

RESOLUTION
of the
BOROUGH OF NEW PROVIDENCE
Resolution No. 2020-181

Council Meeting Date: 08-17-2020

Date Adopted: 08-17-2020

TITLE RESOLUTION AUTHORIZING PROFESSIONAL ENGINEERING
SERVICES OF ARORA AND ASSOCIATES, P.C. FOR SAFE ROUTES
TO SCHOOL DESIGN ASSISTANCE

Councilperson Cumiskey submitted the following resolution, which was duly seconded by Councilperson Matsikoudis.

WHEREAS, the Borough of New Providence has a need to acquire engineering services to assist in design services for 2018 Safe Routes to School Grant; and

WHEREAS, the New Jersey DOT has approved three (3) engineering firms to provide design assistance to Safe Routes to School Grant recipients; and

WHEREAS, Arora has submitted a proposal dated July 20, 2020 indicating they will provide preliminary engineering services, final design services and construction support services for the 2018 Safe Routes to School Grant project, for an total amount not to exceed \$336,246.29; and

WHEREAS the Borough Administrator recommends approving the proposal, dated July 21, 2020, submitted and approved by NJDOT, on July 23, 2020 for professional engineering services; and

WHEREAS, the maximum amount of the proposal is not to exceed \$336,246.29 will be paid through the grant, account G-02-40-748-020-370100.

NOW THEREFORE BE IT RESOLVED by the Mayor and Borough Council of the Borough of New Providence they approve the proposal for professional engineering services submitted by Arora and Associates, P.C., dated July 21, 2020, in an amount not to exceed \$336,246.29, to perform 2018 Safe Routes to School Grant design assistance.

APPROVED, this 17th day of August, 2020.

RECORD OF VOTE

	AYE	NAY	ABSENT	NOT VOTING
CUMISKEY	X			
DESARNO	X			
GEOFFROY	X			
MATSIKLOUDIS	X			
MUÑOZ	X			
ROBINSON	X			
MORGAN			TO BREAK COUNCIL TIE VOTE	

I hereby certify that the above resolution was adopted at a meeting of the Borough Council held on the 17th day of August, 2020.

Wendi B. Barry, Borough Clerk



SURINDER S. ARORA, P.E.
President

ARORA and ASSOCIATES, P.C.

1200 Lenox Drive, Suite 200, Lawrenceville, NJ 08648
(609) 844-1111 • Fax (609) 844-9799
e-mail: arora@arorapc.com • <http://www.arorapc.com>

July 21, 2020

Douglas R. Marvin, Borough Administrator
Borough of New Providence
360 Elkwood Avenue
New Providence, New Jersey 07974

Ref: NJDOT Safe Routes to Schools Design Assistance Program
Allen W. Roberts Elementary School, Salt Brook Elementary School, New Providence Middle School
Borough of New Providence, Union County

Administrator Marvin,

Arora and Associates, P.C., is pleased to submit this revised Scope of Work and Cost Proposal for Preliminary Engineering, Final Design and Construction Support Services for the above referenced project.

NJDOT Local Aid has approved the costs associated with this revised proposal. If the Borough of New Providence also finds the revised proposal acceptable, we may move forward and execute an agreement to begin the Preliminary Engineering phase.

Please do not hesitate to contact me at (609) 482-2664 should you have any questions or concerns.

Kind regards,

ARORA and ASSOCIATES, P.C.

David Hutchinson, PE
Project Manager

Enclosures

C:\Users\dhartman\Desktop\1657-02 - Doug Marvin - Proposal Cover Letter 07-21-20.docx

NJDOT Safe Routes to Schools Design Assistance Program
Allen W. Roberts and Salt Brook Elementary Schools, New Providence Middle School
Borough of New Providence, Union County
Scope of Work
July 21, 2020

PROJECT SCOPE

Arora and Associates, P.C. (Arora) will perform the Preliminary Engineering, Final Design, and Construction Support phase services to execute the Safe Routes to Schools improvements in the vicinity of the Allen W. Roberts and Salt Brook Elementary Schools and New Providence Middle School.

This scope of work is based on the grant application prepared by the Borough of New Providence in 2018, including the problem statement and map of the surrounding area with highlighted improvement areas, entitled, "SRS-I-2018-NEW PROVIDENCE, BOROUGH-00052, LOCATION MAP, BOROUGH OF NEW PROVIDENCE, UNION COUNTY, NEW JERSEY", dated August 8, 2018. A kickoff meeting and field visit was held with New Providence and NJDOT officials on March 3rd, 2020 to discuss the potential areas of concern and refine the scope. This proposal is broken into the three phases, Preliminary Engineering (PE), Final Design (FD) and Construction Support (CS) and follows the latest NJDOT activity task descriptions.

The project area is comprised of three distinct areas that are to receive new sidewalk, curb, and other ADA improvements as needed to provide continuous, accessible routes between the various schools noted and the local neighborhoods and community facilities. Specifically, as follows:

- South Street (C.R. 647): South Street between Oakwood Drive to Woodland Road is highly traveled, with poor sight distance contributing to a high crash rate. New sidewalk is proposed along the east side of South Street to keep pedestrians from attempting to cross the road, replacing existing sidewalk that is in poor condition and adding sidewalk where gaps now exist. Sidewalk proposed at the edge of the roadway may require tree removal and cut slopes, with every effort made to avoid right-of-way (ROW) acquisitions where feasible. Narrowing the existing eight-foot shoulder will be investigated if the County allows it. Two new curb ramps will be provided at Oakwood Drive and one at Woodland Road, while the recently replaced curb ramps at Oldwood Drive (two) and Woodland Road (one) will be evaluated for ADA compliance and redesigned as needed. Crosswalks will be restriped at all three sidestreets and driveway pedestrian crossings shall be designed at a 2% maximum grade for ADA compliance. Additional proposed sidewalk will replace an existing worn path and extend the accessible route southeast from Oakwood to the parking lot of the Faith Lutheran Church, where a new curb ramp will be constructed.
- Laurel Drive: Sidewalk and Belgian block curb will be added or replaced on the east/north side of Laurel Drive between Springfield Avenue (C.R. 512) and Inwood Road. Existing curb ramps crossing Laurel Drive at Springfield Avenue will be evaluated and a curb ramp at Laurel Drive and Inwood Road will be provided at the termination of the sidewalk at Inwood Road. Driveway pedestrian crossings shall again be designed for ADA compliance. The design will attempt to avoid the large old-growth trees and utility poles at the edge of pavement, where feasible, to limit the number of right-of-way easements needed. Narrowing the roadway width and the use of landscape walls or curbing behind the sidewalk will also be investigated to minimize encroachment into private property. Allowable street parking may be switched to the side of the street opposite the sidewalk.

