

Using Workflow Management Techniques to Manage Service Patrol Contracts

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ABSTRACT

In order to accomplish the goals of Florida's Open Roads Policy, the Florida Department of Transportation (FDOT) Service Patrol contracts have many requirements. While these requirements are necessary, they are systematic in nature and typically require a significant amount of staff oversight. By using workflow management techniques coupled with technology, FDOT District VI has developed a software application titled Road Ranger Driver Information System (RRDIS) to more effectively manage Service Patrol contracts. This paper will give the reader an understanding on the type and number of Service Patrol contract requirements managed within the RRDIS, the functionality implemented within the RRDIS to effectively manage Service Patrol contracts and will provide feedback from various RRDIS user groups on overall experience.

Keywords: Workflow Management, Service Patrol

INTRODUCTION

Managing Service Patrol, herein known as Road Rangers, contracts can be a difficult task because of the many requirements that need to be monitored. This task can consume many man-hours ensuring requirements are met. These requirements include monitoring daily schedule submissions, tracking new drivers and their required documentation, vehicle information, and tracking vehicle inspection reports. Once all this information is obtained, gathering it, arranging it, and storing it require additional administrative hours.

The Florida Department of Transportation (FDOT) District VI recognized this and sought a solution. They developed the State of Florida's first interactive software database that automates Road Ranger contractor related and administrative tasks to enhance daily program functions. This software solution is known as the Road Ranger Driver Information System (RRDIS). The RRDIS increases efficiency by replacing manual methods of records management. The RRDIS eliminates reliance on paperwork, storage space, and document loss. It helps reduce human error by implementing entry field requirements that reject impartial or unrecognizable data. The RRDIS stores all data entered therefore maintaining open records for the Road Ranger contractor and FDOT staff to access, upload, and use.

APPLYING WORKFLOW TECHNIQUES TO CONTRACT REQUIREMENTS

The FDOT recognized that applying workflow techniques to contract management would improve the overall program. This section identifies contract requirements and converts them into workflows for the development of the RRDIS.

SCHEDULING

Daily shift schedule submission was recognized as one of the tasks that were difficult to track. Contract requirements call for schedules to be submitted at least a half an hour before the shift

start time and any revisions to a schedule be submitted within an hour of the change. Before the development of the RRDIS, daily schedules were submitted via fax. This proved difficult because contractors had to fax the schedules before each shift (possibly 2 or 3 shifts per day). The operations staff then had to distribute copies for everyone working and submit one copy to the contract manager. The contract manager filed the copy until they were ready to be scanned and placed in an electronic file by an administrative assistant. Facsimile's do timestamp when it was sent but either the fax records had to be searched for or that time had to be transferred to a spreadsheet if the contract manager wanted to review when schedules or revisions were submitted late. Also, the tracking and storing of all the documents on a daily basis resulted in large amounts of paperwork which took multiple man-hours to scan, file, and store on a regular basis.

The RRDIS allows the contractor to submit all schedules electronically for the current day and three days in the future and stores all schedules in a database. Once a schedule is submitted, the system administrator (contract manager) and contractor receive an email notification. The schedules are easily accessed by the operational staff to view and/or print as they see fit. All past schedules are accessed via a search function. All revisions made to a schedule are time stamped within the software and email notifications sent out for review by contract managers. Please see Figure 1 for screenshot of the RRDIS scheduling module.

