Purpose and Need Statement for the

state college area CONNECTOR

July 2024

Project Identification #: 112784

pennsylvania
DEPARTMENT OF TRANSPORTATION

U.S. Department of Transportation
Federal Highway Administration

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List of Acronyms

AADT	Annual Average Daily Traffic
ADTT	Average Daily Truck Traffic
ASA	Agricultural Security Area
BLOS	Bicycle Level of Service
CATA	Centre Area Transportation Authority
CCMPO	Centre County Metropolitan Planning Organization
CCPCDO	Centre County Planning and Community Development Office
CFR	Code of Federal Regulations
CRPA	Centre Regional Planning Agency
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
GIS	Geographic Information Systems
HCM	Highway Capacity Manual
HSM	Highway Safety Manual
I-	Interstate
LAB	League of American Bicyclists
LOS	Level of Service
LRTP	Long Range Transportation Plan
mph	Miles per Hour
NEPA	National Environmental Policy Act
NHS	National Highway System
NRHP	National Register of Historic Places
PA	Pennsylvania Route

PCIT	Pennsylvania Crash Information Tool
PEL	Planning and Environmental Linkages
PennDOT	Pennsylvania Department of Transportation
PSI	Potential for Safety Improvement
SCCCTS	South Central Centre County Transportation Study
TDM	Travel Demand Model
TIP	Transportation Improvement Program
US	U.S. Route
VPD	Vehicles per Day

Executive Summary

The Pennsylvania Department of Transportation (PennDOT), in cooperation with the Federal Highway Administration (FHWA) and in coordination with the Centre County Metropolitan Planning Organization (CCMPO), is furthering transportation studies that were developed during the *State College Area Connector Planning and Environmental Linkages (PEL) Study* (PennDOT[3], 2023). The final PEL Report was published in June 2023 and FHWA acknowledged in a letter dated September 14, 2023 that the PEL Study was consistent with 23 USC Section 168 and 23 CFR 450.212.

This report documents the transportation problems within the State College Area Connector project area (**Figure 1**) in the development of the purpose and need statements, while considering the vision and aspirations of the study area communities.

Project Area Needs

- High peak hour traffic volumes cause congestion and result in unacceptable Levels of Service (LOS) (LOS D [rural only], E, or F) on US 322 roadway and intersections.
- Existing roadway configurations and traffic conditions contribute to safety concerns in the project area.
- The roadway network and configuration in the project area lacks continuity and does not meet driver expectations.

Project Purpose

The purpose of this project is to improve roadway congestion by achieving acceptable LOS and to address safety issues by reducing the predicted crash frequency along the US 322 corridor between Potters Mills and Boalsburg. Additionally, the project will aim to provide a transportation network that meets driver expectations.

Logical Termini and Independent Utility

For the State College Area Connector project, the logical termini in the western portion of the project area is US 322 (Mt. Nittany Expressway) and in the eastern portion of the project area it is US 322 (Potters Mills Gap). Each of these termini are a four-lane limited access highway that provide high capacity, efficient distribution of traffic, and future capacity for additional traffic.

Conclusion

This Purpose and Needs Statement for the State College Area Connector Project documents transportation problems within the project area and provides the foundation for the refinement, development, and evaluation of the alternatives advanced for further evaluation from the PEL Study.

1.0 Introduction

The Pennsylvania Department of Transportation (PennDOT), in cooperation with the Federal Highway Administration (FHWA) and in coordination with the Centre County Metropolitan Planning Organization (CCMPO), is advancing the transportation studies that were developed during the State College Area Connector Project Planning and Environmental Linkages (PEL) Study which was finalized in June 2023.

This report evaluates the identified PEL Study transportation purpose and need statements and associated data to confirm and/or refine, as necessary, or identify new issues, for the purpose and need for the State College Area Connector National Environmental Policy Act (NEPA) investigations. The purpose and need statements have been developed in accordance with Title 23 Code of Federal Regulations (CFR) Part 771 as well as the PennDOT Needs Study Handbook (PUB-319, May 2020) and PennDOT Design Manual 1, Transportation Program Development and Project Delivery Process (PUB-10, May 2020).

1.1 PEL Study Overview

The State College Area Connector PEL Study identified transportation needs within southern Centre County, Pennsylvania in a 70 square mile initial study area. The study evaluated a range of alternatives to determine how the alternatives addressed the Study's purpose and need, balanced impacts on the natural and built environment, addressed traffic concerns within the overall study area, met engineering considerations such as constructability, cost, and considered area planning goals. The PEL Study screened nine Build Alternative corridors to determine the best options to advance for NEPA evaluation and preliminary engineering. Based on the impact analysis, three corridors were identified (US 322-1S, US 322-1OEX and US 322-5) to be advanced as reasonable alternatives, and a specific project area was developed to initiate detailed field investigations and conduct preliminary engineering investigations to address the transportation purpose and needs as part of the NEPA process **(Figure 1)**.

The final PEL Report was published in June 2023 and FHWA acknowledged in a letter, dated September 14, 2023, that the PEL Study was consistent with 23 USC Section 168 and 23 CFR 450.212. As a result, the PEL findings provide a starting point for the NEPA studies and preliminary engineering efforts. Additionally, FHWA concurred that an Environmental Impact Statement (EIS) was the proper NEPA classification for the State College Area Connector project.

The PEL Study also identified other transportation projects which did not meet the full purpose and need identified in the PEL, but could provide transportation benefits to the study area roadways independently. One such project was a safety study along PA 45 generally from Boal Avenue to PA 144. Subsequent to the PEL completion, additional traffic investigations and analysis and coordination with local officials for the State College Area Connector project determined that the connector road and interior interchange would provide some localized improvements to PA 45. However, it was determined that the connector

road and associated interchange was not necessary to address the project's purpose and need, nor did it address corridor wide issues along PA 45. As a result, the proposed interior interchange and local road connection was removed from this State College Area Connector project and will be considered in the independent PA 45 Corridor Improvements project, as appropriate. The State College Area Connector project will advance independently but will not preclude the inclusion of a future interior interchange and local road connection should the independent safety study along PA 45 determine that it would be beneficial in connection with other proposed PA 45 Corridor Improvements project. **Figure 2** provides the revised project area for the State College Area Connector project that will move forward for alternative development and investigation.

1.2 Project Area Description

The State College Area Connector project would address the transportation purpose and needs of the project area while considering the vision and goals of the project area communities. Understanding the communities' visions aid in determining if or how community-related features should be incorporated into the transportation project.

The project area is approximately 3,963 acres, extends through the southern portion of Centre County, and traverses Potter and Harris Townships (**Figure 2)**. The project area is centered on US 322 which provides local access through the project area and to regional destinations and beyond. US 322, Mount Nittany Expressway at the western end of the project area provides direct access to Interstate 99 (I-99) which, in turn, provides access to nearby I-80. US 322 at Potters Mills provides access south to the Harrisburg area and connects to I-81 and I-83.

1.3 Previous Transportation Studies and Improvements

Many transportation improvement studies and projects have occurred that have influenced travel within and adjacent to the State College Area Connector project area. Along the US 322 corridor, studies for transportation improvements have been undertaken at various times since the 1970s. The *Purpose and Need for the State College Area Connector Planning and Environmental Linkage (PEL) Study* (PennDOT, 2021) report documents these investigations in detail. **Table 1** provides a summary of the transportation studies and improvements which have influenced travel along US 322.

LEGEND

- Project Area
- Municipal Boundaries

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INDEX MAP

January 2024

State College Area Connector

PROJECT AREA

CENTRE COUNTY, PENNSYLVANIA

Figure 1 | 1 Inch = 2,800 Feet

pennsylvania DEPARTMENT OF TRANSPORTATION

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LEGEND

- Project Area
- Municipal Boundaries

0 2,000 4,000 6,000 Feet

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA

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INDEX MAP

July 2024

State College Area Connector

REVISED PROJECT AREA

CENTRE COUNTY, PENNSYLVANIA

Figure 2 | 1 Inch = 3,000 Feet

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Table 1 – Past Studies and Improvements

