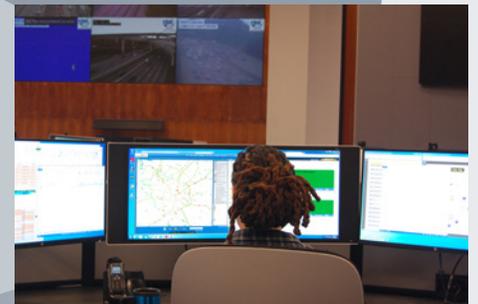


Phase II

# Intelligent Transportation Systems (ITS) Operations and Support, Statewide

Atkins North America, Inc. • RFQ-484-120315 • December 17, 2015



## Technical Approach

### How Atkins is unique and meets GDOT's needs

The TMC is in the early stages of transition to a new operational environment and is preparing for increased integration with co-located agencies to operate express lanes, address incident and congestion management on highways, and improve regional arterial mobility through the Regional Traffic Operations Program (RTOP). There will be an increase in major construction activities enabled by new transportation funding sources (HB 170), an increase in transportation systems management and operations (TSM&O) initiatives, and transformational activities associated with the saturation of connected and autonomous vehicles. This anticipated environment of continuous and exciting change expected over the next 5 years and coming decades will have significant impact on the TMC operations.

Atkins' focus on building and maintaining a vibrant culture and a high performance team, along with our national and global reach-back capabilities and the commitment of our leadership, positions the TMC to respond to increasingly complex demands while continuing to deliver operational excellence.

#### HIGH PERFORMANCE TEAMING

##### Over the last 4 years, Atkins TMC leadership and GDOT have built a cohesive and engaged team.

We established a culture of continuous improvement, introduced a focus on increased capability maturity through the Control Room Education Support and Training (CREST) program, and developed the strongest operations environment the TMC has ever seen. Atkins leadership has demonstrated our commitment to the TMC, providing continuity in leadership, serving as an extension of your staff, and remaining fully committed to executing your vision.

Studies show that when management promotes a culture that actively engages staff, operational performance dramatically increases.

#### REACH-BACK MODEL

Atkins' national TMC operations team provides additional support and promotes best practices. We have a global ITS team that is engaged at the forefront of the intelligent mobility and smart city movements, dedicated to addressing transportation concerns.

These areas include:

- Connected and autonomous vehicles
- Big data and performance measures
- TSM&O and capability maturity in operations
- Social media and public outreach
- National and regional ITS architectures
- Traffic incident management
- Safety service patrol operations
- Control room training and standard operating procedures
- Active arterial management
- Managed lane and tolling operations

Our reach-back model gives the GDOT TMC team access to worldwide experts who are actively involved in leading global transportation vision, identifying emerging technologies, and operational best practices. With more than 18,000 professionals worldwide—combined with our partner firms' wide-ranging abilities—the Atkins team is much more than an operations firm that simply provides staffing. Our team offers extensive experience that aligns with GDOT's needs.

#### 1. Delivering and managing the project

The Atkins approach to delivering and managing Georgia's TMC operations is built around our commitment to responsiveness, partnership, culture, collaboration, flexibility, trust, and excellence. We believe this is more than an Atkins **project**; we are part of the collective team responsible for managing and enhancing the ongoing **operations** of the transportation management functions embedded within the Atlanta and Macon centers.

Over the past five years we have demonstrated our commitment to serve as an extension of your staff. Moving forward we will continue this commitment and ensure that the TMC environment promotes coordination and cooperation, all in support of GDOT's vision. Everything that is executed will support the continuation of a vibrant culture and increase the capability maturity of the operations. **Culture impacts performance** and a strong culture that embraces collaboration, flexibility, trust, and excellence is required if the TMC operations are to thrive in the expected environment of accelerated change.

At the inception of the current contract, Atkins introduced the CREST framework to the GDOT TMC.

This framework is designed to deliver full lifecycle resource management and impact the culture of the operations floor. It was used to support the development, documentation, and continuous improvement of clear hiring, onboarding, training, certification, career progression, and succession planning processes that have had positive impacts on TMC staff culture and performance. Atkins also reorganized the operation and implemented training targeted at turning TMC management into a unified high performance team with the tools required to build a culture of excellence on the operations floor.

