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8 SOFTWARE

GDOT is assured of minimal disruption to daily operations in implementing the statewide RAM Program because of Serco's in-depth understanding of software currently in use for roadside assistance, situational awareness, and performance monitoring.

Serco recognizes that multiple software packages are necessary for the efficient operations of Intelligent Transportation Systems (ITS) and Transportation Asset Management (TAM), and to effectively address Georgia Department of Transportation (GDOT) Emergency Operations events. Serco has demonstrated experience in these applications across mission-critical transportation sectors including Safety Service Patrol (SSP) dispatch (at GDOT, the Virginia Department of Transportation [VDOT], and multiple international programs), Traffic Management Center (TMC) Operations (at GDOT, VDOT, North Carolina, United Kingdom, etc.), aviation (air traffic control), and military facilities management (emergency maintenance dispatch).

Serco will bring this experience and associated Standard Operating Procedures (SOPs) to the GDOT RAM Program to assist the Department in improving service delivery by recommending enhancements or fixes or to existing software including NaviGator Advanced Transportation Management System (ATMS), WebEOC, and AgileAssets. Serco also has in place business awareness software called ProgramVision that provides comprehensive performance visualization and has the ability to interface between multiple GDOT systems to increase efficiencies, especially on performance-based contracts.

8.1 UNDERSTANDING OF EXISTING GDOT SOFTWARE

In the following sections we describe our understanding of the existing GDOT software applications and their associated uses by the Department. We discuss the following 12 applications: 1) NaviGator; 2) WebEOC; 3) Traffic Interruption Reporting; 4) AgileAssets; 5) HERO Logging Application; 6) Georgia 511 Traveler Information System; 7) Customer Service Application; 8) Georgia Electronic Accident Reporting System; 9) Microsoft Office Suite; 10) social media; 11) Serco Maximo Application for ITS Maintenance; and 12) Inrix. Serco's familiarity with these applications assures the state of our ability to begin work without having to learn these systems.

8.1.1 NaviGator ATMS

GDOT operates a statewide ITS known as NaviGator. NaviGator is also the name used for the Department's ATMS software. The software is web-based and currently on its third version. The Department uses this software for freeway management and for command/control of multiple devices including cameras (CCTV), dynamic message signs (DMSs), traffic sensor systems (TSSs), ramp meters, weather sensors, and variable speed limits (VSLs). The NaviGator software is the statewide clearinghouse for GDOT incident and construction data and is interfaced to the GA511 system, providing statewide traveler information.



GDOT Operations and 511 Operators use the NaviGator software to manage the ITS system in Georgia. The foundation of NaviGator is a Decision Support System (DSS). The system accepts both automated and manual inputs (incident data, geolocation, etc.) and generates a response plan that recommends courses of action including information dissemination (messages, alerts), notifications lists, system changes (ramp meter rates, VSL), etc. For the GDOT RAM Program, Serco will ensure our Dispatchers are fully trained to use the NaviGator software (described in Response to Question #7). Dispatchers will enter data and manage incidents and planned/unplanned events in accordance with TMC procedures using the NaviGator software and resources at their disposal such as CCTV and DMS.

The user interface for the NaviGator software is map-driven and includes forms. It allows Operators to input data automatically from the map to populate the forms. The map displays features including roadway features, speeds (Inrix/VDS), incident/events, HERO information (operator/truck ID, location, heading, speed, and patrol status), as well as device locations and operating status. For the GDOT RAM Program, we anticipate that the NaviGator map will track GDOT RAM vehicles/operators similarly to the HEROs. Dispatchers will use this geolocation information to dispatch the closest RAM Operator and ensure that routes are being patrolled and our RAM Operators are safe.

The NaviGator software has been developing an Automatic Location and Dispatch System (ALADS) module for the HERO program for an extended period of time. Although the module was designed to let TMC Operators and HEROs exchange incident data directly through the system without the need for voice communications, Serco has determined that the system is not based on current mobile technologies and is not the best solution for Incident Management location and dispatch. We evaluated this system for use on the SSP program in Virginia and deemed it less acceptable than commercial alternatives. Instead, Serco is optionally proposing a commercial mobile application suite, Comet Tracker, described in Section 8.4.2.