Project	Activity	Timeframe
PA 144 is posted with weight restrictions on Nittany Mountain	Construction	Late 1980s
I-99 Construction (Blair County to I-80)	Construction	1990s
South Central Centre County Transportation Study (SCCCTS). The study was stopped in 2004 due to a statewide transportation funding shortfall.	Study	1998
Intersection improvements at US 322 and PA 144 intersection and left-turn lanes at the US 322 and Mountain Back Road intersection	Construction	2006
Added turn lane and intersection improvements at US 322 and Bear Meadows Road intersection	Construction	2007
Added vehicle spacing pavement marking "dots" and signage along US 322: • Elks Club Road to Sharer Road • Harley Davidson to Wagner Road • Dogtown Road to Tusseyville Road (closed)	Construction	Summer 2009
Added Centerline and Edgeline Rumble Strips along US 322 (Elks Club Road to Potters Mills)	Construction	Summer 2010
Removed passing zones at select sections of US 322 east of Elks Club Road and west of Dogtown Road	Construction	Summer 2011
Added intersection warning pavement markings at US 322 and Cider Press Road intersection	Construction	Summer 2011
Added center turn lane along US 322 (Harley Davidson to Wagner Road)	Construction	Fall 2014
Adjusted S-curve alignment and profile along US 322 (vicinity of Wagner Road and Taylor Hill Road intersections)	Construction	Fall 2014
Constructed new bridge over US 322 in area of Sand Mountain Road	Construction	September 2015
"Potters Mills Gap" a new four-lane roadway section along US 322 from the Sand Mountain Road intersection, ending west at a new interchange at the PA 144/US 322 intersection	Construction	July 2021
Data Refresh of SCCCTS traffic	Study	2019
State College Area Connector Planning and Environmental Linkages Study	Study	2023

1.4 Regional Planning Context

A review of county and regional planning documents and initiatives was conducted to understand the transportation and land use visions and goals in the project area communities for consideration in the development of the purpose and need. In particular, a review of the following plans and maps was conducted:

- Centre County MPO LRTP 2044 (adopted in 2015 and updated in 2018)
- Centre County MPO LRTP 2050 (adopted on September 22, 2020)
- Centre County MPO FY 2023-2026 Transportation Improvement Program (adopted June 6, 2022)
- Centre County MPO Comprehensive Plan Phase I (2003)

- Centre Region Council of Government -Centre Region Comprehensive Plan (November 2013) – includes State College Borough and College, Ferguson, Halfmoon, Harris, and Patton Townships
- Centre Region Council of Government - Centre Regional Bike Plan (December 2015 amended 2022)
- Penn Valley Region Comprehensive Plan (adopted January 2006) – includes Centre Hall and Millheim Boroughs and Gregg, Haines, Miles, Penn, and Potter Townships
- Harris Township Comprehensive Rural Rezoning Report (March 2019)
- Harris Township Boalsburg Small Area Plan (June 13, 2016)
- Harris Township Zoning Map (March 14, 2016)
- Harris Township Rural Rezoning Report (March 2019)
- Harris Township Zoning Map (March 14, 2016)
- Potter Township Zoning Map (April 17, 2019)

PennDOT recognizes its role as a partner with counties and local communities to ensure that transportation improvement projects are developed through a collaborative planning process that links transportation projects with regional and community land use decisions. More detailed information on the county and regional plans and local goals and vision affecting transportation planning is provided in Appendix B of the *Final Purpose and Need for the State College Area Connector Planning and Environmental Linkage (PEL) Study (PennDOT, 2021)*.

The State College Area Connecter project is included on the CCMPO's Long Range Transportation Plan (LRTP) and the Transportation Improvement Program. The LRTP is a 20-year planning document that provides a vision for transportation improvements and strategies for the region. CCMPO's *Long Range Transportation Plan 2050* was adopted on September 22, 2020. Once a project is planned in the LRTP, it can then advance for inclusion on the TIP which identifies specific funding sources for a four-year period. The CCMPO's FY2023-2026 Centre County TIP (adopted June 28, 2022) includes $15 million in discretionary (spike) funds for the preliminary and final engineering activities. The commitment of funding for the engineering phases enables the NEPA environmental investigations and engineering work to be completed, which is anticipated to result in a decision on what proposed transportation solution should be advanced for future investment of federal and state funds.

1.4.1 Plan Summary

The following provides a summary of the key plan findings that are pertinent to the State College Area Connector Project area.

- **Centre County LRTP 2050** – I-80 impacts traffic patterns on connecting roadways within Central Pennsylvania. It influences an increase in truck traffic and the safety and quality of life in Centre County communities traversed by these connecting roadways. The LRTP 2050 identifies the concerns in the project area to include vehicular congestion on a daily basis during peak hours of

travel due to high volumes of interstate truck traffic, commuters, and special-event traffic; traveler delays from frequent incidents; and traffic conflicts that result in crashes and safety issues. As Centre County continues to grow as the economic hub for surrounding areas in central Pennsylvania, vehicular traffic is projected to increase to volumes that result in poor levels of service, which will exacerbate the needs associated with congestion, safety, and incidents.

- **Penns Valley Regional Comprehensive Plan (adopted in January 30, 2006)**
    - Devise strategy to enable a new road to convey vehicles into and through the region quickly and efficiently with strictly controlled points of local access and "to proactively accommodate their fair share of growth and development in a compact and dispersed configuration that reflects the Region's past development patterns rather than the consumptive sprawling patterns of contemporary society."
    - Potential major development pressures likely to result from the eventual improvement of the US 322 corridor. Access provided by a new highway "could change the past economic conditions and introduce unwanted growth that is inconsistent with the Region's paramount goal to protect its rural way-of-life."
    - Identify this corridor as the route for the new major highway to connect the existing four-lane US 322 highway to the east with the Mount Nittany Expressway
    - Notes that "local officials would strongly object to the construction of an interchange within the Region as it could produce an inducement to large-scale development that would conflict with the Region's overall community development objectives."
    - Commuter bus service – plan promotes working with the CCMPO and Centre Area Transportation Authority (CATA) to study the feasibility of expanding commuter bus service to the Penns Valley Region
- **Centre Region Comprehensive Plan (dated November 2013)**
    - Promote the expansion of the region's pedestrian and bicycle system and transit services, including within the project area.
    - Uses a Regional Growth Boundary and Sewer Service Area as a tool to influence where growth occurs in the Region.
- **Centre Region Bike Plan (adopted December 15, 2015; amended March 28, 2022)**
    - Identifies critical gaps in the Centre Region Bicycle Network.
    - Recommends a Bike Corridor in Harris Township (referred to as Corridor Hh) extending along PA 45 from the Mount Nittany Expressway to Rosslyn Road.

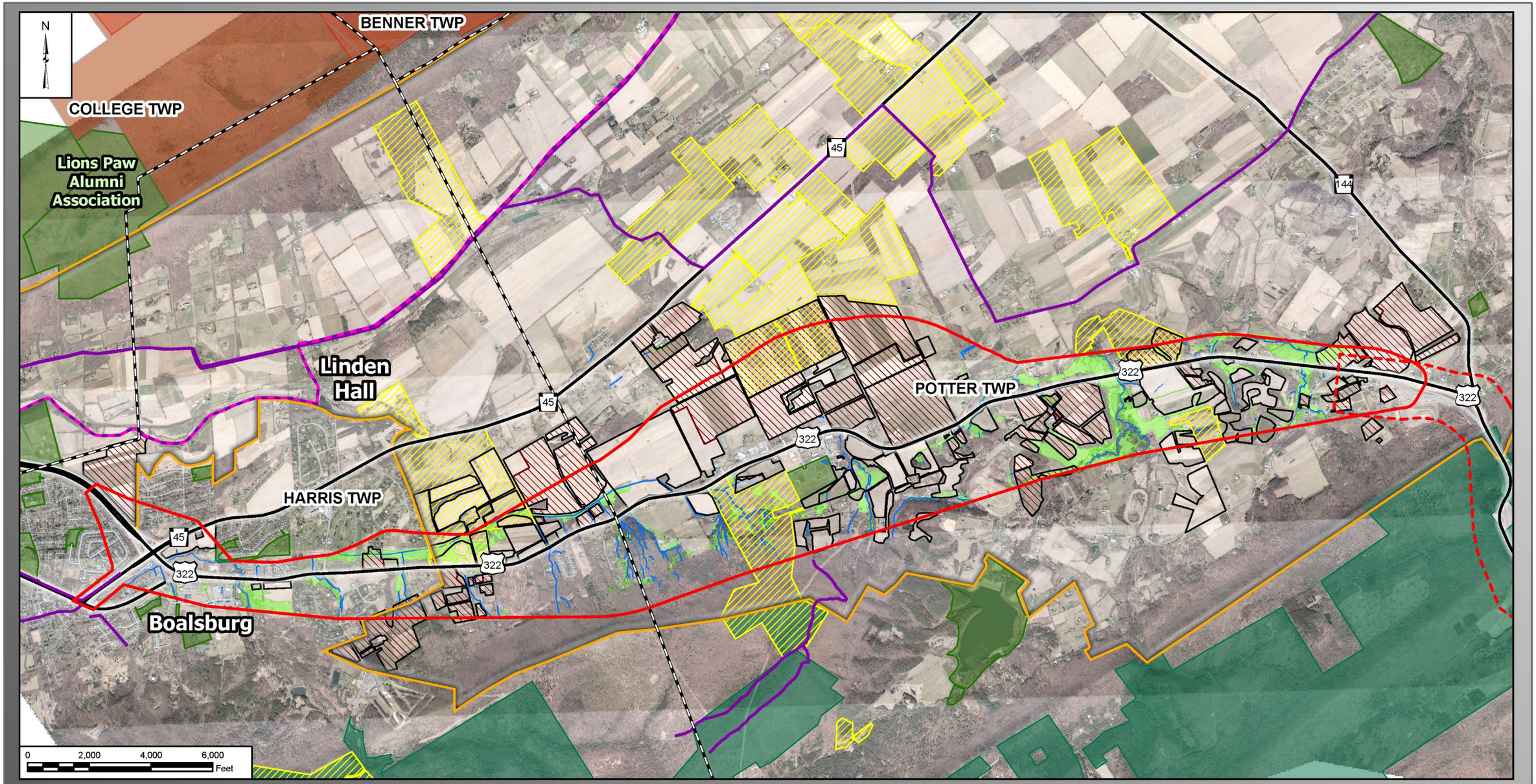
- **Harris Township Comprehensive Rural Rezoning Report (March 2019)**
    - Proposed rural zoning districts and ordinance amendments drafted by the Harris Township Planning Commission for the areas of the Township outside the Regional Growth Boundary and Sewer Service Area based on the identified long-range planning goals for the rural properties that build upon the 2013 Centre Region Comprehensive Plan.
- **Boalsburg Small Area Plan (June 13, 2016)**
    - Establishes a long-range vision to guide the future growth and development of the Boalsburg area in the western portion of the project area.
    - Proposes the transformation of the Boal Avenue (US 322 Business) corridor into a "welcoming and attractive gateway" and providing transportation facilities that balance the needs of pedestrians, bicyclists and motorists through streetscape improvements. This includes a recommendation to have the road considered for a "road diet" to reduce the number of travel lanes and provide a center turning lane and bike lanes all within the current cartway.

