



**Cross Island Parkway
Palmetto Pass
South Carolina
Department of Transportation**

CSC and VPS Software Program (Work Package 2)

CSC Test Plan

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ACS

Government Solutions, TSS.

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Table of Contents

1. Introduction	1
1.1 Test Scope	1
1.1.1 SCDOT Requirements	2
1.1.2 Resources	2
1.1.3 Interface with SCDOT Host	2
1.1.4 Interface with Business Process (Outsourced) Service	3
1.1.5 Mailhouse Services	4
1.1.6 Reports	5
1.1.7 Testing Tasks	5
2. Test Process	6
2.1 Environments	6
2.2 Description of the Testing Methodology	6
2.2.1 Management's Responsibility for Testing	6
2.2.2 Software Unit Testing	7
2.2.3 Software Integration Testing	8
2.2.4 System Integration Testing	8
2.3 Test Description	8
2.4 Test Entrance Criteria/Checklist	9
2.5 Use of Written and Approved Test Procedures	10
2.6 Pass or Fail Criteria	11
2.6.1 Pass	11
2.6.2 Pass with Comments	11
2.6.3 Failed Relevant	11
2.6.4 Failed Non-relevant	11
2.7 Test Documentation	12
2.8 Recording and Resolving Test Deficiencies	12
2.9 Post-Testing Follow-up	12
2.10 Test Exit Criteria	12
2.11 Test Reporting	13
3. Data Migration Testing	14
3.1 Overview	14
3.2 Test Objectives	14
3.3 Test Description	14
4. End-To-End (ETE) Testing	28
4.1 Overview	28
4.2 Test Objectives	28
4.3 Test Description	28
4.3.1 Authority Interface Testing	28
4.3.2 Transaction Processing	29
4.3.3 Account Creation	29
4.3.4 Test Results	30
5. Reports Testing	31
5.1 Overview	31
5.1.1 Transaction Reports	31
5.1.2 Financial Reports	31
5.1.3 CSC Reports	32
5.1.4 Violation Reports	32



5.2	Test Objectives.....	32
5.3	Test Description	32
6.	System Acceptance.....	34
7.	System Requirements	35
Appendix A – Acronym List		A-1
Appendix B- Test Scripts		B-1
Appendix C – Sample Test Script.....		C-1
Appendix D – Summary of SCDOT Reports		D-1

Table of Tables

Table 1-1 Resources.....	2
Table 1-2 Interface Files with SCDOT Host.....	2
Table 1-3 Mailhouse Interface Files.....	5
Table 2-1 QA Release Acceptance Checklist.....	6
Table 2-2 Test Entrance Checklist.....	9
Table 3-1 Conversion Summary	15
Table 3-2 Accounts	16
Table 3-3 Address Record Count by State	17
Table 3-4 Vehicle Count by State	19
Table 3-5 Toll Transaction Counts by Year Month	21
Table 3-6 Financial Transactions by YEARMONTH	21
Table 3-7 Composite Financial Transaction Totals by Number of transactions.....	21
Table 3-8 Account Verification	22
Table 3-9 Account Verification: Accounts by Plan Type	24
Table 3-10 Account Address Verification Count by State	24
Table 3-11 Account Vehicle Verification Count by State	25
Table 4-1 Interface Files	28
Table 4-2 External Interface Files	29

1. Introduction

This test plan outlines the approach ACS uses to test each subsystem, providing details on the required components. The goal of testing is to verify the full functionality of the integrated system in compliance with SCDOT's business rules, as well as the functional and operational requirements set out in the SCDOT Business Requirements document.

System testing will be accomplished at the ACS facility in Germantown, MD. The test site will be equipped with all the testing equipment to fully exercise the system.

NOTE: The VECTOR system upgrade shall be referred to herein as "the system upgrade". The VECTOR system shall be referred to herein as "the system".

1.1 Test Scope

This test plan fulfills the contractual requirements defined in the SCDOT requirement and business rules documents. The system upgrade, data migration and End-to-End (ETE) system readiness testing will be conducted to ensure that the ACS integrated system is ready to offer the services described in the SCDOT Business Rules document and the functional and operational requirements.

The System Upgrade – The system will be upgraded from its current version 1.1 to version 2.21. The new system will be hosted in the Technical Service Center (TSC) environment. Testing will cover the Customer Service Center (CSC) system which incorporates:

- Customer Account Management Subsystem (CAMS)
- Financial Processing Management Subsystem (FPMS)
- Device Inventory Management Subsystem (DIMS)
- Violation Enforcement Management Subsystem (VEMS)
- Transaction Processing Management Subsystem (TPMS)
- Testing will be conducted to validate a successful upgrade.

Data Migration – The purpose of the data migration testing is to ensure that the data maintained in the current SCDOT production VECTOR 1.1 application system is accurately converted to the VECTOR 2.21 format. Data migration testing process will involve the migration of the entire SCDOT production databases, prior to a cut-off date, to the desired ACS test facility used to conduct the system testing. The converted data will be validated to ensure correctness.

End-to-End Test - The purpose of the End-to-End test (ETE) is to verify that the CSC and SCDOT host are integrated correctly and accurately reflect normal operational system flow. ACS will validate through this ETE test that transactions generated at the SCDOT lanes are correctly processed at the host and CSC. Test results will be documented and shared with the SCDOT.

1.1.1 SCDOT Requirements

The system will be fully tested through a complete and comprehensive set of test scripts, in which each test case is mapped to a requirement or a set of requirements. A traceability matrix, showing mapping, is included as part of each test script.

1.1.2 Resources

The system upgrade data migration and ETE testing will be conducted or observed by the required ACS Quality Assurance (QA) personnel. The following table identifies responsible parties from ACS involved with or observing these testing activities. These resources will coordinate and communicate all activities during the testing period.

Table 1-1 Resources

	Resource	Subsystem
ACS - QA	Mike Conway, Quality Assurance Director to assign. Team Lead is Dak Laval	All
Technical Service Center	TBD	CAMS, FPMS, VEMS
SCDOT	TBD	TBD

1.1.3 Interface with SCDOT Host

The integration between SCDOT's host system and the CSC is designed to operate through a two-way interface between the SCDOT host and the CSC systems. The primary mechanism of such interface consists of effecting automated and controlled periodic file-transfers. The following are sample files that will be exchanged between the SCDOT host and the CSC.

Table 1-2 Interface Files with SCDOT Host

File Name	Sent From	Sent To
Tag Status File (.TS)	CSC	Host
Violation Image File	Host	CSC
Transaction File (.TRCS)	Host	CSC
Reconciliation File (.RT)	CSC	Host

CSC function is dependent upon the timely exchange of tag status files and transaction files between the SCDOT host and the CSC. The reconciled transaction file processing is very important in ensuring the transactional and financial integrity of the overall system. Image transmission has to be completed on a timely basis to help ensure that the SCDOT host system is providing the CSC with all data required to process any violation.

1.1.3.1 Tag Status Files

A tag status file is created by the VECTOR CSC tag status batch programs. The tag status file creation process consists of a series of programs that run daily to create the tag status file to be

downloaded to the SCDOT host system. The SCDOT host in turn converts this tag file into lane format and sends it to the lanes.

When the tag status process is run, all the SCDOT tags with a status that meet the SCDOT business rules will be included in the tag status file.

Note: Because the SCDOT tags status files reside in the TSC environment with other agencies' data, testing will validate that the tag status process does not include any other agency tags when creating the SCDOT tag status file.