8.1.2 WebEOC

The WebEOC software is a commercial product developed by Intermedix and customized by GDOT Information Technology. It is used for emergency management in coordination with the Georgia Emergency Management Agency (GEMA), other state agencies, and many municipalities. This web-based software has the following features:



- Creates and updates all high-severity unplanned incidents and all weather related incidents during GDOT emergency operations events. GDOT staff throughout the districts will use WebEOC to provide situational awareness of incidents across the state. The Operator/Dispatcher that receives the initial incident information is currently responsible for entering the incident in NaviGator and the WebEOC application (requiring double entry). Serco would like to work with the Department to facilitate an interface between these two applications to eliminate the double-entry issue.
- Is both map (WebEOC Tracker Map) and forms-based. The map has multiple layers of features and information and displays the locations of the incidents in a visual representation. The forms allow incident creation, assignment, and updating. The forms use color coding to reflect the current status of the incident including Unverified, Closed/Blocked, Passable, Open, etc. Our Dispatchers will enter/update data in the software to keep management situationally aware as well as using the system themselves to keep current on activities in their district.
- Has a mobile version for iPhone (IMX Connect) to view, enter, and update incidents. Serco will optionally provide our RAM Operators and management with iPhones to take advantage of this GDOT capability. Serco staff can better assist GDOT during emergency conditions as we can input/update incidents including their geolocation via the iPhone.
- Serves as an interface to the GA511 Traveler Information System for incidents selected for publishing to the public.

For the GDOT RAM Program, Serco will fully train and certify Dispatchers to use the WebEOC software (described in Response to Question #7). The Serco RAM Program Manager, Ricky Via, is currently certified with WebEOC. Dispatchers will manage all incidents, recording both RAM and maintenance activities in accordance with GDOT procedures.

Serco anticipates that during GDOT emergency operations, the RAM Dispatcher will serve a higher-profile role in providing situational awareness of RAM and Maintenance activities. Our Dispatchers will work shoulder-to-shoulder with the District Maintenance and Operations staff in the District EOCs to keep abreast of the conditions in the district, where our forces are located, their activities, and how we are progressing toward roadway system restoration.

8.1.3 Traffic Interruption Reporting (TIR) Application

The Department uses the web-based TIR application, developed by GDOT IT, for the input of planned lane closures (traffic interruptions). The application allows construction and maintenance activities requiring lane closure to be entered with activity details, contact information and geospatial information for review/approval by the Department. For the RAM Program, our RAM dispatch personnel will use this information in coordination with our RAM Operators to validate and/or coordinate lane closures with the TMC and District Maintenance, Construction, and Communications personnel. At the discretion of the District Maintenance and/or Construction engineer(s), our RAM Dispatcher can assist with managing the input of the lane closures into the TIR application.

8.1.4 AgileAssets

The Department is using the web-based AgileAssets infrastructure asset management software. GDOT is licensing six AgileAssets software modules including Maintenance Manager, Pavement Analysis, Bridge Analysis, Bridge Inspector, Signal Manager, and Mobile Field Data Manager. Among other functionality, the Maintenance Manager module provides work order and inventory management for GDOT maintenance staff. At the discretion of the Department, Serco envisions working with the District Maintenance Engineer(s) to determine the level to which our Dispatchers could coordinate with maintenance crews regarding work order generation into AgileAssets from RAM Operator visual identification. Additionally, using the AgileAssets Maintenance Mobile Application, our RAM Operators could generate work orders via the iPhone if desired by the Department.

8.1.5 HERO Logging Application

Serco understands that GDOT uses an application for logging HERO activities, and this capability is separate and distinct from the NaviGator ATMS. The application records when HEROs begin patrolling activities, render services, etc. Serco does not plan on using this application; rather, Serco will use our ActSoft Comet Tracker solution, described in Section 8.2.2, to create detailed records of RAM Operator activities. This software is not to supplant the ATMS—Serco will enter incident information into the NaviGator software and/or WebEOC as required.

