



MARK SEPELT, P.E.

Career Summary:

Currently Mr. Seppelt as a part-time employee provides a high-level review of project design and implementation at Wi-Skies, LLC. He plays a critical role in project quality control and serves in an advisory capacity on conceptual design issues. In addition, he is regularly called upon to develop and review design standards, technical drawings, and policy issues for clients. Mark served as the Electrical and Mechanical Unit Chief in the Bureau of Design and Environment at the Illinois Department of Transportation (IDOT) for 21 years. In this position, Mark designed and reviewed the design of hundreds of lighting projects on state, federal, and local highway systems. His daily responsibilities included creating, updating, coordinating, interpreting, and maintaining the Department's policy on roadway lighting. Mark helped draft responses for the Secretary of Transportation's office on roadway lighting related questions from the public. He also provided input on position statements for the Secretary's office on legislative bills passing through the state legislature impacting IDOT policies on lighting. He was responsible for the design and review of all roadway lighting projects in Illinois except for Chicago, District 1. His duties also included addressing all RFI's and approving all shop drawings prior to construction and in addition, he inspected all roadway lighting projects for final acceptance.

Mark oversaw the design and upgrade of roadway dewatering pump stations. He initiated a facilities assessment review of all the Department's approximately one hundred stations Statewide to determine their condition and develop a strategy to bring the older facilities into compliance with current standards. He offered input as needed when there was electrical work of any kind on IDOT projects and he even designed and reviewed electrical and lighting projects for other agencies upon request (i.e., DNR). Mark supervised a staff of electrical engineers and lighting designers and managed multiple contracts when consulting firms were used to augment his in-house design team. He also reviewed all consultant submissions for prequalification in roadway lighting for the Department.

During his tenure at IDOT, Mark corrected, updated, and helped guide the Department's Standard Specifications for Road and Bridge Construction, Highway Standards Manual, Bureau of Design and Environment Manual, and other manuals and guides on roadway lighting matters. He routinely monitored international, national, state, and local codes to keep Department standards updated and technically accurate. Mark co-hosted an annual meeting with personnel from all nine IDOT operating districts to discuss roadway lighting and traffic signal topics. He also worked closely with the operating districts on lighting and electrical projects for new construction, relocations, and facility upgrades including supplying electrical and lighting designs and plans, project cost estimates, manhour estimates, policy interpretation, detail drawings, maintenance recommendations, answering construction questions, and coordination issues.

Mr. Seppelt for many years has been active within the industry on the national level serving in leadership positions for the Illuminating Engineering Society's Roadway Lighting Committee (RLC) where he now serves as Chair. He also serves on various RLC task groups. He currently serves on the American Association of State Highway and Transportation Officials (AASHTO) Joint Technical Committee on Roadway Lighting along with individuals from other DOTs around the country to advance good lighting design practices for roadways. He initiated and guided two pilot projects to install and monitor adaptive lighting control systems to evaluate the role it might play in the future of roadway lighting at IDOT.

Mark sponsored research initiatives and served as technical review panel chair for several roadway research studies funded by IDOT through the Illinois Center for Transportation. Which have researched topics such as lighting for enhanced pedestrian safety at intersections, investigating technological advancements in LED roadway lighting, and gains in high mast light tower efficiency with reduced cost. Mr. Seppelt served on National Cooperative Highway Research Program (NCHRP) panels as well as other agency panels for IDOT promoting research projects on roadway lighting and safety. He has recently served on the NCHRP research panel for project 05-22 and the 05-22A *Gaps and Emerging Technologies in the Application of Solid-State Roadway Lighting* panel, researching cutting edge technology related to solid state roadway lighting. Mr. Seppelt now serves as a panel member on NCHRP 05-25 *Guide to the Contextual Applications of Overhead Lighting on Highways* through the Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine.

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Education:

- ◆ B.S. Civil Engineering
Missouri University of
Science & Technology,
1978
- ◆ MBA University of Illinois
– Springfield, 1992

Licensed as an Electrical Engineer:

- ◆ Illinois #062-041504
- ◆ Missouri #025872
- ◆ Louisiana #45203
- ◆ Florida #90620
- ◆ Minnesota #59258

Professional Societies:

- ◆ IES Roadway Lighting
Executive Committee,
Chair
- ◆ AASHTO Joint Technical
Committee on Roadway
Lighting, Friend of the
Committee
- ◆ NCHRP Review Panel
Member, Projects 05-22,
05-22A and 05-25



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Project Summary:

