east of the Exit 303 (I-80-306) interchange. This land is used for hunting and trapping and can be used for trucking and horseracing during certain times of the year.

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Gap, as well as Pocono and Stroud Townships. In this area, the historic archaeological sensitivity is more extensive in this area, including a vast number of Native American sites. Additionally, several 18th-century sites are found within the aforementioned areas surrounding the confluences of upland runs (e.g., Reeder’s Run, Baublitz, et al., 1995). Historic archaeological sensitivity areas are generally located in portions of the central and eastern sections of the I-80 corridor. These are associated with the preservation of natural resources and open space, which are prevalent throughout the region.

The U.S. Census Bureau estimated the total population of Monroe County to be 138,687 in 2000, an increase of approximately 40 percent since 1990. The county anticipates the population will continue to rise through the year 2020. Due to the large area of undeveloped land within the study corridor and the growth anticipated for the region, there is the potential for future development in these areas. Consequently, community and regional growth could result from additional employment, housing and recreation use, and tourism. The impacts of potential development will be evaluated in the comprehensive plan and addressed in any recommended improvements to the I-80 corridor as a need and regional planning efforts are developed to accommodate the increasing traffic volumes associated with the future development of the region.

Several nominations, libraries, places of worship and health facilities are present within the study area. Fire and emergency services are provided by the Monroe County volunteer organizations; however, these services are regulated by the Pennsylvania State Police.

The percent of people living below the poverty level in the study area ranges from 6 percent in Pocono Township to 19 percent in Stroudsburg Borough. Concentrations of the minority population are located to the north and west of Tannersville, and within Stroudsburg in the immediate vicinity of the I-80 corridor. The greatest concentration of minorities is located within Stroudsburg and East Stroudsburg in the immediate vicinity of the I-80 corridor. County’s minority population is small (only 7 percent) and the county does not expect this figure to change substantially in the future. The minority population ranges from 7.4 percent in Delaware Water Gap to 13.7 percent in Stroud Township. The greatest concentration of minorities is located within Stroudsburg and East Stroudsburg in the immediate vicinity of the I-80 corridor. Although impacts to poverty level and minority populations cannot be determined prior to project design, any impacts will be consistent within Stroudsburg and East Stroudsburg Borough. These impacts are likely to impact these populations.
I-80 satisfies regional and local transportation needs for mobility, recreation and commerce. The eastern end of the I-80 corridor in Pennsylvania is the gateway to over 300 miles of one of the most important transportation and goods movement corridors in the state. This section of I-80 supports the economic backbone of Monroe County and the Stroudsburg-Pocono region. As the region’s population and economy continue to grow, the I-80 corridor will play an increasingly important role in the future.

PROGRAM OVERVIEW

A corridor study such as this can only reflect community needs if local interests – elected officials, residents and commuters alike – participate in the identification of transportation problems and potential solutions. Early participation by citizens and officials helps to ensure continuous support during the ongoing development of improvement projects. The goal is not only to increase the numbers of local participants, but also to maintain a balance in the diversity of those represented interests.

In order to meet the needs of local residents, commuters and stakeholders, PennDOT engaged in a robust public involvement and community outreach program.

Elements of the program included:

- one-on-one interviews with local stakeholders;
- one set of Public Meetings held during the project planning process;
- ongoing coordination with legislative and municipal officials;
- ongoing coordination with other agencies, including the Delaware River Joint Toll Bridge Commission (DRJTBC);
- informational materials mailed directly to over 1,700 area residents and businesses;
- a study logo designed to provide a consistent appearance among various outreach materials; media releases and display advertisements in local newspapers; and
- study-related public bulletins on local access cable channels.

STAKEHOLDER INTERVIEWS

The outreach program was designed to ensure that as many interested parties were able to contribute to the I-80 corridor planning process as possible. At the beginning of the planning process, the study team engaged in a series of stakeholder interviews at two separate locations along the corridor. These interviews were designed to both inform the public of PennDOT’s planning efforts, and educate the study team on the perspectives and priorities of local residents and commuters. Stakeholders included:

- County and Regional Organizations
  - Monroe County Planning Commission
  - Monroe County Redevelopment Authority
  - Northeastern Pennsylvania Alliance (NEPA)

- Municipal Organizations
  - Borough of Delaware Water Gap
  - East Stroudsburg Borough Planning Commission
  - Jackson Township
  - Middle Smithfield Township
  - Pocono Township
  - Smithfield Township
  - Tobyhanna Township

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Program Overview

Stakeholder Interviews

Public Meetings
Pennsylvania State Police

Law Enforcement Organizations

State Park

Tobyhanna State Park/Big Pocono

The Nature Conservancy

Recreation Commission

Stroud Region Open Space & Authority

Transportation Organizations

Monroe County Transportation Authority

Open Space/Park/Environmental Conservation Organizations

Stroud Region Open Space & Recreation Commission

The Nature Conservancy

Tobyhanna State Park/Big Pocono State Park

Schools

PennDOT study team regarding local transportation access and safety issues. The interview format included maps of the study area, information on other transportation studies being conducted concurrently, and other peripheral materials, including a study fact sheet and questionnaire.

Businesses

Excel Storage Products

The stakeholder interviews were held over a two-week period in March 2005 at the Stroud Township and Pocono Township municipal buildings. Beginning early in the morning and lasting throughout the day, members of the study team met with over 30 stakeholders from 19 different organizations. The stakeholders provided insight and feedback to the PennDOT study team regarding local transportation access and safety issues. The interview format included maps of the study area, information on other transportation studies being conducted concurrently, and other peripheral materials, including a study fact sheet and questionnaire.

The stakeholder interviews offered the study team a first-hand account of local perspectives and priorities. A majority of comments received from stakeholders were related to the following:

Development Patterns – Many stakeholders expressed concern that increasing development within and adjacent to the study area was having a negative impact on the local and regional transportation network. It was suggested that the study team consider future development plans when designing proposed improvement alternatives for the I-80 corridor.

Safety – Many problems relating to safety were also identified. These included traffic concerns (both speeds and congestion) as well as geometric deficiencies (low overpasses, antiquated ramp designs and access issues).

Congestion/Capacity – From a planning perspective, many stakeholders indicated improvements needed to reduce congestion or increase capacity.

Other stakeholder comments included adding transit services, addressing truck/trailer safety, providing additional signage (including mile-markers), traffic signals, historic and environmental protection, geometric improvements, reconstructing interchanges with the corridor (including the reconstruction of low under-clearances), and constructing a new east-west roadway.

Upon completion of the stakeholder interviews, all comments were summarized and prioritized for inclusion in the potential transportation improvement concepts. The comments were also added to a study area map denoting various location and geographical references discussed during the interviews.

I-80 Corridor Study

You are invited to attend a Public Meeting

Ambulance Building in Tannersville, Pennsylvania. Attendees were able to review various displays, maps, illustrations and other relevant materials for the I-80 Corridor Study. Comments received during the Public Officials Briefing included:

- providing improvements that address the increasing commuter traffic traveling through and beyond the study area;
- ensuring that other local and parallel roadways (e.g.: PA 611) were included in the I-80 corridor study;
- reconstructing interchanges with deficient or unsafe geometry;
- providing methodologies to calm traffic along the corridor or possibly reducing speed limits.

On Monday, June 20 and Tuesday, June 21, 2005, Public Meetings were held at two separate locations in the study area: the Central Pocono Ambulance Building and the Stroudsburg High School in Stroudsburg, Pennsylvania. Both meetings were held from 5 to 8 p.m.

PUBLIC MEETINGS

In June 2005, members of the study team met with legislative and local officials during a Public Officials Briefing, and subsequently held Public Meetings at two (2) different locations along the corridor.

The Public Officials Briefing was held just prior to the First Public Meeting on Monday, June 20. Twenty-six legislators, officials and stakeholders participated in a two-hour long presentation and open question and answer session at the Central Pocono Ambulance Building in Tannersville, Pennsylvania. Attendees were able to review various displays, maps, illustrations and other relevant materials for the I-80 Corridor Study.
The I-80 Corridor in Monroe County is characterized by routine congestion, intermittent gridlock, deteriorating pavement and bridges and persistent safety concerns. The I-80 Corridor Study Team has developed a series of conceptual transportation solutions to address these problems. Two categories of transportation solutions were considered:

A. Non-capacity adding solutions (Transportation Systems Management (TSM), Intelligent Transportation Systems (ITS) and Transit initiatives); and

B. Capacity-adding solutions (Highway Improvements).

Following the passage of Pennsylvania Act 44 and as part of the application process to convert I-80 to a toll facility, the Pennsylvania Turnpike Commission (PTC) developed a capital plan for I-80 which details projects to be completed over the first 10 years of the 50-year lease period. The capital plan also includes a management strategy for years 11 through 50. The projects on the 10-year capital plan list that fall within the I-80 Corridor study limits have been incorporated into this report. These projects include ramp/interchange improvements, pavement rehabilitation (I-4R) projects and bridge replacements.

Today’s transportation industry is attempting to maximize the performance of existing transportation systems. In many cases, by providing increased operating efficiency, agencies can avoid or defer the construction of roadway improvements to add capacity. Limited financial resources and increasing costs for materials have forced transportation planning agencies to strike a balance between costly capital improvement projects and small-scale network improvements. As a result, there is a greater emphasis on techniques to remove vehicles from the highways, to consolidate trips, and/or to increase the efficiency of the existing roadway system.

For small-scale, lower-cost improvements, agencies are exploring Transportation Systems Management (TSM), Intelligent Transportation Systems (ITS), and transit solutions. These techniques can minimize the effects of incidents, such as a major crash or weather events, by helping local and state officials more quickly respond to such events and by more efficiently warning motorists to avoid the affected area. These initiatives can be thought of in three ways. They can be viewed as:

A. stand-alone solutions that, after initiation, can provide acceptable transportation service without any major highway construction;

B. interim solutions that will temporarily assist in congestion management until the needed highway improvements can take place; or

C. techniques that would function in conjunction with highway construction improvements to make the transportation system as efficient as possible.

TSM initiatives are traffic operation improvement techniques such as carpooling, encouraging telecommuting and staggered work schedules, park-and-ride, and High-Occupancy Vehicle (HOV) lanes, to increase vehicle occupancy and reduce the number of single-occupant vehicles on the road.

Some of these initiatives are already in place in the I-80 Corridor study area. There is one official park-and-ride lot at the Delaware Water Gap Welcome Center adjacent to Exit 310. This lot is

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**PART V: TRANSPORTATION SOLUTIONS**

**A. TSM, ITS and Transit Initiatives**

- TSM (Transportation Systems Management)
- ITS (Intelligent Transportation Systems)
- Transit

**B. Highway Improvement Solutions**

- Pennsylvania Turnpike Commission Committed Improvements
- Mainline Widening
- Interchange Improvements

**TSM (TRANSPORTATION SYSTEMS MANAGEMENT)**

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Some of these initiatives are already in place in the I-80 Corridor study area. There is one official park-and-ride lot at the Delaware Water Gap Welcome Center adjacent to Exit 310. This lot is
A. TSM, ITS and Transit Initiatives

well-used by commuters who carpool or take public bus service from New Jersey to New York City. Some TSM initiatives may not be applicable to Monroe County. For example, HOV lanes are a good idea in major urban areas where there is considerable short distance between major access points, but are less useful where there are many access points within a relatively short distance. However, if Express/Lane Lanes are ever implemented on I-80 in northern Virginia outside of Washington, D.C., they do increase the longevity of the roadway by minimizing the number of vehicles on the road, they do not avoid congestion but cars with 3+ occupants ride for free. HOT lanes are currently being used successfully in Orange County, CA, and are actively being considered for numerous other areas throughout the country, including the I-495 Beltway and I-95 in northern Virginia.

Carpooling, telecommuting, and staggered work hours are not currently being well promoted in the region. Since much of the traffic on I-80 consists of tourist and truck traffic, those types of drivers are not likely to change their behavior by these techniques. There is also no single major employer within the region that could provide an appreciable reduction in traffic volumes. However, Monroe County could benefit if existing employers and commuters embrace these techniques. Another potential TSM strategy is additional or improved truck weigh station areas. Although weigh stations would not reduce the number of vehicles on the road, they do increase the longevity of the roadway by providing a substantial truck weight reduction on the road. Overweight trucks cause exponentially greater pavement damage than property-weighted trucks and passenger cars. Truck weigh stations also provide area police officers to inspect trunks and enforce special safety regulations.

Some stakeholders mentioned that a high number of trash trucks travel west on I-80 from New Jersey. The staggered traffic flow causes these trucks often travel at unsafe speeds or leave debris on the roadway. Overweight trucks could be checked and possibly regulated if a weigh station were installed along westbound I-80. Potential locations include the former toll plaza, Exit 301, or on land owned by the Borough of Delaware Water Gap immediately beyond the existing Delaware River Joint Toll Bridge Commission (DRJTBC) toll plaza.

ITS (INTELLIGENT TRANSPORTATION SYSTEMS)

ITS involves the use of various technologies to maximize the operations of the existing highway system by managing traffic more effectively. From an interstate perspective, ITS focuses on managing incidents such as crashes, construction activity, weather events, or planned special events such as racing events at Pocono Raceway. These incidents can cause rapid degradation of the system, especially in peak periods when the highway has reached capacity and does not require much of a slowdown to result in major congestion.

In the case of the I-80 Corridor Study, the ITS tasks are included in the short-term (0-2 years), mid-term (2-5 years), and long-term (beyond 5 years) ITS deployment studies, including the Regional ITS Architecture and the Regional Operations Plan for the PennDOT District 5-0 Region (Berks, Carbon, Lehigh, Monroe, Northampton, and Schuylkill Counties).

The ITS involvement of the I-80 Corridor Study Team has coordinated with the PTC regarding the implementation of ITS on I-80 within the study area as part of its schedule of future construction projects and associated improvements. The PTC has budgeted $3 million per year in construction monies for ITS statewide for the first 10 years of the lease, plus additional monies for the period beyond 10 years, and to account for inflation. Although this money is for I-80 across the state, it is expected that a considerable portion of this investment will be in Monroe County as this section has the highest traffic volumes and, as such, most significant congestion problems.

The I-80 Corridor Study Team recommends several additional improvements to PennDOT’s current ITS deployment initiatives through the construction of devices along the corridor by the PTC. These recommendations were developed from other statewide and regional ITS deployment studies, including the Regional ITS Architecture and the Regional Operations Plan for the PennDOT District 5-0 Region (Berks, Carbon, Lehigh, Monroe, Northampton, and Schuylkill Counties).

The recommendations are divided into short-term (0-2 years), mid-term (2-5 years), and long-term (beyond 5 years) construction time frames to provide for ITS deployment in a fiscal responsible manner.
Closed-Circuit Television (CCTV) Camerashould be installed in the mid-term and long-term at key interchanges throughout the corridor. The CCTVCameras should provide PennDOT and other agencies to monitor traffic flows, rapidly detect an incident and assist responders. Video feeds from CCTV cameras can be potentially be provided to the public via such websites as the PennDOT website or Traffic.com.

One location where CCTV cameras will be installed is at the tolling points. Although these cameras are meant to monitor how the Open Road Towing (ORT) is operating, they can also be used for incident detection and management. At this point, the PTC has not yet finalized tolling points, however there will likely be a tolling point within the study area.