ACS will validate that other agencies' tag status processes do not include SCDOT tags in their tag status files. The test scripts can be referenced in *Appendix B – Test Scripts*.

1.1.3.2 Violation Image Transfer Process

A violation image captured at the lane and processed at the host is transferred from the host to the CSC via secure file transfer protocol (SFTP) using a known account on the CSC system. The violation image will be sent to an external agency, Business Process (Outsourced) Service (BPS), when violation transactions are identified through the "Violation Insert" interface and created in the external image file (in .TR format). Upon review of the image and process of the violation transaction file, a return file is sent back to CSC for further violation processing. The violation image transfer process is monitored to ensure the timely transfer and storage of all violation images. Testing will validate that violation images are correctly associated with violation transactions and that the review process correctly captures information to ensure proper processing of a violation. The test scripts can be referenced in *Appendix B – Test Scripts*.

1.1.3.3 ETC Transaction to CSC

The lane transactions are collected at the SCDOT host system in a TRCS file and sent to CSC for posting. The extraction and transmission of the ETC transactions to the CSC is a crucial component of the SCDOT Host. The lane tests and TRCS testing will assess the capability of the SCDOT to generate the transaction file which complies with the indicated format. Testing will ensure these transactions files are correctly processed at the CSC. The test scripts can be referenced in *Appendix B – Test Scripts*.

1.1.3.4 Reconciled Transaction from CSC

Upon receiving the TRCS file, the file is processed and the transaction reconciled after the CSC completes the ETC transaction and reporting cycle. The reconciled data file (in .RT format) will be sent back to the SCDOT host and used to update the open transactions to closed transactions indicating the end of the reconciliation process. Each such RT file corresponds to an original TRCS file that was sent by the host to the CSC earlier. The test script can be referenced in the *Appendix B – Test Scripts*.

1.1.4 Interface with Business Process (Outsourced) Service

When a TR file containing data pertaining to violation transactions that requires image review is created, this file and the image zip files are sent to BPS. Using the images and the TR files, the BPS will perform the image review and return the results in a return file (in .RET format). Only



the RET file containing the transaction information is returned. The image file is not returned by the BPS and it is the BPS's responsibility to maintain the backup of these images up to the specified time limit.

The RET file will then be processed within the CSC. For successful image reviews where the plate number was viewable, records will be inserted in the License Plate Customer Available (LICA) queue for further processing. Review test scripts in *Appendix B – Test Scripts*.

1.1.5 Mailhouse Services

Account statement and letters generated within the CSC will be sent to Mailhouse Services for processing. File transmission between CSC and the supplier of the mailhouse services is via SFTP. Upon completion of each file's transmission, a control file is transmitted to eliminate the possibility of processing a file before transmission is complete. File generation and verification will be tested using test scripts identified in the *Appendix B – Test Scripts*.

The types of correspondence are listed below in Table 1-3 Mailhouse Interface Files Correspondence.

Table 1-3 Mailhouse Interface Files

Correspondence Type	Source
Delinquent Accounts	CSR
Credit Card Decline Letter	CSR
NSF Letters	CSR
Reimbursement Letter – Account Closure	CSR
Credit Card Replenishment Letter	CSR
Customer Statements	System

1.1.6 Reports

Reports will be developed and deployed using Actuate. The reports are divided by functional categories:

CAMS

FPMS

VEMS

TPMS

Host reports.

Since the system will share report resources in the TSC environment, page level security will be implemented to ensure that SCDOT report data is not visible to other agencies. The complete list of reports applicable to SCDOT will be tested. Some critical reports will also be included in ACS ETE testing to verify that reports of sample transactions can be generated and that data shown on the reports are correct. The complete list of SCDOT reports can be referenced in the *Appendix D – Summary of SCDOT Reports*.

1.1.7 Testing Tasks

Testing tasks include:

- SCDOT Data Migration
- SCDOT VECTOR Upgrade to version 2.21
- ETE Testing

2. Test Process

2.1 Environments

The testing environment dedicated to the testing of system upgrade releases is located in the Germantown, Maryland, ACS development center.

QA anticipates the use of the current SCDOT test environment (SCAXP02) when validating the data migration process.

The test environment will be under configuration control and changes will be managed through the ACS Configuration Management team. Configuration Management (CM) and the QA Release Engineer will be responsible for installing all application components to prepare the environments for testing. Table 2-1 lists the criteria for release acceptance.

Table 2-1 QA Release Acceptance Checklist

Affirmative?	Criteria
	Environment is ready
	Logical/directories setup
	Com/exe procedures are current
	Statics have been applied
	All change requests (CRs) set to "pending" state in ClearQuest.

2.2 Description of the Testing Methodology

The CSC system is crucial to the delivery of a seamless ETC system. The ACS testing program is designed to demonstrate that the integrated CSC systems are in full compliance with all contract functional and performance requirements. The testing methodologies employed assure that all components of the system are of the highest quality and perform reliably. Specific objectives of the plan are:

- Provide direction for the management and technical efforts necessary to support testing activities.
- Communicate the nature and extent of the tests necessary to provide a basis for evaluation, verification, and acceptance of the system.
- Coordinate and schedule testing events in an efficient and effective manner.
- Outline the ACS team's testing approach.

2.2.1 Management's Responsibility for Testing

The project QA personnel and the project manager are responsible and accountable for the entire CSC system testing program. The testing program encompasses individual components, all subsystems, and the fully integrated system. Prior to the start of testing, the following activities are performed to establish a foundation for testing:

- All test personnel responsibilities are clearly defined.
- Test procedures are identified for all applicable software and integration test requirements.
- An established process for documentation and resolution of noted discrepancies is in place.
- An audit process for follow-up and verification is identified and established, ensuring the successful resolution of test deficiencies.

The project QA personnel review all test documentation and witness tests conducted to ensure that testing is accomplished in accordance with the QA program.

2.2.2 Software Unit Testing

Each unit (basic component) of the software is tested to verify that the detailed design for the unit has been correctly implemented. In order to fully test that all the requirements of an application are met, there is at least one test case for each requirement. Each unit will be tested with normal input values and erroneous input values. Error detection, error recovery and appropriate error messages will all be validated through testing. All units will be validated for conformance to ACS' programming standards and practices.

The project quality assurance tester ensures that each software unit is tested using industry standard testing methods including, but not limited to, regression and stress testing. The tester is involved in all aspects of software unit testing and ensures that any code modifications or changes are implemented and documented.

The quality assurance tester uses the following criteria when conducting reviews of software and related documentation:

- Compliance with contractual requirements
- Compliance with project analysis design, coding, and documentation
- Traceability to specifications
- Adequate test coverage of requirements
- Technical adequacy, including the appropriate allocation of resources
- Degree of completeness appropriate to the program phase
- Adherence to required format
- Consistency with other program documentation
- Standards and practices
- Internal consistency
- Subject understanding

Software unit testing is for internal QA purposes. All test records will be maintained and made available upon request for SCDOT's review. All tests are completed in accordance with this plan and SCDOT will be notified of any major anomalies, problems, or design changes that result from these tests.

2.2.3 Software Integration Testing

Software integration testing is performed using the same stringent methodologies and standards employed during the individual software unit testing. The QA team performs each step of integration testing. Each subsystem is integrated to the system level to verify functional performance of the entire system.

To accomplish the goals of system functional and integration testing, ACS has developed a set of test procedures and scripts to ensure the coverage of testing in accordance with the SCDOT requirements and business rules.