8.1.6 Traveler Information System

The Georgia 511 traveler information system (www.ga511.org) was privatized by the Department and serves as an information portal for the NaviGator and WebEOC systems. The system provides traveler information, including incidents, construction, travel times, streaming video, DMS messages, etc. For the GDOT RAM Program, it is critical that RAM Dispatchers/Operators provide accurate and timely information for dissemination to the motoring public. Our performance is imperative to retain GDOT's credibility and the confidence of Georgia's travelers. The website can be tailored to user preferences and can send alerts. Additionally, there is a mobile application for both iOS and Android devices.

8.1.7 Customer Service Application

The Macon TMC/GDOT District 3 created an application to track customer service requests within the district. The Macon TMC Operators use this software to record requests regarding traffic signals, maintenance, etc. The Serco RAM Dispatchers will use this software or other application(s) as instructed by the Department to create/update/manage customer service requests throughout the state.

8.1.8 Georgia Electronic Accident Reporting System (GEARS)

GEARS is a web-based system developed and maintained by Appriss, Inc. on behalf of GDOT. The system serves as a portal into the State of Georgia's repository for traffic accident reports completed by Georgia law enforcement agencies. Using the GEARS data in our analytics will provide the Department a more accurate representation of the incidents occurring on the patrol routes and how to most effectively respond.

Although this information is not directly utilized by NaviGator, Serco believes it is important to include this data in our analytics for the GDOT RAM program. Using this data particular to the RAM coverage areas combined with incident/assist data, Serco can develop a more accurate analysis of the routes and provide recommendations for route adjustments (adding routes, modification to routes, staging of RAM Operators, etc.) and scheduling (adding a third shift or adjusting times of existing shifts). This data will also be contained in our hot-spot analysis, described in detail in our response to Question #26.

8.1.9 Microsoft Office Suite

GDOT uses Microsoft Office Suite as its corporate standard. The Microsoft Office Suite comprises four primary applications: Outlook (email, calendar, etc.), Word (word processing), Excel (spreadsheets), and PowerPoint (presentations). Serco likewise uses Microsoft Office as our corporate standard. Serco RAM staff (management, Dispatchers, and Operators) will be proficient in the use of the Microsoft applications that are applicable to their job duties.

8.1.10 Social Media

In each district, the Department uses multiple forms of social media. These include Facebook, Twitter, and Instagram, and these are dedicated to community-based input, interaction, content-sharing, and collaboration of GDOT activities, which include incidents, events (planned and unplanned), and general information. At the direction of the Department, Serco dispatch staff will coordinate with the District Communications Officer(s) to help update social media as part of their support to the GDOT RAM Program.

8.1.11 Serco Maximo Application for ITS Maintenance

The Serco Maximo application is a web-based system used to provide Enterprise Asset Management for the Department's ITS devices. Serco introduced Maximo as part of our ITS Maintenance solution more than 5 years ago and it has been an important contributor to our keeping the NaviGator infrastructure consistently more than 98 percent available. The NaviGator TMC Operators use the Serco Maximo application to enter devices that are not operating properly. From this information, Serco provides engineering triage, creates work orders, and repairs the devices as necessary. For the GDOT RAM Program, Dispatchers will receive communications of malfunctioning devices from RAM Operators or identify them via the operation of the NaviGator software. Our RAM Dispatchers will then input this data into the Serco Maximo application for resolution by our ITS Maintenance team.

8.1.12 Inrix

The Department uses Inrix to provide speed data throughout the state for the interstate system. This data is consumed and displayed via the NaviGator software. Serco dispatchers will use this information as part of our proactive approach to managing the RAM Program and identifying potential incidents and/or congested areas.

8.2 SERCO SOFTWARE TO IMPROVE EFFICIENCIES

Serco adds value by bringing fleet management and business intelligence software that improves the efficiencies of our operations and provides better reporting and situational awareness for GDOT.