Dynamic Message Signs (DMS): In addition to the two DMS being installed as part of the North Schuylkill Creek Bypass project, numerous DMS are recommended throughout the corridor for mid-term and long-term deployment. These signs are most important at areas where there are special events, holidays, and road construction. For example, they can be used to alert drivers on northbound PA 33 in Stroudsburg concerning severe winds, as well as incidents along the I-80 corridor, and they could potentially choose to seek alternate routes.

Motorway Information System (HAR): A HAR system is recommended for implementation during the mid-term phase. This system would allow drivers to see a map of traffic conditions along the corridor, along with signs alerting drivers to tune to that particular frequency when the signs’ flashing lights are activated.

Road Weather Information System (RWIS): RWIS uses sensors to detect weather and road surface conditions. These sensors can alert PennDOT when certain critical environmental conditions occur, such as icy roads, excessive winds, and fog. RWIS is recommended for mid-term deployment.

Motorist Assistance Patrols (MAP): MAP consists of specially equipped vehicles and trained staff that can assist stranded motorists facing minor incidents. Currently, MAP provides assistance after a minor incident occurs. Currently, MAP provides assistance to major interchange accidents, such as I-78 and US 22 and in the Philadelphia and Harrisburg areas.

Due to the heavy traffic flows on I-80, the potential for more minor incidents can mean substantial reductions in traffic flow due to these incidents. The researcher proposes a MAP program recommended for mid-term deployment. This program would likely be initially limited to weekday peak hours and major events; however, it could eventually be extended to cover more hours of the day.

In addition to the above recommendations, the PTC plans to develop an ITS Communications Master Plan for all of I-80 to determine how traffic operations technicians will be able to remotely communicate and control these devices. This plan will evaluate whether those devices will be controlled from the PTC’s Traffic Operations Center (TOC) in Harrisburg, from the PennDOT District 5-O, or along major incidents. Currently, MAP provides assistance to major incidents due to excessive winds and fog. Excessive winds and fog are critical events; however, it could eventually be extended to cover more hours of the day.

A major planned transit initiative is the development of the NJ Transit Lackawanna Cut Off commuter rail line. NJ Transit has recently released a draft Environmental Assessment of the plan to restore rail service on the Lackawanna Cut Off rail line from Scranton over portions of Monroe County into New Jersey. The future traffic analysis for the I-80 Corridor Study explicitly took into consideration the projected rail line ridership. While the shift to transit would potentially reduce the amount of traffic on I-80, it would not be of sufficient volume to offset the projected demands in highway use due in the next 20 to 30 years. Like ITS and TSM, the construction and expansion of transit facilities is in conjunction with highways improvements, important in providing greater efficiency to the overall transportation network.***
T

traffic studies, interviews with local stakeholders and consideration of TSM, ITS and transit strategies have revealed that roadway improvements are necessary on the I-80 corridor in Monroe County. Without these improvements, capacity problems will increase, which may affect the local economy, regional mobility and quality of life. As the traffic situation progresses from inconvenient to intolerable, local businesses and tourists may choose to locate elsewhere and tourists may be discouraged from visiting the region. Clarity, existing conditions need to be improved.

As a result, the 18-mile corridor was divided into two sections for study. The first strategy was to develop a mainline widening concept for both the western (rural) section and the eastern (urban) section. These two sections were defined by the varied geometric characteristics of the existing corridor. Next, each interchange was evaluated separately to develop interchange improvement concepts that could provide measurable benefits and be funded and constructed independent of the mainline widening.

Pennsylvania Turnpike Commission (PTC) began developing a series of infrastructure improvements along the entire length of I-80 in Pennsylvania as part of its capital plan improvements for Monroe County from the PTC’s capital plan.

The first strategy was to develop a mainline widening project. The PTC’s capital plan improvements include pavement rehabilitation (I-4R) projects, bridge replacements, and ramp/interchange improvements. Pavement I-4R projects involve rehabilitation of the entire roadway, including pavement and other roadway and bridge features. The I-80 Corridor Study has had ongoing coordination with the PTC and has incorporated the improvements for Monroe County from the PTC’s capital plan.

The replacement of precast barriers for the length of I-80 in Monroe County is scheduled for Years 1-3. The four bridge replacement projects are scheduled for Years 4-6. These projects include: three overhead bridge replacements due to inadequate vertical clearances all near MP 310 and one feature critical bridge replacement at MP 308. All four bridge replacement projects will accommodate at least a future 6-lane section.

The PTC’s capital plan improvements at interchanges along the length of I-80. In Monroe County, improvement projects are proposed for Exits 298, 299, 305, 309 and 310 in the first 10 years after tolling begins. These interchange improvements are generally improvements to correct existing deficit geometry on interchange ramps. In addition, the reconstruction of Exit 308 is programmed for years 4-6. PenDOT has done preliminary work on this project.

Interchange improvements at Exits 299 and 309 are also included in Years 4-6. These improvements include: lengthening the acceleration lane on the eastbound I-80 on-ramp at Exit 310 and constructing an auxiliary lane on westbound I-80 between the Exits 309 on-ramp and the Exit 309 off-ramp.

Improvments to Exits 305 are included in Years 7-9. There are three proposed improvement projects at Exit 305, including: constructing an auxiliary lane on eastbound I-80 between the northbound US 209 on-ramp and the off-ramp to Main Street; extending the acceleration lane on westbound I-80 between the Sullivan Trail on-ramp and the off-ramp to PA 611/715. The improvements also include lengthening the eastbound I-80 on-ramp acceleration lane and off-ramp deceleration lane at Exit 299.

Improvments to Exits 309 and 310 are also included in Years 4-6. These improvements include: lengthening the acceleration lane on the eastbound I-80 on-ramp at Exit 310 and constructing an auxiliary lane on westbound I-80 between the Exits 309 on-ramp and the Exit 309 off-ramp.

B. HIGHWAY IMPROVEMENT SOLUTIONS
The I-80 Corridor Study evaluated and developed two categories of improvement concepts for the corridor: mainline widening and interchange improvements. Corridor-wide needs regarding the number of through lanes were evaluated to determine a recommended widening concept. Each interchange was then evaluated separately to determine improvements that could be constructed independently of the widening and function adequately on their own. An Express/Local Lanes concept evolved as an alternative mainline widening concept but was initially dismissed as part of the I-80 Corridor Study due to the associated high cost and impacts.

The engineering designs for the mainline widening and interchange improvement options were completed only to a conceptual level. These concepts and their conceptual design, environmental involve-ment, traffic operations and costs are discussed in subsequent sections.

Supporting studies conducted as part of the I-80 Corridor Study are contained in the Appendix. These studies include the Environmental Overview, Geometric Deficiencies Report, Crash Analysis Report, Origin-Destination Study Report, and the Traffic Analysis Summary and Cost Estimates for the interchange improvement options.

The mainline would have to occur outside of the existing edge of roadway in both directions. Such widening would have significant impacts on the large number of residential and commercial properties, as well as cultural and environmental resources, that lie in close proximity to the interstate.

As part of the I-80 Corridor Study, the most recent 5-year (at the time of the study) crash history of the I-80 mainline can generally be accomplished by widening on the inside into the median area. This reduces the impact of the project as the widening can mostly be constructed within the existing footprint. From Exit 303 (Ninth Street) to the eastern end of the study area, I-80 is an urban Interstate with median barrier and two travel lanes in each direction. As a result, widening of the

The Mainline – As It Exists Today

The 18-mile I-80 corridor study area in Monroe County was divided into two distinct roadway sections for study purposes: the western (rural) section and the eastern (urban) section. Between the Exit 293 (I-80/I-380) and Exit 303 (Ninth Street) interchanges, I-80 is primarily a rural Interstate with a wide grass median and two travel lanes in each direction. This section also includes a truck climbing lane on westbound I-80 between Exit 298 (Scotrun) and Exit 293 (I-80/I-380). In this section, widening of the I-80 mainline can generally be accomplished by widening on the inside into the median area. This reduces the impact of the project as the widening can mostly be constructed within the existing footprint. From Exit 303 (Ninth Street) to the eastern end of the study area, I-80 is an urban interstate with median barrier and two travel lanes in each direction. As a result, widening of the

MAINLINE WIDENING

I-80 CORRIDOR STUDY IMPROVEMENTS

I-80 Corridor Study | 2

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The Mainline – Improvement Options

The I-80 Corridor Study considered four different lane concepts for the entire corridor:

- **No-Build:** I-80 remains as is, except for necessary repaving or pavement reconstruction and bridge rehabilitation or replacement activities.

- **Three Lanes:** I-80 is widened to three lanes in each direction. The third lane could take the function of a through lane or an auxiliary weaving lane between adjacent interchanges.

- **Four Lanes:** I-80 is widened to four lanes in each direction. The fourth lane could take the function of a through lane or an auxiliary weaving lane between adjacent interchanges.

- **Express/Local Lanes Concept:** Based on origin-destination studies conducted by McCormick Taylor in 2005, nearly 50 percent of the traffic entering westbound I-80 from New Jersey is destined to points west of Exit 298 (Scotrun). There is a similar pattern for traffic entering the study area from west of Exit 298. Therefore, the study team considered separating this through traffic into “Express Lanes” which would be separated from the “Local Lanes.” This allows the through traffic to avoid all the turbulence associated with traffic entering and exiting I-80 at the local interchanges.

All widening concepts would be consistent with current Interstate highway design criteria. Through discussions with project stakeholders, the project team agreed on a recommended concept for the widening of the I-80 mainline which consists of widening I-80 to three travel lanes each direction, except for westbound I-80 between Exits 304 and 308 where four travel lanes are recommended. Cross-sections for the 6-lane widening section and 8-lane widening section are shown on the subsequent pages.
**PROPOSED URBAN TYPICAL SECTION (8-LANE WIDENING)**

**REQUIRED R/W LINE**

WESTBOUND EASTBOUND

CL 12'

SHLDR 12'

LANE 12'

LANE 12'

SHLDR 4' (AND VARIES)

LEGAL R/W LINE 62' MIN.

**146' ROADWAY WIDTH**

**CONC. MEDIAN BARRIER**

**LEGAL R/W LINE** 62' MIN.

**74' ROADWAY WIDTH**

**CLI-80**
Two different Express/Local Lane concepts were analyzed. The “2/2 Express Concept” involves widening I-80 to accommodate two express and two local lanes in each direction. The “2/3 Express Concept” involves widening I-80 to accommodate two express and three local lanes in each direction. This third lane could take the function of a through lane or an auxiliary weaving lane between adjacent interchanges. Typical sections for each Express/Local Lane concept are shown on the subsequent pages.

The express lanes could be aligned in one of three manners:

1. Located on the same alignment as the Local Lanes (existing I-80) and separated by barrier or by only striping and/or flexible delineators/pylons;

2. Located on a new alignment (i.e. a Stroudsburg bypass); or

3. Double-decked with the local lanes.

Although the last option would likely be exceptionally expensive and difficult to construct, it is worth noting that this option was very popular in the minds of the public at the public meetings.

The Express/Local Lane concept would do a better job of relieving congestion and improving safety; however, it would also require a significantly larger footprint and would have significantly higher construction costs and impacts. Therefore, in the spirit of “right-sizing” the Commonwealth’s transportation dollars, the Study Team dismissed the Express/Local Lanes concept from further consideration.
As presented in the Environmental Overview, there are numerous environmental constraints situated throughout the I-80 study corridor that will affect the decision-making process when considering the type, extent and location of improvements made in the corridor. In general, natural resource concerns will be the most prominent environmental issues in the western half of the corridor, while community and cultural resource concerns will drive many of the improvement decisions made in the eastern half of the corridor.

Western Section

Within the western half of the I-80 corridor, the mainline improvements would have involvement within an exception value (EV) watershed of Sandy Spring Run and State Game Land 38. In addition, there are numerous wetlands situated in the vicinity of the Exit 293 (I-80/I-380) interchange which could be affected by improvements and these wetlands have EV status. This part of the corridor also possesses a high potential for supporting threatened and endangered (T&E) plants and animals. Involvement in an EV watershed will place demanding constraints on the design and construction of any improvements made within its boundaries. It will be necessary to demonstrate that improvements will not alter the water quality and water volumes of the watercourses in the watershed or otherwise impair the resources. Additionally, a detailed alternatives analysis will be required to demonstrate that there are no practicable alternatives to the improvements being made in order to meet permitting requirements. Similar constraints would be associated with any impacts to the EV wetlands found in the corridor.

Encroachment into the State Game Land would affect land used by the public for hunting, trapping and recreational activities. As such, the State Game Land is considered a Section 4(f) resource and preparation of a Section 4(f) Evaluation would be required to address the encroachment.

With the vast majority of the T&E species listed as potentially being present in the corridor found in wetlands and/or woodlands, it will be essential that detailed investigations be conducted to determine the species presence/absence in the vicinity of any proposed improvements. In addition, the project corridor also supports kettlehole bogs in the vicinity of the Exit 293 (I-80/I-380) interchange. This natural community is considered to be of special importance and given regulatory protection. The

Wetlands and woodlands lying along the Western Section of the study corridor.
requirements. Of meeting stringent regulatory design -a failure to develop designs capable with design changes brought about by -affect these highly valued resources -team to identify acceptable means -coordination will enable a project -options to pursue. Undertaking early -and the most desirable improvement -with the regulatory agencies will be -thorough and early coordination -environmental features. Furthermore, -and indirect impacts to the sensitive -features will have to be undertaken -both T&E species and kettlehole -the western end of the corridor, hosts -Long Pond Natural Area, situated at -| I-80 Corridor Study -detailed investigations into the -it may be necessary to undertake -minimization efforts, prove there are -have to account for these features and -improvements. As such, design/ -floodplains, will be unavoidable -as well as the streams' associated -in the western section of the corridor. -impacts to both of these features, -as well as the streams' associated -footprints, will be unavoidable -determine potential avoidance and -improvements will encroach upon. -potential areas of concern the corridor -environmental clearance, design and -acquisitions could also affect several -partial property acquisitions. The -this part of the corridor indicate there is -this corridor improvements to -this section of the highway corridor. -The concentration of homes and -the aquatic life these high quality -stream causing significant harm to -area's streams. Excavations in this -by the widening improvements to -by the widening improvements to -monitoring and undertaking design -are affected. Additionally, the demographics of the residents along -elevating project costs due to the -Formation presents a real potential -drainage problems. The possibility -below the water table, could encounter -Formation, especially when extending -high concentrations of hydrogen and -acids, potentially resulting in acid -rock drainage. If unchecked, the acid -drainage could migrate into the area -streams causing significant harm to -the aquatic life these high quality -strings support. This concern -have to be addressed through -appropriate geological investigations and -will be a factor in determining the -as high as these qualified populations. -existence extending into the corridor -proposed corridor improvements. As -the interchange improvement efforts, -will be necessary to conduct Phase I -analyses. Although there are fewer areas with -trout production are present throughout -the study corridor, about the highway's right-of-way everywhere except -the presence and extent of reproducing -trout to determine the potential affect on the fish and their associated habitat. -Although there are fewer areas with -of these resources is high. Therefore, -will it be necessary to conduct both -archaeological and historic structures -studies with essentially any widening effort conducted in this half of the I-80 corridor. -Community resources, including -residences, businesses and services that -line I-80 in this section of the study corridor, abut the highway's right-of-way -everywhere except where the floodplains of the area's streams make their presence impractical. While making widening improvements would not likely necessitate the full acquisition of any of these homes and businesses, there -would be a measurable number of -partial property acquisitions. The -acquisitions could also affect several -local parks and the Stroudsburg -Cemetery. Any parkland involvement would be subject to Section 4(f) -evaluations and acquisition from the -Cemetery. Any parkland involvement would be subject to Section 4(f) -acquisitions could also affect several -potential for the properties affected -this part of the corridor indicate there is -a potential for the properties affected by the widening improvements to -support minority and/or poverty level -populations. As such, environmental justice evaluations would have to be carried out for any of the qualifying areas affected. -The final issue which could have a -significant effect on the design and -construction activities in the eastern section of the I-80 corridor is the potential for encountering acid rock drainage problems. The possibility of finding pyrite within the Mansfield Formation presents a real potential for delaying construction and/or -proceeding. The final issue which could have a -significant effect on the design and -construction activities in the eastern section of the I-80 corridor is the potential for encountering acid rock drainage problems. The possibility of finding pyrite within the Mansfield Formation presents a real potential for delaying construction and/or -proceeding.
The Exit 293 (I-80/I-380) interchange is a full-movement, interstate-to-interstate interchange. The eastbound I-80 off-ramp to northbound I-380 is a left-hand off-ramp and the southbound I-380 on-ramp to eastbound I-80 is a left-hand on-ramp. The westbound I-80 on- and off-ramps to and from I-380 are right-hand ramps. This interchange was recently reconstructed by PennDOT in 2004 and many of the ground-mounted and overhead guide signs along I-80 were recently upgraded as part of another PennDOT project.