Senior Engineer for Interstate Lighting Retrofit using Carbon Reduction Program Funding for Georgia DOT. GDOT Management wanted to retrofit and repair approximately fifty miles of existing lighting along the interstate system within the I-285 Atlanta metro perimeter ahead of the World Cup arrival in the summer of 2026. The Department identified and utilized available funding from the federal carbon reduction program (CRP) initiative to deliver this seemingly impossible task in less than a year and a half. This timeframe included development of full plans, specifications and estimates for fourteen total projects which were competitively bid and awarded to comply with federal funding requirements. Starting in October of 2024, each of the fourteen projects had to be developed in extremely short order to ensure they were competitively bid, awarded, procured, installed and operational before May 2026 to meet the World Cup deadline. This required an incredible amount of effort and coordination with over a dozen GDOT Offices to ensure the delivery schedule was met. All plan development was done in accordance with all GDOT and FHWA requirements, including coordination and approval from all parties, including environmental, right-of-way, structural, railroad, utility, and state construction offices. Despite the consolidated schedule, all construction delivery requirements had to be fulfilled, including final field plan review (FFPR), approval from all offices, including FHWA, and Construction Bidding Administration (CBA) and Let date timelines.

All fourteen projects required full electrical survey to determine the condition and power source of each individual luminaire and circuit along each corridor to establish accurate quantities to ensure adequate funding was provided within each of the individual projects' budget while not exceeding the overall available CRP funding. As much of the system was in disrepair, this required a lot of cable replacement as well as replacement of each of the service points to ensure all lights are metered. Each project was designed to meet current IES/ANSI lighting requirements whenever possible without creating environmental, ROW or constructability issues with variances granted when necessary. In order to adhere to these IES recommendations, several trees, branches and other foliage were removed within a certain distance of each pole or tower to ensure the luminaire distribution pattern was not disrupted in the near future.

Wi-Skies is also responsible for construction oversight of all projects to address the myriad of RFI's and construction issues with all fourteen projects. These projects are concurrent to many other large-scale projects, such as repaving all fifty miles of the same stretches of the same interstate system and a fiber installation project, all with competing lane closures. We are also responsible for providing as-built drawings for all work completed, including final wiring schematics for each service point throughout the interstate system, as this information did not previously exist, but is necessary for any future maintenance or proposed project. Mark is responsible for QCQA all lighting plans, photometric and voltage calculations, and specifications.

(PI0020767) I-75 from Musket Ridge to I-85. This six-mile-long segment included all lighting infrastructure along the mainlines, ramps, and under bridge locations along I-75 south of the I-75/85 Connector split. This project included one interchange that was lit by high mast light towers, which needed extensive repair in addition to being retrofitted. Additionally, some light poles were relocated from behind sound barriers to in front to alleviate accessibility and maintenance concerns.

(PI0021308) I-85 from I-75 Split to Lenox Rd. This 3.5-mile-long segment included all lighting infrastructure along the mainlines, ramps, and under bridge locations along I-85 north of the I-75/85 Connector split. This segment included the illumination of the Buford Highway ramps and side streets spanning underneath the I-85 mainline, adjacent to the Buford Spring Connector Tunnel, which was Let separately, but includes both daytime and nighttime lighting. Field analysis was conducted to ensure all existing, damaged, or removed lighting infrastructure was accounted for. During design, several service points were eliminated and combined with others to minimize the number of locations that could be vandalized while also helping to reduce the cost of the project.

(PI0020955) I-75/85 from I-20 North to I-85 Split. This segment was 4.5 miles long and included all lighting infrastructure along the mainlines, ramps, and under bridge locations along the I-75/85 Connector through downtown Atlanta. This segment was designed in conjunction with three other tunnel lighting projects: Capitol and Memorial Tunnel, Piedmont and Baker Tunnel, and Courtland and Ralph McGill Tunnel projects. While this will pose a challenge with conflicting lane closures, it presents the opportunity for multiple Contractors to work together in an area with a lot of lighting work to be completed in a short amount of time. Field analysis was conducted to ensure all existing, damaged, or removed lighting infrastructure was accounted for, which is critical to ensure final quantities correlated with actual service point loads across the several design and construction plans. There was a stretch in this project where existing high mast towers which were up to 200' in height, lighting the mainline from each side. There were also several frontage roads adjacent to the interstate mainline that have ramps that tie into the interstate that were continuously lit.

(PI0020954) I-75/85 from Merge to I-20. This four-mile-long segment includes all lighting infrastructure along the mainlines, ramps, and under bridge locations along the I-75/85 Connector through downtown Atlanta from the I-75/85 merge north to I-20. This segment includes a large interchange between I-75/I-85 and I-20 which utilizes a combination of high mast towers, underpass luminaires mounted on short poles, and conventional poles, all which need to be retrofitted to LED luminaires. There were also several frontage roads adjacent to the interstate mainline that have ramps that tie into the interstate that were continuously lit. Field analysis was conducted to ensure all existing service points, high mast tower light poles, underpass luminaires, roadway luminaire light poles, and any damaged or removed lighting infrastructure was accounted for. Field analysis was especially critical for this segment to ensure the overall design was improved to meet current ANSI/IES standards, and new design layouts were implemented where the team discovered the opportunity to without interfering with existing infrastructure.

