

1.0 – Scope of Services

The overall goal of the Kennett Pike Bikeway Project is to develop a bikeway along approximately 1.7 miles of SR 0052 (Kennett Pike) between the Route 1/Kennett Pike intersection at the north end and the Pennsbury Township line at the south end. This scope of work will upgrade the existing shoulders along Kennett Pike to allow bicyclists and pedestrians safe access along this historic section of Kennett Pike, in a manner consistent with the historical, cultural and environmental setting of the project. The limits of shoulder reconstruction will extend from Hillingham Court Road to the north and Timber Ridge Lane to the south, a distance of approximately 1 mile. Minor shoulder improvements may be considered in areas outside of these limits. The design will also accommodate a proposed traffic signal at the intersection of Kennett Pike and Hillendale Road.

The following sections detail the work efforts anticipated to be required to complete preliminary and final design of the bikeway and prepare a complete Plans, Specifications, and Estimates (PS&E) package. The numbering sequence is taken directly from PENNDOT's Work Breakdown Structure (WBS) code system, which correlates with the project schedule code system. Gaps in the numbering sequence indicate areas that are not relevant to this project. Work will commence upon receipt of written notice to proceed.

2.1 - Administrative

Urban Engineers, Inc. (Urban) will provide the services and perform the tasks outlined below as noted.

2.1.1 - Project Management/Administration

Urban's Project Manager, Pasquale A. Dougherty, PE, PLS, will be responsible for the coordination of project work tasks to keep design on schedule and within budget. He will be responsible for the day-to-day management of design activities and will coordinate among individual disciplines at Urban to see that no individual portion of the work will impede the Team's overall progress. Mr. Dougherty will be the single point of contact for project communication and will coordinate the flow of information concerning the project.

Mr. Dougherty will also be responsible for maintaining coordination with involved state and federal agencies, local government bodies, and utilities. He will check that proper billing procedures and proper procedures for submissions and proposals are followed. A status report chart will be submitted with each invoice.

The Project Administrator (Principal In-Charge) will handle the project administration and will represent Urban on contractual matters. The Project Administrator for this assignment will be Joseph P. McAtee, PE, Urban's Executive Vice President. He will have ultimate responsibility for the Firm's performance and has the authority to commit additional resources, perform overview functions, review staff performance, and participate in project reviews with PENNDOT. Urban considers project administration to be part of our normal operating expenses, (i.e., part of our overhead) and is not directly billable to a project.

This assignment will be performed in compliance with Urban's ISO 9001 Certified procedures; Michael G. Leinheiser, PE, will serve as Urban's QA/QC Officer. He will provide project oversight, monitor compliance with the schedule, review designs, identify potential problems, and see that the management of this project is consistent with Urban's quality standards.

Project Management/Administration efforts are associated with preliminary work tasks and will be continued in Final Design.

2.1.1.1 - Meetings

Urban's Project Manager will attend meetings and the appropriate Team members will be present on an as-needed or as-directed basis. It is our intent to have required materials and personnel available at these meetings to facilitate the decision making process and preclude, to the greatest extent possible, the potential for any delays to the design schedule.

Urban will prepare the agenda for each meeting, and submit it to PENNDOT and Kennett Township at least five working days prior to the meeting. This will allow PENNDOT to have the appropriate personnel present for these meetings.

Minutes from each meeting will be prepared by Urban and e-mailed to PENNDOT and Kennett Township within seven (7) working days after the meeting. A follow-up action item list clearly defining the follow-up

task and identifying each party's responsibility will also be prepared by Urban and e-mailed to PENNDOT and Kennett Township within three (3) working days after the meeting.

General meetings will include:

- **Kick-off Meeting:** Prior to initiating work on the project, Urban will coordinate with PENNDOT and the Township to have a Kick-off Meeting. At this meeting, the Team will review the study area, project objectives, identify individual responsibilities, review previous studies and scoping information, review the scope of work, review potential cost control and value engineering concerns, and review the schedule. Discussions will also include the determination of the highway classification based on PENNDOT's Smart Transportation Guidebook dated March 2008.
- **Project Status/Design Review Meetings:** Urban will attend status meetings with the PENNDOT and the Township. One (1) such meeting will be held during Preliminary Design (approximately 25% plan development) and two (2) meetings are anticipated during the course of Final Design (60% and 90% plan development). Prior to each meeting, the proposed agenda for the meeting will be discussed with the PENNDOT and the Township. These meetings will address and resolve the critical issues, review the schedule, and keep everyone informed. We will seek approvals at these meetings to keep the project on track and on schedule.
- **Public Meeting:** Urban will attend one (1) public meeting as part of this project (most likely to be held at the completion of Preliminary Design). Urban will be responsible for the setup, exhibits and displays, cleanup, audio-visual equipment arrangements, recording, comments, etc. The Township will be responsible for advertising the meeting to the public. It has been assumed that additional Public Involvement will not be necessary.

