September, 2019

TECHNICAL REPORT

EISENHOWER DRIVE EXTENSION

Alternatives Analysis Report

PennDOT ECMS Agreement: E00187 / Hanover Area Transportation Improvements / WO#12

Submitted to:
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Engineering District 8-0
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1. INTRODUCTION

The Eisenhower Drive Extension Project consists of the construction of transportation improvements within the project area, which includes portions of Conewago Township and MchSherrystown Borough (Adams County) and Hanover Borough (York County). The project location map, Figure 1 shown below, depicts the limits of the project area.

This technical report documents the alternatives analysis conducted and includes the recommended improvements needed to meet the project purpose and needs. A variety of alternatives were considered including a No Build Alternative, Build Alternative which included various off-alignment alternatives, and a Transportation Systems Management (TSM) alternative which evaluated improvements to existing corridors within the project area.

This technical document provides the following.

- General project background
- Summary of existing and proposed conditions of the project area
- Summary of process and methodology used to evaluate the initial alignment alternatives and the current alignment alternatives
- Statement of conclusions

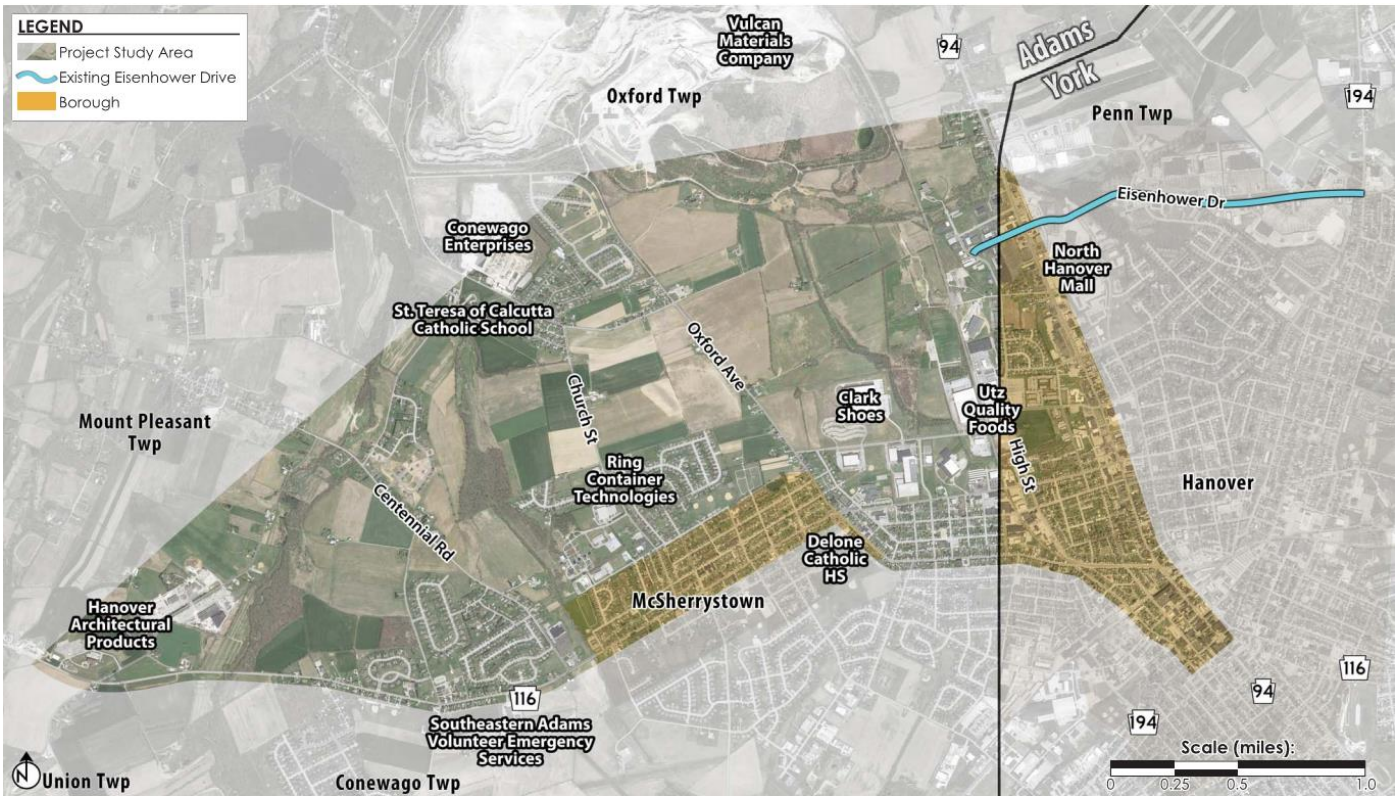

Figure 1. Project Location Map

1.1. PROJECT AREA DESCRIPTION

The project area for is primarily located within Conewago Township and McSherrystown Borough in Adams County and Hanover Borough, York County. Regionally, the project area is situated in south-central Pennsylvania approximately 10 miles north of the Maryland border between Gettysburg Borough and York City.

The project lies within the Piedmont Physiographic Province which consists of rolling lowlands and shallow valleys separated by rounded, isolated low hills. Outside of McSherrystown and Hanover Boroughs, the project area is mainly active farmland and residential development. The focus of the economic and community development, including retail and other commercial strip development, restaurant, and industrial development has primarily occurred within the Boroughs of McSherrystown and Hanover.

1.2. REVIEW OF PROJECT NEEDS

The Hanover Area Transportation Planning Study prepared for PennDOT in the spring of 1997 first established a Recommended Transportation Improvements Program which identified several key projects aimed at addressing the transportation needs in the area. Based on a detailed review of the existing conditions, the transportation needs identified in the 1997 study remain valid today as current conditions within the project area do not meet minimum standards for safety, congestion, and non-motorized uses. The current roadway system within the two adjacent Boroughs operates at unacceptable levels of service. The roadways also have significant crash histories, with most experiencing crash rates higher than the statewide average for similar roadways, including fatal crashes and crashes involving pedestrians. The need is therefore based on the multi-modal use of the region, inadequate capacity, significant growth from future development, and safety concerns for both motorized vehicles and pedestrians. As a result, the following project needs have been identified:

- Improve traffic congestion
- Improve vehicular and pedestrian safety
- Improve mobility and connectivity

The purpose of this project is to facilitate safe and efficient multi-modal travel within the project area to meet both the current and future transportation needs of the area. Anticipated transportation improvements would reduce congestion (e.g. truck and commuter traffic) and accommodate planned growth within the region. A secondary purpose of the project is to provide a functional and modern roadway that meets current design criteria and promotes and enhances multi-modal connections and other transportation alternatives within and surrounding the project area.

2. EXISTING CONDITIONS

The project area is generally bounded by Carlisle Street (SR0094) in the east, Hanover Road/Main Street (SR 0116) in the south, Bender Road (T464) in the west, and SR 2008 (Edgegrove Road) in the north. Additionally, Hanover Borough is one of the largest urbanized areas within Pennsylvania not directly served by the Interstate highway system. This section provides an overview of the intersections and roadways within the project area, as well as a broader description of existing zoning and land use.

2.1. TRANSPORTATION NETWORK

Regionally, the primary roadways serving the project area are Carlisle Street and Hanover Road/Main Street/3rd Street. Carlisle Street provides access to US Route 30 and US Route 15 in the north and Interstate 795 to the south in Maryland. Hanover Road/Main Street/3rd Street provide access regionally to Bonneauville Borough and Gettysburg Borough to the west and Spring Grove Borough and York City to the east. Carlisle Street and Hanover Road/Main Street/3rd Street form the square in downtown Hanover Borough just south of the project area.

2.1.1. Primary Roadways

The following summarizes the general characteristics of the roadway network within the project area.

2.1.1.1. Eisenhower Drive (T679/Boro)

Eisenhower Drive is a non-state-maintained roadway that is classified as a Collector and extends between High Street and Broadway Street in northern Hanover Borough. The posted speed limit along Eisenhower Drive varies between 25 and 35 mph. Land uses adjacent to the roadway are dense commercial. Traffic signals exist along Eisenhower Drive at the main intersecting roadways (Broadway Street and Carlisle Street), as well as at points in between at select commercial access points. Sidewalks are available but are not continuous through the corridor. Travelers currently utilize Eisenhower Drive and High Street, as an alternate to Carlisle Street, to travel to and from McSherrystown Borough and points west along Hanover Road/Main Street.

2.1.1.2. Carlisle Street (SR 0094)

Carlisle Street is classified as an Other Principal Arterial with a posted speed limit of 35 mph and is the major north-south roadway through Hanover Borough. North of the Kuhn Drive/Dart Drive intersection there are two travel lanes provided in each direction with a continuous two-way left turn lane (TWLTL). Land uses adjacent to the roadway are primarily commercial. South of the Kuhn Drive/Dart Drive intersection there is one travel lane provided in each direction with a TWLTL. Sidewalks exist along both sides of Carlisle Street within the project area. Land uses adjacent to this section of roadway are mixed use and include high-density residential and

commercial. This corridor includes many access points to the commercial and residential land uses and typically provides signalized access at major intersections (with turn lanes).

2.1.1.3. Hanover Road/Main Street/3rd Street (SR 0116)

Hanover Road/Main Street/3rd Street is an east-west roadway that travels through multiple jurisdictions within the project area. Within Conewago Township, Adams County, Hanover Road is a two-lane Other Principal Arterial with a posted speed limit of 45 mph from Littlestown Road/Bender Road to Race Horse Road/Sunday Drive and a posted speed limit of 40 mph from Race Horse Road/Sunday Drive to just east of Centennial Road (township line). Hanover Road has the design characteristics of a typical Pennsylvania rural two-lane highway. Land uses adjacent to the roadway are typically residential with occasional commercial uses. Traffic signals are provided only at major intersections. The only pedestrian facilities along this stretch are curb ramps found at the crossing areas of the signalized intersections.

Within McSherrystown Borough, Hanover Road becomes Main Street. Main Street remains an Other Principal Arterial but the characteristics of the roadway change to a suburban/urban cross-section consisting of one lane in each direction and including on-street parking in the eastbound direction. The posted speed limit is 25 mph. Sidewalks are provided on both sides of the street and vehicular access to the residential land uses are typically provided by parallel facilities (from the back). Land uses are high-density residential housing in close proximity to the edge of the roadway. Neighborhood commercial land uses also exist along the corridor, typically at cross streets. The only traffic signal along Main Street within the borough is located at Oxford Avenue/Elm Avenue. A recent intersection improvement project added a northbound left turn lane at the intersection of Main Street/Elm Avenue and 3rd Street/Oxford Avenue to increase capacity and improve operations.

At its intersection with Oxford Avenue, Main Street changes to 3rd Street and travels southeast into Conewago Township and eventually Hanover Borough, York County. Similar to the section through McSherrystown Borough, 3rd Street is an Other Principal Arterial providing one lane in each direction including on-street parking in the eastbound direction and sidewalks on both sides of the roadway. The posted speed limit is 25 mph and adjacent land uses are primarily high-density residential.

2.1.2. Key Intersections

The project area includes 11 unsignalized and six signalized intersections within the existing network. The following intersections and their corresponding traffic control devices are listed below:

- Carlisle Street (SR 0094) & Eisenhower Drive (T679/Boro) (Signal controlled)
- Carlisle Street (SR 0094) & Elm Avenue (SR 3098) (Signal controlled)
- Hanover Road (SR 0116) & Littlestown Road (SR 2019)/Bender Road (T464) (Two-way stop controlled)

- Hanover Road (SR 0116) & Race Horse Road (SR 2021)/Sunday Drive (T460) (Signal controlled)
- Main Street (SR 0116) & Centennial Road (SR 2006) (Signal controlled)
- Main Street (SR 0116) & 5th Street (T468/Boro) (Two-way stop controlled)
- Main Street (SR 0116) & 2nd Street (SR 2011) (Two-way stop controlled)
- Oxford Avenue (SR 2008)/3rd Street (SR 0116) & Main Street (SR 0116)/Elm Avenue (SR 2008) (Signal controlled)
- Elm Avenue (SR 3098) & High Street (T535/Boro) (Signal controlled)
- Eisenhower Drive (T679/Boro) & High Street (T535/Boro) (All-way stop controlled)
- High Street (T535/Boro) & Kindig Lane (T477/Boro) (Two-way stop controlled)
- Oxford Avenue (SR 2008) & Kindig Lane (T477/Boro) (Two-way stop controlled)
- Oxford Avenue (SR 2008) & Edgegrove Road (SR 2008) (Two-way stop controlled)
- Edgegrove Road (SR 2008) & Church Street (SR 2011) (Two-way stop controlled)
- Centennial Road (SR 2006) & Sunday Drive (T460) (Two-way stop controlled)
- Centennial Road (SR 2006) & Bender Road (T464) (Two-way stop controlled)
- Bender Road (T464) & Geiselman Road (T478) (Two-way stop controlled)

2.2. RESOURCE OVERVIEW

The project area has various environmental features, including community resources, aquatic resources, agricultural land, and historic resources. The following provides a brief overview of the existing natural and cultural resources in the project area. Appendix A provides figures depicting the various resources.

2.2.1. Community Resources

There are no hospitals or elderly care facilities located within the project area; however, several schools are located within and in the immediate vicinity of the project area. High-density residential neighborhoods are primarily located in the southern portion of the project area. Additional residential neighborhoods occur within the northern portion of the project area adjacent to agricultural lands. Rabbittransit, the York Adams Transportation Authority, features three main fixed bus routes that serve the Hanover area and run within or adjacent to the project area. There are no established bike routes located within or immediately adjacent to the project area; however, sidewalks are generally available for pedestrians within McSherrystown and Hanover Boroughs.

The project area intersects with three municipalities, Conewago Township, Hanover Borough, and McSherrystown Borough. Existing land use vary across these three communities.

Conewago Township includes two primary land uses. These include agricultural and residential. However, the primary use along the High Street and Kindig Lane corridors is industrial. This industrial segment of the township is a key origin/destination for tractor trailers, resulting in higher truck counts in this area. In addition, there is a small portion of the township zoned for commercial

uses. This area is located on the eastern edge of the township, near the intersection of Eisenhower Drive and High Street. The commercial land uses extend west, just beyond the CSX rail corridor.

