



2014 PSPE Philadelphia Chapter
Outstanding Engineering Achievement
Award Nomination

*Route 29 Roadway Improvement Project
SR 0029, Section AL2*

Charlestown Township, Chester County, PA

Nomination Form

**PSPE PHILADELPHIA CHAPTER
OUTSTANDING ENGINEERING ACHIEVEMENT AWARD NOMINATION FORM – 2014/2015**

Project Information:

Name of Project:

Route 29 Roadway Improvement Project - SR 0029, Section AL2

Location of Project:

Charlestown Township, Chester County, PA

Description of Project, Include specific details (use two additional pages if necessary):

See Attached

Construction Cost: \$\$4.28M Completion Date: 11/18/14 Project or component must be complete in ~~2013~~ 2014

Primary Engineering Disciplines Represented by the Project (check those that apply):

Mechanical _____; Electrical _____; Civil X; Structural _____; Chemical _____

Organizations/Firms That Contributed to the Project and are Responsible for the Achievement (provide additional sheets as required):

Names: See Attached Phone: _____

Address: _____ Email: _____

Contact Person: _____ Title: _____

Client/Owner:

Names: _____ Phone: _____

Address: _____ Email: _____

Contact Person: _____ Title: _____

Submitted by:

Firm/Organization: Traffic Planning and Design, Inc. (TPD) Phone: 610.326.3100

Signature:  Email: RProphet@TrafficPD.com

To be Presented on December 2nd by: Robert Prophet, P.E.

Email RProphet@TrafficPD.com Cell Phone: 610.999.2610

A \$50 Entry Fee is required and is to be submitted with the Nomination Form.

The entry fee is to be made payable to PSPE, Philadelphia Chapter.

Nomination is due: November 15, 2014 Presentations: Thursday, December 4 2014

Send by Email or Fax Nomination to: oea@pspe-philly.org or 215-885-3732

Payment of the Application Fee may be check or by credit card.

To pay by credit card, click to [PAYPAL BUYNOW](#) button on our website <http://www.pspe-philly.org/oea/entryfee.htm>

To pay by check please mail to:

Fredric L. Plotnick, Ph.D., Esq., P.E. Chairman, Outstanding Engineering Achievement Awards

101 Washington Lane, Jenkintown, Colonade Manor #117, PA 19046 Phone: 215-885-3733, Fax: 215-885-3732,

email: oea@pspe-philly.org or oea@fplotnick.com or fplotnick@fplotnick.com

Project Team

Contributing Firms

Name: Traffic Planning and Design, Inc. (TPD)
Address: 2500 E. High Street, Suite 650, Pottstown, PA 19464
Contact Person: Robert Prophet, P.E.
Phone: 610.326.3100
Email: RProphet@TrafficPD.com
Title: Principal, Highway Design Group

Name: Chester Valley Engineers
Address: 83 Chestnut Road, Paoli, PA 19301
Contact Person: David Shula, PLS
Phone: 610.644.4623
Email: David@chesterv.com
Title: Senior Associate

Name: Advanced Geoservices, Inc.
Address: 1055 Andrew Drive, Suite A, West Chester, PA 19380
Contact Person: Paul Marano
Phone: 610.840.9142
Email: pmarano@advancedgeoservices.com
Title: Project Manager

Name: CHRS, Inc.
Address: 451 North Cannon Ave., Suite 100B, Lansdale, PA 19446
Contact Person: Ken Basalik
Phone: 215.699.8006
Email: kbasalik@chrsinc.com
Title: President

Name: Allan A. Myers
Address: 1805 Berks Road, Worcester, PA 19490
Contact Person: Roger Price
Phone: 610.960.3035
Email: roger.price@aamyers.com
Title: Project Manager

Client/Owner:

Name: Trammell Crow Company
Address: 300 Conshohocken State Road, Suite 250, W. Conshohocken, PA 19428
Contact Person: Barry Henry
Phone: 484.530.4706
Email: bhenry2@trammellcrow.com
Title: Project Manager

Name: PennDOT District 6-0
Address: 7000 Geerdes Boulevard, King of Prussia, PA 19406
Contact Person: Steve Fellin
Phone: 610.205.6871
Email: sfellin@pa.gov
Title: Project Manager

Name: Pennsylvania Turnpike Commission
Address: 700 South Eisenhower Boulevard, Middletown, PA 17057
Contact Person: Gary Graham, P.E.
Phone: 717.939.9551
Email: ggraham@paturnpike.com
Title: Assistant Chief Engineer - Design

Project Description

Project Overview

The Route 29 Roadway Improvement Project (S.R. 0029, Section AL2) is located in Charlestown Township, Chester County, PA, approximately two miles north of Route 202. The project limits extend along Route 29 from Yellow Springs Road (southern limit) to approximately 1,000 feet north of Charlestown Road (northern limit). The area consists of a mix of residential, commercial, industrial and office building related properties and serves as the cross roads of several major roadways, including Route 29, Yellow Springs Road, Phoenixville Pike, Whitehorse Road and Charlestown Road.

