

ALTERNATIVES ANALYSIS REPORT

SR 0041 and SR 0841 Intersection Project SR 0041 Section 0841 MPMS #102708

London Grove Township Chester County

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I. INTRODUCTION

The PA 41/PA 841 Intersection Project is located in London Grove Township, Chester County, Pennsylvania (Appendix A, Figure 1). This Alternatives Analysis Report focuses on the intersection of PA 41 with PA 841 in the village of Chatham. This intersection had been included in several studies completed in the early 2000's and was recommended for further study in the conclusions of the *PA 41 Planning Study* developed for the Pennsylvania Department of Transportation (PennDOT) in January of 2010. In July 2014, the project team completed a *Traffic Report for Project Needs* which evaluated capacity, summarized crash data, and presented the results of road safety audits (RSA) conducted for the PA 41 and PA 841 intersection as well as adjacent intersections in the PA 41 corridor.

The need for a traffic signal at the PA 41 & PA 841 intersection was evaluated based on PennDOT's traffic signal warrants. The warrants are not met at this location based on existing traffic data; therefore, a traffic signal is not included in the alternatives discussion in later sections of this report.

The purpose of this Alternatives Analysis Report is to evaluate the alternatives that were initially developed as part of the *2015 Planning Study For: PA 41 & PA 841 Intersection* by the project team and recommend a proposed alternative. Alternatives are evaluated through analysis of traffic operations, environmental impacts, and other factors as they relate to the project needs. Public involvement has been at the forefront of this process with the project team conducting a public survey for project needs, developing a project website (pa41.com) as well as holding several meetings with London Grove Township and the public between 2014 and 2019.

Early Action Project

The PA 41 Gateway project was an improvement project constructed in 2018 that consisted of adding gateway treatments on PA 41 at either end of the village of Chatham. The purpose of the gateway project was to improve safety for both pedestrians and vehicles along the existing section of PA 41 and provide enhancements for the existing residential and business community in the village of Chatham. Motorists' speeds through the village of Chatham exceeding the posted speed limit were identified as a project need in the *Traffic Report for Project Needs*. The gateway project was proposed in the *Planning Study For: PA 41 & PA 841 Intersection* and was intended to provide motorists with visual cues that they are entering a reduced speed area. The gateways were recommended for early construction prior to the PA 41 & PA 841 intersection project. The gateways included narrowing of the shoulders, the introduction of a curbed median island, overhead flashing warning lights, dynamic speed feedback signs, and enhanced pavement markings. This work was isolated at either end of the village and did not include other improvements within the village. During a 2019 meeting, London Grove Township officials indicated that public feedback regarding the gateways was generally positive and at least the perception was that the gateways were resulting in trucks slowing down. Speed studies conducted before and after the gateways were constructed revealed a slight decrease in the 85th percentile speeds.

Existing Conditions

The intersection of PA 41 with PA 841 is a 4-way intersection with the following characteristics:

- PA 841 bisects PA 41 at an acute angle of approximately 49 degrees.
- The intersection with PA 841 is located on a horizontal curve in the PA 41 alignment.

- PA 841 intersects with London Grove Road and a channelized right turn lane from PA 41 northbound at a 90 degree 4-way intersection approximately 100 feet north of its intersection with PA 41.
- Traffic control consists of stop signs on the minor street (PA 841) approaches, as well as on London Grove Road and the PA 41 northbound channelized right turn lane.
- Overhead flashing warning beacons are present at the intersection.
- The approaches of PA 41 consist of a shared left turn / through lane, with right turns being channelized.
- The approaches of PA 841 at PA 41 consist of a single shared left turn / through / right turn lane.
- The approach of PA 841 at London Grove Road consists of a shared left turn / right turn lane, with through movements being prohibited.
- The approach of London Grove Road at PA 841 consists of a single shared through / right turn lane, with left turns being prohibited due to the presence of the channelized right turn lane from PA 41.

An aerial view of the existing conditions is included in Appendix A, Figure 2. Photographs of the intersection approaches are included in Appendix A, Figure 3.