- Brookside Drive: Beginning at the intersection with Glenbrook Road, the project area shall continue along the west/north side of Brookside Drive up to Hickson Drive. Improvements include new sidewalk, curb ramps and crosswalks at the Glenbrook and Badgley Drive intersections, proposed Belgian block curb and driveway aprons revised to provide 2% maximum cross-slope pedestrian crossings. An additional curb ramp will be placed at the sidewalk terminus at Hickson Drive. The design will place the proposed sidewalk between the existing curb location and the large trees set near the right-of-way line.

PRELIMINARY ENGINEERING \$ 214,832.78

100 - MANAGEMENT AND COORDINATION

Arora will maintain continuous liaison with the Local Planning Agency (LPA) Responsible Charge and NJDOT Local Aid Office to effectively accomplish the project design in an expeditious manner. Meetings with the LPA stakeholders, NJDOT Local Aid and other NJDOT bureaus, and Union County will be held as further described in this proposal. We will update the design schedule on a monthly basis and prepare monthly progress reports for the LPA and NJDOT.

Initiate Preliminary Engineering (3005)

Upon notice to proceed, Arora will mobilize our design team. To familiarize the team with the project, Arora will hold an in-house design team kick-off meeting and visit the site.

Arora will gather existing documentation and will work with the LPA to obtain all existing plans in the project area. It is also anticipated that a client kick-off meeting will be held with the NJDOT Local Aid Office and the LPA once the agreements are executed. The Design Communications Report (DCR) will be created to document design decisions made throughout the life of the project.

250 – PUBLIC INVOLVEMENT

Hold Public Information Center (3865)/Local Officials Briefings

Arora will assist the LPA by attending two (2) Local Officials Briefings (LOB) to receive buy-in on the proposed footprint and design of the improvements. Arora will also assist the LPA by attending one (1) Public Information Center (PIC) to show improvements to the residents and receive feedback. Arora will assist the LPA in the compilation of individual stakeholder groups and individuals to be used in the meeting notices, which shall include Union County officials. Arora will prepare a list of property owners within 200 feet of the project limits and will prepare and mail PIC Information Flyers to the residents at least two weeks prior to the PIC. We will also prepare the PIC project information sheets, sign-in list sheets and comment sheets as required for the PIC. It is assumed that the LPA will prepare all legal notices for the PIC and will use their website for similar notices. Arora will prepare up to five (5) displays (unmounted) for presenting the project to local officials and the public.

300 - SURVEYING

Arora will conduct a survey within the project limits according to the requirements of the NJDOT Standard Agreement Provisions, Article 44, Section A, and the NJDOT Survey Manual procedures and guidelines. All work will be performed in English units (US Survey Feet). Horizontal and vertical primary control points will be in the North American Datum of 1983 (NAD 83) and the current realization of NAD 83 (2011), as well as the North American Vertical Datum of 1988 (NAVD 88), respectively. The surveyed areas will be specific to areas to be improved, as shown on the aforementioned plan that was included in the grant application. The survey detail will be commensurate with the level needed to design and construct the sidewalks, curbs and other improvements.

Prepare Control Survey Report (3015)

Arora and Associates, PC will prepare a Primary Survey Project Report detailing the primary control network established for the project. This report will be prepared in accordance with the provisions of Article 44 of the NJDOT Procedures Manual. All survey work will be conducted in accordance with the NJDOT Survey Manual procedures and guidelines.

Conduct Topographic Survey (3020)

Review Existing Documents, Coordination, Access Letters, and Road Opening Permit

Arora will conduct a review of the existing documents procured for this project. These documents may include construction and right-of-way plans from the NJDOT or the LPA, survey control reports, CADD files, deeds and tax maps, county or township plans, project reports, and other reference documents that pertain to the project.

Arora will prepare a list of property owners within 200 feet of the project limits at each location, including block and lot designations, property addresses and owner's mailing addresses. Arora will also prepare access letters to the property owners on the list. These letters will be printed on Borough of New Providence letterhead, provided to the LPA Responsible Charge for his signature and mailed to the owners before beginning any activity on private property.

The NJDOT requires a Highway Occupancy Permit under statute N.J.A.C. 16:41 whenever there is an activity that may interfere with the safe and efficient movement of traffic. As this project does not include work on a State highway, it is assumed that a Highway Occupancy Permit will not be required. Arora expects that a Road Opening Permit will need to be secured from Union County for the proposed improvements along South Street, which is a County Route. Arora will prepare all necessary documents and plans required to obtain this permit and submit same to the LPA and Union County Bureau of Inspections for approval. Any fee associated with this permit shall be the responsibility of the Borough.

Site Reconnaissance

Arora will recover any previous control provided by the NJDOT or the Borough of New Providence and observe utilizing Global Navigation Satellite System (GNSS) Real-Time Network (RTN). The results of these observations will enable Arora to tie into any previous mapping in the area.

Recover Geodetic Control

Arora will recover and observe up to four (4) National Geodetic Survey (NGS)-published geodetic control stations around the project location. Arora will consult with the NJDOT Geodetic Survey group on

appropriate stations for the project. These stations will be used to assess the accuracy of the GNSS RTN and as quality control checks.

Establish GPS Horizontal and Vertical Control

Primary Control stations will be established as needed in each area of the project utilizing GNSS-RTN methods. Arora will utilize the RTN provided by Leica Geosystems for the establishment of control on this project. Arora will follow the specifications for RT1 precisions as laid out in the NGS publication, "User Guidelines for Single Base Real Time GNSS Positioning," Version 3.1, dated April 2014. This will include observing control points for 3 minutes for 2 separate occupations. An approximate four (4) hour window of time will be observed between each occupation as to provide new satellite geometry and atmospheric conditions. Elevations for each station will be determined through the GNSS software in the field, in real time, utilizing the Geoid18 model. State Plane Coordinates, determined in this project and expressed in US survey feet values, will be "scaled to ground" per the direction of the NJDOT.

