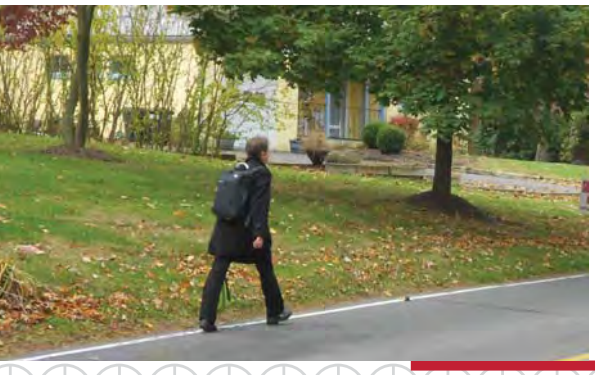

Cranbury Road (CR 615) Area Bicycle and Pedestrian Mobility Alternatives Study

West Windsor Township, Mercer County, New Jersey

Final Report
March 2015

Louis Berger

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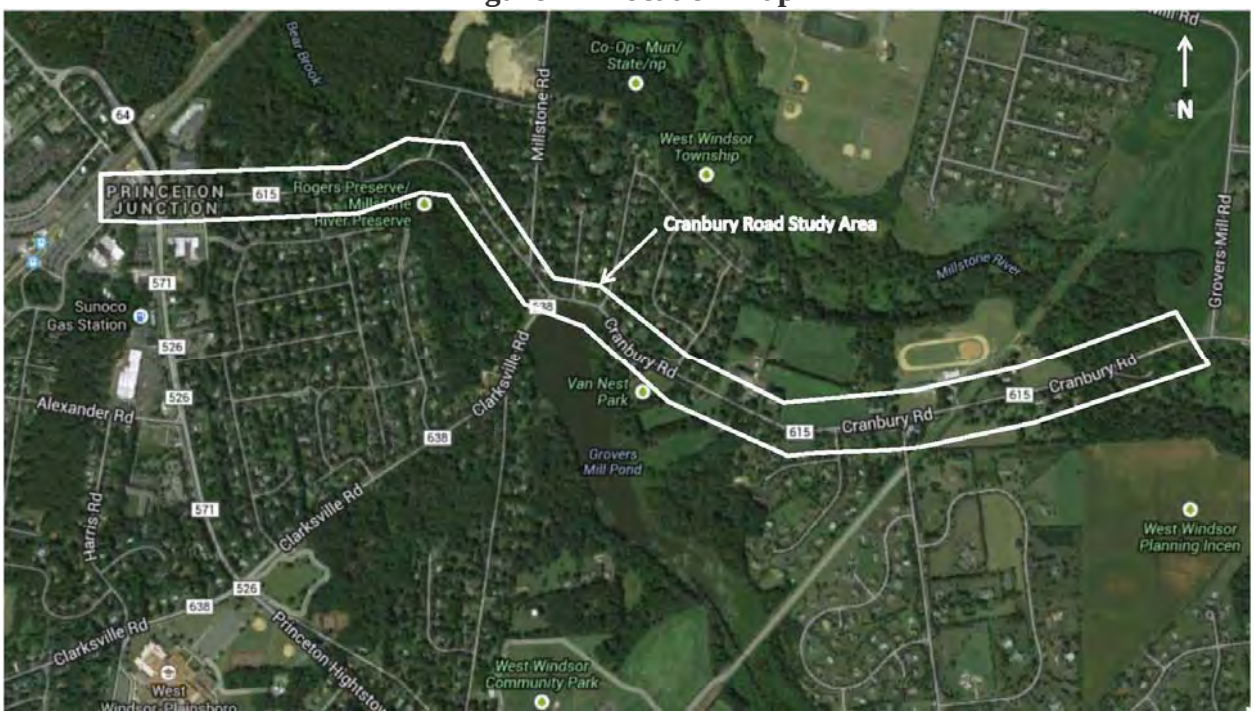
1.0 Executive Summary

West Windsor Township, in cooperation with Mercer County, initiated the Cranbury Road (County Route 615) Area Bicycle and Pedestrian Mobility Alternatives Study. This study concentrated on developing a series of physical improvements and complimentary mobility strategies for the pedestrian and bicyclists within the Cranbury Road corridor between Princeton-Hightstown Road (County Route 571) and the Township border with Plainsboro Township, Middlesex County. The corridor represents a link for West Windsor Township and the Princeton Junction train station as well as the University Medical Center of Princeton at Plainsboro. Five (5) Alternatives, from minimum impact to high impact, were presented to the public and comments were received. Feedback on the five alternatives was both positive and negative. The need for sidewalks along the corridor seemed to be the major concern. Based on this feedback, the Hybrid Alternative evolved. The Hybrid Alternative focused on sidewalks throughout the corridor. Feedback received regarding the Hybrid Alternative was mostly positive with few negative comments. Continuing with the Hybrid Alternative is recommended by the project team. Next steps would include Township council approval, communicating to each property owner about the impacts of construction, preliminary engineering design, and final design.

1.1 Project Location

Cranbury Road is located in the northern portion of West Windsor Township near the Millstone River. It connects County Route 571 in Princeton Junction to Plainsboro Township where it becomes Cranbury Neck Road. The Study Area consists of approximately two (2) miles of Cranbury Road that extends between County Route 571 and the West Windsor Township border with Plainsboro Township, Middlesex County. This section of the corridor serves local and regional traffic and is a vital link for commuters, residents, and local businesses. The NJDOT Straight Line Diagram can be found in Appendix A. The Straight Line Diagram is a way to see the roadway in a line format with information such as speed limit, roadway functional class, shoulder width, and pavement width. The study area is outlined in Figure 1 – Location Map.

Figure 1 – Location Map



1.2 Project Purpose

The Township's vision for Cranbury Road identified a need for improving safety by providing missing sidewalk connections, addressing access issues, and enhancing pedestrian and bicycle facilities. The purpose of this study was to identify pedestrian and bicycle deficiencies within the study area and recommend conceptual design solutions. Solutions considered additional sidewalks and bike lanes with minimum impact to the roadway. Alternatives were developed to explore these solutions. These solutions all related to a larger goal of providing multiple commuting options for individuals who live within the Cranbury Road corridor.

1.3 Project Coordination

Several sources of information and guidance were utilized in order to maintain an efficient study process and balance recommendations. Frequent public involvement and coordination was essential to a continuous and comprehensive process. The goal of all project-related public outreach was to engage a broad representation of the public and consider a diverse range of ideas and viewpoints. The public outreach campaign utilized print and electronic media including a project webpage on the municipal website in order to build awareness about the project and solicit feedback.

A series of project team meetings were held to discuss logistics and details in preparation for, and facilitation of, Technical Advisory Committee (TAC) and Public Information Center meetings. All meetings were intended to assist in the development of a shared vision for the future of the Cranbury Road corridor. The responsibilities of the TAC included: identifying community groups and partners to participate in various public outreach activities; develop, guide and participate in community involvement activities; and review the technical submittals and guide the development and direction of the project. TAC members included representatives from Louis Berger, West Windsor Township Engineering Division and Mercer County. The members of the TAC provided historic and local knowledge and the vision necessary to comprehensively address the needs identified in the study area.

During the project development process, seven (7) TAC meetings were held at critical milestones throughout the project's development. Three (3) Public Information Center meetings were held throughout the study phase to elicit feedback, commentary, and suggestions. These meetings provided an opportunity for the project team to present progress to date, important milestones, and future tasks to be completed. Additionally, residents were given the opportunity to ask questions, discuss the existing issues within the corridor, and provide feedback for the conceptual development process. The Public Information Center meetings were held in the Municipal Center and Senior Center of the West Windsor campus.

A major part of the public outreach effort also consisted of an online survey. The survey was developed to solicit public input about existing issues and concerns throughout the Cranbury Road corridor and gather information about the current use of the corridor. Survey questions included topics regarding general travel, walking, and bicycling. The survey was accessible by a link on the Township website. All interested parties had the option to complete the survey either electronically or in writing. The survey allowed the project team to quantify public opinions regarding the study corridor and how the corridor was used. There were 110 responses to the survey. The results are summarized in section 4.4.

A meeting was held with the TAC to discuss the developed conceptual improvement alternatives and to address related concerns from attendees of the public meetings. Major issues and concerns

as identified by the TAC and general public focused on the lack of pedestrian and bicycle facilities.

2.0 Introduction

Louis Berger, as directed by West Windsor Township, studied the opportunities and constraints for bicycle and pedestrian improvements along the Cranbury Road corridor. This study developed improvement concepts that address existing needs and deficiencies within the project limits. The concept development process included an intensive public involvement effort, which served as an important means of identifying needs and deficiencies, developing concepts, and garnering community support.

The project goals were to:

- Develop provisions for walking and bicycling within the corridor as a viable transportation alternative
- Provide walkable and bikeable connections to and between major local destinations such as the train station, schools and parks
- Ensure the walkable and bikeable connections are safer for users of all ages
- Develop walkable and bikeable connections in an environmentally and economically responsible manner

Despite extensive growth in the Township's development, Cranbury Road has remained largely unimproved beyond the two 11-foot travel lane road with the limited shoulders that exists today. Isolated areas of curb and sidewalk do exist south of the Clarksville Road intersection from more recent land developments, but they offer no connectivity to desired destinations such as the train station, schools, and parks. Multiple constraints exist in the area including:

- Existing Right-of-Way (R.O.W.) is limited and varies from as little as 33-foot wide to 49.5-foot wide.
- Overhead utility poles are set close to the existing edge of pavement.
- Mature trees and landscaping exist in front yards and often near the roadway.
- Big Bear Brook and its associated floodplain run parallel to Cranbury Road and crosses under it within the study area.
- Heavy traffic volumes at the intersection of Cranbury Road with Millstone Road.
- Limited R.O.W. by the historic structures and Grovers Mill Pond in and around the Clarksville Road intersection.