Prior to these projects, the crash analysis conducted for the I-80 Corridor Study revealed a significant cluster of crashes where the two southbound I-380 lanes merge into the two eastbound I-80 lanes. As part of the interchange reconstruction project, the failing concrete pavement on eastbound I-80 was rebuilt and a small amount of additional pavement was added to extend the acceleration lanes for the southbound I-80 to eastbound I-80 merge. It is anticipated that these improvements should improve safety to some extent by providing greater pavement marking visibility and a longer distance between the merge point and the lane drops.

The crash analysis also revealed another significant cluster of crashes on the eastbound I-80 left-hand off-ramp to northbound I-380. Left-hand off-ramps violate driver expectancy for right-hand off-ramps. Also, the high percentage of trucks on I-80 can make it difficult for drivers to determine where the left-hand off-ramp to I-380 is located, causing some drivers to make sudden movements close to the ramp to get into the correct lane. The recent signing upgrades on eastbound I-80 should improve safety at the eastbound I-80 left-hand off-ramp to northbound I-380.

The existing Exit 298 (Scotrun) interchange is a partial interchange that provides access from westbound I-80 to northbound and southbound PA 611 and from southbound PA 611 to eastbound I-80. The Exit 299 (Tannersville) interchange provides full access between I-80 and PA 715. There is considerable congestion on PA 611 and PA 715, which is partially attributable to major nearby traffic generators such as Camelback Ski Resort, The Outlets at Tannersville, Great Wolf Lodge, and Great Wolf Lodge. This congestion often causes queues to back up onto the I-80 mainline, creating a serious safety concern. In addition, almost all interchange ramps have deficient designs. The crash analysis conducted for the I-80 Corridor Study revealed that all of the segments within this section of I-80 have crash rates that exceed the statewide average. One significant cluster of crashes occurred at the I-80 Corridor Study Interchange Improvements

Each interchange area was evaluated separately and improvement option concepts were developed to address existing problems and accommodate design year (2030) traffic volumes. Some interchanges in the study area are the focus of other PennDOT projects. For those interchanges, the I-80 Corridor Study did not develop additional improvement options, but discusses the improvement options already developed where appropriate. These interchanges include Exit 293 (I-80/I-380), Exits 298 (Scotrun) and 299 (Tannersville), Exit 308 (East Stroudsburg), Exit 309 (Marshalls Creek) and Exit 310 (Delaware Water Gap).

Southbound I-380 merge with eastbound I-80 The I-80 Corridor Study investigated improvement options for this interchange with the main goal being to eliminate the left-hand merges and diverges. While there is value in eliminating the left-hand off-ramp and on-ramp, the I-80 Corridor Study Team determined that because the interchange was recently reconstructed and functions relatively well, reconstruction is not a high priority and the interchange can remain in its existing configuration for the foreseeable future.

Northbound I-80 left-hand on-ramp is northbound I-380

Southbound I-80 left-hand off-ramp to northbound I-380

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Northbound I-80 left-hand on-ramp is northbound I-380

Southbound I-80 left-hand off-ramp to northbound I-380

The I-80 Corridor Study investigated improvement options for this interchange with the main goal being to eliminate the left-hand merges and diverges. While there is value in eliminating the left-hand off-ramp and on-ramp, the I-80 Corridor Study Team determined that because the interchange was recently reconstructed and functions relatively well, reconstruction is not a high priority and the interchange can remain in its existing configuration for the foreseeable future.
A traffic study for the Tannersville interchange has found that the number of crashes is likely attributable to the very short acceleration lane that presently exists at this interchange. However, PennDOT has significantly lengthened the on-ramp at this interchange, which is expected to reduce the number of crashes at this merge location.

Planning and Design in 2002, analyzed crash patterns at the intersections along PA 715. That study found a significant number of crashes at the PA 715/Sullivan Trail interchange, which is located just south of the I-80 southbound I-80 exit in Monroe County in 2005 by Pennoni Associates. The Pennoni study focused on the ultimate desired configuration.

The most ambitious build alternative involves rerouting Sullivan Trail to provide a weaving lane between the Sullivan Trail on-ramp and the off-ramp to PA 611, with an exit ramp to Prospect Street, which provides access to Stroudsburg Borough. The interchange currently is a full interchange with access to the I-80 mainline.

As part of an I-80 Corridor Study, the interchange was studied from the perspective on how best to allocate the $15 million that is available. Some improvement options for allocating that $15 million earmarks are:

- installing traffic signals with additional turning lanes on the two PA 715 off-ramps in order to reduce or eliminate queues backing up the off-ramps onto the I-80 mainline
- widening the I-80 bridge over Sullivan Trail to provide a weaving lane between the Sullivan Trail on-ramp and the westbound I-80 off-ramp to PA 611
- lengthening the eastbound I-80 on-ramp acceleration lane and off-ramp deceleration lane at PA 715

As previously mentioned, improvements to these interchanges are included in Years 4-6 of the PTC’s capital plan. The PTC improvements include adding a weaving lane on westbound I-80 between the Sullivan Trail on-ramp and the off-ramp to PA 611, and replacing the bridge in this section and lengthening the eastbound I-80 on-ramp acceleration lane and off-ramp deceleration lane at PA 715.

Another significant cluster of crashes occurred on westbound I-80 in the area between the Sullivan Trail Road on-ramp and the PA 611 off-ramp at Exit 298. These ramps are separated by approximately 1,500 feet and both ramps have very short acceleration and deceleration lane lengths.

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Another significant cluster of crashes occurred on westbound I-80 in the area between the Sullivan Trail Road on-ramp and the PA 611 off-ramp at Exit 298. These ramps are separated by approximately 1,500 feet and both ramps have very short acceleration and deceleration lane lengths.

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Exit 309 is a full interchange between I-80 and northbound US 209. The issues with this interchange are deficient vertical underclearance and a lack of acceleration and deceleration lanes. The crash analysis conducted for the I-80 Corridor Study revealed that a number of crashes occurred at the merge point for the southbound US 209 on-ramp to eastbound I-80. Most of these crashes were rear-ends and a few crashes involved vehicles hitting fixed objects. A significant contributing factor to these crashes is the deficient 100-foot long acceleration lane for this ramp. Moreover, this ramp is very heavily used as US 209 is a major arterial feeding into New Jersey. PennDOT’s SR 0209 Section 01B project, currently in the preliminary design phase, will replace the structure carrying US 209 over I-80. Another improvement that could be made to this interchange is providing a longer acceleration lane for the southbound US 209 on-ramp to eastbound I-80 to improve safety for this movement.

Exit 310 is a full interchange providing access to PA 611 and the Borough of Delaware Water Gap (DWG). This interchange has a somewhat unusual configuration. The issues with this interchange include: the westbound I-80 off-ramp located just a few hundred feet downstream of the Delaware River Joint Toll Bridge Commission (DRJTBC) toll plaza, visibly deteriorated pavement on the interchange ramps, and deficient acceleration lanes on the westbound and eastbound on-ramps. This interchange serves as the main access to the DWG Welcome Center. There is also a park-and-ride at this interchange which is routinely filled up with commuters who carpool or take private bus service to northern New Jersey/New York City area. The crash analysis conducted for the I-80 Corridor Study revealed that the crash rate on eastbound I-80 at this interchange exceeds the statewide average for similar facilities, yet the crashes did not appear to be located at any one location. This section of I-80 is characterized by a curved alignment, traffic volumes approaching capacity, and barrier or guide rail on both sides of I-80. The most common type of crash in this section was hit-fixed-object.

The I-80 Corridor Study Team discussed some concepts that were developed in 2000 for the DWG Welcome Center Comprehensive Plan. It was confirmed that, although the new DWG Welcome Center has been built, at this point there are no plans and no funds to construct any of the recommended Exit 310 ramp reconfiguration projects. The other project involving this interchange, the DRJTBC Northerly Crossings Corridor Congestion Mitigation Study, was recently completed and focuses primarily on the long-range needs of the I-80 bridge over the Delaware River and the adjacent sections of I-80 in Pennsylvania and New Jersey. The Northerly Crossings study investigated the long-term improvement of widening the bridge to six lanes, or five lanes with a movable median barrier, and considered the near term implementation of Open Road Tolling (ORT). The study recommended a further study of implementing ORT and the formation of a task force between PennDOT, NJDOT, and DRJTBC to consider the challenges of implementing any congestion mitigation solutions for the study area. The I-80 Corridor Study Team did not develop improvement option concepts for this interchange since Exit 310 will likely be analyzed in greater detail as part of the ORT study. The PTC’s capital plan improvements include lengthening the eastbound and westbound acceleration lanes in Years 4-6 and replacing 3 bridges to correct deficient vertical clearances.

Exit 309 (Marschalls Creek) Exit 310 (Delaware Water Gap)
The existing Exit 302 interchange provides access to both directions of PA 611 and northbound PA 33 from westbound I-80. There is no access between westbound I-80 and southbound PA 33. The most notable deficiencies of the current configuration are:

- The weaving section on eastbound I-80.
- The short distance between the interchange and the PA 33 intersection with PA 611. This issue is of particular concern on southbound PA 33, where drivers have a very short distance after turning onto southbound PA 33 to decide whether to stay on southbound PA 33 or take the ramp to westbound I-80.
- Traffic congestion at the intersection of PA 33 and PA 611, which is partially due to the many major movements that are routed through that single intersection.
- Deficient acceleration/deceleration lane lengths.

The crash analysis conducted for the I-80 Corridor Study found that most of the segments within this section of I-80 had crash rates close to or below the statewide average. The crashes that did occur in this area on I-80 were spread throughout the segments, with no significant clusters identified. However, PA 33 has crash rates significantly higher than the statewide average with a high number of crashes occurring where the PA 33 expressway ends at PA 611. The two most common types of crashes were rear-ends on northbound PA 33 at or approaching PA 611 and angle crashes from vehicles turning from PA 33 to northbound or southbound PA 611. This intersection is currently being modified as part of a development project. This modification should ease some congestion at the intersection and reduce driver confusion, which are likely contributing factors to the crashes in this area.

Option 1 focuses solely on improving eastbound I-80. This option involves widening eastbound I-80 to provide a collector-distributor (C-D) road to remove the weave from the mainline. In order to accommodate the addition of the C-D road, the two existing PA 33 bridges over I-80 would need to be replaced. The deficient acceleration/ deceleration lane lengths on the existing and proposed ramps on eastbound I-80 would be improved to meet current design standards and the radii would be increased to meet the criteria for a higher design speed.

Exit 302 – Improvement Options

The I-80 Corridor Study developed four interchange improvement options for this interchange to address the congestion and geometric issues and accommodate 2030 design year volumes. The first three improvement options represent ultimate solutions for the issues at this interchange. Taking into account the current infrastructure funding challenges, a fourth improvement option was developed to provide an intermediate, lower cost solution that can be constructed and improve conditions until funding is available for design and construction of the longer term solution.

Exit 302 – Preliminary Environmental Assessment

Exit 302 – As It Exists Today

Exit 302 – Constructability, System Continuity and Traffic Operations

Option 2 involves constructing a new off-ramp from eastbound I-80 to Rim Rock Road and removing the existing eastbound I-80 to northbound PA 33 loop ramp. With this configuration, the weave section on eastbound I-80 would be eliminated and the southbound PA 33 to eastbound I-80 ramp acceleration lane could be lengthened. This option also involves relocating the westbound I-80 to PA 611 ramp to a new location east of the current interchange. This configuration would allow the re-alignment of the northbound PA 33 to westbound I-80 movement to a new ramp. The existing ramp could then be relocated further south on PA 33 to improve the decision distance for southbound PA 33 traffic.

Option 3 involves widening eastbound I-80 to

Option 3 combines some elements from Options 1 and 2. Option 3 involves widening eastbound I-80 to
Section on eastbound I-80. This option would require the replacement of the PA 33 bridges over I-80. In addition, this option would remove the westbound I-80 on- and off-ramps to a new interchange on PA 611 east of the current interchange, thus shifting some of the traffic of the congested PA 33 over I-80 closer to the Rock Road.

Option 4 is an intermediate, lower cost solution that addresses the main issue with Option 3. Option 4 involves extending the exit section on eastbound I-80. This option assumes the PA 33 bridges over I-80 would not be replaced. This C-D road would be similar to those along I-80. This design involves two through lanes and a two-lane C-D road (an acceleration/dedestation lane and a weaving lane) separated by a two-foot striped area with rumble strips. This design may require a design exception.

Exit 302 – Preliminary Environmental Assessment

The type and magnitude of impacts from Exit 302 are expected to be minimal. From a community resource standpoint Option 4 would have the least impact, requiring no property acquisition. Option 1 and Option 3 would each require the acquisition of three of the more substantial options, however, none of which involve any residential partial property acquisition. Option 2 would have the most significant impact to the community resources, requiring five full and one partial property acquisitions in total, to allow for construction of the new ramps in the northeast quadrant of the Rock Road interchange. The acquisition with the greatest effect would be the removal of the C-D road, as all the resources involved in the relocation of the operations currently utilizing the facility. Option 3 would displace a single residence and have eight partial property acquisitions mostly from undeveloped or vacant land.