8.2.1 Fleet Management

Serco will be providing web-based Fleet Management software for the GDOT RAM Program. The AssetWorks M-5 vehicle management system will provide a tool for fleet management and make comprehensive vehicle information readily available. **Figure 8-1** shows the home page of the application. We will use AssetWorks M-5 to track and monitor all vehicle costs provided by Serco, including RAM Operator trucks and support vehicles. Serco partners with AssetWorks on this product and uses the system to support our fleet maintenance management organization and operations. We will use this application for the following:



Figure 8-1. Fully Integrated AssetWorks M-5 Vehicle Management System. Serco's AssetWorks provides enterprise asset management software to manage everything related to our fleet from cradle to grave.

- Maintenance monitoring and tracking of the RAM vehicles, which are the primary uses of the application.
- Forecasting and scheduling preventive maintenance using M-5.
- Identifying warranty issues through the system at the time of a request for repair.
- Although M-5 follows manufacturers' guidelines for PM scheduling, the M-5 software allows us to manually adjust tasks to reflect actual maintenance history events (PM performed outside of schedule).
- Refining the vehicle replacement criteria by using the costs generated through the system.

8.2.2 RAM Operations Applications

Serco uses Comet Tracker for RAM operations. This tool provides faster reporting and integration into our ProgramVision portal. Using the ActSoft web-based Comet Tracker software, Serco Supervisors and Operators will record information into a database that can be easily accessed with our Performance, Reporting, and Data Visualization tools in ProgramVision. The Comet Tracker software provides a SouthernLINC mobile application with which our RAM Operators and Supervisors will populate the application's electronic forms (**Figure 8-2**) for:

- Pre-trip safety inspections
- Preventive maintenance activities
- Activities/Status—On patrol, Off patrol
- Post-trip inspections
- Restocking of vehicle consumables
- Supervisor audits



Figure 8-2. Comet Tracker Provides Mobility and Efficiency. *Transforming paper forms to “smart” forms to capture and visualize information improves efficiencies and reduces redundant keyboarding.*

The application forms help reduce errors and use drop-down lists, checkboxes, and automatic calculations that allow RAM Operators to quickly capture information. With the use of decision logic, we can design the forms to guide RAM Operators and Supervisors through a defined workflow.

Optionally, Serco would like to work with the Department to develop forms with the Comet Tracker software that work with iPhones (as described with WebEOC Mobile above) so RAM Operators can easily update information for the NaviGator ATMS using Center-to-Center (C2C) protocols. Serco intends to use Paul Dugas, a well-known software developer and integrator to GDOT, for this development due to his extensive knowledge of NaviGator integration and C2C protocols.

8.2.3 Performance Software

Serco is providing performance software that improves situational awareness and manages stakeholder expectations 24x7x365. Our ProgramVision (PV) software is a state-of-the-art business intelligence and performance reporting tool that provides full transparency to the Department. The PV software has the unique ability to link to disparate systems to create a data cube for analytics, real-time reporting, and data visualization (dashboards). PV creates a unified framework to publish contextual management information from many sources including NaviGator, WebEOC, GEARS, AgileAssets, M-5, Comet Tracker, etc. (PV is described in detail in our response to Question #26). The benefits of PV include route optimization, individual performance metrics, and multi-level dashboards with drill-down capability as shown in **Figure 8-3**.