3.0 Existing Conditions

Cranbury Road is classified as a Minor Collector Roadway in the Township Master Plan with a proposed 60-foot wide Right-of-Way. Collector Roadways collect traffic from local roads and distribute it to arterials. In the Mercer County Master Plan, Mobility Element, Cranbury Road is categorized with Desired Typical Section (DTS) 2A, which provides two 12-foot travel lanes, 12-foot shoulders and 15-foot borders (which includes sidewalks), for a total ultimate Right-of-Way width of 78 feet. However, considering the numerous physical constraints, the County has indicated their willingness to concede to a smaller cross section. Within the study area, Cranbury Road is primarily a two 11-foot lane cross-section with narrow shoulder widths. The speed limit within the study area ranges from 25 miles per hour to 40 miles per hour. The Average Daily Traffic (ADT) was reported by New Jersey Department of Transportation (NJDOT) as 5,706 vehicles per day (veh/day) in 2010 and 4,963 veh/day in 2011. Existing Conditions plans can be found in Appendix B.

3.1 Pedestrian Facilities

In the Circulation Plan, part of the West Windsor Master Plan, it is indicated that sidewalks should be provided along Cranbury Road due to the high pedestrian activity associated with the train station. The condition of pedestrian facilities varies throughout the study area. A number of sidewalk gaps, on both the northern and southern sides, were identified within the corridor. It is not uncommon to spot a pedestrian walking along the side of the road. It is difficult to walk throughout the study area due to missing sidewalks and no shoulders. Proposed Bicycle and Pedestrian Trailways provided by the Township can be found in Appendix C.

3.2 Bicycle Facilities

Currently, there are no bike lanes on Cranbury Road. However, there are “Share the Road” signs to promote the use of bicycles in the corridor. There are numerous constraints to bicycling along the Cranbury Road corridor. Some of the major bicycle travel constraints include lack of consistent shoulder widths and lack of designated on-road bicycle facilities which forces many to ride on the sidewalk, which does not exist in all locations. Proposed Bicycle and Pedestrian Trailways provided by the Township can be found in Appendix C.

3.3 Steep Slopes

The study area was analyzed to determine the location of steep slopes meeting or exceeding a 20% grade change. Numerous sections of the study area were found to meet or exceed the 20% grade change. Significant sections include both north and south sides extending from Sunnydale Way east to the bridge over the Bear Brook and north and south sides east and west of Rabbit Hill Road. Steep Slopes are shown with red hatching on the Existing Conditions Plans in Appendix B.

3.4 Trees

A tree survey was performed of all trees 8 inches in diameter within the Right-of-Way (R.O.W) including location, size, and species identification. The existing trees can be seen in the Existing Conditions Plan in Appendix B.

3.5 Constraints

The Cranbury Road corridor within the study area accesses residential and recreational properties. There are a few access points to neighboring communities. The roadway is considerably constrained geographically on either side at a number of locations by steep slopes, homes, mature trees and utility poles. Examples of this are shown in Figure 2.

Figure 2 – Examples of Common Roadside Constraints on Cranbury Road

3.6 Environmental Screening

As part of the project, the project team completed field survey and mapping efforts. A digital terrain model was developed allowing the existing alignments to be taken at proposed locations allowing accurate assessments of all alternatives developed.

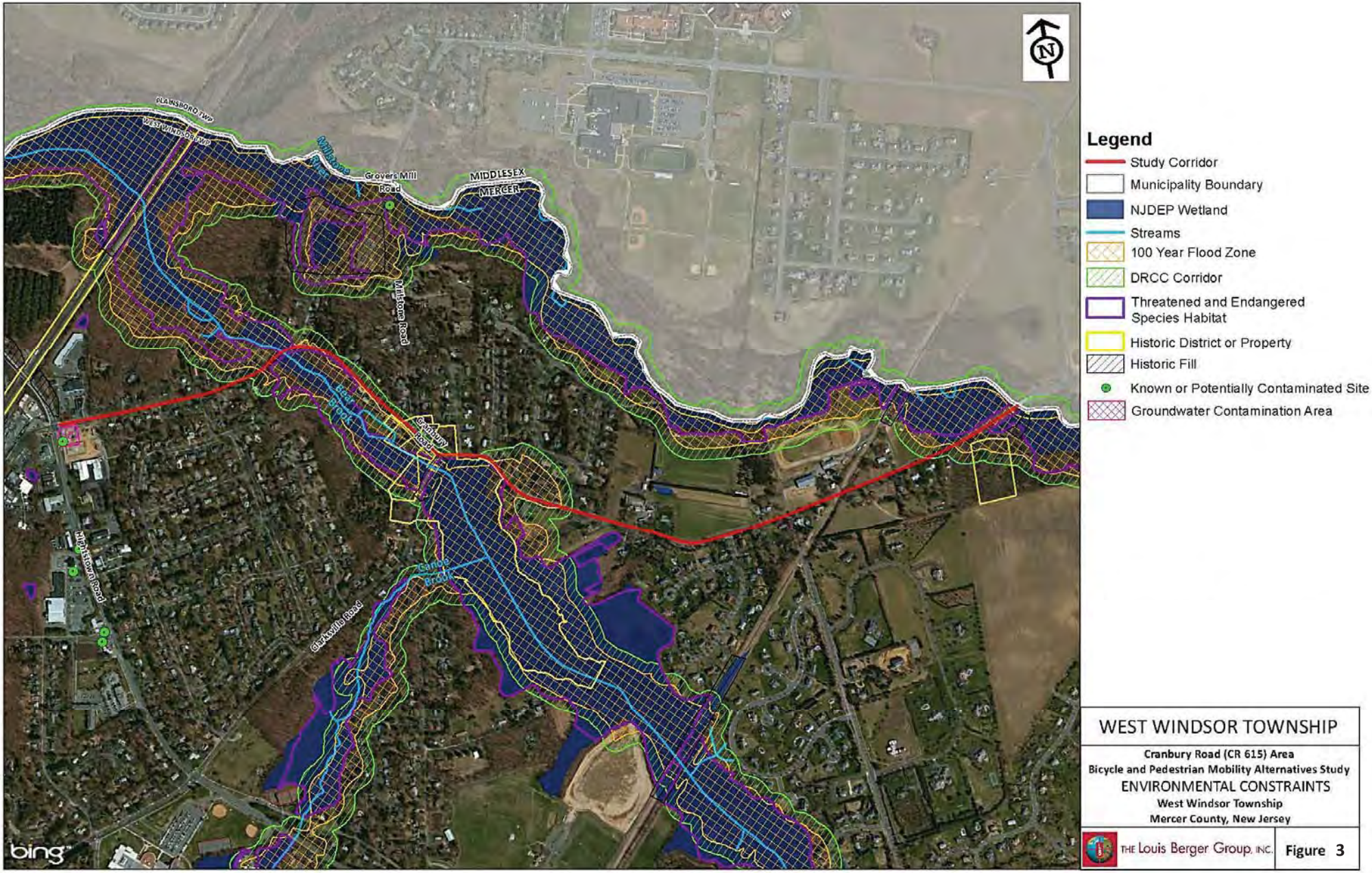
An environmental screening was completed and a visual was created to identify environmental constraints and sensitive areas. Information was obtained using GIS-based environmental mapping and database information available from the New Jersey Department of Environmental Protection (NJDEP). The GIS Environmental Constraints Map can be seen in Figure 3.

Some of the larger areas of environmental concern are wetland encroachment and floodplain restrictions. It should be noted that the completed environmental screening is preliminary. As more detailed designs are developed more in-depth and detailed environmental investigations will be necessary to more definitively determine the need for environmental permits and whether or not conceptual designs that are advanced meet permitting criteria.