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(PI0020766) I-75 from Frontage Rd to I-85. This four-mile-long segment includes all lighting infrastructure along the mainline, ramps, and under bridge locations along I-75 south of the I-75/85 Connector near the Atlanta airport. This segment includes a center-splitting freeway exit and entrance ramps illuminated by cobra heads mounted on existing light poles with titled arms, which were retrofitted to horizontal mount fixtures and arms as part of this retrofit project. In addition to the mainline lanes, there was also a separate HOV lane that was part of this project which exited directly onto an overpass bridge. As this project was adjacent to the Atlanta airport, shorter high mast towers (60' MH) were used at the I-285/I-75 Interchange, which were retrofitted as part of this project. Due to the proximity to the runway, additional analysis was done to minimize any uplight which may be detrimental to incoming and outgoing pilots. Two existing towers which were located in an area known to be predominately underwater were removed as part of this project and replaced with conventional light poles.

(P#0020951) I-85 from Riverdale Rd to I-75. This 5.5-mile-long segment includes all lighting infrastructure along the mainlines, ramps, and under bridge locations along I-85 near the Atlanta airport. This segment had a very large amount poles which were knocked down or subject to copper thievery, which presented the opportunity to shift the new poles back from the mainline and ramps to minimize the risk of future knockdowns. Several other locations which were subject to frequent knockdowns, guardrail was added to help prevent future knockdowns. Many trees which were found to be located within clear zone were removed as part of this project and all trees were trimmed at all light pole locations. Special attention was given to the photometric distribution of new LED luminaires, and short mast arms were recommended for use on existing poles located close to the roadway to optimize the uniformity of the new lighting design. Field analysis was especially critical for this segment to ensure all existing, damaged, or removed lighting infrastructure was accounted for. The overall design was improved to meet current ANSI/IES standards, and new design layouts were implemented where the team discovered the opportunity to without interfering with existing infrastructure. Careful consideration was also provided to ensure there was minimal uplight to the incoming and outgoing pilots near the Atlanta airport.

(PI0021309) I-20 from Linkwood Rd to I-85. This six-mile segment includes the mainlines, ramps, and under bridge locations along I-20 west of downtown. A large section of I-20 within this segment did not have center median light poles, instead placed conventional poles on the outside of the freeway. Therefore, additional attention was given to which poles required new fixtures with a higher-lumen output or lower-lumen output to ensure all lanes were properly illuminated while optimizing the performance of the existing lighting infrastructure. This project also had high mast tower lighting at the I-75/85 interchange which needed to be repaired and retrofitted. Field analysis was especially critical on this segment to ensure all existing, damaged, or removed lighting infrastructure was accounted for. The overall design was improved to meet current ANSI/IES standards, and new design layouts were implemented where the team discovered the opportunity to without interfering with existing infrastructure.

(PI0021310) I-20 from Capitol Ave to Flat Shoals Road. This five-mile segment includes the mainlines, ramps, and under bridge locations along I-20 immediately east of the I-75/85 Connector. This section of I-20 includes both center median light poles and single conventional light poles on the outer lanes as well as high mast towers at the interchange of I-75/I-85. Special attention was given to which poles required new fixtures with a higher-lumen output or lower-lumen output to ensure the existing infrastructure is optimized to ensure all lanes are properly lit. Field analysis was especially critical to ensure all existing, damaged, or removed lighting infrastructure was accounted for. Several of the service points were moved from their existing location to a more accessible location for maintenance and operational considerations. The overall design was improved to meet current ANSI/IES standards, and new design layouts were implemented where the team discovered the opportunity to without interfering with existing infrastructure.

(PI0021311) I-20 from Flat Shoals Rd to Columbia Dr. This four-mile-long segment included lighting along the median of the mainlines, lighting along ramps, and under bridge lighting along I-20, all of which was retrofitted to LED. Field analysis was conducted to ensure all existing, damaged, or removed lighting infrastructure was accounted for. The overall design was improved to meet current ANSI/IES standards, and new design layouts were implemented where the team discovered the opportunity to without interfering with existing infrastructure.

