



Martin S. Williams, P.E., Project Engineer

Certification: Professional Engineer in Pennsylvania PE085649 (2016)

Memberships: American Society of Civil Engineers
Institute of Transportation Engineers

Education: B.S. in Civil Engineering, Drexel University, 2012
ADA Curb Cut Ramp Training, February 2015
Signals Analysis Training, University of Florida, March 2015
Highway Safety Manual Workshop, March 2015

Teaching: Civil Engineering 585 – Transportation Planning and Capacity, Drexel University
2015/2016/2017 – Guest Lecturer

Mr. Williams has a variety of traffic engineering skills and responsibilities, including traffic signal design, maintenance and protection of traffic plans, curb ramp design, signing and pavement marking plans and estimate of quantities as part of PS&E packages. He has designed over 100 traffic signals. He is proficient in both AutoCAD and MicroStation and he has developed plans compliant with the CAD standards for PennDOT and the City of Philadelphia. He has performed intersection and arterial analyses using Synchro, SimTraffic and other analysis software. Using KMJ's state-of-the-art equipment and tablet applications, he has collected and analyzed data, including manual turning movement traffic counts, travel time and delay studies, field measurements and observations of geometric and traffic signal conditions and timings.

Relevant Projects

- **Pennsylvania Department of Transportation E03413 District 6-0 Low Cost Safety Improvements - WO #1, WO#3 & WO#5** – Responsible for preparing final traffic signal designs, development of the synchro model, traffic control plans and conducting field observations. PennDOT District 6-0 is seeking innovative low cost safety approaches to improve high crash locations and corridors within the district. KMJ is responsible for three work orders: WO#1 - Intersection Safety Implementation Plan (ISIP), WO#3 – New Falls Road and WO#5 – Levick Street. In the ISIP assignment, KMJ is preparing improvement plans and signal design for various intersections in all five D6 counties. For New Falls Road, KMJ is preparing traffic signal plans for five signalized intersections. **KMJ was also responsible for preparing traffic signal plans for ten intersections as well as an interconnect plan for the 1.3-mile roadway of Levick Street.** (2016-2020)
- **City of Philadelphia American Street Improvement Project – Traffic Engineering, City of Philadelphia Department of Streets** –Responsible for the development of the Traffic Control plans and designing and preparing a total of 24 ADA curb ramps. KMJ is responsible for the coordination among stakeholder groups and public coordination throughout this project. KMJ is facilitating all

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meetings including the Project Steering Committee Meetings, Lunchtime Business Meetings, Public Open Houses and Study Area Tours. KMJ is planning for, organizing and conducting each of these events. Along with the stakeholder involvement, KMJ is responsible for the traffic control plans along this corridor and designing 24 ADA Curb Ramps throughout the corridor. The City of Philadelphia has received federal funding to make improvements along the two-mile North American Street corridor between Girard and Indiana Avenues. The aim of this project is make American Street work better for its users and to provide improved streetscape amenities, including green storm-water infrastructure, while continuing to accommodate the transportation needs of this diverse corridor. (2016-2017)