Supplemental Horizontal and Vertical Control

Arora will establish secondary control as needed from the primary control points. These secondary control stations will provide the stations necessary to conduct the topographic and other survey operations on this project. The supplemental control network will be established through conventional methods.

Re-establish Existing Baselines

South Street is also County Route 647. Arora will acquire any existing plans from the NJDOT and the County regarding this road. If baselines are shown on these plans, Arora will attempt to recover monumentation and reestablish the baselines.

Conduct Topographic Survey

Arora will locate physical features including signs, driveways, walks, drainage structures, curb lines, utility poles, traffic striping, guide rail, tree lines, etc., within curb ramp and sidewalk areas identified by our engineers. These features will be tied to the project control network conventionally utilizing Third Order surveying accuracies.

Field Edit Mapping

We will field-edit the base mapping by physically identifying existing features. Field edits may include identification of pertinent surface features such as manhole types and utility poles. Arora will also identify the constructed material for roads, driveways, and walkways within the project limits.

Right-of-Way Survey

Arora will perform a limited amount of field survey work in order to locate local monumentation. These physical features will be located and tied to the project control network conventionally utilizing Third Order surveying accuracies or utilizing GNSS-RTN RT3 accuracy precisions (one 15 second observation).

Utility Survey

Arora will locate utilities visible on the surface in the area of our topographic survey. It is assumed that no aerial utility or drainage system survey will be necessary.

Prepare Base Maps (3025)

Using the survey information collected above, Arora will develop base maps depicting existing topographic conditions. Base maps will conform to NJDOT's Sample Plans, and CADD files will conform to NJDOT Standard Agreement Provisions, Article 51.

Arora will prepare a best-fit mosaic of the existing right-of-way and surrounding property boundaries by plotting information from Municipal Tax Map Data, ROW Plans and found filed maps. Right-of-way lines and property boundaries will be included in the CADD files and shown on the base maps. Deed research is not included in this scope of work. Our qualified vendor will collect only municipal tax maps, filed maps and current cover deeds during the PE phase. Arora will not review the cover deeds for references to boundary conflicts and/or other encumbrances during the PE phase. Arora will not plot deeds. They will only be used to verify the ROW width in areas where needed.

Using the survey information collected above, Arora will compile conventionally surveyed base mapping information showing existing conditions from utility, topographic, right-of-way and control network surveys. We will review the final base mapping, check coordinates and alignment data against physical features, and adjust data as necessary to ensure complete and accurate mapping.

Arora will compile all of the information collected in the field and prepare a digital terrain model (DTM) based on the conventional survey data gathered. We will review the DTM and check elevations and vertical alignment data against physical features and control points. The conventional DTM will be quality-checked to ensure complete and accurate 3D mapping.

350 - UTILITY ENGINEERING

As per State statute, NJDOT cannot fund utility relocations for locally administered projects such as this one. This design will strive to avoid all existing utility impacts except valve resets that can be performed by the contractor. These resets will be identified on the plans and the existing utility pole at Oakwood that is no longer in use will be called out for removal. Underground work is limited to construction of sidewalks, curb and curb ramps, such that underground utilities are assumed to not be impacted by the project.

500 - ENVIRONMENTAL

Prepare CED (3870)

NJDOT Environmental will prepare the Categorical Exclusion Document (CED). Arora will assist NJDOT by filling in Parts I and II of the CED. Arora will coordinate with the NJDOT Environmental contact to verify that all aspects of the CED are covered and to help expedite the process.

600 – RIGHT-OF-WAY

Prepare ROW Report (3110)

Preliminary information obtained from the Borough tax maps show that right-of-way width for South Street width is 66', while Brookside Drive and Laurel Drive are 50' wide. Arora will determine and document the areas of proposed construction which will encroach on existing right-of-way to assist the Borough. The effort and costs required to acquire right-of-way or obtain easements are not eligible for

reimbursement under the NJDOT Safe Routes to School grant and are the responsibility of the Borough of New Providence. Arora will create an 8.5" x 11" plan at each impacted property to assist the LPA in their negotiations. Each plan will show the existing topography, property owner, proposed design, and limit of disturbance on the property. It is anticipated that ten (10) owners will be impacted on the project.

700 - HIGHWAY ENGINEERING

DRAINAGE

Prepare Preliminary Drainage Design (3085)

Proposed drainage structures are not anticipated to be installed on this project, but Arora will verify that the installation of sidewalks and associated grading will not trap roadway stormwater runoff on private property. Existing drainage patterns shall be maintained to the greatest extent practicable.

The need for environmental permits and/or stormwater management is not anticipated for this project, because the area of project disturbance is expected to be below 1 acre. It is presumed that the Borough of New Providence will self-certify this project for compliance with the Municipal Stormwater Regulation Program and the New Providence Stormwater Pollution Prevention Plan. Arora will provide up to 30 hours of assistance to the Borough during the self-certification process, which shall include the delineation of the total disturbance area for the project, with confirmation that it is less than 1 acre.

ROADWAY

Prepare Horizontal & Vertical Geometry (3030)

Based on the project limits agreed upon with the LPA and NJDOT Local Aid, Arora will layout the proposed geometric alignment and calculate the horizontal and vertical geometry. The calculated geometry will be developed to the level needed to estimate if there are any right-of-way impacts, to determine the tie-in limits for sidewalk and to achieve buy-in from New Providence on the design. This activity includes:

- Tying geometry into the existing base mapping and refining a horizontal alignment for sidewalks and ramps
- Developing critical cross-sections to identify slope impacts
- Dimensioning roadside elements such as berm, curb or umbrella sections; utility poles; sidewalks; curb ramps; cut/slopes at critical locations to determine ROW impacts

Americans with Disabilities Act (ADA) ramps will be designed as shown in the grant or as decided upon after further coordination with New Providence Borough. Based on the plan shown in the grant and whether the existing curb ramps are ADA-compliant, there are a minimum of 10 and maximum of 14 curb ramp locations for design, and approximately 4,800 feet (0.91 miles) of sidewalk to be installed.

