SAFE ROUTES TO SCHOOL (SRTS) DESIGN ASSISTANCE PROGRAM

NEW JERSEY Safe Routes to School

ARORA and ASSOCIATES, P.C.
Consulting Engineers

CONGRATULATIONS!

Congratulations on your Safe Routes to School Design Assistance Grant win! Now, it's time to select an NJDOT-approved consultant to help you navigate the road from project initiation through the bidding process.

COMPANY OVERVIEW

Arora and Associates, P.C., is a full-service civil engineering and transportation design firm with a proven history of turning complex issues into practical solutions. Arora has earned its reputation by successfully delivering both large and small scale infrastructure and transportation improvement projects to public agencies and municipalities across the region since 1981.

Our experienced professionals are highly skilled in all facets of civil engineering, project management and environmental compliance. Multi-disciplinary project teams will work with you to deliver innovative, high-quality and cost-effective answers to all of your infrastructure needs.

PROJECT MANAGEMENT

Our Project Manager, David Hutchinson, P.E., has over 34 years of experience in project management and transportation design, and currently acts as the Vice President and Department Head of Highway Engineering at Arora. Mr. Hutchinson has led many complex NJDOT, County, and Local Aid projects that provided pedestrian and bicycle facilities, traffic and pedestrian signals, signing, striping, geometrics, safety analysis, bridge structures, and community involvement.

Don Hartman, P.E., will act as Deputy Project Manager to lead the engineering design, community involvement, and project delivery phases of your project. He will be available on a continuous basis to discuss your concerns, address issues, and provide the first layer of Quality Assurance and Quality Control. Mr. Hartman has worked for 30 years designing and reviewing roadways, traffic, drainage, and safety projects. He has an intimate understanding of the federal-aid delivery process and has successfully completed numerous Safe Routes to School projects for municipalities in New Jersey.

SRTS EXPERIENCE

Arora understands the needs of pedestrians, bicyclists and motorists within the school community, and offers significant experience designing projects that provide accessibility and operation for all users. Safe access to school for pedestrians and cyclists is of paramount importance when we design accessible routes, bicycle facilities, intersection elements, and construction staging.

Recognizing that every project is unique, we work closely with all stakeholders to meet individual project needs. We consider continuous coordination and input from local officials, school officials, local law enforcement and parent-teacher organizations to be critical to the successful planning and implementation of SRTS design projects.

Our promise is to meet all of your SRTS planning and design needs for a smooth transition from project initiation through construction support. Available SRTS design services offered by Arora include, but are not limited to:

- Initial Topographic Survey and Basemapping
- Complete Streets Policy Implementation
- ADA Compliant Sidewalks and Curb Ramps
- Crosswalks, Striping and Pavement Markings
- Pedestrian Refuges and Islands
- Traffic and Pedestrian Signals
- Pedestrian Activated Facilities (H.A.W.K. & R.R.F.B.)
- Complex Pedestrian Bridge Design
- Bicycle Lanes, Signage, Striping, and Storage Design
- Multi-Use Pathways & Shared Use Facilities
- Intersection Safety Improvements
- School Zone and Pedestrian Signage
- Railroad Coordination and Permitting
- Public/Community Involvement
- School Radar Feedback Signage
- Traffic Calming Measures
- Roadway Drainage & Stormwater
- Porous Sidewalk, Driveway, and Guide Rail Design
- Electrical & Lighting Design at Intersections & Sidewalk
- Plan Development and Specifications

RELEVANT PROJECT EXPERIENCE

Klockner Elementary School Safe Routes to School, Hamilton Township, New Jersey

Arora has completed the subject project for Hamilton Township in March 2025, with the start of construction scheduled for Summer 2025, immediately after the school year concludes. The project area is largely residential with Klockner Road, an Urban Minor Arterial, splitting the area down the middle.