Additional meetings for specific design tasks or submissions are listed under the corresponding work task.

2.1.1.3 - Quality Control/Quality Assurance

Urban's ISO 9001 Certification demonstrates that we take extreme pride in quality. This certification is the definitive standard for quality systems in design/consulting firms. It verifies that Urban's quality management systems comply with the requirements of the International Organization for Standardization. Only a few engineering firms in the region have obtained this highly sought after distinction.

Upon Notice to Proceed, Urban's Quality Manual will be reviewed and a project-specific plan developed. This project's QA/QC will address the general issues of:

- What are the roles of the various Team members?
- How will quality control be maintained throughout the project?
- Who will perform, check and approve each task?
- Who will maintain and monitor the Open Plan schedule?
- Who will maintain and monitor action items resulting from project meetings?

The ISO 9001 process will be initiated at the internal project kick-off meeting that will be attended by Urban's QA/QC Officer and the head of the departments involved in the project. At the meeting Ms. McGarrigel will present her understanding of the assignment, the project schedule, the roles of the participants, and the resources that she is allocating to this work. Constructive input will be received from those in attendance. The internal kick-off meeting will detail project communications and quantify the expectations of the participants.

2.1.1.5 - Project Schedule Development and Maintenance

Upon Notice to Proceed, Urban will prepare and submit a detailed project schedule to PENNDOT and Kennett Township in Welcom Open Plan format that includes milestone dates for each work item. Once approved by PENNDOT, this schedule will become the baseline upon which progress will be measured. Early start and late start dates will be a part of the schedule. The schedule will be updated on a regular basis and will be submitted to PENNDOT and the Township at status meetings along with a standard variance bar chart showing actual versus planned progress.

2.1.1.10 - Consultations

As discussed above, Urban will participate in meetings with PENNDOT departments or personnel on a regular or as needed basis. Meeting minutes will be prepared for the file and transmitted to both PENNDOT and Kennett Township.

2.3 - Environmental Clearance/Designation

Urban will provide the services and perform the tasks outlined below as noted.

2.3.2 - Level 1B CE

Urban will complete the Level 1B Categorical Evaluation (CE) process for the project, which began in the Planning phase, based on the development of design during the Preliminary Design. The task will consist of obtaining final environmental clearance at the conclusion of Preliminary Design.

2.4 - Preliminary Roadway Design

Urban will provide the services and perform the tasks outlined below as noted.

2.4.1 - Surveys

Urban is in receipt of the project's topographical survey performed by Gilmore & Associates (Gilmore). Gilmore has also provided field survey data. This information will be utilized to develop the Preliminary Design, and will be resubmitted electronically to Urban at the onset of Preliminary Design. No additional surveys are anticipated for Preliminary Design.

2.4.2 - Aerial Mapping

Aerial Mapping was performed by Gilmore. It has been assumed that no further mapping will be required for design development.

2.4.3 - Preliminary Drainage Design

Urban will design a conceptual storm drainage layout in Preliminary Design. Urban will include the preliminary layout of inlets, pipes, drainage ditches and major drainage structures on the Safety Review plans.

2.4.4 - Storm Water Management Design

Due to the nature of the project, it has been assumed that Stormwater Management facilities will not be required.

2.4.5 - Cross Sections

It has been assumed that the Digital Terrain Model (DTM) from which cross sections may be cut, will be provided to Urban at the Kick-Off meeting by Gilmore & Associates, Inc.

Urban will develop preliminary cross sections at a scale of 1"=10', horizontal and vertical, at approximately 100-foot intervals during Preliminary Design. The cross sections will assess the adequacy of the Preliminary Design, impacts to drainage controls and existing structures, and assist in the estimation of earthwork quantities. A cross section title sheet, providing number of cross section sheets in the package, will be provided. The cross sections will be prepared for inclusion in the Safety Review submission in accordance with PENNDOT Publication 10A, Design Manual 1A.