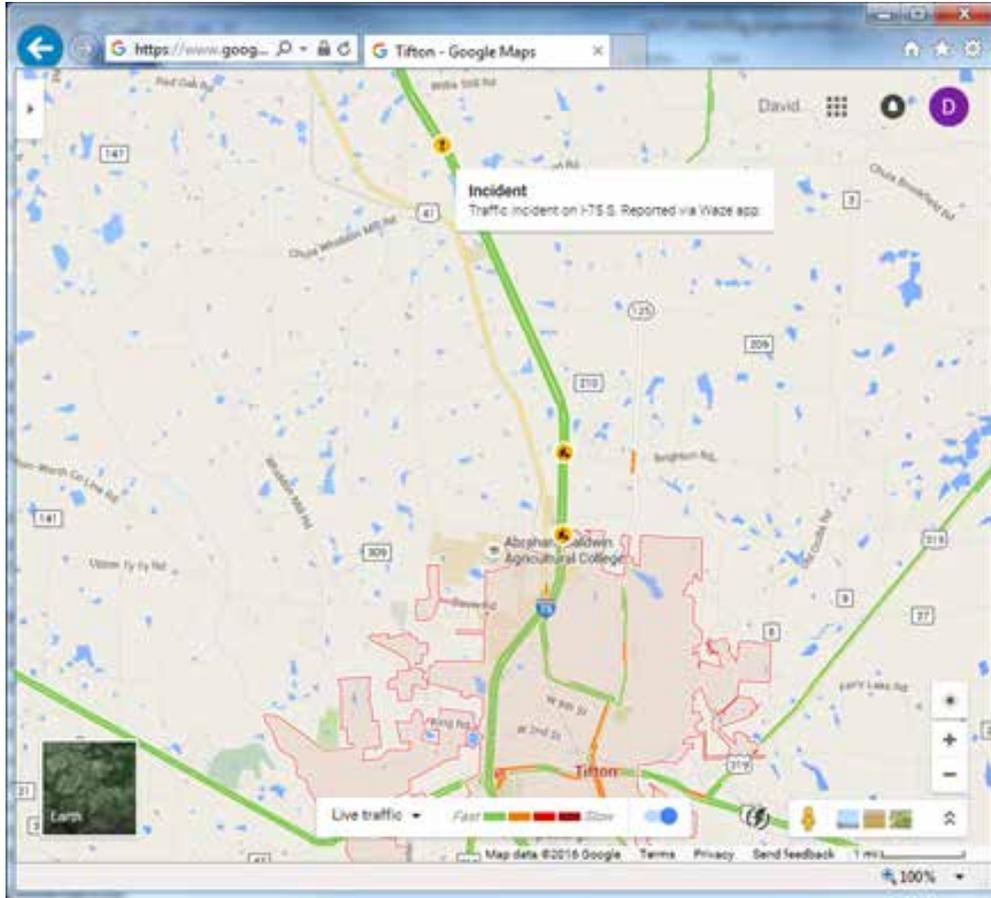


Figure 8-5. Google Traffic Incident Identification. *Close-to-real-time mapping of road conditions contributes to our ability to provide the right responses.*

8.2.5 Deltek Timekeeping

Serco will use our Deltek timekeeping solution (Figure 8-6) for the GDOT RAM Program. This timekeeping software has a web-based interface for staff working in the office environment (RAM Management, Dispatchers) and a mobile application for iPhone which may be used by our RAM Operators. This capability will minimize paper timesheets and result in more accurate and timely invoices to the Department.