Prepare Preliminary Roadway Plans (3070)

Arora will prepare preliminary roadway plans conforming to the Sample Plans and guidelines for preparation of the PE package by NJDOT Standards. The following plans sheets are anticipated:

- Key Sheet (1)
- Typical Sections (2)

- Plan Sheet Index (1)
- Construction Legend (1)
- Construction Plans (7)
- Environmental Commitments Sheet (1)
- Tie Sheets (3)
- Grade Sheets (7)

750 - CONSTRUCTION ENGINEERING

Update Preliminary Detour and Construction Staging Plans (3130)

Arora will perform the following:

- Coordinate efforts with local officials and engineers, and keep documentation of their support for a specific traffic control scheme on file
- Prepare preliminary Traffic Control and Staging Plans (6) at the three locations
- Prepare a preliminary construction schedule and construction sequence narrative in accordance with NJDOT's Construction Scheduling Manual

900 - TRAFFIC ENGINEERING

Determine Traffic Engineering Facility Locations (3090)

Arora will prepare conceptual-level Traffic Striping & Signing Plans (7) to show the proposed signage, striping and pavement markings within project limits and identify and resolve associated potential utility conflicts and right-of-way impacts. Electrified traffic control devices such as traffic signals and pedestrian signals will not be included as part of this design. Replacement or repair of the existing, non-functioning flashing pedestrian beacon on South Street is not included under this scope of work.

200 - PRELIMINARY SUBMISSION PACKAGE

Prepare Construction Cost Estimate (3135)

Arora will prepare the preliminary construction cost estimate based on the plans developed during PE and submit the estimate to NJDOT Local Aid and the LPA Responsible Charge for review and comment.

Prepare Draft Preliminary Engineering Report (3160)

We will prepare and abbreviated report which will include:

- Project Description and Purpose and Need
- Control Survey Report Summary
- Discussion of any impacts which may be critical to the schedule, such as ROW or potential utility conflicts
- Staging and construction sequence narrative
- Plans for public involvement for the Final Design stage
- Design Communications Report (DCR)
- As appendices to the report: Environmental Document, preliminary construction cost estimate, preliminary construction schedule, meeting minutes

The report will be submitted to the LPA Responsible Charge and NJDOT Local Aid Office for review.

Finalize Project Plans (3165)

The roadway plans will be finalized, packaged and submitted to the LPA Responsible Charge and NJDOT Local Aid Office for review.

Complete Preliminary Engineering Quality Certification (3175)

Arora will complete the PE Designer Certification and include the document with the plan submission.

NJDOT/LPA Reviews Draft Preliminary Engineering Report (3205)

Arora will address the comments from the LPA and NJDOT Local Aid Office on the Preliminary Engineering plans and resubmit them with a Comment Resolution Summary.

FINAL DESIGN \$87,094.29

100 – MANAGEMENT AND COORDINATION

Arora will maintain continuous liaison with the LPA Responsible Charge and NJDOT Local Aid Office to effectively accomplish the project design in an expeditious manner. Meetings with the LPA stakeholders, NJDOT Local Aid and other NJDOT bureaus will be held as further described in this proposal. Each month we will update the design schedule and prepare progress reports to be provided to the LPA and NJDOT.

250 – PUBLIC INVOLVEMENT -

Execute Final Design Public Involvement Action Plan (4795)

Arora will assist the LPA by attending one (1) additional Local Officials Briefing (LOB) during Final Design to update the stakeholders on the status of the project. Arora will also assist the LPA by attending one (1) Public Information Center (PIC) to present the proposed improvements to the residents in a more detailed manner than during PE. Union County officials will be asked to attend. Arora will update the list of property owners within 200 feet of the project limits previously prepared in PE and will prepare and mail PIC Information Flyers to the residents at least two weeks prior to the PIC. We will also prepare the PIC project information sheets, sign-in list sheets and comment sheets as required for the PIC. It is assumed that the LPA will prepare all legal notices for the PIC and will use their website for similar notices. Arora will update the displays (unmounted) prepared in PE for presenting the project to local officials and the public.

300 - SURVEYING

Conduct Supplemental Surveys (4215)

Arora will assume three (3) additional days of field work and follow-up office time for unforeseen additional surveying that may be needed for the Final Design.

700 - HIGHWAY ENGINEERING

ROADWAY

Complete Horizontal / Vertical Geometry (4210)

Arora will complete the horizontal and vertical geometry. We will finalize the sidewalk design, curb ramp layouts and grading, as well as the border areas and driveway designs to verify that construction can stay within the limits of the right-of-way.

Prepare Final Roadway Plans (4220)

Arora will update and supplement the roadway plans that were prepared during the PE phase to produce final roadway plans prepared in accordance with the NJDOT Sample Plans. Arora will perform a field inventory of existing conditions before finalizing the plans to ensure accuracy of the existing topography. We will prepare the final quantity calculations for the project and update the Design Communications Report (DCR). The final roadway plan set will include:

- Key Sheet (1)
- Estimate and Distribution of Quantities (1)
- Typical Sections (2)
- Plan Sheet Index (1)
- Construction Legend (1)
- Construction Plans (7)
- Environmental Commitments Sheet (1)
- Tie Sheets (3)
- Traffic Control and Staging Plans (6)
- Grade Sheets (7)
- Curb Ramp Layout Details (2)
- Construction Details (3)

Prepare Soil Erosion & Sediment Control Report & Plans (4410)

Arora will prepare a Soil Erosion Sediment Control (SESC) Report and SESC plans (7) to identify the project soils and the required temporary and permanent erosion control measures. Arora will also show the project disturbance areas and a table to confirm that the total disturbance is less than 1 acre on these plans. It is expected that the LPA shall certify to the Soil Conservation District that the Final Design submission plans and specifications are in conformity with the latest NJDOT Soil Erosion and Sediment Control Standards.

900 - TRAFFIC ENGINEERING

Complete Traffic Signal, Signing and Striping Plans (4240)

Arora will finalize the Traffic Striping & Signing Plans (7) as per the MUTCD, NJDOT Roadway Design Manual and Sample Plans. Permanent and temporary traffic signals, electrical signals, and pedestrian signals are not anticipated on this project. Plans will be submitted to NJDOT and the LPA for review.

200 – FINAL DESIGN AND PS&E SUBMISSIONS

Develop Construction Cost Estimate (4275)

Arora will develop the construction estimate using the LPA's template for Final Design as a guide. The cost estimate will be based upon actual measured quantities for each bid item and use the latest bid prices for similar quantities of each item from completed projects in the same area.

