



Request for Qualifications and Proposals  
for  
Existing Conditions Survey, Design, and Engineering  
Village of Chadds Ford Township Master Plan  
Delaware County, Pennsylvania

October 27, 2016

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## **A. Advertisement**

Chadds Ford Township (the “Client”) is seeking a Statement of Qualifications & Proposal from a firm or team (the “Consultant”) to engineer and refine the conceptual designs contained in the Village of Chadds Ford Master Plan (the “Plan”—May, 2015; here attached and also available on the Brandywine Conservancy’s website <http://www.brandywine.org/sites/default/files/village-of-chadds-ford--master%20plan-may2015-1.pdf>.) This work will include an existing conditions survey of U.S. Route 1 and Creek Road, design and engineering of traffic calming modifications sufficient to organically slow traffic and provide a safer environment for pedestrians and motorists. Such traffic calming modifications include, but are not limited to changes in traffic circulation, traffic signals, lane alignments, pedestrian crosswalks, addition of raised, planted medians, landscaping, signage, and other streetscape elements found in the Plan. The Plan lists conceptual recommendations on pages 61-65, which are more fully discussed and described in the plan’s text. This design and engineering project is jointly funded by a William Penn Foundation grant to the Brandywine Conservancy and by Chadds Ford Township.

The Request for Proposals and other project materials may be obtained online on the Chadds Ford Township website at [www.chaddsford.pa.gov](http://www.chaddsford.pa.gov) on or after October 27, 2016. Interested firms or teams shall submit six printed copies of the proposal in a sealed envelope no later than 12:00 P.M. on November 23, 2016 to:

Amanda Serock, Township Manager  
Chadds Ford Township  
10 Ring Road  
Chadds Ford, PA 19317

## **B. Background**

In 2014, Chadds Ford citizens, the Brandywine Conservancy, and Chadds Ford Township Open Space Committee led a planning effort to revitalize the historic village of Chadds Ford, centered at the intersections of U.S. Route 1 and Creek Roads. This effort, nicknamed “Walkable Chadds Ford”, led to hiring *Simone Collins Landscape Architecture*, with their sub-consultant *McMahon Associates*, to guide a six-month long master planning effort, involving numerous stakeholders and their feedback, and culminating in the Village of Chadds Ford Master Plan. The Plan describes Chadds Ford’s history, culture, physical environment, and context within regional and national planning efforts. It lays out community-approved strategies and goals, recommends future studies, and describes specific traffic calming techniques, walkway locations, signage character, gateway locations and function, street lighting concepts, and vertical landscaping elements to create a revitalized, pedestrian friendly village-center with viable small-businesses and community spaces. All techniques are intended to enrich a sense of place and community for this historic and culturally important town by removing or reducing the barriers posed by heavy, speeding traffic, a dearth of safe pedestrian routes, and lack of easy access to town businesses.

The 2014 planning team included citizens, elected officials, township staff, Chadds Ford Business Association, PennDOT District 6, Delaware County planning staff, school district administrators, traffic engineers from McMahon Associates, and representatives of local non-profit organizations. The Master Plan was funded by the William Penn Foundation and the Brandywine Conservancy as an element of the Brandywine Creek Greenway—Chadds Ford is a Greenway “Hub.” The Plan was formally approved by the Chadds Ford Township Board of Supervisors and public funds were allocated to help pay for the 2016-2017 phase of the planning process. Chadds Ford Township hired *Kelly and Close Engineering* to provide a review of the Plan and their recommendations (attached) will be considered in the process of completing this project.

Because the core goals of the Plan include Route 1 traffic calming (and, to a lesser degree, traffic calming on Creek Road), proposals should include provisions for direct communication with PennDOT District 6, in addition to a minimum of four meetings with the Stakeholder Committee (consisting of landowners, businesses, and government stakeholders as approved by the Client) advertised by the Client and open to the public, and at least two additional Public Meetings will be held at key milestones in the project.

This project will define, design, and at least partially engineer an integrated complete streets project including traffic calming techniques, cartway changes (if necessary and feasible,) pedestrian facilities, landscaping including lighting, and unique Village signage on Route 1 within the Village corridor. The extent of the Village Corridor is mapped in the Plan and described below in #3. PennDOT shall be in agreement about all traffic modification designs and locations; either through a signed letter of support or other written documentation. The deliverables shall include typical details, cross-sections, cost estimates, and phasing schedule for construction of all systems, modifications, and improvements.

### **C. Scope of Work**

The geographic extent of the Project is as mapped and described in the Village of Chadds Ford Master Plan; an ellipse extending from Fairville Road in Pennsbury Township, Chester County, east to Ring Road in Chadds Ford Township, Delaware County, north approximately to the Chadds Ford Historical Society, and south about one hundred feet beyond the unused Octoraro Rail line crossing of South Creek Road. Study of the master plan will be essential to understand the context, agreed-upon strategies, and various options for accomplishing the plan’s goals, (on p. 3-4 of the Master Plan.)

All of the Plan’s goals were conceptually addressed by the Master Plan. This RFP is for the purpose of obtaining specific design and engineering services, researching and deliberating to narrow the choice of design options, and to provide sufficient design documentation to seek regulatory approvals, final engineering plans, and construction funding. Additionally, we ask that the enclosed alternatives proposed by the Kelly and Close Engineering review of the Village of Chadds Ford Master Plan be considered as part of the scope, while respecting the overarching goals articulated in the Village of Chadds Ford Master Plan. Because the Master Plan depends on the sum of its parts to restore a sense of place, community, and prosperity for local businesses, all of the Plan’s goals should be considered to avoid a design strategy with unintended effects on other goals.

The scope of work and *deliverables* include:

1. **Survey and locate property lines, topography (one-foot contours in built-up areas; otherwise two-foot contours), easements, and encroachments in order to provide an existing conditions survey along the Route 1 and Creek Road corridors within the Village boundaries; extending 100' from the centerlines of the roads, a corridor of two hundred (200') feet total.**

*Deliverable: a sealed legal survey document*

2. **Create a distinctive and culturally appropriate style and design vocabulary for the village signage, paving, and other improvements. Such a vocabulary will be congruous with:**
  - a. Local History (colonial, Brandywine Battle, etc.)
  - b. Art of the Brandywine River Valley
  - c. The river and floodplain
  - d. Small business viability and unique character
  - e. Mixed Use structures
  - f. Complete Streets (pedestrians, bicycles, safety for users.)

*Deliverable: Graphic library of recommended signage, gateway, lighting fixtures, paving materials, and other—including crosswalks, styles, cross-sections as applicable, location maps, and typical design details, including sizes and materials.*

3. **Using the Recommendations Chart in the Master Plan (pp 61-65) as a guide, analyze, locate, and design traffic modifications, including:**
  - a. Modifications to reduce speeds on Route 1 through means other than speed limits, including narrowing and realigning travel lanes if necessary, as approved by PennDOT District 6,
  - b. Locate and design elevated landscaped medians and vertical elements including trees, street lights, etc. in the street rights of way.
  - c. Locate, design, and specify colored pavement on key road shoulders,
  - d. Locate, design, and specify pedestrian-scaled street lights,
  - e. Design pedestrian activated crosswalks at all three existing traffic lights,
  - f. Study modifying traffic direction on Station Way Road—pros and cons. Provide feasible alternatives to stakeholders that will strengthen traffic calming features for the entire Village,
  - g. Add stop signs at Station Way and South Creek Roads,
  - h. Add a traffic signal, paired with the exiting signal at North Creek and Route 1, to reinforce village center as a pedestrian safe zone,
  - i. Design an expanded, pervious paving floodplain parking lot behind Post Office, possibly with stormwater storage,
  - j. Incorporate richly textured and historically accurate pavements wherever possible and design a speed table along Station Way Road using such pavements,

- k. Align and design a walkway/trail on the south side of Route 1 between Ring and Creek Roads.