| Schedule Date | Day Type | Shift | Created On | Created By | Contractor | Revision # | Revision By | View |
|---------------|-----------|-------|--------------------|--------------------------|-----------------------------------|------------|------------------------------------|------|
| 8/15/2011 | Weekday 1 | | 8/12/2011 9:06 AM | Ralph Etienne | 95 Express Incident Response Team | 0 | | |
| 8/12/2011 | Weekday 1 | | 8/11/2011 9:28 AM | Ralph Etienne | 95 Express Incident Response Team | 0 | | |
| 8/12/2011 | Weekday 1 | | 8/11/2011 9:30 PM | Raul Corbo | Anchor Towing | 1 | Raul Corbo | |
| 8/12/2011 | Weekday 2 | | 8/11/2011 9:37 PM | Raul Corbo | Anchor Towing | 0 | | |
| 8/12/2011 | Weekday 3 | | 8/11/2011 9:45 PM | Raul Corbo | Anchor Towing | 0 | | |
| 8/12/2011 | Weekday 1 | | 8/11/2011 10:00 PM | Vladimir "Manny" Collazo | Community Asphalt | 0 | | |
| 8/12/2011 | Weekday 2 | | 8/11/2011 10:01 PM | Vladimir "Manny" Collazo | Community Asphalt | 0 | | |
| 8/11/2011 | Weekday 1 | | 8/8/2011 2:01 PM | Ralph Etienne | 95 Express Incident Response Team | 0 | | |
| 8/11/2011 | Weekday 1 | | 8/10/2011 7:57 PM | Raul Corbo | Anchor Towing | 0 | | |
| 8/11/2011 | Weekday 1 | | 8/10/2011 9:05 PM | Vladimir "Manny" Collazo | Community Asphalt | 0 | | |
| 8/11/2011 | Weekday 2 | | 8/10/2011 9:06 PM | Vladimir "Manny" Collazo | Community Asphalt | 1 | Vladimir "Manny" Collazo | |
| 8/11/2011 | Weekday 3 | | 8/10/2011 9:09 PM | Vladimir "Manny" Collazo | Community Asphalt | 0 | | |
| 8/11/2011 | Weekday 2 | | 8/11/2011 8:58 AM | Raul Corbo | Anchor Towing | 3 | Raul Corbo; Raul Corbo; Raul Corbo | |

Figure 1. RRDIS Scheduling Module

DRIVER'S INFORMATION

Contract requirements call for specific information about the employees that are proposed to work under the contract. Driver information has to be submitted and reviewed by the contract manager, and documentation was usually submitted through fax and/or email. But some information is not as readily available as other, such as background information and driving history, and can take some time to gather. Therefore it became cumbersome to track all the driver information documentation that was being submitted at different times and for different drivers.

Using the RRDIS, the contractor uploads all documentation electronically. Submission of the driver information occurs in two phases: (1) Four core documents must be submitted for pre-approval/denial, (2) two additional documents along with a passing score for driver's examinations for final approval/denial. The RRDIS sends an email notification that notifies the contract manager when and what information has been submitted for what driver and if any additional information is required. Once the contractor has submitted the four core documents, the contract manager reviews them to ensure the driver meets minimum contractual requirements. Then, and only then, the contract manager can pre-approve the driver (note: if more than the core documents are submitted the driver still must be pre-approved first). After the driver has been pre-approved an email notification is sent to the contractor. This email is their cue to begin training the driver. When the contractor submits the two additional documents the contract manager knows the training is complete (one of the documents is a training form verifying a supervisor has trained the new driver). The documents are reviewed again and if the driver is prepared they take a written and practical exam. The written exam is administered through the RRDIS; therefore the score is automatically uploaded to the driver's information page. The practical exam score sheet and score are uploaded manually by the contract manager. The contract manager can issue final approval when the driver passes both exams. Once final approved, a final approval notification is sent and the driver is allowed to be scheduled. Please see Figure 2 for screenshot of the RRDIS driver module.