2.4.6 - Line and Grade

After identifying environmental and property constraints, Urban will develop the horizontal and vertical geometry in accordance with PENNDOT Publication 13M, Design Manual 2 will be included in the Safety Review submission. Horizontal and vertical curve data, sight distances, transitions, and vertical clearances will be shown. Project control point coordinates for roadways will be tabulated and shown.

2.4.7 - Typical Sections

Urban will develop typical sections by station limits for the shoulder widening along SR 0052 roadway area in accordance with the criteria outlined in PENNDOT Publications 13M, Design Manual 2 and 14M, Design Manual 3. Any special edge treatments that may have been considered to reduce the length of utility relocation that may be necessary will be incorporated in the typical sections.

Urban will include the following information on each typical section, as applicable:

- Pavement widths, approximate depths and cross slopes
- Shoulder type, width, depth and cross slope
- Embankment and cut slopes
- Swales and contiguous gutters
- Sub-base drainage treatment

- Guide rail
- Profile grade point
- Centerline and baselines
- Base course and sub-base widths and approximate depths
- Seeding treatments and landscape improvements

2.4.9 - Preliminary Pavement Design

It has been assumed that a Pavement Design will not be required for this project. PENNDOT Standards for Roadway Construction (PENNDOT Publication 72M) will be used in developing the appropriate shoulder type.

2.4.10 - Design Field View

It is our understanding that a formal Design Field View submission is not required for this project. Rather, Preliminary Design will conclude at the Safety Review submission.

However, Urban will conduct a design field view walk at the end of the Preliminary Design and within several weeks of the Safety Review submission to evaluate the proposed design under field conditions. Comments will be solicited from PENNDOT and the Township in order to further project development. Minutes of the field view will be distributed within seven (7) working days. At this point, we anticipate Preliminary Design approval from PENNDOT.

2.4.10.1 - Submission Development

A Safety Review submission will be prepared in accordance with PENNDOT Publications 10M, Design Manual 1A; 13M, Design Manual 2; 14M, Design Manual 3, and the SOP for Design Field Views as contained in SOL 432-01-01. The plans will be prepared at a scale of 1"=25', using English Units.

The Safety Review submission for the preferred alignment will include the following:

1. Line and grade
2. Preliminary signing and pavement marking layout
3. Typical sections
4. Approximate pavement depth
5. Preliminary traffic control plan
6. Drainage
7. Utilities
8. Preliminary construction costs

Preliminary quantity take-offs will be performed under this task

The submission will also include the following two (2) reports:

1. Design Criteria Report (Developed under this task).
2. Confidential Safety Study (Work performed under Task 2.8.1)

Urban will attend and prepare the material required for the Safety Review submission. Subsequent to the meeting, Urban will prepare and distribute meeting minutes and will respond to comments made during PENNDOT'S Safety Review.

2.4.10.2 - Design Field View Approval

It is our understanding that a formal Design Field View submission is not required for this project. Rather, Preliminary Design will conclude at the Safety Review submission. However, we anticipate receiving Preliminary Design approval after a Design Field View Walk is performed.

2.4.10.3 - Mass Diagrams

Due to the size of the project, earthwork diagrams are not anticipated

2.4.10.4 - Design Exceptions

Urban does not anticipate any Design Exceptions for this project.

2.4.10.5 - Preliminary Erosion and Sedimentation Pollution Control Plans/NPDES Permit

Urban will develop the preliminary Erosion and Sedimentation Control Plan in accordance with PENNDOT Publication 13M, Design Manual 2, the SOP for Erosion and Sedimentation Control Plan as contained in SOL 432-01-01, and the Pennsylvania Department of Environmental Protection (PADEP) Title 25 PA Code Chapter 102. The detailed requirements of Chapter 102 are contained in the Erosion and Sedimentation Control Program Manual (March 2000). The preliminary Erosion and Sedimentation Control Plan will be submitted to the Chester County Conservation District for review. Urban anticipates that one (1) meeting will be required during Preliminary Design with the Chester County Conservation District to discuss the submitted preliminary plan.

The preliminary Erosion and Sedimentation Control Plan will be prepared from base mapping provided to Urban and will include proposed erosion and sedimentation control facilities.

2.5 - Geotechnical

Urban will provide the services and perform the tasks outlined below as noted.

2.5.2 - Preliminary Geotechnical Engineering Report

It is Urban's understanding that Geotechnical investigations will not be required for this project.