Software integration testing is for internal quality assurance purposes. All test records will be maintained and made available to SCDOT for review upon request. All tests have been completed in accordance with the Functional and Integration Test Plan and SCDOT will be notified of any major anomalies, problems, or design changes that result from these tests.

2.2.4 System Integration Testing

Upon success of the software unit testing and software integration testing, the integration testing at the system level will be conducted. The project QA team ensures that the following goals of the system integration testing are archived:

The goals of the system integration tests are to:

- Complete an accurate data migration
- Verify VECTOR Online functionality
- Complete ETE system functionality testing
- Verify interactive voice response (IVR) functionality
- Verify reports
- Verify compliance with the established business rules

To accomplish the goals of system integration testing, ACS has developed a set of test procedures and scripts to be executed during the system integration testing (*Appendix B – Test Scripts*).

A complete system test will be performed via generation of transactions in a lane through the host, CSC and violation processing. All phases of system integration testing will be performed to demonstrate the integrity and accuracy of the complete system. The QA personnel or designee will witness the system integration testing. In addition, QA personnel will review all test data for compliance with SCDOT's system requirements.

2.3 Test Description

The tests will be performed by executing test scripts developed for the following areas. The test scripts can be referenced in the *Appendix B*.

Online - The purpose of online testing of the system upgrade is to verify proper data acceptance, processing, and retrieval, as well as the appropriate implementation of the business rules. The functional areas include:

Account establishment and maintenance for private, business, and non-revenue accounts

Payments and financial transactions

Tag assignment, inventory management

Toll processing

View violation and notice

Violation payment

Web - The Web test will demonstrate the ability for a customer to log-in and to handle most of their needs without a customer service representative's (CSR) assistance. Through the internet, users can access account information and transactions including:

Report of lost or stolen tags

Account balance checks

Violation information,

Update of credit card expiration date and

Other general information pertaining to their account.

Interactive Voice Response - Through an automated menu selection system, callers will access an automated phone system, request account information (report of lost or stolen tags, account balances, violation information) and may update account information as needed.

Violations - The goal of violation readiness is to demonstrate violation transaction processing based upon customer inquiry.

Actuate - The goal of the Actuate reports test is to verify that reports of sample transactions can be generated and that data shown on each report is correct.

2.4 Test Entrance Criteria/Checklist

The following items serve as test entrance checklist during testing procedures. Adherence to this checklist ensures that proper guidelines are being followed to ensure the integrity and accuracy of all required processes.

Table 2-2 Test Entrance Checklist

Affirmative?	Criteria
	Requirements are finalized and deliverable
	Designs are finalized and deliverable
	Test scripts have been developed and peer reviewed
	Environment is ready
	Environment variables/directories are set up
	Command Procedures/executables are current
	Static (process parameters and policies) have been applied
	All CR have been entered into ClearQuest and are in the correct status.

CM build has been deployed successfully

2.5 Use of Written and Approved Test Procedures

ACS has developed a comprehensive set of test scripts to test all aspects of the system. The test procedures used to develop these test scripts have been used for years and have been proven in their entirety and efficiencies. These test scripts can be referenced in *Appendix B – Test Scripts*.

Standard scripted tests comprise the test procedures. By developing test scripts focused on the performance of a specific subsystem, ACS will reduce the number of redundant test steps needed to verify the performance of the system.

If it is necessary to perform a test scenario not covered in the approved test scripts, ACS and SCDOT will develop test scripts and identify expected results before the execution of the test. Any results from the execution of ad hoc tests will not be considered or addressed by ACS.

2.6 Pass or Fail Criteria

It should be noted that the primary purpose of these test scripts is to verify the proper functioning of the subsystems and the integrated solution, as documented in the system design documents and SCDOT business rules.

The results of each test will be presented at the end of each test and each test step. The final disposition of the test, pass or fail, will be determined using the criteria described below. A complete formal report will be provided to SCDOT after the completion of all test scripts, and any re-testing required.

The result of each test step will be categorized as pass, pass with comments, failed relevant, or failed non-relevant.

2.6.1 Pass

The test step passes if the documented expected results are observed. Test steps with this indication do not require any formal re-testing. The steps may be retested for observation only after the formal testing is completed.

2.6.2 Pass with Comments

The test step passes with comments if the documented expected results are received, but additional observations occurred, for example:

- Additional data provided, not part of expected results
- Expectation differences

Test steps with this indication do not require any formal re-testing. The steps may be retested for observation only after the formal testing is completed.

2.6.3 Failed Relevant

Test steps that fail include a material failure defined as expected results not received, and no obvious non-relevant failures (see below) are identified. Relevant failures require formal re-testing. Only the test steps that have failed and any setup steps will be retested. If the relevant failure requires software modification, a set of agreed upon regression scripts will be conducted to verify proper operations before re-testing. Upon completion of the initial analysis of the failed test step, the remaining test steps and scripts will be performed.

2.6.4 Failed Non-relevant

Test steps that fail due to external influences as indicated below, and are not related to material failures indicated above:

- Error in test procedures
- Improper, or error in, execution of test procedures
- Operator error

- Failure of test facility
- Equipment failures or malfunctions
- Normal operating adjustments

Non-relevant failures are retested immediately after the appropriate corrections are made, and the remaining test steps are then performed. Upon successful completion of the retest, the final disposition of the step is passing.

2.7 Test Documentation

For each test script performed, documentation will be gathered to provide additional backup data, analysis and a formal report. Test results will be captured as part of the test script. Some test scripts will be verified by the generation of reports specific to the test script being run.

2.8 Recording and Resolving Test Deficiencies

The ACS team will record and resolve any deficiencies uncovered during testing. The tracking tool, IBM Rational ClearQuest, will be used to track, monitor, resolve, and prevent recurrence of failures or non-conformance detected during testing. QA is responsible for maintaining and updating all failure summary reports and distributing these reports to the ACS team and SCDOT if requested.

2.9 Post-Testing Follow-up

ClearQuest is a tracking system that tracks problems from discovery to resolution. Each failure or non-conformance will be evaluated to identify the cause and to define the appropriate corrective action. The QA team will verify that non-conforming hardware or software is documented, identified, isolated, and controlled to prevent unintended use or installation. QA personnel will ensure that timely and effective corrective action occurs. Any recommendations for corrective action must be reviewed and approved by the appropriate departments before implementation.

The QA team will ensure implementation of all corrective actions and will oversee follow-up testing to determine the effectiveness of the corrective action. All test results and corrective actions will be fully documented in test scripts and ClearQuest. These results and the corrective actions taken will be available upon request for review by SCDOT.

2.10 Test Exit Criteria

The following test exit criteria must be met before the testing process can be closed out.

- All documented test cases executed and results validated
- All documented and accepted business rules have been validated
- Outstanding issues have no impact to system processing of toll transactions
- End user, customer correspondence process correctly

If required criteria are not met, ACS will request the scheduling of a test re-run to occur after corrective action is completed.

2.11 Test Reporting

All QA documents related to the system upgrade testing are stored in an internal test document repository. The repository contains:

- Test plans
- Test scripts
- Test results
- Configuration management build related materials

It also contains the central tracking files and schedules. Internal daily progress through all testing phases will be recorded in the Microsoft Excel Workbook. Separate worksheets contain:

- Test script assignment
- CR assignments
- Test script execution status
- Number of test cases passed and failed on a per script basis
- Individual CR test results
- Outstanding issues (environment and software)
- Total project percent complete.

A daily, technical level software development and QA test meeting will occur to review testing status and outstanding issues. ETE test results will be available for review upon request by SCDOT.