*Deliverables:* Maps, drawings, permit applications, design specifications, and descriptive text of how systems work together to create safe pedestrian ways, bike lanes, improved parking, street crossings, and effective traffic calming.

**4. Design and detail a network of walkways and trails to connect the Elementary School, museums, the Battlefield State Park, existing businesses, and all existing and planned trails. ADA accessibility standards should be used wherever possible.**

- a. Create a five foot wide walkway on the south side of Route 1 between South Creek Road and the Brandywine Creek,
- b. Insert a protected 10' wide pedestrian lane for the length of the Route 1 bridge on its south side,
- c. Create a walkway/trail from the Bridge to Fairville Road, connecting to the crosswalk.
- d. Improve Route 1 shoulders throughout the Village, adding cycling signage,
- e. Create a walkway connecting the Chadds ford Historical Society with Route 1 along the west side of North Creek Road, if possible preserving grandfathered parking arrangements between the Brandywine Conservancy and the Sanderson Museum,
- f. Create a walkway on South Creek Road, west side, from Route 1 south to Station Way Road.

*Deliverables:* Maps, scale drawings, typical design details, and descriptive text of pedestrian circulation system including required rights of way and/or easements.

**5. Gateways and Medians**

- a. Design an Eastern, Northern, Western, and Southern Gateway,
- b. Ensure a consistent gateway design adhering to the style developed in 2. *Design Vocabulary*,
- c. Introduce “*village ahead*” signage and “*reduced speeds ahead*” outside of Gateways,
- d. Narrow Route 1 travel lanes at Gateways,
- e. Create raised, planted medians on Route 1, with trees where possible, preserving safety while reducing the wide field of vision for motorists,
- f. Add vertical elements just outside R.O.W., and
- g. Add color to shoulders to reduce widths of undifferentiated paving.

*Deliverables:* Maps, drawings, list of required permit applications, design specifications, and descriptive text of how Gateways and Medians work together to calm traffic, inform motorists, and beautify Village entrances.

**6. Cost estimate for future engineering of items 3-5 and for construction of items 3-5.**

**7. Identification of funding sources, permitting requirements, and Schedule of future engineering and construction of items in 3-5.**

**8. Meetings with Stakeholder Committee (as constituted by Chadds Ford Township) and participation at public meetings, organized by Chadds Ford Township.**

*Deliverables: Participation in four Stakeholder Committee meetings and presentations at two Public meetings.*

**D. Timetable for Completion of Tasks**

Proposals and Qualifications are due by 12:00pm on November 23, 2016. An offer of project award will be made by December 7, 2016 and a signed contract between Chadds Ford Township and the Consultant in place by December 31, 2016. A public kick-off meeting will be scheduled for January, 2017. Deliverables shall be completed, approved by Stakeholders Committee and the Township, and all documentation in final form by December 20, 2017.

**E. Budget**

The Scope of Work outlined in this RFP is a list of what Chadds Ford Township wants to accomplish for Walkable Chadds Ford. The funding available for this project proposal totals \$109,000;

\$59,000 from the Brandywine Conservancy and

\$50,000 from Chadds Ford Township.

We request that proposals carefully consider the scope and propose what your Design Team can accomplish within this budget.

**F. Lead Consultant Qualifications**

The Consultant and/or Design Team should document an ability to design an integrated Complete Streets project with proven results such as demonstrated traffic calming, increased pedestrian activity, visual attractiveness, and enhanced small business viability in a Main Street context. Design elements in the Village of Chadds Ford will require an artistic and experienced design sensibility, experience negotiating with PennDOT, municipal officials, business owners, and the public, and a clear, consistent communication style to draw a disparate group of stakeholders into agreement.

Professional state certifications for surveying, traffic engineering, landscape architecture, and/or planning are requisite.

**G. Required Proposal Contents**

1. Statement(s) of Qualifications for all professionals working on the project deliverables, whether as part of a team or working as sub-consultants to the lead consultant.
2. Proposal narrative describing your approach to this project.
3. Proposed schedule of work milestones, including meetings and deliverables.

4. Proposed fee for services.
5. Exceptions; if any.

## **H. Proposal Evaluation Criteria & Selection Process**

Proposals will be reviewed after the Due Date of November 23, 2016, by Chadds Ford Township and the Walkable Chadds Ford Stakeholders Committee. A final determination will be made by December 7, 2016 and a contract between Chadds Ford Township and the Consultant shall be signed by December 31, 2016.

Selection will be made on the basis of experience and success with similar projects, clarity of proposal, completeness of proposal, and understanding of the project's goals, funding sources, and community context. Proposals will be individually considered by the Stakeholders Committee and jointly reviewed and ranked. A final decision in the case of a tie will be made by Chadds Ford Township representatives, as the client.

## **I. How to submit a Proposal or Ask a Question**

Proposals should be submitted by mail (6 copies) directly to:

Amanda Serock, Township Manager  
Chadds Ford Township  
10 Ring Road  
Chadds Ford, PA 19317

Interested firms or teams shall submit six printed copies of the proposal in a sealed envelope no later than 12:00 P.M. on November 23, 2016. Digital copies are welcome, in addition to printed copies.

Questions about the Request for Proposal should also be made of Amanda Serock, Township Manager: [MGR@chaddsfordpa.gov](mailto:MGR@chaddsfordpa.gov) or (610) 388-8800 x 104.

## **J. General Terms:**

Chadds Ford Township reserves the right to reject any or all proposals and to select the proposal that it determines to be in the best interests of the Township, the citizens of Chadds Ford, and the stakeholder committee of the Village of Chadds Ford. The contract is subject to the approval of the Board of Supervisors of Chadds Ford Township and is effective only upon its approval. Proposals will remain effective for Township review and approval for 30 days from the deadline for submitting proposals.

If only one proposal is received, the Township may negotiate and/or seek additional proposals during the 30-day period that proposals are effective.

## Appendix 1

### Village of Chadds Ford Master Plan

Please access the Village of Chadds Ford Master Plan at the following

link: <http://www.brandywine.org/sites/default/files/village-of-chadds-ford--master%20plan-may2015-1.pdf>

Or by navigating to: <http://www.brandywine.org/conservancy/resources/walkable-chadds-ford>

And clicking to Download Village of Chadds Ford Master Plan (PDF) by scrolling to the bottom of the page.

 [Download Village of Chadds Ford Master Plan \(PDF\)](#)

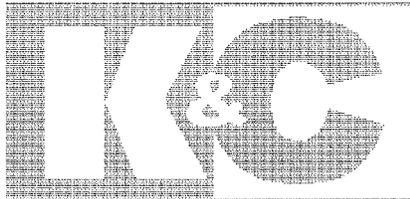
Appendix II

**ENGINEERING FEASIBILITY  
ASSESSMENT  
OF  
VILLAGE OF CHADDS FORD  
MASTER PLAN – May 2015**

Prepared for

**Chadds Ford Township**  
10 Ring Road,  
Chadds Ford, PA 19317

**Project No. CFT 15-500A**



*PREPARED BY:  
KELLY & CLOSE ENGINEERS  
THE SUMMIT AT BRANDYWINE  
1786 WILMINGTON PIKE, SUITE 300  
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(610) 358-9363*

Dated: March 2016

## **Summary of Village of Chadds Ford Master Plan**

The Village of Chadds Ford Master Plan – May 2015 was prepared by Simone Collins Landscape Architecture and McMahon Associates with funding provided by the Brandywine Conservancy and William Penn Foundation. The main goal of the Master Plan was to provide various recommendations to create a “Greenway” through the Brandywine Valley, with our primary focus on “The Village” .

The Master Plan identifies the “Village” as the area of land that extends along Baltimore Pike from the Brandywine Battlefield State Park and Ring Road (which is in Chadds Ford Township) to the Chadds Ford Elementary School and Fairville Road (which is located in Pennsbury Township). The Village also extends to the North of Baltimore Pike and runs along Creek Road to the Chadds Ford Historical Society and to the south of Baltimore Pike which would include Harvey Run and the former Octorara railroad line.