Hanover Borough, along the Carlisle Street corridor consists primarily of commercial uses. Other uses within the Borough include residential and institutional uses. McSherrystown Borough primarily consists of residential land uses, however, a majority of the land use along Elm Avenue, between 3rd Street and the McSherrystown/Hanover Borough line are commercial and industrial.

2.2.2. Agricultural Resources

A large portion of the project area, west of Carlisle Street and north of Hanover Road/Main Street, consists of productive agricultural land that has been in active agriculture for decades. Agricultural Security Areas (ASA) and Agricultural Conservation Easements are present, as well as parcels enrolled under preferential tax assessments, parcels zoned for agricultural activities, soils with Capability Classes I-III, Prime Farmland Soils, and Farmland of Statewide Importance.

2.2.3. Aquatic Resources

Wetlands and watercourses were identified, delineated, and mapped within the project area in from November of 2016 through December of 2018. Field investigations resulted in the identification and delineation of 17 palustrine wetlands totaling approximately 26.01 acres within the project area and the identification of 16 watercourses, which were located in the Plum Creek-South Branch, Conewago Creek and Headwaters South Branch Conewago Creek HUC-12 sub-watersheds. The primary streams that either occur within the project area or feature tributaries within the project area include Plum Creek, the South Branch Conewago Creek, and Slagles Run. All three of these perennial streams and associated tributaries within the project area are classified as Warm Water Fisheries (WWF) by the Pennsylvania Department of Environmental Protection's (PADEP), PA Code Title 25, Chapter 93 Water Quality Standards. Both Plum Creek and South Branch Conewago Creek feature FEMA-delineated 100-year floodplains within the project area.

2.2.4. Wildlife Habitat/Threatened and Endangered Species

The project area does not contain State Forests, Parks or Gamelands, nor does it contain any other forested areas which would provide substantial wildlife habitat. Forested lands within the project area are limited to stream corridors.

A review of the Pennsylvania Natural Diversity Inventory (PNDI) was conducted. The PNDI results identified a potential impact to a PA endangered species under the jurisdiction of the PA DCNR, the Shumard's Oak (Quercus shumardii). In addition, populations of the federally threatened bog turtle (Glyptemys muhlenbergii) are known to occur within both Adams and York Counties. Coordination with the DCNR regarding the Shumard's oak, and coordination with the USFWS regarding the bog turtle, as well as the completion of a Bog Turtle Assessment and a Phase II Bog Turtle Survey were conducted. The DCNR determined that no impact was likely to result from the proposed project given the avoidance of documented habitat for the Shumard's oak. Although marginal potential

habitat was identified from the Phase 1 Bog Turtle Habitat Assessment, no bog turtles were observed during the Phase 2 Bog Turtle Surveys. Coordination with the USFWS was completed on July 9, 2019, in which the agency determined that the project will not affect the bog turtle.

2.2.5. Parkland

A review of existing resources identified local public and private parkland within the western portion of the project area along Bender Road. Basilica Picnic Grove is a public park and is located off Centennial Road to the east of Bender Road.

2.2.6. Cultural Resources

Historic Resources

An above-ground historic resources reconnaissance survey was completed in 2017, which identified existing historic resources and resources that required additional, intensive-level analysis. The reconnaissance survey documented a total of 751 properties within the entire Area of Potential Effect (APE). The survey found two resources listed in the National Register of Historic Places (NRHP), two resources eligible for listing in the NRHP, and fifteen resources that require additional survey.

An intensive-level survey was completed in 2018. Only those resources that would be potentially affected by a project alternative were studied intensively. This included two historic districts, six historic farms, one historic railroad, and five historic industrial or institutional properties. Through consultation with the Pennsylvania State Historic Preservation Office (PA SHPO) and consulting parties, PennDOT identified a total of 10 resources in the APE that are eligible for or listed in the NRHP.

Table 1. Historic Resources
Listed in the NRHP
Hanover Historic District
Conewago Chapel
Identified Eligible for Listing in the NRHP
Devine Chapel Farm
Emeco Office and Factory Building
Gettysburg Railroad
Hanover Furniture Company
Henry Hostetter Farm
Hopkins Manufacturing Company
Poist Chapel Farm
Utz Potato Chip Company

An effects evaluation will be conducted as the project design progresses.

Archaeological

According to the Cultural Resource GIS system (CRGIS), there are 10 previously recorded archaeological sites recorded in the project area but not within the APE. The APE is located mainly on the edges of agricultural fields within the project area. The APE equates to 35.5 hectares (82.8 acres), and its total length is approximately 13.5 kilometers (8.4 miles). A minor portion of the project area contains parts of roads, which were considered to have no archaeological potential due to previous construction-related ground disturbance. Approximately 1.1 hectare (2.7 acres) is situated on roads and has no archaeological potential.

The Statewide Pre-Contact Probability Model (SPPM) was utilized to identify areas of high, medium, and low probability for archaeological resources. Based on the SPPM, the APE assigned 13.3 hectares (32.8 acres) of high potential, 14.8 hectares (36.5 acres) of medium potential, and 9.3 hectares (22.9 acres) of low potential. Most of the APE fell within the moderate probability zone of the statewide precontact and historic models. High and moderate precontact probability zones occur near the two streams intersecting the APE. A Phase IB archaeological field investigation to identify pre-contact and/or historic archaeological resources within the APE will be conducted as the project design progresses.

2.2.7. Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 prohibits the FHWA and other USDOT agencies from using land from publicly owned parks, recreation areas, wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use.

Section 4(f) properties within the project area include all historic resources listed above including contributing resources to the Hanover Historic District. Public recreation areas include Basilica Picnic Grove.

3. ALTERNATIVE DEVELOPMENT & EVALUATION

The alternative development process was guided by the need to facilitate safe and efficient intermodal travel as well as provide a functional and modern roadway that meets current design criteria and promotes multimodal transportation. Potential solutions were then analyzed for their ability to minimize impacts to sensitive environmental features including natural, cultural, socioeconomic resources, and agricultural resource impacts. Other potential design issues that were taken into consideration were the crossing of the existing CSX Railroad, access to local connector roads, utility impacts (Substation), potential impacts on adjacent residential areas, and the determination of the western terminus.

The evaluation process for the Eisenhower Drive Extension Project included the following steps:

- Establish engineering parameters
- Evaluation of alternatives with regards to addressing project purpose and need
- Conduct initial agency and public involvement
- Develop conceptual alternatives
    - Identify conceptual alternatives or components of the conceptual alternatives that will not address project needs
- Conduct detailed alternatives analysis
    - Examine impacts of possible solutions on natural, socioeconomic, cultural resources, and agricultural resources
    - Evaluate engineering suitability
    - Evaluate traffic and safety considerations
    - Estimate costs of possible solutions
    - Analyze public/municipal input, impacts, costs, and engineering factors and determine which solutions, or components of solutions, are reasonable for more detailed engineering and environmental analyses
- Identify Recommended Preferred Alternative

Initially, broad-brush solutions were identified to help establish general parameters for potential alternatives to address the project purpose and needs. These solutions included maintaining conditions as they exist, improving the existing transportation network, off-alignment improvement, and a combination of improving the existing transportation network and a partial off-alignment alternative. Traffic and safety studies were conducted during the initial phase of the project, culminating with the Traffic & Operational Alternatives Analysis (June 2019). The various studies helped to define the project purpose and need, as well as establish engineering parameters for proposed improvements. Also, conceptual design approaches were defined for critical elements such as stormwater management and intersection controls. The result of the studies and conceptual approaches resulted in the establishment of the following engineering parameters:

- Proposed off-alignment solutions would include a two-lane, open section with 12’ travel lanes, 8’ shoulders, safety grading, and linear drainage swales.

  - Design elements, including a shared use path and wide median were evaluated. However, based on local and public feedback, as well as additional impact assessment, these elements were dropped from consideration. Specifically, the municipalities raised concerns about the maintenance requirements associated with both the median and the shared use path, the public was not in support of the shared use path, and the additional width associated with the median and shared use path increased the impacts to natural resources.
- Intersection improvements would include new traffic signals or traffic signal improvements for enhancements to the existing roadway network. Traffic signal / roundabout options or stop-controlled / roundabout options would be evaluated for the off-alignment alternatives.
- Linear bio-retention facilities would be provided along off-alignment alternatives, with larger basin facilities located at the proposed intersections.

These general engineering parameters were used in developing the roadway sections and defining the impacts associated with the various build alternatives.

Public involvement was a key element of the development of the conceptual alternatives, detailed analysis, and identification of the recommended preferred alternative. Initially, the public involvement focused on coordination with elected officials, Adams and York County staff, and municipal officials and staff. The coordination included collecting information and feedback essential in establishing an initial set of potential solutions to addressing the project's purpose and needs.

3.1. CONCEPTUAL ALTERNATIVE DEVELOPMENT & EVALUATION

A conceptual alternatives analysis phase was initially conducted by considering a variety of alternatives on new alignment, partial new alignment alternatives, as well as options to improve the existing roadway network in order to address the failing level of service (LOS) and improve safety within the project area. A total of eight conceptual alternatives were developed within the project area. The conceptual alternatives included the No-Build alternative, the Transportation Systems Management (TSM) alternative (alternative 1), and a Build alternative (called alternatives 2 through 7) which were new and partial new alignments options. In addition, three sub-alternatives options (A, B, and C) were developed to address the tie-in location for the new alignment at the western end of the project.

Initially, the eight conceptual alternatives were evaluated, and several alternatives / sub-alternatives were dismissed from further studies in 2017 because they did not meet the project purpose and need. The following provides a brief overview of each of the alternatives, as well as an explanation of why the alternatives dismissed during this phase of the analysis were eliminated from further consideration. In addition, the attached Appendix B, Conceptual Alignment Alternatives provides a graphical representation of the approximate limits of each alternative.

3.1.1. No-Build Alternative

The No Build alternative would consist of taking no action to improve the traffic or roadway system in the community.

3.1.2. Transportation Systems Management (TSM) Alternative (Alternative 1)

The TSM alternative includes intersection improvements such as, installation of new traffic signals, revising existing signal timing, construction of additional through lanes, left-turn lanes and channelized right-turn lanes. These improvements are geared to improve motorized and non-motorized safety and levels of service, reduce congestion and accommodate for planned growth, promote and enhance multi-modal connections, and reduce impacts of truck and commuter traffic within the project area. The level of improvements were established based on the requirements to provide a minimum design year LOS D for the project area. Beginning at the existing Eisenhower Drive and Carlisle Street intersection (located at the eastern edge of the project area), the TSM alternative proposed improvement south along Carlisle Street intersecting W. Elm Avenue and continues south on Carlisle Street to the intersection of 3rd and Carlisle Street. The alternative also proposes improvements west on W. Elm Avenue until Hanover Road.

3.1.3. Alternative 2

This alignment alternative includes off-alignment improvements at the east end of the project area before continuing on the existing roadway network west of Oxford Avenue. Beginning at the existing Eisenhower Drive and High Street intersection (located at the eastern edge of the project area), Alternative 2 would travel west over the CSX rail line and continue north about 30 degrees bisecting farmland until the alignment intersects Edgegrove Road. Alignment 2 proceeds to travel westbound along Edgegrove Road until Chapel Road; following Chapel Road southbound until Centennial Road.

This alternative was dismissed during the conceptual alternative development phase because of the existing residential properties along Edgegrove Road and the result in multiple access points along the proposed alternative route. This caused both congestion and safety concerns which fell short of addressing the overall project purpose and need.

3.1.4. Alternative 3

Alternative 3 is a complete off-alignment alternative located towards the northern half of the project area. Beginning at the existing Eisenhower Drive and High Street intersection (located at the eastern edge of the project area), alternative 3 would travel west over the CSX rail line and continue westbound along the northern edge of the project area, intersecting with Oxford Avenue and Church Street and crossing Plum Creek. After crossing Plum Creek alternative 3 would continue southbound along the western edge of Plum Creek and intersect with Centennial Road near the existing Centennial Road and Sunday Drive intersection.

3.1.5. Alternative 4

This alternative is a complete off-alignment alternative located towards the southern limits of the agricultural lands within the project area. Beginning at the existing Eisenhower Drive and High Street intersection, Alternative 4 would travel west over the CSX rail line and continue westbound

along the northern edge of the project area. East of Oxford Avenue, alternative 4 would turn southbound and cross Oxford Avenue between the existing intersections of Kindig Lane (to the south) and Edgegrove Road (to the north). Alternative 4 would then turn westbound and continue along the southern edge of the Smith farm, adjacent to residential neighborhoods to the south. After crossing Plum Creek, alternative 4 would continue westbound and intersect with Centennial Road near the existing Centennial Road and Sunday Drive intersection.

3.1.6. Alternative 5

Similar to alternative 4, alternative 5 is a complete off-alignment alternative located towards the southern limits of the agricultural lands within the project area. Beginning at the existing Eisenhower Drive and High Street intersection, Alternative 5 would travel west over the CSX rail line and quickly turn southbound to extend along the eastern edge of the Sheaffer property. It would turn westbound and extend along the property line between the Sheaffer property and the Clark America (Clarks Shoe) property. Alternative 5 would continue westbound, crossing Oxford Avenue, Church Street, and Plum Creek along the southern edge of the Smith farm, adjacent to residential neighborhoods to the south. After crossing Plum Creek, alternative 5 would continue westbound and intersect with Centennial Road near the existing Centennial Road and Sunday Drive intersection.

3.1.7. Alternative 6

This alignment alternative includes improvements to the existing roadway network at the east end of the project area before continuing on an off-alignment path west of Oxford Drive. Beginning at the existing Eisenhower Drive and High Street intersection (located at the eastern edge of the project area), Alternative 6 traverses south along High Street (which is a mixed-use neighborhood with residential and commercial properties) until Kindig Lane. The alignment then moves west on Kindig Lane (which is a commercial area) until Oxford Avenue. From Oxford Avenue, the alignment continues as an off-alignment road along the southern edge of the Smith farm, adjacent to the residential neighborhoods to the south. After crossing Plum Creek, Alternative 6 would continue westbound and intersect with Centennial Road near the existing Centennial Road and Sunday Drive intersection.