3. Data Migration Testing

3.1 Overview

The purpose of the data migration testing is to verify that the data maintained in the current system version 1.1 production systems are accurately converted to the upgraded system application format. Data migration tests will be performed to verify that existing core knowledge can be successfully implemented into the upgraded Technical Service Center application system without disruption to daily processes. The following section provides details on test objectives and describes the data conversion effort and processes involved.

3.2 Test Objectives

The objectives of the data migration tests are to demonstrate that data of the current system version 1.1 systems can be successfully migrated from its current environment to the upgraded system application environment.

3.3 Test Description

The goal of the data migration effort is to successfully migrate the following entities from the SCDOT current system into the upgraded system environment:

- Accounts
- Addresses
- Devices
- Vehicles
- Account notes
- Plans
- Financial transactions
- Non-financial transactions
- Toll transactions

For the data convention drop, the full SCDOT production data, on a cut-off date, will be migrated to the upgraded system test environment in the ACS facility located in Germantown, Maryland.

The data migration tests will be conducted using screen shots captured by the ACS project QA personnel from the current SCDOT VECTOR version 1.1 system and compared to data migrated to the upgraded application system. The ACS project QA personnel will take screen shots of selected SCDOT accounts, such as private, business, and non-revenue that encompass all types of accounts as identified in the business rules.

The system level data integrity validation for converted data will also be conducted as part of data migration testing.

Table 3-1 Conversion Summary

Final Conversion Validation Amounts			
a. Count of accounts transferred from SCDOT VECTOR version 1.1 to the TSC VECTOR version 2.21 must match 100%			
	Version 1.1	Version 2.21	Variance
Accounts			
Private			
Business			
Non-revenue			
Total			
b. Count of devices (tags) from SCDOT VECTOR version 1.1 to the TSC VECTOR version 2.21 must match 100%			
	Version 1.1	Version 2.21	Variance
Assigned			
Inventory			
Returned			
Damaged			
Returndef			
Lost			
Stolen			
Retained			
Total Number of Devices			

c. Prepaid Balance on the SCDOT VECTOR version 1.1 must match the pre-paid balance of converted data into TSC VECTOR version 2.21			
	Version 1.1	Version 2.21	Variance
Pre-Paid Toll Liability			
Tag Deposit			

Table 3-2 Accounts

Category	Version 1.1	Version 2.21	Variance
Accounts			
Accounts by account type			
Private			
Business			
Non-revenue			
Total Accounts			
Account Balances			
Accounts with positive balance			
Positive Balance Amount			
Accounts with negative balance			
Negative Balance Amount			
Accounts with zero balance			
Zero Balance Amount			
Total Accounts			
Total Dollar Amounts			
Accounts & Device Deposit by Range of Deposit			
Number of devices			
\$0.00 to \$50.00			
Number of devices			
\$50.01 to \$100.00			
Number of devices			
\$100.01 and above			
Number of devices			
Less than 0.00			
Total Number of Devices			
Total Dollar Amounts			

Accounts & Rebill Pay Type			
AMEX			
Cash			
Check			
Discover			
MasterCard			
Visa			
Non revenue			

Table 3-3 (continued) Accounts

Category	Version 1.1	Version 2.21	Variance
Accounts & Rebill amount group by range			
Number of Accounts			
\$0.00 to \$100.00			
Number of Accounts			
\$100.01 to \$1000.00			
Number of Accounts			
\$1000.01 and above			
Total Number of Accounts			
Total Dollar Amounts			

Table 3-3 Address Record Count by State

Category	Version 1.1	Version 2.21	Variance
Address record count by state			
AE			
AK			
AL			
AP			
AR			
AZ			
CA			
CO			
CT			
DC			
DE			
FL			
GA			

Category	Version 1.1	Version 2.21	Variance
GU			
HI			
IA			
ID			
IL			
IN			
KS			
KY			
LA			
MA			
MD			
ME			
MI			
MN			
MO			
MS			
MT			
NC			
ND			
NE			
NH			
NJ			
NM			
NV			
NY			
OH			
OK			
OR			
PA			
PR			
PW			
RI			
SC			
SD			
TN			
TX			
UT			

Category	Version 1.1	Version 2.21	Variance
VA			
VI			
VT			
WA			
WI			
WV			
WY			
Total address records			

Table 3-4 Vehicle Count by State

Category	Version 1.1	Version 2.1	Variance
Count of vehicles by plate state			
AB			
AK			
AL			
AR			
AZ			
BC			
CA			
CO			
CT			
DC			
DE			
FL			
GA			
HI			
IA			
ID			
IL			
IN			
KS			
KY			
LA			
MA			
MD			
ME			
MI			

Category	Version 1.1	Version 2.1	Variance
MN			
MO			
MS			
MT			
NC			
ND			
NE			
NH			
NJ			
NM			
NV			
NY			
OH			
OK			
OR			
PA			
RI			
SC			
SD			
TN			
TX			
UT			
VA			
VT			
WA			
WI			
WV			
WY			

Table 3-5 Toll Transaction Counts by Year Month

Toll Transaction Counts by YEAR MONTH	Version 1.1	Version 2.21	Variance
2006 Oct 01			
2006 Nov 01			
2006 Dec 01			
Total			

Table 3-6 Financial Transactions by YEARMONTH

Financial Transactions by YEARMONTH	Version 1.1		Version 2.21	
	Count	Amount	Count	Amount
2007 Jan 01				
2007 Feb 01				
2007 Mar 01				
2007 Apr 01				
2007 May 01				
2007 Jun 01				
2007 Jul 01				
2007 Aug 01				
2007 Sep 01				
2007 Oct 01				
2007 Nov 01				
2007 Dec 01				
Total				

Table 3-7 Composite Financial Transaction Totals by Number of transactions

Category	Version 1.1		Version 2.21	
	Count	Amount	Count	Amount
Composite Financial txns with one txn				
Composite Financial txns with two txns				
Total Transactions				



Table 3-8 Account Verification

Category	Version 1.1	Version 2.21	Variance
Accounts by account type			
Private			
Business			
Non-Revenue			
Total accounts			
Account Balances			
Accounts with positive balance			
Positive balance amount			
Accounts with negative balance			
Negative balance amount			
Accounts with zero balance			
Zero balance amount			
Total accounts			
Total dollar amounts			

Table 3-9 Account Verification (continued)

Category	Version 1.1	Version 2.21	Variance
Accounts & Device Deposit by Range of Deposit			
Number of devices			
\$0.00 to \$50.00			
Number of devices			
\$50.01 to \$100.00			
Number of devices			
\$100.01 and above			
Number of devices			
Less than 0.00			
Total Number of Devices			
Total Dollar Amounts			
Accounts & Rebill Pay Type			
AMEX			
Cash			
Check			
Discover			
Mastercard			
Visa			
Non revenue			
Accounts & Rebill Amount Grouped by Range			
Number of Accounts			
\$0.00 to \$100.00			
Number of Accounts			
\$100.01 to \$1000.00			
Number of Accounts			
\$1000.01 and above			
Total Number of Accounts			
Total Dollar Amounts			



Table 3-9 Account Verification: Accounts by Plan Type

Category	Version 1.1	Version 2.21	Variance
Accounts By Plan Type			
Standard			
Business			
Non-Revenue			

Table 3-10 Account Address Verification Count by State

Category	Version 1.1	Version 2.21	Variance
Address Count by State			
AE			
AK			
AL			
AP			
AR			
AZ			
CA			
CO			
CT			
DC			
DE			
FL			
GA			
GU			
HI			
IA			
ID			
IL			
IN			
KS			
KY			
LA			
MA			
MD			
ME			
MI			
MN			