None of the options would affect known historic structures, but all have some potential to disturb which could be supporting archaeological resources. In Option 2, the construction of the PA 33 bridges over I-80 Corridor Study |
Exit 302 – Option 1

OVERVIEW

- Separates eastbound I-80 weave from mainline by constructing collector-distributor road
- Increases radii on eastbound I-80 loop ramps to meet current design criteria
- Existing interchange configuration remains mostly unchanged
- Requires replacement of the two PA 33 bridges over I-80
- Existing decision distance on southbound PA 33 on-ramp to westbound I-80 remains unchanged
- Traffic at PA 33/PA 611 intersection not affected

ESTIMATED COST (X 1,000)

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*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

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<tr>
<td>新建桥</td>
<td>历史道路</td>
<td>水道</td>
<td>历史道路</td>
<td></td>
</tr>
<tr>
<td>新建桥</td>
<td>历史道路</td>
<td>水道</td>
<td>历史道路</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11/30/18</th>
<th>道路</th>
<th>历史道路</th>
<th>水道</th>
<th>历史道路</th>
</tr>
</thead>
<tbody>
<tr>
<td>新建桥</td>
<td>历史道路</td>
<td>水道</td>
<td>历史道路</td>
<td></td>
</tr>
<tr>
<td>新建桥</td>
<td>历史道路</td>
<td>水道</td>
<td>历史道路</td>
<td></td>
</tr>
</tbody>
</table>
Eliminates eastbound I-80 weave by constructing new eastbound I-80 off-ramp at Rim Rock Road and removing existing eastbound I-80 off-ramp to northbound PA 33

Separates northbound and southbound PA 33 movements to westbound I-80 by relocating northbound PA 33 on-ramp to westbound I-80

Improves decision distance by realigning southbound PA 33 on-ramp to westbound I-80 and relocating exit point further south on PA 33

Removes some traffic from PA 33/PA 611 intersection by relocating westbound I-80 off-ramp to southbound PA 33/PA 611 further east on PA 611

Requires replacement of northbound PA 33 bridge over I-80

**Estimated Cost (\( \times 1,000 \))**

<table>
<thead>
<tr>
<th></th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,012</td>
<td>10,112</td>
<td>11,124</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.*
Exit 302
--- Option 3

- Separates eastbound I-80 weave from mainline by constructing collector-distributor road
- Increases radii on eastbound I-80 loop ramps to meet current design criteria
- Eliminates short decision distance on southbound PA 33 on-ramp to westbound I-80 by relocating ramp further east on PA 611

Removes some traffic from PA 33/PA 611 intersection by relocating westbound I-80 on and off-ramps further east on PA 611

Requires replacement of the two PA 33 bridges over I-80

OVERVIEW

**ESTIMATED COST ($x1,000)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterways</td>
<td>$ 1,741</td>
<td>$ 17,402</td>
<td>$ 19,143</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

I-80 Proposed Mainline
I-80 Proposed Ramp
Existing Road
Proposed Ramp
Proposed Barrier
Historic Roadway
Bridge Replacement as part of Mainline Widening
Extension of Existing Eastbound I-80 Off-Ramp Deceleration Lane
Proposed Eastbound I-80 Collector-Distributor Road
Reconstruction of Eastbound I-80 Off-Ramp
Reconstruction of Eastbound I-80 On-Ramp to Increase Radius
Bridge Replacements to Accommodate Collector-Distributor Road

Proposed Barrier to Separate Mainline and Collector-Distributor Road
Relocation of Westbound I-80 Off-Ramp
Bridge Replacements to as part of Mainline Widening
Extension of Existing Westbound I-80 On-Ramp Acceleration Lane

Proposed Eastbound I-80 Collector-Distributor Road
Reconstruction of Eastbound I-80 Off-Ramp
Reconstruction of Eastbound I-80 On-Ramp to Increase Radius
Proposed Barrier to Separate Mainline and Collector-Distributor Road
Relocation of Westbound I-80 Off-Ramp
Bridge Replacements to Accommodate Collector-Distributor Road

0 | I-80 Corridor Study

POCONO CREEK
PA 611
STROUDSBURG
PA 611
HAMILTON
POCONO
EXIT 302
Wilkes Barre & Eastern RR
BARTONSVILLE AVENUE
KROUCHER ROAD
POCONO CREEK
PA 33
PA 33
100 0 100 200 ft
80 80
Exit 302–– Option 3
Extension of Existing Westbound I-80 On-Ramp Acceleration Lane
Proposed Barrier to Separate Mainline and Collector-Distributor Road
Relocation of Westbound I-80 Off-Ramp

Extension of Existing Eastbound I-80 Off-Ramp Deceleration Lane
Proposed Eastbound I-80 Collector-Distributor Road
Reconstruction of Eastbound I-80 Off-Ramp
Reconstruction of Eastbound I-80 On-Ramp to Increase Radius
Proposed Barrier to Separate Mainline and Collector-Distributor Road
Relocation of Westbound I-80 Off-Ramp
Bridge Replacements to Accommodate Collector-Distributor Road

I-80 Corridor Study |
### Exit 302
#### Option 4 (Low Cost Option)

**OVERVIEW**
- Provides a two-lane non-barrier collector-distributor road for eastbound I-80 weaving movements separated from the two mainline through lanes.
- Widens eastbound I-80 into the existing median area to avoid replacing PA 33 bridges over I-80.

### Estimated Cost (X 1,000)

<table>
<thead>
<tr>
<th>Description</th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ 133</td>
<td>$ 1,323</td>
<td>$ 1,456</td>
</tr>
</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

---

**I-80 Proposed Mainline**

- Bridge
- Waterways

**I-80 Proposed Ramp**

- Proposed Barrier
- Field Wetlands
- NWI Wetlands
- FEMA 100 Year Floodplain

**Existing Road**

- Waterways

**Proposed Ramp Elimination**

- Historic Roadway
- Historic Railroad

---

**Non-Barrier Collector-Distributor Road**

- Striped Area with Rumble Strips

---

**Municipalities**

- Boundary

---

**Bridge**
<table>
<thead>
<tr>
<th>OPTION 1</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
<th>OPTION 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C-D Road</strong></td>
<td><strong>Rim Rock Road Ramp</strong></td>
<td><strong>C-D Road and Relocated Ramps</strong></td>
<td><strong>Intermediate Improvement</strong></td>
</tr>
<tr>
<td><strong>Construction Cost</strong></td>
<td>$1,483,000</td>
<td>$11,124,000</td>
<td>$19,143,000</td>
</tr>
<tr>
<td><strong>Constructability/MPT</strong></td>
<td>Fair</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td><strong>System Continuity</strong></td>
<td>Fair</td>
<td>Fair</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Traffic Operations</strong></td>
<td>Fair</td>
<td>Fair</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Notable Engineering Issues for Consideration</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Waterway Encroachment</strong></td>
<td>61 linear ft. of Pocono Creek and 25 linear ft. of its tributary (HQ-CWF with Natural Trout Production)</td>
<td>55 linear ft. of two Pocono Creek tributaries (HQ-CWF with Natural Trout Production)</td>
<td>61 linear ft. of Pocono Creek and 400 linear ft. of its tributary (HQ-CWF with Natural Trout Production)</td>
</tr>
<tr>
<td><strong>Wetlands Impacts</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>100-Year Floodplains Encroachments</strong></td>
<td>None</td>
<td>0.38 acre</td>
<td>None</td>
</tr>
<tr>
<td><strong>T &amp; E Species Involvement</strong></td>
<td>Potential – Forested Area</td>
<td>Potential – Forested Area</td>
<td>Potential – Forested Area</td>
</tr>
</tbody>
</table>

1. Excludes mainline widening costs
2. Placement of SWM Facilities was not evaluated in the Aquatic Resources Impacts
3. NWI and Canopy Field Investigation identified

## Exit 302 (Snydersville/Bartonsville)

### OPTION 1: C-D Road

- **Construction Cost:** $1,483,000
- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** 61 linear ft. of Pocono Creek and 25 linear ft. of its tributary (HQ-CWF with Natural Trout Production)
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** Potential – Forested Area

### OPTION 2: Rim Rock Road Ramp

- **Construction Cost:** $11,124,000
- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** 55 linear ft. of two Pocono Creek tributaries (HQ-CWF with Natural Trout Production)
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** 0.38 acre
- **T & E Species Involvement:** Potential – Forested Area

### OPTION 3: C-D Road and Relocated Ramps

- **Construction Cost:** $19,143,000
- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** 61 linear ft. of Pocono Creek and 400 linear ft. of its tributary (HQ-CWF with Natural Trout Production)
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** Potential – Forested Area

### OPTION 4: Intermediate Improvement

- **Construction Cost:** $1,456,000
- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None

### Natural/Wild Areas & Natural Landmarks

- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None

### Potential Hazardous & Residual Waste Sites Involvement

- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None

### Other Land Resources

- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None

### Historical Structures Directly Affected

- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None

### Archaeological Resources Encroachments

- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None

### Property Acquisitions

- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None

### Environmental Justice Populations

- **Notable Engineering Issues for Consideration:** None
- **Waterway Encroachment:** None
- **Wetlands Impacts:** None
- **100-Year Floodplains Encroachments:** None
- **T & E Species Involvement:** None
Exit 303 – As It Exists Today

The existing Exit 303 interchange is a half-interchange that provides access from eastbound I-80 to southbound PA 611 (Ninth Street) and from northbound PA 611 to westbound I-80. There are no significant operational issues directly associated with the interchange; however, the current configuration helps contribute to the significant levels of congestion regularly experienced on PA 611. PA 611 is rapidly developing on both sides of the bridge carrying PA 611 over the westbound I-80 on-ramp. As part of those developments, PA 611 is expected to be widened in the future to have a continuous five-lane cross section; however, the interchange bridge would have to be widened to facilitate that improvement. At least one developer has already agreed to contribute $300,000 towards widening of that structure. In addition, regional mobility is somewhat confusing and circuitous due to the missing ramps. The crash analysis conducted for the I-80 Corridor Study revealed that crashes occurred on the eastbound I-80 off-ramp to PA 611. This ramp terminus is controlled by a stop sign and queues on southbound PA 611 from the signalized intersection of PA 611 and Bridge Street routinely extend beyond the off-ramp, causing significant queuing on the off-ramp. This congestion could be a source of the reported crashes. PennDOT and Stroud Township are currently in the preliminary design phase for the SR 0611 Section 05S project, which will widen PA 611 to five lanes from the I-80 interchange through the Stroud Mall area to Phillips Street. All of the traffic signals along PA 611 would become part of a closed-loop system. This project should alleviate the queuing and congestion that occurs on the I-80 off-ramp.

Exit 303 – Improvement Options

The I-80 Corridor Study Team developed three interchange improvement options to address the issues with this interchange.

Option 1 entails the complete reconstruction of the interchange to create a full-movement, diamond interchange. This option involves realigning PA 611, constructing a new connector road and structure over I-80 and constructing four new interchange ramps.

Option 2 involves realigning the eastbound I-80 off-ramp to tie into PA 611 at a new intersection that would allow all movements from eastbound I-80 to northbound and southbound PA 611. The realigning of the ramp would be accomplished without impacting the eastbound I-80 off-ramp bridge over I-80. This option also involves constructing a short connector road from PA 611 to the existing westbound I-80 on-ramp to allow access from northbound and southbound PA 611 to westbound I-80.

Option 3 involves constructing a jog-handle along southbound PA 611 and a short connector road from PA 611 to the westbound I-80 on-ramp to accommodate movements from southbound PA 611 to the westbound I-80 on-ramp. This jog-handle could also be used by eastbound I-80 off-ramp traffic to access northbound PA 611.
Exit 303 –– Option 1

**OVERVIEW**

- Provides new full-movement diamond interchange
- Removes existing PA 611 bridge over westbound I-80 on-ramp which will allow five-lane width on PA 611
- Flattens curve on PA 611 by realigning roadway

**ESTIMATED COST (X 1,000)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Design</td>
<td>3,766</td>
</tr>
<tr>
<td>Construction</td>
<td>37,657</td>
</tr>
<tr>
<td>Total</td>
<td>41,423</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
Exit 303 – Option 2

Overview
- Allows for left and right turns from eastbound I-80 off-ramp to PA 611 by realigning and signalizing intersection
- Allows for left and right turns from PA 611 to westbound I-80 on-ramp by realigning and signalizing intersection

Estimated Cost (X 1,000)

<table>
<thead>
<tr>
<th>Description</th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-80 Proposed Mainline</td>
<td>$ 43</td>
<td>$ 429</td>
<td>$ 472</td>
</tr>
<tr>
<td>I-80 Proposed Ramp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposed Ramp Elimination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Boundary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

Estimated cost includes:
- Engineering Design
- Construction
- Total

Bridge Replacement as part of Mainline Widening
Intersection Realignment and Signalization
Bridge Replacement as Part of Mainline Widening

I-80 Proposed Mainline
I-80 Proposed Ramp
Existing Road
Proposed Ramp Elimination
Municipal Boundary

Bridge
Waterways
Historic Roadway
NWI Wetlands
FEMA 100 Year Floodplain
Waterways
Historic Roadway
NWI Wetlands
FEMA 100 Year Floodplain

Estimated Cost (X 1,000) *
Exit 303

Option 3

- Allows for left turns from eastbound I-80 off-ramp to PA 611 via jughandle

- Allows for left and right turns from PA 611 to westbound I-80 on-ramp by realigning and signalizing intersection

**ESTIMATED COST ($1,000)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Design</td>
<td>$145</td>
</tr>
<tr>
<td>Construction</td>
<td>$1,448</td>
</tr>
<tr>
<td>Total</td>
<td>$1,593</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
Exit 303 – Preliminary Environmental Assessment

Option 1 by far has the most extensive environmental impacts. This option would involve encroachment of Pocono Creek, a high quality, cold water fishery identified as supporting water fishery identified as supporting several species and involve 16 property acquisitions, one full and 15 partial. It would be the only one of the options to have a high potential of encountering an archaeology site and would require special design/construction efforts to determine the presence of pyrite associated with any discharges that would reach the watercourse. However, this effort should also be considerably less for Options 2 and 3 than what would be needed for Option 1. The impacts for Options 2 and 3 are limited in comparison with Option 1. The only issue of concern associated with Option 2 is a limited need for archaeological investigations, to name a few; the extent of these studies would be significantly less than what must be conducted for Option 1. Due to the proximity of Exit 303 to Pocono Creek, it would also be necessary to address water volume and quality issues associated with any discharges that would reach the watercourse. However, this effort should also be considerably less for Options 2 and 3 than what would be needed for Option 1.

The system continuity and operational characteristics of Option 1 are rated as “Good” and those of Options 2 and 3 are rated as “Fair”. Option 1 provides a full-movement interchange at Exit 303. Options 2 and 3 provide some additional movements at the existing interchange, but do not provide full access between both directions of I-80 and PA 611.