(PI0020952) I-75/85 at Capitol Ave and Memorial Dr Tunnel Lighting Retrofit. Located immediately north of the I-20 interchange, this 0.35 mile long segment of I-75/85 is the most heavily traveled roadway in Atlanta. The tunnel has six northbound lanes, six southbound lanes, and five ramp lanes running under it. Due to the tunnel's overall width, length and relatively short height and only outside wall-mounted luminaires, rear-end accidents and traffic backups are common in this area. A 3D model of the entire tunnel was generated using actual tunnel entrance and exit portal height measurements and aerial imagery. A daytime analysis was done within AGI32 to determine how much natural daylight penetrated within the tunnel. From this information, Wi-Skies developed an experimental solution to provide minimal lighting only where necessary rather than current IES/ANSI recommendations. The lighting design took into consideration a variety of budgetary and constructability concerns and developed custom overhead installation assemblies braced between existing concrete beams directly over traffic without drilling the existing concrete beams anywhere. Because a maximum of three lanes of traffic could only be shut down at any time for either construction or maintenance, Wi-Skies had to limit the design to place lights only over the three inside and outside lanes only. Despite the many design challenges, the proposed design delivered a much more effective lighting solution within the tunnel despite reducing the overall luminaire count by almost half.

(PI0020953) I-75/85 at Baker St and Piedmont Ave and I-75/85 at McGill Blvd and Courtland St Tunnel Lighting Retrofit. These two independently unique partially divided tunnels cover 0.209 miles of some of the busiest section of roadway in Atlanta. The Baker and Piedmont tunnel includes six northbound lanes, six southbound lanes, two merging northbound on-

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ramp lanes, and two southbound off-ramp lanes. The Courtland and McGill tunnel covers seven northbound lanes and seven southbound lanes. Due to the tunnel's overall width, length and relatively short height and only outside wall-mounted luminaires, rear-end accidents and traffic backups are common in this area. A 3D model of the entire tunnel was generated using actual tunnel entrance and exit portal height measurements and aerial imagery. A daytime analysis was done within AGI32 to determine how much natural daylight penetrated within the tunnel. From this information, Wi-Skies developed an experimental solution to provide minimal lighting only where necessary rather than current IES/ANSI recommendations. The lighting design took into consideration a variety of budgetary and constructability concerns and developed custom overhead installation assemblies braced between existing concrete beams directly over traffic without drilling the existing concrete beams anywhere. Because a maximum of three lanes of traffic could only be shut down at any time for either construction or maintenance, Wi-Skies had to limit the design to place lights only over the three inside and outside lanes only. Despite the many design challenges, the proposed design delivered a much more effective lighting solution within the tunnel while greatly reducing the overall luminaire count.

(PI0021192) The Buford Spring Connector Tunnel. This 435' long tunnel is a braided ramp from the SR13 Buford Connector SB ramp passing under the I-85 mainline to I-85 SB. A 3D model of the entire tunnel was generated using actual tunnel entrance and exit portal height measurements and aerial imagery. AGI32 was used to perform daylighting analysis to determine the amount of natural daylight penetration within the tunnel. It was not surprising that this box culvert tunnel required supplemental daytime lighting and nighttime lighting within it due to the overall poor natural daylight that penetrates within it. A minimalistic approach was taken to provide new lighting within the tunnel by placing new lights along each of the wall sides to light the single lane. Given the nature of the tunnel and limitations of the scope, the existing embedded conduit and junction boxes were re-used in the retrofit, but everything surface mounted was removed. As the existing system was operational and the tunnel is so dark, Wi-Skies worked diligently with the contractor to ensure a hybrid of the existing and proposed lighting system remained operational throughout the construction process.

(PI0020000) I-75 at Windy Hill Tunnel. The I-75 northbound exit ramp to Windy Hill Rd creates a 615' culvert style tunnel as it passes under a number of ramps, including four entrance ramps from I-285. A 3D model of the entire tunnel was generated using real tunnel entrance and exit portal height measurements and aerial imager to create an AGI32 daytime model. Being a long culvert tunnel, it requires both daytime lighting and nighttime lighting. However, due to the existing infrastructure, placement of the new luminaires had to remain on both walls of the culvert tunnel so as to not reduce the overhead clearance within the tunnel. Despite these challenges, there was an increase of overall photometric performance while reducing the overall luminaire count within the tunnel.

(P#0020764) I-75 at NB and SB Cumberland Braided Ramp Tunnels. These dual tunnels cover the I-285 movements to I-75 just north of Cumberland Ave. The Northbound tunnel ramp connects I-75 NB to I-285 east by spanning under the Cumberland entrance ramp to I-75 northbound and 490' long. The southbound tunnel connects the I-285 westbound movement to I-75 southbound by spanning under the four lane exit ramp to Cumberland Ave. A 3D model of both tunnels was generated using real tunnel entrance and exit portal height measurements and aerial imagery. AGI32 was used to perform daylighting analysis with real location data. Unsurprisingly, both tunnels modeled very dark within them and required supplemental daytime lighting and nighttime lighting. The LED retrofit design provided a much more efficient design while delivering better overall lighting within the tunnels.