Project Setting

The project area is a mix of land uses including agricultural, commercial, and residential. The Chatham Historic District (National Register eligible) is located within the project study area. There are numerous contributing resources to the historic district along PA 41 and along PA 841; this includes the Chatham Hotel, which is also individually eligible for the National Register, located at the northwest corner of the SR 41/SR 841 intersection. The John I. Carter Farm is another individually eligible National Register property located in the project area. These historic properties are shown on Appendix A, Figure 4. The majority of agricultural land within the project area is within an Agricultural Security Area. The project team will continue to coordinate with the local farmers. The Twin Pines Health Care Facility (formerly Chatham Acres Nursing Home) is located along East London Grove Road, approximately 1500 feet east of the PA 41/PA 841 intersection. Two churches, Jehovah's Witnesses Church and Chatham United Methodist Church are located within the project study area. Wetland delineations were conducted on December 15, 2015, January 20, 2016, and June 29, 2021. Six wetlands were identified within the project area. An Aquatic Resources Letter Report, summarizing the location of the wetlands, was prepared in November 2016. The potential impacts to these environmental and cultural resources are discussed in the Evaluation of Alternatives section.

II. PROJECT PURPOSE AND NEED

The purpose of this project is to provide a safe and efficient means of accommodating the regional movement of people, goods, and services and to provide for local access connections to support the existing community and businesses in the village of Chatham.

This Project has the following project needs:

- The layout of the existing PA 41/PA 841 is confusing. Multiple roadways converge on the east side of PA 41 within the intersection influence area. The current intersection layout with five approaches and severe skew angles causes driver confusion.
- Large vehicles cannot negotiate the turning movements without tracking over the existing curbs and islands. The PA 41 southbound to PA 841 southbound movement does not provide for large trucks or buses to complete the movement without overtopping the curb or encroaching into the opposing lane of travel.
- Drivers speeding through the village of Chatham create a hazardous condition. A speed study conducted in 2023 identified vehicles routinely traveling at speeds greater than 15mph over the posted speed limit (35mph). 151 of 363 respondents to the project needs survey (about 40%) indicated they avoid crossing at the intersection.
- The northbound PA 841 severely skewed approach to the intersection creates an extremely difficult line of sight for crossing and turning movements. Sight distance limitations were reported as the second primary reason why respondents to the project needs study avoid the intersection.

III. DESCRIPTION OF ALTERNATIVES

Fourteen alternatives in total were evaluated for the PA 41/PA 841 intersection. This section provides brief descriptions of each alternative. The seven alternatives carried forward into detailed studies were more fully analyzed as presented in Section IV. Refer to Appendix B for conceptual plans of Alternatives 5A, 5B, 6A, 6B, 9, 10A and 10B.

Alternatives 1, 2, 3, 4, 7, and 8 (from August 2015 Planning Study For: PA 41 & PA 841 Intersection)

Based on public comments and consideration of project needs and impacts, the No-Build Alternative and Alternatives 1, 2, 3, 4, 7 and 8 were previously eliminated from consideration in the August 2015 *Planning Study For: PA 41 & PA 841 Intersection*.

These previously developed alternatives included intersection configurations and locations with varying ranges of balance between capacity improvements, geometrical improvements, impacts to potential historical and environmental resources, and residential impacts. The No-Build Alternative and Alternatives 1, 2, 3, 4, 7, and 8 either did not meet the project's needs as well as the alternatives outlined below and/or included a greater level of impacts to socioeconomic, natural, and cultural resources. Refer to the *Planning Study For: PA 41 & PA 841 Intersection*¹ for more discussion related to the dismissal of these alternatives and why the remaining alternatives were carried forward into detailed engineering studies. Due to the location of the historic district and surrounding environmental features, a total avoidance alternative is not feasible. Moving the intersection outside of the district would introduce significant out-of-direction travel and delay for motorists.

Alternative 5A

The proposed PA 41/PA 841 intersection in Alternative 5A would be located north of the current intersection. The intersection would include both directions of PA 41 and PA 841 tied together by a single lane conventional roundabout. East London Grove Road would maintain access to PA 41 at its current location, but it would be modified to accommodate only right turns. Both directions of PA 841 would be realigned to the proposed roundabout. Left turns out of Church Alley in both directions would be permitted since the splitter island ends prior to the intersection. Pedestrian accommodations would include sidewalks around the proposed roundabout.

The proposed roundabout would reduce vehicle speeds and improve intersection safety, while reducing the confusion with the current layout. The roundabout would also improve the flow of traffic, especially on PA 841. Alternatives 5A received a positive response in initial public meetings.

Alternative 5B

The proposed PA 41/PA 841 intersection in Alternative 5B would be located north of the current intersection but slightly to the east of the location shown in Alternative 5A. The intersection would include both directions of PA 41 and PA 841 tied together by a single lane conventional roundabout. East London Grove Road would maintain access to PA 41 at its current location, but it would be modified

¹ Available to view on the pa41.com website or in hard copy format at London Grove Township office

to accommodate only right turns. Both directions of PA 841 would be realigned to the proposed roundabout. The primary difference from Alternative 5A is the location of the proposed roundabout. In the 5B alternative, more extensive re-alignment of the PA 841 northbound approach would be necessary to achieve the proper entry path into the roundabout since it is shifted further east. Left turns out of Church Alley in both directions would be prohibited due to the splitter island extending through the initial curvature on the roundabout approach. Pedestrian accommodations would include sidewalks around the proposed roundabout.