The traffic operations for Option 1 are rated as “Good”. All ramp (junctions) are expected to operate with acceptable levels of service in the design year of 2030. The new Connector Road interchange with ramps A and B and ramps C and D are expected to operate at acceptable levels of service in the design year. In Option 3, the new intersection of PA 611 and the new jug-handle will handle traffic and also require signalization to operate acceptably in the design year.
## Exit 303 (Ninth Street)

<table>
<thead>
<tr>
<th>OPTION 1</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full-Movement Tight Diamond</strong></td>
<td><strong>Off-Ramp Realignment</strong></td>
<td><strong>Jug-Handle and Connector</strong></td>
</tr>
<tr>
<td><strong>Construction Cost</strong></td>
<td>$41,423,000</td>
<td>$470,000</td>
</tr>
<tr>
<td><strong>Constructability/ RTF</strong></td>
<td>Fair</td>
<td>Good</td>
</tr>
<tr>
<td><strong>System Continuity</strong></td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td><strong>Traffic Operations</strong></td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Notable Engineering Issues for Consideration</strong></td>
<td>Extensive ROW impacts likely</td>
<td>None</td>
</tr>
<tr>
<td><strong>Waterway Encroachment</strong></td>
<td>187 linear ft. of Pocono Ck. (HQ-CWF with Natural Trout Production)</td>
<td>None</td>
</tr>
<tr>
<td><strong>Wetlands Impacts</strong></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>100-Year Floodplains Encroachments</strong></td>
<td>0.54 acre</td>
<td>None</td>
</tr>
<tr>
<td><strong>T &amp; E Species Involvement</strong></td>
<td>Potential – Forested Area</td>
<td>Not Likely</td>
</tr>
<tr>
<td><strong>Environmental Justice Populations Involvement</strong></td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

1. Excludes mainline widening costs
2. Placement of SWM Facilities was not evaluated in the Aquatic Resources Impacts
3. HAB and Cursory Field Investigation identified
4. Can contain pyrite, which is associated with acid drainage concerns when weathered

<table>
<thead>
<tr>
<th>OPTION 1</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential Hazardous &amp; Residual Waste Sites Involvement</strong></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Other Land Resources</strong></td>
<td>3.9 acres of Marcellus Formation</td>
<td>0.2 acres of Marcellus Formation</td>
</tr>
<tr>
<td><strong>Historic Structures Directly Affected</strong></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Archaeological Resources Encroachments</strong></td>
<td>Moderately high/ high potential = 0.57 acres</td>
<td>Moderate potential = 0.21 acre</td>
</tr>
<tr>
<td><strong>Property Acquisitions</strong></td>
<td>1 full acquisition (services) and 15 partial acquisitions (3 residential, 7 services, 2 commercial, 3 vacant)</td>
<td>None</td>
</tr>
</tbody>
</table>

---

### Exit 303 (Ninth Street) Costs

- **OPTION 1: Full-Movement Tight Diamond**
  - Construction Cost: $41,423,000
  - Total Cost: $41,423,000

- **OPTION 2: Off-Ramp Realignment**
  - Construction Cost: $470,000
  - Total Cost: $470,000

- **OPTION 3: Jug-Handle and Connector**
  - Construction Cost: $1,500,000
  - Total Cost: $1,500,000

---

### Exit 303 (Ninth Street) Issues

- **Constructability/ RTF**
  - OPTION 1: Fair
  - OPTION 2: Good
  - OPTION 3: Good

- **System Continuity**
  - OPTION 1: Good
  - OPTION 2: Fair
  - OPTION 3: Fair

- **Traffic Operations**
  - OPTION 1: Good
  - OPTION 2: Good
  - OPTION 3: Good

---

### Exit 303 (Ninth Street) Impact Areas

- **Environmental Justice Populations Involvement**
  - None

---

### Exit 303 (Ninth Street) Acquisitions

- **OPTION 1: Full-Movement Tight Diamond**
  - 1 full acquisition (services) and 15 partial acquisitions (3 residential, 7 services, 2 commercial, 3 vacant)

- **OPTION 2: Off-Ramp Realignment**
  - None

- **OPTION 3: Jug-Handle and Connector**
  - 2 full acquisitions (services) and 1 partial acquisition (commercial)
Exits 304, 305, and 306 – As They Exist Today

Exits 304, 305 and 306 were considered as one interchange system for the purposes of developing improvement options for the I-80 Corridor Study. Exit 304 is a partial interchange between I-80 and US 209 which provides access from westbound I-80 to southbound US 209 and from northbound US 209 to eastbound I-80. Exit 305 is a full-movement interchange between I-80 and Main Street (Bus. 209). Exit 306 is a partial interchange between I-80 and Dreher Avenue which provides access from westbound I-80 to Dreher Avenue, and from Dreher Avenue to eastbound I-80.

The most notable deficiencies of the current interchanges include:

- The short weaving segment on westbound I-80 between the Exit 305 on-ramp from Main Street and the Exit 304 off-ramp to southbound US 209;
- The deficient acceleration lane length for traffic merging from northbound US 209 onto eastbound I-80;
- The deficient ramp curvature on the Exit 305 interchange ramps;
- The lack of a full interchange at Dreher Avenue; and
- The confusing nature of these interchanges which inhibit easy access between US 209, Business 209, and the Stroud Mall area of PA 611.

The crash analysis conducted for the I-80 Corridor Study revealed that many roadway segments within these interchanges were not adequately protected.
interchanges have crash rates that greatly exceed the statewide average, including the eastbound I-80 segment where northbound US 209 merges as well as the segment of US 209 approaching eastbound I-80 at Exit 304. One likely contributing factor for the high crash rates is the merge from two lanes to one lane on northbound US 209, followed soon thereafter by a sharp curve and short acceleration lane for merging onto eastbound I-80. On the westbound I-80 off-ramp to southbound US 209 at Exit 304, there were a number of crashes that involved vehicles driving too fast on the sharp curve. These high speeds resulted in either hit-fixed-object or non-collision (overturned vehicle) crashes. The majority, but not all, of these crashes involved small trucks or large trucks. These occurred despite the presence of large “Truck Slowdown” signs with flashing yellow lights and 35-mph advisory speed plates.

At Exit 306, there were no significant occurrences of crashes on I-80, Dreher Avenue or the Exit 306 ramps. Both Dreher Avenue and the Exit 306 ramps are relatively lightly used roadways. One possible short-term improvement could be painting “Curve Ahead” pavement markings on the westbound I-80 off-ramp to southbound US 209, given the history of crashes even with the flashing lights and signs currently in place.

Another slightly more expensive interim alternative would be a truck rollover warning system, similar to the system in place at the I-83/PA 581 “York Split” interchange in Cumberland County in District 8-G. The system would use radar or loop sensors to detect when a vehicle is going too fast to safely navigate that curve. When a speeding vehicle is detected, flashing lights and/or blank-out signs would activate, warning the driver to slow down.

The PTC’s capital plan includes providing an acceleration lane for the northbound US 209 to eastbound I-80 ramp acceleration and deceleration lanes at Exit 305 in Years 7-9.

Exits 304, 305 and 306 – Improvement Options

The I-80 Corridor Study team developed five improvement option concepts for this location to address the noted deficiencies of these interchanges and to accommodate design year (2039) traffic volumes. Option 1 focuses primarily on westbound I-80 and the improvements are aimed at improving the westbound I-80 ramp acceleration and deceleration lanes at Main Street (Bus. 209) and at Main Street. In addition, a weaving lane would be provided on eastbound I-80 between the northbound US 209 on-ramp and the new off-ramp to Dreher Avenue. The Dreher Avenue interchange (Exit 305) remains unchanged in this option.

Option 3 is a hybrid of Options 1 and 2. It includes the same improvements for eastbound I-80 as in Option 2 and the same new half-diamond interchange between Main Street (Bus. 209) and US 209 as in Option 1. On westbound I-80, Option 3 includes relocating the westbound I-80 off-ramp to Main Street further east as in Option 1 and constructing a westbound C-D Road between Main Street and Dreher Avenue as in Option 2. The new off-ramp and westbound C-D Road would merge together and form a new intersection with this new Main Street on-ramp to westbound I-80. As in Option 1, this ramp would be relocated so that this traffic does not merge onto I-80 until after....
the off-ramp to southbound US 209. Also, the traffic on southbound US 209 would have to use the new half-diamond interchange.

Option 4 includes many of the same treatment as in Option 3: construction of the eastbound and westbound C-D roads, elimination of the westbound I-80 ramps and construction of a weaving lane on eastbound I-80. This option also involves reconfiguring the westbound I-80 on- and off-ramps but in a different fashion than Option 3. Option 4 relocates the Main Street on-ramp to westbound I-80 so that access to I-80 will be from Dreher Avenue C-D road. This new on-ramp would branch off of the eastbound C-D road. This option also includes removing the existing westbound I-80 off-ramp at Main Street and realigning the westbound I-80 off-ramp to Dreher Avenue to tie into a new interchange with the new westbound C-D road. This option creates a full interchange at Dreher Avenue and eliminates the interchange at Main Street.

Option 5 is intended to address the main issue with these interchanges — the short weaving length on westbound US 209. Options 304 and Exit 305. This option involves moving the entire interchange to a half-diamond interchange and eliminates the interchange at Main Street. This option also involves reconfiguring the westbound I-80 on- and off-ramps and a different fashion than Option 3. Option 5 relocates the Main Street off-ramp to westbound I-80 so that access to I-80 will be from Dreher Avenue C-D road. This new on-ramp would branch off of the eastbound C-D road. This option also includes removing the existing westbound I-80 off-ramp at Main Street and realigning the westbound I-80 off-ramp to Dreher Avenue to tie into a new interchange with the new westbound C-D road. This option creates a full interchange at Dreher Avenue and eliminates the interchange at Main Street.

The demographics of the residents along US 209 (Exit 304 and Exit 305) indicate there is a potential for the properties being affected by the five options to possess high density and to be occupied primarily by lower income residents. As such, the environmental assessments will have to be carried out for any interchange alternative selected so that the environmental justice community facilities combined with the magnitude of the interchange change will be considered for any option considered for design/construction.

As there are no known eligible or listed historic resources located within the proposed footprint of the I-80 corridor, the option 4 is the least intrusive in this area and therefore has the least chance of encountering a species of concern. Options 3 and 4 and option 5 could have a significant effect on the environment and may require some level of additional analysis to determine the extent of potential impacts.

It appears Options 1 and 5 satisfy the wetland impact permitting requirements. It is possible that all of the options will have to be considered for wetland permitting due to the presence of large groupings of wetlands in the corridor. As a result of the EV status they possess due to their association with the former railroad bed. This resource would have to be evaluated as part of the historic and archaeology studies with whatever option moves forward.

From an archaeology impact standpoint, Options 1, 3, and 5 will be evaluated against the New Jersey Wetlands Act and Environmental Justice Act. From an archaeology impact standpoint, Options 1 and 5 currently appear to address the least at 6. One of the parkway acquisitions with Options 3 and 2 would involve the Strabane Boatyard. This involvement will place a more significant burden on the environmental clearance, design and construction efforts associated with Options 2 and 3 than would occur with Options 1, 4 and 5.

The woodland area, and the wetlands found within, is the main location that could support threatened/ endangered species in this portion of the I-80 corridor. Option 4 is the least intrusive in this area and therefore has the least chance of encountering a species of concern. Options 3 and 1 currently appear to address the least chance of encountering a species of concern. Options 3 and 1 will have other significant adverse effects on species of concern. Options 1, 3 and 5 would not involve a wetland or have other significant adverse effects on species of concern. Options 1 and 5 have the least impact to EV wetlands.

Additionally, impacts to an EV wetland are not permissible unless the proposed project is necessary to abate a substantial threat to public health or safety and meets the seven impacts to the species of concern. Options 1, 3 and 5 currently appear to address the least at 6. One of the parkway acquisitions with Options 3 and 2 would involve the Strabane Boatyard. This involvement will place a more significant burden on the environmental clearance, design and construction efforts associated with Options 2 and 3 than would occur with Options 1, 4 and 5.

The woodland area, and the wetlands found within, is the main location that could support threatened/ endangered species in this portion of the I-80 corridor. Option 4 is the least intrusive in this area and therefore has the least chance of encountering a species of concern. Options 3 and 1 currently appear to address the least chance of encountering a species of concern. Options 3 and 1 will have other significant adverse effects on species of concern. Options 1 and 5 have the least impact to EV wetlands.

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The woodland area, and the wetlands found within, is the main location that could support threatened/ endangered species in this portion of the I-80 corridor. Option 4 is the least intrusive in this area and therefore has the least chance of encountering a species of concern. Options 3 and 1 currently appear to address the least chance of encountering a species of concern. Options 3 and 1 will have other significant adverse effects on species of concern. Options 1 and 5 have the least impact to EV wetlands.
Exits 304, 305 and 306 -- Option 1

OVERVIEW

- Eliminates westbound I-80 weave between Exits 304 and 305 by constructing new on-ramp barrier-separated from existing off-ramp.
- Improves access between Main Street (Bus. 209) and US 209 and removes some traffic from eastbound I-80 off-ramp at Exit 305 via new half-interchange.
- Improves geometry of eastbound I-80 Exit 306 ramps.

ESTIMATED COST (X 1,000) *

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Design</td>
<td>$4,289</td>
</tr>
<tr>
<td>Construction</td>
<td>$42,973</td>
</tr>
<tr>
<td>Total</td>
<td>$47,261</td>
</tr>
</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

Exits 304, 305 and 306 -- Option 1

OVERVIEW

- Eliminates westbound I-80 weave between Exits 304 and 305 by constructing new on-ramp barrier-separated from existing off-ramp.
- Improves access between Main Street (Bus. 209) and US 209 and removes some traffic from eastbound I-80 off-ramp at Exit 305 via new half-interchange.
- Improves geometry of eastbound I-80 Exit 306 ramps.