Develop Specifications (4280)

Arora will develop input for the Special Provisions using guidance provided by the latest NJDOT Baseline Document Changes and Standard Specifications. Local Aid will submit a request for the DBE/ESBE and Job Training goals to the Division of Procurement. When received from the Division of Civil Rights and Affirmative Action, Arora will add the goals to the Special Provisions.

Develop Construction Schedule (4285)

Arora will prepare a construction schedule using Primavera P6 software in accordance with the NJDOT Capital Program Management Construction Scheduling Standard Coding and Procedures for Designers and Contractors Manual and a corresponding construction schedule narrative.

Prepare Final Design Submission Package (4290)

Arora will prepare a FD submission package consisting of the following documents:

- Final Design Plan Set
- Specifications and Standard Inputs (SI)
- Engineer's Cost Estimate
- Construction Schedule with Narrative
- Designer's Final Design Certification
- Design Communications Report (DCR)

Arora will distribute the FD documents to the LPA and NJDOT Local Aid Office for review.

Resolve Final Design Submission Comments (4830)

Arora will evaluate and address each Final Design review comment received from the LPA and NJDOT and respond to resolve all issues. A Comment Resolution Summary will be prepared, and adjustments made to the contract documents as needed to address the comments. Design decisions stemming from the resolution of comments will be added to the Design Communications Report (DCR).

Submit PS&E Package (4840)

Upon receipt of notice that the project can proceed to PS&E from NJDOT and the LPA, Arora will submit the PS&E package:

- PS&E Plan Set
- Engineer's Cost Estimate
- Construction Schedule with Narrative
- Master Special Provisions, Trainee Memo, and ESBE Goal Memo
- Quantity Calculations and Design Calculations
- Designer's PS&E Certification
- Approved Design Communications Report (DCR)

ASSUMPTIONS AND EXCLUSIONS (DESIGN PHASE)

The following services are not included in the scope of work either because they are not required or will be provided by others. If Arora is asked to design, provide, or assist with these items, the effort will be considered to be extra work and must be authorized by an agreement modification:

- Environmental technical studies required for the Categorical Exclusion Document (CED) will be performed by NJDOT. Arora will assist NJDOT by filling out CED Parts I and II only.
- It is assumed that NJDEP permits and stormwater management will not need to be addressed on this project. New Providence will self-certify for stormwater and Arora will not design any drainage structures, pipes, or stormwater management facilities. Arora's assistance in the self-certification process will be limited to the 30 hours budgeted for assistance, which shall include the determination of total project disturbance area.
- There will be no utility relocations for the project
- Any ROW impacts on the project will be handled by the LPA. Arora's assistance will be limited to the creation of the 8.5"x11" plans noted under Task 3110 to facilitate LPA discussions with property owners.
- Landscape design services, if required
- Any other services, reports, or support not specifically included within this Scope of Work

CONSTRUCTION PHASE \$30,448.97

650 - CONSTRUCTION SUPPORT

Management and Coordination

We will maintain continuous liaison with the LPA Responsible Charge and Resident Engineer to effectively perform the construction support services. We will prepare and submit periodical progress reports to the LPA and Local Aid Office. The effort is estimated to be 5 hours/month for the construction duration.

5 hours/month x 6 months = 30 Total Hours

Bid Phase Review

We will provide support during the Bid Phase. These services may include providing responses to contractor Requests for Information (RFIs) and preparing addendums. If requested by the LPA, we will review bids and provide comments to the LPA. We have budgeted 16 hours for this work.

Technical Interpretation and Response to RFIs

Arora will provide technical interpretation of the plans and specifications and respond to general Requests for Information. The majority of RFIs typically occur the first half of the project. The effort is estimated to be 8 hours/month for the first 3 months of construction and 4 hours/month for the remaining 3 months.

8 hours/month x 3 months = 24 Hours

4 hours/month x 3 months = 12 Hours

36 Total Hours

Catalog Cut Review

Catalogue cut review is estimated to be 3 hours/cut for approximately 10 catalog cuts. The total effort for this task will be:

10 catalog cuts x 3 hours/cut = 30 Hours

Meetings and Site Visits

Representatives of Arora will attend three (3) meetings (including a pre-construction meeting) as requested. Arora will prepare minutes for each of these meetings. We have also budgeted up to 4 field visits to answer questions.

General Meetings	3 Meetings at 8 hours = 24 Hours
Field Visits	<u>4 Field Visits at 4 hours = 16 Hours</u>
	40 Total Hours

ASSUMPTIONS AND EXCLUSIONS (CONSTRUCTION)

- The level of effort provided in this proposal is for on-call Construction Support only and is an estimate which may require modification based upon the actual submittals made by the Contractor. It will also depend upon the technical interpretation and assistance required during construction.
- This on-call Construction Support does not assume the performance of any aspects of construction inspection by Arora. It is expected that the Borough will be responsible for all construction inspection on the project.

C:\Users\dhartman\Desktop\1657-02 - Scope of Work 07-21-20.docx

SUMMARY OF COST

Preliminary Engineering Level of Support	
Total Arora	\$214,832.78
Arora Direct Expenses	\$2,836.25
Final Design Level of Support	
Total Arora	\$87,094.29
Arora Direct Expenses	\$832.75
Construction Support Level of Effort	
Total Arora	\$30,448.97
Arora Direct Expenses	\$201.25
PROPOSAL TOTAL	\$ 336,246.29

NJDOT Safe Routes to Schools Design Assistance Program

Allen W. Roberts Elementary School, Salt Brook Elementary School, New Providence Middle School - Borough of New Providence, Union County

PRELIMINARY ENGINEERING LEVEL OF EFFORT

Prepared by: DGH
Checked by: DH

July 21, 2020
C:\Users\dhartman\Desktop\1657-02 - Cost Proposal 07-21-20.xls\PE Man-Hours