2.6 - Preliminary ROW

Urban will provide the services and perform the tasks outlined below as noted.

2.6.1 - Preliminary ROW Activities

It is Urban's understanding that Right-of-Way plan development will not be required for this project. It is also understood that existing Right-of-Way and property lines and property ownership will be conducted by Gilmore & Associates, Inc. and provided to Urban electronically at the onset of Preliminary Design.

2.8 - Preliminary Traffic

Urban will provide the services and perform the tasks outlined below as noted.

2.8.1 - Data Collection and Analysis

Urban will conduct morning and afternoon peak period traffic counts at the intersections of SR 0052 with either Hillendale Road or PA 1. Pedestrians and bicycles will be counted separately. An automatic traffic recorder count will be conducted for a seven (7) day period on SR 0052 between PA 1 and Hillendale Road. From this data, Urban will prepare projected traffic volumes as needed for the title sheet and the Design Criteria Report.

Urban will conduct a level of service analysis of the project corridor for the Design Criteria Report.

Urban will also prepare the Confidential Safety Study Report, based on the most recent three year crash data to be obtained from PennDOT.

2.8.2 - Preliminary Maintenance and Protection of Traffic

Urban will develop a maintenance and protection of traffic scheme for the project area. The scheme will take into account the need to maintain traffic as well as allowing the contractor access to the work area. The conceptual maintenance of traffic scheme will be coordinated with PENNDOT's Traffic Unit and Kennett Township.

Once the concept has been approved, it will be developed into a Preliminary Traffic Control Plan and Narrative showing the intended improvements, staging of construction, signing, placement and types of barriers, lane restrictions, and work hour restrictions. The plan will be prepared in accordance with PENNDOT Publications 203M, Work Zone Traffic Control; 14M, Design Manual 3; the SOP for Traffic Control Plan as contained in SOL 432-00-07; and the Manual on Uniform Traffic Control Devices (MUTCD).

2.8.4 - Preliminary Pavement Marking and Signing Plan

A preliminary pavement marking and signing plan will be developed in accordance with PENNDOT Publication 14M, Design Manual 3, the Manual on Uniform Traffic Control Devices (MUTCD), Traffic Standards (TC 7600 Series) and Publication 68 with guidance from the Pavement Marking Handbook.

The plan will indicate lane delineations, cross walks, pavement marking legends, paint types and colors. Pavement markings will be shown either with a typical detail or individually detailed as necessary to clearly convey the design. The plan will also indicate existing signs and proposed regulatory, warning, and destination signs including the type of sign supports for review and approval by PENNDOT.

It has been assumed that no major sign structures or signs, other than those outlined above, will be required for this project. Consequently, no sign structure lighting will be required.

2.9 - Preliminary Utilities

Urban will provide the services and perform the tasks outlined below as noted.

2.9.1 - Utilities

Urban will coordinate with the utilities, in accordance with PENNDOT Publication 16M, Design Manual 5. It is Urban's understanding that a PA Act 287 (PA One-Call) has been performed for this project by Gilmore & Associates, Inc. and all utilities that have been sent to Gilmore & Associates by the utility companies have been placed on the mapping provided.

2.9.1.5 - Utility Coordination

Urban will coordinate with the utility company representatives throughout the duration of this project. Urban will compare its list of addresses and contacts with the list maintained by PENNDOT and the Chester County Recorder of Deeds.

PENNDOT's addresses will be used for subsequent contacts and correspondence. Close contact will be maintained with the utility companies during Preliminary Design so that potential conflicts can be determined and resolved as early as possible. Urban will obtain information during this phase relative to restrictions that the utilities may have regarding construction in proximity to their facilities.

Coordination efforts under this task will consist of the following:

1. Urban will begin its coordination with the utilities by issuing them a project notification letter.
2. Urban will provide PENNDOT copies of correspondence, memorandums, meeting minutes, and telephone conversation reports with utilities.
3. Urban will request, from the utilities, copies of existing facility location record information for underground installations. This information will be used to prepare utility relocations, if necessary.
4. Urban will distribute this plan to the utilities for their verification of the Type, Size & Location of the facilities shown. Revisions, additions or deletions resulting from the verification comments will be incorporated in the base plans.
5. Form D4181X, (bridge occupancy forms) will not be necessary for this project.
6. Early in the project, Urban will hold a utility coordination meeting with representatives of the involved utilities and PENNDOT's Utility Unit. At this meeting, Urban will explain the project's improvement goals, design schedule, and targeted utility clearance dates.
7. Upon approval by PENNDOT, Urban will coordinate utility relocation efforts with each utility company impacted by the project.