In order to prepare a comprehensive approach to a Greenway design for the Village, the Township formed a Project Study Committee which consisted of Chadds Ford Township Board of Supervisors/Open Space Committee/Manager, PennDOT, both the Delaware and Chester County Planning Department, residential and business property owners as well as representatives from the Unionville-Chadds Ford School District, Brandywine Valley Scenic Byway Commission, Brandywine Conservancy and Scenic Byway Commission. The Master Plan was prepared based on the input and recommendations of the Project Study Committee.

The basis of the Village Master Plan was to assess the current topographic, economic, aesthetics and natural resources as it relates to the historic aspects of The Brandywine Valley. The Master Plan provided various recommendations that would promote development of walking/biking/equestrian trails, preserve the culture of the Brandywine Valley and promote economic prosperity while conserving natural resources and educating residents/visitors of the history of the Brandywine Valley. At the conclusion of the Master Plan, numerous recommendations with associated time frames, responsibility, potential funding sources and costs was outlined.

The goal of this assessment is to review the recommendations outlined in the Master Plan and provide Chadds Ford Township with viable input and planning to address Vehicular/Pedestrian/Bicycle Transportation Development, Gateway Signage/Median Improvements, Signage for trails and walkways, Zoning requirements, etc. in regards to proposed improvements in order to create a vibrant, economic, and safe Greenway that reflects the culture, history and natural resources through the Village area of Brandywine Valley.

In preparing our analysis, it became clear to determine the timing and coordination within multiple organizations such as the Brandywine Conservancy Trail and Bridge Connection Trail whether in the planning phase, design phase, construction phase or the length of trail that has already been built. In order to reasonably locate propose walking/bike path that would connect to the Brandywine Conservancy Trail and Bridge Connection Trail, we assumed that both trails either have been constructed, were in the process of being constructed or will be constructed in the near future. We assumed that the Brandywine Conservancy Trail and Bridge Connection Trail will be an integral part of Chadds Ford Township’s Master Plan.

In order to locate proposed improvements such as gateway areas, planted medians, signage, and walking/bike paths, etc, we reviewed Figure 2-12 (Master Plan) as well as on available Delaware County Tax Record information to review which properties were privately owned and which properties were owned by the State, Township or Brandywine Conservancy. A majority of the proposed improvements (walking/bike path, gateway locations, etc) proposed are located within the road right-of-way or located on properties owned by the Brandywine Conservancy, Township and or State in order to limit the number of easements that would be required to be obtained from private properties. That being said, the Township and Brandywine Conservancy will need to establish easement areas and associated legal documentation to make improvements on lands owned by the Brandywine Conservancy.

### **Research and Collection of Available Data**

No wetland no wetland survey or delineations were performed in preparing this report. The wetland information indicated on plans that accompany this report were obtained from the National Wetland Inventory "Wetlands Mapper" for both Delaware and Chester Counties. The "Wetland Mapper" integrates digital map data with other resources to produce approximate current wetland locations.

In addition, no flood plain survey, calculations or delineation was performed in preparing this report. The floodplain and floodway areas indicated on plans that accompany this report, were obtained from FEMA mapping and Pennsylvania Spatial Data.

Lastly, no existing features or topographic surveys were performed in preparing this report. Existing features, topographic, steep and very steep slope information indicated on plans that accompany this report, were obtained from LIDAR survey information. The LIDAR survey provided 2-foot contour information as well as approximate steep and very steep locations obtained through map services at the Pennsylvania Spatial Data Access Clearinghouse (PASDA). Aerial image mapping was obtained from the 2010 DVRPC image database and is referenced to their respective State Plan map coordinate system (PA State Plane South Zone NAD83).

## 1. Proposed Paths and Connection to Existing Trails

**Existing Bridge Connection Trail and Brandywine Conservancy Trail:** The Master Plan outlines numerous recommendations for the installation of proposed walking paths and connections points that would connect the proposed walking paths (running along the south side of Baltimore Pike) to the existing Bridge Connection Trail System and Brandywine Conservancy Trail System located in the Village area. The Master Plan indicates that The Bridge Connection Trail starts at the intersection of Baltimore Pike and Fairville Road, heads in a southerly direction along the existing railroad line and crosses the Brandywine Creek (just south of the Brandywine River Museum) and terminate at a walking path connection point along Creek Road. An active rail line or bridge crossing that is currently in use by pedestrians should be included in the evaluation and incorporation with the overall master plan.

The Master Plan also indicates that The Brandywine Conservancy Trail starts in Birmingham Township on the east side of the Brandywine Creek, north of Baltimore Pike. The trails runs parallel to the east side of Brandywine Creek in a southerly direction, crosses Baltimore Pike (just east of the existing Baltimore Pike Bridge), then continues along the east side of the Brandywine Creek in a southerly direction to eventually connect to the Bridge Connection Trail just south of the Brandywine River Museum. The Brandywine Conservancy Trail then heads north bound on Creek Road for a short distance then heads eastbound through various properties owned by either the Brandywine Conservancy and or Chadds Ford Township and terminate at the Chadds Ford Township Building located and Baltimore Pike and Ring Road.

**Trail Types and Associated Costs:** Included in our analysis are costs associated with various widths and path surface materials that would allow pedestrians to traverse to various environmental and historic significant landmarks and connect to adjacent trail locations. Given the information contained in the masterplan, the following are recommended design parameters for walking and bike path designs:

1. Walking Path should have an approximate 2'-3' tread width (light use/1-way), 4'-5' tread width (heavy use/2-way), have a 1%-7% preferred slope (max. 10% slope or not exceed a 40% slope for a short distance) and are typically 5-15 miles in length. Sight distances are not critical for walking paths, but a 50' distance is recommend, especially at road crossing.
2. Touring Bike Path should have an approximate 3'-6' tread wide (light use/1-way), 8'-10' tread width (heavy use/2-way), have a preferred 0%-3% slope (max. 10% slope of not to exceed 15% slope for short distances) and are typically 5-50 miles in length. A 50' minimum sight distance is recommended with a preferred 100' sight distance at road crossings.
3. Mountain Bike Path should have an approximate 2'-3' tread width (light use/1-way), 5'-6' tread width (heavy use/2-way), have a preferred 0%-3% slope (max. 10% slope of not to exceed 15% slope for short distances) and are typically 5-50 miles in length. A 50' minimum sight distance is recommended with a preferred 100' sight distance at road crossings.

It is important to note that the approximate costs listed below may vary depending on the exact path location/surface type, construction schedule/methods, unknown utility locations and other

unforeseen conditions. Common path features such as trash cans, benches, signage, rest areas, retaining walls, bicycle racks, etc. were not included in the cost estimates below. Stormwater management and erosion /sediment control were not included since the path surface material and limit of disturbance are not yet defined.