ARORA NUMBER	TASK TITLE	ASCE GRADE >	PVIII Director	PVI Project Mgr.	PV Project Engr.	PIII Design Engr.	PI Designer	ET1 Technician	Total
100	MANAGEMENT AND COORDINATION								
	PROJECT MANAGEMENT (6 Months)			24	12				36
	3005 INITIATE PRELIMINARY ENGINEERING			4	4	4			12
	SUBTOTAL		0	28	16	4	0	0	48
250	PUBLIC INVOLVEMENT								
	3865 HOLD PUBLIC INFORMATION CENTER (1)			12	12	12	16	32	84
	LOCAL OFFICIALS BRIEFINGS (2)			12	12	12	8	8	52
	SUBTOTAL		0	24	24	24	24	40	136
300	SURVEYING								
	3015 PREPARE CONTROL SURVEY REPORT								
	PREPARE PRIMARY CONTROL SURVEY REPORT								
	1. PREPARE NARRATIVE			2	12		4		18
	2. PREPARE TIE SKETCHES				8	8	16	24	56
	3. COMPILE REPORT				8	8	4		20
	3020 CONDUCT TOPOGRAPHIC SURVEY								
	1. REVIEW EXISTING DOCS/COORD/ACCESS LETTERS				6	6			12
	2. SITE RECONNAISSANCE				2	2	8	8	20
	3. RECOVER GEODETIC CONTROL				2	2	8	8	20
	4. ESTABLISH GPS HORIZONTAL AND VERTICAL CONTROL				4	8	10	10	32
	5. SUPPLEMENTAL HORIZONTAL & VERTICAL CONTROL				2	4	4	4	14
	6. CONDUCT TOPOGRAPHIC SURVEY				8	40	40	40	128
	7. FIELD EDIT MAPPING				4	8	8	8	28
	8. RIGHT-OF-WAY SURVEY				8	14	8	12	42
	9. UTILITY SURVEY				2	2	4	4	12
	3025 PREPARE BASE MAPS								
	1. PREPARE FINAL BASE MAPS			2	12	40		40	94
	2. RESEARCH FILED MAPS/TAX MAPS/NJDOT MAPS				2	10			12
	3. COMPILE SURVEY DATA/PREPARE DTM				12	16		8	36
	SUBTOTAL		0	4	92	168	114	166	544
350	UTILITY ENGINEERING								
	IDENTIFY ANY EXISTING UTILITY VALVES TO BE RESET				4	8	4	4	20
	SUBTOTAL		0	0	4	8	4	4	20
500	ENVIRONMENTAL								
	3870 PREPARE CED (PARTS I AND II)			6	6	6			18
	SUBTOTAL		0	6	6	6	0	0	18

NJDOT Safe Routes to Schools Design Assistance Program

Allen W. Roberts Elementary School, Salt Brook Elementary School, New Providence Middle School - Borough of New Providence, Union County

PRELIMINARY ENGINEERING LEVEL OF EFFORT

Prepared by: DGH
Checked by: DH

July 21, 2020

C:\Users\dhartman\Desktop\1657-02 - Cost Proposal 07-21-20.xls\PE Man-Hours

ARORA NUMBER	TASK TITLE	ASCE GRADE >	PVIII Director	PVI Project Mgr.	PV Project Engr.	PIII Design Engr.	PI Designer	ET1 Technician	Total
600	RIGHT OF WAY								
	3110 PREPARE ROW REPORT								
	IDENTIFY ROW IMPACTS			4	8	8			28
	PREPARE ROW IMPACT PLANS (8.5'X11') (10)				4	10		10	24
	SUBTOTAL		0	4	12	18	0	18	52
700	HIGHWAY ENGINEERING								
	DRAINAGE								
	3085 PREPARE PRELIMINARY DRAINAGE DESIGN								
	VERIFY PROPOSED DESIGN DOES NOT CHANGE DRAINAGE PATTERNS			1	6		8	4	19
	ASSIST LPA WITH SWM SELF CERTIFICATION			2	8	12	8		30
	SUBTOTAL		0	3	14	12	16	4	49
	ROADWAY								
	3030 PREPARE HORIZONTAL AND VERTICAL GEOMETRY				8	40	40	16	104
	3070 PREPARE PRELIMINARY ROADWAY PLANS								
	1. KEY SHEET (1)			1	4	4		8	17
	2. TYPICAL SECTIONS (2)			2	8	8	8	20	46
	3. PLAN SHEET INDEX (1)			1	2	4		8	15
	4. CONSTRUCTION LEGEND (1)				1	2	2	4	9
	5. CONSTRUCTION PLANS (7)			4	24	16	16	24	84
	6. ENVIRONMENTAL COMMITMENTS SHEET (1)			1	4	2		6	13
	7. TIE SHEETS (3)			2	8	8	6	12	36
	8. GRADE SHEETS (7)			4	24	28	16	32	104
	SUBTOTAL		0	23	115	112	64	114	428
750	CONSTRUCTION ENGINEERING								
	3130 UPDATE PRELIMINARY DETOUR AND CONSTRUCTION STAGING PLANS								
	PRELIMINARY CONSTRUCTION SCHEDULE & NARRATIVE			4	16				20
	TRAFFIC CONTROL AND STAGING PLANS (6)			4	24	16	8	40	92
	SUBTOTAL		0	8	40	16	8	40	112
900	TRAFFIC ENGINEERING								
	3090 DETERMINE TRAFFIC ENGINEERING FACILITY LOCATIONS								
	CONCEPTUAL SIGNING AND STRIPING PLANS (7)			4	20	12	12	12	60
	SUBTOTAL		0	4	20	12	12	12	60
200	PRELIMINARY SUBMISSION PACKAGE								
	3135 PREPARE CONSTRUCTION COST ESTIMATE			2	8	8		4	22
	3160 PREPARE DRAFT PE REPORT			8	16	8		8	40
	3165 FINALIZE PROJECT PLANS			4	4	4	8	16	36
	3175 COMPLETE PRELIMINARY ENGINEERING QUALITY CERTIFICATION			2					2
	3205 NJDOT / LPA REVIEWS DRAFT PRELIMINARY ENGINEERING REPORT			2	6	2			10
	SUBTOTAL		0	18	34	22	8	28	110
	TOTAL HOURS		0	122	377	402	250	426	1577
	AVERAGE HOURLY RATE (Approved 2/1/2020)			\$92.39	\$69.66	\$49.54	\$38.43	\$19.00	
	TOTAL SALARIES		\$0.00	\$11,271.58	\$26,261.82	\$19,915.08	\$9,607.50	\$8,094.00	\$75,149.98

ARORA AND ASSOCIATES, P.C.
NJDOT Safe Routes to Schools Design Assistance Program

Allen W. Roberts & Salt Brook Elementary Schools, New Providence Middle School - Borough of New Providence, Union County