This alternative was dismissed, because the combination of the at-grade rail crossing and truck traffic at the UTZ factory impacted this alternative’s ability to meet the traffic congestion need.

3.1.8. Alternative 7

Alternative 7 is primarily an off-alignment alternative, however, the proposed alignment utilizes a portion of the existing roadway network between Oxford Avenue and Church Street. Beginning at the existing Eisenhower Drive and High Street intersection (located at the eastern edge of the project area), Alternative 7 would travel west over the CSX rail line for approximately 500ft and then continues north about 30 degrees bisecting farmland until the alignment intersects a private access

road east of Edgegrove Road. Alignment 7 proceeds westbound along Edgegrove Road until Chapel Road; following Chapel Road southbound until Centennial Road.

This alternative was dismissed because of the existing residential properties along Edgegrove Road and the result in multiple access points along the proposed alternative route. This caused both congestion and safety concerns which fell short of addressing the overall project purpose and need.

3.1.9. Sub-Alternative A

This sub-alternative proposed to use existing/improved Centennial Drive to connect back into existing Hanover Road/Main Street corridor west of McSherrystown.

Sub-alternative A was dismissed because of traffic congestion and safety concerns associated with increasing traffic through residential areas and requiring traffic to return to Hanover Road/Main Street within an area of higher traffic congestion.

3.1.10. Sub-Alternative B

Sub-alternative B would utilize existing Sunday Drive to tie the new alignment into Hanover Road/Main Street west of McSherrystown. This alternative would include intersection improvements and traffic signal upgrades at the intersection of Sunday Drive and Hanover Road/Main Street.

3.1.11. Sub-Alternative C

Sub-alternative C would utilize a short stretch of the existing Sunday Drive before continuing westbound on a new alignment. Sub-alternative C would ultimately tie into Hanover Road/Main Street to the east of the existing structure crossing Conewago Creek South Branch and will require either a new traffic signal or roundabout improvements at the intersection with existing Hanover Road/Main Street.

In summary, the conceptual alternatives development phase concluded with alternatives 1 (TSM), 3, 4, 5 and sub-alternatives B and C identified as meeting the purpose and need of the project and were advanced for further development and 2, 6, 7 and sub-alternative A being dismissed from further development.

3.2. DETAILED ALTERNATIVE DEVELOPMENT & ANALYSIS

Following the conceptual alternatives development and evaluation phase, a more detailed analysis was conducted on the remaining alternatives. This process included additional data gathering, background research, and field studies. The no-build alternative, the TSM alternative, and the various off-alignment alternatives were reviewed extensively with the impacted municipalities, York and Adams Counties, as well as presented to the public through two open houses conducted on June 21, 2018 and May 9, 2019.

The detailed alternative analysis evolved as a two-step analysis/evaluation process. The initial step resulting in the dismissal of a few of the remaining build alternatives, while the second step resulted in the in identification of the recommend preferred alternative.

3.2.1. Detailed Alternative Analysis – Step 1

As part of the detailed alternatives analysis, JMT assessed impacts associated with aquatic resources, agricultural resources, cultural resources, hazardous materials, community resources, and property disposition. In addition, JMT sought feedback from municipal and county leaders and input from the general public for each of the alternatives and sub-alternatives.

Potential aquatic resource impacts, hazardous material impacts, right-of-way impacts, and property displacements are similar across each of the three new alignment alternatives. See the attached Table 1, Preliminary Alternatives Impact Matrix. Alternatives 4 and 5 would have 1 acre of impacts to aquatic resources, primarily as a result of crossing Plum Creek and impacting the associated wetland area, while alternative 3 would result in 0.2 acres of impacts to aquatic resources. Each alternative would impact four hazardous sites identified as High Risk and two hazardous sites identified as Medium Risk. Property displacements are also similar for each alternative. Alternatives 3 and 4 would result in three displacements while alternative 5 would result in four displacements.

Table 1 illustrates that the new alignment alternatives similarly affect aquatic resources, hazardous material sites, right-of-way impacts, and property displacements; these impacts are not the subject of this alternative's dismissal narrative. However, preliminary analyses have indicated that the impacts to agricultural resources, cultural resources, and Section 4(f) properties vary among the new alignment alternatives and sub-alternatives and are therefore the basis for our alternative dismissal recommendations. Appendix C provides a graphical summary of the resource and alternative mapping developed during this phase of the alternative development process.

3.2.1.1. Agricultural Resources

Agricultural resources in the project area were identified through background data, secondary sources from county and state databases, and project area field views. We are currently performing an agricultural assessment of the project area. Agricultural resources identified, to date, include agricultural security areas and preserved farmland (farm parcels currently enrolled in the Adams County Agricultural Land Preservation Program).

Six (6) farm parcels within the project area are designated as Agricultural Security Areas. This includes all of the farms west of Oxford Avenue. In addition, a majority of the Smith Farm, which is divided by Church Street, is protected by the Adams County Agricultural Land Preservation Program. The only portion of the Smith Farm not included in the program is a 120'-wide corridor of land located along the southern edge of the property.

Table 2 shows that each preliminary alignment alternative would impact Agricultural Security Areas (ASA). Alternative 3 would bisect three farm properties currently designated as Agricultural Security Areas and would have the largest impact in terms of acreage. Alternative 3 would also have the largest impact to preserved agricultural land, by bisecting the two parcels of the Smith farm which are included in the Adams County Agricultural Land Preservation Program. By comparison, alternative 4 bisects one farm parcel (not designated as ASA) and 5 would not bisect any farms designated as Agricultural Security Areas. Alternative 4 in terms of acreage is somewhat higher than alternative 5, but both would have less impact in terms of acreage, in comparison to alternative 3. Also, alternatives 4 and 5 would have minimal to no impact to preserved farmland areas.

3.2.1.2. Cultural Resources

The project area was reviewed, and it was determined that there is moderate-to-high potential for intact archaeological resources throughout the project area. Archaeologists completed the Phase I/II archaeological testing on sub-alternative C and the alignment shared by alternatives 4 and 5; as well as the rest of alternative 5 alignment.

Above-ground cultural resources were identified through a reconnaissance survey of the entire project area and an intensive-level determination of eligibility study for properties that had potential for significance. As a result of these studies, eight historic resources were identified in the project area that are eligible for or listed in the National Register of Historic Places (NRHP); four would be directly impacted by the preliminary alignment alternatives. Alignment alternatives 3, 4, and 5 would all impact the Poist Chapel Farm (currently owned by Bare Development LP), the Devine Chapel Farm (currently owned by Smith Real Estate Holdings LLC), and the Gettysburg Railroad (currently owned by CSX). Sub-alternatives B and C would impact the Hostetter Farm (currently owned by William D Epley et al).

Each preliminary alignment alternative would impact four historic resources. Alternative 3 would bisect the agricultural fields on both the Poist Chapel Farm and the Devine Chapel Farm properties. Alternative 4 would bisect the agricultural fields on the Poist Chapel Farm property and travel along the edge of the Devine Chapel Farm. Alternatives 3 and 4 would separate the farmsteads from large portions of historically associated agricultural fields, which would adversely affect the characteristics that make these resources eligible for the NRHP and result in a determination of historic property adversely affected. Alternative 5 would also impact both the Poist Chapel and Devine Chapel Farm properties, but it would not bisect either resource. Alternative 5 would travel along the southern edge of both resources and would likely result in a determination of historic property not adversely affected.

Sub-alternative B would impact the Hostetter Farm if the connection between the new alignment and Sunday Drive requires right-of-way from the historic resource. Impacts caused by sub-alternative B would be minimal and would not adversely affect the historic resource. Sub-alternative C would have a greater impact on the Hostetter Farm, but it would not bisect significant portions of associated farmland from the rest of the farm.

Alternatives 3 and 4 have the potential to adversely affect cultural resources. It is believed that the magnitude of impact (when compared to alternative 5) supports our recommendation that alternatives 3 and 4 be dismissed from further study. Sub-alternative C has a greater potential for impacting the Hostetter Farm than sub-alternative B, but the alignment was refined to minimize impacts so that neither sub-alternative would result in a finding of adverse effect.

3.2.1.3. Section 4(f)

The preliminary alignment alternatives overlap with four Section 4(f) properties, all of which are historic resources (listed above). According to Section 4(f), FHWA must either determine that project impacts are de minimis or undertake an individual Section 4(f) evaluation. For Section 4(f) historic properties, a de minimis use is only possible if the Section 106 outcome is a finding of no effect or no adverse effect. The preliminary alignment alternatives were reviewed and found that only alternative 5 has the potential to have de minimis impacts. As described above, alternatives 3 and 4 would likely result in a finding of adverse effect, thus triggering the need for an individual Section 4(f) evaluation.

In an individual Section 4(f) evaluation, FHWA is required to select a feasible and prudent total avoidance alternative, if one exists. If there are no feasible and prudent avoidance alternatives, FHWA would need to select the alternative that exhibits least overall harm to the Section 4(f) properties and ensure that all efforts to minimize harm to the Section 4(f) property has occurred. Based on preliminary considerations of the potential impacts to 4(f) resources, it is anticipated that there would be no feasible and prudent avoidance alternative to alternatives 3 and 4 (alternative 5 would result in a de minimis use and would not require a total avoidance alternative).

Also based on preliminary considerations of the potential impacts to Section 4(f) resources, it is anticipated that alternative 5 would exhibit less overall harm to Section 4(f) resources than alternatives 3 and 4, thus supporting our recommendation that alternatives 3 and 4 be dismissed from further study. Sub-alternative C has a greater potential for impacting the Hostetter Farm than sub-alternative B, but the alignment was refined to minimize impacts so that the use would be de minimis.

3.2.1.4. Public Opinion

PennDOT presented the No-Build alternative, the TSM alternative and the new alignment alternatives and sub-alternatives to the public at an open house, which was held on June 21, 2018. The District and consultant team provided the public with an opportunity to complete a project survey that solicited their opinions and preferences for an alternative. Below is a summary of the results from the public response.

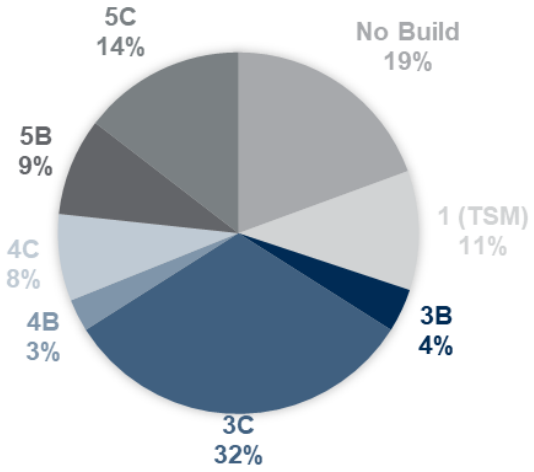

Figure 2. Public Open House Results

The survey results were mixed; preference appeared to be split between the northern-most alignment, alternative 3, and the two southern alignments, alternatives 4 and 5. Among the public that filled out the survey, there was a clear division between those who did not want to split farmland and those who did not want the new roadway close to existing residential neighborhoods. The results favored sub-alternative C (54%) versus sub-alternative B (16%).

Coordination has been on-going over the past two years with municipal and county staff and elected officials. This has primarily included Conewago and Penn Townships, McSherrystown and Hanover Boroughs, and Adams County. Others who were also included in the updates were Oxford, Union, and Mt. Pleasant Township, as well as York County. These meetings were used to provided project updates and gathered thoughts and opinions from municipal and county leaders related to the preliminary alignment alternatives. A consensus amongst this group is that they prefer alternative 5 and sub-alternative C over the other alignment options. The following is a summary of the input received through our coordination with the municipal and county leaders.

- Adams County and Conewago Township expressed concern about the impacts that alternative 3 would have on the agricultural resources. Specifically, the negative impact on two farms, one of which includes preserved farmland, resulting from alternative 3 bisecting these farms.

- Conewago Township does not want commercial development along an extension of Eisenhower Drive, within the areas currently zoned agricultural and residential. They expressed concern that splitting tracts of land, as alternative 3 does, would increase the chance for the future development of these parcels.
- Adams County and Conewago Township dislike two elements of alternative 4. The first is the angle of intersection of the proposed alternative 4 and Oxford Avenue. The second is the potential impact on residential properties resulting from headlights shining directly into the existing residential neighborhood west of Oxford Avenue.
- The collective group expressed opposition to sub-alternative B. The primary concern is the negative impacts, both congestion and safety, of increasing traffic along Sunday Drive adjacent to two residential neighborhoods whose primary access into/out of their development is along Sunday Drive. Sub-alternative B would result in an increase in future traffic volume from 7,700 vehicles per day to 11,000 vehicles per day, when compared to sub-alternative C.

Based on the detailed resource evaluations, input from the local community, and coordination with representatives from FHWA, step 1 of the detailed alternative analysis concluded with the dismissal of new alignment alternatives 3 and 4 and sub-alternative B from further studies. The justification for dismissal included the following:

- **Alternative 3**. Alternative 3 would result in larger impacts to both Agricultural Security Areas and preserved farmland, as compared to alternative 5. In addition, alternative 3 would bisect these agricultural resources, resulting in divided agricultural operations. Alternative 3 would also bisect two NRHP-eligible resources. The result would likely be a finding of adverse effect on both resources. Alternative 3 displays the highest potential for impacts to historic resources, Section 4(f) resources, and agricultural resources. Because other alternatives exist that minimize impacts to these resources, it is our professional opinion that the farmlands assessment process would require a less impactful alternative and that the Section 4(f) evaluation would show that alternative 3 would not be selected as the alternative with least overall harm. Additionally, the public, specifically the municipal and county staff and elected officials, oppose alternative 3.
- **Alternative 4.** Alternative 4 would bisect one NRHP-eligible resource. The result would likely be a finding of adverse effect for this resource. Alternative 4 demonstrates similar impacts as alternative 3, though to a lesser degree. However, the impacts are still greater when compared to alternative 5. Also, the public support for alternative 4 is minimal from the municipal and county level, as well as the general public.
- **Sub-alternative B.** There is evidence of public opposition to sub-alternative B based on feedback received from public involvement activities. The source of opposition is the anticipated increase in traffic along Sunday Drive. Sub-alternative B would increase traffic volumes along Sunday Drive by 3,300 vehicles per day and require substantial improvements at the intersection of Sunday Drive and Race Horse Road. Based on this concern, in addition to concerns raised by the municipal and county staff and elected officials, JMT is also recommending that this sub-alternative be dismissed from further study.