Category	Version 1.1	Version 2.21	Variance
MO			
MS			
MT			
NC			
ND			
NE			
NH			
NJ			
NM			
NV			
NY			
OH			
OK			
OR			
PA			
PR			
PW			
RI			
SC			
SD			
TN			
TX			
UT			
VA			
VI			
VT			
WA			
WI			
WV			
WY			
Count of address records			

Table 3-11 Account Vehicle Verification Count by State

Category	Version 1.1	Version 2.21	Variance
Vehicle Count by Plate State			

Category	Version 1.1	Version 2.21	Variance
AB			
AK			
AL			
AR			
AZ			
BC			
CA			
CO			
CT			
DC			
DE			
FI			
FL			
GA			
HI			
IA			
ID			
IL			
IN			
KS			
KY			
LA			
MA			
MD			
ME			
MI			
MN			
MO			
MS			
MT			

Category	Version 1.1	Version 2.21	Variance
NC			
ND			
NE			
NH			
NJ			
NM			
NV			
NY			
OH			
OK			
OR			
PA			
RI			
SC			
SD			
TN			
TX			
UT			
VA			
VT			
WA			
WI			
WV			
WY			

4. End-To-End (ETE) Testing

4.1 Overview

The purpose of the ETE testing is to verify the proper functionality of the systems and interfaces involved in processing SCDOT transactions from the respective host system and posting those transactions or violations to the correct accounts residing on the upgraded system. This test is not a system stress or load performance test. It only validates ETE processing of transactions.

4.2 Test Objectives

The objectives of the ETE tests are to test the interfaces between the SCDOT host, lanes and the upgraded system and to verify correct processing of all transaction types (e.g., ETC toll, violation).

4.3 Test Description

The ETE tests will be conducted using the SCDOT host and lane located at Hilton Head SC facilities and upgraded system environment located in Germantown, Maryland.

4.3.1 Authority Interface Testing

The following table lists the ETC transaction and violation transaction files and the corresponding reconciliation files that have been verified through the ICD's and SCDOT software and files provided to ACS to date. These interface files will be tested during the ETE testing.

Table 4-1 Interface Files

	File Type	File Extension
Tag Status File		.TS
Transaction/Violation File		.TRCS
Reconciliation File		.RT

Table 4-2 External Interface Files

File Type	File Extension
DMV Request	.DAT
DMV Response	.RET
Violation Image Data File	.TR
Violation Return file	.RET

4.3.2 Transaction Processing

ACS will process transaction files sent from SCDOT host and verify the correct processing of transactions. The specifics of the process ACS will follow and the corresponding test scripts can be referenced in *Appendix B – Test Scripts*.

The ETE testing will be conducted with ACS first running the Tag Status programs and generating tag status files to be sent to SCDOT host system. The SCDOT runs vehicles through the lanes (and or creates test cases) to provide transaction files (TRCS) that include ETC transactions and violation transactions. The transaction file is sent to upgraded system test environment located in Germantown, Maryland, ACS, where the file is then pre-processed prior to being sent on to the various subsystems, such as violations for further processing. The processing of those transactions will be validated per the SCDOT specific business rules during testing. The ACS outline of the ETE test includes:

- Tag status
- Normal transactions
- Violation processing
- Noticing
- Image review
- Reports

4.3.3 Account Creation

To initiate the ETE test, ACS will also create the appropriate accounts on the corresponding ACS test system in addition to the migrated accounts to match the testing scenarios being requested.



Account creation should include the following to ensure a full range of testing verification:

- Prepaid private accounts
- Prepaid business accounts
- Non-revenue accounts

4.3.4 Test Results

Test results include the following:

- Interface files back to the SCDOT host
- Results of test scripts (pass/fail)
- Reports
- Statements printed
- Violation notices printed
- Observations

At the completion of the ETE test all data will be collected and analyzed (test script results, reports, etc) from both ACS' and the SCDOT perspective and reviewed jointly. Any anomalies, unexpected results and outcomes will be documented and a determination for a re-test will be made on a case-by-case basis.

5. Reports Testing

5.1 Overview

The system upgrade provides a variety of reports for tracking revenue, tag handling, CSC activities, monitoring system status and performances. The reports are divided by functional categories.

- Transaction
- Finance
- CSC
- Violation

5.1.1 Transaction Reports

Transaction reports are used to track all revenue and toll road usage. The reports to be tested for SCDOT in this category are as follows:

- Toll Posted by Collection Date (TCR Toll Posted) Report (Report 60)
- Toll By Lane/Plaza (Report Q4P/Q4M)
- Transaction not Posted (Report 24)
- ATP Statistics (Report Q3M)
- Transaction Reconciliation (Report Q15)

5.1.2 Financial Reports

The system upgrade produces a number of reports that assist the CSC in financial management and reconciliation. CSC reconciliation includes managing revenue received for such tasks as plan sales, tag deposit, tag fees, handling and depositing of collected monies, reconciliation of deposits made to financial institutions, and tracking transaction activity. The reports to be tested for SCDOT in this category are:

- Revenue Detail Report (Report 49)
- Tag Sales By Account Plan (Q12)
- Service Center Account Balance (Report Q13)
- PDR Details (Report 55)
- PDR Summary Of Deposits (Report 56)
- PDR Summary By Payment Type (Report 57)
- PDR Summary By Transaction (Report 58)
- Processor Reconciliation Report (Report F3M)

5.1.3 CSC Reports

The CSC is responsible for customer relationship management. The device inventory management subsystem (DIMS), integrated with the CSC subsystem, tracks every tag movement from initial receipt until retirement. This includes testing, transfer between sites, issuance, return, re-issue, replacement and loss. It also includes ordering, receiving, inspecting, stocking, tracking of tag inventory, testing, encoding and distributing tags to program customers. The customer relationship management subsystem (CRM) is also integrated with the CSC and manages customer correspondence. The reports to be tested for SCDOT in this category are:

- Tag Status (Report 5A)
- Negative Account Balance Report (Report 18A)
- Top 10 Negative Balance Account (Report 18 B)
- CRM Statistics (OPSCRM01)
- CRM Backlog (OPSCRM02)
- CSR Statistics (OPSCRM03)
- Exceptions (OPSCRM04)

5.1.4 Violation Reports

There are three types of violations: toll evasion, class mismatch and speeding. Toll evaders are those people who travel through a toll lane without payment. Customers with malfunctioning tags, with no tags and non-customers are toll evaders, and are classified as non-customers within the system. A class-mismatch occurs when a vehicle travels through a lane with a valid tag that has a different vehicle classification than the actual vehicle traveling through the lane. Speeders are those who exceed the limit set by the agency for the lane. Some toll roads use barrier systems and may not have a speeding violation. Reports to be tested for SCDOT in this category are as follows:

- Daily Violation Status Toll Evasion (Report V1NPD)
- Violation Payment By Plaza (38)

5.2 Test Objectives

The objectives of the report testing are to verify that the reports generated by data provided by the system upgrade have correct data shown on each report.

5.3 Test Description

A complete list of reports applicable to SCDOT's system upgrade is identified in *Appendix D – Summary of SCDOT Reports*. The reports testing will be conducted by execution of the test scripts.

The key to a successful report subsystem is the database organization. All reporting is based on a strong data foundation. When testing reports, the QA team will ensure that the system is operating properly by understanding inputs and outputs after sample transactions occur. QA



project personnel will also compare data on one report with another for some of the financial processes to verify that data shown on each report is correct.