The proposed roundabout would reduce vehicle speeds and improve intersection safety, while reducing the confusion with the current layout. The roundabout would also improve the flow of traffic, especially on PA 841. Alternative 5B received a positive response in public meetings.

Alternative 6A

Alternative 6A would provide a 4-way intersection between PA 41 and PA 841 just south of the Jehovah's Witness Kingdom Hall. The PA 841 approaches would be stop-controlled while traffic on PA 41 could flow uninhibited. No additional lanes would be added at the intersection. PA 841 northbound would be straightened out to eliminate the sharp curve that occurs west of the intersection and would be relocated to the new intersection. PA 841 southbound would also be realigned to the proposed intersection. East London Grove Road would maintain access to PA 41 at its current location, however it would be modified to only accommodate right turns. Pedestrian accommodations would include sidewalks through the village of Chatham along PA 41. This alternative also received a positive response in public meetings.

Alternative 6B

Alternative 6B would provide a 4-way intersection between PA 41 and PA 841 just south of the Jehovah's Witness Kingdom Hall. This alternative is identical to Alternative 6A except that the intersection would be a single lane roundabout.

Alternative 9

Alternative 9 would shift PA 841 east and slightly north along PA 41 to obtain a better alignment for the intersection. East London Grove Road would maintain access to PA 41 at its current location, but it would be modified to only allow right turns. PA 41 would be widened through the intersection to accommodate left turn lanes on both directions. The PA 841 northbound and southbound approaches of the intersection would be stop controlled. Although the confusing aspect of the intersection would be eliminated, it would still be difficult for large trucks to access PA 841.

Alternative 9 passed the 2015 preliminary evaluation due to its ability to meet the majority of the project needs with relatively limited impacts. The intersection realignment and left turn lanes would reduce confusion and improve safety. Because this alternative closely follows the current alignment, few properties are impacted. However, the Chatham Hotel would be directly impacted as a total right-of-way (ROW) take. This alternative also had a positive response in public meetings.

Alternative 10A

Alternative 10A would relocate the PA 41/PA 841 intersection to roughly 350 feet north of Pennock Lane. The PA 841 approaches would be stop-controlled while traffic on PA 41 could flow uninhibited. The proposed PA 841 northbound alignment would eliminate the almost 90-degree curve where it meets West London Grove Road and would follow an old railroad bed to its new intersection with PA 41. The proposed PA 841 southbound alignment would be realigned to this new intersection. East London Grove Road would maintain access to PA 41 at its current location, but it would be modified to only allow right turns.

Alternative 10A was suggested to the project team at a public meeting. The relocated intersection would reduce confusion and provide better access to PA 41 and PA 841 for large vehicles. There would be a substantial impact to farmland, but most of the buildings in the village of Chatham would be unaffected.

Alternative 10B

Alternative 10B is the same as Alternative 10A except that the intersection would be a single lane roundabout.

IV. ENVIRONMENTAL OVERVIEW

A. Natural Resources

Introduction

The natural resources that are located within the project area are Surface Waters; Wetlands; Floodplains; Threatened and Endangered Species; and Agricultural Land. A description of these resources follows. A map showing these natural resources is included in Appendix A, Figure 5.

Surface Waters

There are four streams present within the project study area, Unnamed Tributary (UNT) to East Branch White Clay Creek (Stream 1), UNT to East Branch White Clay Creek (Stream 2), UNT to East Branch White Clay Creek (Stream 3), and UNT to East Branch White Clay Creek (Stream 4). East Branch White Clay Creek is located east of the project study area and is classified as a Cold Water Fishery (CWF), Migratory Fishery (MF) in PA Code, Title 25, Chapter 93 (Water Quality Standards). Therefore, the UNT's to East Branch White Clay Creek that are present within the project area, have the same Chapter 93 classification of CWF, MF.

White Clay Creek and tributaries of White Clay Creek and all second order tributaries of the designated segments are classified as a Federal Wild and Scenic River. UNT to East Branch White Clay Creek (Stream 1) is a second order tributary and the only stream in the project area classified as a Federal Wild and Scenic River. Impacts to the waterways will be coordinated with NPS during preliminary design. Appropriate erosion and sedimentation measures will be put in place to protect the affected waterways.