2.0 Project Area Conditions

2.1 Environmental Setting

Transportation infrastructure can influence community growth and facilitate land use changes. While existing or planned transportation facilities are rarely the sole factor for development and land use changes, transportation projects can affect development and land use changes through the access they provide or limit. Given this, it is important to identify the environmental setting of the project area early and consider how the existing land uses, along with regional and local planning goals and visions, may affect the need for transportation improvements.

The project area is approximately 3,963 acres, extends through the southern portion of Centre County, and traverses Potter and Harris Townships (**Figure 3)**. The project area lies within the southwestern portion of the Penns Valley at the base of the Tussey Mountain range. The topography is characterized by a well-defined steep mountain to the south and extending across gently sloping valleys to the east and west. The eastern portion of the project area is drained by Sinking Creek and the western portion is drained by Spring Creek. Each watershed is characterized by high-quality waters, including supporting wild trout and exceptional value wetlands. There are numerous headwater streams and springs along the foothills of Tussey Mountain that contribute flow to the mainstem of Spring Creek. Exceptional value wetlands extend across both watersheds including both forested and non-forested floodplain positions. Initial screening for threatened and endangered species identified potential concerns with protected bats and bald eagles.



LEGEND

- Project Area
- Potters Mills Gap Transportation Project
- Municipal Boundaries
- Penns Valley & Brush Valley Rural Historic District
- PA Bike Route G
- Bike Trail
- Productive Agriculture
- Easement
- Agricultural Security Area
- Rockview State Correctional Institute
- State Correctional Institution, Rockview Historic District
- Delineated Stream
- Delineated Wetland
- Parks and Public Recreation Area
- State Forest

INDEX MAP

July 2024

State College Area Connector

RESOURCE OVERVIEW

CENTRE COUNTY, PENNSYLVANIA

Figure 3 | 1 Inch = 3,000 Feet

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Environmental features in the project area have been mapped using a comprehensive Geographic Information Systems (GIS) database (**Figure 3**). The project area is primarily rural with many productive farming operations interspersed with small villages such as Potters Mills, Tusseyville, and Pleasant Gap, which are typically positioned along well-established travel ways. Productive farmland comprises nearly 34% of the land use in the project area, with 31% of the farmland within Agricultural Security Areas (ASAs) and 9% preserved in Agricultural Conservation Easements (ACEs). Given the large expanse of farmland and number of active farm operations, the roadways within the project area are often used by farmers to access various land parcels and generate slower-moving farm equipment traffic that mixes with faster-moving cars and trucks.

More modern developments, in particular residential subdivisions, are located in the western portion of the project area and adjacent to or near US 322. Commercial and industrial development is also found along the US 322 corridor. Developed areas comprise 19% of the project area with 11% in residential use and 3% commercial and industrial use. The remaining 2% of the project area includes land uses such as a golf course, large ponds/lakes, transportation facilities, etc.

A majority of the project area is encompassed by the Penns/Brush Valley Rural Historic District (Historic District) that was determined eligible for listing in the National Register of Historic Places (NRHP) in March 2002. The Historic District is eligible for its agricultural patterns and associated landscape features which were established during the nineteenth and twentieth centuries, and its farm and village architecture found within the district. The project area includes numerous structures that were identified as contributing elements to the historic district. There are also several historic properties that have individually been identified as listed or eligible for listing on the NRHP.

2.2 Existing Transportation Network and Services

2.2.1 Transportation Network and Conditions

Pennsylvania is in a strategic position with interstate roadways traversing the state and serving national and international trade routes, and Centre County is centrally located within the Commonwealth with access to I-80 and I-99. This geographic position makes the County's network of roads important for interstate, statewide, and regional traffic and commerce in addition to accommodating local trips.

The US 322 corridor extends through the center of the project area. It is on the National Highway System (NHS). Through the project area, US 322 is generally a two-lane roadway which connects to four-lane divided roadway sections at the eastern and western ends of the project area. US 322 carries both local and regional traffic and a mix of all vehicle types (automobiles, medium trucks, and heavy trucks). It is classified as a principal arterial, indicating that the intended purpose of the facility is to convey traffic throughout the region (i.e., the purpose of the facility is not solely for local trips, but to carry through and

regional traffic). Due to substantial roadside land development and the sparse local street network, US 322 also operates as a collector route. On a local level, US 322 serves as a key connection to the State College area, providing access to the County's economic hub and to Penn State University's main campus. On an intrastate level, the US 322 corridor serves as the prime connection between many cities to the east and west of Centre County via its connection to I-80. US 322 is also identified by the CCMPO as a key trucking corridor which is a two-lane roadway that does not meet modern design standards desirable to accommodate the high truck volumes present on these types of roadways (CCMPO, 2022). The County's primary concerns related to freight movements in these types of corridors involve safety and the impact on road and bridge conditions.

There are also several local roadways within the project area which convey traffic to the arterial roadway network and beyond.

2.2.2 Bicycle and Pedestrian Facilities

Within the Centre Region, there has been progress toward developing a comprehensive and interconnected bicycle network. The Centre Region Council of Governments prepared the Centre Region Bike Plan (adopted December 15, 2015; amended March 28, 2022). The Bike Plan identifies future linkages and programs to further expand the existing network. The Bike Plan is also expected to enhance the Region's application to the League of American Bicyclists (LAB) to maintain its Bicycle Friendly Community designation and raise the current designation from Bronze Level to Silver and ultimately Gold designation. Within the project area, the Bike Plan specifically identifies a recommended bicycle corridor in Harris Township, referred to as Corridor Hh. It would extend along PA 45 from Boal Avenue to the Mount Nittany Expressway. Harris Township also has a proposed bicycle facility along Spring Creek from Boalsburg to Elks Club Road and another one connecting Kaywood Park to the residential development of Aspen Heights. There are no identified bicycle facilities within the Potter Township portion of the project area.

Table 3 – Bicycle Level of Service Descriptions

LOS	General BLOS Description
A	These roadways are generally safe and attractive to all bicyclists.
B	These roadways are adequate for all bicyclists.
C	These roadways are adequate for bicyclists with some degree of experience.
D	Bicyclists can anticipate an interaction with motor vehicles and should be experienced riders.
E	Bicyclists can anticipate a high level of interaction with motor vehicles and should be experienced riders.
F	These roadways do not provide any bicycle facility and would be difficult to navigate safely.

A Bicycle Level of Service (BLOS) analysis was also conducted for the project area for both the Existing (Base Year 2023) and No Build (Design Year 2050) scenarios. BLOS is a measure that is used to predict a bicyclist's perception of a specific roadway environment based on its ability to accommodate motor vehicles and bicycle traffic, the roadway's geometric design, and traffic conditions. Similar to the LOS

ratings used to evaluate motorized vehicle traffic, the BLOS ratings include A, B, C, D, E, and F that are intended to reflect users' perception of the road segment's LOS for bicycle travel. **Table 3** provides an overview of the BLOS criteria and what they generally mean for a cyclist.

BLOS A and B are considered comfortable for most users and BLOS C is comfortable for most adult users. Roadways with BLOS D, E, and F should be used only by more experienced riders or not used by bicyclists at all. The BLOS findings for the project area indicated that US 322 currently operates at BLOS D or worse and is anticipated to deteriorate in the Design Year (2050). US 322 does not operate at acceptable BLOS due to narrow lane widths and shoulders, high truck volumes, high travel speeds, and pavement conditions which are undesirable for cyclists.