<b>APPROXIMATE COST FOR 5' WIDE NATURAL SURFACE PATH</b>			
<b>Item</b>	<b>Unit</b>	<b>Cost - Low Side</b>	<b>Cost - High Side</b>
Clearing and Grubbing (10' width)	Acre	\$ 2,900.00	\$ 3,800.00
Grading	Mile	\$ 3,700.00	\$ 4,600.00
Seed/Mulch (4' width)	Acre	\$ 1,300.00	\$ 1,900.00
<b>Subtotal</b>		<b>\$ 7,900.00</b>	<b>\$ 10,300.00</b>
Misc Path Costs	10% of Trail Cost	\$ 790.00	\$ 1,030.00
Contingency	15% of Trail Cost	\$ 1,185.00	\$ 1,545.00
<b>ESTIMATED COST PER MILE</b>		<b>\$ 9,875.00</b>	<b>\$ 12,875.00</b>

<b>APPROXIMATE COST FOR 5' WIDE WOOD CHIP SURFACE PATH</b>			
<b>Item</b>	<b>Unit</b>	<b>Cost - Low Side</b>	<b>Cost - High Side</b>
Clearing and Grubbing (10' width)	Acre	\$ 2,900.00	\$ 3,800.00
Grading	Mile	\$ 3,700.00	\$ 4,600.00
Seed/Mulch (4' width)	Acre	\$ 1,300.00	\$ 1,900.00
Wood Chips (5' width)	SF	\$ 15,900.00	\$ 18,900.00
<b>Subtotal</b>		<b>\$ 23,800.00</b>	<b>\$ 29,200.00</b>
Misc Path Costs	10% of Trail Cost	\$ 2,380.00	\$ 2,920.00
Contingency	15% of Trail Cost	\$ 3,570.00	\$ 4,380.00
<b>ESTIMATED COST PER MILE</b>		<b>\$ 29,750.00</b>	<b>\$ 36,500.00</b>

<b>APPROXIMATE COST FOR 5' WIDE GRANULAR SURFACE PATH</b>			
<b>Item</b>	<b>Unit</b>	<b>Cost - Low Side</b>	<b>Cost - High Side</b>
Clearing and Grubbing (10' width)	Acre	\$ 2,900.00	\$ 3,800.00
Grading	Mile	\$ 3,700.00	\$ 4,600.00
Seed/Mulch (4' width)	Acre	\$ 1,300.00	\$ 1,900.00
Granular Subbase (7' width)	SF	\$ 22,100.00	\$ 25,500.00
Granular Surfacing (5 width)	SF	\$ 15,900.00	\$ 18,500.00
<b>Subtotal</b>		<b>\$ 45,900.00</b>	<b>\$ 54,300.00</b>
Misc Path Costs	10% of Trail Cost	\$ 4,590.00	\$ 5,430.00
Contingency	15% of Trail Cost	\$ 6,885.00	\$ 8,145.00
<b>ESTIMATED COST PER MILE</b>		<b>\$ 57,375.00</b>	<b>\$ 67,875.00</b>

APPROXIMATE COST FOR 10' WIDE ASPHALT SURFACE (NON-MOTORIZED) PATH			
Item	Unit	Cost - Low Side	Cost - High Side
Clearing and Grubbing (14' width)	Acre	\$ 4,900.00	\$ 4,900.00
Grading	Mile	\$ 3,700.00	\$ 3,700.00
Seed/Mulch (4' width)	Acre	\$ 1,300.00	\$ 1,300.00
Granular Subbase (12' width)	SF	\$ 35,100.00	\$ 39,500.00
Asphalt (10' width)	SF	\$ 74,100.00	\$ 79,500.00
<b>Subtotal</b>		\$ 119,100.00	\$ 128,900.00
Misc Path Costs	10% of Trail Cost	\$ 11,910.00	\$ 12,890.00
Contingency	15% of Trail Cost	\$ 17,865.00	\$ 19,335.00
<b>ESTIMATED COST PER MILE</b>		\$ <b>148,875.00</b>	\$ <b>161,125.00</b>

**Proposed paths locations:** The Master Plan recommends constructing a proposed walk/bike path that would start at the Chadds Ford Elementary School on the north side of Baltimore Pike, cross Baltimore Pike, cross the Baltimore Pike roadway bridge, and continue along the south side of Baltimore Pike, ending at the intersection of Baltimore Pike and Ring Road. The only proposed path on the north side of Baltimore Pike would start just east of the roadway bridge on Baltimore Pike, run behind Hank's Place, run along the east side of North Creek Road, then head in a northerly direction along North Creek Road and terminate at the Chadds Ford Historical Society property. The Master Plan also provides a proposed path intermingled with the businesses on the northeast corner of Baltimore Pike and North Creek Road as well as propose a path to the Sanderson Museum and Brandywine Hotel. Please refer to the color 8.5 x 11 site Plans (Sheets 1 through 5) toward the end of the Master Plan report.

The purpose and locations of the proposed walking paths outlined in the Master Plan and their various goals to connect the proposed walk/bike path to the Brandywine Conservancy Trail, Bridge Connection Trail as well as other significant historic and commercial properties within Chadds Ford Township is a comprehensive approach. We agree with the Master Plans assessment to install a crosswalk with appropriate signage/crossing signals at the intersection of Baltimore Pike and Fairville Road, in front of the Chadds Ford School to allow for safe passage of residents to cross Baltimore Pike and walk to the Bridge Connection Trail and eventually connect to the Brandywine Conservancy Trail.

The Master Plan proposes a path that would allow pedestrians to not only cross Baltimore Pike at Fairville Road, but to cross the Baltimore Pike Bridge and walk on the southerly side of Baltimore Pike in an easterly direction to the Chadds Ford Township Municipal Building. Currently, there are two travel lanes going east bound and two travel lanes going westbound on Baltimore Pike with a small shoulder area on each side of the Bridge. There is also a median that separates the eastbound and westbound travel lanes.

In our assessment of the Master Plan and aerial photography, it appears that there is not enough room to safely construct a walking path lane between the travel lanes and guiderail/side of the bridge and on the south side of Baltimore Pike (from Fairville Road to Ring Road). The Master Plan proposes to reduce the width of the travel lanes in order to create a walking path that is located a safe distance from traffic. The Master Plan recommends that the travel lanes be reduced to allow for the construction of a protected 10' wide walking/bicycle path on the south side of the Baltimore Pike Bridge. In addition, the Master Plan proposes to reduce the speed limit from 45 mph to 35 mph in the vicinity of Baltimore Pike and Fairville Road.

Proposing to narrow travel lanes and reduce the speed limit would require considerable traffic investigation and analysis to understand the traffic and safety implications of an already heavily traveled traffic area along Baltimore Pike. Although a speed reduction along Baltimore Pike is possible, we believe that given the high volume of traffic and regional significance of Baltimore Pike, it is our experience that obtaining PADOT approval/permitting will be time consuming and a significant task to undertake. The costs outlined in the Master Plan is designated as a "high" cost of at least \$500,000 as well as a lengthy design, permitting and construction time frame of approximately 5 years.

#### **Alternative Method – Southside of Baltimore Pike**

An alternative path in this location could yield a more financially feasible design/construction costs, with less impact to roadway/traffic along Baltimore Pike. This could eliminate the need to narrow the travel lanes in order to create a walking/bicycle path to cross the Baltimore Pike Roadway Bridge as well as alleviate the need to reduce the speed limit along Baltimore Pike.

Consideration of a pedestrian cross Baltimore Pike at its intersection with Fairville Road (in front of the Chadds Ford Elementary School) and utilize the Bridge Connection Trail heading in a southerly direction along Fairville Road, running along the existing railroad, crossing the Brandywine Creek (existing railroad crossing adjacent to the Brandywine River Museum) and then connect to proposed walk/bike paths along Hoffmans Mill Road/Station Way Road/South Creek Road as well as the Brandywine Conservancy Trails located to the west of the Brandywine River Museum and along the east side of South Creek Road. It should be noted that if an easement with the rail road is not currently established or cannot be negotiated in order for pedestrians to cross the Bridge Connection Trail, we would recommend that the proposed walking start at the intersection Baltimore Pike and Hoffmans Mill Road. Narrowing traffic lanes, altering traffic patterns and reducing speed limits will be economically challenging.

Regardless if pedestrians can utilize the Bridge Connection Trail (which would be ideal), we recommend a proposed walk/bike path at the intersection of Baltimore Pike (south side of Baltimore Pike) and Hoffmans Mill Road that would continue in a southerly direction down Hoffman/s Mill Road (east side of Hoffman/s Mill Road) toward the Brandywine River Museum (by the rear parking lot). The Brandywine Conservancy owns the lands on both the east and west side of Hoffman/s Road. Therefore, allowing for an area of land to be established for the construction of a new path would be more achievable than negotiating easement for privately owned land. In addition, it appears that there is adequate area along Hoffmans Mill Road to construct a path.