The UNTs to East Branch White Clay Creek are not designated water trails nor are they navigable.

Wetlands

Wetland delineations were conducted on December 15, 2015, January 20, 2016, and June 29, 2021. Six wetlands were identified within the project area. Wetlands 1, 2, 3, 4, and 5 have a Cowardin Classification of palustrine emergent (PEM). Wetland 6 has a Cowardin Classification of PEM (70%) and palustrine scrub-shrub (PSS, 30%). Wetlands 3, 4, 5, and 6 were located in the western portion of the project study area. Wetlands 1 and 2 were located in the southern portion of the project area. An Aquatic Resources Letter Report, summarizing the location of the wetlands, was prepared in November 2016, updated in August 2021.

Floodplains

Based on a review of the Federal Emergency Management Agency (FEMA), the project location borders Zone AE (base flood elevation known) of the 100-year floodplain of the UNT to East Branch White Clay Creek (Stream 1 and Stream 4).

Threatened and Endangered Species

A Pennsylvania Natural Diversity Inventory review was conducted on June 29, 2018. The PNDI indicated potential impacts to the bog turtle under the jurisdiction of the United States Fish and Wildlife Service (USFWS). Chester County is a known county to support habitat for the bog turtle. On April 14, 2016 and

April 15, 2016, a USFWS Recognized Qualified Bog Turtle Surveyor (RQBTS), conducted a Phase I Bog Turtle Habitat Survey to identify potential bog turtle habitat. The survey included ten wetlands within 300-feet of the project area, and Wetland 6 and Wetland B (a wetland outside the project area) have bog turtle habitat.

Agricultural Resources

There are prime farmland soils and soils of statewide importance within the project area. While a portion of the project area is located within the village of Chatham with land uses of mainly residential and commercial, the outskirts of the project area contains Productive Agricultural Land (PAL).

Agricultural Security Area (ASA) parcels are located throughout the project area. The PAL along West London Grove Road contains cattle pasture, agricultural buildings, and field crops. The PAL along East London Grove Road contains horse pasture and field crops. The PAL along PA 841 to the north of the village of Chatham is planted with field crops and mowed for hay. The PAL along PA 41 at the eastern project limits is planted with field crops and also consists of agricultural buildings; the farm on the north side of PA 41 just east of the project area is enrolled in ASA and is a conservation easement.

Each alternative has varying impacts to the PAL. The Agricultural Land Preservation Policy will be adhered to for this project. Also, coordination with PennDOT Office of Chief Counsel will occur during preliminary design to determine if Agricultural Land Condemnation Approval Board (ALCAB) approval will be necessary. If a Farmland Assessment Report (FAR) will be required, it will be prepared during preliminary design.

B. Potential Waste Concerns

A Phase I Environmental Site Assessment was prepared for the project and once a preferred alternative is selected, additional waste studies will be completed. Eight properties in the project study area were identified as potential waste concerns.

C. Cultural Resources

Above Ground Historic Properties

There are three National Register-eligible properties located within the project study area: Chatham Historic District, Chatham Hotel, John I. Carter Farm. There are numerous contributing resources to the Chatham Historic District along PA 41 and along PA 841.

- The Chatham Historic District was determined eligible for listing in the National Register of Historic Places in 2001 and updated in 2016. The district is eligible under Criterion A for transportation, commerce, and as a crossroads village, under Criterion B for its association with Thomas McKean Sr. a signer of the Declaration of Independence, and under Criterion C for its architecture from 18th and 19th century.
- The Chatham Hotel was determined individually eligible for listing in the National Register of Historic Places in 1994 under Criterion A as an inn and stagecoach stop, and Criterion C for its architecture. The Chatham Hotel is also a contributing element to the Chatham Historic District.
- The John I. Carter Farm was determined individually eligible for listing in the National Register of Historic Places in 2002 under Criterion A for agriculture and Criterion C for its architecture.

Archaeology

A Phase IA Archeological Assessment was prepared in July 2017 which examined records of past archaeological surveys and recorded archaeological sites in the immediate and general vicinities of the project area. Previous surveys have been conducted along the PA 41 corridor north and south of Chatham and along U.S. Route 1 southeast of Chatham. These surveys revealed the presence of precontact sites; other precontact sites have been identified during separate non-transportation investigations. The sites of structures related to historic farmsteads and other structures have also been encountered. These collective data indicate the potential for evidence of precontact and/or historic occupation is moderate to high along at least some portion of each alternative. A Phase IB archaeological survey is recommended once a preferred alternative is selected.