2.10 - Final Design

For Final Design, Urban will provide the services and perform the tasks outlined below as noted.

2.10.2 - Roadway

Urban will finalize roadway and drainage designs, develop plans and cross sections, prepare for and attend the final design office meeting, and draft special provisions as outlined below.

Included in this task will be the development of Draft Special Provisions for review during the Final Design Office Meeting. Urban will submit the specifications for the Plans Check review by PENNDOT. If changes are necessary to a standard special provision, Urban will write an individual special provision. If necessary, we will seek review and approval of proprietary and experimental items in special provisions. We will submit special provisions to PENNDOT, municipalities, utilities, and other authorities for review as appropriate.

2.10.2.1 - Final Drainage Design

Subsequent to receipt of Design Field View comments, Urban will proceed with the Final Design of the proposed storm drainage facilities on this project. Drainage areas will be finalized, pipe sizes determined, drainage ditches sized and located, and cost estimates prepared. The roadway drainage system will be designed in accordance with the criteria outlined in PENNDOT Publication 584, 2008 Drainage Manual.

2.10.2.3 – Roadway Plan

Urban will prepare the final design of roadway items in accordance with the requirements of PENNDOT Publication 13M, Design Manual 2 and plan preparation will be in accordance with PENNDOT Publication 14M, Design Manual 3.

Detailed roadway plan and profile sheets will be prepared at scales of 1"=25' horizontal and 1"=5' vertical. Larger scale drawings will be prepared as necessary to clarify design details and clearly show intent.

This sub-task includes work required to finalize the horizontal and vertical alignments of the roadway as approved at the conclusion of Preliminary Design. It includes such items as the final calculation of curve data, transitions, and shoulder transitions. A matrix of project control coordinates (P.C., P.I., P.T., T.S., S.C., C.S., S.T., P.O.C., P.O.T., begin and end work stations) will be included.

2.10.2.4 - Final Design Office Meeting

Urban will attend the Final Design Office Meeting for this project and will respond to comments on the project designs and specifications. After the meeting Urban will address the comments received and provide revisions to the Plans and Specifications as required.

2.10.3 - Supplemental Surveys

Additional field data will be obtained from Gilmore & Associates, Inc. as requested by Urban. This may include, but not limited to, additional cross section areas, railroad rail elevations and profiles, and upgrade of mapping for topography edit. Project monitoring from the Preliminary Design phase will be re-established including baseline check points and benchmarks. New topography will be obtained of areas that have changed since the Preliminary Design phase. The survey data, including copies of field books, plots, CADD files, cross sections, and final topography, will be checked, sealed by a registered surveyor, and delivered to PENNDOT, if requested.

As part of the final surveys, Urban will establish and record final benchmarks and references for construction stake out.

2.10.4 - Cross Sections

Urban will prepare Final Design cross sections at 50-foot intervals to adequately depict the design. Cross sections will be prepared in accordance to PENNDOT Publication 14M, Design Manual 3. Cross sections will be prepared and plotted at a scale of 1"=10' horizontally and vertically.

Match lines will be established through intersection areas to adequately depict the proposed construction and to facilitate the computation of earthwork quantities. If necessary, a separate plan sheet(s) will also be prepared showing the layout of the matchlines for earthwork.

The roadway cross sections will show the construction and survey baselines (if they differ), existing and proposed pavement sections, drainage and utilities, pavement base drains, and earthwork quantities. A cross section title sheet, providing number of cross section sheets in the package, will also be provided.

It is assumed that no special geotechnical recommendations will be provided as a Geological Engineering Report (GER) is not required for this project.

2.10.5 - Final Right-of-Way Plan

Right-of-Way acquisition is not anticipated for this project.

2.10.8 - Utility Engineering

Urban will provide the services and perform the tasks outlined below as noted.

2.10.8.1 - Utility Coordination

Urban will finalize the coordination begun with the public utility company representatives during Preliminary Design throughout the Final Design.

Utility Coordination Items 1 through 7 will be performed during Preliminary Design.