“I would not be where I am today if I did not have such great managers at Atkins. They saw more in me than I saw in myself and took the time to mentor and coach me to another level.”

Tracey Francis, Atlanta Operations Manager

We have built a complete career progression module as part of the CREST framework. It provides an operator trainee with a career path to advance to the operator I, II, and III positions, while also offering paths into more technical (assistant traffic specialist), training (assistant trainer), and management (assistant supervisor) positions depending on the skills, desires, and interests of the individual employee.

The new organizational structure introduced by Atkins and the retraining of the supervisory team—in conjunction with re-visioning the operator positions—has had a positive impact on the floor culture. The investments in our people over the past 4 years have begun paying compounding dividends in performance. This new culture provides a strong foundation that will enable excellence during anticipated changes in the transportation industry.

Throughout the next contract, we will continue to implement incremental improvements in all elements of the CREST framework, much like we have with the recruiting section, now on its third iteration with the introduction of “hiring for attitude.” This example of incremental improvement is built on research that demonstrated 11 percent of new hires fail because of a lack of technical skills necessary to perform the work; the other 89 percent fail because of behavioral traits.

With the outstanding TMC training program and trainers on our team, any person with reasonable

technical skills can be trained; however, it is much more difficult to re-train negative behaviors. We have had unprecedented success with the two training classes that have been hired with this new process. To date, none of our 12 new hires have been lost for behavioral problems.

We also believe in a data-driven approach to operations management. A good example is our effort to improve staffing efficiencies. We discovered through the use of data modeling and key performance indicators (KPIs) that the conventional wisdom of staffing levels in the Atlanta metro area being lowered between morning and evening rush hour was false. In our answer to question #4, we propose an innovative approach to increase efficiencies through demand-based remote staffing for burst capacity.

#### STAFFING

**Our staff is 100 percent dedicated to the ongoing operations of GDOT’s TMCs.** Our entire leadership team is from Georgia and will not be relocated during this contract. Our role is to ensure that GDOT’s vision for statewide transportation improvements are supported and enhanced. We have already shown our commitment to continuously improving operations and will never settle for the status quo.

We will continue to fine tune and improve how we select our staff based on operational needs, technical and behavioral characteristics, ability to perform technical work, and dedication to supporting the continuing enhancement of the team’s culture. Our open house, interview, testing, and hiring processes are paying dividends by identifying new team members who will contribute to the TMC’s success.

#### RESOURCE CONSIDERATION

Our team has a wide range of additional resources available to GDOT as technical experts in all areas of TMC operations, ITS, and traffic operations. We have been fiscally responsible by managing staffing levels to support the operation, while not wasting available funding. **During our current contract, the Atkins team consistently spent less than budgeted funds.**

#### DEFINING SUCCESS OF THE PROJECT

The success of the project is defined by the team’s proven ability to support GDOT’s vision by providing excellence in operational performance and the

flexibility necessary to meet coming challenges and changes in the transportation industry.

The operation's success depends on staff development and the capability maturity of the organization. By developing the career progression program, we have shown the ability to grow key management staff from within the operation to allow for expansion into new roles, or filling vacancies from within.

Additional measures of success are being developed as KPIs. This work is ongoing, but has already shown success in understanding this operation's inter-related nature. As the only TMC that actively encourages the public to call for information, there is a constant balancing act on TMC staff to be responsive to citizen phone calls and actively manage incidents in the system simultaneously.

### ENSURING 24/7 OPERATIONS

The TMC must always function. Our staff and management understand this concept and have shown through multiple emergency operation center (EOC) activations that we are committed to this goal. During the winter of 2014, the EOC was continuously active from early Monday morning through late Thursday. Many of our staff worked 16 hours on and 8 hours off. Our staff have also been supportive and flexible in moving operations to other facilities (such as One Georgia Center and the GSP) during times when TMC power was down due to maintenance.