The Route 29 corridor serves as the major connector route between the Great Valley Corporate Center, Atwater Corporate Center, Route 202 and the PA Turnpike Route 29 Slip Ramp to the south and various residential communities, including the Borough of Phoenixville, to the north. As a result, Route 29 carries approximately 15,000 vehicles per day, with the majority of traffic travelling south in the AM direction and north in the PM direction. Due to these high volumes and directional splits, the signalized intersections at Route 29/Charlestown Road, Route 29/Whitehorse Road and Route 29/Yellow Springs Road experience significant traffic delays during both the AM and PM Peak Hours. ***The purpose of the project was to alleviate the traffic delays by widening the roadway for additional through lanes and turning lanes and to improve the operation of the traffic signal equipment.***

This roadway improvement project involved the widening of Route 29 to provide for an additional northbound and southbound through lane and additional turning lanes. The project also included widening along Charlestown Road to provide for an additional northbound and southbound through lanes and widening along Yellow Springs Road to provide for a dedicated right turn lane. Additional improvements included the installation of four stormwater management facilities, the addition of a sidewalk along northbound Route 29, the upgrade of the traffic signal

equipment along the Route 29 corridor, ADA accommodations, and the addition of five-foot wide shoulders/bicycle lane.

Another portion of the project included the upgrade of the traffic signal equipment along the Route 29 corridor. This upgrade involved complete traffic signal upgrades at three intersections and fiber optic interconnection between these and two additional intersections to provide for an Ethernet based communications system. This system provides remote monitoring and operation of the traffic signal system via communication with the PennDOT District 6-0 Traffic Management Center and East Whiteland Township Traffic Control Center.

Rising to the Challenge

Several engineering challenges were overcome via innovative solutions developed by the project team. The most critical feature to the project involved the management of additional stormwater discharged to the Valley Creek and Pickering Creek watersheds due to the increase in impervious area. Of note, Valley Creek is classified as an Exceptional Value waterway, thus it has very stringent requirements with respect to stormwater management and mitigation. The Route 29 project had just over 15 acres of earth disturbance with an increase of stormwater runoff for all storm events. To reduce the volume and rate increases, a total of four stormwater mitigation sites were established. The sites were designed as bio-retention areas as the geotechnical testing results would not allow for proper infiltration.

TPD developed an innovative solution for the bio-retention areas which utilized amended soils and a subsurface stone storage layer to retain the stormwater during storm events. This allowed the stormwater to mostly be stored underground while a combination of infiltration, evaporation and transpiration removed the water from the

project area. One of the other key features on the project was providing for pedestrian accommodations along Route 29 between Yellow Springs Road and a planned Traditional Neighborhood Development (TND) along Whitehorse Road. TPD developed a sidewalk design and barrier system to allow safe pedestrian access under the PA Turnpike Structure. The design allowed for pedestrians to safely cross under the PA Turnpike while still providing adequate capacity for the vehicular traffic.

Another key feature to the project was the coordination with the various stakeholders. This project was completed as part of a public private partnership (P3) in which the private entity was responsible for funding engineering and the public entities were responsible for construction. For this project, the engineering was funded by the Trammel Crow Company through the development of the Atwater Business Park just to the south of the project. PennDOT and the PA Turnpike were jointly responsible for funding the roadway construction, utility relocations and right-of-way acquisitions. Charlestown Township was responsible for funding the lighting and signing upgrades to blend in with the proposed TND. In addition, a local developer (J. Loew Associates) was responsible for signing and pavement upgrades associated with an adjacent residential development, which was constructed concurrently with the Route 29 improvements. During the project, TPD was responsible for coordination with all entities to ensure a seamless project was delivered. Multiple funding sources and stakeholders can often complicate a project. TPD has become quite familiar with deriving success from these complex situations. ***Due to the Team's extensive and close coordination with local stakeholders and the innovative design features that were used on the project, the overall construction cost came in approximately \$700,000 under budget.***

The final key feature for the project was the extensive utility involvement. Within the project limits, there were multiple underground and aerial utilities, including PECO Electric, PECO Gas, Verizon, Comcast, Aqua

Pennsylvania and Buckeye Pipeline. TPD coordinated with each of the utilities and developed a design which was able to minimize underground and aerial utility relocations. In addition, the project involved the removal of abandoned Norfolk Southern railroad tracks which crossed Route 29 just north of Whitehorse Road.

Conclusion

In addition to providing the multiple project owners with significant cost savings, there were several other positive outcomes of this project. While this corridor's primary user is the motorist, the widening of the shoulders and implementation of sidewalks and ADA ramps have better accommodated multi-modal users, in turn creating a more walkable, pedestrian-friendly environment. With the completion of the project, traffic queuing along Route 29 and the adjacent side roads has significantly decreased, due to the roadway and signal upgrades. ***This has allowed for increased mobility within the region for the motorists who utilize this corridor to access the business parks and the PA Turnpike Slip Ramp.*** In addition, the improvements have allowed for the advancement of the TND which has been planned by Charlestown Township officials.

Project Photos