6. System Acceptance

The final stage in a successful test plan is system acceptance. In accordance with contract requirements, this acceptance is determined by the evaluation of test results that demonstrate integration with the SCDOT Toll Collection System, the CSC/VPC and the ability to audit the system.

ACS will engage SCDOT in the required post-go-live acceptance tests to ensure successful processing of actual transactions and noticing of violation transactions. ACS will provide SCDOT appropriate reports to demonstrate that transaction posting, reconciliation and settlement, and transaction and violations processing is being done in accordance with SCDOT business rules.



7. System Requirements

The SCDOT system requirements and business rules are detailed in other documents previously submitted to the agency. Please refer to the following documents for the parameters that determine the CSC testing scope:

SCDOT Business Requirements document

SCDOT Business Rules document (07- S7442 -SUB-002R2 Business Rules Submittal 2R2.pdf)

SCDOT Wireframes document (07- S7442 -SUB-003 Wireframes Submittal 3-2007-11-07.pdf)

Appendix A – Acronym List

Acronym	Meaning
AB	Alberta - Canada
ACK	Acknowledgement File
AE	Armed Forces
AP	Armed Forces Pacific
API	Application Programming Interface
AVI	Automatic Vehicle Identification
AVC	Automatic Vehicle Classification
ASM	Automatic Storage Management
ATP	Account Toll Posting
BC	British Columbia - Canada
BO	Back-Office
BPS	Business Process (Outsourced) Service
BR	Business Rules
CAMS	Customer Account Management System
CC	Credit Card
CCU	Central Collection Unit
CLMM	Class Mismatch
CM	Configuration Management
CMS	Content Management System
COTS	Commercial Off the Shelf
CRM	Customer Relationship Management

Acronym	Meaning
CR	Change Request
CSC	Customer Service Center
CSR	Customer Support Representative
CTOL	Casual Toll
DBA	Data Base Administrator
DBID	Database Identifier
DIMS	Device Inventory Management System
DL	Driver License
DMZ	Demilitarized Zone
ETC	Electronic Toll Collection
ETL	Extract, Transform, & Load
ETOL	Electronic Toll
FAT	Factory Acceptance Test
FFC	Fulfillment Center
FPMS	Financial Processing Management System
FTOL	Facility Operator Toll
FTP	File Transfer Protocol
GU	Guam
GUI	Graphical User Interface
GL	General Ledger
HTML	Hypertext Markup Language
IAG	Inter Agency Group
IBM	International Business Machine Corp
ICD	Interface Control Device

Acronym	Meaning
ICLP	Inter Agency Customer License Plate
ICRX	Inter Agency Transaction Reconciliation File
ICTX	Incoming Transactions
IITC	Inter Agency Invalid Transponder Customer File
INRX	Inter Agency Non-Toll Correction Reconciliation File
INTX	Inter Agency Transaction File
IRXC	Inter Agency Transaction Correction Reconciliation File
ITAG	Transponder Status File Extension
ITOL	Image Toll (violation toll after image review)
ITXC	Inter Agency Transaction Correction File
IVR	Interactive Voice Response
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
LICA	License plate Customer Available
LPR	License Plate Recognition
LTO	Linear Tape-Open
MVA	Motor Vehicle Administration
MVAN	MVA Non-renewal
MVAS	MVA Suspension
NAS	Network Attached Storage
NG	Next Generation
O&M	Operations & Maintenance
OLAP	On-Line Analytical Processing
OLTP	On-Line Transaction Processing


Acronym	Meaning
P/C Violator	Personal/Commercial Violator
PIN	Personal Identification Number
PDF	Portable Data File
POS	Point of Sale
PDR	Payment Detail Report
PPTL	Prepaid Toll
PR	Puerto Rico
PW	Palau
QA	Quality Assurance
QATP	Preprocessor
QTP	Mercury Quick Test Professional
RDBMS	Relational Database Management System
REJC	Reject
RET	(or .RET) Return File
RFS	Request For Service
RMAN	Report Manager
RMW	Relationship Management Warehouse
RT	Reconciliation Transaction File
SAN	Storage Attached Network
SQL	Structured Query Language
SR	Service Request
TCP/IP	Transmission Control Protocol/Internet Protocol
TIMS	Transportation Information Management System
TOD	Tour of Duty

Acronym	Meaning
TPMS	Transaction Processing Management System
TR	Violation Image Data File
TRCS	Toll Revenue Collection System
TSS	Transportation System and Solutions
TTC	Transportation Technology Center
TXN	Transaction
UI	User Interface
UPS	Uninterruptible Power Supply
USPS	United States Postal Service
UUCT	Un-Used Commuter Trip
VEMS	Violations Enforcement Management System
VI	US Virgin Islands
VRS	Voice Response System
VTOL	Violation Toll (before image review)
WF	Work Flow
XTOL	Toll Reversal

Appendix B- Test Scripts

Script Name	Module	Test Script
Online Test Scripts		
CSC_001	Online	Purchase Order Capture
CSC_002	Online	Purchase Order Receive
CSC_003	Online	Tag Box Transfer
CSC_004	Online	Tag Box Check Out and Check In
CSC_005	Online	Straggler Tags
CSC_013	Online	Batch Tag Assignment - Attributes Capture
CSC_019	Online	Vector Logon
CSC_020	Online	Letter Generation
CSC_021	Online	Account Establishment
CSC_021W	Web	Web Account Establishment
CSC_022	Online	Account Maintenance
CSC_022W	Online	Web Account Maintenance
CSC_060	IVR	IVR - Test Fixture
CSC_023	Online	Find Account
CSC_024	Online	Account History
CSC_025	Online	Tag Assignment
CSC_028	Online	Device Maintenance
CSC_026	Online	Tag Information Update
CSC_027	Online	Financial Management
CSC_052	Online	CSR Closeout
CRM_001	Online	CRM
VPC_001	Online	View Violations
VPC_002	Online	View Notices

Script Name	Module	Test Script
VPC_004	Online	Transfer of Responsibility
VPC_008	Online	Notice Dismissal
VPC_010	Online	Notice Batch Check Payments
VPC_022	Online	Find Transactions
CSC_032	Batch	Credit Card Rebill
CSC_031	Batch	Credit Card Expiration
CSC_033	Batch	Credit Card Processing/Decline
CSC_034	Batch	Batch Tag Assignment
CSC_040	Batch	Tag Status
CSC_038	Batch	QATP
CSC_039	Batch	ATP
HOST_001	Batch	RECON
CSC_045	Batch	Quarterly Evaluation
CSC_047	Batch	Customer Statements
VPC_011	Batch	Violation Insert
VPC_012	Batch	BPS Return
VPC_013	Batch	LICA Processing
VPC_014a	Batch	DMV Send
VPC_014b	Batch	DMV Receive
VPC_015	Batch	Violation Account Creation
VPC_018	Batch	Noticing
VPC_019	Batch	DMV HOLD
VPC_020	Batch	DMV Release

				
CREATED BY	TESTED BY		Total Cases	15
Prince Vijay Anand Thangaraj			% Tested Cases	0%
CREATE DATE	DATE TESTED		Total Passed (P)	0
November 16, 2007			Total Failed (F)	0
TEST SCRIPT TITLE			Total Not Testable (NT)	0
VECTOR LOGIN (CSC_019)			Total Automated cases	0
TEST DESCRIPTION			% of Completion	0%
Test Vector Login screen functionality.				
ASSUMPTIONS				
Test Vector Login screen functionality.				