V. EVALUATION OF ALTERNATIVES

The seven proposed alternatives previously discussed were evaluated on their ability to meet the project needs, environmental impacts, public feedback, and additional factors as more detailed mapping and survey data was obtained, and the level of engineering detail was advanced. A matrix of the evaluation findings for each alternative is included in Appendix D. Potential ROW impacts listed as substantial impacts in the matrix are those properties that would involve a ROW acquisition area along an entire side of the property or the roadway would split the property into two pieces- one with the existing dwelling that would remain and one remnant that would be acquired by PennDOT.

A public meeting conducted in an open-house plans display format was held in June 2019 where Alternatives 5A, 5B, 6, 9, and 10 were presented. Refer to Appendix B for the alternative figures presented at the public meeting. Attendees were encouraged to provide feedback to the design team via survey forms handed out at the public meeting. Included in the survey form was a request for attendees to rank each of the alternatives in order of preference. The meeting materials and survey form were also posted on the PA 41 project website to provide an opportunity for public feedback from persons unable to attend the in-person meeting.

To aid in narrowing down the five alternatives presented at the public meeting, additional safety analysis was performed. Alternatives 5A and 5B, 6, and 10 could provide varying ability to meet project needs. Two additional alternatives were added; Alternative 6 shown at the 2019 public meeting was renamed as Alternative 6A, and Alternative 6B showing a roundabout was added. Also, Alternative 10 shown at the 2019 public meeting was renamed as Alternative 10A and Alternative 10B showing a roundabout was added. These figures are shown in Appendix B. A roundabout was not developed for Alternative 9 due to the skewed approach geometry.

The safety analysis was summarized in a September 2019 memo to PennDOT. The results indicate that when compared against the existing no-build condition, the installation of a roundabout for the proposed alternative is predicted to have a greater reduction in total crashes (54%) versus a two-way stop controlled (TWSC) intersection with left turn lanes on PA 41 (34%). A roundabout would also operate with lower delay on the PA 841 approaches than a TWSC intersection.

A comment response document for PennDOT's responses to the comments received during the public meeting was prepared by the project team and was posted to the project website in October 2019. This document is included in Appendix C.

Based on public comments received at the 2019 public meeting, sidewalks were discussed in greater detail with London Grove Township. Sidewalk improvements will be considered where a roundabout or roadway improvement already causes an encroachment beyond the existing PennDOT ROW. Existing sidewalks along PA 41 will be maintained or upgraded to meet ADA design criteria.

Alternative 5A

Alternative 5A would meet the project needs. The roundabout would decrease travel time delay on the PA 841 approaches, address the confusing PA 41 & PA 841 intersection layout, accommodate large truck turning movements, and address the safety need by slowing speeds on PA 41 through the village, and improving sight distance at the PA 41 & PA 841 intersection.

This alternative does not directly impact the Chatham Hotel building but does result in a ROW acquisition within the hotel's historic boundary for the new section of PA 841 to tie into the roundabout. Additional ROW acquisition south of PA 41, including the total take of two residential properties that contribute to the historic district, is required for the placement of the roundabout. Two residential properties that do not contribute to the historic district would also be total takes. Additional impacts to the Chatham Historic District include additional minor ROW strip acquisitions, mostly along PA 41 leading into the roundabout. There are no impacts to wetlands or streams. A total of 0.01 acres of productive agricultural land is impacted. Access to Twin Pines Health Care facility would be provided via the roundabout and maintaining a portion of existing PA 841.

This alternative would have the most residential displacements with four (two contributing resources to the historic district and two non-contributing resources) and includes substantial impacts to three residential properties. The same re-alignment of PA 841 northbound as shown in Alternative 5B is possible with this alternative but not necessary as the roundabout in this case is shifted west. Alternative 5A received the second highest amount of support from comments received at the 2019 public meeting.

Alternative 5B

Alternative 5B is similar to Alternative 5A. The primary difference is the location of the proposed roundabout. It would meet the project needs of decreasing travel time delay on PA 841, addressing the confusing PA 41 & PA 841 intersection layout, accommodating large truck turning movements, and improving safety by slowing speeds on PA 41 through the village, and improving intersection sight distance.