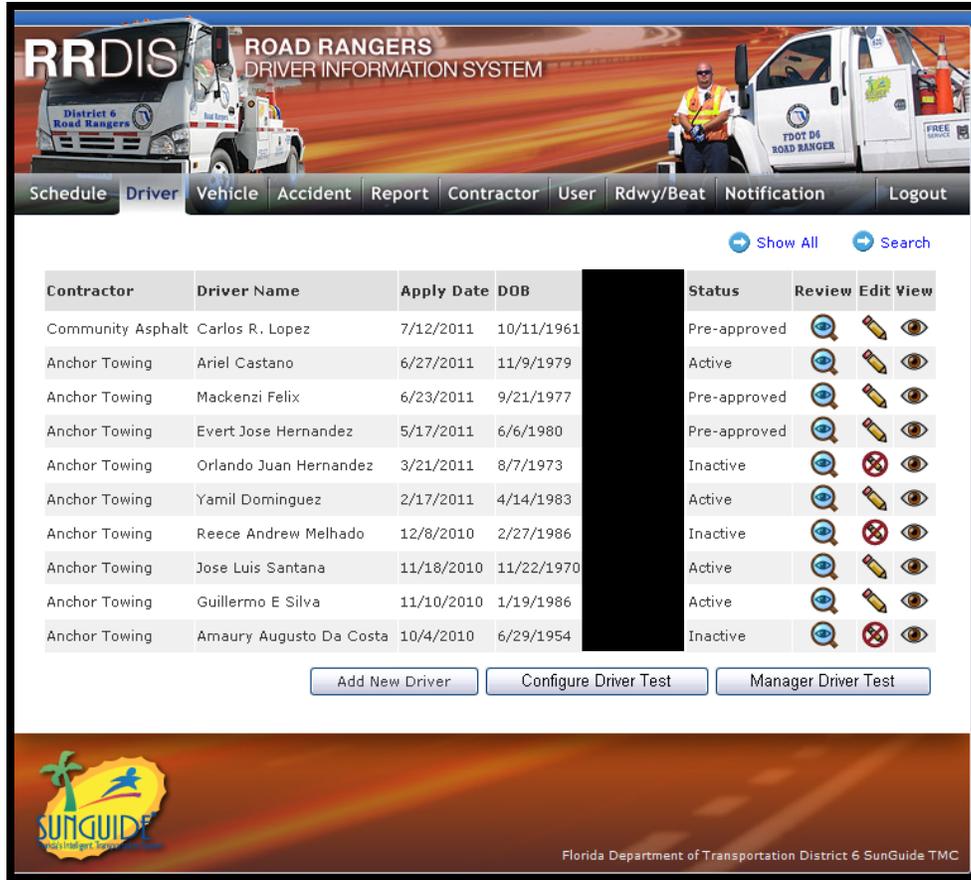


Figure 2. RRDIS Driver Module

The driver information includes a driver’s license type. Contract requirements call for a driver to have a specific driver’s license type to drive the different types of Road Ranger vehicles. If the driver does not possess the contract required driver’s license type for a Road Ranger vehicle, the RRDIS does not allow that driver to be scheduled with that vehicle. Furthermore, specific vehicles are required for specific beats/zones. This is accomplished when configuring the vehicles and beats/zones in the RRDIS. Each vehicle is assigned a driver’s license type and each beat/zone is assigned a vehicle and a driver’s license type. The RRDIS has built-in checks and balances that do not allow drivers to be assigned to a truck or beat if their license type does not match the required license type for that truck or beat.

ROAD RANGER VEHICLE INSPECTIONS

Vehicle and equipment inspection reports are also contractually required documents that need to be submitted on a daily basis. Previously, the vehicle and equipment inspections were done manually and submitted monthly, resulting in a large amount of paperwork to be ordered chronologically, then scanned and filed. Determining if the contractor was submitting the inspections for all vehicles that worked that day and the correct amount proved to be very difficult and time consuming. This required additional man-hours to complete. It required separating the submitted inspections reports by day, then cross-checking them with that day’s schedule. Any inspections reports not submitted could count against the contractor during their

monthly evaluations.

Currently inspections reports are completed on a PC tablet using software developed for the FDOT called the Road Ranger Contractor Inspection Program (RRCIP). By accessing the VPN to the FDOT District Six Transportation Management Center (TMC) network, the contractor directly uploads the inspections reports to the RRDIS. The RRDIS cross-checks each shift's schedule for a day and reports any inspection reports not submitted in an email notification to the contractor and contract manager on a daily basis, thus eliminating the need to sort through manual reports and ordering, scanning, and filing them. The notifications include the Road Ranger vehicle numbers that do not have an inspection report associated with it. The contractor has until 5:00 PM the next day to submit the inspection reports for the previous day or they are considered late. The inspections reports can be viewed by generating a report created in the reporting module. Please see Figure 3 for a sample generated report.