PRELIMINARY ENGINEERING LEVEL OF EFFORT

ENGINEERING FEE ESTIMATE

July 21, 2020

Labor (ET3, PI, PIII)		\$37,616.58
Labor (PV, PVI, PVIII)		\$37,533.40
Labor Subtotal		\$75,149.98
Escalation *		\$842.61
Total Labor		\$75,992.59
Overhead	160.97%	\$122,325.27
Fixed Fee	18.00%	\$13,678.67
Subtotal		\$211,996.53
Direct Expenses		\$2,836.25
Total-Arora		\$214,832.78
GRAND TOTAL		\$214,832.78

** ESCALATION CALCULATION*

Wage Approval = 1-Feb-20
Project Start = 1-Aug-20
Duration = 6 months
Project Midpoint = 1-Nov-20
Project End = 1-Feb-21
Escalation (<P4) = 3.0% 9 months = 2.24%
Escalation (>P4) = 0.0% 0 months = 0.00%
for >P4, escalation is multiplied by F = (duration - 18 months) / (duration) if duration is greater than 18 months

ARORA DIRECT EXPENSES

Mileage	350	\$0.575	\$201.25
Lodging, meals and incidentals			\$ -
Reproduction			
BW Photocopies (8.5x11)	300	\$0.05	\$15.00
BW Photocopies (11x17)	500	\$0.45	\$225.00
Color Photocopies (8.5x11)	100	\$1.25	\$125.00
Color Photocopies (11x17)	100	\$2.50	\$250.00
Report Binding	5	\$4.00	\$20.00
Presentation Boards	5	\$200.00	\$1,000.00
Tax Map/Filed Map/Current Deed Research			\$1,000.00
Total			\$2,836.25

NJDOT Safe Routes to Schools Design Assistance Program

Allen W. Roberts Elementary School, Salt Brook Elementary School, New Providence Middle School - Borough of New Providence, Union County
FINAL DESIGN LEVEL OF EFFORT

Prepared by: DGH
Checked by: DH

July 21, 2020

C:\Users\dhartman\Desktop\1657-02 - Cost Proposal 07-21-20.xls\FD Man-Hours

ARORA NUMBER	TASK TITLE	ASCE GRADE >	PVIII Director	PVI Project Mgr.	PV Project Engr.	PIII Design Engr.	PI Designer	ET1 Technician	Total
100	MANAGEMENT AND COORDINATION								
	PROJECT MANAGEMENT (3 Months)			12	6				18
	SUBTOTAL		0	12	6	0	0	0	18
250	PUBLIC INVOLVEMENT								
	4795 EXECUTE FD PUBLIC INVOLVEMENT PLAN			8	8	8	4	12	40
	SUBTOTAL		0	8	8	8	4	12	40
300	SURVEYING								
	4215 CONDUCT SUPPLEMENTAL SURVEYS			2	8	10	10	10	40
	SUBTOTAL		0	2	8	10	10	10	40
700	HIGHWAY ENGINEERING								
	ROADWAY								
	4210 COMPLETE HORIZONTAL / VERTICAL GEOMETRY			2	16	16	8		42
	4220 PREPARE FINAL ROADWAY PLANS								
	1. KEY SHEET (1)			1	1	1	1	1	5
	2. ESTIMATE AND DISTRIBUTION OF QUANTITIES (1)			1	8	16	8	8	41
	3. TYPICAL SECTIONS (2)			1	4	4	4	4	17
	4. PLAN SHEET INDEX (1)				1	1	1	1	4
	5. CONSTRUCTION LEGEND (1)				1	1	1	1	4
	6. CONSTRUCTION PLANS (7)			4	12	4	4	20	44
	7. ENVIRONMENTAL COMMITMENTS SHEET (1)			2	4	4	4	2	12
	8. TIE SHEETS (3)				2	2	2	2	8
	9. TRAFFIC CONTROL AND STAGING PLANS (6)			2	4	10	4	8	28
	10. GRADE SHEETS (7)			2	4	8	4	4	22
	11. CURB RAMP LAYOUT DETAILS (2)			2	8	10	4	14	38
	12. CONSTRUCTION DETAILS (3)			1	4	4	4	8	21
	4410 PREPARE SOIL EROSION & SEDIMENT CONTROL REPORT & PLANS			2	8	16	8	8	42
	SUBTOTAL		0	20	77	97	53	81	328
900	TRAFFIC ENGINEERING								
	4240 FINALIZE TRAFFIC STRIPING & SIGNING PLANS (7)			4	12	12	4	12	44
	SUBTOTAL		0	4	12	12	4	12	44
200	FINAL DESIGN AND PS&E SUBMISSIONS								
	4275 PREPARE CONSTRUCTION COST ESTIMATE			2	8	8		4	22
	4280 DEVELOP SPECIFICATIONS			4	16	8	2	4	34
	4285 DEVELOP CONSTRUCTION SCHEDULE			2	12	4			18
	4290 PREPARE FINAL DESIGN SUBMISSION PACKAGE			2	4	4		8	18
	4830 RESOLVE FINAL DESIGN SUBMISSION COMMENTS			4	8	8			20
	4840 SUBMIT PS&E PACKAGE			2	4	4			10
	SUBTOTAL		0	16	52	36	2	16	122
	TOTAL HOURS		0	62	163	163	73	131	592
	AVERAGE HOURLY RATE (Approved 2/1/2020)			\$92.39	\$69.66	\$49.54	\$38.43	\$19.00	
	TOTAL SALARIES		\$0.00	\$5,728.18	\$11,354.58	\$8,075.02	\$2,805.39	\$2,489.00	\$30,452.17

ARORA AND ASSOCIATES, P.C.
NJDOT Safe Routes to Schools Design Assistance Program

Allen W. Roberts & Salt Brook Elementary Schools, New Providence Middle School - Borough of New Providence, Union County

FINAL DESIGN LEVEL OF EFFORT

ENGINEERING FEE ESTIMATE

July 21, 2020

Labor (ET3, PI, PIII)		\$13,369.41
Labor (PV, PVI, PVIII)		\$17,082.76
Labor Subtotal		\$30,452.17
Escalation *		\$469.27
Total Labor		\$30,921.44
Overhead	160.97%	\$49,774.24
Fixed Fee	18.00%	\$5,565.86
Subtotal		\$86,261.54
Direct Expenses		\$832.75
Total-Arora		\$87,094.29
GRAND TOTAL		\$87,094.29