Senior Engineer for Illinois DOT Roadway Lighting Design Services. Mr. Seppelt has worked closely with Illinois DOT's current Unit Chief and leadership team in their Central Office through an on-call contract since his retirement from IDOT. He attended monthly project status meetings and provided assistance on high level technical matters and policy issues for the duration of the on-call contract which recently closed. He has assisted the Department with lighting policy matters including; manuals, specifications, standard drawing updates, design issues, and day-to-day decision making on engineering related matters as requested. His role as the Electrical and Mechanical Unit Chief, prior to his retirement from Illinois DOT, has made him a valuable resource to DOT personnel.

Senior Electrical Engineer for Georgia DOT Lighting Design-on-Request Services. Mark's years of managing DOT lighting initiatives have been invaluable to many of GDOT's initiatives. He has been assisting GDOT with a myriad of high-level tasks including specification revisions and standard drawing development. Mark has also provided guidance on research initiatives the Department has taken on, including daytime lighting in tunnels and roundabout lighting application and policy.

Senior Engineer for Carolina Crossroads Phase 1 Design-Build for South Carolina DOT SCDOT is designing improvements along the interstate corridor of I-20/26/126 which includes system interchanges at I-20/I-26 and I-26/I-126 in Lexington and Richland Counties in five phases, of which this is the first. These improvements are proposed to increase mobility and enhance traffic operations by reducing existing traffic congestion within the I-20/26/126 corridor, while accommodating future traffic needs. The corridor's approximately 14 miles of mainline interstate include I-26 from Exit 101 - Broad River Road (US 176) to east of the Saluda River, I-20 from the west of the Saluda River to west of the Broad River, and I-126 from I-26 to east of the interchange with Colonial Life Blvd. Mark is overseeing the full continuous lighting design along the interstates, the interchanges and includes lighting for Colonial Life Blvd

and Greystone Blvd both north and south of the interchanges, primarily the photometric review. The design includes both high mast towers along the interstate and interchanges as well as conventional roadway lighting along the ramps and side streets. Every effort has been made to minimize spill lighting to the residential areas on the side streets.

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Senior Engineer for Irving Park Road and Old River Road Intersection (Village of Schiller Park, IL) The Village is widening a section of IL-19 (Irving Park Road). In conjunction with this project, The Village of Schiller Park is replacing the existing post-top lighting, which needs to be removed to accommodate the wider roadway width, with new lighting. The village has requested that designs be completed for both conventional roadway luminaires and a hybrid model consisting of conventional & post-top using a proprietary pole, arm and fixture combination, which also includes a separate festoon outlet at the top of the poles. Mark is responsible for QCQA all lighting plans, photometric and voltage calculations and specifications.

Senior Engineer for Carolina Crossroads Phase 2 Design-Build for South Carolina DOT SCDOT is designing improvements along the interstate corridor of I-20/26/126 which includes system interchanges at I-20/I-26 and I-26-I/126 in Lexington and Richland Counties in five phases. These improvements are proposed to increase mobility and enhance traffic operations by reducing existing traffic congestion within the I-20/26/126 corridor, while accommodating future traffic needs. The corridor's approximately 14 miles of mainline interstate include I-26 from Exit 101 - Broad River Road (US 176) to east of the Saluda River, I-20 from the west of the Saluda River to west of the Broad River, and I-126 from I-26 to east of the interchange with Colonial Life Boulevard. Phase 2 of the design includes the design of I-20 as well as a new Diverging Diamond Interchange at Broad River Road (US 176). The lighting design includes both high mast towers along the interstate and interchange as well as conventional roadway lighting along the side streets, with an effort to minimize spill lighting to the residential areas on the side streets.

Senior Engineer for Langford Parkway (SR 166) Lighting Replacement. Langford Parkway is a major thoroughfare which connects I-285 to I-85 north of the Atlanta airport in the southwest side of the city. The corridor was originally built as an urban collector, but over time has become an access control freeway with entrance and exit ramps. However, urban curb still exists in portions of the roadway and the lighting was installed based on the original urban collector setting and subsequent setbacks. Because of this, most of the lighting installed on the outside of the roadway is within unprotected clear zone and subject to frequent knock-downs. As the entire 6.5 mile corridor is continuously lit, this results in a lot of maintenance. To properly address this situation, coupled with inadequate lighting, the recommendation was made to provide a new lighting system through the corridor which will increase pole setbacks coupled with barrier protection as warranted. This new lighting system will also replace and upgrade the existing lighting along the median wall, where applicable. Mark is also responsible for the QCQA for the entire stand-alone lighting plan set.