- **Philadelphia International Airport On-Call Planning Services, Philadelphia PA-** Responsible for traffic signal calculation and analysis using Synchro 9, he also conducted field observations. The Philadelphia International Airport seeks to improve ground transportation options by providing a Transportation Network Companies (TNC) Parking facility. KMJ is responsible for the parking utilization analysis in the existing TNC Lot, and provided recommendations for a potential new valet/TNC Lot. KMJ also evaluated two traffic signals at the International Plaza Driveway and the Cell Phone Lot Driveway to determine congestion issues and potential improvements. This involved verifying existing conditions, calculating clearance timings and conflict factors, and measuring sight distance. KMJ conducted 14-hour manual turning movement traffic counts at both intersections and conducted capacity analysis using *Synchro 9*. (2017)
- **City of Philadelphia Lincoln Drive Resurfacing and Restoration - Traffic Signal Design, City of Philadelphia Department of Streets -** Responsible for preparing final traffic signal plans and conducting field observations along six intersections on Lincoln Drive. This work is part of the city-wide traffic engineering design services to assist with highway projects, including the preliminary and final design of traffic signals, streets and roads, traffic calming measures, school zone safety improvements, street re-paving packages, ADA ramps, Intelligent Transportation Systems (ITS), traffic studies, design of line stripping, traffic control signage and trails. KMJ is responsible for conducting field observations and preparing final traffic signal permit plans for six intersections along Lincoln Drive. (2012-2016)
- **City of Philadelphia Roosevelt Boulevard Multimodal Corridor Program -Traffic Engineering, City of Philadelphia Department of Streets -** Responsible for developing the Synchro model and field observations. Duties include documenting intersection geometry, measuring signal timings, and taking photographs of every intersection approach. The City of Philadelphia Department of Streets has taken on the robust effort to transform the bustling yet problematic Roosevelt Boulevard to modern multimodal transportation corridor. KMJ is responsible for preparing the Synchro Model for 40 complex intersections along the Roosevelt Boulevard Corridor, between Broad Street and Devereaux Street. KMJ also conducted field observations, verified roadways and traffic signal conditions and collected data to verify the Synchro Model. (2015-2019)
- **City of Philadelphia Transit Signal Priority System Performance (TSP) -** Responsible for collecting and analyzing Southeastern Pennsylvania Transportation Authority (SEPTA) bus routes along four key corridors and 124 signalized intersections. Using the KITS mobile app, he was able to evaluate corridor performance noting stops/starts/speed, etc. along SEPTA Routes 6, 52, 60 and 66. The City of Philadelphia, SEPTA and PennDOT sought to improve transit vehicle running time and reliability as well as improve traffic flow along capacity constrained arterials. This work consists of gathering transit vehicle travel time data, prior to implementation and post implementation to quantify the impact of providing transit signal priority (TSP) operations on transit vehicles. The

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collection and analysis of data will provide a measure for the overall effectiveness of the transit priority system. (2015-2016)

- **City of Philadelphia Historic Streets Curb Ramp Design, City of Philadelphia Department of Streets** - Responsible for designing and preparing a total of 12 curb ramps along three historical streets. He was also responsible for conducting field investigations, taking measurements and preparing a photo-log to document conditions. This work order is for the reconstruction of three historical streets (Maiden Street in Manayunk and American Street and Waverly Streets in Center City). Creative solutions were required at all locations due to the historical nature of the roadways and adjacent buildings. For example, a raised crosswalk was implemented for one crossing on American Street due to the historical buildings and staircases on the corners as well as high curbs and steep grades along the sidewalk. (2015-2017)
- **30th Street Station Precinct Joint Master Plan** – Responsible for the Synchro and SimTraffic analyses for traffic conditions assessed as part of this study. A 30th Street Station District Joint Master Plan is being developed with AMTRAK, Drexel University, and Brandywine Realty Trust. This Master Plan will take into account development in and around the 30th Street Station area, including Drexel University’s Innovation Neighborhood. KMJ is responsible for collecting and evaluating the current vehicular traffic conditions in the area surrounding 30th Street Station; as well as comparing the current conditions to several studies previously conducted in the area. KMJ is also responsible for evaluating future conditions with new development in the area and determining recommendations for future congestion reduction. (2014-2016)
- **City of Philadelphia Traffic Operations and ITS (TOITS), Lindbergh Boulevard, Market Street and Hunting Park Avenue Traffic Signal Retiming, City of Philadelphia Department of Streets** –Responsible for calculating clearance intervals and pedestrian clearance intervals, and deriving peak hour volumes for locations with 15 minute counts. KMJ was responsible for traffic signal retiming along 14 intersections on Lindbergh Avenue, 7 intersections on Market Street and 15 intersections on Hunting Park Avenue. The City of Philadelphia sought to improve mobility and the flow of traffic along major corridors within the city. Signal retiming remains as one of the most cost effective ways to improve traffic flow, increase capacity, and reduce congestion. (2013-2014)
- **City of Philadelphia Traffic Operations and ITS (TOITS), Allegheny Avenue, Rhawn Street and Academy Road Traffic Signal Retiming, City of Philadelphia Department of Streets** – Responsible for Synchro Analysis, data collection and field observations. KMJ was responsible for developing updated traffic signal timings for 21 intersections on Allegheny Avenue, 10 intersections on Rhawn Street and 23 intersections on Academy Road. The City’s objective was to improve traffic flow while providing for appropriate pedestrian clearance, yellow, and all-red times. Retiming traffic signals is one of the most cost effective ways to improve traffic flow, increase capacity and reduce congestions. (2013-2015)
- **City of Philadelphia Traffic Operations and ITS (TOITS), Bustleton Avenue South, City of Philadelphia Department of the Streets** – Responsible for traffic signal design and organizing crash data for the entire 30-intersection corridor. He created collision diagrams based on the crash data analysis for the top 10 intersection where the most crashes occurred in a five-year period. He utilized the survey to place traffic signal equipment, pavement markings, and signs on the drawings. In addition, he created construction plans for each of the intersections for both preliminary design and Design Field Views (DFV). The City of Philadelphia Department of Streets sought to identify, plan, design and construct improvements to make streets and intersections safer for all roadway