The following is a summary of the potential environmental constraints and regulatory requirements that may be associated with the proposed corridor improvements based on the NJDEP Environmental Permit and Section 106 Compliance:

- NJDEP Freshwater Wetlands/Transition Areas, and State Open Waters
- NJDEP Flood Hazard Act Rules
- NJDEP NJPDES Program Rules
- Compliance with Section 106 of the National Historic and Preservation Act

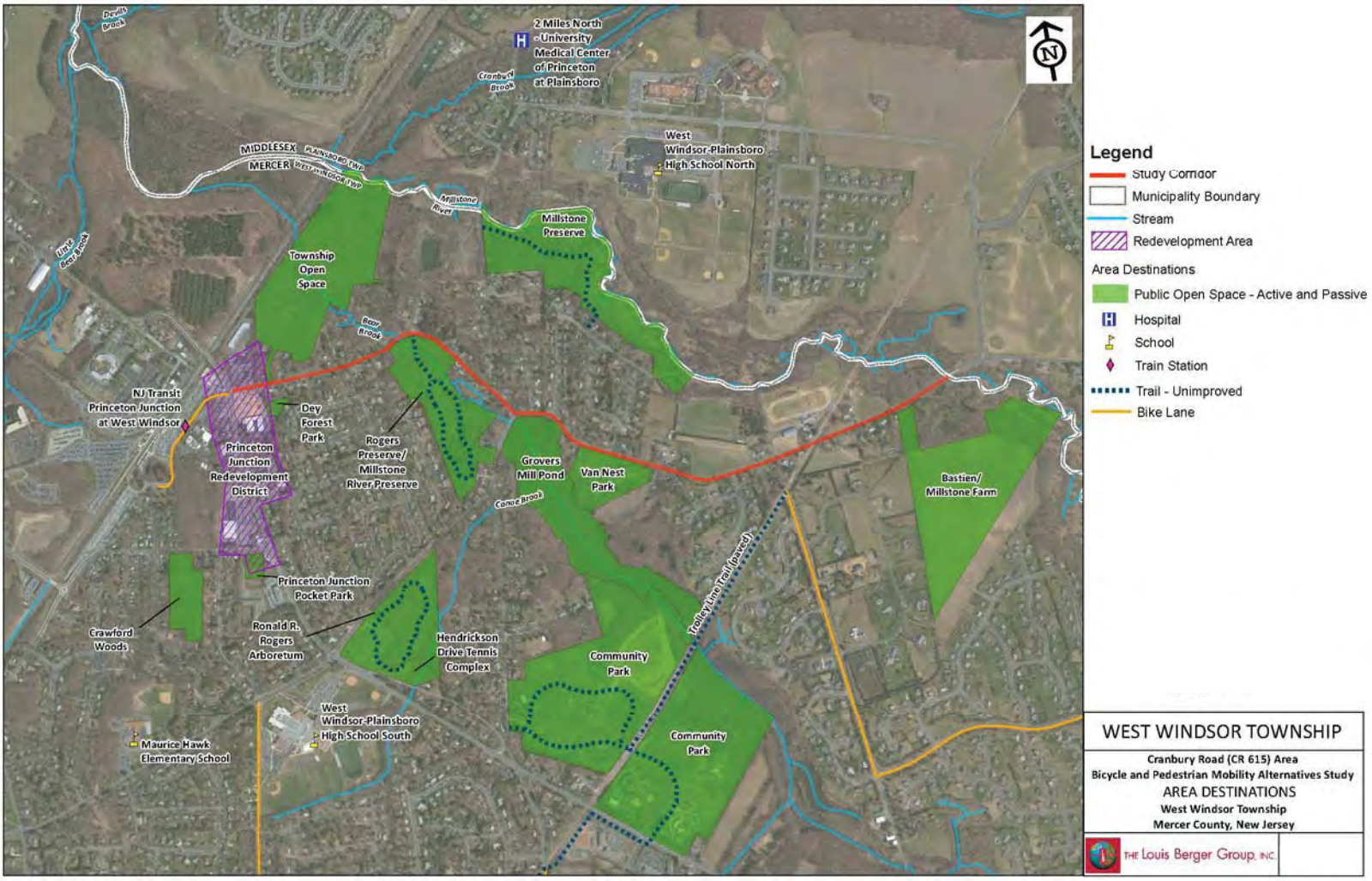
Figure 3 – Environmental Constraints



3.7 Destinations

Numerous desirable destinations are located in and around the Cranbury Road corridor. The destinations include schools, hospital, train station, parks, and trails. This study would be to improve the access to these destinations. The desirable Destinations Map can be seen in Figure 4.

Figure 4 – Destinations Map



Desirable destinations in and around the region include:

NJ Transit Train Station - Princeton Junction at West Windsor: The station is located a short distance west of the Cranbury Road intersection with County Route 571 and Wallace Road. New Jersey Transit operates the Northeast Corridor Line as a commuter rail line traveling between Trenton and New York City. With an average of over 6,500 passengers daily, this station is currently the third busiest commuter rail stop on the Northeast Corridor. Also serving regional mass transit needs is the "Dinky" rail service connection. This is a smaller rail service transporting passengers from downtown Princeton to West Windsor's Princeton Junction Train Station.

Princeton Junction Redevelopment District a.k.a. Downtown Mixed-Use Princeton Junction Train Station District: Mayor Shing-Fu Hsueh signed into law the Redevelopment Ordinance in 2009 that led to modified zoning for the 350-acre Redevelopment Area around the Princeton Junction at West Windsor Train Station. The Plan will allow for parking garages restricted to the west side of the train station and concentrate new housing adjacent to the station and over retail stores on the Township's main street, or County Route 571/Washington Road.

West Windsor- Plainsboro High School South: The school is located at the corner of Princeton-Hightstown Road and Clarksville Road.

Grovers Mill Pond: The success of the Grovers Mill Pond Restoration Project and the subsequent fish restocking has restored this 37-acre freshwater pond to a more favorable location for active and passive recreation.

Van Nest Park: The park is situated off of Cranbury Road and adjacent to Grovers Mill Pond. Features of this park include a picnic pavilion with grills and picnic tables, playground equipment, dock and boat launch and open space.

Trolley Line Trail: (existing terminus on Rabbit Hill Road) The Township, in cooperation with PSE&G, constructed a paved pedestrian/bike path that extends from Rabbit Hill Road to Penn Lyle Road traversing through Community Park and several residential neighborhoods via the PSE&G Right-of-Way.

Rogers Preserve: The Rogers Preserve is located along the Big Bear Brook across Clarksville Road from Grovers Mill Pond. The Preserve has two walking/hiking trails. The trails traverse through varied habitat – an old tree nursery, upland oak forest; and wetlands/floodplain along Big Bear Brook. In the center of the old tree nursery is an open area suited for picnicking or birding.

Ronald R. Rogers Arboretum: The arboretum is located at the southeast corner of Clarksville Road and Princeton-Hightstown Road. The site of the arboretum is a 25-acre parcel of land that consists of approximately 12 acres of open field, 13 acres of mature woodland with trails and the Township's 9/11 Memorial.

Community Park: This 123-acre park, accessible off Clarksville Road via North Mill Road, is the main active recreational facility in the township. The park includes a playground, walking-jogging paths, two basketball courts, two dog parks, a skate park and two tennis courts and is home to the West Windsor Water Works Aquatic Complex. The park also offers Little League baseball and softball fields, a Babe Ruth field, football/lacrosse fields and soccer fields utilized by the various Township sports organizations.

Hendrickson Drive Tennis Complex: The complex is located on Hendrickson Drive, adjacent to County Route 571 and the Ronald R. Rogers Arboretum, this complex has five lighted tennis courts, a playground and a practice wall.

Dey Forest Park: This one-acre neighborhood park, planted with many pine trees, is located just off Cranbury Road, on Carlton Place.

The Princeton Junction Pocket Park: At 1.5 acres, this small park will serve as a community gathering space, on the east side of the redeveloping Princeton Junction business district, for sitting, picnicking, strolling, lawn games, gardening, and social gatherings in an inviting outdoor setting.

University Medical Center of Princeton at Plainsboro: While not a destination within the Township border, the new hospital and 171-acre medical campus includes a modern medical office building attached to the hospital, a world-class education center, a health and fitness center, a skilled nursing facility, a pediatric services facility and a 32-acre public park and is accessible using Millstone Road off of Cranbury Road.

West Windsor-Plainsboro High School North: The school is located on an 80-acre tract on Grovers Mill Road in Plainsboro Township and is accessible using Millstone Road off of Cranbury Road.

Millstone River Preserve: The preserve is located on the south side of Millstone Road at the Plainsboro border. The Preserve has several walking/hiking trails. The trails traverse through varied habitat – upland oak forest, wetlands/floodplain along Millstone River, and 30'-40' high bluffs overlooking the River and is suited for picnicking or birding. The river can be accessed for canoes or kayaks near the Millstone Road Bridge.

4.0 Public Outreach and Interagency Coordination

Informing, involving, and engaging the public is essential for any transportation and land use planning process to be successful. It allows designers to be responsive to community values, builds an understanding of the issues and creates context sensitive plans and initiatives. Understanding the benefits of user input from the local community, the project team developed a comprehensive and transparent community outreach process. The process included Technical Advisory Committee (TAC) meetings, public meetings, development of a project webpage for data sharing, and an online survey.

4.1 Project Team Coordination

A series of project team meetings were held to discuss details in preparation for, and facilitation of, upcoming Public Information Center (PIC) meetings. PIC meetings were designed to assist in the development of a shared vision for the future of the Cranbury Road corridor. The project team meetings held included:

- **Project Kick-off Meeting – Monday, March 24, 2014:** A meeting was held between the Township, County and Louis Berger to discuss the project scope and objectives.
- **Project Team Meeting - Monday, May 19, 2014:** The purpose of the meeting was to discuss tasks completed to date and project schedule.
- **Project Team Meeting – Wednesday, July 16, 2014:** The purpose of the meeting was to discuss tasks completed to date and present the concepts developed for the corridor.
- **Project Team Meeting - Tuesday, September 16, 2014:** The purpose of the meeting was to review the results of the public comments received after the five alternatives were presented at the public meeting on August 13, 2014.
- **Project Team Meeting – Wednesday, October 08, 2014:** The purpose of the meeting was to present the hybrid alternative incorporating all the public comments received.
- **Project Team Meeting – Monday, October 20, 2014:** The purpose of the meeting was to review the hybrid alternative incorporating Township and County professionals' comments before presenting it at the final public meeting.
- **Project Team Meeting – Monday, November 17, 2014:** The purpose of the meeting was to review the results of the public comments received after the hybrid alternative was presented at the public meeting on October 22, 2014.