Equally, there is an opportunity to construct a path that would connect the proposed walking path along Hoffmans Mill Road and traverse along the "center" of area of land between Station Way Road and Hoffmans Mill Road. The western portion of the land between Hoffmans Mill Road and Station Way Road would allow pedestrians to walk/bike up Hoffmans Mill Road toward Baltimore Pike (south side) then loop back around in a southerly direction toward the Brandywine River Museum as well as walk to properties located on the west side of Station Way Road. It is our understanding that this area of land is owned by the Brandywine Conservancy and not private homeowners/businesses and could be utilized for a nice looped walk/bike path.

The Master Plan also proposes a path in a northerly direction on Station Way Road (toward the south side of Baltimore Pike). There are several privately owned properties in which easements might be required to be obtained as well as verifying of right-of-way widths and or possible conflicts with existing features that could make it difficult to construct a walking path along Station Way Road.

However, if a walking path is not constructed along Station Way Road, there would be no connection (at the intersection of Station Way Road and Baltimore Pike) that would allow pedestrians to walk/bike from the Chadds Ford Historical House and other trails located on the north side of Baltimore Pike to the historic and scenic opportunities on the southern side of Baltimore Pike such as the Brandywine River Museum, Bridge Connection Trail and Brandywine Conservancy Trail. A proposed path along Station Way Road toward Baltimore Pike (south side) should be constructed as well as appropriate signage/signalization and crosswalk design. As indicated later in this report, converting Station Way Road from a two way road to a one-way road appears to be a pivotal step in this implementation. This would allow room for a proposed walk/bike path to be located within the roadway right-of-way of Station Way Road and not located on private properties; hence reducing the amount of easements that would be required from privately owned properties.

The Master Plan also proposes a walk/bike path along Baltimore Pike (south side) from Station Road to Creek Road (south side). Per aerial photography, it appears that there is not enough room along the shoulder of Baltimore Pike to construct a path. The parking lot for the post office is in close proximity to Baltimore Pike. Given that parking is limited at the post office, to eliminating parking spaces to construct a path will be a challenge. Additionally to narrow the width of the travel lanes and reduce the speed limit along Baltimore Pike to accommodate a path in this location is also a challenging endeavor. Conversely a walk/bike path constructed along Hoffmans Mill Road, Station Way Road with the proposed path loop between Hoffmans Mill Road and Station Way Road and then continue to run along Hoffman's Mill Road until its intersection with South Creek Road is a viable option with a shorter time table to complete. This will allow for pedestrians to safely walk/travel the commercial and historic properties on the south side of Baltimore Pike as well provide an opportunity for pedestrian to cross Baltimore Pike and enjoy the commercial, historic and scenic properties on the north side of Baltimore Pike.

As previously mentioned, the Master Plan proposes to construct a proposed path along Baltimore Pike (south side) starting at the Chadds Ford Elementary School and running along Baltimore Pike in an easterly direction. The proposed path would terminate at the Chadds Ford Township Building (east side of Ring Road). The Master Plan proposes a crosswalk at the intersection of Ring Road and Baltimore Pike. The proposed crosswalk would allow for pedestrian to safely cross Baltimore Pike in order to walk to the Brandywine Battlefield State Park.

In order to assess the feasibility of a proposed path on the southerly side of Baltimore Pike, we reviewed Figure 2-12 (Master Plan) as well as Delaware County Tax Parcel Records, to establish which properties are owned by the Brandywine Conservancy, Chadds Ford Township and State Owned Properties. In the vicinity of Station Way Road and Baltimore Pike (south side) there are several properties that are privately owned along Baltimore Pike. The right-of-way widths along Baltimore Pike would need to be verified to determine if the Township would need to acquire easements from private owners in order to construct a walking path through private properties along the south side of Baltimore Pike from Hoffmans Mill Road to South Creek Road. In addition, the existing features between Hoffmans Mill Road and South Creek

Road (Gas station and Post Office) do not yield to a scenic walking/bicycle path given the amount of impervious area adjacent to Baltimore Pike (south side). As indicated in the Master Plan, travel lanes would be required to be reduced in order to construct a walking/bicycle path along the south side of Baltimore Pike between Hoffmans Mill Road n South Creek Road.

In addition to the walk/bike path indicated above for Hoffmans Mill Road, Station Way Road and the loop path between Hoffmans Mill Road and Station Way Road, we propose a walking path that would run in a northerly direction along South Creek Road (toward Baltimore Pike), run along the south side of Baltimore Pike and terminate at Ring Road. This proposed path would provide a more scenic, safer and more economical solution than proposing a path along Baltimore Pike (south side) starting at Hoffman's Mill Road and running down toward Creek Road (south side).

It is our understanding that lands located on the south side of Baltimore Pike (from South Creek Road to Ring Road) are almost entirely owned by either the Township and or the Brandywine Conservancy. We believe that the Township should take advantage of scenic land not privately owned in this area to avoid obtaining easements and narrowing travel lane which could be a costly and lengthy time frame to obtaining permits and agency approvals.

We therefore agree with the Master Plan and propose a path along Baltimore Pike (south side) between Creek Road and Ring Road. However, there is one privately owned property just east of the intersection of Baltimore Pike (south side) and Creek Road (south side). Depending on the width of the right-of-way at this location, an easement might be required to construct a walking path along the property frontage. In addition, the building is very close to the road leaving a small area between the travel lanes and building that might not provide for safe pedestrian passage as well as a non-scenic view.

Therefore, we propose a path at the intersection of Baltimore Pike (south side) and Creek Road (south side) and continue along Baltimore Pike in an easterly direction until it reaches the private property at 1598 Baltimore Pike. The adjacent parcels that surround this private property are owned by the Brandywine Conservancy. We recommend constructing the path around this property which would provide a safer path location, more scenic view for pedestrians as well as connect to the Brandywine Conservancy Trail. Once the path is east of this private parcel, the path can continue in an easterly direction along Baltimore Pike (south side) until it reaches the Chadds Ford Township Building property adjacent to Ring Road.

There is a significant length of guide rail located on the south side of Baltimore Pike, just east of parcel 1598 Baltimore Pike that extends in front of the Chadds Ford Township Building. From viewing aerial photography, it appears that there is a feasible area on the south side of Baltimore Pike to construct a path outside of the travel lanes and guiderail that would extend the proposed path to the Chadds Ford Township Building property and Ring Road. We recommend performing a survey to confirm the topography, existing utility locations, width of the right-of-way, etc. In addition, we agree with the Master Plan to provide a cross walk as well as signs/signalization at the intersection of Baltimore Pike and Ring Road to allow pedestrians to safely cross Baltimore Pike from the Township building to the Brandywine Battlefield State Park.

#### **Alternative Method – Northside of Baltimore Pike**

The Master Plan proposes a walking path/boardwalk on the north side of Baltimore that would start at the Brandywine Conservancy Trail system just east of the Baltimore Pike Roadway Bridge over the Brandywine River. The proposed walking trail/boardwalk would then run in an easterly direction along Baltimore Pike and wrap around the west and northerly property lines of

Franks Place (intersection of Baltimore Pike and Creek Road, north side) then head in a northerly direction on the west side of Creek Road and terminate at the Chadds Ford Historical House.

After reviewing aerial photography and the Master Plan, it appears that the only method to construct a walking path from the east side of the Baltimore Pike Roadway Bridge to Hank's Place along the north side of Baltimore Pike would be to reduce the width of the travel lanes along Baltimore Pike as well as construct a boardwalk type path. As we previously stated, there would be significant traffic implications and costs associated with narrow travel lanes along Baltimore Pike. In addition, constructing a boardwalk concept around Hank's Place would be costly and permit intensive project given its path location in proximity to the Brandywine Creek and a significant amount of wetlands in this area. However the scenic value should be considered considering this area would add a significant attraction.