Table 2 – Detailed Alternatives Analysis – Step 1
Impact Matrix

	Alternative			
	1 (TSM)	**3**	**4**	**5**
Aquatic Resource Impacts				
Wetlands (Acres)	0.0	0.1	1.0	1.0
Streams (# of Crossings)	0.0	4	4	4
Agricultural Resource Impacts				
General Description	The TSM alternative would avoid direct impacts to agricultural resources.	Alt. 3 would bisect 3 properties and impact a fourth that are active farmlands and/or zoned agricultural. This alt. has the highest impact on both Preserved Farmland and ASAs.	Alt. 4 would bisect 1 property and impact three additional properties that are active farmlands and/or zoned agricultural. This alt. has minimal impact on Preserved Farmland.	Alt. 5 does not bisect any active farmlands/properties zoned agricultural but does impact 4 properties that are active farmlands and/or zoned agricultural. This alt. has minimal impact on Preserved Farmland.
Preserved Farmland (Acres)	0.0	17.2	1.4*	1.4*
Agricultural Security Areas (Acres)	0.0	27.2	11.1	11.1
Cultural Resource Impacts				
General Description	The TSM would impact two properties identified as Historic Resources but would likely result in no adverse affect of the resources.	Alt. 3 would bisect agricultural fields on two properties identified as Historic Resources, separating the farmstead from a portion of the resource. This would likely result in an adverse affect on these farms. This alt. would impact two additional Historic Resources but would likely result in a no adverse affect.	Alt. 4 would bisect agricultural fields on one property identified as a Historic Resource, separating the farmstead from a portion of the resource. This would likely result in an adverse affect on the farm. This alt. would impact three additional Historic Resources but would likely result in a no adverse affect.	Alt. 5 would impact four Historic Resources but would not bisect any of the resources and would likely result in a no adverse affect on all of the resources.
Aboveground Historic Structures (Resources/Acres)	72/13.0 (Listed) 1/10.0 (Recommended)	4 / 12.2 (Eligible) 1/6.9 (Recommended)	4 / 13.9 (Eligible) 1/6.9 (Recommended)	3/9.2 (Eligible) 1/6.9 (Recommended)
Hazardous Waste	TBD	Alt. 3 impacts four sites identified as High Risk and two identified as Medium Risk. Each of these six sites are recommended for further evaluation thru completion of a Phase I ESA. All of the High Risk sites but 1, were directly impacted by Miller Chemical fire/spill.	Alt. 4 impacts four sites identified as High Risk and two identified as Medium Risk. Each of these six sites are recommended for further evaluation thru completion of a Phase I ESA. All High-Risk sites but 1, were directly impacted by Miller Chemical fire/spill.	Alt. 5 impacts four sites identified as High Risk and two identified as Medium Risk. Each of these six sites are recommended for further evaluation thru completion of a Phase I ESA. All of the High Risk sites, except 1, were directly impacted by Miller Chemical fire/spill.
Displacements	Approx. 30-35. Majority of displacement are the result of widening of SR 0094 to 5 lanes.	4 Displacements 26 Impacts	4 Displacements 27 Impacts	6 Displacements 29 Impacts
Public Opinion				
Municipal / County Leaders	Not supported by the municipallies or counties; primariliy due to the impacts / displacements required along SR 0094.	Not supported. Primary concerns are from Conewago Twp. and Adams Co. Concerns include impact / split preserved farmland and not consistent with existing zoning.	Adams Co. favored either Alternative 4 or 5. Conewago Twp. was not supportive of this alternative. The reasons included splitting up of farmland and poor intersection agle with Oxford Avenue.	Each of the municipalities and counties were all supportive of Alternative 5.
Public Open House Response	Not heavily supported by the general public. Received 11% of the votes for the the preferred alternative.	Received 36% (32% (3B) + 4% (3C)) of the votes for the preferred alternative.	Received 11% (8% (4B) + 3% (4C)) of the votes for the preferred alternative.	Received 23% (9% (5B) + 14% (5C)) of the votes for the preferred alternative.
Project Cost (Million $)				
Construction / Right-of-Way / Total	$11–13 I $14-16 I **$25-29**	$29-32 I $9-10 I **$38-42**	$28-31 I $9-10 I **$37-41**	$29-31 I $9-10 I **$38-42**

3.2.2. Detailed Alternative Analysis – Step 2

The continuation of the detailed alternative analysis assessed impacts associated with aquatic resources, agricultural resources, cultural resources, hazardous materials, community resources, and property impacts for the No-Build, TSM, and off-alignment alternative 5C. In addition, feedback was obtained from municipal and county leaders, as well as the general public for each of the alternatives.

The No-Build alternative would essentially have no impacts on any project area resources. Table 3, Alternatives Impact Matrix, illustrates that both the TSM Alternative and Alternative 5C would impact cultural resources, Section 4(f) resources, hazardous residual waste, and result in property impacts to varying degrees. The following narrative expands on the analysis summarized in Table 3. In addition, Appendix D provides a graphical summary of the resource and alternative mapping developed during this phase of the alternative development process.

3.2.2.1. Agricultural Resources

Agricultural resources were identified in the project area through background data, secondary sources from county and state databases, and project area field views. We are currently conducting an agricultural assessment of the project area. Agricultural resources identified, to date, include agricultural security areas and preserved farmland (farm parcels currently enrolled in the Adams County Agricultural Land Preservation Program).

Six (6) farm parcels within the project area are designated as Agricultural Security Areas. This includes all of the farms west of Oxford Avenue. In addition, a majority of the Smith Farm, which is divided by Church Street, is protected by the Adams County Agricultural Land Preservation Program. The only portion of the Smith Farm not included in the program is a 120’-wide corridor of land located along the southern edge of the property. See Figure 3, Agricultural and Aquatic Resources.

Table 2 shows that the TSM and No-Build Alternatives would have no impacts on project area agricultural resources. Alternative 5C would impact four properties that are active farmland and/or zoned agricultural and would have 11.1 acres of impacts to farmland designated as Agricultural Security Areas (ASA) but would not bisect any farms designated as ASA. Alternative 5C would have minimal impacts (1.4 acres) to preserved farmland as a result of temporary grading; however, this could be refined in final design to reduce and minimize impacts. The recommendation to dismiss the TSM alternative is not based on agricultural resource impacts.

3.2.2.2. Aquatic Resources

Aquatic resources were identified in the project area through background data and project area field views. Field investigations in the project area resulted in the identification of 16

watercourses including Plum Creek, and unnamed tributaries to Plum Creek, the South Branch Conewago Creek, and Slagle Run; and the identification and delineation of 17 palustrine wetlands totaling approximately 26.01 acres within the project area. See Figure 3, Agricultural and Aquatic Resources.

Table 2 shows that the TSM and No-Build Alternatives would have no impacts on project area aquatic resources. Alternative 5C would result in approximately 1.2 acres of wetland impacts and four (4) stream crossings. The recommendation to dismiss the TSM alternative is not based on aquatic resource impacts.

3.2.2.3. Cultural Resources

The Area of Potential Effect (APE) was reviewed for the TSM Alternative and found that the alternative has no archaeological potential. Areas of potential ground disturbance for the TSM Alternative are either within the existing ROW or are heavily developed and have undergone considerable anthropogenic modification in the second half of the 20th century. Phase I and Phase II archaeological investigations were conducted along the entire Alternative 5C alignment between 2017 and 2019 and identified a portion of a previously recorded Native American open-habitation site. Archaeologists did not encounter any features but did find tertiary flakes, one biface, and one projectile point base, though not enough to shed substantial light on the site occupation. The portion of the site identified for the project does not contribute to the previously recorded site, and no additional archaeological investigation is warranted for the project as it is currently designed.

The above-ground cultural resources were identified through a reconnaissance survey of the entire project area and an intensive-level determination of eligibility study for properties that had potential for significance. As a result of these studies, ten historic resources were identified in the project area that are listed or eligible for listing in the National Register of Historic Places (NRHP). One would be directly and adversely impacted by the TSM Alignment (Hanover Historic District) while three would be directly, but not adversely impacted by Alternative 5C (Devine Chapel Farm, Henry Hostetter Farm, and Poist Chapel Farm). See Figure 4, Cultural Resources.

The TSM Alternative has the potential to directly impact the Hanover Historic District. Within the historic district, the improvements consist of widening Carlisle Street and the intersection of Carlisle Street and Stock Street to add capacity and accommodate additional turning lanes. This has the potential to displace between 14 and 22 contributing properties along Carlisle Street between the northern edge of the historic district and 3rd Street. The contributing properties are a mix of dense, residential and mixed-use, 19th- and early 20th-century buildings. This would change the physical composition and nearly all aspects of integrity in this portion of the historic district.

Alternative 5C has the potential to directly impact three historic farms, but the impact would be to a relatively small percentage of agricultural land; no buildings would be affected by the

alignment. To build the new alignment, the alternative would require ROW along the southern borders of each property. The alignment would be at the edges of each property, adjacent to 20th-century residential developments where the historic agrarian setting has already been compromised. The buildings comprising the farmsteads are all located several hundred feet from the alignments and the farms would continue to be operational during and after construction. The project would not diminish setting, feeling, or association of the historic resources.

Although Alternative 5C would affect more historic resources than the TSM Alternative, the TSM Alternative would result in a much greater impact to a historic resource (Hanover Historic District), through the demolition of numerous contributing properties, than Alternative 5C would have on the three historic farms. Our recommendation to dismiss the TSM Alternative is influenced by the impacts to historic resources caused by the TSM Alternative when compared to Alternative 5C.

3.2.2.4. Section 4(f)

The TSM Alternative overlaps with one Section 4(f) historic property while the Alternative 5C overlaps with three Section 4(f) properties. According to Section 4(f), FHWA must either determine that project impacts are de minimis or undertake an Individual Section 4(f) Evaluation. For Section 4(f) historic properties, a de minimis impacts are only possible if the Section 106 outcome is a finding of no effect or no adverse effect. Based on a preliminary Determination of Effect Report, submitted in August 2019, JMT anticipates that Alternative 5C would likely result in no adverse effect to historic farms and would therefore result in de minimis 4(f) impacts. The TSM Alternative would result in a finding of adverse effect, thus triggering the need for an Individual Section 4(f) Evaluation.

In a Section 4(f) analysis, FHWA must select the alternative that would result in de minimis impacts if the other alternative would result in a greater use. Based on the anticipated outcome of Section 106, Alternative 5C would likely result in de minimis 4(f) impacts while the TSM Alternative would have a greater use. Furthermore, the TSM Alternative would likely result in more substantial social and economic impacts, disruption to established communities, and disproportionate impacts to protected populations – factors that are considered when determining whether an alternative is prudent. There are no feasible and prudent avoidance alternatives, so FHWA must select the alternative that exhibits least overall harm to the Section 4(f) property.

The Alternative 5C alignment was refined during this step of the detailed analysis to minimize impacts to the Hostetter Farm. Impacts to the Devine Chapel Farm and Poist Chapel Farm are limited to the 120-foot corridor on the edges of the properties and would be further minimized in final design to the extent possible within the anticipated right-of-way. Regardless of the Section 106 determination of effect finding, based on the impacts of both alternatives, it is anticipated that Alternative 5C would result in de minimis 4(f) impacts and would have less overall harm to Section 4(f) property. Our recommendation to dismiss the TSM Alternative is influenced by the

anticipated outcome of the Section 4(f) analysis, which would be to select Alternative 5C as the alternative that results in de minimis 4(f) impacts.

3.2.2.5. Property Impacts

Properties in the project area include residential, agricultural, commercial, and industrial properties. The majority of properties along the TSM Alternative are commercial and residential properties, while the majority of the properties along Alternative 5C are agricultural and residential.

The No-Build alternative would result in no property impacts. As seen in Table 2, the TSM Alternative would result in far more impacts than Alternative 5C. The TSM would result in 130 property impacts including 44 displacements (total takes) and 86 property impacts in the form of strip takes, whereas Alternative 5C would result in 35 property impacts including six (6) displacements (total takes), and 29 property impacts (partial takes).

Based off a preliminary visual assessment of the project area, of the 44 displacements associated with the TSM Alternative, approximately 18 are businesses, nine (9) are single family units, and 17 are multifamily units ranging in size from 2-16 units. Overall, the TSM Alternative would have the potential to displace approximately 18 businesses, and approximately 78 residential units.

A qualitative replacement housing analysis was completed by looking at available housing within the project area and close vicinity of the project area. Based on that review, while replacement housing is available for single family residential units, it appears to be lacking in multi-family and rental units. Therefore, it is unlikely that the displaced residential units and businesses would find similar, suitable housing within the project area or surrounding community as a result of the TSM Alternative. Also, as a result of the TSM Alternative, it is likely that the tax base for the project area would decrease due to the number of takes in comparison to Alternative 5C.

The TSM Alternative would result in three times the amount of property impacts than Alternative 5C, and seven times as many total takes than Alternative 5C. In addition, and as a result of the property impacts, the TSM Alternative would also have a far greater impact on the overall community and tax base. The magnitude of property impacts as a result of the TSM Alternative in comparison to Alternative 5C supports the recommendation to dismiss the TSM Alternative.

3.2.2.6. Environmental Justice Populations

Within the Eisenhower Drive Extension project there is an environmental justice population, including 34-percent low income population and 12-percent minority population. A review of minority and low-income data by block groups within the project area indicated that minority population was 10-percent or below in the Adams County block groups. Minority populations were notably higher, up to 32 percent, in York County, with the highest percentages in Hanover

Borough. Low income populations throughout the project area block groups ranged from a low of 7 percent to a high of 79 percent in Hanover Borough. Low income populations were highest in the southeast portion of the project area surrounding Carlisle Street within Hanover Borough.