From a pedestrian perspective, the project area is characterized as generally rural and pedestrian facilities are limited. However, Centre County municipal planning departments, the Centre Regional Planning Agency (CRPA), and the Centre County Planning and Community Development Office (CCPCDO) routinely require or encourage developers to include pedestrian amenities as part of proposed land development site plans and subdivisions in locations where the facilities are appropriate. These entities view individual facilities as integral to the development of an overall interconnected pedestrian system. The CCMPO staff is actively involved in land development plan reviews at county, regional, and municipal levels and works with PennDOT to include pedestrian facilities in transportation improvement projects, as appropriate.

2.2.3 Transit and Park-and-Ride Lots

The Centre Area Transportation Authority (CATA) is a joint municipal authority, comprised of State College Borough and College, Ferguson, Harris, and Patton Townships. Currently, there are no CATABUS fixed routes within the project area. The only transit provided within the project area is CATA's CATAGO microtransit in the Boalsburg area (CATA, 2024).

There are no official park and ride facilities within the project area. A countywide park-and-ride study is proposed as part of the CCMPO's LRTP 2050 to develop a strategy to ensure the County's transportation system has an adequate mix of travel modes. This proposed study would account for changing commute patterns in the area, provide the opportunity to reprioritize sites listed in a previous 1996 regional park-and-ride study, add new sites as needed, identify potential environmental issues early in the design process, and allow CCMPO to work with PennDOT District 2-0 and other local stakeholders to maximize opportunities for use of public right-of-way.

2.3 Safety

2.3.1 Crash Summary

Crash data from January 2017 through December 2021 (five years) was obtained from PennDOT's Open Data Portal through the Pennsylvania Crash Information Tool (PCIT) and analyzed for US 322 within the project area (PennDOT, 2023[2]). The crash data reflects the completed improvement projects described in **Table 1**. As shown in **Table 4**, a total of 144 reportable crashes were documented along US 322 within the project area over the five-year period. This includes three fatal crashes, 60 injury crashes, and 81 property damage-only crashes. **Figure 4** provides an overview of the general crash locations along US 322, as well as a "heat map" illustrating the concentration of crashes. Review of this figure reveals that for the most part crashes were scattered along the corridor with a concentration at the unsignalized intersections of US 322 at Elks Club Road/Bear Meadows Road, Neff Road, and Red Mill Road/Mountain Back Road.

Table 4 – US 322 Crash Severity [1]

Roadway	PDO[2]	Injury	Fatal	Total
US 322	81 (56%)	60 (42%)	3 (2%)	**144**

1 Crash frequencies represent number of crashes (5-year total) involving injuries or fatalities and not the number of injuries or fatalities
2 PDO: Property Damage Only (no injuries)

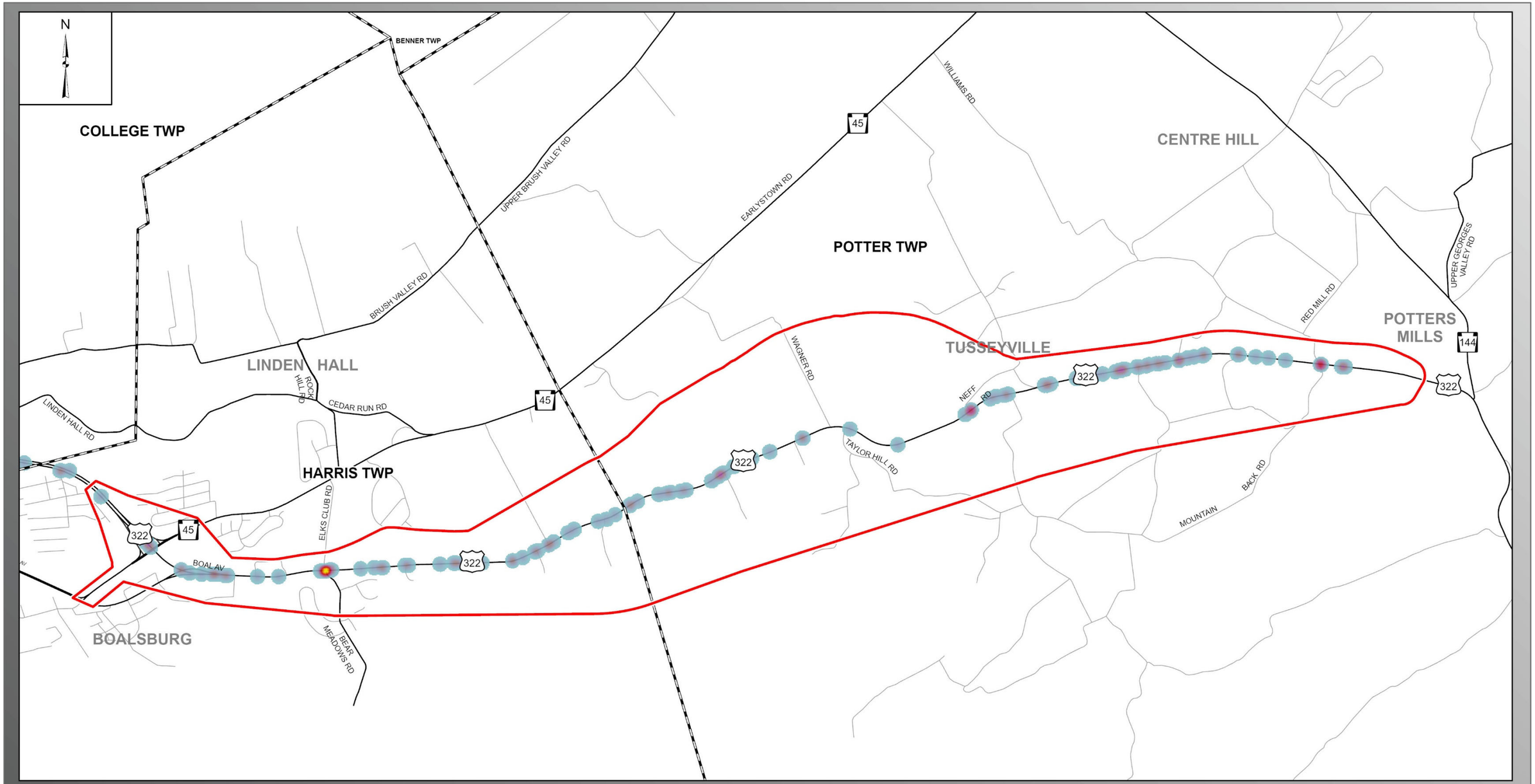
Source: PennDOT, 2023[2]

An analysis of the crash types indicates that the crashes that occurred most frequently along US 322 in the project area were rear end (42 crashes; 29%) and hit fixed object (40 crashes; 28%). Generally, these types of crashes are a result of mixing of local and through traffic, uncontrolled access along the corridor, and varying vehicle speeds.

Along US 322 in the project area, the majority of the 144 crashes were caused by passenger vehicles (112 crashes; 78%), and approximately 19% of all crashes were caused by a heavy vehicle (trucks or buses). There were no pedestrian or bicycle crashes within the project area.

2.3.2 Highway Safety Analysis

A Highway Safety Manual (HSM) analysis was completed for the existing conditions (updated 5-year historic crash data) as well as for the future Design Year (2050) no-build conditions to evaluate the safety performance of the US 322 within the project area. The HSM provides analytical tools and techniques for quantifying potential effects of crashes for decision-making during the planning, design, operations, and maintenance process. The HSM evaluates how design elements could impact safety. The analysis was



LEGEND

- Project Area
- Municipal Boundaries

Crashes (PCIT Data: 2017-2022)

- Low Frequency
- High Frequency

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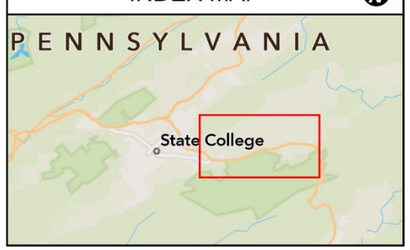
pennsylvania DEPARTMENT OF TRANSPORTATION

INDEX MAP



July 2024

State College Area Connector

US 322 CRASH LOCATIONS AND CONCENTRATIONS

CENTRE COUNTY, PENNSYLVANIA

Figure 4 | 1 Inch = 3,000 Feet

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performed using PennDOT's HSM Safety Analysis Tool. The following methodologies were used to calculate the following within the project area:

- **Predicted Average Crash Frequency (Baseline)** – estimate of long-term average crash frequency
- **Expected Average Crash Frequency (Normalized)** – estimate of long-term average crash frequency, calculated based on the observed crash frequency (the project area crash data)
- **Potential for Safety Improvement (PSI)** – estimates of how much long-term crash frequency can be reduced at a site and is represented as the Expected Average Crash Frequency minus the Predicted Average Crash Frequency. A positive PSI identifies areas along a roadway where potential design improvements could improve safety.