| RRCIP Inspection Report | | | | | | | | | | |
|-------------------------|----------------|----------------------|---------------------|---------------|------------|---------|---------------|----------------------------|----------|-----------------------------|
| No. | Inspector | Inspection Date | Upload Date | Contractor | Contract # | Vehicle | Vehicle Type | Driver | Location | Report |
| 1 | Vincent Valdes | 8/2/2011 8:35:50 PM | 8/3/2011 6:45:22 AM | Anchor Towing | BDP02 | 661 | Flatbed Truck | Omar Artigas | Yard | View Report |
| 2 | Vincent Valdes | 8/2/2011 8:30:15 PM | 8/3/2011 6:45:10 AM | Anchor Towing | BDP02 | 636 | Tow Truck | Barinton H. Tulloch | Yard | View Report |
| 3 | Vincent Valdes | 8/2/2011 8:25:44 PM | 8/3/2011 6:44:55 AM | Anchor Towing | BDP02 | 611 | Pickup Truck | Ariel Castano | Yard | View Report |
| 4 | Vincent Valdes | 8/2/2011 8:20:08 PM | 8/3/2011 6:43:47 AM | Anchor Towing | BDP02 | 601 | Pickup Truck | Manolo Ravelo | Yard | View Report |
| 5 | Vincent Valdes | 8/2/2011 8:15:37 PM | 8/3/2011 6:43:24 AM | Anchor Towing | BDP02 | 658 | Flatbed Truck | Andy Diaz | Yard | View Report |
| 6 | Vincent Valdes | 8/2/2011 8:10:00 PM | 8/3/2011 6:42:53 AM | Anchor Towing | BDP02 | 604 | Pickup Truck | Adrian Morales | Yard | View Report |
| 7 | Vincent Valdes | 8/2/2011 8:05:27 PM | 8/3/2011 6:42:20 AM | Anchor Towing | BDP02 | 610 | Pickup Truck | Israel Sanchez | Yard | View Report |
| 8 | Vincent Valdes | 8/2/2011 12:50:50 PM | 8/3/2011 6:41:45 AM | Anchor Towing | BDP02 | 633 | Tow Truck | Jose Luiz Diaz | Yard | View Report |
| 9 | Vincent Valdes | 8/2/2011 12:45:18 PM | 8/3/2011 6:41:29 AM | Anchor Towing | BDP02 | 630 | Tow Truck | Yamil Dominguez | Yard | View Report |
| 10 | Vincent Valdes | 8/2/2011 12:40:39 PM | 8/3/2011 6:41:11 AM | Anchor Towing | BDP02 | 659 | Flatbed Truck | Filiberto Darce | Yard | View Report |
| 11 | Vincent Valdes | 8/2/2011 12:35:59 PM | 8/3/2011 6:40:55 AM | Anchor Towing | BDP02 | 657 | Flatbed Truck | William Gomez | Yard | View Report |
| 12 | Vincent Valdes | 8/2/2011 12:30:11 PM | 8/3/2011 6:40:37 AM | Anchor Towing | BDP02 | 631 | Tow Truck | Ovidio Calderon | Yard | View Report |
| 13 | Vincent Valdes | 8/2/2011 12:25:39 PM | 8/3/2011 6:40:25 AM | Anchor Towing | BDP02 | 609 | Pickup Truck | Maxime Saitil | Yard | View Report |
| 14 | Vincent Valdes | 8/2/2011 12:20:15 PM | 8/3/2011 6:40:11 AM | Anchor Towing | BDP02 | 603 | Pickup Truck | Lloyd Barrington Gordon Jr | Yard | View Report |
| 15 | Vincent Valdes | 8/2/2011 12:15:41 PM | 8/3/2011 6:39:58 AM | Anchor Towing | BDP02 | 656 | Flatbed Truck | Allister Coke | Yard | View Report |
| 16 | Vincent Valdes | 8/2/2011 12:10:09 PM | 8/3/2011 6:39:46 AM | Anchor Towing | BDP02 | 606 | Pickup Truck | Rolando Lazo Perez | Yard | View Report |
| 17 | Vincent Valdes | 8/2/2011 12:05:33 PM | 8/3/2011 6:39:32 AM | Anchor Towing | BDP02 | 602 | Pickup Truck | Arnel Iram Herrera | Yard | View Report |
| 18 | Vincent Valdes | 8/2/2011 4:50:40 AM | 8/3/2011 6:38:28 AM | Anchor Towing | BDP02 | 635 | Tow Truck | Dalison Pacheco | Yard | View Report |

Figure 3. Generated Report for Road Ranger Inspections

ROAD RANGER ACCIDENTS

Road Rangers involved in accidents shall be documented and reported by the contract manager. To accomplish this within the RRDIS, the TMC Operators/Dispatchers shall enter all required information about the accident in the accident report form, save it, and then notify the contract manager the accident has been entered. The accident form includes all information that is required to be reported to the necessary parties.

The contract manager shall review the information, ensure it is in line with the report that was received, and then send an internal notification email that includes all information from the RRDIS accident report. The internal notification list is configured in the RRDIS and by a simple

a click of the mouse the accident form is sent out. After the vehicle has been inspected and the police report (if any) has been reviewed, the contract manager sends a final external accident report which may include changes that were not identified immediately after the accident. The external notification report is configured and sent the same way as the internal notifications. The external notification includes additional people that need be notified about the accident after a more complete review. Please see Figure 4 for screenshot of the RRDIS accident module.