The No-Build Alternative would not impact environmental justice populations. During construction of Alternative 5C, temporary impacts from lane closures, detours, and increased noise, vibration, and air quality impacts are anticipated, but the impacts associated with the construction of Alternative 5C would not take place within the vicinity of environmental justice populations.

The TSM Alternative, particularly in the vicinity of the improvements along 3rd Street and Carlisle Street, and Stock Street and Carlisle Street would have the same potential temporary impacts as Alternative 5C, but these impacts would partially occur within an environmental justice population. In addition, permanent impacts to environmental justice populations may occur as a result of displacements within environmental justice areas.

The TSM Alternative would likely result in disproportionately high and adverse effects to environmental justice populations, especially when compared to Alternative 5C, thus supporting the recommendation to dismiss the TSM Alternative.

3.2.2.7. Hazardous Residual Waste

An investigation of past and present land use, field investigations, and review of existing recorded information were utilized to identify and evaluate recognizable environmental conditions within the project area.

The findings from the review of potential waste sites along Alterative 5C indicate that there are seventeen properties that have the potential for environmental concern. Of these seventeen properties, five were recommended to be evaluated for subsurface conditions as part of a Phase II/III investigation based on present and historic use of the properties. In addition, it is anticipated that there will be at least one (1) displacement of properties that either handle hazardous materials or are waste generators.

The findings from the review of potential waste sites that could be affected by constructing the TSM Alternative indicate approximately 22 properties that have the potential for environmental concern. Of these 22 properties, it is anticipated that there will be at least nine (9) displacements of properties that either handle hazardous materials or are waste generators. These properties include USA Gas (fueling station), Gonde Fuel (fueling station), Turkey Hill (fueling station), Eline's Auto Sales, Clearview Car Wash, The Palms dry-cleaning, Exclusive Hair Salon and Spa, MinuteMan Press printing, and Auto Body Intensive Care.

It is estimated that the magnitude of impact to properties with potential waste sites along the TSM Alternative (when compared to Alternative 5C) supports the recommendation that the TSM Alternative be dismissed from further study.

3.2.2.8. Public Input

PennDOT presented the No-Build Alternative, the TSM Alternative, and Alternative 5C to the public at an open house, which was held on May 9, 2019. PennDOT and the consultant team provided the public with an opportunity to complete a project survey that solicited their input and concerns for the alternatives. In addition to the public open house, the project website (www.eisenhowerdriveextension.com) also allows for the solicitation of input on the alternatives. Below is a summary of results from the public response from both the open house held on May 9, 2019, and additional input received through the project website.

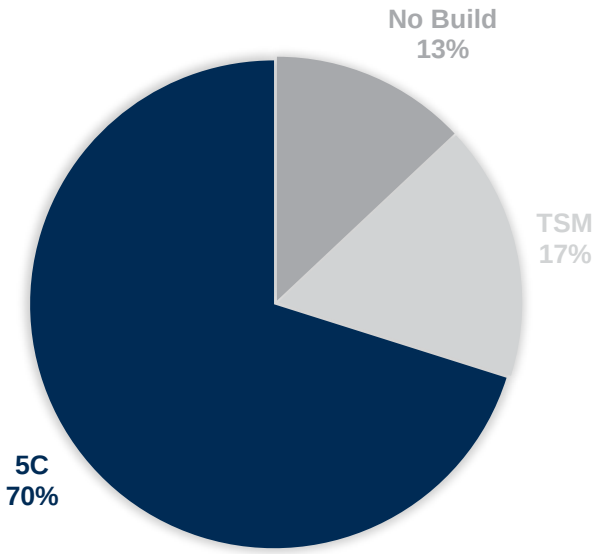

Figure 3. Public Outreach Results (Spring/Summer 2019)

The primary contributors who provided responses reside in either Conewago Township or Hanover Borough, which are the two municipalities most directly impacted by the TSM and Build alternatives.

In addition to the public outreach efforts conducted during the public open house and through the project website, coordination has been on-going over the past few years with municipal and county staff and elected officials. This has primarily included Conewago and Penn Townships, McSherrystown and Hanover Boroughs, and Adams County. Others who were also included in the updates were Oxford, Union, and Mt. Pleasant Township, as well as York County. These meetings were used to provide project updates and gather thoughts and opinions from municipal and county leaders related to the preliminary alignment alternatives. While there are localized concerns pertaining to the details of Alternative 5C, there is a general preference amongst this group supporting Alternative 5C over the TSM Alternative because of the anticipated number of property displacements and the loss of tax base. Specifically, Hanover

Borough passed Resolution 1257 on July 24, 2019 and Penn Township passed Resolution 939 on August 19, 2019, both publicly opposing the TSM Alternative and supporting Alternative 5C.

Based on the detailed resource evaluations, input from the local community, and coordination with representatives from FHWA, step 2 of the detailed alternative analysis concluded with the dismissal of TSM alternative from further studies. The justification for dismissal included the following:

- The TSM Alternative would result in:
  - an anticipated Section 106 adverse impact to the Hanover Historic District
  - unavoidable impacts to a Section 4(f) resource
  - impacts to the community through property impacts, environmental justice population impacts, and tax base impacts, and
  - potential to encounter a greater amount of hazardous residual waste

While Alternative 5C would also result in impacts to cultural resources, Section 4(f) resources, properties, and hazardous residual waste sites, in addition to agriculture and aquatic resources; the magnitude of the impacts as a result of the TSM Alternative, in comparison to Alternative 5C, are far greater. In addition, there is evidence of public opposition to the TSM Alternative based on feedback received from public involvement activities and feedback solicited via the project website. The source of opposition is the anticipated number of property displacements as a result of the TSM Alternative in comparison to the much fewer displacements associated with Alternative 5C.

Table 3 – Detailed Alternatives Analysis – Step 2
Impact Matrix

	Alternative		
	0 (No Build)	**1 (TSM)**	**5C**
Aquatic Resource Impacts			
Wetlands (Acres)	0.0	0.0	1.2
Streams (# of Crossings)	0.0	0.0	4
Agricultural Resource Impacts			
General Description	The No-Build alternative would avoid all direct impacts to agricultural resources.	The TSM alternative would avoid direct impacts to agricultural resources.	Alternative 5C does not bisect any active farmlands/properties zoned agricultural but does impact 4 properties that are active farmlands and/or zoned agricultural. This alternative has minimal impact on Preserved Farmland.
Preserved Farmland (Acres)	0.0	0.0	1.4*
Agricultural Security Areas (Acres)	0.0	0.0	11.1
Cultural Resource Impacts			
General Description	The No-Build alternative would avoid impacting all Historic Resources	The TSM would displace between 14 and 22 properties listed as contributing elements to the Hanover Historic District.	Alt. 5C would impact three Historic Resources (farms) but would not bisect any of the resources and not impact any structures on these farms.
Aboveground Historic Structures (Resources/Acres)	The No-Build alternative would avoid impacting all Above Ground Historic Structures	71 Resources / 4.45 Acres (Listed) 1 Resource / 0.25 Acres (Recommended)	3 Resources / 9.2 Acres (Eligible) 1 Resource / 6.9 Acres (Recommended)
Hazardous Waste	The No-Build alternative would avoid impacting all hazardous materials.	The TSM alternative impacts 22 properties of potential environmental concern. Of the 22 properties, nine are full displacements. Further evaluation (in the form of a Phase II/III evaluation, would be recommended for these 9 properties.	Alt. 5C impacts four sites identified as High Risk and one identified as Medium Risk. Each of these five sites are recommended for further evaluation thru completion of a Phase I ESA. Three of the four High Risk sites were directly impacted by Miller Chemical fire/spill.
Displacements	0	44 Displacements Majority of displacement are the result of widening of SR 0094 to 5 lanes. 86 Impacts	6 Displacements 29 Impacts
Public Opinion			
Municipal / County Leaders	-	Not supported by the municipallies or counties; primariliy due to the impacts / displacements required along SR 0094.	Each of the municipalities and counties were all supportive of Alternative 5C. Specifically, Hanover Borough (7/24/19) and Penn Township (8/19/19) passed resolutions stating support of Alternative 5C.
Public Open House Response	Not heavily supported by the general public. Received 14% of the support based on feedback at the May 2019 Open House and input received through the project website.	Not heavily supported by the general public. Received 17% of the votes for the the preferred alternative.	Received 70% of the support based on feedback at the May 2019 Open House and input received through the project website.
Project Cost (Million $)			
Construction / Right-of-Way / Total	$0 I $0 I $0	$11–13 I $14-16 I **$25-29**	$29-31 I $9-10 I **$38-42**

* Preserved Farmland Impacts are a result of temporary grading impacts. The goal for thes alternatives, if selected, would be adjust the alignment/grading to result in zero impacts to Preserved Farmlands.

4. CONCLUSIONS

While Alternative 5C would also result in impacts to cultural resources, Section 4(f) resources, properties, and hazardous waste sites, in addition to agriculture and aquatic resources; the magnitude of the impacts as a result of Alternative 5C are far less in comparison to the other build alternatives. As a result, Alternative 5C is recommend as the preferred build alternative.

The following figures, Figures 4 through 10, show Alternative 5C.

EISENHOWER DRIVE EXTENSION PROJECT

Alternatives Analysis Report

Mount Pleasant Township

Conewago Township

St. Michaels Way

Water Dr

116

94

RECOMMENDED PREFERRED ALTERNATIVE

Figure 4:
Alternative 5C

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- Preserved Farmland
- Agricultural Security Areas
- Clean and Green
- Historic Resources
- Floodplains
- Wetlands
- Limit of Disturbance

0 100’ 200’ 400’ 600’

Johnson, Mirmiran & Thompson, Inc.
September 2019

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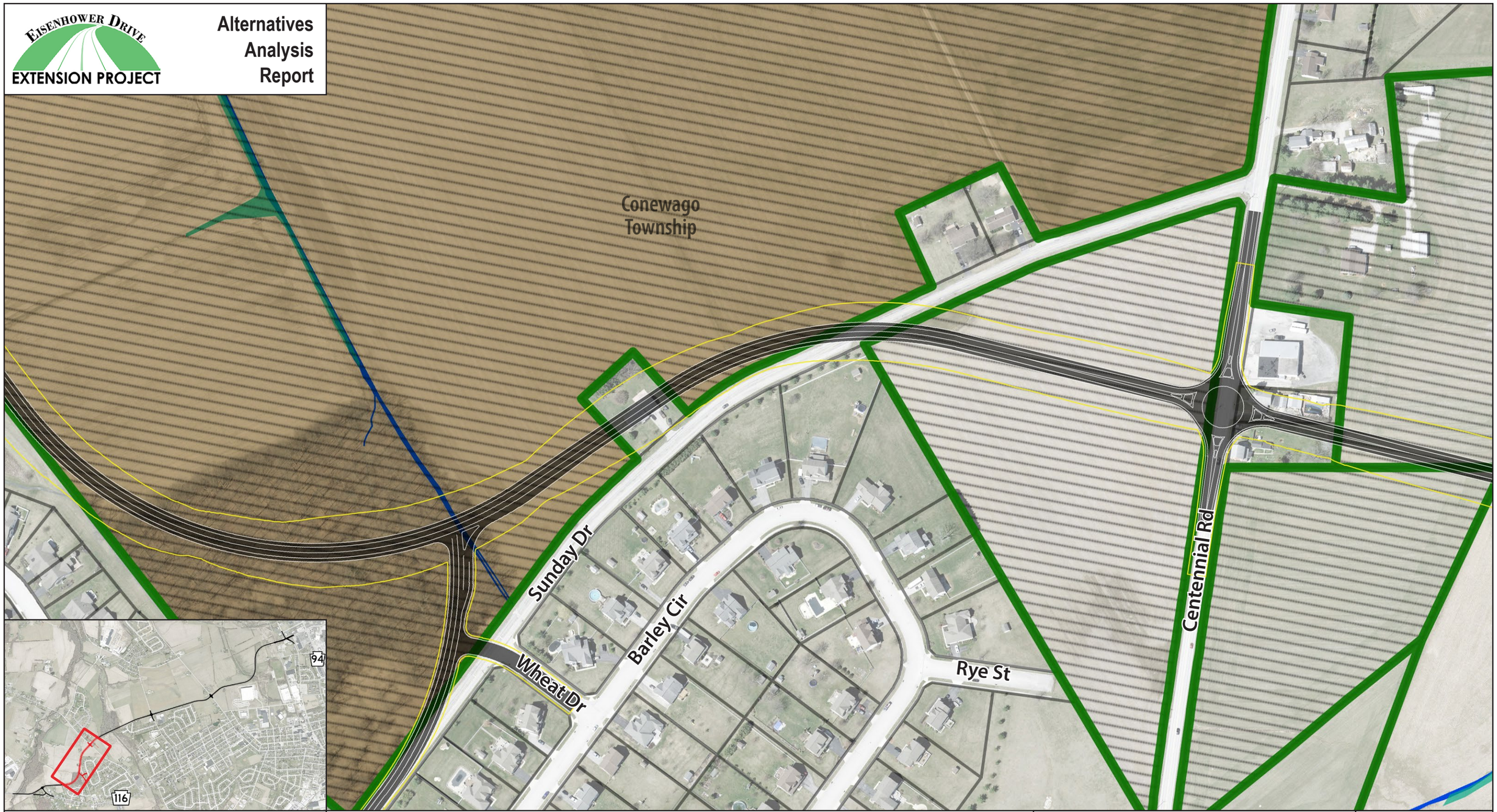
EISENHOWER DRIVE EXTENSION PROJECT

Alternatives Analysis Report



RECOMMENDED PREFERRED ALTERNATIVE

Figure 5:
Alternative 5C

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- Preserved Farmland
- Agricultural Security Areas
- Clean and Green
- Historic Resources
- Floodplains
- Wetlands
- Limit of Disturbance

0 100’ 200’ 400’ 600’