8. Urban will transmit copies of project Preliminary Design plans, profile and cross sections to the utility companies for relocation engineering design, cost estimate and reimbursement agreement application package preparation.
9. Urban will continue to update utility companies on design changes made during the final construction plan preparations which could impact existing or planned utility facilities.
10. Urban will incorporate utility relocation, abandonment and removal information onto the roadway construction plans, based on plans and information received from the utility company.
11. Urban will schedule and conduct a utility meeting to review the proposed utility route matrix and resolve any outstanding design, conflict or schedule problem issues.
12. Urban will incorporate utility work to be performed by the PENNDOT contractor into the project construction package.
13. Urban will obtain utility working day schedules and form D-419, Utility Clearance.
14. Urban will complete and execute utility related permits.
15. At PENNDOT's direction Urban will request utility representative attendance at the pre-bid, pre-construction, and construction status meetings.

2.10.14 - Traffic Control Plan

Urban will prepare final traffic control plans along with a narrative describing the sequence of construction for work areas encompassed by this project. The final traffic control plans will be based on the concepts developed during the Preliminary Design phase and comments received at the Safety Review Meeting.

Final traffic control plans will be developed at an appropriate scale for each stage and sub-stage of construction. The plans will show the work being performed under each stage as well as the work that has already been prepared in previous stages. Required traffic control devices, signs, temporary pavement markings and a narrative describing each stage of construction will be incorporated into the plans. Typical sections will be included to show the staging of work required to perform construction. Phasing schemes, sign messages, and approximate locations of signs and traffic control devices should be approved at the Safety Review stage prior to the development of the final plans.

Urban recommends that the final traffic control plans be prepared as sheets in the final PS&E submission.

Tabulation sheets indicating the quantities required for each item in each stage will be prepared. Special provisions for traffic control will be prepared and incorporated into the project special provisions.

2.10.16 - Pavement Marking and Signing Plans

This task will include both Pavement Marking and signing plan finalization.

Urban will develop final pavement marking and signing plans in accordance with the applicable provisions of PENNDOT Publication 68, Regulations Governing the Design, Location and Operation of All Official Traffic Signs, Signals and Markings On and Along Highways within the Commonwealth of Pennsylvania (Title 67), PENNDOT Publication 236, Handbook of Approved Signs, and the MUTCD.

The final pavement marking and signing plans will indicate lane delineations, cross walks, pavement marking legends, paint types and colors, existing signs and proposed regulatory, warning, and destination signs including the type of sign supports for review and approval by PENNDOT. Pavement markings will be shown either with a typical detail or individually detailed as necessary to clearly convey the design.

Urban recommends the final pavement marking and signing plans be included as sheets in the final PS&E submission.

Tabulation sheets indicating the quantities required for each item in each stage will be prepared. Special provisions for traffic control will be prepared and incorporated into the project special provisions.

2.10.25 - Erosion and Sedimentation Control Plan/NPDES Permit

Urban will develop the Erosion and Sedimentation Control Plan in accordance with PENNDOT Publication 13M, Design Manual 2 and the Pennsylvania Department of Environmental Protection (PADEP) Title 25 PA Code Chapter 102. The detailed requirements of Chapter 102 are contained in the Erosion and Sedimentation Control Program Manual (March 2000). The Erosion and Sedimentation Control Plan will be submitted to the Chester County Conservation District for review.

Upon completion of the conceptual Erosion and Sedimentation Control Plan developed in Preliminary Design, Urban will begin the permitting process. Based upon the limited amount of anticipated earth disturbance and new work, it is anticipated that the project will meet the qualifications for use of a Statewide General Permit. Urban anticipates that one (1) meeting will be required during Final Design with the Chester County Conservation District and PADEP to discuss the submitted plans. The design concepts will include recommended erosion and sedimentation controls, and the required Erosion and Sedimentation (E&S) Control Plan Narrative. At this point, we will also begin the required Act 14, Act 67/68 and Act 537 Notification process. Compliance with the notification requirements of these three Acts is necessary prior to approval of the NPDES permit.

At the 60% level, the required Erosion and Sedimentation Control Plan Sheets along with the actual permit documents will be submitted to the Chester County Conservation District for approval. The permit application will include required calculations and worksheets documenting the project's compliance with current standards.

2.10.29 - Assemble Final Project Documents for Contract Management

Work under this task will consist of the completion and finalization of roadway design items and construction plans not specifically described elsewhere in this proposal but necessary and essential to provide a complete PS&E package. This task includes all necessary input of project documentation into PENNDOT's Construction Management System (CMS) software.