Being part of a 24/7/365 operation is a way of life that our team understands and is committed to. Operations don't stop at 5 p.m. when most people go home for the day, nor does the TMC shut down when others stay home because they can't get to work. Regardless of holidays, winter weather, flooding or major incidents, **our managers and operators have proven our commitment to report in, stay on duty, and perform until normal operations resume.**

### 2. Unique qualifications, skills, or knowledge

**The Atkins team has over 100 years of combined experience working with the GDOT TMC** and has unmatched knowledge of the processes, procedures, and systems used every day. Our existing staff has either developed, written, updated, and/or taught every standard operating procedure and training course (operator, dispatcher, construction, and statewide) currently in use at both the Atlanta and

Macon TMCs. While many of our core staff have long-term experience in TMC operations, it has been Atkins' management philosophy of high-performance teams, management training, and overall culture that has allowed the operations to mature significantly over the past 4 years.

"I find it hard to believe [TMC operators] will look back at prior contractors and think they were better than Atkins...I certainly don't."

Daniel Carter, Assistant Trainer

Our team includes the best in the industry to support and grow the capabilities of GDOT's TMCs. Atkins, Parsons, Southeastern Engineering (SEI), Arcadis, and InstaData all have key roles in multiple projects that can be leveraged to support or enhance TMC operations.

### ATKINS

Atkins will continue to lead overall project management and staffing responsibilities of the Atlanta TMC. Our CREST support team will continue to support management growth and best practices with all staff.

**Andy Phlegar, PE** is the longest serving project manager since the TMC operations were privatized. He has extensive local experience in ITS, traffic signals, traffic management and operations for freeway and arterial systems with both public and private sector experience. He was the lead investigator and author on multiple successful studies for the TMC and has the broad experience to support the future growth and capabilities of the TMC. **Tracey Francis** provides a backbone of calm, unsurpassed knowledge as leader of the day-to-day TMC operations. Her management style promotes a culture of trust among staff and encourages hard work and commitment as key contributors to career growth. **Requel Williams'** experience developing training and procedures for TMC and HERO staff on complex systems, like NaviGator and the Automatic Location and Dispatch System (ALADS), provides the perfect combination of skills to lead the TMC through express lane implementation.

### PARSONS

Parsons will continue staffing the Macon TMC and supporting GDOT and District 3. As Parsons is responsible for the NaviGator software, the synergy

between the contracts allows for quick identification of issues that can impact TMC operations.

**Greg Kirkland** was instrumental in the recent re-visioning of the Traffic Interruption Report process. His background in traffic signal operations provides a great knowledge resource to support the future expansion of RTOP projects into the Macon area.

## SEI

SEI will continue to staff traffic specialists and media liaison positions. They have the proven ability to find entry-level engineers eager to work at the TMC and support GDOT's needs.

**Mary Thumaty** was the first to develop a traffic specialist training checklist to support onboarding and training of the increased number of traffic specialists necessary for express lanes and TSM&O activities.

**Drew Belk** has been instrumental in transitioning the media liaison position from a point of contact for local television and radio stations to a voice that reaches the public through social media platforms.

## INSTADATA

InstaData will continue to support the ongoing GDOT reporting requirements to FHWA and the continued enhancement of dashboard and data mining tools to provide insight into traffic conditions and operations.

**Dr. Angshuman Guin's** recent automation of the monthly reporting process for FHWA performance measures (TTI, TT, PTI, BTI) has created an accessible database with a myriad of possibilities to mine and interpret the data.

## ARCADIS

Arcadis currently staffs RTOP positions within the TMC and provides a deep set of available resources to GDOT throughout this contract. Their experience with the development of performance measures for RTOP corridors brings the ability to support additional KPI possibilities around TMC operations.

## TEAM ACCOMPLISHMENTS

Our team has worked tirelessly since the development of NaviGator II, and into the development and rollout of NaviGator III, to support the successful TMC operations. We have defined the incident management timeline and how it is documented in NaviGator to understand what is being reported and identify areas for improvement.

The Atkins team took the initial ALADs deployment and worked with software and hardware components in the TMC and on HERO vehicles to completely document how the system functioned. **The Atkins training staff worked with TMC and HERO representatives to build ALADs standard operating procedures** for both the TMC and HERO staff. The trainers then developed two completed ALADs training modules for both TMC operators and HERO operators.

Our team has relationships that support the operations within the TMC and the future growth that will be required with the addition of express lanes, major construction projects, RTOP expansion, and connected and autonomous vehicles. Our relationships with HERO, GDOT IT, State Road and Tollway Authority (SRTA), Georgia State Patrol (GSP), towing and recovery companies, and many other stakeholders are connections that are not quickly formed, or easily replaced once lost.