The HSM analysis conducted for US 322 indicates that when evaluating the roadway by segment and intersection, there are sections of roadway where the expected number of crashes is greater than the predicted number of crashes (i.e., showing a safety need). These areas are shown on **Figure 5** and listed below:

- From west of Elks Club Road/Bear Meadows Road near Jacks Mill Road to Tusseyview Lane
- From Taylor Hill Road to Red Mill Road/Mountain Back Road

On average, the number of crashes is predicted to increase by 16% from 2021 to the Design Year (2050). These predicted increases in crashes, paired with increased congestion, may exacerbate the crash frequencies experienced within the project area.

2.4 Traffic and Operational Analysis

The operational analysis was conducted for refined traffic volume projections developed during PEL Study (PennDOT, 2023[3]) and updated with post-COVID traffic volume data collection conducted in fall 2022 and spring 2023. The Centre County Regional Travel Demand Model (TDM) utilized in the PEL Study (PennDOT, 2023[3]) was also utilized in developing the refined Design Year (2050) traffic projections; this updated TDM considers planned/programmed transportation improvements, future land uses changes, regional travel patterns, transit service, and commercial/freight forecasts. The No Build traffic volumes were determined using the Design Year (2050) TDM. The existing and Design Year (2050) represent traffic conditions of a typical weekday.

2.4.1 Traffic Volumes

Traffic volume data was collected in Fall 2022/Spring 2023 to update current and future year traffic projections and evaluate post-COVID conditions for the project area. **Table 5** provides the Annual Average Daily Traffic (AADT) and Average Daily Truck Traffic (ADTT) volumes for both Existing Conditions Year (2023) and Design Year (2050) along US 322 within the project area. These US 322 corridor traffic volumes for Existing Year (2023) and Design Year (2050) are illustrated on **Figure 6** and **Figure 7**, respectively.

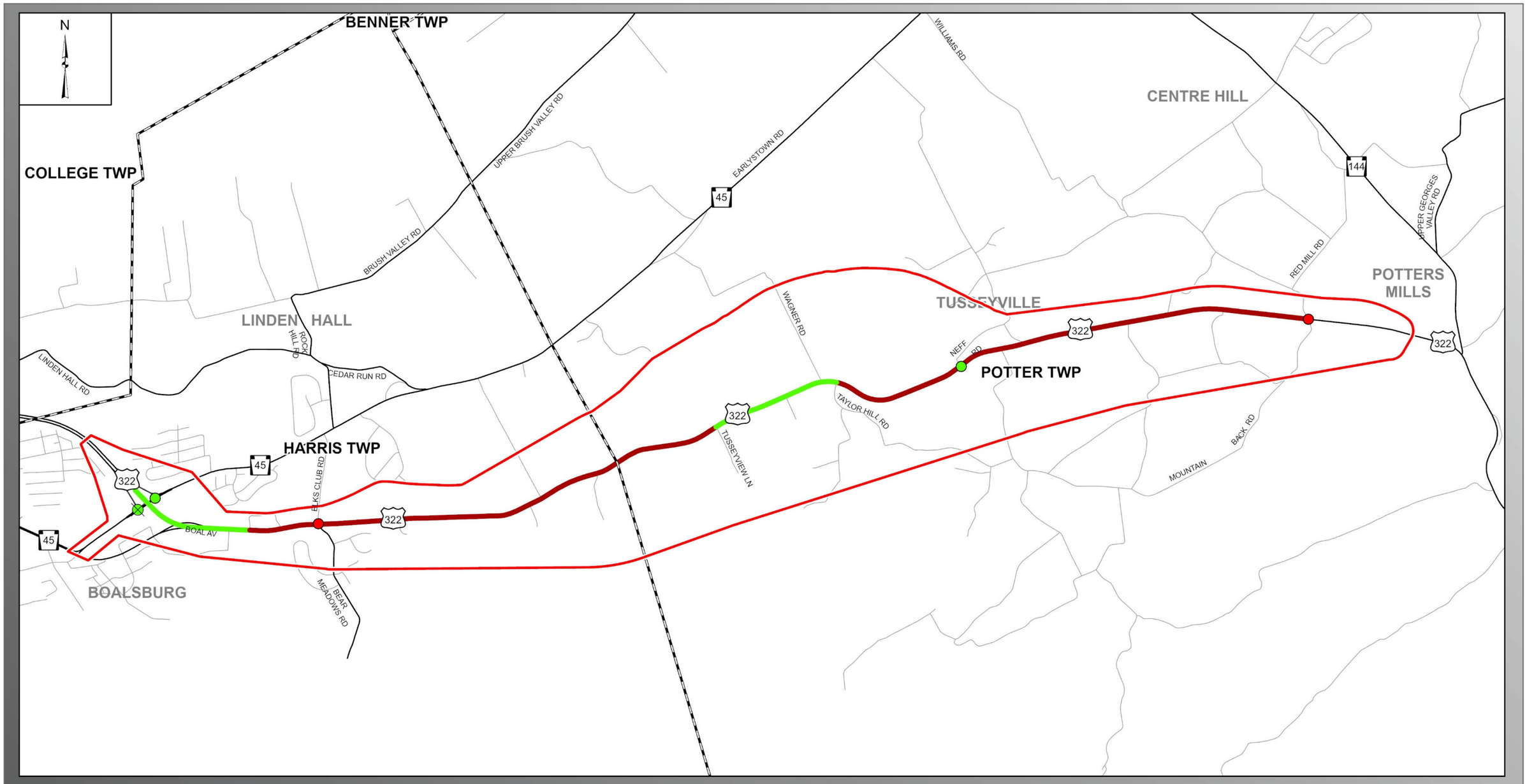
The 2050 No-Build roadway network assumes the completion of the I-99/I-80 High-Speed and I-80 Local Access interchange (SR 0080, Sections B18 and A18), and the I-99/US 322 Waddle Road Interchange Expansion. During the PEL Study, examination of project area roadways determined an overall annual linear growth rate of approximately 1% per year in both total vehicular traffic and truck traffic. Annual linear growth rates for the various project area roadways were also developed and included in the PEL Study; these growth rates were used in developing the updated Design Year (2050) AADT and ADTT volumes. As shown in **Table 5**, total AADT volumes along US 322 are projected to increase at a higher rate than the overall PEL study area roadways, while ADTT on US 322 is projected to grow at the approximate 1% annual linear rate.

Along US 322 in the project area, the existing AADT volumes range between 9,400 vehicles per day (VPD) and 14,900 VPD with truck percentages between 24% and 34%. In the Design Year (2050), AADT volumes along the same segments of US 322 are expected to range between 13,650 VPD and 22,700 VPD.

Table 5 – Traffic Volume Summary

Roadway	Segment		Existing Conditions (Year 2023)		Design Year (2050)		Growth Rate	
	From	To	AADT	ADTT	AADT	ADTT	Total	Truck
US 322	Mount Nittany Expressway	PA 45	**14,900**	3,600 (24%)	**22,700**	4,500 (20%)	**1.94%**	0.93%
	PA 45	Boal Avenue	**9,400**	3,200 (34%)	**13,650**	4,000 (29%)	**1.67%**	0.93%
	Boal Avenue	Elks Club Road	**13,800**	3,300 (24%)	**18,350**	4,200 (23%)	**1.22%**	1.01%
	Elks Club Road	Neff Road	**13,200**	3,200 (24%)	**17,400**	4,200 (24%)	**1.18%**	1.16%
	Neff Road	Red Mill Road/ Mountain Back Road	**12,000**	3,100 (26%)	**17,400**	4,200 (24%)	**1.67%**	1.31%

Notes: AADT = Annual Average Daily Traffic, ADTT = Average Daily Truck Traffic (%Trucks), and Growth Rate = 2023-2050 Annual Growth Rate (linear)



LEGEND

- Project Area
- Municipal Boundaries

Intersection Safety Analysis

- Signal Intersection - Crash estimates are equal to or less than predicted
- Stop Intersection - Crash estimates are equal to or less than predicted
- Stop Intersection - Crash estimates are higher than predicted (PSI)

Route Safety Analysis

- Crash estimates are equal to or less than predicted
- Crash estimates are higher than predicted (PSI)

0 2,000 4,000 6,000 Feet

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July 2024

State College Area Connector

HSM ANALYSIS RESULTS

CENTRE COUNTY, PENNSYLVANIA

Figure 5 | 1 Inch = 3,000 Feet

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Service Layer Credits: Community: Centre County Government, data.pa.gov, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS; Pennsylvania Crash Information Tool (PCIT)