Senior Engineer for Revising National Tunnel Lighting Guidelines. Mark has been a key player in working towards change to revise existing tunnel lighting policies and design standards. Based on the design requirements of *RP-22, Tunnel Lighting* which resulted in what he believed to be an excessive number of required tunnel fixtures in a short tunnel in Bloomington, IL, Mr. Seppelt actively pursued reform of this important guidance document which is now covered in *RP-8, Recommended Practice: Lighting Roadway and Parking Facilities*. He has served on the Illuminating Engineering Society's Roadway Lighting Committee and worked with the committee's Tunnel Lighting Task Group to bring about reforms. Mr. Seppelt supported a change to eliminate the need for luminaires at the tunnel's entrance and exit portals and he has served since its inception on the Short Tunnel Task Group to further research the possibility of reducing the required number of luminaires needed for daytime lighting in short tunnels.

Project Manager for Lighting the New Mississippi River Bridge at US 52/ IL 64, Contract 64G59 – District 2. The project consisted of the removal of the bridges which carried US 52/IL 64 over the Mississippi River and included reconstruction of 1,400 feet of US 52 causeway in Iowa. Also included in this project was the reconstruction of 2,400 feet of IL 84 roadway in Illinois. IL 84 reconstruction included removing and replacing sidewalk and driveway entrances and adding lighting in advance of the IL 84 intersection located directly adjacent to the Illinois approach to the bridge. Mark was responsible for roadway lighting on the new bridge, the river navigation warning lighting system on the bridge, and the intersection lighting of US52 and IL 64 in Illinois at the east bridge approach. Roadway lighting included an ITS technology pilot using adaptive lighting controls with data being streamed back to the District headquarters at Dixon, IL. Lighting is dimmed after 10PM and motion sensors bring lighting up to full brightness as sensors detect approaching vehicles. Another unique challenge to the lighting design of this project was getting US Coast Guard approved navigation lighting circuits and conduit for the bridge roadway lighting through the tie beam of the tied arch structure for this major river bridge.

Project Manager for Lighting the New I-57 Interchange at 6000N, Contract 66982 – District 3. A new diamond interchange was constructed at the interchange of I-57 with 6000N in Bourbonnais. The lighting design for this project consisted of underpass lighting for the new 6000N bridge over I-57, intersection lighting for major intersection upgrades on either side of the new interchange on 6000N at US 45/52 and IL 50, lighting for a shared use path and sidewalks along 6000N, as well as lighting of the new interchange. Mark oversaw a lighting design that used 18 high mast towers within the I-57 interchange and 56 conventional poles along 6000N including the US 45/52 and IL 50 intersections, along with pier mounted underpass lighting.

Project Manager for the I-57/I-64 Tri-level Interchange Lighting Replacement at Mt. Vernon, IL, Contract 78507 – District 9. This project was a complete interchange lighting replacement. It involved replacing all existing lighting facilities with new LED lighting. One of the challenges of this project, besides being a tri-level interchange, was the sheer size of the interchange. It required multiple lighting controllers and the south controller is separated from the interchange by a railroad bridge crossing. This challenge was complicated by the difficulty in obtaining a crossing permit from the railroad, which ultimately led to a resolution where the District Office required different voltage controllers be installed to serve branch lighting circuits. The railroad bridge became the dividing line between 480 and 240-volt circuits on the project.

Project Manager for the New I-55 Single Point Urban Interchange at IL 162, Contract 76709 – District 8. A new single point urban interchange was built at IL Route 162 with FAI 55 just south of the FAI 70/270 with FAI 55 interchange in Madison County to relieve congestion and improve traffic flow. Mark was responsible for the roadway lighting design for what was at the time an innovative new

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interchange geometry in Illinois. The challenge was met with a combination of high mast light towers and conventional pole lighting to meet the needs of all roadway users including pedestrians.

Project Manager for Lighting US 150 from Wright St to Cunningham Ave in Urbana, IL, Contract 70B53 – District 5. This project improved both pedestrian and vehicular safety on US 150 from Wright Street to Cunningham Avenue in Urbana as well as the service life extension of the pavement structure. These safety improvements consisted of construction of ADA compliant sidewalks and pedestrian ramps, improved pavement markings with continental style crosswalks, traffic signal modernization, and roadway street lighting in a high traffic area of the University of Illinois Champaign/Urbana campus. Mark incorporated appropriate measures during the lighting design to provide good visibility for motorists as well as a pedestrian friendly environment along this corridor with high vehicle/pedestrian interactions and multiple intersections. Photometrics had to be carefully evaluated and re-evaluated along US 150 due to the many trees, entrances, and obstacles that made pole placement difficult. In addition, numerous intersections of various configurations along this stretch of US 150 required detailed coordination and analysis to provide consistent and adequate lighting throughout the project.