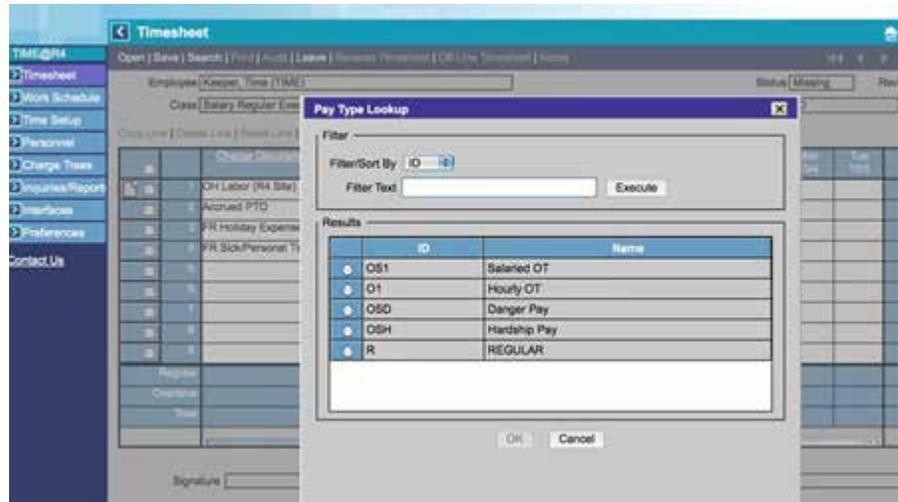


Figure 8-6. Deltek Timekeeping. *Our Deltek Timekeeping system tracks hours worked to provide accurate and timely invoices.*

8.2.6 Serco Learning Management System

The Serco Learning Management System (LMS) is a web portal that serves as a one-stop shop for employees and managers for accessing and tracking training, certifications, reference materials, performance support tools, and other learning assets. The main page is shown in **Figure 8-7**.