The proposed school safety improvements span twenty-four (24) intersections and include the installation of two (2) solar flashing beacons (school zone speed limit warning assemblies) on either side of Klockner Elementary School and two (2) solar flashing beacons (rectangular rapid flashing beacons) at a relocated mid-block pedestrian crossing that sees high pedestrian traffic from both school children and the local community. Additional pedestrian improvements include nineteen (19) new and restriped ladder-type crosswalks, over 2,100 square yards of new and reconstructed sidewalk, and fifty (50) ADA-compliant curb ramps with associated detectable warning surfaces.

Roadway improvements include pavement reconstruction at several intersection corners, which is needed to promote positive stormwater runoff flow away from the bases of the curb ramps. Striping and paving markings are to be replaced, over 1,600 linear feet of new curbing will be installed, and twenty-two (22) driveway access points adjacent to revised sidewalk locations were redesigned.

Arora worked closely with Hamilton Township to promote community involvement throughout the design process, listening to the concerns of local property owners and incorporating design changes to address those concerns. Design assistance was provided to determine the required right-of-way easements, and calculation of the total disturbance and net new impervious areas for comparison versus the allowable stormwater management thresholds.

Various Sidewalk Improvements, New Providence Borough, New Jersey

Currently in the Preliminary Engineering phase of design, the project encompasses three distinct areas that serve multiple schools and includes one county route that is known to be dangerous to cross.

The project design has straightforward pedestrian improvements, including seven (7) new and restriped ladder-type crosswalks, new sidewalks in areas where there is none currently, reconstructed sidewalk where deteriorated, and thirteen (13) ADA-compliant curb ramps with associated detectable warning surfaces. Roadway improvements will be limited to replacing curb and striping, adding signage as needed, and reconstructing thirty-six (36) driveways adjacent to the new sidewalk.

The roadside border areas are generally steep throughout the entire project, and are also home to many large, old-growth trees that make the addition of sidewalk challenging. Arora designed landscaping walls to cut sidewalk into these border areas and will narrow one street to protect as many trees as possible during design.

To maintain existing drainage patterns, Arora located existing subsurface underdrains and connections for the roof drains and sump pumps emanating from the houses. These drainage considerations will be accounted for when designing the sidewalks, curbs, and landscaping walls.

Arora has worked diligently to assist the Borough in navigating the challenging public involvement stage that New Providence presents, largely due to the property owners' high level of participation in community affairs and their unmistakable pride in where they live. The Public Information Center had significant turnout from dozens of interested parties, most of which submitted comments on the project. Arora considered each comment and provided responses to alleviate their concerns. Required right-of-way easements were also determined, and the total disturbance and new impervious areas were calculated for stormwater thresholds.

RELEVANT PROJECT EXPERIENCE

Safe Routes to School
New York City, New York

Arora is currently designing school safety and operational improvements for the New York City Department of Design and Construction at eight (8) schools in the Borough of Queens. The proposed improvements span nineteen (19) intersections, and include physical traffic signal updates, fourteen (14) bulb-outs to promote traffic calming, intersection realignment, striped and raised crosswalks, new sidewalks and ADA ramps, bus pads, streetlights and traffic signal timing modifications.

Route 35, North of Lincoln Avenue to the Navesink River Bridge
Monmouth County, New Jersey

Arora completed the redesign of twenty-seven (27) signalized intersections plus one mid-block pedestrian hybrid beacon (HAWK) signal for this nine-mile corridor of Route 35. Field investigations were conducted and operational analyses optimized traffic flow and levels of service. The redesigns included new ADA-compliant modifications, new traffic signal equipment, improved signal timing and phasing to confirm vehicle and pedestrian change and clearance intervals, vehicle and pedestrian detection systems, bicycle compatibility, signing, and pavement markings. The project was designed to meet an accelerated schedule.

Route 9 Sidewalk Improvements
City of Northfield, New Jersey

Arora designed pedestrian facilities along both sides of this 1.2-mile section of Route 9 to address pedestrian concerns within the City of Northfield. Improvements created a continuous accessible route through the area, which includes Northfield Community Elementary School. The school generates significant pedestrian traffic, including many children, and the existing sidewalks were failing to provide safe traveling conditions. The design also provided enhanced pedestrian crossing markings at three (3) signalized intersections and revised geometrics to shorten pedestrian crossing distances. Sidewalks were constructed using porous materials at select locations to address the NJDEP Stormwater Management Rules without requiring extensive drainage systems and/or infiltration basins.