4.2 Project Webpage

The team developed a project webpage hosted on the West Windsor Township website (http://www.westwindsornj.org/bike-ped/). The webpage was used to distribute project information, post documents such as alternative concepts and public presentations, host the online survey, and collect comments from the public. The project webpage was updated regularly over the course of the study, with information regarding past and upcoming meetings and developments. A screenshot of the project webpage can found in Appendix D.

4.3 Public Information Center

The goal of all project-related public outreach is to engage a broad representation of the public and consider a diverse range of ideas and viewpoints. The public outreach campaign utilized print and electronic media including a project webpage on the municipal website in order to build awareness about the project and solicit feedback.

Public Information Center meetings were a crucial part of the process that allowed the project team to seek input, present concept improvements and recommendations and understand concerns of the local residents. These meetings helped the team to fully understand the existing issues and constraints within the corridor as well as possible solutions. Three (3) Public Information Centers were held at the West Windsor Township Municipal Building and Senior Center on the following dates:

- Public Information Center #1 – March 31, 2014
- Public Information Center #2 – August 13, 2014
- Public Information Center #3 – October 22, 2014

The first Public Information Center took place at the West Windsor Township Municipal Building on a Monday evening. During this meeting, the Louis Berger team made a presentation to the group providing an overview of the project, including the goals and objectives, project limits, work plan, public outreach plan, and schedule. A survey was distributed to all attendees, and it was noted that the survey would also be hosted on the Township's website. The online survey would solicit input on the current issues and concerns throughout the corridor, and identify potential ideas and strategies that should be considered in the development of the various improvement alternatives. Attendees were able to ask questions and make comments after the presentation. Residents were vocal about moving forward with the project. Residents preferred to implement alternatives that have minimal impacts. Minutes from this meeting are included in Appendix D.

The second Public Information Center took place at the West Windsor Township Municipal Building on a Wednesday evening. A presentation was made by the Louis Berger team giving an overview of the project and work completed-to-date. The online survey results and preliminary conceptual improvements for the corridor were presented and discussed. Constraints discussed included wetlands, trees, utility poles, and Right-of-Way. Alternative 1 included a bicycle lane on the north side, and sidewalks on the south side. Alternative 2 included two (2) bicycle lanes and sidewalks on the south side. Alternative 3, the most invasive, included two (2) bicycle lanes on both sides and two (2) sidewalks on both sides of the roadway. Alternative 4 included a multi-use path on the north side of Cranbury Road. Alternative 5, similar to Alternative 4, included a multi-use path on the north side of the roadway and avoids utility poles and trees. Impacts and relative costs were summarized and compared for each Alternative. Following the presentation, detailed drawings of developed conceptual improvements were on display and attendees were encouraged to ask questions and provide feedback on the concepts. Questions received included issues regarding 4-foot walkways, multi-use paths, narrowing the

roadway to 10 feet travel lanes, wetland impacts/permits, safety issues, traffic calming measures, and project funding. Comment cards and an email address were provided for formal comments regarding the alternatives which have been presented. Minutes from this meeting are included in Appendix D. The feedback received after the second Public Information Center is summarized in Table 1. The majority of votes were for Alternative 5. It has minimal amount of impacts on the corridor with meandering sidewalks that avoid utility poles and trees.

Table 1 - Second Public Meeting Comments Summary

Second Public Meeting Comments Summary	
Comments	**Number of Votes**
Alternative 5	12
5' sidewalk on one side	7
Alternative 4	5
Don't impact trees	3
Alternative 3	3
No development beyond R.O.W.	2
Abandon 2 and 3 immediately	2
Alternative 1 but meander around trees	2
Speed Control	1
5' sidewalk on both sides	1
4' buffered sidewalk both sides	1
Widen road 3' on each side	1
Widen road 2' on each side	1
Single use path	1
Shared use on one side	1
Shared use on each side	1
Pedestrian-activated signals at all crosswalks	1
Crosswalks only at intersections	1
Mark cyclist safety zone in road both sides	1
Definitely not Alternative 5	1
Alternative 1 but meander sidewalks on both sides; no bike lanes	1
Against all alternatives	1

The third public information center took place at the West Windsor Township Senior Center on a Wednesday evening. A presentation was made by the Louis Berger team that reviewed the feedback received since the last public meeting and the conceptual improvements for the corridor to the group. The Hybrid Alternative was introduced and information was provided on how it evolved and how the project would progress. The Hybrid Alternative was based on the feedback received from residents and users of Cranbury Road. The Hybrid Alternative includes a sidewalk on one side, on the north side switching to the south side, of the roadway, which meanders around utility poles and trees in order to avoid impacts. The Hybrid Alternative also

has the least Right-of-Way impacts of all the Alternatives considered, acknowledging feedback received from property owners. There are no bicycle lanes given the feedback received. Those who use bicycles were reassured that Share the Road signs would be put in place to alert motorists to their presence on Cranbury Road. Following the presentation, detailed drawings of the Hybrid Alternative were on display and attendees were encouraged to ask questions and provide feedback on the concept. Comment cards and an email address were provided for additional feedback. Comments received were both positive and negative in nature. The Hybrid Alternative is believed to be the preferred Alternative based on the mostly positive feedback. However, certain negative feedback from a few property owners and bicyclists were not in agreement with the Hybrid Alternative. Minutes from this meeting are included in Appendix D.

4.4 Online Survey Results

A major part of the public outreach effort was to create and distribute an online survey. The purpose of the survey was to solicit public input about the existing issues and constraints and gather information about the current use patterns. Survey questions included topics regarding general travel, walking, and bicycling. An online survey link was distributed through the project email list and could be accessed by anyone interested through the project webpage. The survey resulted in 110 respondents. The full survey results can be found in Appendix D. The following survey results highlight the corridor issues considered.

The commuting travel patterns of the survey population are as follows:

- 62% Drive
- 8% Use Transit
- 8% Bike
- 5% Walk
- 3% Bike and Transit
- 1% Carpool

The corridor usage of the survey population is as follows:

- 44% of respondents walk nearly every day along the corridor
- 14% of respondents ride their bikes nearly every day along the corridor
- Of the bicycle users, 35% use it for exercise/health reasons and 33% use it for pleasure

The most common reasons for not riding a bike are as follows:

- 22% Too many cars/speeding
- 19% No bike paths or lanes
- 17% Drivers don’t share the road

The survey results strongly supported the basis for this study: citizens consider use of non-motorized modes of transportation along this corridor to be inconvenient and dangerous. The commuting patterns mostly comprise of drivers, transit users, bicyclists and pedestrians. Generally, most survey participants find the corridor to be inadequate in its current state.

5.0 Alternatives

The conceptual improvement alternatives evaluated for this project included concepts initially outlined by the Request for Proposal Evaluation criteria included compliance with engineering standards, fulfillment of the project purpose and need, and consideration of public opinion and comment. According to the Request for Proposals (RFP), concepts for accommodating bicycles and pedestrians along Cranbury Road must have included the following:

i. Widening Cranbury Road
   1. Minimal Impact: Two 11-foot lanes, 5-foot wide single bicycle lane on the north side, and a 5-foot wide sidewalk on the south side;
   2. Medium Impact: Two 11-foot lanes, 5-foot wide bicycle lanes on both sides, with a 5-foot side sidewalk on one side and 3-foot wide grass buffer between the sidewalk and edge of pavement;
   3. High Impact: Two 11-foot lanes, 5-foot wide bicycle lanes on both sides, 3-foot wide grass buffers, and 5-foot side sidewalks on both side;

ii. Construction of a Multi-Use Path
   1. Separate multi-use path along Cranbury Road, the minimum width of 8 feet, and the path be physically separated approximately 2 feet from the edge of pavement of Cranbury Road. This option assumed two 11-foot wide travel lanes on Cranbury Road.
   2. Off-road multi-use path, separate from Cranbury Road, by more than 2 feet, and possibly beyond expected Right-of-Way limits to take maximum advantage of non-constrained lands and non-steep slopes with minimal utility relocations and loss of mature trees.

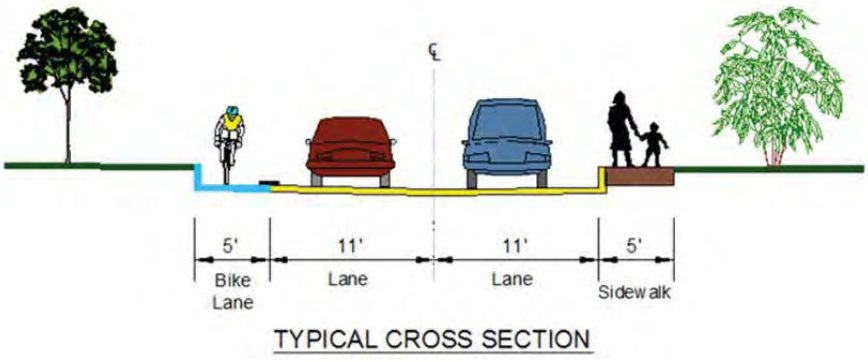
5.1 Widening Cranbury Road - Minimal Impact: Alternative 1

This option of widening Cranbury Road increased the roadway envelope by a total 10 feet. The current roadway centerline was maintained and a 5-foot bicycle lane on the north side of the roadway was added allowing bicyclists to travel with vehicles from east to west. On the south side of the roadway a 5-foot sidewalk was added. The conceptual plan for this alternative is shown in Appendix E. This alternative is the least intrusive option for widening Cranbury Road. The typical cross section for this alternative is shown in Figure 5.