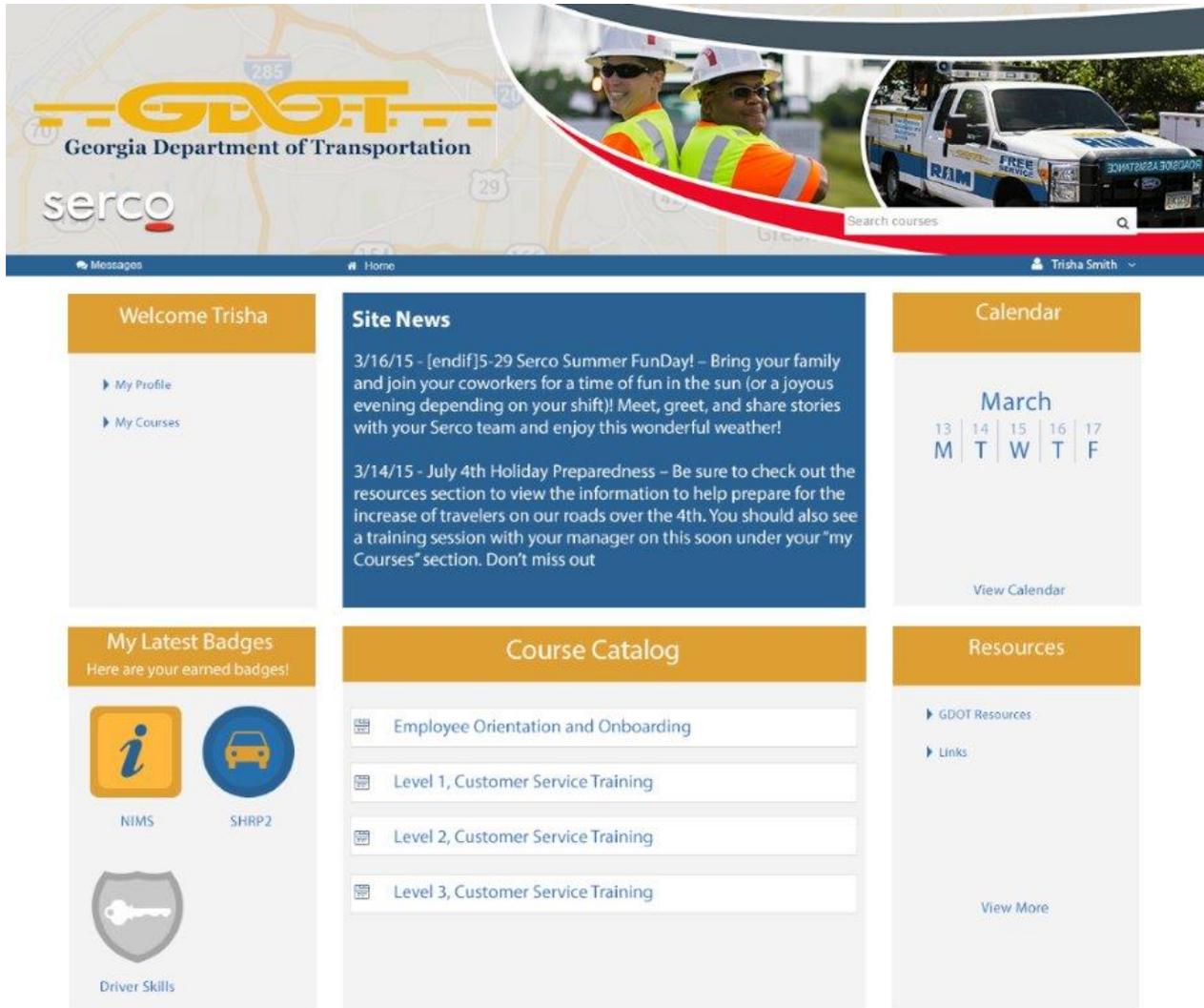


Figure 8-7. Learning Management System Landing Page. *This readily accessible online convenience helps centralize and facilitate staff training—as a resource and to track.*

The portal enables teams, Supervisors, and managers to track enrollment, progress, and completion of these offerings, certification requirements, and completion status, and provides the ability to develop customized training and certification plans through targeted curriculums.

Learning assets can be in any delivery format including SCORM-compliant web-based courses, synchronous distributed learning, classroom presentations, “just in time,” ad hoc videos, checklists and quick reference guides, and toolbox memos for policy updates. From a management perspective, the portal provides clear and immediate insight into employee engagement, experience, and capabilities.

This gives managers the ability to create, schedule, track, and report key metrics on a frequent basis, including competency, task, and needs analysis. The LMS Portal will provide management of the entire

learning and development process of our staff. The LMS Portal will track assessment results and certifications and schedule/notify staff of training and reassessments. GDOT will be able to instantly review a RAM Dispatcher or Operator’s certifications and his or her training curriculum and results.

8.2.7 WhenToWork Demand-based Scheduling

Most companies struggle with the scheduling of the right staff levels and skills. Serco has mastered this using the software application WhenToWork to schedule employee shifts. This software, which has both a web interface and a mobile app, is employee-friendly and intended to be used by all, allowing employees to sign up for available shifts, request leave, and shift changes through approvals via the Supervisor. The benefit is that, when combined with our on-call staffing plan, the ease of ensuring all positions are staffed while allowing personnel flexibility creates a much better work environment for employees, resulting in better engagement and productivity. The ease of use for employees and the ability to request changes with their peers helps get coverage aligned with demand, allows us to integrate full- and part-time employees, and reduces absenteeism, while allowing for easier supervision of staggered shifts, scheduling requests, and more effective scheduling of training, time off, and coverage for sick leave.

Continuing our commitment to partnership and transparency, GDOT will have access to WhenToWork to review all our RAM employee scheduling as shown in **Figure 8-8**.



Figure 8-8. WhenToWork Scheduling Software. *Use of this application allows Serco’s employees the flexibility to meet individual or family commitments while ensuring all positions are staffed for management oversight.*

8.2.8 Serco Business Academy

The Serco Business Academy (SBA) is an exciting online resource for Serco employees' personal and professional development, as shown in **Figure 8-9**. The SBA provides a one-stop shop for computer-based educational and developmental resources.

Using SBA, all Serco Americas employees can explore a variety of business competencies, stay up-to-date with technology advances, prepare for industry certifications, or take a virtual tour of Serco's global capabilities.

More than 3,000 online courses are available on-demand 24x7 for professional development. Business subjects, desktop tools, and a wide range of technology topics are covered. Most SBA courseware is created by Skillsoft®, a global leader in providing high-quality e-learning solutions. Many courses of study offer live expert mentoring. Skillsoft's expert mentors are available 24x7 through online chat or email. Managers can add courses to their employees' "My Plan" section on the SBA, and can associate specific completion deadlines for each course.



Figure 8-9. The Serco Business Academy (SBA) for On-Demand Professional Development Training. Serco's SBA integrates Skillsoft, project management certification preparation, and 3,000+ online courses available to all Serco employees.