A traffic analysis and a Pedestrian Needs/Accommodations study should be performed to decipher whether crosswalk upgrades or new cross walk implementation (with appropriate signs/signalization) is warranted at the intersection of Baltimore Pike and North Creek Road. This would provide pedestrians a safe path to walk to scenic and historical landmarks, commercial properties, Bridge Connection Trail and Brandywine Conservancy Trail on the south side to similar landmarks and trails on the north side of Baltimore Pike.

Therefore, we recommend considering the proposed path start at the intersection of Baltimore Pike and Station Way Road and run in a northerly direction along North Creek Road and terminate at the Chadds Ford Historical Society Property. There is an opportunity to connect a proposed walking trail at the Chadds Ford Historical Society property to the Brandywine Conservancy Trail adjacent to the Chadds Ford Historical Society property and avoid the cost and permitting involved with proposing a boardwalk type of pathway around Hank's Place. The Brandywine Conservancy owns a majority of the properties located on the western side of Creek Road within the Chadds Ford Township limits. Per review of aerial photography, it appears that there is adequate space to construct a path that would provide a scenic path for pedestrians to travel from the north side of Baltimore Pike to the southern side of Baltimore Pike and connect to the Existing Brandywine Conservancy Trail and Bridge Connections Trails.

The Master Plan proposes to utilize the existing cross walk at the Sanderson Museum and sidewalk on museum property to allow pedestrians to cross North Creek Road to a walking path that would connect to the Chadds Ford Gallery, Brandywine River Hotel, Brandywine Prime and Antica Italian Restaurant. We agree with the Master Plan to utilize this existing cross walk, but defer to further traffic/pedestrian needs analysis to understand if upgrades to this existing crosswalk are required. The Master Plan also recommends several proposed walking paths adjacent to and intermingled with these commercial properties located at the northeast corner (intersection of Baltimore Pike and North Creek Road) so that pedestrians can access the Sanderson Museum, Brandywine Hotel and several small commercial properties in this area. If easements can be obtained from private properties in this area, and there is sufficient space to construct walking paths without removing parking areas, we agree with the Master Plan and the proposed walking path locations in this area. However, it appears that there are existing parking areas and driveways that connect the commercial properties that would allow pedestrians to walk to these various establishments without the creation of defined walking paths.

In conclusion, the proposed Master Plan path locations (Figure 1), based on our review of property parcel data, existing features, tax records/aerial photography and information provided in the 2015 Village of Chadds Ford Master Plan is comprehensive and provides a great source of

information which warrants the consideration of the Township Officials. Although we have not performed a specific traffic analysis along Baltimore Pike, our experience with similar projects would suggest that narrowing travel lanes in an already congested traffic area yield high engineering design and construction costs.

Our goal was to evaluate and provide path locations to allow pedestrians to safely transverse to scenic, historic and commercial properties located north and south of Baltimore Pike as well as connect to properties with significant value along Baltimore Pike. We have illustrated a majority of the proposed paths where the Township and or Brandywine Conservancy owned the properties, where there is adequate room adjacent to the travel lanes and where there would be scenic views of historic Chadds Ford Township that would connect to the Bridge Connection Trail, Brandywine Conservancy Trail, Chadds Ford Township Building and Brandywine Battlefield State Park.

## **2. Gateway Design**

The Master Plan recommends various gateway designs including welcome signage, vegetation/tree planting, and or architectural elements to clearly identify the Gateway at four (4) locations: Along Baltimore Pike in front of the Chadds Ford Elementary School, in front of the Brandywine Battle Field State Park, and at the two Creek Road approaches to Baltimore Pike.

We agree with the Master Plan that clearly identifying historic and scenic features of the Chadds Ford Village is an extremely valuable assess to Chadds Ford Township and the surround communities. Providing a gateway into the Chadds Ford Village would serve various purposes outlined in the Master Plan: traffic calming, define the limits of the Chadds Ford Village, create unique visual clues for visitors to identify business and historic significance as well as provide driver awareness for pedestrian and local amenities.

We agree with the Master Plan that the Township might have to re-evaluate the current sign ordinance in order to provide signage with better visibility with the Chadds Ford Village. We again defer to a traffic engineer to determine the traffic impacts along Baltimore Pike and adjacent "Gateway" areas if the speed limit and travel lanes are eventually reduced along Baltimore Pike.

The cost of the gateway design will depend on a consistent design that the Township as well as the Brandywine Conservancy, adjacent Townships, business owners, etc. consider acceptable. Planting and signage would enhance the charming appeal of the Chadds Ford Township and provide the village atmosphere. This feature would have additional considerations such as grounds maintenance and annual planting, cleaning and mulching. Although this feature could be focal point which could be maintain by a local organization or community club.

See below for estimated cost.

Approximate Cost/Options for Gateway Design		
Item	Unit	Cost
Gateway Wood Signage	Each	\$ 1,100.00
Gateway Metal Signage	Each	\$ 550.00
Gateway Banner Signage	Each	\$ 750.00
Gateway Structure - Street spanning arch supported by metal posts	Each	\$ 75,000.00
Gateway Signage - Monument Sign With Rock or Stone and Recessed Concrete Inlay	Each	\$ 25,000.00
Gateway Entry (Landscaping on either side of roadway ROW as well as textured pavement area)	LS	\$ 18,000.00

The Master Plan indicates that the cost for Gateway planting and signage are low to medium. Gateway Signage and Planting will be a significant benefit to not only the Gateway areas but Village Area as well with a low to medium costs, depending on the amount and size of proposed gateway signage and planting. Unless zoning relief is required for a specific type and/or size of Gateway signage, the Township (in conjunction with location businesses and the Brandywine Conservancy) could implement the Gateway Design immediately.

It is difficult to determine the costs for the Gateway Design knowing that signage and associated gateway entrance improvements will be designed with very specific detail to incorporate historic and environmental features. More simplistic Gateway entrance improvements would be the installation of signage (wood, metal or banner) or could entail more dramatic signage such as the installation of a "street spanning" sign with arched columns/posts on either side of the road. Other Gateway options include installation of a rock or stone monument type sign/road inlay or landscaped areas on either side of the roadway with a textured roadway pavement that would extend the width of the landscaped areas.

We agree with the Master Plan and believe that the Gateway Costs (for all 4 proposed Gateway locations) would be in the range of **\$550,000 to \$750,000**. We recommend the installation of consistent and appropriate signage, landscaped areas on either side of the roadway right-of-way as well as a textured pavement area for all 4 gateway locations. We believe that the installation of a street spanning signage, rock/stone monument sign/road inlay or other specific gateway type options would be very costly and why yield the same gateway benefits as more economic options as indicated above.

### **3. Upgrades to Baltimore Pike Medians (Planting and Visual Enhancement)**

Planted medians not only provide an enhanced visual experience for both drivers and passengers, but they reduce nighttime headlight glare and distraction from oncoming traffic, they provide an additional safety by helping to prevent vehicles from crossing into the median into oncoming traffic, they absorb carbon dioxide and add oxygen to the atmosphere, they can be designed to detain stormwater runoff as well as trap wind-blown debris and dust within the roadway.

The Master Plan recommends converting concrete medians to planted medians, with the possibility of raising the medians to plant trees in the median. We agree that medians that have a sufficient width could be converted so that various low maintenance (traffic/salt tolerant) plants could be utilized. We recommend converting median areas (to planted medians) that are a minimum of 5' wide in width to allow room for signage, provide a minimal pedestrian refuge area

(for pedestrians who cannot cross the street in one cycle) as well as provide room for maintenance workers to safely work in the planted median area.

We also recommend working with a landscape architect to design median with various plant species that are annual/low maintenance/low growing plants that would yield continuous blooms throughout the spring, summer and fall months. This would add a pleasing visual effect to a historic and scenic area of Pennsylvania. In addition, the Township should investigate the opportunity of connecting stormwater sewer inlets and piping to sizable medians that could serve as small rain gardens to help reduce roadway runoff.