Project Manager for I-74 Murray Baker Bridge lighting over the Illinois River, Contract 68C89 - District 4. The project included concrete deck removal and replacement, structural steel repairs, painting, roadway lighting, river navigation lighting, and decorative lighting. This project is in Peoria on I-74/IL 29 over the Illinois River. Mark was responsible for the design of all roadway and navigational lighting as well as the electrical systems on the bridge. The Department originally was not involved in the decorative lighting on the bridge, however several features of this project became design challenges as work progressed. One was the electric service for the bridge being located in a flood prone area. Another was the coordination of the abundance of circuits on the bridge and routing of the various conduit systems. Yet another was designing the roadway lighting on this truss style bridge so that the horizontal members of the bridge truss did not impact the light distribution on the pavement, resulting in the luminaires being mounted on the vertical truss members.

Project Manager for Lighting the New Illinois River Bridge on IL 104 at Meredosia from 385th Ave to US 67, Contract 72B58 – District 6. Mark was responsible for all electrical and lighting design for the IL 104 corridor, which spanned the new river bridge and continued along IL 104 through Meredosia and consisted of decorative street lighting for a portion of the downtown area. Along with roadway lighting for the bridge and the river navigation warning lighting system on the bridge, lighting design for the project also included the following structures: IL 104 over McGee Creek Drainage Ditch, IL 104 over Washington Street, and retaining walls in Meredosia. Mark also reviewed the design for the new pump station and electrical system which was built for the village.

Project Manager for Lighting the I-70/I-57 Add-A-Lane Project through Effingham, Contract 74295 – District 7. This 2.7-mile-long interstate construction project addressed a significant bottle neck problem with very heavy truck traffic where two major interstates (I-57 & I-70) join in Effingham, IL. The installation of an additional interstate lane in each direction and resurfacing on Interstate 57 and 70 from west of 4th street to east of TR 258 also included the reconstruction of the U.S. Route 45 interchange and required; 31,549 ft of unit duct, 30,278 ft of electric cable in conduit, 182 luminaires, and 142 light poles. This was the last phase of a 4-phase project to rebuild I-57/I-70 through Effingham and Mr. Seppelt was in charge of the lighting design for all 4 phases of the project. As with most projects, this included his involvement in all aspects of the roadway lighting design process over a multi-year timeframe; from planning, to design, to engineering assistance during construction, then completing the final inspection for the project once construction was completed.

Project Manager for Updating and Upgrading Downstate Illinois Pump Stations. Mark initiated an investigation into the functional integrity of all IDOT pump stations. In addition to identifying code compliance issues and needed maintenance, each pump station was given a thorough condition assessment as station upgrades had been consistently deferred due to competition for needed O&M funds. The resulting condition reports led to recommended improvements to many of the stations. An example of a project which became the outgrowth of the station inspections was the Reading Pump Station upgrade. As with other stations, Mr. Seppelt managed the design of the Reading station overhaul and worked closely with the district to complete a major renovation of the station. This contract included the replacement of vertical shaft non-clog pumps with dry pit submersible non-clog pumps, the installation of new electrical equipment, a new FRP structure, upgrade electrical service and relocate metering equipment to the exterior of the pump house, replace the top slab and hatches at existing pump house location, and relocate existing communications/controls equipment.

Senior Engineer for Tennessee DOT Roadway Lighting Design Services. Mark held a key role with Tennessee DOT, where he assisted in the process of overhauling the Department's lighting policy manual, specifications, and standard drawings. His many years of experience in this role in Illinois assisted tremendously in developing and updating key documents.

Project Manager for I-74 Bridge Deck Replacement Lighting over Market St and Illinois Central RR and Oak St, Contract 70C64 – District 5. This project is located on a congested section of I-74 through Champaign with continuous lighting and consists of the replacement of an interstate bridge over the ICRR. The lighting design started near the busy interchange at Neil Street and extended approximately a mile to the east along I-74 with a bridge replacement which spans Market St, multiple railroad tracks, and urban roadways below. The lighting design not only included lighting photometrics, voltage drop calculations, cost estimate, plans and specifications for both bridge and underpass lighting but also required careful analysis for the preparation of temporary lighting for the maintenance of traffic (MOT) plans.