N

COLLEGE TWP

BENNER TWP

HARRIS TWP

POTTER TWP

LINDEN HALL

BOALSBURG

TUSSEYVILLE

CENTRE HILL

POTTERS MILLS

BRUSH VALLEY RD

UPPER BRUSH VALLEY RD

EARLYSTOWN RD

WILLIAMS RD

WAGNER RD

NEFF RD

TAYLOR HILL RD

MOUNTAIN BACK RD

RED MILL RD

UPPER GEORGES VALLEY RD

ROCK HILL RD

CEDAR RUN RD

LINDEN HALL RD

ELKS CLUB RD

BEAR MEADOWS RD

BOAL AV

45

322

144

14,900 / 3,600

9,400 / 3,200

13,800 / 3,300

12,000 / 3,100

13,200 / 3,200

LEGEND

Project Area

Municipal Boundaries

Intersections

Signal

Stop

0 2,000 4,000 6,000 Feet

Average Daily Traffic Volume

- 0 - 999
- 1,000 - 4,999
- 5,000 - 9,999
- 10,000 - 14,999
- 15,000 - 19,999
- >20,000

8,400 / 300 Average Annual Daily Traffic (AADT) / Average Annual Daily Truck Traffic (AADTT)

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July 2024

State College Area Connector

EXISTING (BASE YEAR 2023) AVERAGE DAILY TRAFFIC VOLUMES

CENTRE COUNTY, PENNSYLVANIA

Figure 6

1 Inch = 3,000 Feet

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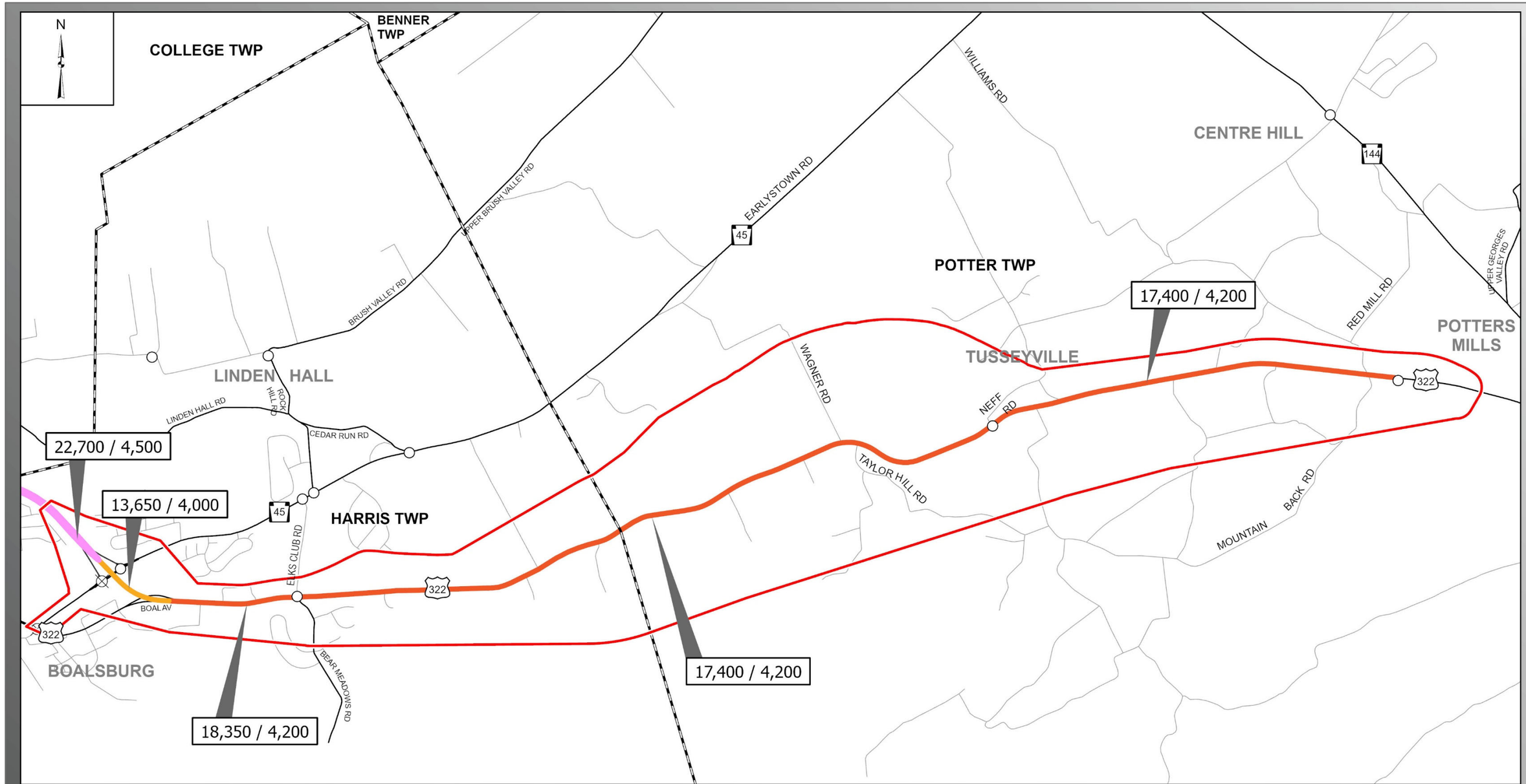

LEGEND

- Project Area
- Municipal Boundaries

Intersections

- Signal
- Stop

0 2,000 4,000 6,000 Feet

Average Daily Traffic Volume

- 0 - 999
- 1,000 - 4,999
- 5,000 - 9,999
- 10,000 - 14,999
- 15,000 - 19,999
- >20,000

8,400 / 300 Average Annual Daily Traffic (AADT) / Average Annual Daily Truck Traffic (AADTT)

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pennsylvania DEPARTMENT OF TRANSPORTATION

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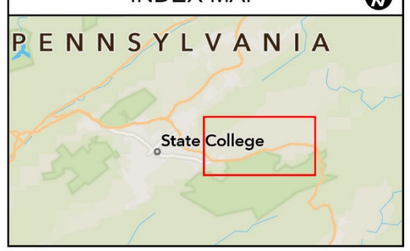

July 2024

State College Area Connector

NO BUILD (DESIGN YEAR 2050) AVERAGE DAILY TRAFFIC VOLUMES

CENTRE COUNTY, PENNSYLVANIA

Figure 7 | 1 Inch = 3,000 Feet

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Service Layer Credits: Community: Centre County Government, data.pa.gov, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

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2.4.2 Origin-Destination

An Origin and Destination Study was performed as part of the Traffic Analysis Technical Memorandum for the State College Area Connector PEL Study (PennDOT[1], 2023). The results of that analysis were used in the revised traffic model to support and determine travel patterns for current and future travel.

Along US 322, the origin and destination analysis showed that heavy trucks make primarily regional trips – trip starts and ends outside the traffic study area (**Table 6**). Specifically, 89% of heavy trucks make regional trips, and 100% of all heavy trucks complete regional or commuter trips – trip either starts or ends outside of the traffic study area. Medium trucks, typically used for deliveries, have a similar trip pattern; however, more medium trucks (35%) complete commuter trips. Alternatively, 74% of all passenger vehicles complete more commuter or local trips – trip starts and ends within traffic study area.

Table 6 – Origin-Destination Summary

Type of Vehicle	Trip Types		
	Local Traffic – Trips Start and End Locally	Commuter Traffic - Trips Start or End Locally	Regional Traffic – Through Trips
Heavy Trucks	0%	11%	89%
Medium Trucks	1%	35%	64%
Passenger Vehicles	4%	70%	26%

2.4.3 Level of Service (LOS)

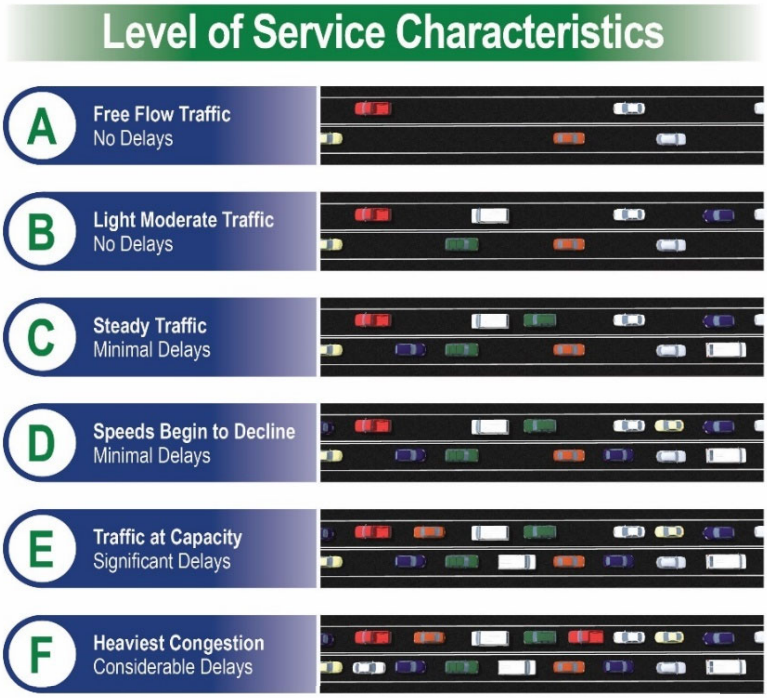


Figure 8 – Level of Service Roadway Characteristics

LOS is a quantitative performance measure that represents the quality of service being provided along a roadway or at an intersection. The measures used to determine LOS for transportation system elements are called service measures. The Highway Capacity Manual (HCM) defines six levels of service, ranging from A to F. LOS A represents the best operating conditions from a traveler's perspective, and LOS F represents the worst (**Figure 8**). Typically, roadways and intersections are not designed to operate at LOS A during peak conditions but instead provide a lower LOS that balances costs and other impacts. The project area consists of both rural and non-rural (urbanized) areas. Current Traffic Engineering Study Guidelines, Policies, and Procedures contained in PennDOT Publication 282, Appendix A (Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits), defines the following as acceptable intersection LOS requirements for a traffic impact study:

- for rural areas, LOS A through LOS C is considered acceptable operation and unacceptable operation is considered LOS D through LOS F.
- for urbanized areas, LOS A through LOS D is considered acceptable operation and unacceptable operation is considered LOS E and LOS F.