While Alternative 1 is beneficial for many reasons and provides a significant improvement over existing conditions a few disadvantages exist such as:

- A limited direction of travel option for bicycles
- No buffer spaces between pedestrians and vehicles
- Pedestrians will need to walk with the direction of traffic from west to east rather than facing traffic which is preferred for safety

Figure 5 – Alternative 1 Typical Cross Section



The following subsections will discuss the quantifiable effects of Alternative 1.

5.1.1 Utility Relocation

It is estimated that 64 utility poles would need to be relocated to accommodate the proposed widening. A total of 36 poles are located on the north side of the roadway with the remaining 28 poles on the south side of the roadway.

5.1.2 Tree Removal

It is estimated that 39 trees over 8 inches in diameter would be impacted to accommodate the proposed widening. The majority of the trees (37) are located on the south side of the roadway on the eastern end of the project (east of Steele Drive). Red Maple, Norway Spruce, Sugar Maple, American Holly, Pin Oak, Flowering Dogwood, White Pine, Black Locust, Black Cherry, Saucer Magnolia, Hinoki falsecypress and Japanese Maple are the identified species impacted.

5.1.3 Stormwater Management

The installation of a sidewalk on the south side of Cranbury Road requires the addition of a curb to create an elevation difference between vehicles and pedestrians. While curbing does not act as a protection device capable of redirecting traffic it does clearly define the sidewalk as an area not suitable for vehicle travel. The addition of sidewalk for the length of Cranbury Road will require construction of a drainage system. Currently the majority of runoff drains off the pavement into drainage ditches. Under the proposed condition, in areas where the pavement slopes toward the south, the curb will stop the water and force it to follow the roadway slopes to catch basins. Installation of catch basins, drainage pipes and water treatment options at outlets will need to be considered for this alternative.

As a result of the new sidewalk area, the net increase in impervious surface is greater than one quarter of an acre. However, the total area of disturbance is approximately 0.97 (less than 1) acre. Therefore, only the water quality requirements of the stormwater rule will apply. Because the total disturbance area is less than one acre, groundwater recharge and water quality requirements do not apply. Since a vegetated buffer will be maintained between the new sidewalk and the roadway, the vegetated area will provide a disconnect from the sidewalk and

the drainage system on the road. If the soils allow, the runoff from the sidewalks will re-infiltrate in the vegetated buffer area, providing a water quality benefit. If this is not sufficient, manufactured treatment devices will be installed to accommodate the necessary water quality treatment.

5.1.4 Freshwater Wetlands

Based upon a review of NJDEP GIS-based environmental mapping and aerial photography, the project study area encompasses a small amount of freshwater wetlands located along the Bear Brook in the northern portion of the project area. All of the wetlands mapped by NJDEP within the project limits are anticipated to be either ordinary resource or intermediate value wetlands due to the absence of trout production waters or threatened/endangered species or their habitats. Wetlands and/or waters that may potentially be impacted by proposed project improvements will require wetlands permits and/or transition area waivers from NJDEP in accordance with the New Jersey Freshwater Wetlands Protection Act.

5.1.5 Right-of-Way Acquisition

It is estimated that 4,080 square feet of R.O.W. acquisition would be necessary to facilitate the implementation of Alternative 1.

5.1.6 Permitting

NJDEP – Division of Land Use Regulation (DLUR) permits, such as Freshwater Wetlands and Flood Hazard Area, are anticipated and will include the review/approval for the Stormwater Management Rules. The project will also require a New Jersey Pollutant Discharge Elimination System (NJDPES) Construction Activity for Stormwater General Permit, and a Soil Erosion and Sediment Control Plan Certification (Mercer County Soil Conservation District).

5.1.7 Steep Slopes

Steep slopes adjacent to the roadway, sloping either toward or away from the roadway, have been identified within the corridor and are shown in the alternative concept plans shaded in red. Steep slopes impacted by the proposed alignment of the widening are located:

1. On the south side of the roadway east of Carlton Place,
2. On the north side of the roadway east of Sunnydale Way to the Bear Brook,
3. On the south side of the roadway east of Sunnydale Way to the Bear Brook,
4. On the south side of the roadway east of the Bear Brook,
5. On the south side of the roadway near the approximate address #140,
6. On the south side of the roadway across from Bolfmar Avenue,
7. On the north side of the roadway west of Rabbit Hill Road,
8. On the north side of the roadway east of Rabbit Hill Road to the power lines,
9. On the south side of the roadway east of the power lines for approximately 550 feet,
10. On the north side of the roadway west of the Millstone River, and;
11. On the south side of the roadway west of the Millstone River.

These areas total 3,700 linear feet of impacted steep slopes within the project area.

Table 2 summarizes goals that were met for Alternative 1.

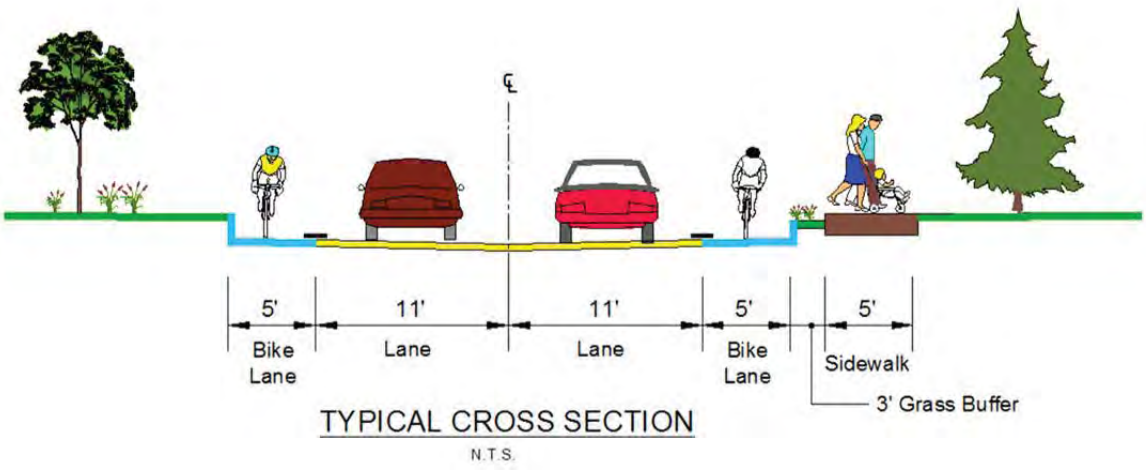
Table 2 – Alternative 1 Goals

Alternative 1	
Provide Missing Sidewalk Connections	Yes
Enhance Pedestrian Facilities	Yes
Enhance Bicycle Facilities	Yes

5.2 Widening Cranbury Road - Medium Impact: Alternative 2

This option of widening Cranbury Road increased the roadway envelope by 18 feet to a full width of 40 feet. The current roadway centerline was shifted 4 feet to the north to allow for 9 feet of expansion on either side. A 5-foot bicycle lane was added on the north side of the roadway allowing bicyclists to travel with vehicles from east to west. On the south side of the roadway a 5-foot bicycle lane was added to allow bicyclists to travel with vehicles from west to east. Also, a 3-foot buffer and 5-foot sidewalk were included on the south side. The conceptual plan for this alternative is shown in Appendix E. The typical cross section for this alternative is shown in Figure 6.

Figure 6 – Alternative 2 Typical Cross Section



This option provides a significant improvement in safety conditions over the existing conditions but will have a larger impact on private property. The following subsections will discuss the quantifiable effects of this alternative.

5.2.1 Utility Relocation

It is estimated that 76 utility poles would need to be relocated to accommodate the proposed widening. A total of 43 poles are located on the north side of the roadway with the remaining 33 poles on the south side of the roadway.

5.2.2 Tree Removal

It is estimated that 77 trees over 8 inches in diameter would be impacted to accommodate the proposed widening. The majority of the trees (59) are located on the south side and distributed along the full length of Cranbury Road. Red Maple, Norway Spruce, Sugar Maple, Flowering Cherry American Holly, Pin Oak, Flowering Dogwood, White Pine, White Spruce, Black Locust, Black Cherry, Saucer Magnolia, Hinoki falsecypress and Japanese Maple are the identified species impacted.

5.2.3 Stormwater Management

As a result of the new sidewalk area, the net increase in impervious surface is greater than one quarter of an acre. However, the total area of disturbance is approximately 0.97 (less than 1) acre. Therefore, only the water quality requirements of the stormwater rule will apply. Because the total disturbance area is less than one acre, groundwater recharge and water quality requirements do not apply. Since a vegetated buffer will be maintained between the new sidewalk and the roadway, the vegetated area will provide a disconnect from the sidewalk and the drainage system on the road. If the soils allow, the runoff from the sidewalks will re-infiltrate in the vegetated buffer area, providing a water quality benefit. If this is not sufficient, manufactured treatment devices will be installed to accommodate the necessary water quality treatment.

5.2.4 Freshwater Wetlands

Based upon a review of NJDEP GIS-based environmental mapping and aerial photography, the project study area encompasses a small amount of freshwater wetlands located along the Bear Brook in the northern portion of the project area. All of the wetlands mapped by NJDEP within the project limits are anticipated to be either ordinary resource or intermediate value wetlands due to the absence of trout production waters or threatened/endangered species or their habitats. Wetlands and/or waters that may potentially be impacted by proposed project improvements will require wetlands permits and/or transition area waivers from NJDEP in accordance with the New Jersey Freshwater Wetlands Protection Act.