Project Manager for Lighting the I-55 Add-A-Lane Project, Contract 70757 – District 5. Mark was responsible for all electrical and lighting design for the I-55/I-74 corridor expansion project through Bloomington and Normal, IL which converted a 4-lane interstate to 6-lane with a median barrier wall, where lighting was installed. Due to the size and scope of the project, it was completed in 3 phases

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from south to north over several years. The north and final phase of the project replaced 2 existing bridge structures over US Route 51 business loop making one single structure and creating a tunnel. This became the Department's first daytime lighting project for a tunnel outside of Chicago. Mr. Seppelt was in charge of all aspects of the tunnel lighting project just as he was for the roadway lighting portion of the project including design, controls, electrical from planning through completion.

Project Manager for I-57 at I-74 Interchange Lighting in Champaign, IL, Contract 70B99 – District 5. This project consisted of completely rebuilding this major urban interchange complete with all new bridges, overpasses, and fly-over ramps. The lighting design was overseen by Mark and involves continuous freeway lighting, complete interchange lighting, and underpass lighting on both interstates and all connecting roads. He oversaw all aspects of the design up to the time of his retirement including preparation of lighting plans, photometric calculations, cost estimate and specifications.

Project Manager for the Replacement of High Mast Light Towers at Various Locations, Contract 66H99 – District 3. Mark was responsible for the lighting design after statewide inspections had identified the need to replace several high mast light towers at various interchanges throughout the State. The project involved designing replacement light towers (and conventional light poles as needed), replacement wiring, new controllers as needed, and new foundations for the towers. Affected interchanges included; I-55 at IL 23 interchange, I-55 at IL 116 interchange, and I-55 at IL 17 interchange, all in Livingston County and the I-57 at IL 50 interchange in Kankakee County.

Project Manager for Lighting the I-270 Mississippi River Bridge and Chain of Rocks Canal Bridges, Contract 76A88 – District 8. The poor condition of the concrete at various locations on the Mississippi River Bridge made this a challenging project which required some sections of bridge parapet wall to be removed and new bridge light pole foundations to be re-poured from partial to full depth depending on the degree of deterioration. Mark was responsible for the design of the replacement lighting system along this portion of I-270 from the border with Missouri to the IL 3 interchange which included major bridges over both the Mississippi River and the Chain of Rocks Canal. Mark also designed a creative conduit system for the branch lighting circuit on the Mississippi River Bridge, the river navigation warning lighting system for the Chain of Rocks Canal Bridges, and replacement of its aviation warning lighting system.

Project Manager for Lighting along IL 29 from North Grand Ave to Hackmore Dr, Contract 72H40 – District 6. This roadway lighting project was very important to the City of Springfield because this is the major State route (IL 29, J. David Jones Expressway) from Abraham Lincoln Capital Airport 2 miles into Springfield. The existing roadway lighting system was old and difficult to repair. In order to appease the City a low-profile LED luminaire was selected along with aluminum poles to provide low installation and maintenance costs and long service life. Aesthetics was extremely important to the City along this 2-mile project and they decided the pole with all attachments should be painted black. Mr. Seppelt was concerned about the longevity of powder coated paint on aluminum, the aesthetic disaster a paint failure would cause, and the high cost of repainting. He investigated the cost differential of anodizing versus powder coating and found the value exceeded the cost premium. An added concern was the relative color change both initially and over time of the black finish between the spun aluminum pole, pipe arm, and cast aluminum base. Mark concluded presented his findings and the decision was made to supply all aluminum poles, arms and bases with a black anodized finish. All parties were very pleased with the project's aesthetics and the color match on the various aluminum components turned out very well. This project was also very significant because it was the very first pilot project for IDOT to test an adaptive lighting control system. Multiple roadway lighting design challenges were successfully addressed including limiting pole height under the FAA restricted glide path for one of the airport's main runways.

Project Engineer for Revising IDOT High Mast Lighting Standards and Design Guidelines. Mr. Seppelt initiated an update of IDOT's Standards Specifications for Road and Bridge Construction, Highway Standards, and Bureau of Design and Environment Manual in regards to high mast light tower design and construction to bring all of these documents up to present day standards. This effort included Mark approaching the IDOT Bridge Office for both structural engineering support as well as geotechnical support. He made significant improvements to Section 835 and Article 1069.08 in the Standard Specs to improve the reliability and serviceability of IDOT high mast light towers. In addition, under his direction Highway Standards 835001 and 837001 were created to streamline high mast tower design and simplify maintenance. Furthermore, he updated Sections 56-5.05 and 56-5.06 of the BDE Manual to standardize high mast light tower design and configuration. Mr. Seppelt's design experience and field experience with high mast lowering systems, luminaires, and towers facilitated these changes which have been implemented in dozens of high mast lighting projects statewide. He also initiated a research project to study ways to reduce the cost of high mast light towers as well as pioneer a method to reevaluate required light levels for high mast lighting and potentially reduce the number of towers needed on projects. Mark also was responsible for the first high mast lighting project in Illinois using LED high mast luminaires.