ESTIMATED COST (X 1,000) *

<table>
<thead>
<tr>
<th>Item</th>
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<tbody>
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<td>$47,261</td>
</tr>
</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
**Exits 304, 305 and 306 -- Option 2**

**OVERVIEW**
- Provides lane for eastbound I-80 weave between Exits 304 and 305
- Relocates eastbound I-80 on/off movements at Exit 305 to Exit 306 interchange by constructing new ramps and eastbound collector-distributor road
- Improves access between Dreher Avenue, Main Street and westbound I-80 by constructing westbound collector-distributor road

**ESTIMATED COST (X 1,000)**

| Item                          | Cost 
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Engineering Design</td>
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<td>Construction</td>
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<td>Total</td>
<td>$36,207</td>
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</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

---

**Addition of Lane for Eastbound I-80 Weaving Movement**

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<thead>
<tr>
<th>Exit</th>
<th>Item</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>306</td>
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<td></td>
<td>On- and Off-Ramps</td>
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**Addition of Lane for Westbound I-80 Weaving Movement**

<table>
<thead>
<tr>
<th>Exit</th>
<th>Item</th>
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<tbody>
<tr>
<td>304</td>
<td>Bus 209</td>
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<td>306</td>
<td>Realignment of Eastbound I-80</td>
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</tr>
<tr>
<td></td>
<td>Off-Ramp Deceleration Lane</td>
<td></td>
</tr>
</tbody>
</table>

**Realignment of Eastbound I-80 On- and Off-Ramps**

<table>
<thead>
<tr>
<th>Exit</th>
<th>Item</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>304</td>
<td>Realignment of Existing</td>
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</tr>
<tr>
<td></td>
<td>Westbound I-80 Off-Ramp</td>
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</tr>
<tr>
<td>305</td>
<td>Extension of Eastbound I-80</td>
<td>$32,915</td>
</tr>
<tr>
<td></td>
<td>On-Ramp Acceleration Lane</td>
<td></td>
</tr>
</tbody>
</table>

**Realignment of Westbound I-80 Off-Ramp**

<table>
<thead>
<tr>
<th>Exit</th>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>304</td>
<td>Realignment of Existing</td>
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</tr>
<tr>
<td></td>
<td>Westbound I-80 Off-Ramp</td>
<td></td>
</tr>
</tbody>
</table>

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**Estimated Cost**

<table>
<thead>
<tr>
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<th>Cost</th>
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<td>Construction</td>
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<tr>
<td>Total</td>
<td>$36,207</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
**Exits 304, 305 and 306 -- Option 3**

**OVERVIEW**
- Provides lane for eastbound I-80 weave between Exits 304 and 305
- Eliminates westbound I-80 weave between Exits 304 and 305 by constructing new on-ramp barrier-separated from existing off-ramp
- Improves access between Main Street (Bus. 209) and US 209 via new half-interchange
- Improves geometry of eastbound and westbound I-80 Exit 305 ramps
- Improves access between Dreher Avenue, Main Street and I-80 by constructing eastbound and westbound collector-distributor roads

**ESTIMATED COST (X 1,000)**

<table>
<thead>
<tr>
<th>Engineering Design</th>
<th>$ 5,375</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$ 53,745</td>
</tr>
<tr>
<td>Total</td>
<td>$ 59,120</td>
</tr>
</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

---

**PROPOSED IMPROVEMENTS**

- **Bridge Replacement to Accommodate Proposed On-Ramp**
- **Bridge Replacement as part of Mainline Widening**
- **Proposed Barrier to Separate Westbound I-80 Off- and On-Ramps**
- **Extension of Westbound I-80 Off-Ramp Deceleration Lane**
- **Removal of Existing Westbound I-80 On- and Off-Ramps**
- **Proposed Westbound I-80 On-Ramp**
- **Proposed Westbound I-80 Off-Ramp**
- **Proposed Northbound US 209 Off-Ramp**
- **Proposed Southbound US 209 On-Ramp**
- **Proposed Northbound US 209 On-Ramp**
- **Addition of Lane for Eastbound I-80 Weaving Movement**
- **Bridge Replacement to Accommodate Weave Lane**
- **Realignment of Eastbound I-80 On- and Off-Ramps**
- **Proposed Eastbound Collector-Distributor Road**
- **Proposed Westbound Collector-Distributor Road**
- **Extension of Eastbound I-80 On-Ramp Acceleration Lane**

**PROPOSED IMPROVEMENTS**

- **Bridge Replacement to Accommodate Proposed On-Ramp**
- **Bridge Replacement as part of Mainline Widening**
- **Proposed Barrier to Separate Westbound I-80 Off- and On-Ramps**
- **Extension of Westbound I-80 Off-Ramp Deceleration Lane**
- **Removal of Existing Westbound I-80 On- and Off-Ramps**
- **Proposed Westbound I-80 On-Ramp**
- **Proposed Westbound I-80 Off-Ramp**
- **Proposed Northbound US 209 Off-Ramp**
- **Proposed Southbound US 209 On-Ramp**
- **Proposed Northbound US 209 On-Ramp**
- **Addition of Lane for Eastbound I-80 Weaving Movement**
- **Bridge Replacement to Accommodate Weave Lane**
- **Realignment of Eastbound I-80 On- and Off-Ramps**
- **Proposed Eastbound Collector-Distributor Road**
- **Proposed Westbound Collector-Distributor Road**
- **Extension of Eastbound I-80 On-Ramp Acceleration Lane**

**ESTIMATED COST (X 1,000)**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Construction</td>
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<tr>
<td>Total</td>
<td>$ 59,120</td>
</tr>
</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
Exits 304, 305 and 306 — Option 4

OVERVIEW

- Provides lane for eastbound I-80 weave between Exits 304 and 305
- Eliminates westbound I-80 weave between Exits 304 and 305 by relocating Exit 305 on and off-ramps to Exit 306
- Improves access between Main Street (Bus. 209) and US 209 via new half-interchange
- Improves geometry of eastbound I-80 Exit 305 ramps
- Improves access between Dreher Avenue, Main Street and I-80 by constructing eastbound and westbound collector-distributor roads

ESTIMATED COST (X 1,000)

<table>
<thead>
<tr>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 3,720</td>
<td>$ 37,198</td>
<td>$ 40,918</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

Proposed Northbound US 209 On-Ramp
Proposed Southbound US 209 Off-Ramp
Bridge Replacement as part of Mainline Widening
Extension of Westbound I-80 Off-Ramp: Deceleration Lane
Removal of Existing Westbound I-80 On- and Off-Ramps
Proposed Westbound Collector-Distributor Road
Proposed Westbound I-80 On-Ramp
Realignment of Westbound I-80 Off-Ramp
Proposed Eastbound Collector-Distributor Road
Proposed Eastbound I-80 On-Ramp
Realignment of Eastbound I-80 Off-Ramp
Removal of Existing Eastbound I-80 On- and Off-Ramps
Addition of Lane for Eastbound I-80 Weaving Movement
Bridge Replacement to Accommodate Weave Lane
Extension of Eastbound I-80 On- and Off-Ramps
Realignment of Eastbound I-80 Off-Ramp

ESTIMATED COST (X 1,000)

<table>
<thead>
<tr>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 3,720</td>
<td>$ 37,198</td>
<td>$ 40,918</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
Exits 304, 305 and 306 — Option 5

OVERVIEW

- Provides collector-distributor road separated from mainline for westbound I-80 Exits 304 and 305 on and off movements
- Westbound I-80 bridge over Main Street (Bus. 209) does not have to be replaced; it can be widened to accommodate collector-distributor road

ESTIMATED COST (X 1,000)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost (X 1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Design</td>
<td>$ 3,095</td>
</tr>
<tr>
<td>Construction</td>
<td>$ 30,947</td>
</tr>
<tr>
<td>Total</td>
<td>$ 34,042</td>
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</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

ESTIMATED COST (X 1,000)

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<th>Cost (X 1,000)</th>
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</thead>
<tbody>
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<tr>
<td>Total</td>
<td>$ 34,042</td>
</tr>
</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
concerns have the greatest potential to significantly affect project costs and timing. Geological investigations and appropriate design/construction practices will have to be conducted regardless of the option pursued in order to ensure acid drainage does not become a major issue as a result of earthmoving activities.

While not as significant a factor as the pyrite concern, both the hazardous waste sites and floodplains found within the project area will have an effect on project design and cost. Options 3 through 5 would involve the same five or six known potential hazardous waste sites. This result is nearly uniform to the need to conduct appropriate hazardous waste investigations and remediation, as necessary, the need for remediation action. Option 5 would involve just two of the hazardous waste sites, reducing but not eliminating the need for hazardous waste investigations and the potential need for remediation.

The floodplain encroachments projected for Options 2, 3 and 4 are also fairly uniform and would result in similar design efforts. Options 1 and 5 have significantly lower involvement with the area’s floodplains. None of the floodplain encroachments are expected to be significant enough to require the need for floodplain mapping or revisions, but all will require analysis to demonstrate this is the case.

Exits 304, 305 and 306 – Connection System Continuity and Traffic Operations

The constructability, system continuity and traffic operations of all options were analyzed. Table 7.1 provides the constructability for all five options as of the design in January. There are no major constructability issues for all five options. While the maintenance of unsealable Movement and Protection of Traffic (MPT) issues, yet all five options will require extensive analysis of the project staging during the design phase. The cost of the Option 1 I-80, Main Street (Bus. 209) and US 209 is not likely to be affected by construction. In addition, the US 209 retaining wall adjacent to Pocono Creek on the westbound US 209 may present constructability issues.

The system continuity and traffic operations ratings of the five options vary. Option 1 is rated as having “Fair” system continuity and traffic operations. This option eliminates the I-80 weaving movement, allows some traffic to avoid I-80 entirely through the use of the new Main Street/US 209 half-interchange, and provides room for the westbound I-80 weave movement. All ramp junctions analyzed in Option 1 are expected to operate acceptably (LOS D or better) in the design year. The eastbound I-80 weaving movement between the US 209 on-ramp and CO road is not expected to operate acceptably in the design year. All intersections are rated as having “Good/Fair” system continuity and Traffic Operations.

The system continuity and traffic operations of the five options were analyzed. The project staging during the design year. The cost of the I-80 weaving movement, allows some traffic to avoid I-80 entirely through the use of the new Main Street/US 209 half-interchange and provides room for the I-80 weaving movement, although the Option 3 proposed weave section length is slightly shorter than the existing length. This option also does not make any improvements to the existing westbound I-80 weaving movement or to access between US 209 and Main Street. All ramp junctions analyzed in Option 3 are expected to operate acceptably in the design year, except for the Dreher Avenue on-ramp to eastbound I-80. The eastbound I-80 weaving movement between the US 209 on-ramp and Main Street off-ramp and the westbound I-80 weave section between the US 209 on-ramp and US 209 off-ramp are not expected to operate acceptably in the design year. All intersections analyzed are expected to operate acceptably, although the Main Street and Dreher Avenue intersections with the eastbound and westbound CO road and the Main Street intersection with the US 209 off-ramp will require signalization.

The system continuity and traffic operations of Option 5 are rated as “Fair”. This option separates the westbound weaving movements and on/off movements at Exits 304 and 305 from the mainline but does not address any deficiencies in the eastbound weaving movement. Option 5 is rated as having “Fair” system continuity and Traffic Operations. Like Option 1 and Option 3, the proposed weaving movement, allows some traffic to avoid I-80 entirely through the use of the new Main Street/US 209 half-interchange and provides room for the eastbound I-80 weaving movement, although the Option 2 proposed weave section length is slightly shorter than the existing length. This option also provides improved connections between Main Street, Dreher Avenue and I-80 with the new westbound I-80 on-ramp and US 209 off-ramp. The eastbound I-80 weaving movement between the US 209 on-ramp and the US 209 off-ramp are not expected to operate acceptably.
Exits 304, 305 and 306 (Southbound US 209, Business 209/Main Street, and Dreher Avenue)

<table>
<thead>
<tr>
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<th>Construction Cost</th>
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<th>$36,207,000</th>
<th>$53,120,000</th>
<th>$40,918,000</th>
<th>$34,042,000</th>
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</thead>
<tbody>
<tr>
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<td>6.5 acres of Marcellus Formation</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<tr>
<td>Electrical &amp; Mechanical Services</td>
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<td>Moderate</td>
<td>Fair</td>
<td>Fair</td>
<td>Fair</td>
<td>Fair</td>
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<td>System Continuity</td>
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<td>Fair/Poor</td>
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<td>Extensive ROW impacts likely</td>
<td>Extensive ROW impacts likely</td>
<td>Extensive ROW impacts likely</td>
<td>Moderate ROW impacts</td>
<td>Extensive ROW impacts likely</td>
</tr>
<tr>
<td>Retaining wall required along Pocono Creek</td>
<td>Retaining wall required along Pocono Creek</td>
<td>Retaining wall required along Pocono Creek</td>
<td>Retaining wall required along Pocono Creek</td>
<td>Retaining wall required along Pocono Creek</td>
<td>Moderate ROW impacts</td>
<td>Extensive ROW impacts likely</td>
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<tr>
<td>Waterway Encroachment</td>
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<td>45 linear ft. of McMichael Creek</td>
<td>30 linear ft. of McMichael Creek</td>
<td>23 linear ft. of McMichael Creek</td>
<td>23 linear ft. of McMichael Creek</td>
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<tr>
<td>Hydrological &amp; Biotic Impacts</td>
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<td>0.31 acre of exceptional value</td>
<td>0.35 acre of exceptional value</td>
<td>0.32 acre of exceptional value</td>
<td>0.13 acre of exceptional value</td>
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<tr>
<td>100-Year Floodplains Encroachments</td>
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<td>1.41 acre</td>
<td>1.48 acre</td>
<td>0.36 acre</td>
<td>0.13 acre of exceptional value</td>
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</tbody>
</table>

1. Excludes mainline widening costs
2. Placement of SWM Facilities was not evaluated in the Aquatic Resource Impacts
3. Inland and Curlytail Fish Investigation identified
4. Can contain pyrite, which is associated with acid drainage concerns when weathered

<table>
<thead>
<tr>
<th>OPTION 2</th>
<th>OPTION 3</th>
<th>OPTION 4</th>
<th>OPTION 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastbound and Westbound C-D Roads</td>
<td>Westbound Improvements &amp; Half-Interchange, Eastbound and Westbound C-D Roads</td>
<td>Westbound Improvements &amp; Half-Interchange, Eastbound and Westbound C-D Roads</td>
<td>Eastbound and Westbound C-D Roads and Half-Interchange</td>
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<tr>
<td>Potential Hazardous &amp; Residual Waste Sites Involvement</td>
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<td>None</td>
<td>None</td>
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<tr>
<td>Other Land Resources</td>
<td>3.4 acres of Marcellus Formation</td>
<td>6.5 acres of Marcellus Formation</td>
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<tr>
<td>Environmental Justice Populations Involvement</td>
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<tr>
<td>Exits in the I-80 Corridor Study</td>
<td>$47,271,000</td>
<td>$36,207,000</td>
<td>$53,120,000</td>
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1. Excludes mainline widening costs
2. Placement of SWM Facilities was not evaluated in the Aquatic Resource Impacts
3. Inland and Curlytail Fish Investigation identified
4. Can contain pyrite, which is associated with acid drainage concerns when weathered
Exit 307 – As It Exists Today

Exit 307 is actually two closely spaced half-interchanges that provide access to downtown Stroudsburg – one half-interchange between eastbound I-80 and Park Avenue (Route 611) and one half-interchange between westbound I-80 and Broad Street (Route 191).

The existing deficiencies with these interchanges are:

- The confusing nature of the existing interchanges
- The lack of a clear, identifiable intersection between Stroudsburg and I-80
- Deficient acceleration and deceleration lane lengths; and

- The Broad Street Bridge over I-80 has a deficient 14’6” under clearance.

The crash analysis conducted for the I-80 Corridor Study revealed a number of crashes at the westbound I-80 off-ramp intersection with Broad Street. A majority of these crashes were rear-end crashes and occurred between the hours of 4:00 and 6:00 PM which is likely a result of afternoon peak-hour congestion on PA 611 causing queues on the westbound I-80 off-ramp.

The Congested Corridors Improvement Program (CCIP) Report prepared by Edwards & Kelcey in 2002 for the PA 611 corridor also identified a high number of crashes at the Five Points intersection of Main Street, Broad Street and Ann Street. There is an ongoing project at that intersection to improve the signage and signal indications controlling movement through that intersection.

Exit 307 – Improvement Options

The I-80 Corridor Study team developed five improvement option concepts for this location. These five improvement options represent ultimate solutions for the issues at this interchange. Taking into account the current infrastructure funding challenges, the team brainstormed some smaller-scale improvement ideas that can be constructed and improve conditions until funding is available for design and construction of the ultimate solution.