5.2.5 Right-of-Way Acquisition

It is estimated that 11,500 square feet of R.O.W. acquisition would be necessary to facilitate the implementation of Alternative 2.

5.2.6 Permitting

NJDEP – Division of Land Use Regulation (DLUR) permits, such as Freshwater Wetlands and Flood Hazard Area, are anticipated and will include the review/approval for the Stormwater Management Rules. The project will also require a NJDPES Construction Activity for Stormwater General Permit, and a Soil Erosion and Sediment Control Plan Certification (Mercer County Soil Conservation District).

5.2.7 Steep Slopes

Steep slopes adjacent to the roadway, sloping either toward or away from the roadway, have been identified within the corridor and are shown in the alternative concept plans shaded in red. Steep slopes impacted by the proposed alignment of the widening are located:

1. On the south side of the roadway east of Carlton Place,
2. On the north side of the roadway east of Sunnydale Way to the Bear Brook,
3. On the south side of the roadway east of Sunnydale Way to the Bear Brook,
4. On the south side of the roadway east of the Bear Brook,
5. On the south side of the roadway near the approximate address #140,
6. On the south side of the roadway across from Bolfmar Avenue,
7. On the north side of the roadway west of Rabbit Hill Road,
8. On the north side of the roadway east of Rabbit Hill Road to the power lines,
9. On the south side of the roadway east of the power lines for approximately 550 feet,
10. On the north side of the roadway west of the Millstone River, and;
11. On the south side of the roadway west of the Millstone River.

These areas total 3,700 linear feet of impacted steep slopes within the project area.

Table 3 summarizes goals that were met for Alternative 2.

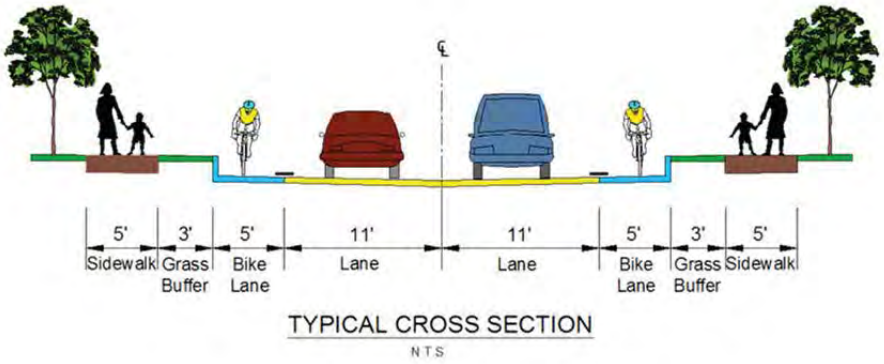
Table 3 – Alternative 2 Goals

Alternative 2	
Provide Missing Sidewalk Connections	Yes
Enhance Pedestrian Facilities	Yes
Enhance Bicycle Facilities	Yes

5.3 Widening Cranbury Road - High Impact: Alternative 3

This option of widening Cranbury Road increased the roadway envelope by 26 feet to a full width of 48 feet. Louis Berger maintained the current roadway centerline and added 13 feet on either side. On both the north and south sides a 5-foot bicycle lane, a 3-foot buffer zone and a 5-foot sidewalk were added. This is the optimum scenario for bicycle and pedestrian safety and circulation. The conceptual plan for this alternative is shown in Appendix G. The typical cross section for this alternative is shown in Figure 7.

Figure 7 – Alternative 3 Typical Cross Section



This option provides a significant improvement in safety and circulation conditions over the existing conditions but will have the most significant impact on private property. The following subsections will discuss the quantifiable effects of this alternative.

5.3.1 Utility Relocation

It is estimated that 85 utility poles would need to be relocated to accommodate the proposed widening. This is an increase of 21 utility poles impacted when compared to Alternative 1. A total of 43 poles are located on the north side of the roadway with the remaining 42 poles on the south side of the roadway.

5.3.2 Tree Removal

It is estimated that 145 trees over 8 inches in diameter would be impacted to accommodate the proposed widening. The majority of the trees are located on the south side and distributed along the full length of Cranbury Road. Red Maple, Norway Spruce, Sugar Maple, Silver Maple, Flowering Cherry, American Holly, Pin Oak, Flowering Dogwood, White Pine, Colorado Spruce, White Spruce, Black Locust, Black Cherry, Saucer Magnolia, Eastern Hemlock, White Oak, Smooth Sumac, American Sycamore, Swamp White Oak, Green Ash, Common Sassafras, Pignut Hickory, Hinoki falsecypress and Japanese Maple are the identified species impacted.

5.3.3 Stormwater Management

As a result of the new sidewalk area, the net increase in impervious surface is greater than one quarter of an acre. However, the total area of disturbance is approximately 0.97 (less than 1) acre. Therefore, only the water quality requirements of the stormwater rule will apply. Because the total disturbance area is less than one acre, groundwater recharge and water quality requirements do not apply. Since a vegetated buffer will be maintained between the new sidewalk and the roadway, the vegetated area will provide a disconnect from the sidewalk and the drainage system on the road. If the soils allow, the runoff from the sidewalks will re-

infiltrate in the vegetated buffer area, providing a water quality benefit. If this is not sufficient, manufactured treatment devices will be installed to accommodate the necessary water quality treatment.

5.3.4 Freshwater Wetlands

Based upon a review of NJDEP GIS-based environmental mapping and aerial photography, the project study area encompasses a small amount of freshwater wetlands located along the Bear Brook in the northern portion of the project area. All of the wetlands mapped by NJDEP within the project limits are anticipated to be either ordinary resource or intermediate value wetlands due to the absence of trout production waters or threatened/endangered species or their habitats. Wetlands and/or waters that may potentially be impacted by proposed project improvements will require wetlands permits and/or transition area waivers from NJDEP in accordance with the New Jersey Freshwater Wetlands Protection Act.

5.3.5 Right-of-Way Acquisition

It is estimated that 31,000 square feet of R.O.W. acquisition would be necessary to facilitate the implementation of Alternative 3.

5.3.6 Permitting

NJDEP – Division of Land Use Regulation (DLUR) permits, such as Freshwater Wetlands and Flood Hazard Area, are anticipated and will include the review/approval for the Stormwater Management Rules. The project will also require a NJDPES Construction Activity for Stormwater General Permit, and a Soil Erosion and Sediment Control Plan Certification (Mercer County Soil Conservation District).

5.3.7 Steep Slopes

Steep slopes adjacent to the roadway, sloping either toward or away from the roadway, have been identified within the corridor and are shown in the alternative concept plans shaded in red. Steep slopes impacted by the proposed alignment of the widening are located:

1. On the south side of the roadway east of Carlton Place,
2. On the north side of the roadway east of Sunnydale Way to the Bear Brook,
3. On the south side of the roadway east of Sunnydale Way to the Bear Brook,
4. On the south side of the roadway east of the Bear Brook,
5. On the south side of the roadway near the approximate address #140,
6. On the south side of the roadway across from Bolfmar Avenue,
7. On the north side of the roadway west of Rabbit Hill Road,
8. On the north side of the roadway east of Rabbit Hill Road to the power lines,
9. On the south side of the roadway east of the power lines for approximately 550 feet,
10. On the north side of the roadway west of the Millstone River, and;
11. On the south side of the roadway west of the Millstone River.

These areas total 3,700 linear feet of impacted steep slopes within the project area.

Table 4 summarizes goals that were met for Alternative 3.

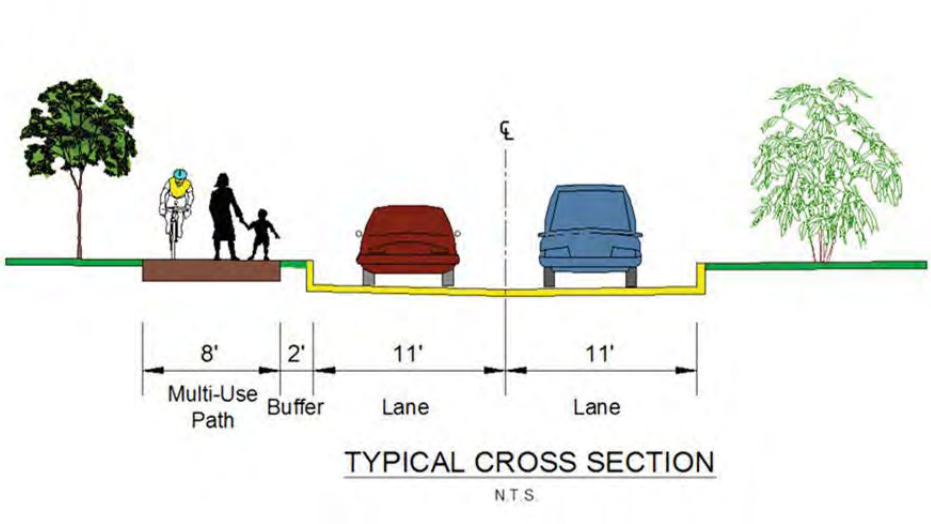
Table 4 – Alternative 3 Goals

Alternative 3	
Provide Missing Sidewalk Connections	Yes
Enhance Pedestrian Facilities	Yes
Enhance Bicycle Facilities	Yes

5.4 Construction of a Multi-Use Path – Separate: Alternative 4

This option utilized the Cranbury Road alignment by adding a 2-foot buffer and a minimum 8-foot wide multi-use path. Louis Berger maintained the current roadway centerline and added the full width of the trail and buffer to the north side of the roadway. The conceptual plan for this alternative is shown in Appendix E. The typical cross section for this alternative is shown in Figure 8.