Within the project area, most of the roadways and intersections in Harris Township (i.e., in the vicinity of Boalsburg) are located within an urbanized area; the section of US 322 from 500 feet west of the intersection with Elks Club Road/Bear Meadows Road to the eastern project area boundary lies within a rural area. In urban areas, the target LOS would be LOS D and in the remainder of the project area (e.g. Potter Township and the small portion of Harris Township), the LOS C is the target LOS.

The LOS analysis for peak hour traffic was performed for the following facility types: signalized and un-signalized intersections, two-lane roadway segments, multi-lane roadway segments, freeway segments,

and ramp segments. **Figure 9** and **Figure 10** illustrate the LOS for the Base Year (2023) and Design Year (2050), respectively. In the Base Year (2023) scenario, the project area intersections primarily operate at acceptable levels of service with the exception of the unsignalized intersection of US 322 and Elks Club Road/Bear Meadows Road, which currently operates at unacceptable LOS during the peak hour time periods. The roadway segment analysis revealed that within the project area, the 2-lane roadway portion of US 322, from the end of the 4-lane Mount Nittany Expressway to the Bear Meadow Road/Elks Club Road intersection and from the Harris/Potter Township line to the 4-lane US 322 section at Potters Mills, currently operates at unacceptable LOS. In some portions of this LOS-deficient roadway, average travel speeds are up to 15% less than the posted speed limit (**Figure 9**).

In the Design Year (2050) scenario, capacity and operations are anticipated to continue to deteriorate. In addition to the unsignalized intersections along US 322 operating at unacceptable LOS (side streets will experience significant delays during the morning and evening peak hours), US 322 EB off-ramp approach will operate at an unacceptable LOS. The analysis further shows that by 2050 the entire section of US 322, from the 2-lane roadway portion of US 322 at the end of the 4-lane Mount Nittany Expressway to the 4-lane section of US 322 at Potters Mills, will operate at unacceptable LOS. Average travel speeds are anticipated to be reduced by up to 15% less than the posted speed limit in this area (**Figure 10**).

In summary, US 322 serves as the main travel route for local, regional, and interstate traffic including trucks. By 2050, the entire length of US 322 will report unacceptable LOS (E or F) and some unsignalized key intersections will also experience LOS F. In addition, the side streets at these intersections will also have unacceptable congestion/delay as they experience extensive delay; these conditions typically exacerbate safety concerns as the more delay motorists experience over time, the smaller gaps they accept and that tends to increase the likelihood of crashes. Overall, increasing traffic will lead to continuing problems with congestion, mixing of local and through traffic, and increasing safety concerns.

3.0 Summary of Transportation Problems and Community Goals

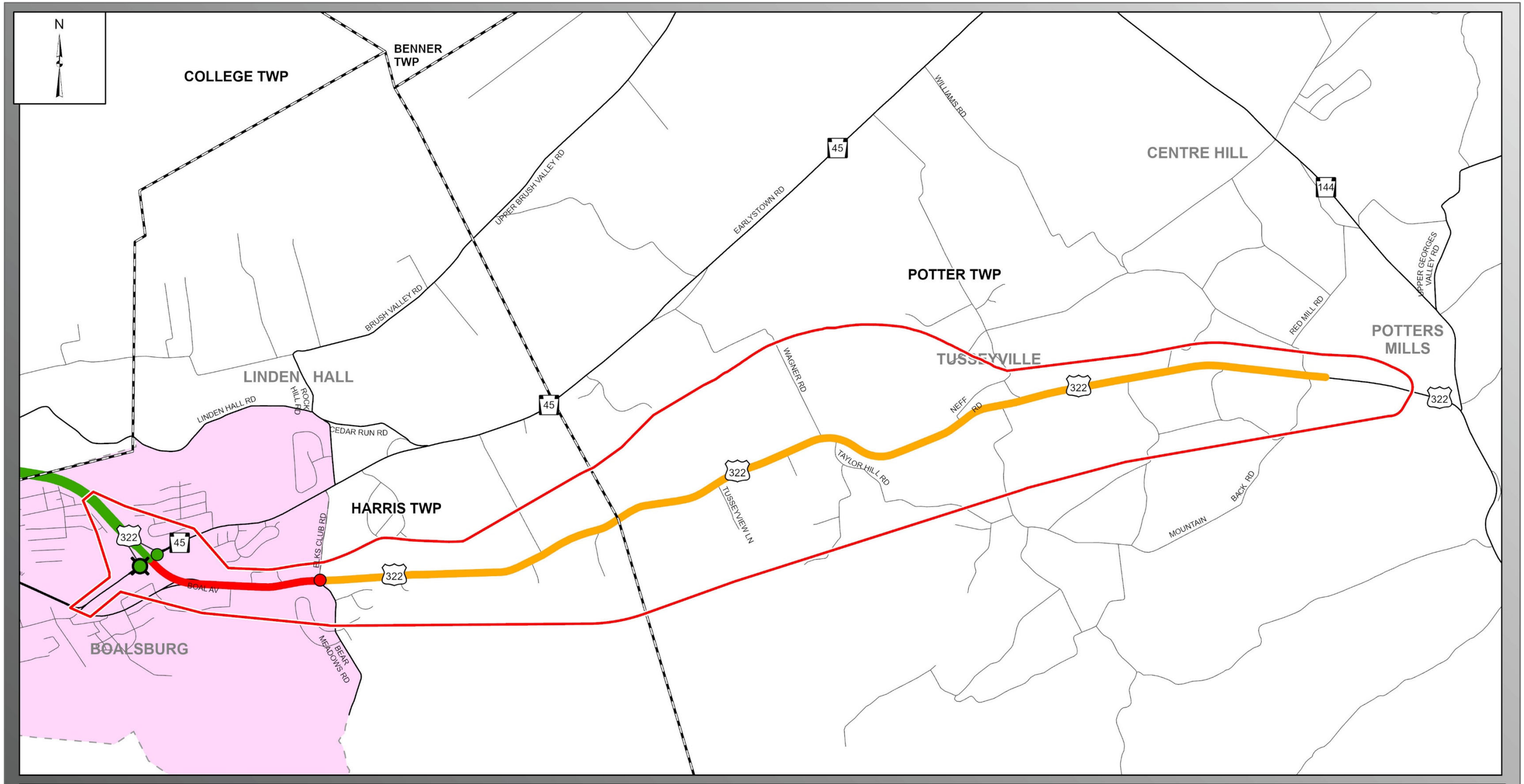
The following provides a summary of the transportation problems identified in the project area that document the need for transportation improvements. Also included is a summary of county and regional planning findings that address not only transportation problems but also community goals identified in adopted county and regional comprehensive plans. This information is intended to facilitate the incorporation of environmental and community values into transportation decisions to the extent practicable.

3.1 Local, County, and Regional Plan Summary

- Following the review of the local, county, and regional plans, the following guiding themes were identified: Promote protection of historic rural communities, preserve the agricultural setting of Penns Valleys and be compatible with local and regional land use plans.
- Address safety problems while preserving rural nature and villages in the study area communities.
- Address recurrent vehicular congestion from high volumes of truck traffic, commuters, and special-event traffic; traveler delays from frequent incidents; and traffic conflicts that result in crashes and safety issues.
- Consider public transit, park-and-ride lots, pedestrian and bicycle facilities, and other non-motorized traffic (e.g., horse and buggy) to address commuter and internal travel needs in the project area.

3.2 Traffic and Safety Study Findings

The traffic analysis determined that the State College area continues to be the primary origin/destination for the local market. An increase in traffic from the northwestern and southeastern Pennsylvania regions, in addition to interstate traffic, adds additional traffic, specifically, heavy and medium trucks, on US 322 as a through route for regional and interstate travel purposes. Traffic volumes along US 322 are anticipated to increase and be at unacceptable LOS by 2050. Additionally, the HSM analysis determined that from a safety perspective there are sections along US 322 that have experienced more crashes than predicted which means there is potential for safety improvements in these areas.