Pedestrian Crosswalk Improvements
Lawrence Township, New Jersey

Arora designed improved pedestrian crossings along this section of Route 206 between Lawrence Road and Pilla Avenue. ADA-compatible sidewalk and pedestrian ramps were installed on all project corners and ladder-type crosswalk markings were installed at all crossings. Arora also designed new rectangular rapid flashing beacons for future installation at the Route 206 approaches.

RELEVANT PROJECT EXPERIENCE

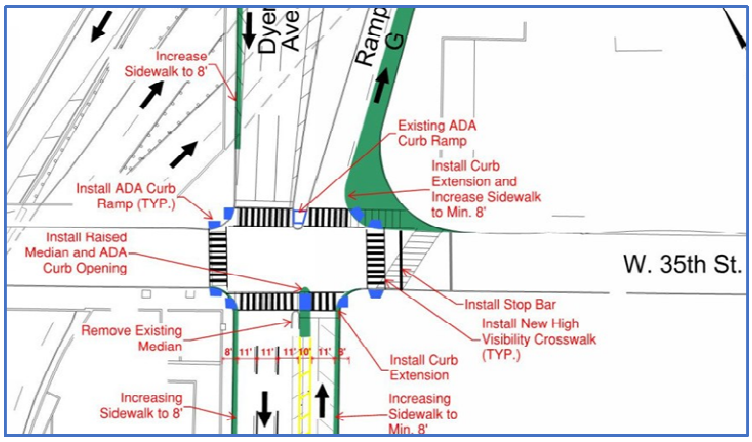
Route 9 – Indian Head Rd. to Central Ave./Hurley Ave. Toms River & Lakewood Townships, New Jersey

Arora is redesigning twelve (12) signalized intersections and adding two (2) new traffic signals within this high-profile, seven-mile corridor along Route 9. The project includes over seven (7) miles of new or replacement sidewalk, hundreds of ADA curb ramps, new crosswalks, pavement markings, signage, and reconstructed pavement. A safety analysis was conducted to evaluate the need for two-way, left-turn-only lanes (TWLTL) based on the review of over 800 crash reports. The signal redesigns include new traffic signal equipment, new signal timing/phasing to confirm vehicle and pedestrian change and clearance intervals, leading pedestrian intervals, and vehicle and pedestrian detection systems with all associated electrical and lighting updates. Geometry was revised to accommodate bicycle use, and roadway drainage systems and stormwater management facilities were upgraded throughout the corridor.

Route 33 and Route 70 Intersection Redesign Projects, New Jersey

As part of a pavement rehabilitation project, Arora redesigned several signalized intersections, including all signing and pavement markings, for projects along Route 33 in Middlesex and Monmouth Counties, and Route 70 in Burlington, Monmouth and Ocean Counties. Operational analyses were completed to optimize traffic flow and levels of service. Pedestrian-related features such as curb ramps, sidewalks and crosswalks were brought into compliance with current ADA standards. The redesigns also included new countdown pedestrian signal heads, updated geometry for bicycle compatibility, signing, and pavement markings. The projects included the preparation of traffic signal design and timing plans, traffic details, MPT plans and specifications, cost estimates, construction staging and detour plans.

Lincoln Tunnel Pedestrian Safety Study New York City, New York



As a consultant to the Port Authority of New York and New Jersey, Arora conducted field inspections of eight (8) signalized intersections to assess pedestrian signal change and clearance intervals and signal timing and phasing. Pedestrian crossings at the signals were evaluated to include curb ramps with detectable warning surfaces, crosswalks, sidewalks, pedestrian signal heads, pedestrian signage and street lighting. MUTCD requirements for pedestrian signals were followed at the signalized intersections, along with FHWA ADA guidelines, NYCDOT standards for intersections, and the NYCDOT Street Design Manual to evaluate crosswalks and street lighting.