Installing trees (unless deemed safe by a traffic engineer/landscape consultant) in the median areas should be carefully designed due to the traffic impacts and maintenance issues that could occur. It may be more economically feasible, less costly to maintain and less distracting to drivers if medians were converted to just plant type material. This would reduce construction and planting costs/materials as well as reduce the amount of maintenance (removal of dead trees, leaves, pruning, etc). We anticipate that PennDOT will work diligently alongside the Township to approve permitting in a timely manner required for renovating the medians to include planting. The following is an approximate cost to convert a median to a planted median:

Average Cost for Landscaped Median		
Item	Unit	Cost
Landscaped Median (5'-8' varying width)	Per 100 LF	\$ 30,000.00
*An assumed 5' min. width (1' curb on either side of median and min. 3' width for landscaping and room for maintenance).		

Based on our review of GIS and Aerial Mapping, we estimate that there is approximately 3,000 LF of median area that is a minimum of 5' in width, yielding an approximate cost of \$900,000 +/- . This cost does not take into account permitting and design costs which would be approximately 10% of the landscape median cost, yielding a total cost of \$990,000.00 +/- . Cost may also vary on the type and quantity of planting proposed in the median areas. An average landscaping cost and planting amount was assumed for the costs listed above. Please see attached plan were medians widths are greater than 5' in width that could be potential areas to received plant material.

Since the medians are located on a state road, Chadds Ford Township will need to obtain an approved Highway Occupancy Permit as well as execute a maintenance agreement outlining the Township's responsibilities to construct and maintain the planted medians. We also recommend consulting with a landscape consultant to not only select plant species but establish their associated installation procedures and maintenance costs for various type of plant material.

#### 4. Parking Analysis

The Master Plan indicates that there are approximately 350 existing parking spaces for all commercial buildings in the Village Area, yielding a ratio of 4.3 parking spaces per 1,000 SF of commercial space. Unfortunately, the distribution of the business parking spaces is uneven, despite efforts between some business owners to share parking.

One of the recommendations that the Master Plan proposes is to expand the parking area behind the Post Office. We agree that expanding this parking area would supplement the existing parking for the Village Restaurants and Shopping. We recommend performing infiltration testing in this area to see if the site yields acceptable infiltration rates.

There is a sizable area of land (on the east side of Creek Road, across the street from the Post Office that is owned by the Brandywine Conservancy) where an overflow parking lot could be constructed. We recommend that the Township investigate this possibility of creating both a stormwater management and educational opportunity to construct overflow parking utilizing best management practices measures intermingled with parking spaces in this area. Signage could be added to rain gardens and vegetative swales to identify plant material for students and residents as well as identify watershed information and conservancy measures. Overflow parking in this area would service both commercial properties on the north and south side of Baltimore Pike via the proposed crosswalk upgrades and signage/signalization at the intersection of Baltimore Pike as well as a new traffic signal at the intersection of Baltimore Pike and Creek Road just east of the Post Office.

There are various options to handle increased runoff (associated with an increase in the impervious area). These options include constructing pervious paving as well as install vegetative swales and rain gardens adjacent to the expanded parking area that would address runoff yet enhance the already beautiful scenic area of Chadds Ford Township. As the Master Plan indicates, a permanent agreement for common parking and maintenance should be established prior to approving parking lot expansion plans. The following are approximate cost for various parking lot surface options:

<b>Costs/Options for Additional Parking</b>			
<b>Item</b>	<b>Unit</b>	<b>Cost</b>	
Porous Asphalt	SF	\$	1.25
Porous Concrete	SF	\$	4.75
Grass/Gravel Pavers	SF	\$	4.50
Interlocking Concrete Pavers	SF	\$	10.25
Paving (subgrade, stone subbase, & bituminous paving)	SY	\$	25.00
Curb	LF	\$	15.00
Demolition	LS	\$	5,000.00
Grading	LS	\$	5,000.00
Landscaping/Buffer Screening	LS	\$	40,000.00
Signage	Each	\$	500.00
Fencing	LF	\$	500.00
SWM and E&S	LS	\$	10,000.00
*If porous type surface is installed, SWM and E&S costs could be eliminated or greatly reduced.			

We recommend that the Township consider funding to expand the post office parking lot as well as a potential parking area adjacent to the post office on Creek Road. We agree with the Master Plan that the costs associated with the expanded post office parking lot would be low. Depending on the proposed stormwater management measures for the potential parking area (adjacent to the post office), we believe that this will be a low to medium construction cost as well as a low to medium maintenance cost of the parking lot and associated stormwater management facilities. The Township, Brandywine Conservancy and local business could work together to share in the cost and maintenance of this parking area.

## 5. Transportation

**Speed/Travel Lanes along Baltimore Pike:** The Master Plan states “despite posted speed limits through the Village of 45 MPH, a significant percentage of the traffic exceeds that speed, often by 20 MPH or more”. In order to determine the traffic effects of reducing the speed limit and travel lanes along Baltimore Pike as well as establish how far in advance of the Gateway Area the speed reduction should occur, we would need to review a traffic analysis data prior to recommending specific speed and or travel lane reduction measures and locations.

Given our knowledge of the high volume of traffic and our review of similar project, it will be a significant challenge and length time frame to obtain PADOT permitting that would yield significantly high design/permit/construction costs. We therefore do not recommend reducing the speed limit or travel lane widths along Baltimore Pike but instead recommend the implementation of other improvements such as planted medians, gateway signage (to locate trails and business) and proposed walk/bike paths as indicated in this report. We would anticipate and hope that pedestrians would naturally slow down to view the scenic and historic beauty of the Village Area and that proper gateway and Village signage would more specifically locate where business and paths/trails could be accessed.

The Master Plan also recommends colored pavement on shoulder areas along Baltimore Pike. Although this would add a pleasing visual interest to pedestrians, this could be a costly item to implement given the significant length of roadway shoulder on both sides of Baltimore Pike. We believe money should be allocated to installing pedestrian-actuated crosswalks (with colored/textured/pattern roadway) first and foremost and if funding is still available, the Township could evaluate constructing colored pavement on shoulder areas in conjunction with the need to reduce travel lanes in the future.

**Station Way Street Conversion:** The Master Plan also recommends that Station Way Road be converted to a one-way south roadway. Currently, Station Way Road is a one-way “north” street; hence proposing a signal at the intersection of Baltimore Pike and South Creek Road to handle the diverted southbound traffic. Pending review of a traffic study that would identify traffic impacts and possible benefits of converting Station Way Road to a “one-way south” street, we do not agree with this conversion.

Converting Station Way Road to a one-way south road will direct traffic to the intersection of Baltimore Creek Road and South Creek Road to a proposed traffic light identified in the Master Plan. Given the close proximity of the existing signal at Baltimore Pike and Station Way Road, we believe that it will be difficult to achieve the PADOT permitting necessary to construct a new signal at Baltimore Pike and South Creek Road given its close proximity to the existing signal at Baltimore Pike and Station Way Road. Additionally, a new signal at Baltimore Pike and South Creek Road would be a minimum cost of \$250,000. We believe that money could be allocated to more noteworthy improvements that would yield more significant benefits to the community.

The Master Plan also recommends installing 3 stop signs at South Creek Road and Station Way Road. We agree with the proposed stop sign location at this intersection in order for vehicles to traverse along Station Way Road and Hoffmans Mill Road in addition to traveling in a northerly direction on South Creek Road toward Baltimore Pike.

Although converting Station Way Road to a one-way south roadway requires a complete cost/benefit analysis. The Master Plan recommends that a proposed walk/bike path be constructed along Station Way Road. In order to more clearly identify the travel lane and proposed walk/bike path along Station Way Road, the Township could install textured/colored pavement or a physical delineation.