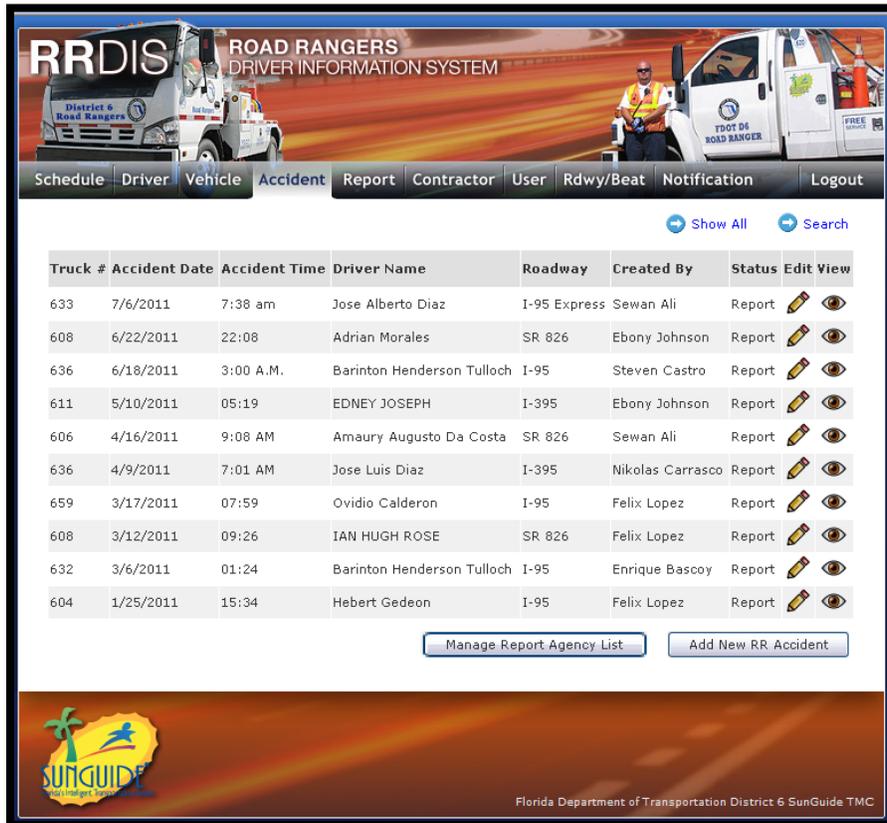


Figure 4. RRDIS Accident Module

SYSTEM FUNCTIONALITY

There are four different user types for the RRDIS: operator, contractor, manager, and administrator. Each user type has different functionalities with the TMC operational staff using operator, manager, and administrator. The contractor only utilizes the contractor user type. The administrator is the highest level user type and utilizes all functionalities available by the RRDIS, including setting the requirements and email notification lists. The manager and operator functions offer less functionality than the administrator, with the manager user type having more functionality than the operator. The contractor user type only allows the contractor to submit and revise schedules, submit new employee applications, and run reports to view their submitted inspection reports. Please see Figure 5 for User Type selection screen.



Figure 5. RRDIS User Type Selection Screen

By having different user types, the administrator (contract manager) manages the workflow to each user type. Notifications can be configured so that all members of a user type can receive alerts that would benefit them, such as the operator user type receiving alerts every time a schedule or a revision to a schedule is submitted. See section below for more information on configurable notifications.

REPORTING

Quality Control (QC) is a step which the FDOT uses for workflow management and the RRDIS has multiple reports allowing contract managers to ensure that documentation is being submitted on time and if not on time, when. The reports focus on information that is used when evaluating the contractor, therefore reports can be run over a date/time range that is needed for the evaluation, such as a month to month evaluation.

BENEFITS

The benefits of using the RRDIS include: automating the process that was previously done manually thus saving time and money, storing information in a database as opposing to scanning and filing, and the overall user interaction of the software. The reporting function allows the user to access the submitted information easily for a quick and effective quality control. All these benefits contribute to a more effectively managed contract.

By using workflow techniques the software is set up to ensure all information is present in the database before the contractor can move to the next step. This gives the contract manager assurance knowing that the contractor is not circumventing contract requirements.

CONCLUSION

According to an analysis done by the FDOT District VI staff, the automation of the previous manual process saves the FDOT approximately \$95,000 in contract management hours per year. This does not include the paper saved from printing and faxing the aforementioned documentation. The feedback from Road Ranger contractors has been nothing but positive. They appreciate the automated process and notifications they receive making them aware of what and when information was or was not submitted. They have also commented on how much better it is having all the information stored in the database so they can quickly access past schedules, accident reports, and inspection reports. This decreased their dependability on paper and printing supplies. Therefore, this has not only saved the FDOT time and money, but contractors as well and they are very thankful for that. Overall the RRDIS has been a tool well received by all users.

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