Options 1A and 1B involve constructing a full-movement diamond interchange at Broad Street and removing the partial interchange at Park Avenue. Option 1A is a single interchange. Both options create a single interchange. However, both options would require the replacement of three structures: the Park Avenue bridge over I-80, the Broad Street bridge over I-80, and the I-80 bridge over Broadhead Creek. Option 2 is similar to Option 1A in that it provides a single full-movement diamond interchange at Broad Street. Option 2 also removes the Park Avenue on-ramp to eastbound I-80; however, it includes the realignment of the existing eastbound I-80 off-ramp to Park Avenue and the addition of a one-way connector road between Park Avenue and Broad Street. This configuration maintains direct access to Park Avenue from eastbound I-80 while also providing a direct link to Broad Street from Park Avenue and eastbound I-80. This option would require the same three structure replacements as in Options 1A and 1B.

Option 2 involves creating a single full-movement interchange with Broad Street, and also includes the realignment of Broad Street onto a new alignment perpendicular to I-80. With this configuration, the realigned I-80 would be tied to Lee Avenue to the south at its intersection with Colbert Street. This option would include off-site improvements to Lee Avenue, the Broad Street and Colbert Street intersection, and the five-leg intersection of Broad Street, Main Street and Ann Street in downtown Stroudsburg. The new Broad Street bridge would need to be designed to avoid impacts to the existing and proposed McMichael’s Creek hiking trails. This option also requires the replacement of the Park Avenue bridge over I-80 and the I-80 bridge over Broadhead Creek.

Option 4 includes the same realignment of Broad Street as in Option 3, but does not include creating a new single full-movement interchange. The existing westbound I-80 on- and off-ramps would be realigned to tie into the new Broad Street alignment, but the existing
The study team also brainstormed two other smaller-scale improvement ideas to address the deficient acceleration lane on I-80 under the Park Avenue bridge. Also, Option 4 would require the same two other bridge replacements as Option 3.

Exit 307 – Preliminary Environmental Assessment

In viewing the five design options for this interchange improvement, two options are considerably more detrimental to natural resources than the others (Options 1A and 1B) and 2 both have more significant impacts on the area’s wetlands and high quality natural burial/cremation streams. They also have greater potential for adverse effects during the construction, floodplain involvement, obtaining of right-of-way from the local park. While the full property acquisitions associated with Options 1A and 2 will be only slightly higher than those for Options 3 and 4, the partial acquisitions would be considerably greater.

While it seems apparent the impacts associated with Option 2 (the idea of an interchange) would favor a decision from a natural resource and for pursuing either Option 3 or 4, there is one potential impact the latter options will have that is rated as “Fair/Good”. Both of these options presented here include:

- Avoidance and minimization of impacts to the area’s high quality natural burial/cremation streams and wetlands (including alternatives analysis).
- Design of appropriate control measures to prevent a change in water quality and volume within the area’s streams.
- Environmental Justice evaluations and noise impact analysis in affected residential and community service areas.
- Cultural resource evaluations (historic and archaeology) associated with potential impacts to the former Wilkes-Barre and Eastern Railroad, the Stroudsburg Historic District, and the eastbound McMichael Creek’s streams.
- The unintended and species evaluations, particularly in areas associated with woodlands and wetlands.
- Hazardous/residual waste involvement.
- Floodplain impact analysis. Scour, changes required by the agencies.

Some of the environmental studies and design considerations that will be of necessity for all of the options presented here include:

- The constructability, system continuity and traffic operations of all options were rated qualitatively. There will be significant geometric changes in this area with any option. Broad Street has an undesirable 11 percent grade crossing I-80 and the previously mentioned deficient 14½° clearance of the bridge would need to be raised to 16½° as part of any reconfiguration. Any improvement option will also present significant constructability challenges because of the proximity of McMichael Creek. Widening I-80 would require realigning ramps to minimize impacts to the creek and the Borough has constructed jogging paths quality with the new alignment. For these reasons, it is likely that I-80 will have to be widened to its full roadway width to the south and north.

The constructability of Options 1A, 1B and 2 is rated as “Fair/Poor”. In addition to the previous constructs, the constructability studies related to McMichael Creek, the interchange replacement of the two bridges, Park Avenue over I-80 and Park Avenue over I-80 and the constructability and maintenance of traffic challenges otherwise will require an extra of the agencies.

The constructability of Options 1A, 1B and 2 is rated as “Good”. This option, similar to Options 1A and 2, creates a single interchange and eliminates the confusing nature of the existing access points to downtown Stroudsburg. The additional benefit of this option is that it may provide an opportunity to realign Broad Street to the “Five Points” intersection by realigning Broad Street. However, the new alignment of Broad Street will tie into Lee Avenue, not Broad Street and the “Five Points” intersection. In all of these options, the existing confusing nature of the access points to downtown Stroudsburg.

In all of these options, the existing confusing nature of the access points to downtown Stroudsburg.

The system continuity of Option 3 is programmed for replacement in the future, the second idea involves incorporating acceleration lanes on I-80 for the eastbound on-ramp from Park Avenue and the westbound on-ramp from Broad Street into the bridge replacement project.

Regardless of the option to be pursued for this interchange improvement, despite the early dismissal of Options 1 and 2, creates a single interchange and eliminates the confusing nature of the existing access points to downtown Stroudsburg. The additional benefit of this option is that it may provide an opportunity to realign Broad Street to the “Five Points” intersection by realigning Broad Street. However, the new alignment of Broad Street will tie into Lee Avenue, not Broad Street and the “Five Points” intersection. In all of these options, the existing confusing nature of the access points to downtown Stroudsburg.

The system continuity of Option 3 is programmed for replacement in the future, the second idea involves incorporating acceleration lanes on I-80 for the eastbound on-ramp from Park Avenue and the westbound on-ramp from Broad Street into the bridge replacement project. In all of these options, the existing confusing nature of the access points to downtown Stroudsburg.
Exit 307 — Option 1A

OVERVIEW

- Eliminates existing partial interchange at Park Avenue by constructing a full-movement Single Point Urban Interchange (SPUI) at Broad Street
- Requires replacement of two bridges over I-80 and the I-80 bridge over Broadhead Creek

ESTIMATED COST (X 1,000)

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost (X 1,000)</th>
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<tr>
<td>Engineering Design</td>
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<tr>
<td>Construction</td>
<td>$ 54,131</td>
</tr>
<tr>
<td>Total</td>
<td>$ 59,545</td>
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*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

**Bridge Replacement as part of Mainline Widening**
**Reconstruction of Westbound I-80 On-Ramp and Extension of Acceleration Lane**
**Bridge Replacement**
**Reconstruction of Westbound I-80 Off-Ramp and Extension of Deceleration Lane**

**Proposed Retaining Wall**
**Proposed Cul-De-Sac Colbert Street**
**Proposed Retaining Wall**
**Proposed Bridge Replacement to Accommodate New Ramps**

**Removal of Existing Eastbound I-80 On- and Off-Ramps**

**Estimated Costs:**
- Engineering Design: $5,414
- Construction: $54,131
- Total: $59,545

**Excludes** mainline widening, right-of-way, utility relocation and environmental mitigation costs.

**OVERVIEW**

- Exit 307 — Option 1A
- Bridge Replacement as part of Mainline Widening
- Reconstruction of Westbound I-80 On-Ramp and Extension of Acceleration Lane
- Bridge Replacement
- Reconstruction of Westbound I-80 Off-Ramp and Extension of Deceleration Lane

**Proposed Retaining Wall**
**Proposed Cul-De-Sac Colbert Street**
**Proposed Retaining Wall**
**Proposed Bridge Replacement to Accommodate New Ramps**

**Removal of Existing Eastbound I-80 On- and Off-Ramps**

**Estimated Costs:**
- Engineering Design: $5,414
- Construction: $54,131
- Total: $59,545

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.*
Exit 307 — Option 1B

OVERVIEW

- Eliminates existing partial interchange at Park Avenue by constructing a full-movement diamond interchange at Broad Street
- Requires replacement of two bridges over I-80 and I-80 bridge over Broadhead Creek

Bridge Replacement as part of Mainline Widening

**ESTIMATED COST (X 1,000)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Engineering Design</td>
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<tr>
<td>Construction</td>
<td>$ 53,152</td>
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<td><strong>Total</strong></td>
<td>$ 58,468</td>
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</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

Bridge Replacement

Reconstruction of Westbound I-80 On-Ramp and Extension of Acceleration Lane

Proposed Retaining Wall

Removal of Existing Eastbound I-80 On- and Off-Ramps

Proposed Eastbound I-80 Off-Ramp

Bridge Replacement to Accommodate New Ramps

Proposed Cul-De-Sac Colbert Street

Proposed Retaining Wall

Reconstruction of Westbound I-80 Off-Ramp and Extension of Deceleration Lane

Proposed Retaining Wall

**Construction**

- I-80 Proposed Mainline
- I-80 Proposed Ramp
- Existing Road
- Proposed Ramp
- Elimination

**Waterways**

- I-80 Proposed Retaining Wall
- Historic Roadway
- Field Wetlands
- RWI Wetlands
- FEMA 100 Year Floodplain
- Eligible Individual Resources

**Municipalities**

- Boundary
- Waterways
- Historic Roadway
- Historic Railroad
- Listed Individual Resources
- Eligible Individual Resources

**LG 111**

- Eligible Individual Resources

**Estimated Cost (X 1,000)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Design</td>
<td>$ 5,316</td>
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<tr>
<td>Construction</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 58,468</td>
</tr>
</tbody>
</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
Exit 307 — Option 2

**OVERVIEW**

- Provides a full-movement diamond interchange at Broad Street.
- Realignment of an existing I-80 on-ramp to Park Avenue.
- Requires replacement of two bridges over I-80 and I-80 bridge over Broadhead Creek.
- Improves access between eastbound I-80 off-slip to Park Avenue and Broad Street by constructing eastbound connector road.

**ESTIMATED COST (X 1,000)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
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<td>11B Removing Road</td>
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<tr>
<td>11B Removal of Existing Eastbound I-80 On- and Off-Ramps</td>
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<td>$ 13,160</td>
<td>$ 14,476</td>
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</table>

*Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

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6 | I-80 Corridor Study

[Diagram of I-80 Corridor Study Exit 307]
OVERVIEW
 Eliminates existing partial interchanges at Park Avenue and Broad Street and provides a single-movement interchange on a new alignment
 Requires replacement of two bridges over I-80 and i-80 bridge over Broadhead Creek
 Improves alignment of Five Points Intersection (Broad Street, Main Street and Ann Street)

ESTIMATED COST (X 1,000) *

<table>
<thead>
<tr>
<th></th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
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<tbody>
<tr>
<td>Proposed Mainline</td>
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<td>$ 62,796</td>
<td>$ 69,076</td>
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<td>Proposed Ramp</td>
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<tr>
<td>Existing Road</td>
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</tr>
<tr>
<td>Proposed Retaining Wall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Wetlands</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NWI Wetlands</td>
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<td></td>
</tr>
<tr>
<td>FEMA 100 Year Floodplain</td>
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<td></td>
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</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

PROPOSED IMPROVEMENTS
- Bridge Replacement as part of Mainline Widening
- Proposed Retaining Wall
- Proposed Westbound I-80 On-Ramp
- Removal of Existing Broad Street and Bridge
- Realignment of Broad Street and Construction of New Bridge
- Proposed Retaining Wall
- Proposed Eastbound I-80 Off-Ramp

ESTIMATED COST (X 1,000) *

<table>
<thead>
<tr>
<th></th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Mainline</td>
<td>$ 6,280</td>
<td>$ 62,796</td>
<td>$ 69,076</td>
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<td>Proposed Ramp</td>
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<tr>
<td>Existing Road</td>
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</tr>
<tr>
<td>Proposed Retaining Wall</td>
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<tr>
<td>Field Wetlands</td>
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<td>NWI Wetlands</td>
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</tr>
<tr>
<td>FEMA 100 Year Floodplain</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

OVERVIEW
 Exit 307 – Option 3

- Bridge Replacement as part of Mainline Widening
- Proposed Retaining Wall
- Proposed Westbound I-80 On-Ramp
- Removal of Existing Broad Street and Bridge
- Realignment of Broad Street and Construction of New Bridge
- Proposed Retaining Wall
- Proposed Eastbound I-80 Off-Ramp

PROPOSED IMPROVEMENTS
- Bridge Replacement as part of Mainline Widening
- Proposed Retaining Wall
- Proposed Westbound I-80 On-Ramp
- Removal of Existing Broad Street and Bridge
- Realignment of Broad Street and Construction of New Bridge
- Proposed Retaining Wall
- Proposed Eastbound I-80 Off-Ramp

ESTIMATED COST (X 1,000) *

<table>
<thead>
<tr>
<th></th>
<th>Engineering Design</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Mainline</td>
<td>$ 6,280</td>
<td>$ 62,796</td>
<td>$ 69,076</td>
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<tr>
<td>Proposed Ramp</td>
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<td>Existing Road</td>
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<td></td>
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<tr>
<td>Proposed Retaining Wall</td>
<td></td>
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<tr>
<td>Field Wetlands</td>
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<tr>
<td>FEMA 100 Year Floodplain</td>
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</tbody>
</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
Exit 307 Option 4

OVERVIEW

- Replaces existing partial interchange at Broad Street with a new partial interchange on new alignment
- Requires replacement of two bridges over I-80 and I-80 bridge over Broadhead Creek
- Improves alignment of Five Points Intersection (Broad Street, Main Street and Ann Street)

ESTIMATED COST (X 1,000)

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Engineering Design</td>
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<td>Construction</td>
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<td>Total</td>
<td>$60,311</td>
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</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.

