



TYLER H. BREWER

Career Summary:

Tyler is a recent addition to Wi-Skies as a lighting designer after interning for two summers. A fast learner, Tyler has helped with many projects and is quick to catch on to any challenge presented. Mr. Brewer has developed proficient skills in programs such as Agi32, MicroStationV8i, and SketchUp during his time at Wi-Skies. This has led to involvement in the development of several projects within the lighting design role and production of construction plans and details. Outside of lighting design, Tyler has concentrated in digital and analog systems which includes embedded systems, programming, programmable logic controls, and many other courses throughout his education.

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Education:

- ◆ B.S. Electrical Engineering (Concentration: Digital Systems) – University of South Alabama, 2026

Software Proficiencies:

- ◆ MicroStation V8i
- ◆ Agi32
- ◆ SketchUp

Professional Societies:

- ◆ IEEE Member

Project Summary:

Lighting Designer for Experimental Daytime Lighting for GDOT. As part of ongoing high-level research work with IES, GDOT and other agencies, Wi-Skies is leading the effort to overhaul the international standard for daytime lighting within short tunnels, which are considered to be under 400'. Measuring of over a dozen tunnels has led to the belief that the amount of daytime lighting recommended within short tunnels is excessive and Joe is recommending providing only lighting which would be minimally necessary to ensure good visibility throughout the tunnel and nothing more. As part of this effort, GDOT has chosen two tunnels which certainly need some sort of daytime lighting and has tasked Wi-Skies to provide what they believe will be the minimum amount of lighting necessary within them, along with others that need to be analyzed. Wi-Skies is putting together full lighting plans to accomplish this and will verify the results in the field before it is ultimately accepted. From these tunnels and others, the hope is that GDOT can revise policy based on these findings, even before international policy is revised. Tyler was responsible for designing accurate scaled 3D models for many of these existing short tunnels through this research. These models allowed for remote simulated lighting calculation grids to collect data towards research on daytime lighting needed within these short tunnels. Not only did he provide work remotely for this research but also constructed field work for three of the many short tunnels that were being investigated. These in the field task consisted of tunnel dimension measurements, and vertical/horizontal luminance measurements.

Lighting Designer 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



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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. Tyler's contribution to the carbon reduction project expanded from verifying single line diagrams, voltage drop calculations, quantities, and CADD plan sheet drawings. Tyler was tasked with various CADD jobs throughout the lengthy project such as preparation of lighting plans, this included work in both the lighting design and cabling management throughout many of the fourteen total projects. He also played a large role in daytime lighting design for many of the short tunnels throughout this project by designing accurate 3D modeling for existing short tunnels throughout the project's scope.

(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 lit 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.

(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 of 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

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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-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

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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.