LEGEND

- Project Area
- Municipal Boundaries
- Urban Boundary

Intersections Level of Service

- Signal, Level of Service A-C
- Stop, Level of Service A-C
- Stop, Level of Service E-F

Level of Service

- Level of Service A-C
- Level of Service D
- Level of Service E-F

0 2,000 4,000 6,000 Feet

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July 2024

State College Area Connector

EXISTING (BASE YEAR 2023) LEVEL OF SERVICE

CENTRE COUNTY, PENNSYLVANIA

Figure 9 | 1 Inch = 3,000 Feet

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Service Layer Credits: Community: Centre County Government, data.pa.gov, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

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COLLEGE TWP

BENNER TWP

POTTER TWP

CENTRE HILL

POTTERS MILLS

TUSSEYVILLE

LINDEN HALL

HARRIS TWP

BOALSBURG

BRUSH VALLEY RD

UPPER BRUSH VALLEY RD

EARLYSTOWN RD

WILLIAMS RD

RED MILL RD

UPPER GEORGES VALLEY RD

WAGNER RD

NEFF RD

TAYLOR HILL RD

TUSSEYVIEW LN

MOUNTAIN BACK RD

LINDEN HALL RD

ROCK HILL RD

CEDAR RUN RD

ELKS CLUB RD

BOAL AV

BEAR MEADOWS RD

45

144

322

LEGEND

- Project Area
- Municipal Boundaries
- Urban Boundary

Intersections Level of Service

- Signal, Level of Service A-C
- Signal, Level of Service D
- Signal, Level of Service E-F
- Stop, Level of Service A-C
- Stop, Level of Service D
- Stop, Level of Service E-F

Level of Service

- Level of Service A-C
- Level of Service D
- Level of Service E-F

0 2,000 4,000 6,000 Feet

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA

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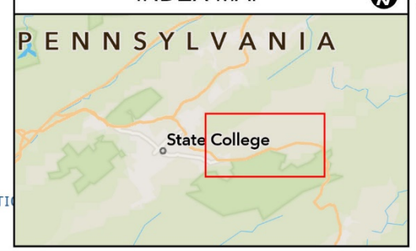

July 2024

State College Area Connector

NO BUILD (DESIGN YEAR 2050) LEVEL OF SERVICE

CENTRE COUNTY, PENNSYLVANIA

Figure 10 | 1 Inch = 3,000 Feet

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4.0 Project Purpose and Need

The purpose and needs provide a foundation to help identify and evaluate a range of alternatives. As part of the NEPA process, the purpose and need statements will be used as a foundation to evaluate how well the project alternatives meet these identified purpose and needs.

4.1 Project Area Needs

The needs include congestion, safety, and system continuity as summarized below:

- **High peak hour traffic volumes cause congestion and result in unacceptable Level of Service (LOS) (LOS D [rural only], E, or F) on US 322 roadways and intersections.**
    - US 322 serves as the main travel route for local, regional, and interstate traffic, including trucks, within the project area. Currently during peak hours, US 322, between the US 322 Mount Nittany Expressway and the Mountain Back Road/Red Mill Road intersection (just west of Potters Mills), operates at a LOS D or E. The 2050 peak hour traffic volumes are anticipated to increase 41% which will increase congestion and worsen the LOS along the US 322 corridor. In 2050, LOS E is still anticipated for the entire US 322 corridor from the Mount Nittany Expressway to Potters Mills Gap, and travel speed will be further decreased with an average travel speed 15% less than the posted speed limit.
    - Unsignalized intersections along US 322 are anticipated to operate at unacceptable LOS (LOS D, E, or F) due to high volumes of traffic along the uncontrolled main roadway which limit the availability of gaps in the traffic for making turning movements.
    - US 322 averages three times more truck traffic within the project area in comparison to other similar roadways statewide, and truck traffic is expected to increase by 27% along the corridor by 2050. The additional truck traffic increases overall congestion and contributes to unacceptable levels of service.
- **Existing roadway configurations and traffic conditions contribute to safety concerns in the project area.**
    - Crashes were identified along a majority of the US 322 corridor with some concentrations at unsignalized intersections (e.g., Elks Club Road/Bear Meadows Road, Neff Road, and Red Mill Road/Mountain Back Road). Additionally, between 2017 and 2021, nearly 19% of all crashes along US 322 were caused by a heavy vehicle.
    - The Highway Safety Manual (HSM) analysis results indicate the potential for safety improvements along a majority of the US 322 corridor and at unsignalized intersections through the project area. Increasing traffic along US 322 has reduced the number of gaps available for side street and driveway traffic attempting to enter or exit US 322. This causes drivers to make turning movements outside of their comfort zone which contributes to crashes at side street and

driveway intersections. Additionally, the large percentage of through traffic exacerbates the issue as these drivers may be unfamiliar with the roadway characteristics.

- **The roadway network and configuration in the project area lacks continuity and does not meet driver expectations.**
    - US 322 is on the National Highway System and is classified as a principal arterial that is intended to provide long-distance connections. US 322, adjacent to the project area (near both Potters Mills and Boalsburg), is a four-lane, limited-access, divided highway facility with exit and entrance ramps to provide access to the local roadway network. This type of roadway is conducive to higher travel speeds and supports regional and interstate travel patterns. These adjacent sections of US 322 feed traffic into the project area, where US 322 is currently a two-lane, non-divided highway with unrestricted access to driveways and intersecting roadways. The abrupt change in roadway configuration and characteristics creates a roadway network that lacks continuity of facility type and function.
    - Within the project area, US 322 serves local, regional, and interstate traffic (including truck and commuter traffic). The road also services other travel modes including farm equipment traffic and bicycle traffic. The change in the roadway cross-section at both ends of the corridor creates inconsistencies which may not meet driver expectations particularly for regional and interstate traffic. The potential for additional uncontrolled access points along US 322 would continue to degrade roadway continuity along the corridor and create additional locations for conflicts that could result in crashes.

4.2 Project Purpose

The purpose of this project is to improve roadway congestion by achieving acceptable LOS and to address safety issues by reducing the predicted crash frequency along the US 322 corridor between Potters Mills and Boalsburg. Additionally, the project will aim to provide a transportation network that meets driver expectations.

4.3 Logical Termini and Independent Utility

Logical termini are defined as the rational end points for a transportation improvement and the review of the environmental impacts from such an improvement, identified through the concurrent assessment of the identified project needs and purpose and of known features (land uses, population concentrations, cross route locations, etc.). FHWA guidance on the determination of logical termini (FHWA, 1993) recommends that termini be established such that a project/proposal should:

- Connect logical termini and is of sufficient length to address environmental matters on a broad scale,
- Will not restrict consideration of alternatives for other reasonably foreseeable transportation improvements, and
- Has independent utility or independent significance, i.e., be useable, and be a reasonable expenditure even if no additional transportation improvements in the area are made [23 CFR 771.111(f)].

Based on federal guidance and historic case law, the key criteria used to identify and confirm the logical termini and independent utility for this project included:

- Rational endpoints for project specific alternative development,
- Rational endpoints for impact analysis,
- Project serves a significant purpose by itself, even if other projects are not constructed,
- Does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements,
- Does not force other improvements with unforeseen impacts.

4.3.1 Logical Termini

For the State College Area Connector project, the logical termini in the western portion of the project area are US 322 (Mt. Nittany Expressway) and in the eastern portion of the project area are US 322 (Potters Mills Gap). At both endpoints, US 322, Mt. Nittany Expressway and Potters Mills Gap sections, is a four-lane limited access highway that provides high capacity and efficient conveyance of traffic. US 322 (Mt. Nittany Expressway) provides traffic traveling along the corridor to and through Centre County's economic hub of State College and links to points south, east, and west via I-99 and I-80. US 322 (Potters Mills Gap) provides connections for traffic traveling along the corridor to Harrisburg and links to points south, east, and west via I-83 and I-81. The project area between the Mt. Nittany Expressway and Potters Mills Gap sections of US 322 provides sufficient length (approximately 8 miles) to fully identify and evaluate environmental impacts. Both termini roadways were also found to operate at an acceptable LOS and could accommodate additional future traffic (LOS C, LOS D or better).

4.3.2 Independent Utility

Any proposed alternative will help to remedy existing transportation issues and meet future mobility and access needs. The project will have independent utility, will be usable, and will be reasonable expenditure even if no other transportation improvements are made in the area.

4.3.3 No Potential for Forcing Other Transportation Improvements

With high-capacity connections at each end of the project area, the proposed improvements would not force other improvements or cause unforeseen impacts. Any project-related impacts would be addressed as part of this project proposal. Therefore, the project would not require additional improvements in other areas to be effective nor does it restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

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