Figure 8 – Alternative 4 Typical Cross Section



This option provides a significant improvement in safety and circulation conditions over the existing conditions. The following subsections will discuss the quantifiable effects of this alternative.

5.4.1 Utility Relocation

It is estimated that 45 utility poles would need to be relocated to accommodate the proposed widening. All 45 utility poles impacted are located on the north side of the roadway.

5.4.2 Tree Removal

It is estimated that 22 trees over 8 inches in diameter would be impacted to accommodate the proposed widening. All 22 trees are located on the north side. The majority of the trees (17) are

located on the western end of the project, west of Clarksville Road and Grover's Mill Pond. Norway Spruce, Sugar Maple, White Pine, Black Locust, White Oak, Green Ash, Pignut Hickory, and Hinoki falsecypress are the identified species impacted.

5.4.3 Stormwater Management

As a result of the new sidewalk area, the net increase in impervious surface is greater than one quarter of an acre. However, the total area of disturbance is approximately 0.97 (less than 1) acre. Therefore, only the water quality requirements of the stormwater rule will apply. Because the total disturbance area is less than one acre, groundwater recharge and water quality requirements do not apply. Since a vegetated buffer will be maintained between the new sidewalk and the roadway, the vegetated area will provide a disconnect from the sidewalk and the drainage system on the road. If the soils allow, the runoff from the sidewalks will re-infiltrate in the vegetated buffer area, providing a water quality benefit. If this is not sufficient, manufactured treatment devices will be installed to accommodate the necessary water quality treatment.

5.4.4 Freshwater Wetlands

Based upon a review of NJDEP GIS-based environmental mapping and aerial photography, the project study area encompasses a small amount of freshwater wetlands located along the Bear Brook in the northern portion of the project area. All of the wetlands mapped by NJDEP within the project limits are anticipated to be either ordinary resource or intermediate value wetlands due to the absence of trout production waters or threatened/endangered species or their habitats. Wetlands and/or waters that may potentially be impacted by proposed project improvements will require wetlands permits and/or transition area waivers from NJDEP in accordance with the New Jersey Freshwater Wetlands Protection Act.

5.4.5 Right-of-Way Acquisition

It is estimated that 9,500 square feet of R.O.W. acquisition would be necessary to facilitate the implementation of Alternative 4.

5.4.6 Permitting

NJDEP – Division of Land Use Regulation (DLUR) permits, such as Freshwater Wetlands and Flood Hazard Area, are anticipated and will include the review/approval for the Stormwater Management Rules. The project will also require a NJDPES Construction Activity for Stormwater General Permit, and a Soil Erosion and Sediment Control Plan Certification (Mercer County Soil Conservation District).

5.4.7 Steep Slopes

Steep slopes adjacent to the roadway, sloping either toward or away from the roadway, have been identified within the corridor and are shown in the alternative concept plans shaded in red. Steep slopes impacted by the proposed alignment are located:

1. On the north side of the roadway east of Sunnydale Way to the Bear Brook,
2. On the north side of the roadway west of Rabbit Hill Road,

3. On the north side of the roadway east of Rabbit Hill Road to the power lines, and;
4. On the north side of the roadway west of the Millstone River.

These areas total 1,300 linear feet of impacted steep slopes within the project area.

Table 5 summarizes goals that were met for Alternative 4.

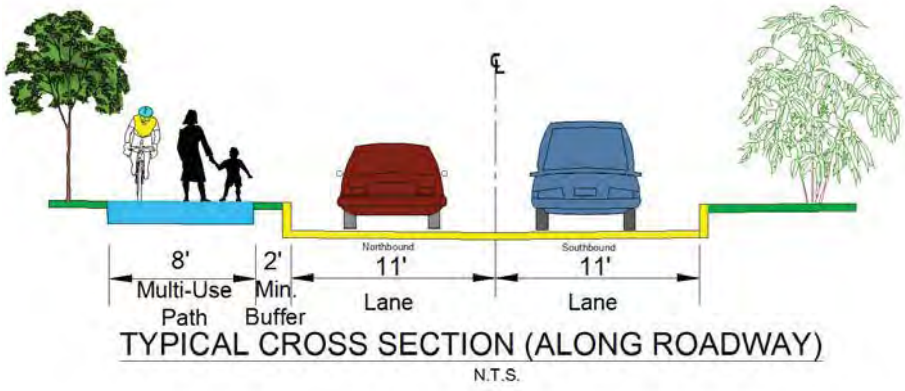
Table 5 – Alternative 4 Goals

Alternative 4	
Provide Missing Sidewalk Connections	Yes
Enhance Pedestrian Facilities	Yes
Enhance Bicycle Facilities	Yes

5.5 Construction of a Multi-Use Path - Off-Road: Alternative 5

This option suggests an off-road multi-use path separated from Cranbury Road by a minimum of 2 feet. Louis Berger has utilized nearby non-constrained lands and non-steep slopes to create the proposed alignment. The existing Cranbury Road crossing at the Bear Brook was utilized. The conceptual plan for this alternative is shown in Appendix E. The typical cross section for this alternative is shown in Figure 9.

Figure 9 – Alternative 5 Typical Cross Section



This option provides a significant improvement in safety and circulation conditions over the existing conditions. The following subsections will discuss the quantifiable effects of this alternative.

5.5.1 Utility Relocation

It is estimated that 42 utility poles would need to be relocated to accommodate the proposed widening. All 42 utility poles impacted are located on the north side of the roadway.

5.5.2 Tree Removal

It is estimated that 22 trees over 8 inches in diameter would be impacted to accommodate the proposed widening. All 22 trees are located on the north side of the roadway. The majority of the trees (16) are located on the western end of the project, west of Steele Drive. Red Oak, Red Maple, Norway Spruce, Sugar Maple, Norway Maple, Pin Oak, Colorado Spruce, Black Locust, White Oak, Green Ash, Common Sassafras and Pignut Hickory are the identified species impacted.

5.5.3 Stormwater Management

As a result of the new sidewalk area, the net increase in impervious surface is greater than one quarter of an acre. However, the total area of disturbance is approximately 0.97 (less than 1) acre. Therefore, only the water quality requirements of the stormwater rule will apply. Because the total disturbance area is less than one acre, groundwater recharge and water quality requirements do not apply. Since a vegetated buffer will be maintained between the new sidewalk and the roadway, the vegetated area will provide a disconnect from the sidewalk and the drainage system on the road. If the soils allow, the runoff from the sidewalks will re-infiltrate in the vegetated buffer areas, providing a water quality benefit. If this is not sufficient, manufactured treatment devices will be installed to accommodate the necessary water quality treatment.

5.5.4 Freshwater Wetlands

Based upon a review of NJDEP GIS-based environmental mapping and aerial photography, the project study area encompasses a small amount of freshwater wetlands located along the Bear Brook in the northern portion of the project area. All of the wetlands mapped by NJDEP within the project limits are anticipated to be either ordinary resource or intermediate value wetlands due to the absence of trout production waters or threatened/endangered species or their habitats. Wetlands and/or waters that may potentially be impacted by proposed project improvements will require wetlands permits and/or transition area waivers from NJDEP in accordance with the New Jersey Freshwater Wetlands Protection Act.

5.5.5 Right-of-Way Acquisition

It is estimated that 17,000 square feet of R.O.W. acquisition would be necessary to facilitate the implementation of Alternative 5.

5.5.6 Permitting

NJDEP – Division of Land Use Regulation (DLUR) permits, such as Freshwater Wetlands and Flood Hazard Area, are anticipated and will include the review/approval for the Stormwater Management Rules. The project will also require a NJDPES Construction Activity for Stormwater General Permit, and a Soil Erosion and Sediment Control Plan Certification (Mercer County Soil Conservation District).

5.5.7 Steep Slopes

Steep slopes adjacent to the roadway, sloping either toward or away from the roadway, have been identified within the corridor and are shown in the alternative concept plans shaded in red. Steep slopes impacted by the proposed alignment of the widening are located:

1. On the north side of the roadway east of Sunnydale Way to the Bear Brook,
2. On the north side of the roadway west of Rabbit Hill Road,
3. On the north side of the roadway east of Rabbit Hill Road to the power lines, and;
4. On the north side of the roadway west of the Millstone River.

These areas total 1,300 linear feet of impacted steep slopes within the project area.

Table 6 summarizes goals that were met for Alternative 5.

Table 6 – Alternative 5 Goals

Alternative 5	
Provide Missing Sidewalk Connections	Yes
Enhance Pedestrian Facilities	Yes
Enhance Bicycle Facilities	Yes

6.0 Hybrid Alternative

The Hybrid Alternative evolved throughout the concept development process as a combination of features of the initially evaluated alternatives and public comment and input. The Hybrid Alternative is based on the feedback received from residents and users of Cranbury Road. The Hybrid Alternative includes a sidewalk on one side of the roadway, on the north side switching to the south side, which meanders around utility poles and trees in order to avoid impacts. The Hybrid Alternative also has the least R.O.W. impacts of all the Alternatives considered, acknowledging feedback received from property owners. There are no bicycle lanes given the feedback received. This option maintains the current roadway centerline. Alternating from both the north and south sides, a 2-foot to 3-foot buffer zone and a 4-foot sidewalk were added. This is the optimum scenario for pedestrian safety and circulation. The Hybrid Alternative relocates a crosswalk, located at Steele Drive, adjacent to Van Nest Park, and continues the sidewalk on the south side of the roadway. Therefore, two cross sections were developed. The conceptual plan for this alternative is shown in Appendix G. The typical cross section for this alternative is shown in Figure 10 and 11.