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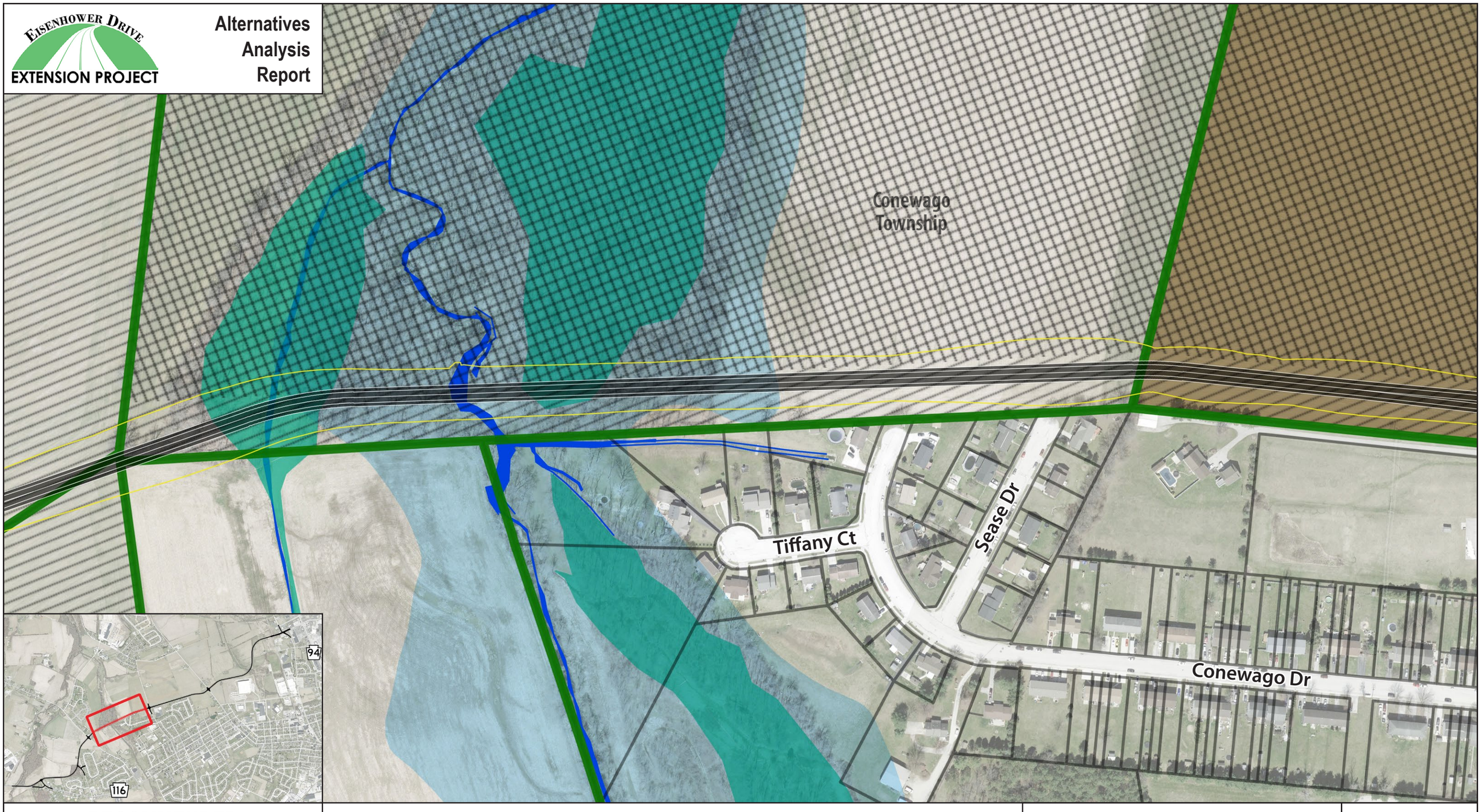
EISENHOWER DRIVE EXTENSION PROJECT

Alternatives Analysis Report



RECOMMENDED PREFERRED ALTERNATIVE

Figure 6:
Alternative 5C

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- Preserved Farmland
- Agricultural Security Areas
- Clean and Green
- Historic Resources
- Floodplains
- Wetlands
- Limit of Disturbance

0 100’ 200’ 400’ 600’

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EISENHOWER DRIVE EXTENSION PROJECT

Alternatives Analysis Report

Conewago Township

Johnathon Dr

Church St

Franklin Ct

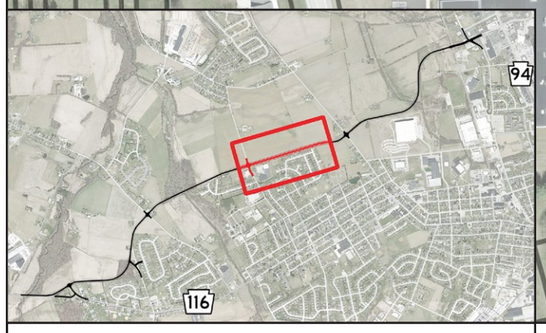
Bethel Ct

Thomas Dr

Providence Dr

Franklin Dr

Vincent Dr



RECOMMENDED PREFERRED ALTERNATIVE

Figure 7:
Alternative 5C

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- Preserved Farmland
- Agricultural Security Areas
- Clean and Green
- Historic Resources
- Floodplains
- Wetlands
- Limit of Disturbance

0 100’ 200’ 400’ 600’

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EISENHOWER DRIVE EXTENSION PROJECT

Alternatives Analysis Report

Conewago Township

Oxford Ave

RECOMMENDED PREFERRED ALTERNATIVE

Figure 8:
Alternative 5C

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- Preserved Farmland
- Agricultural Security Areas
- Clean and Green
- Historic Resources
- Floodplains
- Wetlands
- Limit of Disturbance

0 100’ 200’ 400’ 600’

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Alternatives Analysis Report

Conewago Township

Radio Rd

94

116

RECOMMENDED PREFERRED ALTERNATIVE

Figure 9:
Alternative 5C

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- Preserved Farmland
- Agricultural Security Areas
- Clean and Green
- Historic Resources
- Floodplains
- Wetlands
- Limit of Disturbance

0 100’ 200’ 400’ 600’

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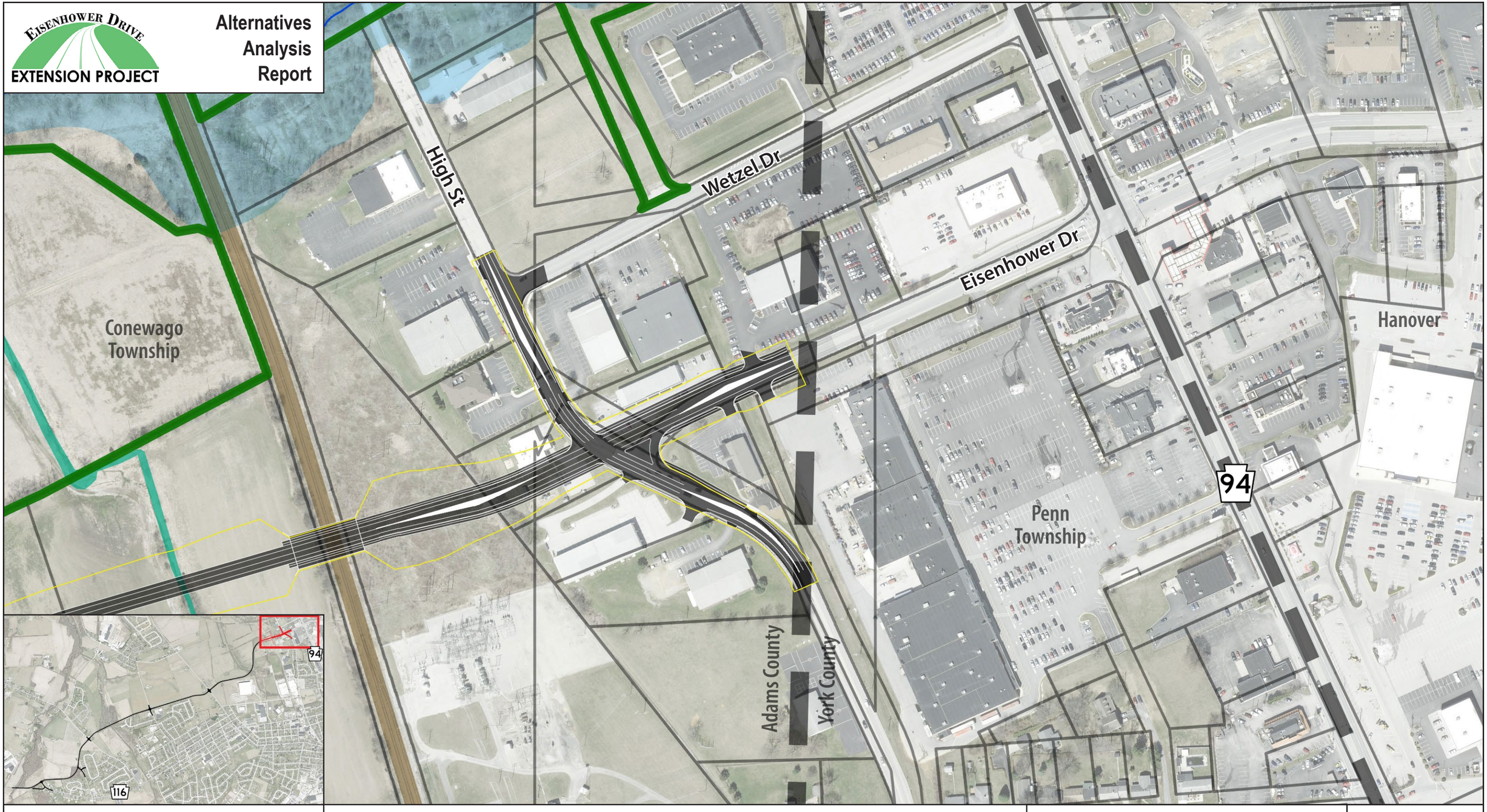
Alternatives Analysis Report



RECOMMENDED PREFERRED ALTERNATIVE

Figure 10:
Alternative 5C

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- Preserved Farmland
- Agricultural Security Areas
- Clean and Green
- Historic Resources
- Floodplains
- Wetlands
- Limit of Disturbance

0 100’ 200’ 400’ 600’

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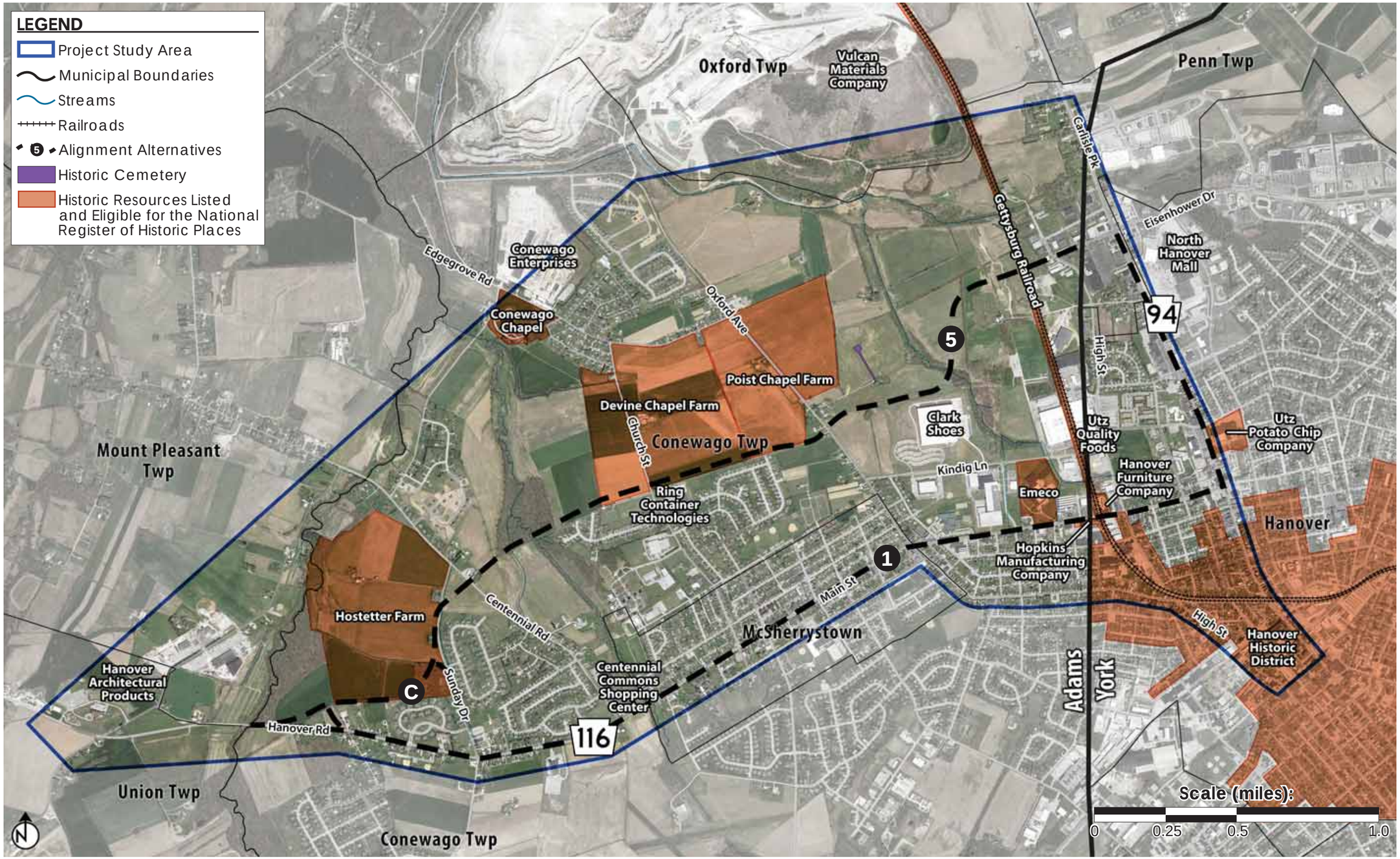
APPENDIX A – EXISTING RESOURCE MAPPING