This alternative has one commercial displacement (gas station) and no residential displacements. The nearest gas station to the south is two miles away and north is six miles. This alternative does not impact the Chatham Hotel building but bisects the vacant portion within the hotel's historic boundary. Additional impacts to the Chatham Historic District are limited to minor ROW strip acquisitions along PA 41. No contributing properties to the historic district will be displaced with this alternative; the only displacement is the gas station which does not contribute to the historic district. There are no impacts to wetlands or streams. A total of 0.84 acres of productive agricultural land impacted; of that, 0.80 acres are within an Agricultural Security Area. Impacts to farmland are higher for Alternative 5B than Alternative 5A as it involves more extensive roadway re-alignment of the PA 841 northbound approach to achieve proper horizontal geometry due to the location of the proposed roundabout. Access to Twin Pines Health Care facility would be provided via the roundabout and maintaining a portion of existing PA

841. Alternative 5B received the most support from comments received at the 2019 public meeting. London Grove Township has indicated their support of Alternative 5B as the preferred alternative as outlined in an August 2022 letter to PennDOT. This letter is included in Appendix E. A rendering of Alternative 5B is included in Appendix F.

Alternative 6A

Alternative 6A, with two-way stop control on the PA 841 approaches at the new intersection location shown, would meet the project needs of addressing the confusing PA 41 & PA 841 intersection layout and accommodating large truck turning movements. The project need of decreasing travel time delay on PA 841 would not be met with this option. Safety would be slightly improved over the existing condition, but this alternative would not fully meet the need as speeds on PA 41 through the village would not be addressed.

This alternative would result in two residential displacements and substantial impacts to five residential properties. It has the largest overall number of residential property impacts. The Chatham Hotel building would not be directly impacted, although there would be a minor ROW strip acquisition. In addition, minor ROW strip acquisition would be required within the historic district along PA 41, as well as for the new southern approach of PA 841. No contributing properties to the historic district would be displaced, but this alternative shifts the PA 41 & PA 841 intersection further away from the existing cross-roads village intersection.

There are no impacts to wetlands or streams. A total of 0.17 acres of productive agricultural land impacted; this is all within an Agricultural Security Area. The Chatham Hotel building would not be impacted, although there would be a minor ROW strip acquisition. Access to the Twin Pines Health Care facility would be similar to Alternatives 5A and 5B.

Alternative 6B

Alternative 6B, with the roundabout at the new intersection location shown, would meet the project needs of addressing the confusing PA 41 & PA 841 intersection layout, accommodating large truck turning movements, decreasing travel time delay on PA 841, and improving safety by slowing speeds on PA 41 through the village and improving intersection sight distance.

This alternative would result in three residential displacements and substantial impacts to four residential properties. It has the largest overall number of residential property impacts. The Chatham Hotel building would not be directly impacted, although there would be a minor ROW strip acquisition. In addition, minor ROW strip acquisition would be required within the historic district along PA 41, as well as for the new southern approach of PA 841. No contributing properties to the historic district would be displaced, but this alternative shifts the PA 41 & PA 841 intersection further away from the existing cross-roads village intersection.

There are no impacts to wetlands or streams. A total of 0.17 acres of productive agricultural land impacted; this is all within an Agricultural Security Area. The Chatham Hotel building would not be impacted, although there would be a minor ROW strip acquisition. Access to the Twin Pines Health Care facility would be similar to Alternatives 5A and 5B.

Alternative 9

Alternative 9 meets the project need of addressing the confusing PA 41 & PA 841 intersection layout. The addition of left turn lanes on PA 41 could provide some safety improvement. However, speeds on PA 41 through the village would not be addressed and intersection sight distance would not be improved. It does not satisfy or improve any of the remaining two project needs. It does not meet the project needs of decreasing travel time delay on PA 841 or accommodating large truck turning movements.

This alternative keeps the original PA 41 & PA 841 intersection which the village developed around largely intact and requires less ROW acquisition from the historic district, however; this alternative would include removing the Chatham Hotel, which is individually eligible and contributes to the historic district. No residential displacements are anticipated. There are no impacts to wetlands or streams. There are 0.04 acres of productive agricultural land impacted.

Alternative 10A

Alternative 10A, with two-way stop control on the PA 41 approaches at the new intersection location shown, would meet the project needs of addressing the confusing PA 41 & PA 841 intersection layout and accommodating large truck turning movements. The project need of decreasing travel time delay on PA 841 would not be met with this option. Safety would be slightly improved over the existing condition by addressing intersection sight distance, but this alternative would not fully meet the need as speeds on PA 41 through the village would not be addressed.

As a result of the re-alignment of PA 841, a total of 0.48 acres of productive agricultural land impacted; of that, a total of 0.45 acres are within an Agricultural Security Area. The Chatham Hotel property would have only a minor ROW acquisition. Multiple ROW strip acquisitions would be required from contributing properties adjacent to and including the Pomeroy & Newark Railroad alignment (a contributing resource to Chatham Historic District) as the northbound PA 841 approach would closely follow the railroad alignment. The Chatham Historic District would see additional ROW strip acquisition, mostly along PA 41, and one contributing building to the district, historically associated with the John I. Carter Farm property, would be displaced. In summary, there would be one residential displacement associated with two-way stop control at this location and substantial impacts to five residential properties.