Figure 10 – Hybrid Alternative Typical Cross Section

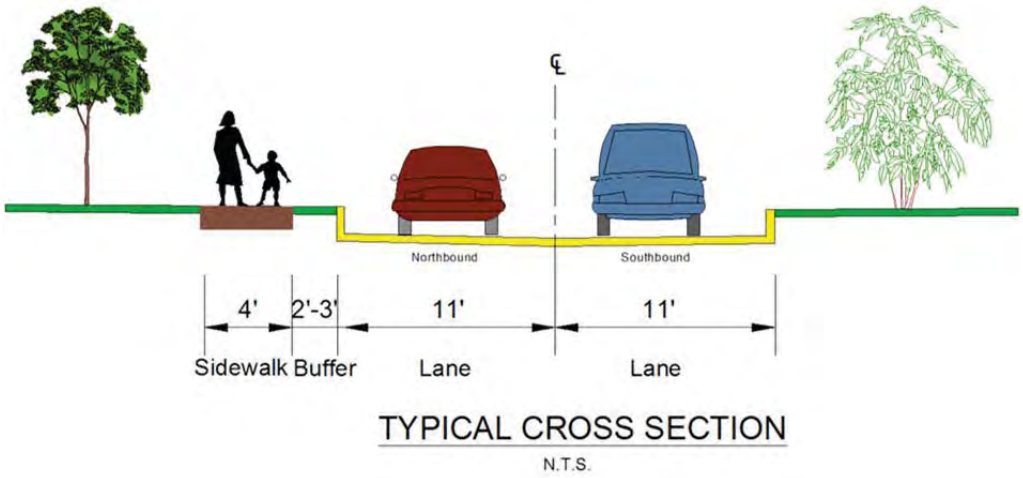
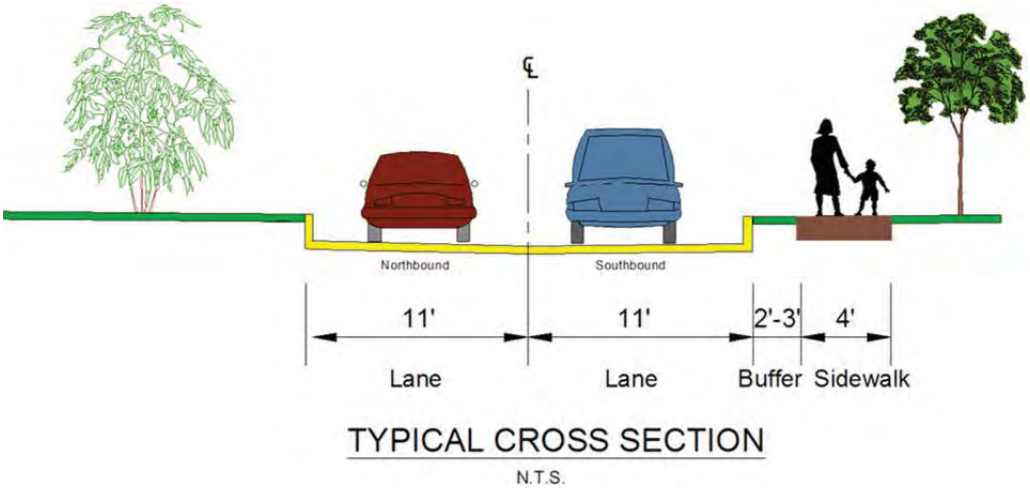


Figure 11 – Hybrid Alternative Typical Cross Section



This option provides a significant improvement in safety and circulation conditions over the existing conditions but will have the least impact on private property. The following subsections will discuss the quantifiable effects of this alternative.

6.1 Utility Relocation

It is estimated this alternative will not impact any utility poles.

6.2 Tree Removal

It is estimated that 9 trees over 8 inches in diameter would be impacted to accommodate the addition of a sidewalk. The majority of the trees are located on the south side and distributed along the full length of Cranbury Road. Sugar Maple, Pin Oak, White Pine, Black Locust, Black Cherry, White Oak, Pignut Hickory, and Hinoki falsecypress are the identified species impacted.

6.3 Stormwater Management

As a result of the new sidewalk area, the net increase in impervious surface is greater than one quarter of an acre. However, the total area of disturbance is approximately 0.97 (less than 1) acre. Therefore, only the water quality requirements of the stormwater rule will apply. Because the total disturbance area is less than one acre, groundwater recharge and water quality requirements do not apply. Since a vegetated buffer will be maintained between the new sidewalk and the roadway, the vegetated area will provide a disconnect from the sidewalk and the drainage system on the road. If the soils allow, the runoff from the sidewalks will re-infiltrate in the vegetated buffer area, providing a water quality benefit. If this is not sufficient, manufactured treatment devices will be installed to accommodate the necessary water quality treatment.

6.4 Freshwater Wetlands

Based upon a review of NJDEP GIS-based environmental mapping and aerial photography, the project study area encompasses a small amount of freshwater wetlands located along the Bear Brook in the northern portion of the project area. All of the wetlands mapped by NJDEP within the project limits are anticipated to be either ordinary resource or intermediate value wetlands due to the absence of trout production waters or threatened/endangered species or their habitats. Wetlands and/or waters that may potentially be impacted by proposed project improvements will require wetlands permits and/or transition area waivers from NJDEP in accordance with the New Jersey Freshwater Wetlands Protection Act.

6.5 Right-of-Way Acquisition

It is estimated that 3,800 square feet of R.O.W. acquisition would be necessary to facilitate the implementation of the Hybrid Alternative.

6.6 Permitting

NJDEP – Division of Land Use Regulation (DLUR) permits, such as Freshwater Wetlands and Flood Hazard Area, are anticipated and will include the review/approval for the Stormwater Management Rules. The project will also require a NJDPES Construction Activity for Stormwater General Permit, and a Soil Erosion and Sediment Control Plan Certification (Mercer County Soil Conservation District).

6.7 Steep Slopes

Steep slopes adjacent to the roadway, sloping either toward or away from the roadway, have been identified within the corridor and are shown in the alternative concept plans shaded in red. Steep slopes impacted by the proposed alignment of the widening are located:

1. On the north side of the roadway east of Sunnydale Way to the Bear Brook,
2. On the south side of the roadway west of Rabbit Hill Road,
3. On the south side of the roadway east of Rabbit Hill Road adjacent to the power lines, and;
4. On the north side of the roadway west of the Millstone River.

These areas total 800 linear feet of impacted steep slopes within the project area.

Table 7 summarizes goals that were met for the Hybrid Alternative.

Table 7 – Hybrid Alternative Goals

Hybrid Alternative	
Provide Missing Sidewalk Connections	Yes
Enhance Pedestrian Facilities	Yes
Enhance Bicycle Facilities	No

7.0 Summary

Being a high profile project in the community, feedback was crucial in developing the various alternatives. After the five (5) Alternatives were developed, public meetings and online surveys were hosted and feedback was received. The conceptual improvements, based on the feedback, developed on the Alternatives evolved into the Hybrid Alternative. The Hybrid Alternative had the least overall impacts on the Cranbury Road corridor. It affects fewer utility poles, trees, and properties and requires less R.O.W. More input will be sought out from the homeowners to further develop this alternative. Table 8 is a summary matrix of the quantifiable criteria evaluated for each alternative considered. As shown, all alternatives were evaluated, from least impact to most impact. The most impact was with Alternative 3, with a full developed concept. The least impact was with the Hybrid Alternative. With more impacts come more costs due to R.O.W. acquisition, environmental permits, retaining walls, tree clearing, utility relocation, and stormwater management. Therefore, in order to keep costs down, it would be crucial to keep impacts down.

Table 8 – Alternatives Impact Summary Matrix

Criteria	Widen:Minimum Alternative 1	Widen:Medium Alternative 2	Widen:High Alternative 3	Separate Alternative 4	Off-Road Alternative 5	Hybrid Alternative
Utility Poles	64	76	85	45	42	0
Trees	39	77	145	22	18	9
Stormwater Management	<1 acre	<1 acre	<1 acre	<1 acre	<1 acre	<1 acre
Right-of-Way	4,080 sq. ft.	11,500 sq. ft.	31,000 sq. ft.	9,500 sq. ft.	17,000 sq. ft.	3,800 sq. ft.
Permits	4	4	4	4	4	4
Slopes	11	11	11	4	4	4

8.0 Recommendations

Based on TAC and public meetings, and impact evaluations, it is recommended that the Hybrid Alternative be progressed into the design phase. The Hybrid Alternative has received the most positive feedback from the residents of Cranbury Road and has the least impact in all criteria.

9.0 Next Steps

Approval from the Township and the County is essential for the next steps of the project. After consensus is established, preliminary engineering will begin. During preliminary engineering, outreach to property owners will be arranged in order to further develop and expand on the Hybrid Alternative. Property owners will be informed regarding potential impacts on their property due to the proposed improvements. Once this outreach is complete, the Hybrid Alternative will be finalized and Final Design will be completed.