I-80 Proposed Mainline
I-80 Proposed Ramp
Existing Road
80 Proposed/Ramp
Elimination
I 80/RD Municipal
Boundary
Bridge
Proposed Retaining Wall
Proposed Ramp
Field Wetlands
NRI Wetlands
NWR Bridges
FEMA 100 Year Floodplain
Bridge Replacement to Accommodate Extension of Acceleration Lane
Bridge Replacement as part of Mainline Widening
Bridge Replacement to Accommodate New Ramps
Bridge Replacement to Accommodate Extension of Acceleration Lane
Bridge Replacement as part of Mainline Widening
Removal of Existing Broad Street and Bridge
Existing Ramps to Remain
Extension of Existing Eastbound I-80 Off-Ramp Deceleration Lane
Extension of Existing Eastbound I-80 On-Ramp Acceleration Lane
Proposed Retaining Wall
Proposed Westbound I-80 On-Ramp
Proposed Westbound I-80 Off-Ramp
Proposed Intersection Work

delaware Lackawanna & Western RR
Wilkes Barre & Eastern RR
Kitson Woolen Mill
Wallace Hardware Building
US Post Office
BROADHEAD CREEK
80
80
200 100 0 100 200 ft

Proposed Westbound I-80
Realignment of Broad Street and Construction of New Bridge
Removal of Existing Broad Street and Bridge
Proposed Retaining Wall
Bridge Replacement as part of Mainline Widening
Existing Ramps to Remain
Extension of Existing Eastbound I-80 Off-Ramp Deceleration Lane
Extension of Existing Eastbound I-80 On-Ramp Acceleration Lane
Proposed Retaining Wall
Proposed Westbound I-80 On-Ramp
Proposed Westbound I-80 Off-Ramp
Proposed Intersection Work

ESTIMATED COST (X 1,000) *

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<thead>
<tr>
<th>Category</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Engineering Design</td>
<td>$5,493</td>
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<tr>
<td>Construction</td>
<td>$54,828</td>
</tr>
<tr>
<td>Total</td>
<td>$60,311</td>
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</table>

* Excludes mainline widening, right-of-way, utility relocation and environmental mitigation costs.
**Exit 307 (Broad Street/Park Avenue)**

<table>
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<th>OPTIONS 1A/1B</th>
<th>Broad Street Interchange</th>
<th>OPTION 2</th>
<th>Broad Street Interchange with C-D Road</th>
<th>OPTION 3</th>
<th>Relocated S.R. 191</th>
<th>Half-Interchange</th>
<th>OPTION 4</th>
<th>Relocated S.R. 191</th>
<th>Half-Interchange</th>
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<td>Will likely require noise walls and retaining walls</td>
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<td><strong>Waterway Encroachment</strong></td>
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<td>72 linear ft. of Broadhead Ck. (TSF-MP)</td>
<td>72 linear ft. of Broadhead Ck. (TSF-MP)</td>
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<tr>
<td>550 linear ft. of McMichael Ck. (HQ-CWF) (Both – Natural Trout Production)</td>
<td>550 linear ft. of McMichael Ck. (HQ-CWF) (Both – Natural Trout Production)</td>
<td>50 linear ft. of McMichael Ck. (HQ-CWF with Natural Trout Production)</td>
<td>50 linear ft. of McMichael Ck. (HQ-CWF with Natural Trout Production)</td>
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<td><strong>Waterfowl Impacts</strong></td>
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<td>0.28 acre of exceptional value</td>
<td>0.36 acre of exceptional value</td>
<td>0.77 acre of exceptional value</td>
<td>0.02 acre of exceptional value</td>
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<tr>
<td>100-Year Floodplains Encroachment</td>
<td>1.22 acre</td>
<td>2.59 acre</td>
<td>1.05 acre</td>
<td>1.13 acre</td>
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<td><strong>T &amp; E Species Implication</strong></td>
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<td>1 Excludes passive widening costs</td>
<td>2 Placement of SWM Facilities was not evaluated in the Aquatic Resources Impacts</td>
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<td>Environmental/Justice Populations Implication</td>
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<td>Potential</td>
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<td>3 NWI and Canyons Field/Invertebrate Identified</td>
<td>4 Placement of SWM Facilities was not evaluated in the Aquatic Resources Impacts</td>
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<td><strong>Archaeological Resources Encroachments</strong></td>
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<td><strong>Property Acquisitions</strong></td>
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<tr>
<td>Option 1A</td>
<td>7 full acquisitions (4 residential, 3 vacant) and 24 partial acquisitions</td>
<td>9 full acquisitions (4 residential, 1 services, 4 vacant) and 21 partial acquisitions (10 residential, 5 services, 1 park, 5 vacant)</td>
<td>6 full acquisitions (2 residential, 1 services, 1 commercial, 2 vacant) and 10 partial acquisitions (6 residential, 2 services, 1 commercial, 3 vacant)</td>
<td>5 full acquisitions (1 residential, 1 services, 1 commercial, 2 vacant) and 7 partial acquisitions (2 residential, 1 services, 1 commercial, 3 vacant)</td>
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<td>Option 1B</td>
<td>one less full acquisition (vacant) than Option 1A</td>
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CONCLUSION

PART VI:

– Interchanges
– Safety Priorities
– Congestion Priorities
– Conclusion

The goal of this I-80 Corridor Study Final Report is to provide the rural planning organization, the Northeastern Pennsylvania Alliance (NEPA), PennDOT and Pennsylvania Turnpike Commission (PTC), a comprehensive transportation planning tool for planning and programming future transportation improvement projects for the 18-mile I-80 corridor between Exits 293 (I-380) and 310 (Delaware Water Gap) in Monroe County. This study has provided an overview of the conditions along the 18-mile study corridor. The existing traffic problems were identified and future traffic volumes were calculated. Crash data was collected to identify high incident areas. Areas of deficient roadway geometry and deficient pavement and bridge conditions were noted.

As a result of these evaluations, the corridor-wide needs were identified as:

- Congested conditions from high traffic volumes;
- Operational safety concerns from deficient design characteristics; and
- Deterioration of the existing pavement and bridges.

After identifying the deficiencies and needs, solutions were considered. Various TSM and ITS strategies that would allow the existing and proposed transportation system to function more efficiently were investigated. Transit initiatives already under development were reviewed.

Finally, design concepts were developed to improve the specific deficiencies of the highway network.

The I-80 Corridor Study team first evaluated the corridor-wide needs and developed a mainline widening concept, then looked at each interchange individually to develop improvements of independent ability that could be constructed with or without the mainline widening and provide measurable benefits on their own. Several options were developed for each interchange.

The development of improvement options took into account the 10-year capital plan of needed infrastructure improvements that was being developed concurrently by the PTC as part of the PTC-PennDOT lease agreement for I-80. This capital plan includes projects to be undertaken in the first 10 years after tolling of I-80 begins. The I-80 Corridor Study team coordinated closely with PTC’s consultant and incorporated the capital plan projects within the I-80 Corridor Study project area into this Final Report. A number of interchanges were evaluated as part of the I-80 Corridor Study and the interim 10-year solution of the capital plan projects and therefore, the study team did not develop any new or additional improvement options for those interchanges. These interchanges were Exit 293, Exit 308, Exit 309 and Exit 310. Exits 298 and 299 were also part of another County-sponsored initiative that resulted in a $15 million earmark that was not available to fund improvements to I-80 near this interchange. Therefore, the study team brainstormed additional improvement options to make use of the earmark.

For the other interchanges, Exit 302, Exit 303, Exits 304-305-306 and Exit 307, the study team developed several long-term improvement concepts that attempt to address many, if not all, of the safety and operational deficiencies at each interchange.

Acknowledging the current infrastructure funding challenges in Pennsylvania and nationwide, the study team also developed intermediate, lower cost improvement options for two of these interchanges, Exit 302 and Exit 307. The intent of the intermediate improvement option is to provide a solution that is much less costly to construct than the long-term solution and that addresses a prominent deficiency with the interchange. These intermediate solutions can be constructed in the shorter term and provide improved safety and operations until funding becomes available for the design and construction of the long-term improvement options. In order to provide the District with a prioritized list of improvements, the mainline sections and interchanges were evaluated with regard to the three identified corridor-wide needs. The interchanges where improvements are currently not planned or committed to, are prioritized with regard to congestion and safety, and reconstruction of the mainline sections are prioritized in terms of deteriorating pavement and bridges.

CONGESTION PRIORITIES

Exits 298 and 299

In terms of congestion, Exits 298 (Scotrun) and 299 (Tannersville) are the highest priority interchanges. Considerable congestion occurs on both PA 611 and PA 715, which is partially attributable to the traffic generated by regional traffic generators such as Camelback Ski Resort, The Crossings Outlet Center, and Great Wolf Lodge. This congestion often causes queues to back up onto the I-80 mainline, creating a serious congestion concern.

Congestion is most prevalent on the westbound I-80 off-ramps to PA 715 (Exit 297) and PA 611 (Exit 298). A congestion alert system is currently in place on westbound I-80 in advance of these ramps. This system consists of a fixed message sign located in advance of the westbound I-80 off-ramp to PA 715 at Exit 299 and loop detectors on both ramps. When queues are detected on the westbound I-80 off-ramp at PA 715, the fixed message sign shows a message...
indicating congestion on the Exit 309 off-ramp and suggesting the Exit 309 off-ramp as an alternate. If queues are detected on both ramps, the fixed message sign shows no message.

As a result of the County’s initiative to improve traffic conditions, there is currently a $15 million earmark available for improvements to I-80 in the vicinity of this interchange. The I-80 Corridor Study team identified improvements that could be made to this interchange using the existing funding. These improvements include:

- Lengthening the eastbound I-80 acceleration lane and the deceleration lane on the ramps at PA 715;
- Widening the bridge over Sullivan trail; and
- Providing an auxiliary, or weaving, lane on westbound I-80 between the Sullivan Trail on-ramp and the PA 715 off-ramp.

It seems reasonable that any improvements involving the I-80 ramps and PA 715, including widening PA 715, would be in the form of a joint project between the I-80 Corridor Study team and PennDOT with possible developer participation in some circumstances.

SAFETY PRIORITIES

The interchanges of Exit 302, Exit 304, and Exit 307 have safety concerns. At Exit 302 there is a short weave section on eastbound I-80 and deficient acceleration and deceleration lane lengths at the interchange ramps. Between Exit 304 and 305, there are two weave sections on I-80, one in the eastbound direction and one in the westbound direction. The Exit 304 westbound off-ramp to southbound US 209 involves a sharp left turn followed by a sharp right turn, with a short weaving distance between the Exit 304 westbound off-ramp and the PA 715, and the Exit 304 westbound I-80 on-ramp to US 209. Other issues with the interchange include:

- Deficient acceleration lane length for traffic merging from northbound US 209 onto eastbound I-80;
- Deficient ramp curvatures on the Exit 305 interchange ramps;
- The lack of a full interchange at Driehar Avenue;
- The confusing nature of these interchanges which inhibit access between US 209, Business 209, and the Stroud Mall area of PA 611.

The I-80 Corridor Study team developed five different long-term improvement options that address the deficiencies of the existing interchange. Options 1 and 3 eliminate the main safety issue with this interchange – the westbound weaving between the Exit 305 on-ramp and Exit 304 off-ramp on I-80. These options relocate the Exit 305 on-ramp so that it merges with westbound I-80 after the Exit 304 off-ramp to southbound US 209 and this new Exit 305 on-ramp is barrier separated from the Exit 304 off-ramp. Option 2 relocates the Exit 305 on-ramp entry point past the Exit 304 off-ramp exit point. The new ramp is not barrier separated from the Exit 304 off-ramp; however, this option includes a barrier separated from the Exit 305 on-ramp to the Exit 305 on-ramp and the Existing interchange areas.

The biggest safety issue with the Exit 302 interchange is the exceptionally short weaving distance on eastbound I-80 between the ramp from southbound PA 33 and the off-ramp to northbound PA 33. The I-80 Corridor Study Team developed three different long-term solutions for this interchange – the eastbound weaving issues and some of the other operational issues associated with this interchange, such as:

- Derelict interchange at the intersection of PA 33 and PA 611;
- Deficient acceleration and deceleration lane lengths.

For this interchange, the study team also developed a lower cost, inter- medium improvement option that addresses the main deficiency with this interchange – the eastbound weaving. This intermediate improvement option involves widening the ramp area to the existing median area to provide a two-lane C-D road separated from both of the two left-lane ramps. This option includes a barrier separated from the Exit 305 on-ramp to the Exit 305 on-ramp and the Existing interchange areas west of the study area involvement including a lane for the eastbound I-80 on-ramp from Park Avenue to the westbound I-80 on-ramp from Broad Street should there be a project to replace the Park Avenue Bridge over I-80.

Exit 307

Exit 307 is the next priority interchange in terms of safety. Exit 307 actually consists of two interchanges – one half-interchange between eastbound I-80 and US 209 (Route 611) and one half-interchange between westbound I-80 and Broad Street (Route 191). The existing deficiencies with these interchanges include:

- Derelict interchange at the intersection of PA 33 and PA 611;
- The lack of a clear, identifiable route between Stroudsburg and I-80;
- A deficient I-80 under clearance for the Riveland Street Bridge over I-80; and
- Deficient acceleration lane lengths for the I-80 on-ramps.

The study team developed five long-term improvement options for this interchange and also brainstormed two intermediate improvement ideas. The first idea involves narrowing the median area to provide an acceleration lane for the eastbound I-80 on-ramp from Park Avenue; the second idea involves providing acceleration lanes for the eastbound I-80 on-ramp from PA 33 and PA 611.

The biggest safety issue with the Exit 302 interchange is the exceptionally short weaving distance on eastbound I-80 between the ramp from southbound PA 33 and the off-ramp to northbound PA 33. The I-80 Corridor Study Team developed three different long-term solutions for this interchange – the eastbound weaving issues and some of the other operational issues associated with this interchange, such as:

- Derelict interchange at the intersection of PA 33 and PA 611;
- Deficient acceleration and deceleration lane lengths.
the widening can be accomplished without impacting the existing PA 33 bridges over I-80, which greatly lowers the cost of this improvement option versus the long-term solutions. As far as priority to construct improvements, this interchange would be a lower priority than Exits 304-305-306 and Exit 307.

OTHER INTERCHANGES

Exit 303
Exit 303 does not have any operational or safety deficiencies; the only notable issue with this interchange is that it is a partial interchange and does not provide all movements between I-80 and PA 611 (Ninth Street). The I-80 Corridor Study team developed improvement options for this interchange with the main goal being to add some or all of the missing movements at this interchange. With additional movements, this interchange could relieve some congestion at the adjacent interchanges of Exit 302 and 304 and provide an alternate entrance/exit point in the event of an incident on I-80. However, improvements to this interchange are a much lower priority than the improvements listed for any of the preceding interchanges.

DETERIORATING PAVEMENT AND BRIDGES PRIORITIES

A majority of the study corridor has the original 1950s and 1960s vintage concrete pavement still in place that has been milled and overlain with bituminous (blacktop) pavement in recent years and this pavement is reaching the end of its serviceable life. The solution is the reconstruction of both the base material as well as the riding service. In addition, many of the bridges along the study corridor are reaching the end of their available life span. There are a number of bridges that have deficient vertical clearances and there is one structurally deficient rated bridge on I-80.

The PTC team evaluated the pavement and bridge conditions along the 311-mile length of I-80 in Pennsylvania. The section in Monroe County is the highest priority in terms of pavement reconstruction due to the high traffic volumes and the pavement conditions. Within the I-80 Corridor Study area, Milepost 304 to 311 is the highest priority section for pavement reconstruction. The PTC capital plan includes this work in Years 10-14 of the capital plan, yet the design of this project would need to begin by Year 4. This work would include widening I-80 to provide for three travel lanes in each direction. For construction or funding purposes, this section could be broken into smaller sections.

The PTC capital plan prioritized reconstruction of Milepost 283 to 302 for Years 15-19 of the PTC 50-year lease duration. For Mileposts 302 to 304, the pavement is only 17 years old, but reconstruction of this section does need to be included – either with Mileposts 283 to 302 or Mileposts 304 to 311.

The PTC capital plan also includes four bridge replacement projects in Years 4-6 of the plan. These projects include: three bridge replacements due to inadequate vertical clearances; two bridges at MP 308 and one at MP 310; and one fracture critical bridge replacement at MP 305.

CONCLUSION

In conclusion, this I-80 Corridor Study Final Report is intended as a guide for planning and programming transportation improvement projects for I-80 in Monroe County based on the identified needs of the corridor. Upon consideration of current planned/programmed improvements, the PTC’s 10-year capital plan, and the remaining needs of the corridor, improvements have been prioritized in order to make the best use of transportation funds with the overall goal being to provide a safer and more efficient I-80 facility for Monroe County.