EISENHOWER DRIVE EXTENSION PROJECT

CULTURAL RESOURCES



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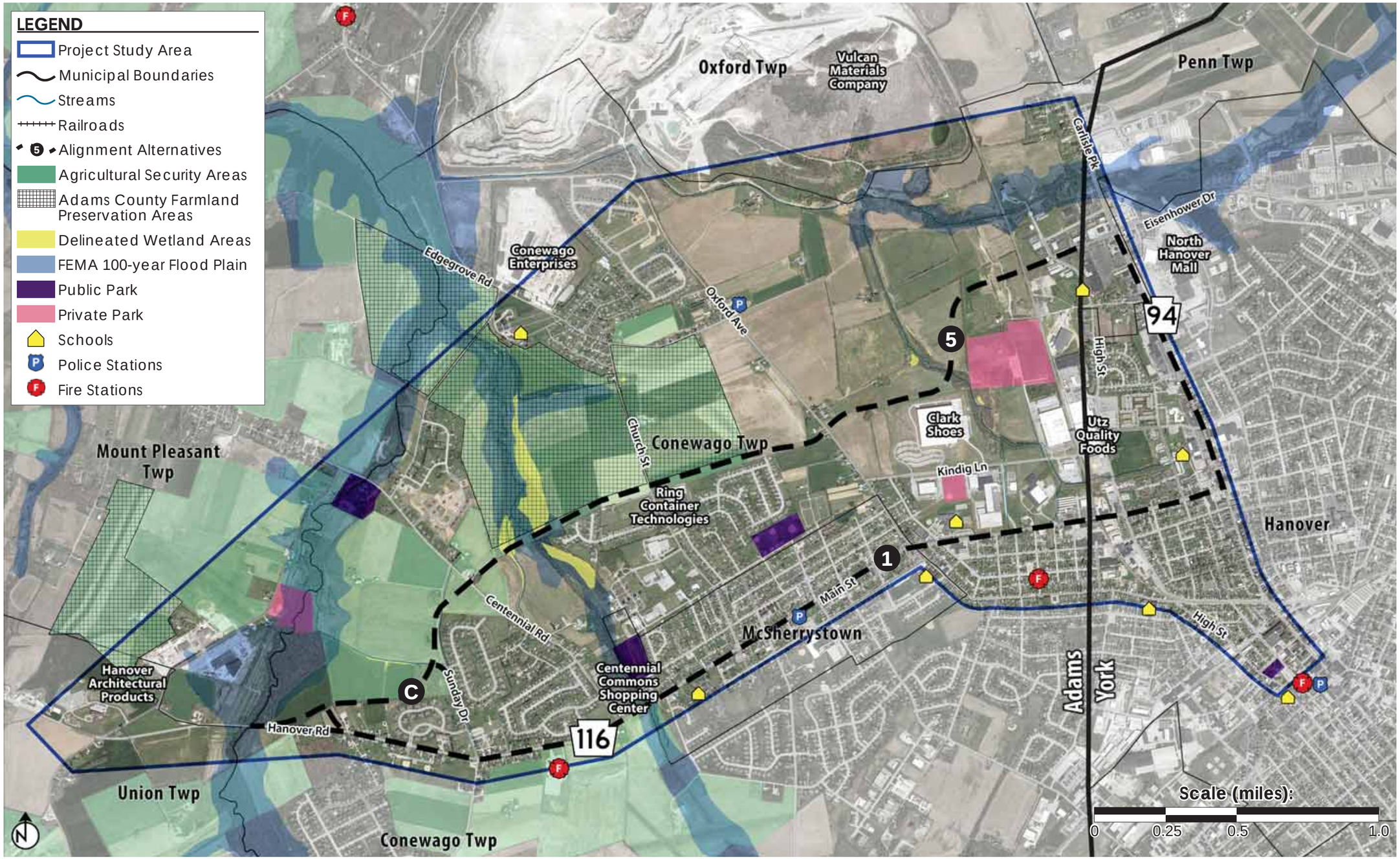
EISENHOWER DRIVE
EXTENSION PROJECT

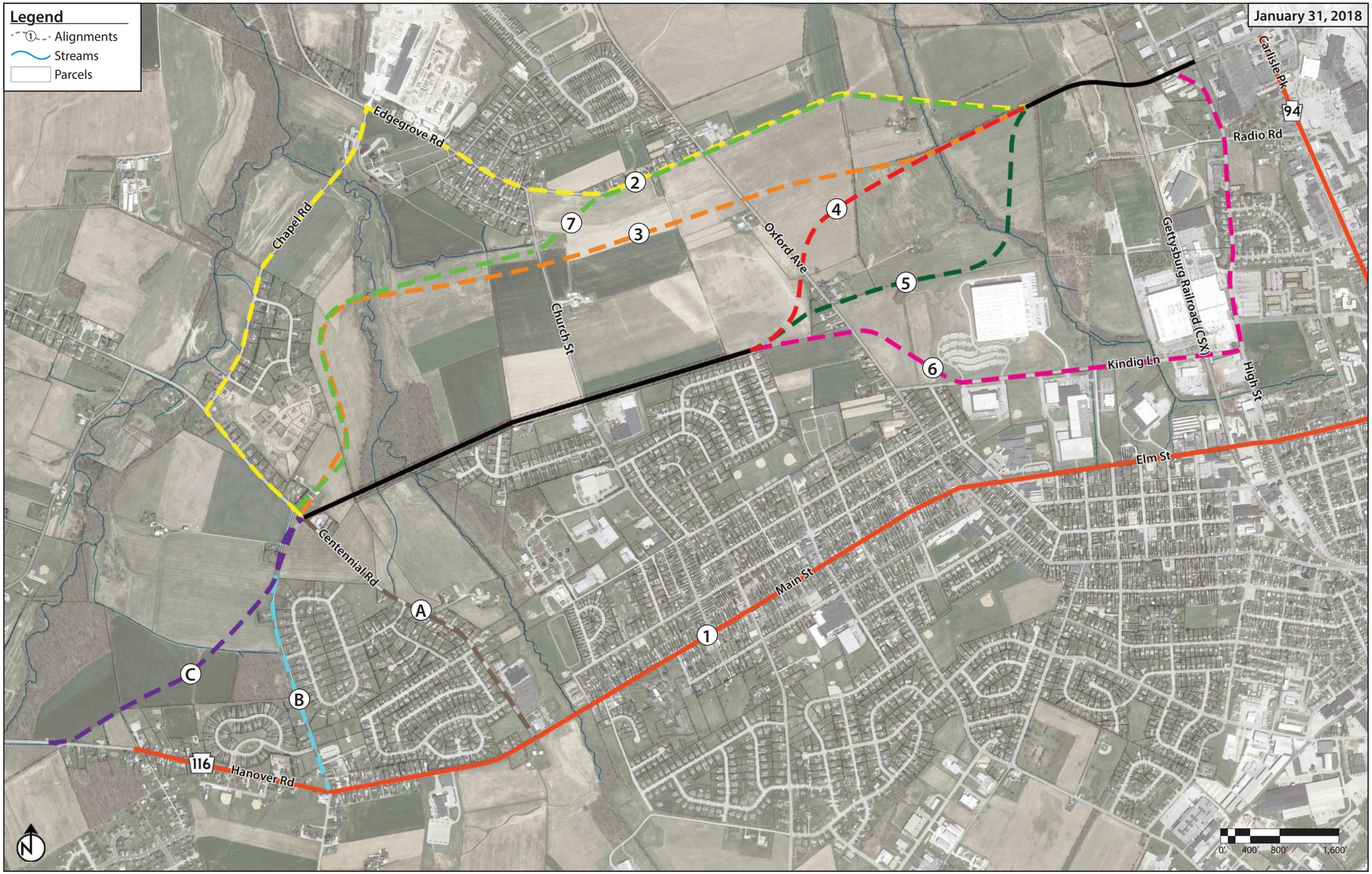
ENVIRONMENTAL FEATURES



U.S. Department of Transportation Federal Highway Administration
pennsylvania DEPARTMENT OF TRANSPORTATION

APPENDIX B – CONCEPTUAL ALIGNMENT ALTERNATIVES

Figure 1 - Conceptual Alignment Alternatives



pennsylvania
DEPARTMENT OF TRANSPORTATION

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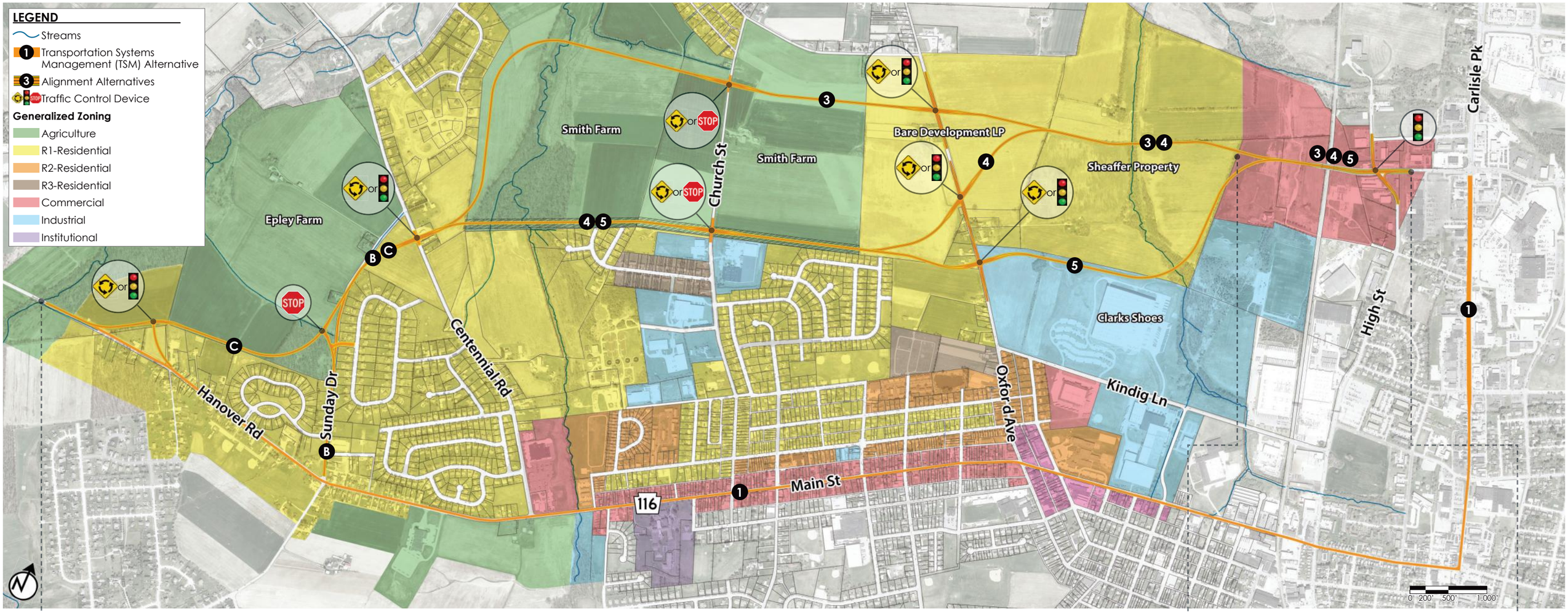
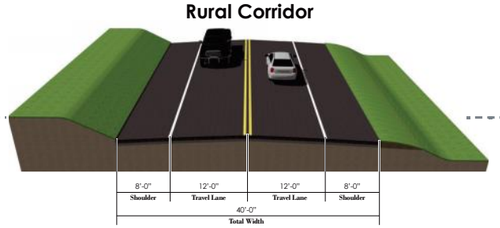
APPENDIX C – DETAILED ALTERNATIVE ANALYSIS – STEP 1 – MAPPING

EISENHOWER DRIVE
EXTENSION PROJECT

ALIGNMENT ALTERNATIVES



Rural Corridor



Suburban Center Corridor

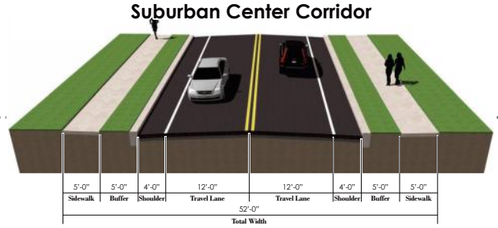


Figure 2 - December 4, 2018

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EISENHOWER DRIVE EXTENSION PROJECT