Test Case #	Scenario Description	Expected Results	Pass/Fail/NT	Actual Results/Comments	Automated Y/N
1	Enter valid User ID and Password already setup correctly in both VMS and t_employee table.	VECTOR accepts the values and the user is able to log into the main page.			
2	Enter valid User ID and Password already setup in VMS without record in t_employee table.	VECTOR rejects user to log in.			
3	Enter valid User ID and Password already setup in t_employee table without an account in VMS.	VECTOR rejects user to log in.			
4	Enter invalid User ID and valid Password.	VECTOR generates the message: "Invalid login name and password combination."			

Case #					
5	Enter valid User ID and invalid Password.	VECTOR generates the message: "Invalid login name and password combination."			
6	Enter the Password, which will expire in 2 days.	VECTOR generates the message to ask the user to change the password.			
7	Enter the expired Password.	VECTOR generates the message telling user the password has expired.			
8	Change the Password using the logon screen: On the Change Password screen, enter values in the 3 fields of Old Password, New Password, and Confirm New Password.	VECTOR generates the message of "Password has changed." by Click Save button.			
9	Check the Password using the VECTOR logon: On the Change Password screen, enter different values in the field of Confirm New Password.	VECTOR generates the message of "Confirm Password invalid." by Click Save button.			
10	Change the password using VECTOR logon: On the Change Password screen, enter different values in the field of Old Password.	VECTOR generates the message of "Previous password incorrect." by Click Save button			
11	A user should only be allowed a single login session. Try to login a user who is currently logged into Vector online on the same machine/IP Address.	This should generate a message "User XXXX is already logged in. Multiple logins are not allowed."			

Case #					
12	A user should only be allowed a single login session. Try to login a user who's already logged into Vector online on a different machine/IP Address.	This should generate a message "User XXXX is already logged in. Multiple logins are not allowed."			
13	Leave the application unattended for 15 mins	Application should display a session expire warning for 30 seconds.			
14	click OK on session expire warning message	Session should not expire and user should be navigate and do the operations as per the role.			
15	Don't respond to the session expire warning message	Session should expire after 30 seconds.			

Appendix D – Summary of SCDOT Reports

Report No	Report Name	Description	Test Script
Transaction Reports			
24	Transactions Not Posted	Displays Rejected Transaction Details/Reason For Different agencies. This report shows all unpostable transactions by reason. This report also shows the corresponding transponder with the toll type, date and time, plaza and lane and class.	
60	Tolls Posted By Collection Date	Displays total vehicle count and amount of the posted transactions by collection/posted date. The purpose of the report is to show the list of total number of toll transactions posted by plaza for the collection or posted date.	
Q3M ATP Statistics Report	Automatic Transaction Posting Statistics Report	This report is a summary of the Automatic Transaction Posting (ATP) process. The report includes the date, the total number of ATP transactions processed for that date and the corresponding file per agency.	
Q4P-5M	Tolls By Lane Plaza	Displays Posted Toll and Full Fare amount and count for different plan types grouped under a plaza for different agencies. This report displays the number and dollar amounts of toll transactions by account plan, lane and plaza. This detailed reconciliation report shows the posted toll amount and the full-fare toll amount.	

Finance Reports			
49	Revenue Detail Report	Groups store transactions by login mode by agency, store, tran type and pay type. This report displays payment amounts by the agency and by service center location, including the daily revenue received from direct customer transactions loaded into VECTOR by a CSR, as well as automated transactions and batch processes.	
55	PDR – Detail	Displays the details of the financial store transactions grouped by store, tour date, employee, agency and pay type. This report is used during the CSR closeout process. It displays the details of the financial (non-violation) store transactions grouped by store, tour date, employee, agency, and pay type. If a discrepancy is encountered when closing out the shift, a CSR will generate this report. It lists all of the transactions that the CSR performed during the shift. These are regular replenishments.	
56	PDR - SUMMARY OF DEPOSIT	Displays the summary of expected revenue and the reported revenue and the difference between the two grouped by store, tour_date, employee and pay_type. Deposit clerks use this report if discrepancies are encountered before depositing the day's revenue receipt. The report displays the summary of expected revenue and the reported revenue for a particular store by tour date. The difference between expected and reported revenue, grouped by store, employee and payment type are also shown.	

Finance Reports

57	PDR - SUMMARY BY PAYMENT TYPE	Displays count and amount of financial store transactions grouped by store, Agency, pay_type, tran_type, category and sub category. At the end summarizes by store, Agency, pay_type. This report is used to reconcile the VECTOR transaction information with the statement received from the bank. The totals for each store must balance with the bank statement. The reconciliation processing includes the balancing of batch transactions such as rebill payments.	
58	PDR - SUMMARY BY TRANSACTION	Displays count and amount of financial store transactions grouped by store, Agency, tran_type, category and sub category. At the end summarizes by Agency, tran_type, category and sub category	
F3M	Processor Reconciliation	Summarizes credit card transactions of merchant by pay type and transaction type. This report is used to reconcile the credit card payments processed by a financial institution (bank), for both on-line and rebill credit card activity. It is generated for each Agency by the transaction date in which the account was updated. It lists payments made through the rebill process and by on-line VECTOR.	
Q12	Tag Sales By Account Plan (Monthly)	This report is a snapshot of financial activity, by accounts established and plans sold. It summarizes the daily (calendar day) activities of newly opened accounts which include toll and tag deposits, plans assigned to those new accounts, plans added to existing accounts, interior and exterior transponder sales, interior and exterior tag assignments for existing and new accounts, replenishments and fees.	

Finance Reports

Q13	Revenue Reconciliation Report	Displays the tagdeposit and toldeposit revenue collected under different functional/business points. Report Q13 summarizes all daily activity and displays opening and closing account balances for the month. It is used in the reconciliation of all financial transactions to bank statements, credit card fees and so on. It also lists Agency-specific fees for plan sales, reversals, and lost and damaged transponders. The report also lists toll-related transaction counts and amounts.	
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Violation Reports

38	Violation Payments By Plaza	Summarizes the violation payments i.e. fee, toll and over payments for customer and no customer accounts for receipts and writeoff and their corr. reversals and adjustments.	
V1NP-D	Violation Status Daily	Displays all violation counts and citation details by different violation reasons grouped by plaza_id/type. This report provides a detailed analysis of toll evasion and class mismatch processing by the CSC. These reports track the number of violations and associated images, by transaction occurrence date (revenue day), from the time they are received until a notice is generated (calendar day), if applicable. Data is grouped by plaza.	

Operations Reports

5A	Tag Activity	Groups the counts of all the transponders in the inventory by Authority, Mount Type, Color and Account Financial Status.	
18A	18A-Negative Account Balances	This report summarizes the total count of negative balances and total dollar amount against different account balance ranges.	