Urban will also prepare, check, and deliver the final PS&E package following applicable sections of Publication 51, "Contract Proposal Preparation Guide". This package will incorporate comments made during the final plans check and will include the following:

1. Roadway Construction plans:
 - Title sheet
 - Index/General Notes sheet
 - Typical section sheet (location map and general notes)
 - Special detail sheets
 - Summary of quantities sheets
 - Tabulation of quantities sheets
 - Detail plan sheets (Work performed under Task 2.10.2.3)
 - Profile sheets (Work performed under Task 2.10.2.3)
 - Required forms, special provisions and estimates
2. Erosion control plans (Work performed under Task 2.10.25)
3. Traffic control plans (Work performed under Task 2.10.14)
4. Pavement marking & signing plans (Work performed under Task 2.10.16)
5. Cross sections (Work performed under Task 2.10.4)
6. Special provisions (Work performed under Task 2.10.2.4.2)
7. Form D-407, construction cost estimate (Work performed under Task 2.10.29.6)
8. Form D-476, distribution of contract time (Work performed under Task 2.10.29.7)
9. Form D412-A, earthwork calculations (Work performed under Task 2.10.4)
10. Design computations

Urban will follow the PS&E submission checklist as assembled by PENNDOT's Contract Management Unit. A justification will be provided for lump sum items as well as back up for major unit prices.

2.10.29.3 - Final Pre-Bid Constructability Review

Urban will provide PENNDOT's Project Manager with pre-final plans for submission to the PENNDOT Construction Unit for review and comment prior to submitting the PS&E to Contract Management.

2.10.29.5 - Bid Proposal

Urban will prepare the documents necessary to provide a contract bidding proposal in accordance with Publication 51M. The contract bidding proposal will include the following:

- Contract title page indicating project location; bid opening date, CMS No., MPMS No., Federal Project No. when applicable, State project No.; location and time of deposit of proposals, prequalification if required, and contact person.
- Description of the project including location; length of project; major items of work; and date of project competition.
- Project schedule calculated using calendar days. (Included in Task 2.10.29.7)
- Special provisions required for the project will be listed in the proper PENNDOT format, including standard special provisions, and project specific special provisions.
- Supplemental specifications will be referenced to the latest quarterly numbered change package to Publication 408.
- Structure drawings will be listed as type, station, drawing number, and recommended date of acceptance.
- Standard statement on purchasable items as to location and telephone number for prospective bidders to obtain necessary documents.
- Schedule of prices will be prepared showing item number with prequalification work classification code, approximate quantity, item and unit prices bid and item total extension in dollars and cents. Projects let through PENNDOT's CMS system will automatically generate this schedule of prices from the estimate inputted in the system. (Included in Task 2.10.29.6)
- Component item schedules will be developed for each lump sum bid structure in the contract.
- Bidder signature pages will be prepared and included in the bid proposal.
- A notice of bidders will be prepared indicating location of project, time of close-out, and items of work with approximate quantities.
- An index will be prepared listing special provisions, bid schedules of prices, component item schedules, and attachments.

2.10.29.6 - Engineer's Estimate

Urban will develop an item list and take-off quantities for the project.

Urban will prepare a construction cost estimates at the 60%, 90%, and again just prior to the PS&E submission. The cost estimates will follow the D-407 format and will be prepared utilizing the following resources:

- Unit costs on similar projects (recently bid projects along the corridor)
- Review of local contractors' present workloads
- AGC cost data
- Discussion with suppliers
- Review of local contracting means and methods

2.10.29.7 - Construction Schedule

As part of the final PS&E submission, Urban's Construction Management staff will prepare a construction CPM schedule. The schedule will be prepared using Welcom Open Plan.

2.10.29.9 - QA Items of Work

This assignment for Final Design of a bicycle path along SR 0052, Section KNT, will be performed in compliance with Urban's ISO 9001 procedures as directed by Urban's QA/QC Officer; Michael G. Leinheiser, PE. He will provide project oversight, monitor compliance with the schedule, review designs, anticipate problems, and see that the management of this project is consistent with Urban's quality standards.

2.10.29.14 - Addenda Development

Urban will prepare any required addendum to the bidding process, which would include any corrections, deletions or additions to the proposal as well as any changes to the contract drawings. The addendum will be transmitted to the Bureau of Design for issuance to contractors who are on the official list of bidders.