AGRICULTURAL RESOURCES

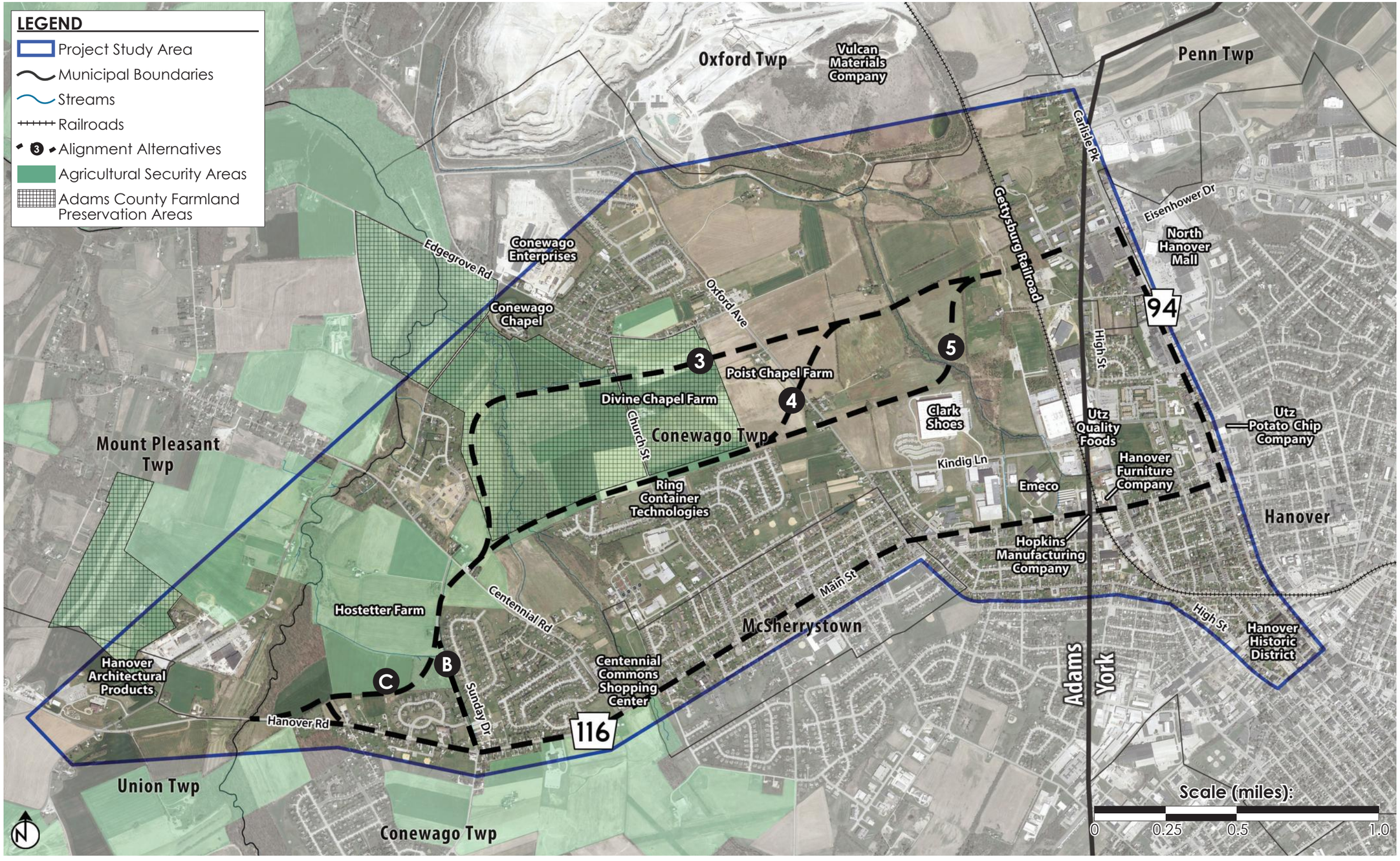

Figure 3 - October 17, 2018

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EISENHOWER DRIVE EXTENSION PROJECT

CULTURAL RESOURCES

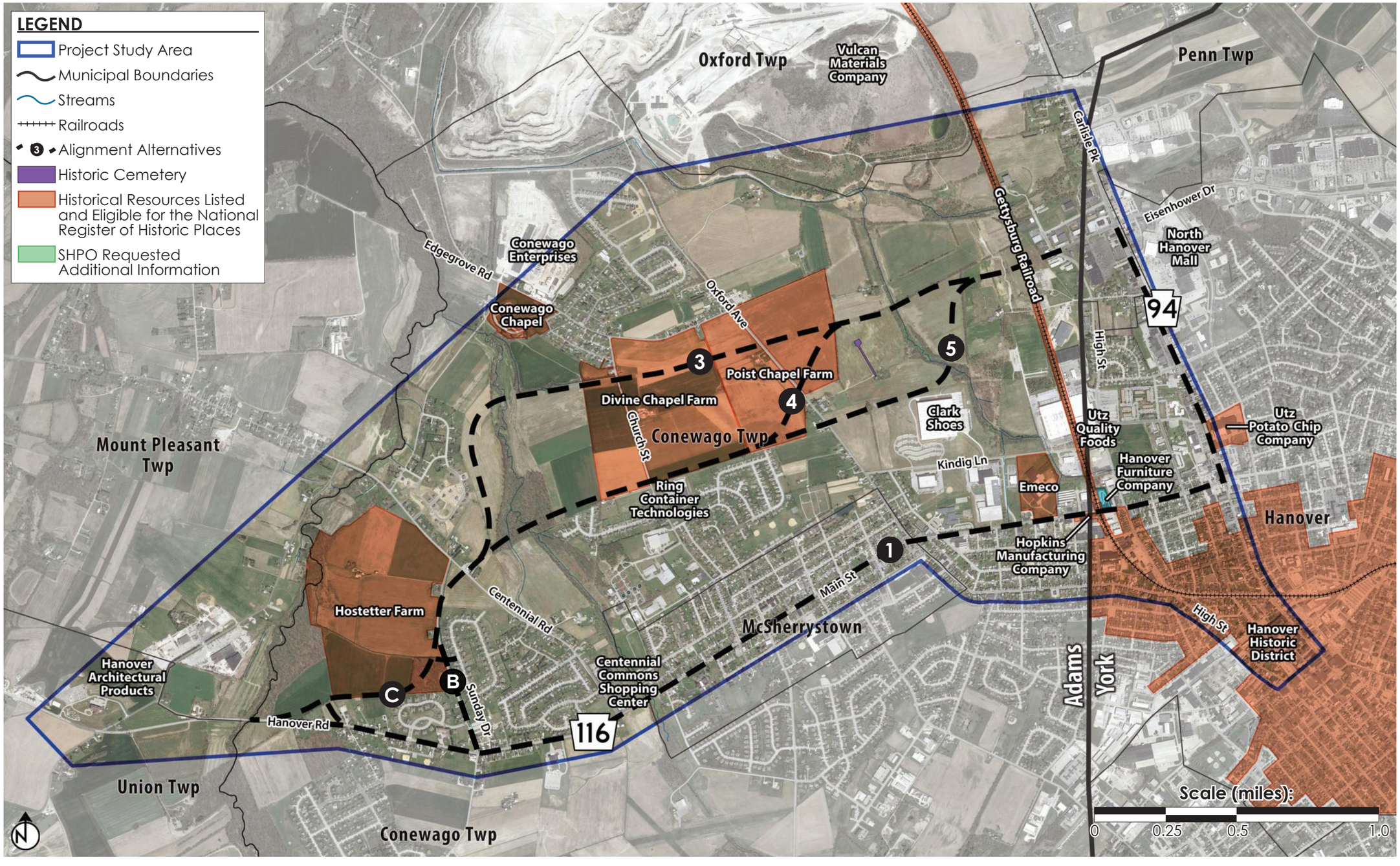

Figure 4 - October 17, 2018

APPENDIX D – DETAILED ALTERNATIVE ANALYSIS – STEP 2 - MAPPING

EISENHOWER DRIVE EXTENSION PROJECT

TSM Alternative Dismissal Narrative

EISENHOWER DR
EDGEGROVE RD
CENTENNIAL RD
CHAPEL RD
CHURCH ST
OXFORD AV
RADIO RD
CARLISLE ST
GRANT DR
EICHELBERGER ST
ELM ST
ELM AV
HIGH ST
STOCK ST
THIRD ST
MAIN ST
SECOND ST
JEFFERSON ST
POPLAR ST
CHESTNUT ST
FREDERICK ST
FORNEY AV
BLETTNER AV
T PLEASANT RD
HANOVER RD
94
116
TSM 1
TSM 2
TSM 3
TSM 4
TSM 5
TSM 6
TSM 7
TSM 8
TSM 9
TSM 10
TSM 11

PROJECT MAPPING

Figure 1:
TSM and 5C Alignment Alternatives

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- TSM Alternative
- TSM 1 — TSM Alternative Intersections - see detailed views on Figure 2

0 625’ 1,250’ 2,500’ 3,750’

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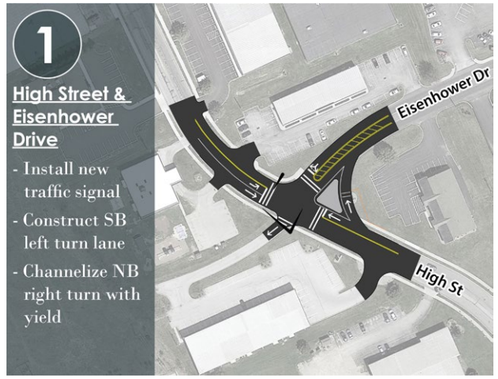
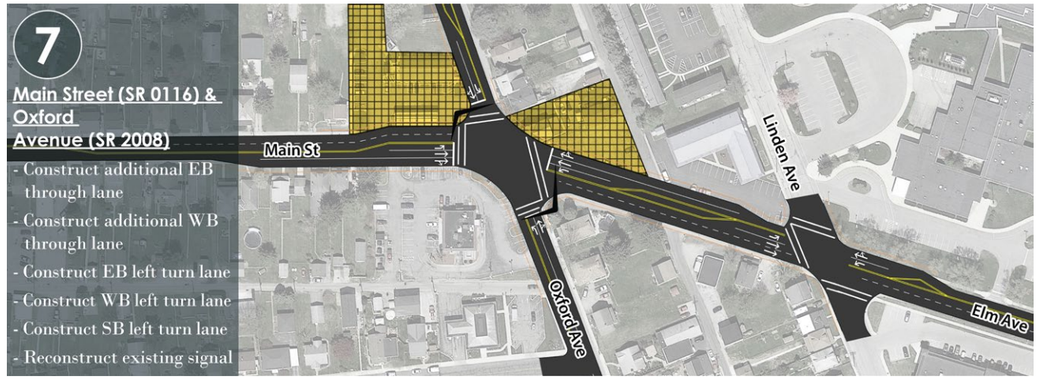
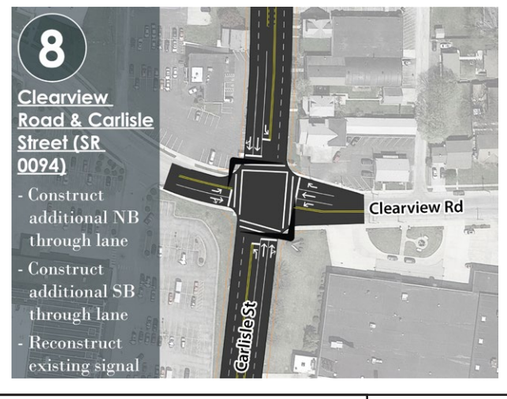
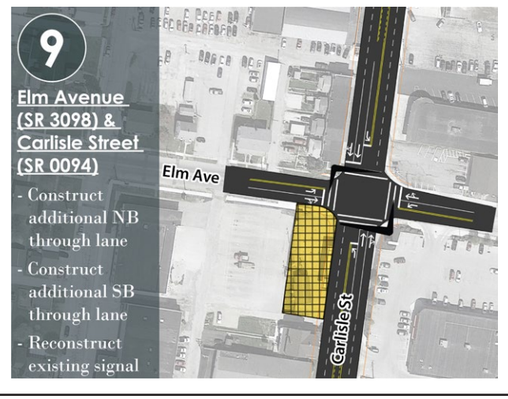
EISENHOWER DRIVE EXTENSION PROJECT

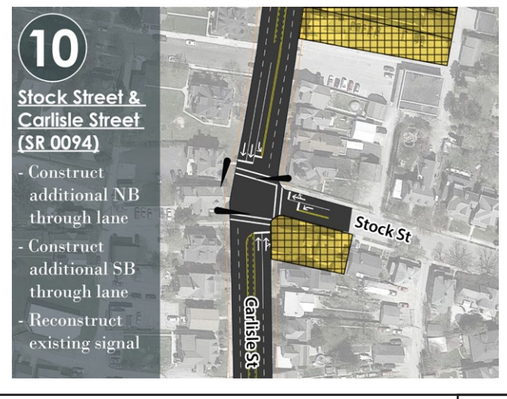
TSM Alternative Dismissal Narrative

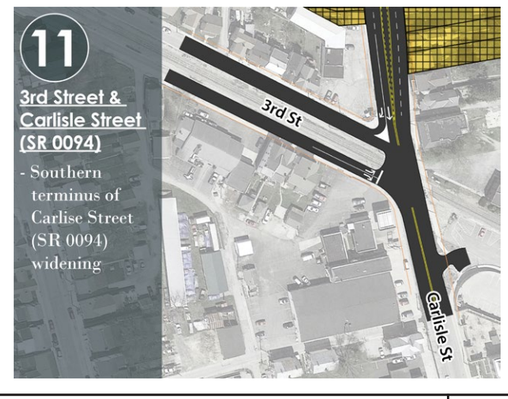












PROJECT MAPPING

Figure 2:
TSM Intersection Details

Legend

- TSM Alternative
- Potential Displacements

0 625’ 1,250’ 2,500’ 3,750’

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EISENHOWER DRIVE EXTENSION PROJECT

TSM Alternative Dismissal Narrative

EDGEGROVE RD
CHAPEL RD
CENTENNIAL RD
CHURCH ST
OXFORD AV
HANOVER RD
EISENHOWER DR
94
RADIO RD
CARLISLE ST
GRANT DR
EICHELBERGER ST
ELM ST
ELM AV
STOCK ST
THIRD ST
HIGH ST
SECOND ST
MAIN ST
116
JEFFERSON ST
POPLAR ST
CHESTNUT ST
FREDERICK ST
BLETTNER AV
FORNEY AV
T PLEASANT RD

PROJECT MAPPING

Figure 3:
Agricultural and Aquatic Resources

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- TSM Alternative
- Wetlands PEM
- Wetlands PFO
- Agricultural Security Areas
- Adams County Farmland Preservation Areas

0 625’ 1,250’ 2,500’ 3,750’

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EISENHOWER DRIVE EXTENSION PROJECT

TSM Alternative Dismissal Narrative

EDGEGROVE RD
CENTENNIAL RD
CHAPEL RD
CHURCH ST
OXFORD AV
EISENHOWER DR
94
RADIO RD
CARLISLE ST
GRANT DR
EICHELBERGER ST
ELM ST
ELM AV
HIGH ST
STOCK ST
THIRD ST
MAIN ST
SECOND ST
116
JEFFERSON ST
POPLAR ST
CHESTNUT ST
FREDERICK ST
FORNEY AV
BLETTNER AV
ST PLEASANT RD
HANOVER RD

PROJECT MAPPING

Figure 4:
Cultural Resource Impacts

Legend

- Municipal Boundaries
- County Boundaries
- Waterways
- Alternative 5C
- TSM Alternative
- Historic Cemetery
- Historic Resources Listed and Eligible for the National Register of Historic Places

0 625’ 1,250’ 2,500’ 3,750’

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