Alternative 10A requires the most out-of-direction travel for traffic using PA 841 or East London Grove Road east of 41. This is particularly impactful to the Twin Pines Health Care facility for traffic traveling south on 41.

Alternative 10B

Alternative 10B, with a roundabout, meets the project needs of addressing the confusing PA 41/841 intersection layout and decreasing the travel time delay on the PA 841 approaches. Large vehicle turning movements would be accommodated at the new intersection.

Alternative 10B does not fully meet the safety need as this option does not slow speeds on PA 41 through the project area for the reasons described below:

- Due to how far north the PA 41 & PA 841 intersection is located, it does not effectively reduce the speeds for northbound PA 41 traffic through Chatham. Vehicles encounter the initial gateway treatment and then progress through the village before approaching the roundabout.
- Due to how far north the intersection is, the existing gateway treatment would become part of the roundabout splitter island. While southbound PA 41 traffic would be initially slowed by the roundabout and gateway, there is nothing to encourage vehicles to maintain slower speeds through Chatham unlike the gateway and roundabout combination in the other alternatives.

As a result of the re-alignment of PA 841, a total of 0.48 acres of productive agricultural land impacted; of that, a total of 0.45 acres are within an Agricultural Security Area. The Chatham Hotel property would have only a minor ROW acquisition. Multiple ROW strip acquisitions would be required from contributing properties adjacent to and including the Pomeroy & Newark Railroad alignment (a contributing resource to Chatham Historic District) as the northbound PA 841 approach would closely follow the railroad alignment for approximately 900 feet. The Chatham Historic District would see additional ROW strip acquisitions, mostly along PA 41, and two contributing buildings to the district, one of which is historically associated with the John I. Carter Farm property, would be displaced. In summary, there would be two residential displacements associated with a roundabout at this location and substantial impacts to five residential properties.

VI. CONCLUSION

Seven alternatives were investigated more fully for the PA 41 & PA 841 intersection improvement project. Each alternative was evaluated considering the project needs and its impact on resources as shown on the matrix in Appendix D. The location of the proposed intersection is key to whether or not the preferred alternative fully addresses the safety need by decreasing speeds on PA 41 through the village of Chatham and addresses the confusing existing intersection layout.

- Alternative 5A meets all of the project needs. It has the most residential displacements (total of four) of the alternatives considered, two of which are within the Chatham Historic District.
- Alternative 5B meets all of the project needs. It avoids any residential displacements. It displaces one commercial property.
- Alternative 6A does not meet one of the project needs and only partially addresses another and also received lower public support. Overall, it has larger impacts than the other alternatives; therefore, it was dismissed from further study.
- Alternative 6B meets all of the project needs. It has the largest number of residential properties impacted due to its location in the center of the residential area within the Chatham Historic District. It also saw lower public support than Alternatives 5A and 5B. Alternative 6B was dismissed because it has greater impacts than the preferred alternative.
- Alternative 9 does not meet three of the project needs; therefore, it was dismissed from further study. It avoids any residential displacements but would displace the Chatham Hotel, which is both individually eligible and part of the Chatham Historic District.
- Alternative 10A does not meet one of the project needs and only partially addresses another; therefore, it was dismissed from further study. It has one residential displacement, which is part of the individually eligible John I. Carter Farm and the Chatham Historic District.
- Alternative 10B does not fully meet one of the project needs; therefore, it was dismissed from further study. It has two residential displacements which are within the Chatham Historic District and one of which is also part of the individually eligible John I. Carter Farm.

PennDOT recommends Alternative 5B as the preferred alternative. After considering all of the alternatives, Alternative 5B was shown to meet all of the project needs and minimized impacts to the Chatham Historic District while receiving the most public support.