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users. This program was the design and implementation of traffic signal and operational safety improvements along several corridors in the City of Philadelphia through a federal TIGER 3 Grant. KMJ was responsible for preparing the safety review report for the entire Bustleton Avenue South corridor along with preliminary and final design plans for 11 signalized intersections. This fast-tracked effort required significant coordination between and among the team as well as across projects being completed for different city departments to ensure a seamless design and implementation. (2012-2013)

- **Pennsylvania Department of Transportation District 6-0 E01254/E02599 Traffic Signal/Safety Support** – Responsible for preparation of traffic signal permit drawings (both new permits and permit revisions), the preparation of traffic signal construction plans, as-built plans, traffic data collection and analysis, safety reviews, the preparation of interconnect/communication plans, coordinated signal system design. This Agreement involves assisting the District 6 Traffic Unit in performing traffic signal and associated work in the five counties in the District 6 region. Additional consultation services are performed on an as needed and assigned basis. (2012-2018)
- **City of Philadelphia Signal Integration Project, City of Philadelphia Department of Streets** – Responsible for the creation of intersection graphics for the KITS software, which is the advanced transportation management software used by the City of Philadelphia, Streets Department. These graphics incorporated the existing lane configurations and signal phasing. He was also responsible for field investigation and verification of existing conditions. The City of Philadelphia Department of Streets sought to integrate its existing signal system and implement an expanded Advanced Traffic Management System (ATMS). The City of Philadelphia has upgraded about 800 of its 3,000 traffic signals to Type 170 controllers. These upgrades will improve traffic signal coordination and mobility saving the driver both time and money. KMJ developed and deployed a consistent, repeatable and fail-safe process to produce intersection graphics and representative phasing movements for each intersection. This consistent process-driven approach will save the city money and provide a top quality product. (2012-2013)
- **City of Philadelphia Historic Street Condition Study, City of Philadelphia Department of Streets** – Responsible for assessing current Historic Street conditions of over 500 blocks throughout the city, which was identified and last completed in a 1999 Inventory. Responsibilities included field verification of each block and included existing dimensions/conditions, measurement of roadway issues (depressed roadway, block/brick missing, patching areas, and inconsistent material), and photographs. Each block was given a rating based on five criteria and assigned a numerical value; the higher the score, the lower the integrity of the block. The rankings were able to be sorted by planning district, council district, etc. to assist DOS in its prioritizing and budgeting process. (2015-2017)
- **Pennsylvania Department of Transportation District 6-0 E01381/ E03106 RTMC Support Services** – Responsible for assisting in the development of course work material for training programs. As part of a multi-disciplinary team, KMJ's Traffic Management Center (TMC) Technicians staff the District 6-0 Regional TMC. The TMC technicians monitor and operate the District 6-0 ITS Components, such as CCTV, DMS, incident management, ramp metering, and travel times to effectively and efficiently manage the roadway network. KMJ provides ongoing training to the TMC technicians as part of this contract. The technicians have been instructed by KMJ on basic traffic signal operations including components and, timing, and software to enrich their understanding of traffic flow and allow them to better perform their tasks at the TMC. In conjunction, KMJ provided training on seven different types of traffic signal software used to