** ESCALATION CALCULATION*

Wage Approval = 1-Feb-20
 Project Start = 1-Feb-21
 Duration = 3 months
 Project Midpoint = 17-Mar-21
 Project End = 1-May-21
 Escalation (<P4) = 3.0% 14 months = 3.51%
 Escalation (>P4) = 0.0% 0 months = 0.00%
 for >P4, escalation is multiplied by $F = (duration - 18 months) / (duration)$ if duration is greater than 18 months

ARORA DIRECT EXPENSES

Mileage	350	\$0.575	\$201.25
Lodging, meals and incidentals			\$ -
Reproduction			
BW Photocopies (8.5x11)	300	\$0.05	\$15.00
BW Photocopies (11x17)	500	\$0.45	\$225.00
Color Photocopies (8.5x11)	50	\$1.25	\$62.50
Color Photocopies (11x17)	50	\$2.50	\$125.00
Report Binding	1	\$4.00	\$4.00
Presentation Boards	1	\$200.00	\$200.00
Total			\$832.75

NJDOT Safe Routes to Schools Design Assistance Program

Allen W. Roberts Elementary School, Salt Brook Elementary School, New Providence Middle School - Borough of New Providence, Union County
CONSTRUCTION SUPPORT LEVEL OF EFFORT

Prepared by: DGH
Checked by: DH

July 21, 2020

C:\Users\dhartman\Desktop\1657-02 - Cost Proposal 07-21-20.xls\CS Man-Hours

ARORA NUMBER	TASK TITLE	ASCE GRADE >	PVIII Director	PVI Project Mgr.	PV Project Engr.	PIII Design Engr.	PI Designer	ET1 Technician	Total
650	MANAGEMENT AND COORDINATION								
	PROJECT MANAGEMENT (6 Months)			20	10				30
	SUBTOTAL		0	20	10	0	0	0	30
	BID PHASE REVIEW								
	SUPPORT DURING BID PHASE			4	12				16
	SUBTOTAL		0	4	12	0	0	0	16
	CONSTRUCTION SUPPORT								
	TECHNICAL INTERPRETATION AND RFIs			8	16	8	4		36
	CATALOG CUT REVIEW			2	8	10	10		30
	MEETINGS AND SITE VISITS			16	16	8			40
	SUBTOTAL		0	26	40	26	14	0	106
	TOTAL HOURS		0	50	62	26	14	0	152
	AVERAGE HOURLY RATE (Approved 2/1/2020)			\$92.39	\$69.66	\$49.54	\$38.43	\$19.00	
	TOTAL SALARIES		\$0.00	\$4,619.50	\$4,318.92	\$1,288.04	\$538.02	\$0.00	\$10,764.48

ARORA AND ASSOCIATES, P.C.
NJDOT Safe Routes to Schools Design Assistance Program

Allen W. Roberts & Salt Brook Elementary Schools, New Providence Middle School - Borough of New Providence, Union County

CONSTRUCTION SUPPORT LEVEL OF EFFORT

ENGINEERING FEE ESTIMATE

July 21, 2020

Labor (ET3, PI, PIII)		\$1,826.06
Labor (PV, PVI, PVIII)		\$8,938.42
Labor Subtotal		\$10,764.48
Escalation *		\$78.16
Total Labor		\$10,842.64
Overhead	160.97%	\$17,453.40
Fixed Fee	18.00%	\$1,951.68
Subtotal		\$30,247.72
Direct Expenses		\$201.25
Total-Arora		\$30,448.97
GRAND TOTAL		\$30,448.97

** ESCALATION CALCULATION*

Wage Approval = 1-Feb-20
 Project Start = 1-Apr-21
 Duration = 6 months
 Project Midpoint = 1-Jul-21
 Project End = 1-Oct-21
 Escalation (<P4) = 3.0% 17 months = 4.28%
 Escalation (>P4) = 0.0% 0 months = 0.00%
 for >P4, escalation is multiplied by F = (duration - 18 months) / (duration) if duration is greater than 18 months

ARORA DIRECT EXPENSES

Mileage	350	\$0.575
		\$201.25
Total		\$201.25

FIXED FEE CALCULATION

PROJECT:	Safe Routes to Schools - Borough of New Providence
CONSULTANT:	ARORA AND ASSOCIATES, P.C.
AGREEMENT OR CAM NO.:	
PREPARED BY:	Dave Hutchinson
DATE:	21-Jul-20

EVALUATE PROJECT SPECIFICS:

Directions:

*Prime Consultant will use Total Project Design Cost (or Task Order Design Cost) for the SIZE criteria
Each Subconsultant will assign points for SIZE, COMPLEXITY, DURATION, & DEGREE OF RISK based on its specific project tasks.*

SPECIFICS	<u>CRITERIA</u>	<u>POINTS</u>	<u>RATING</u>
SIZE:	SMALL - Total Fee (Project Design Cost) < \$1,250,000	15	15
	LARGE - Total Fee (Project Design Cost) > \$1,250,000	20	
COMPLEXITY:	SIMPLE - Limited Scope of Work; Deck Patching, Resurfacing, Restoration, Concept Development, Studies, Surveys, Landscape, Inspections	10	10
	STANDARD - Moderate Scope; Rehabilitation, New, or Reconstruction	15	
	COMPLEX - Multi-disciplined, Highly Specialized, or Major Unusual	20	
DURATION:	STANDARD - Appropriate Schedule	15	15
	AGGRESSIVE - Designers Schedule Reduced > 10 %	20	
DEGREE OF RISK:	LEVEL 1 - Low Risk of Claims; Limited Scope of Work, Deck Patching, Resurfacing, Restoration, Concept Development, Studies, Surveys, Landscape, Inspections	20	20
	LEVEL 2 - Average Risk of Claims; Standard Complexity or Level 1 with High Public Exposure	30	
	LEVEL 3 - High Risk of Claims; Hazardous, Experimental, or Bonus/Penalty Clauses	40	
TOTAL RATING =			60

CALCULATE FEE:

PROJECT SPECIFICS FACTOR (Total Rating /100) =	0.60
FEE FACTOR (Project Specifics Factor x 0.30) =	0.18
DIRECT LABOR COSTS	_____
TOTAL FEE (Direct Labor Costs x Fee Factor) =	\$ -