The Atkins team has developed expertise in reversible lane operations to support the upcoming express lane debut in metro Atlanta. Operational knowledge of another facility's policies and procedures is of limited value to GDOT—the successful implementation of Georgia's express lanes will be based on our team's local knowledge and working relationships with various agencies and stakeholders and less on experience elsewhere.

Requel Williams and Mary Thumaty's tours of other facilities, coupled with their local relationships and knowledge, provide the best possible blend of expertise to successfully prepare your center. Development of the concept of operations is already in progress and must be in place in early 2016. Testing and training scenarios need to be developed by mid-2016, and mock training with working software should be in full swing during the last quarter of 2016. The relationships among our team, HERO, GSP, and the incident management community will ensure the successful implementation of these new operations.

**Our team has the expertise to successfully complete all optional assignments outlined in the scope of work** attached to the RFQ. Updates to the existing NaviGator benefits document, or the creation of new system performance and benefit measures, can easily be tackled by Atkins and Arcadis experts. Atkins

researched and authored benefits studies on the TRIP program and the effectiveness of ramp meters. Arcadis has experience developing ITS benefits, including a robust ITS benefits methodology, and has successfully developed a suite of performance measurement tools for RTOP projects. Shahram Malek and Andy Phlegar developed and updated the GRITS architecture, allowing any future updates to be easily achieved.

#### **WILLINGNESS TO MEET TIME REQUIREMENTS**

The Atkins team prides itself on being responsive, delivering on-time, and doing both while being under-budget. We will continue to provide the best service, products, deliverables, and people to support the Department's TMC operations. We provide GDOT with a cohesive team that will not lose momentum going through the typical transition periods that all new teams experience.

### **3. Project challenges and mitigation**

Changes and challenges occur. If the relationship between a client and their operations management team is built on a foundation of collaborative and cooperative partnership, even the most difficult challenge can be turned into an opportunity. A management culture built on flexibility encourages staff to embrace change. A culture of creativity and empowerment promotes an environment where challenges can easily become opportunities for improvement.

We have proven our ability to successfully turn challenges into opportunities over the past 4 years. The most recent challenge was reconstruction of the TMC floor. The reconstruction required operations to move from the main floor to the green room, effectively moving from a very large space to the small basement room. This move was predicted by many to be a morale breaker and that a large number of operators would quit. Instead, it was an opportunity to engage the staff in a change management process that allowed them to voice their concerns and develop possible solutions. What resulted was an attitude of a good faith effort (on behalf of the operators, the supervisors, Atkins, and GDOT) to make the best of a less-than-ideal environment.

While all challenges cannot be predicted, they will be addressed with mutual respect and trust, while maintaining focus on long-term goals. Potential challenges and solutions may include the following:

**Challenge: Quality of services.** Successful TMC operations requires a large set of skills to provide effective incident management and traveler assistance under routinely stressful situations. The upcoming changes related to express lanes, connected vehicles, big data, and TSM&O will bring additional requirements for higher educational and skill levels among operations staff. Already a job with many responsibilities, the layering of additional responsibilities and tools for these efforts will make it increasingly challenging to ensure quality of services.

**Our solution: Enhanced quality assurance/quality control (QA/QC).** Atkins places a great deal of emphasis on ensuring quality of services for TMC operations is maintained at the highest level. **The new TMC floor seating provides a console for QA/QC and we will use it to support continuous improvement of the operations.** The QA/QC function will be shared by supervisors, assistant supervisors, trainers, and the special projects facilitator.

The heart of our QA/QC is a weekly audit process in which we review five to ten randomly selected events for one-third of our operations staff. The operator events are scored on a variety of metrics ranging from customer service to data entry timing and accuracy. Each operator is audited every 3 weeks. Operators who receive exceptional scores are praised and those who need improvement are provided additional coaching and training. Selected high-profile events are chosen for after-action group reviews. These reviews focus on how the entire incident was handled. Deficiencies in these audits point to opportunities for staff to develop processes and procedures that will avoid or correct future errors. Supervisory and training staff have the ability to monitor any call, at any time, and track the incident in the system while listening to the operator on the call. By doing so, we are able to verify that incidents are being handled in an appropriate time frame following TMC notification.