**Crosswalks:** The Master Plan recommends the following cross walk locations:

- Route 1 and Ring Road (Brandywine Battlefield State Park Entrance Drive)
- Route 1 and North Creek Road/Station Road
- Route 1 and Fairville Road/Chadds Ford Elementary School

The following are approximate costs and options for proposed cross walks and signal improvements:

APPROXIMATE COSTS AND OPTIONS FOR CROSSWALKS		
Item	Unit	Cost
Crosswalk/Countdown Signal (with APS devise)	Each	\$ 18,000.00
Signal controller cabinet	Each	\$ 20,000.00
Crosswalk signs and markings	Each	\$ 1,500.00
Raised Crosswalks	Each	\$ 10,000.00
Signage and Enhanced Crosswalk Stenciling	Each	\$ 8,000.00
Refuge Island	Each	\$ 22,000.00
Pedestrian Only Traffic Signal	Each	\$ 70,000.00
In pavement Illumination	Each	\$ 35,000.00
New signal at Baltimore Pike and South Creek Road	Each	\$ 250,000.00

The Master Plan indicates to either construct or upgrade cross walks at the three locations indicated above. Pending a review of a "crosswalk needs assessment" and other associated studies, we agree that the crosswalks should be designed with pedestrian-actuated crossing signals and crosswalk surface (colored/textured/pattern are combination of all three) to differentiate crosswalks from the road surface as well as clearly alert vehicular traffic of crosswalk areas. Although the cost to install crosswalks (as outline above) at these locations could be high, we believe that the cross walks are a necessary safety features that must be installed to alert drivers of pedestrians and to safely allow pedestrians to access the historic and scenic significance on both the north side and south side of Baltimore Pike.

## 6. Permitting

Permitting: It is estimated that the proposed walk/bike path indicated in this report will exceed 1 acre of disturbance which would require the Township to obtain an NPDES Permit from PADOT and an Erosion and Sediment Control Permit from the Delaware County Conservation District (DCCD). It is unclear at this time if a General or Individual NPDES Permit will need to be obtained. If an individual permit will be required, this is a more permit intensive permit to obtain with additional permit requirements above and beyond a general NPDES permit.

In addition, the Township will need to obtain PADOT Highway Occupancy permitting for any intersection improvements within the right-of-way of Baltimore Pike, including but not limited to upgrades to existing crosswalks and signalization, a possible new traffic signal at the intersection of Baltimore Pike and South Creek Road, proposed gateway improvements for

signage and landscaping within the Baltimore Pike median areas or adjacent roadway right-of-ways, etc.

In addition to PADEP, PADOT, DCCD permitting, the Township will need to approve land development plans to satisfy the Chadds Ford Township Ordinance Requirements. Equally, the Township will need to coordinate with PADEP, PADOT, and DCCD so that the land development plans incorporate conditions of all review agency permitting.

Other permitting/assessment that might be required would be to obtain various "general permitting" from PADEP or performing Phase 1 Environmental Site Assessments to identify potential or existing environmental disturbance or possible contamination. Although this is not anticipated, it should be mentioned given the close proximity of improvements to commercial properties, wetland areas and watercourses.

#### **7. Community Civic Space**

The Master Plan recommends that the Township investigate the possibility of a community civic space within Station Way Road right-of-way (proposed to be a one-way road). Since this is a public road, the Township could improve this road by installing a rich, textured pavement that would be historically appropriate. We agree with this option and recommend that Station Way Road be configured as a one way textured road that will accommodate community events. This would be a low to medium construction and maintenance cost to the Township.

Another option is to utilize an area, owned by the Brandywine Conservancy, adjacent to the post office on Creek Road. We previously indicated above that this area would be a potential parking area, but could also serve as a potential area to hold community events. This area could contain parking for community events, would be located very close to the Village Area on Station Way Road and would connect to proposed trails along Creek Road. In addition, a traffic light, cross walks as well as three stop signs is proposed in this area to accommodate both traffic and pedestrians. Installing a traffic light, crosswalks, signage, etc would be essential in providing traffic control and safe pedestrian passage to the Village Area and across Baltimore Pike

We believe that the cost associated with this potential community area and parking lot would be low to medium, depending on the size of the parking area, community event area and stormwater management facilities. However, the cost for the cross walks and traffic signalization would be in the range of medium to high as outlined in the Master Plan.

#### **8. Conclusion**

Our review of the Master Plan and our analysis of site features, topography, zoning classifications with consideration to all information made available, we recommend the Township appointed committee or focus group consider developing plans to create the following features:

- Construction of a walking/bicycle paths along Station Way Road, Hoffmans Mill Road, loop path between Hoffmans Mill Road and Station Way Road, South Creek Road, North Creek Road and on the South side of Baltimore Pike (from the intersection of Baltimore Pike/S. Creek Road to the intersection of Baltimore Pike/Ring Road). Please see attached plan.
- Plant medians as mutually acceptable residents and surrounding property owners
- Construct Gateway areas (with appropriate and agreed upon signage and landscaping):

- In front of the Chadds Ford Elementary School
  - S. Creek Road, just south of the Brandywine River Museum
  - N. Creek Road just north of the Chadds Ford Historical Society
  - Along Baltimore Pike, just east of the Chadds Ford Township Municipal Building and Brandywine Battlefield State Park.
  - Install various signage in the Village Area to identify paths, trails and business locations.
- Construct a parking area behind the Post Office and in the open area on the west side of S. Creek Road across from the Post Office to address overflow parking and community events.
  - Install/upgrade crosswalks at various locations on Baltimore pike, South Creek Road and North Creek Road and install a new traffic signal (at S. Creek Road and Baltimore Pike) based on appropriate traffic analysis.
  - Review and or amend current zoning ordinance requirements pending the outcome of proposed Master Plan features.
  - Secure potential funding courses to implement priorities projects
  - Coordinate with various local Townships, Counties, State Agencies, School Districts, Property Owners/Local Businesses Owners, Historical Societies and Conservancies, etc to impellent improvements that benefit the entire community.

The significant cost and length of time to secure substantial funding, obtain permit approval, perform various survey/traffic analysis as well as prepare design/construction plans to reduce lane widths and construct walking trails along Baltimore Pike would be costly and a significant undertaking, however should the Supervisor wish to proceed it should be approached as a single or "stand alone" project. We recommend proposed walking/bicycle paths listed in this report that would connection business and historic places of interest along Baltimore Pike as well as on the north and south side of Baltimore Pike without lane width reductions. This proposed path locations in this analysis would relocate proposed walking/bicycle paths away from traffic and closer to more scenic view of the Village and historic areas. The proposed path locations outlined in this analysis would complement the proposed Gateway Area planting and Village Signage.

Should the Township consider moving forward with the construction of a new boardwalk behind Hanks Place, we believe this project to be a viable project and similar to the suggested improvements along Baltimore Pike, this project due to the permitting process should be addressed as a "stand-alone" plan. An opportunity to more closely connect the environment to residents is noteworthy. We recommend that the township seek funding for the proposed walking paths/crosswalks design so that the proposed walk/bike paths/crosswalk improvements could connect pedestrians to the Brandywine Conservancy Trails, Bridge Connection Trail while the proposed signage and gateway implementation would direct visitors to the unique historic, scenic and commercial properties on both the north and south side of Baltimore Pike. The construction of the proposed boardwalk would make the Brandywine Conservancy Trail could be constructed along the north side of Baltimore Pike between Hanks Place and the Brandywine River.

To implement the Master Plan the Township will need to work closely with the Brandywine Conservancy, local business, residents as well as engineers/landscape architect to agree on specific design features and possible zoning changes and or amendments. We agree that an action committee or focus group will be instrumental during the design and implementation process as well as assisting in securing funding for the various improvements. It is too early in

the process to determine the type and extent zoning relief/revisions/rezoning/conditional use/special exception will be required. Revisions to the zoning ordinance requirements are anticipated but the extent of the revisions/relief will depend on the size and location of trails, gateway design planting/signage, location of new crosswalks /signalization, etc.