Violation Reports

18B	18B –Top 50 Negative Balance Account	This report tracks the top 50 customer accounts with negative balances.	
OPSCRM01	OPSCRM01	Basic Statistics	
OPSCRM02	OPSCRM02	CRM Backlog	
OPSCRM03	OPSCRM03	CSR Statistics	
OPSCRM04	OPSCRM04	CRM Exceptions	



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Description/Title: CSC Test Plan Rev. 1.1 January 2008
Date of Submission: 2008-01-29

No.	Page	Section	Comment	Response
1.	TOC on	TOC on	From the Table of Contents until the end of the document, the footer contains the legend "ACS • Proprietary Data". Is this really appropriate for <u>all</u> these pages?	Standard Document.
2.	1	1. Introduction	What is the "SCDOT Business Requirements document" referred to in the last sentence of the first paragraph?	Business Rules document
3.	1	1.1 Test Scope	What are the "...SCDOT requirement...documents..." referred to in the first sentence of the first paragraph?	Business Rules document
4.	1	1.1 Test Scope	MOMS (or CMMS) and TRCS are not listed here. When will they be tested?	Work Area 1
5.	2	End-to-End Test	Refers to "...transactions generated at the SCDOT lanes..." This is before the Work Area 1 lane upgrades are done. Will there be similar End-to-End Testing after the lane upgrades have been completed?	Work Area 1
6.	2	1.1.1 SCDOT Requirements	Refers to "A traceability matrix, showing mapping..." What is ACS tracing and/or mapping to?	Traceability is test scripts map to
7.	2	1.1.2 Resources	The ACS (and SCDOT) resources are "TBD". When will this determination be made?	Document Updated

No.	Page	Section	Comment	Response
8.	2	1.1.3 Interface with SCDOT Host	Last paragraph, first sentence starts "CSC function is contingent..." Can this be reworded/clarified? Also, is the "host system" referred to here, the shared hosting solution at ACS's facilities?	Document Updated.
9.	3	1.1.3.1 Tag Status Files	The note in italics should say "...with other agencies' data..." The following sentence should say "ACS will validate that other agencies' tag status processes..."	Document Updated.
10.	3	1.1.3.2 Violation Image Transfer Process	What are the "...schedules and file handling best practices..." referred to here?	Document Updated.
11.	3	1.1.3.3 ETC Transaction to CSC	First sentence, insert "the" before CSC.	Document Updated.
12.	3	1.1.3.4 Reconciled Transaction from CSC	First sentence, insert "the" before CSC.	Document Updated.
13.	4	1.1.4 Interface with Business Process (Outsourced) Service	If, as it is stated, "The image file is not returned by the BPS..." how does a CSR, or anyone else in the CSC or SCDOT review an image when a customer calls in with a question or concern?	The Image is stored in Vector and a copy of the image is sent to BPO. The CSR will be able to pull the image in vector when a Customer calls.
14.	4	1.1.5 Mailhouse Services	Can you please clarify the statement: "Upon completion of each file's transmission, a control file is transmitted to eliminate processing a file before transmission is complete."	Document Updated.
15.	5	1.1.6 Reports	Device Inventory Management Subsystem (DIMS) reports are missing from the reports listed.	Category is Operations for both CAMS and DIMS reportl

No.	Page	Section	Comment	Response
16.	6	2.1 Environments	Can you please clarify the sentence: "QA anticipates the use of the current SCDOT test environment when validating the data migration process."	Document Updated.
17.	7	2.2.1 Management's Responsibility for Testing	States: The testing program encompasses individual components, all subsystems, and the fully integrated system." This is not actually the case, is it? For example, there are subsystems not being tested, such as MOMS (or CMMS) and the TRCS, the cash collection, deposit and audit subsystems, etc. How to address this?	The Test Plan is for Work Area 2.
18.	8	2.2.2 Software Unit Testing	States: "All test records will be maintained and made available upon request for SCDOT's review." How does SCDOT have to go about requesting review of the test records?	Request from Program Manager.
19.	8	2.2.3 Software Integration Testing	Refers to "...the Functional and Integration Test Plan..." Is this a document to be provided to SCDOT?	SCDOT has the test plan for CSC and VPS.
20.	8	2.2.4 System Integration Testing	Included in the goals is the first mention of the interactive voice response (IVR) functionality. When/how does the IVR get tested, as it was not previously included with the systems or subsystems noted?	A separate IVR test script and test plan will be provided.
21.	9	2.2.4 System Integration Testing	Refers to "...via generation of transactions in a lane..." This is before the Work Area 1 lane upgrades are done. Will there be similar End-to-End Testing after the lane upgrades have been completed?	There will be a test when the lanes are upgraded.

No.	Page	Section	Comment	Response
22.	9	2.3 Test Description	Is account closure included in the testing of account maintenance testing?	Yes.
23.	10	2.3 Test Description	Can you please clarify the statement: "The goal of violation readiness is to demonstrate violation transaction processing based upon customer inquiry."	This is a testing strategy
24.	10	2.4 Test Entrance Criteria/Checklist	The next to last Criteria states: "All CR have been entered into ClearQuest and are in the correct status." Can you please clarify? What does CR refer to? It is not included in the Acronym List in Appendix A.	Document Updated
25.	10	2.5 Use of Written and Approved Test Procedures	Last paragraph, change identifying to identify. What is meant by unconventional tests?	Document Updated
26.	12	2.7 Test Documentation	States: "QA is responsible for maintaining and updating all failure summary reports and distributing these reports to the ACS team and SCDOT if requested." How does SCDOT have to go about requesting these reports?	Request from Program Manager
27.	12	2.9 Post-Testing Follow-up	States: "These results and the corrective actions taken will be available upon request for review by SCDOT." How does SCDOT have to go about requesting this information?	Request from Program Manager
28.	13	2.11 Test Reporting	Includes two references to CR, including CR assignments and Individual CR test results. What does CR refer to? It is not included in the Acronym List in Appendix A.	Andy.

No.	Page	Section	Comment	Response
29.	13	2.11 Test Reporting	States: "ETE test results will be available for review upon request by SCDOT." How does SCDOT have to go about requesting this information?	Request from Program Manager.
30.	14	3.3 Test Description	The list of entities does not include MOMS (or CMMS) or TRCS. When is the data migration for these entities tested?	Work Area 1
31.	21	Table 3-7 Financial Transaction Totals by Number of Vectors	What is meant by "Number of Vectors"?	Document Updated
32.	28	4.1 Overview	States: "This test is not designed to verify volume performance of the system." Can you please clarify or elaborate on this sentence?	Document Updated
33.	28	4.2 Test Objectives	States: "...and to verify correct processing of all transaction types..." Does this include cash transactions, pledges, turnarounds, other?	Document Updated
34.	28	4.3 Test Description	States: "The ETE tests will be conducted using the SCDOT host and lane located at Hilton Head SC facilities..." Would you please clarify or elaborate on this?	Document Updated
35.	28	4.3.1 Authority Interface Testing	What are the "ICD's" referred to here?	In Acronym List.
36.	29	4.3.2 Transaction Processing	States: "The SCDOT runs vehicles through the lanes (and or creates test cases)... Would you please clarify or elaborate on this?"	Document Updated

No.	Page	Section	Comment	Response
37.	29	4.3.2 Transaction Processing	States: "The processing of those transactions will be validated per the SCDOT specific business rules during testing." The only business rules developed to date are for Work Area 2. The business rules for Work Area 1, including for the lanes, have not yet been developed/reviewed (for example, when to VES or not VES). How to address?	Business Rules and test plan for Work Area 1 will be submitted at a later date
38.	31	5.1 Overview	Reports listed do not include Device Inventory Management System (DIMS) reports, nor IVR activity reports, nor MOMS (or CMMS) or TRCS reports. How to address? [DIMS reporting is later referenced in 5.1.3 CSC Reports.]	Document Updated
39.	35	7. System Requirements	What is the "SCDOT Business Requirements document" referred to here?	Business Rules Document
40.		Appendix A – Acronym List	Contains several references to the Inter Agency Group (IAG) and IAG file types. Are these references appropriate for SCDOT?	Update Document