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communicate with hundreds of traffic signals throughout District 6-0. The technicians currently use the software in coordination with the District Traffic Signal Supervisors to monitor communication and check timings and phasing on District 6-0 traffic signals. KMJ also provides training to the TMC technicians on the VPP Suite performance measures tools. Technicians are provided with a detailed explanation on each of the tools and then guided through hands-on instruction as to how the tools can expand their use of the systems within the TMC for PennDOT's benefit. (2008-2017)

- **City of Philadelphia Citywide Traffic Signal Retiming Initiative, City of Philadelphia Department of Streets** – Responsible for data collection, including travel time runs conducted to compare conditions before and after traffic signal retiming for several major corridors within the City of Philadelphia. The City of Philadelphia sought to improve mobility and the flow of traffic along 21 major corridors within the City. Signal retiming remains as one of the most cost effective ways to improve traffic flow, increase capacity, and reduce congestion. (2011-2014)
- **City of Philadelphia On-Call ADA Design & Construction, City of Philadelphia Department of Streets** – Responsible for conducting field investigations, entering data, and creating summary sheets for the as-built **reviews of 83 curb ramps** throughout the City of Philadelphia. Measurements and photographs were taken to measure all controlling criteria needed to assess each ramp's compliance with PennDOT and Streets' Department ADA standards. In addition, Quality Control (QC) checklist was also completed for each ramp noting general conditions, pedestrian access route, ponding, triangular landing area, detectable warning surface, cheek wall, step & handrail, and on-street parking. Summary sheets for each work order were created indicating the compliance status of each ramp (Acceptable or Ramps in Need of Repair/Reconstruction). (2013-2016)
- **Pennsylvania Department of Transportation District 2 E01107/ E02521/ E03731 Highway Occupancy Permit (HOP) Application Reviews** – Responsible for data collection and analyses in the review of traffic impact studies, signal permit plans, level of service and capacity analyses, trip forecasting (generation, distribution, modal split, and assignment), signal warrant analyses, turn lane and phasing warrant analyses, signal timing, phasing, coordination, data collection and preparation of final review comments. (2011-2021)
- **Delaware Department of Transportation Traffic Impact Study Services (Agreements 1654, 1655, 1528)** – Responsible for performing reviews of completed traffic impact studies throughout the state of Delaware. This work includes data collection, field verification of intersections, development/review of current and projected traffic volumes, and analysis/review of existing and future traffic conditions both with and without the proposed site to identify potential impacts as a result of the development. In-depth investigations of the Synchro and/or HCS analyses will also be completed by KMJ staff to ensure proper modeling of the traffic operations. A list of recommendations is developed for the Final TIS review letter. (2013-2016)
- **Pennsylvania Department of Transportation E02542 Roundabout Support, Lancaster, Lehigh, Berks and Northampton Counties** – Performed analyses for this pilot study, which tasks included identifying roadway locations in Lancaster County with congestion issues, crash history, and other safety concerns. The identified locations were ranked based on the Equivalent Property Damage Only (EPDO) value, similar to the process PennDOT District 8-0 uses to evaluate intersection improvements under the Safety Improvement Plan. Each identified intersection and corridor was then ranked based on the crash history, average daily traffic, congested corridors, posted speed limits, existing grades, existing intersection controls, potential for displacements, and the presence of

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4(f) properties. Findings were summarized and presented in the “Lancaster County Roundabout Pilot Study” report. (2013-2015)

- **Winter Weather Response Plan, City of Philadelphia Department of Streets** – Assisted with preparations for focus groups with staff, and stakeholder and external partner interviews to understand available technology and state-of the-practice methods for snow removal, including chemical treatment, equipment, situational awareness and technology. The City of Philadelphia (COP) Department of Streets was re-examining its winter weather operations, including use of and application of chemical product, technology to gain situational awareness, and overall efficiency in its operations. The COP sought short term and long term high level recommendations to upgrade the City’s Winter Weather Response system. (2015)