QA/QC is an important process to identify and minimize errors, but the most crucial role of QA/QC is identifying areas where additional mentoring, training, or modifications of processes/procedures will eliminate errors in the first place. We have integrated quality as part of the operations floor culture, with operators participating in and taking ownership of the creation and monitoring of operational quality.

**Challenge: Express lanes.** The implementation of Georgia's express lane system represents the biggest change in transportation since the "freeing the freeways" construction during the 1980s. These systems will provide a set of operational and incident management challenges never before seen by the TMC.

**Our solution: Advance training and preparation.** Requel Williams is leading our preparation for express lane deployments in Georgia. She has collected operations information during scanning tours and is developing GDOT's operational concepts. Requel is working with Parsons on software implementation and development of a training program, with HERO on their standard operation procedure development, and with many other stakeholders in operations and incident management. We will have operation procedures developed in early 2016 and training scenarios and tabletop exercises ready by summer. This timeline will allow mid- to late-2016 to be dedicated to training TMC, HERO, and other staff in all procedures and backup systems before the lanes open for public use.

#### 4. Anticipated operational concepts

##### CONNECTED VEHICLES, BIG DATA, AND PREDICTIVE ANALYTICS

We are working with GDOT to define the best ways to support and leverage the upcoming appearance of connected vehicles on our roadways. The "big data" that will be available in the coming years will present game-changing opportunities in how we track and manage traffic and incidents. The expertise of Atkins, InstaData, and Arcadis will be available to leverage that data to improve safety and mobility on our road network. The convergence of agencies, systems, big data, and predictive analytics capabilities further highlights our team's position to be even more proactive by:

- Actively mining and analyzing big data in real time.
- Adjusting traffic signals, ramp meters, and variable speed limit signs before there is a problem.
- Dispatching or prepositioning incident management resources before an incident.
- Working closely with other agencies and systems to clear and recover from incidents in record time.

##### DEMAND-BASED STAFFING

Our initial work developing KPIs has debunked some long believed "truths" about TMC workload are actually more myth than fact. It was generally believed that the TMC is busy from about 6–9 a.m., then is fairly slow until about 3–7 p.m. Our analyses of many different

measures, such as the number of incidents, phone calls, and HERO requests, show that **even during the "slow times," the probability that nothing will happen or that a major event will occur are equal.** This new insight adds an unexpected level of complication for ideas such as sending staff home when it is "slow" since data shows there is little proven ability to predict what will happen in the next 15 minutes.

If the center sends individuals home, the ability to quickly respond to a major event is gone. For example, the May 2015 small plane crash on I-285 occurred at about 10 a.m. on a Friday—typically a slow time. If the center had staffed down for the slow time, there would not have been enough operators to adequately manage the event, nor could staff be called in to the TMC quickly enough to be of assistance. Remote staffing solutions are a promising concept, but are not supported by the systems at the TMC.

We propose predictive analytics to identify traffic patterns with a high probability of producing crashes so the TMC can become proactive in reducing crashes and associated congestion.

##### We propose implementing a two-part solution for more efficient staffing to support burst capacity.

Operators in the Macon center could be available to handle overflow calls from Atlanta during peak times or during emergency, giving immediate access to four additional operators on the phones. While the VoIP phone deployment within GDOT holds great promise for flexibility in staffing solutions, to date the phone system does not support operators logging in from home, or even from the Macon center.

An alternative is outsourcing the phone system to be part of the deliverables under this contract. Atkins' IT department works from remote locations and homes to support Atkins employees internationally. Atkins can bring this experience to support development of remote demand-based staffing for the TMC.

##### Summary

Atkins believes that GDOT currently has the premier TMC and ITS programs in North America. Your expanding vision and engaged leadership will position GDOT's operations into a continuous national leadership position. **Atkins is proud to be a part of this dynamic operation and would be honored to continue serving GDOT.**

1600 RiverEdge Parkway NW  
Suite 600  
Atlanta, GA 30328  
Tel: 770.933.0280  
Fax: 770.933.0691

[www.atkinsglobal.com/northamerica](http://www.atkinsglobal.com/northamerica)