Pennsylvania Diamond Improvements Linglestown, Pennsylvania

Arora incorporated traffic calming and streetscape measures within this historic Pennsylvania Diamond-style town square. Two (2) roundabout intersections were designed to avoid signalization, and intersection bulb-outs and chicanes were employed to enhance traffic calming through the area. Raised pedestrian crossings and pedestrian refuge islands were used to draw attention to pedestrian traffic. Streetscape elements included shade trees, red brick paver sidewalks and stamped crosswalks. The overall design maintained the feel of the historic town square while improving traffic operation and pedestrian safety.

PROJECT MANAGEMENT AND STAFF

Our project manager and team leaders are advocates for the implementation of planning, design, construction and operation of safe transportation facilities that address the needs of pedestrians, bicyclists, various age groups and users with physical challenges. Our team is extremely familiar and experienced with the NJDOT's Local Aid plan development process as described in the NJDOT LPA Manual.

CONTACT INFORMATION

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ARORA'S IN-HOUSE SERVICES

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- Structural & Seismic Design
- Traffic Engineering & Analysis
- Safety Studies & Analysis
- Geotechnical Engineering
- Bridge Inspection & Load Ratings
- Surveying & Right-of-Way
- Engineering Research & Development
- Environmental Compliance & Permitting
- Hydrologic & Hydraulic Engineering
- Wetland Delineation & Habitat Assessment
- Electrical Engineering & Lighting Design
- Utility Design & Coordination
- Transportation Planning
- Pedestrian Studies
- Traffic Data Collection
- Construction Management & Inspection
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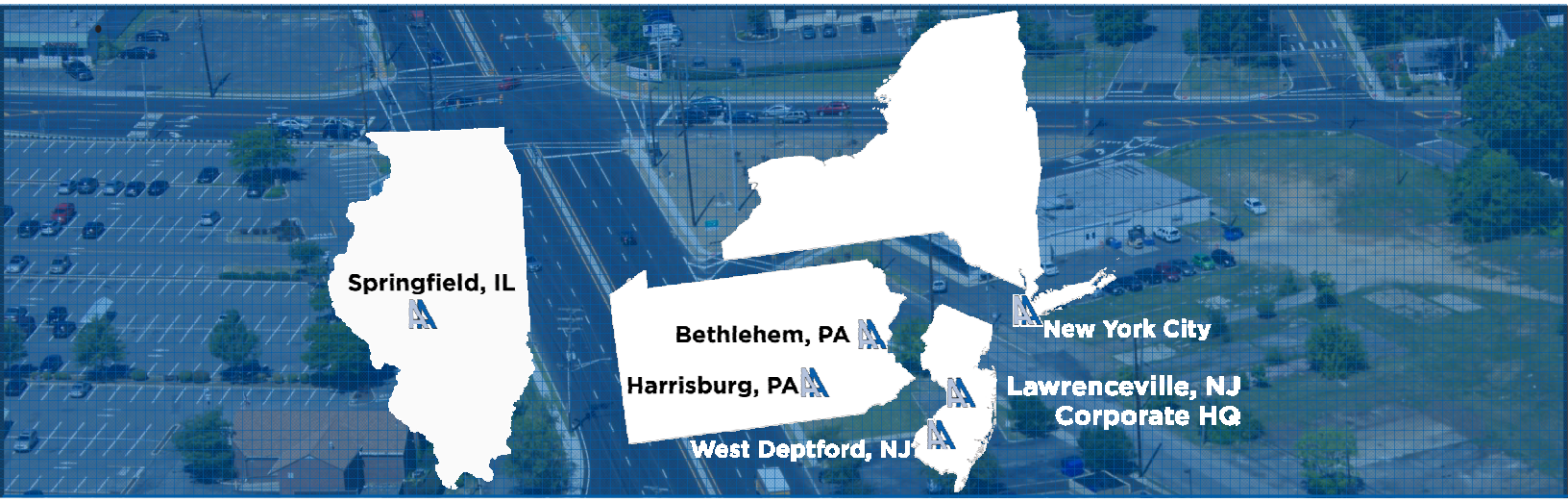

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