APPENDIX A: Figures

- Figure 1- Location Map
- Figure 2- Existing Conditions
- Figure 3- Project Photographs
- Figure 4- Historic Properties
- Figure 5- Natural Resources

London Grove Township, Chester County, Pennsylvania

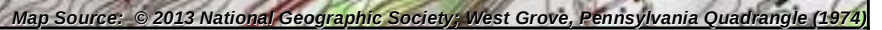




Figure 2: Existing Conditions Aerial View



Figure 3: Existing Conditions Photographs



Photograph 1: View looking south along PA 41 in the village of Chatham



Photograph 2: View looking north along PA 41 in the village of Chatham

Figure 3: Existing Conditions Photographs (continued)

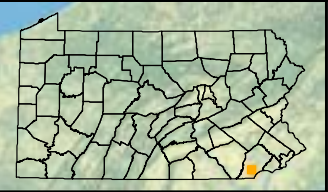


Photograph 3: View at the PA 41/841 intersection looking west along PA 841 (W London Grove Rd)



Photograph 4: View at the PA 41/841 intersection looking northeast toward the Chatham Hotel and the adjacent minor intersection of PA 841 & E London Grove Rd/northbound channelized right turn lane off PA 41

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	Tax Parcel	Pomeroy-Newark Railroad Grade (Contributing)	Chatham HD Contributing Property
	Chatham Historic District Boundary, NR Eligible, Key No. 022492, Resource No. 2001RE01954	Individually NR Eligible Resources	

Figure 4
Historic Properties
S.R. 0041, Section 841
London Grove Township, Chester County, Pennsylvania

Chatham Hotel



John I. Carter Farm (portion near APE)





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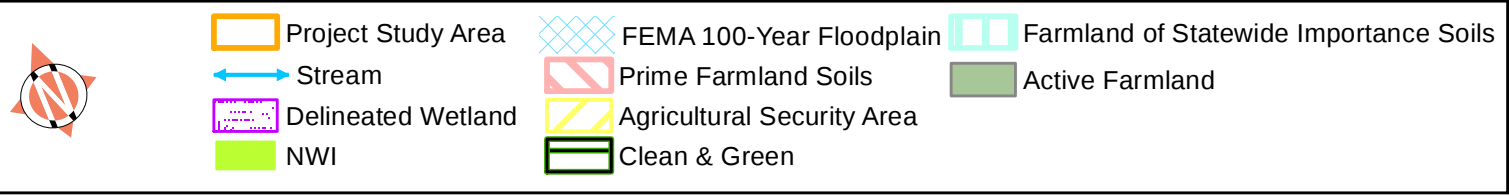


Figure 5
Natural Resources
S.R. 0041 and S.R. 0841 Intersection Project
London Grove Township, Chester County, Pennsylvania

Page 1 of 4



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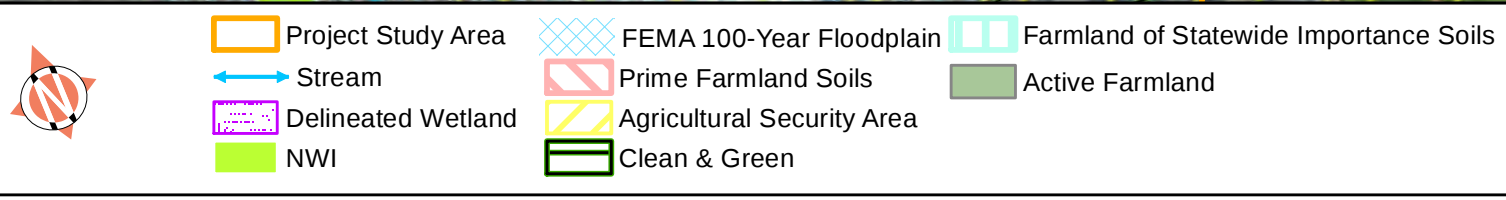


Figure 5
Natural Resources
 S.R. 0041 and S.R. 0841 Intersection Project
 London Grove Township, Chester County, Pennsylvania





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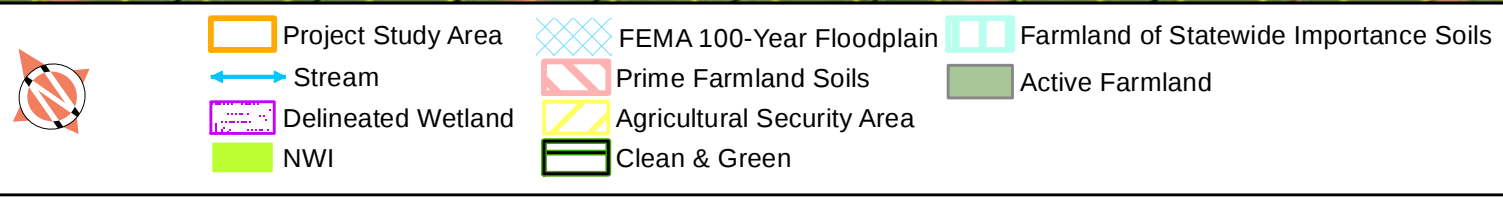


Figure 5
Natural Resources
 S.R. 0041 and S.R. 0841 Intersection Project
 London Grove Township, Chester County, Pennsylvania