RMS Attachment 5 - Quality Management/Acceptance Testing Plan Niche Response

Note: This RMS Attachment 5, Quality Management/Acceptance Testing Plan provides the response provided as part of the Contractor's technical proposal for the New York State Police Records Management System project used as the benchmark to establish this Aggregate Agreement. The Contractor, Niche Technology Inc, and the Products offered under this Aggregate Agreement are required to adhere to the functionality contained in this response. An Authorized User should review the functionality described by the Contractor in this Attachment and should use this information as a baseline for the Statement of Work. Authorized Users should also determine if any changes are necessary to meet the specific project requirements when working with the Contractor to develop the Authorized User Agreement. Please see Attachment D, How to Use the Aggregate Agreement 18-02, for additional information when working with the Contractor to develop the Authorized User Agreement.

Contractor's Name: Niche Technology Inc.

Requirement Type - Quality Management/Acceptance Testing Plan

Instructions:

- For each requirement contained within this document a response is required.
- If additional space is needed the Contractor should clearly label their response with the requirement identifier.
- NYS reserves the right to allow the Contractor to correct obvious errors of omission.

It is critical to have a comprehensive testing and quality assurance strategy in place to ensure a successful implementation of a new RMS. Acceptance tests shall be performed on the RMS to determine if the system meets the requirements defined herein. Test plans shall encompass all functionality and requirements including, but not limited to, all RMS software, all required peripherals, e.g., scanners, signature pads, label makers, interfaces and performance.

Acceptance test criteria shall include, but not be limited to, validation of system functions against requirements, performance of system functions, security features, interoperability with various interfaces (e.g., TraCS, Livescan), and how the system reacts to disruptions.

Rqmt. No.	Test Plan Requirement
A1	The Contractor must describe their method for complying with all of the following: **a) Test Strategy** The Contractor shall prepare an overall Test Strategy document which defines the levels of testing to be performed (e.g., unit testing, system integration testing), roles and responsibilities of the contractor and NYS personnel, milestones and artifacts requiring NYS approval with timeframe for review and feedback. This document should include the appropriate metrics, e.g., no showstopper defects, entry and exit criteria to different testing environments, as well as any tools available to assist with testing. This Test Strategy document must be approved by NYSP prior to acceptance testing.

	b) Test Plans The Contractor shall prepare and document test plans, including expected results and validation techniques, for performance, functionality, interoperability, backup, restore, and high availability. These plans must be approved by NYSP prior to acceptance testing and shall be contract deliverables. **c) Acceptance Testing Participation** The Contractor shall participate in the execution of the acceptance testing along with NYS, **d) Acceptance Testing Audit Trail** The Contractor shall provide a full and complete audit trail for all acceptance testing and the requisite reporting from this audit trail in compliance with CJIS and NYS security policy. **e) Other Required Testing** The Contractor shall perform Load / Stress, Backup, Restore and Recovery testing prior to implementation in conjunction with NYS Information Technology Services (ITS) personnel.
	Contractor's A1 Response: **a) Test Strategy** Within 30 days of contract award, Niche Technology will prepare and deliver a detailed Test Strategy Document that clearly defines the overall approach to testing and each of the test types to be performed at each phase of the project. The Test Strategy Document will: • Identify roles and responsibilities for both Niche and NYSP. • Describe the artifact(s) to be delivered with each test. • Describe the environment(s) where the tests will occur, including any required prerequisites or environment setup such as data preparation or pre-loading. • Clearly describe acceptance criteria, in user-centric, non-technical terms. The draft Test Strategy Document will be reviewed with NYS project team for comment and approval prior to the start of testing. The Niche test strategy is based on a five-step testing methodology that has been proven to ensure full testing coverage and total transparency. The first three steps of the Niche testing process are actually completed by the Niche team to ensure quality and compliance with acceptance criteria *before* testing is done by the NYSP. These initial quality steps include: 1. Unit testing, which is performed by the developer against the written specification and/or acceptance criteria. 2. Developer cross-testing, which is completed by another developer not directly involved in that particular task. 3. Testing by Niche testing and QA staff, who are system professionals and trainers (not developers), to validate compliance with acceptance criteria.

Niche also maintains an automated regression environment that continuously runs an ever expanding set of Niche-defined tests. These tests execute against the shared "master" code base as well as individual production release streams.

Only after successfully passing each of these three tests, is an item released to the NYSP for user acceptance testing. User acceptance testing can be done with or without the assistance of a Niche project team, depending on the type of test and NYSP preference. Depending on the size or nature of the test, once an item is accepted it can be released into general production or in some cases may be released only to a limited number of users for an in-production 'beta' test period prior to widespread release. This incremental approach allows Niche and the NYSP a great deal of flexibility to better manage risks that can be associated with releasing new features into a production environment.

b) Test Plans

Niche will prepare and document the following test plans, which will be presented to the NYSP for review and approval prior to acceptance testing and become contract deliverables:

Performance Test Plan The performance test plan will describe the system's production environment and how it has been designed to maintain suitable system performance during both normal and peak periods of usage. The performance test plan will describe the process by which system performance is monitored and tested, including the use of automated tools to simulated expected system usage, in both pre and post production settings, as well as user-driven performance testing to test the user's perception of system responsiveness. The performance test plan will also describe the roles of both Niche and NYSP and how performance test results are reported to and validated by the NYSP.

Functional Test Plan The functional test plan will describe how system functionality is tested and the results are documented and demonstrated to the NYSP for acceptance. The functional test plan will describe how user acceptance test criteria is written, how unit (single function), integration (multiple, related functions) and regression (system version compatibility) testing is performed; and, the required pre-conditions for each test. The functional test plan will also describe the roles of both Niche and NYSP and how performance test results are reported to and validated by the NYSP.

Interoperability Test Plan The interoperability test plan will describe how system interfaces are tested and the results are documented and demonstrated to the NYSP for acceptance. The interoperability test plan will describe the acceptance test criteria for each interface and the required pre-conditions necessary to conduct the test. The interoperability test plan will also describe the roles of both Niche and NYSP and how interoperability test results are reported to and validated by the NYSP.

System Resiliency Test Plan The system resiliency test plan will describe how the system's design and configuration for high-availability and against data loss will be tested. The system resiliency test plan will describe how backups are performed and validated; how system data restoration is performed and tested; and, how single

	component failure tests are completed and validated (*e.g.*, failures of other component parts of the system, not data related) to ensure high-availability. **c) Acceptance Test Participation** Niche will participate in the execution of the acceptance testing along with NYS. While Niche will actively participate in the execution of acceptance testing, the proposed testing approach also allows for the flexibility for NYSP team members to conduct testing at times and locations that are most convenient for them and record test results in a manner that allows for close collaboration with the Niche team, even if they are not present at the time of the actual test. **d) Acceptance Test Audit Trail** Niche will provide a full and complete audit trail for all acceptance testing and any required reporting necessary for compliance with CJIS and NYS security policy. All test results will be recorded and available for full transparency. **e) Other Required Testing** Niche will perform all required Load/Stress, backup, restore and recovery testing prior to implementation in conjunction with NYS Information Technology Services (ITS) personnel. All planned testing will be described in the Test Strategy (item a above) and performance and backup/recovery testing will be described in detail in the performance and resilience test plans described above. In order to ensure full testing coverage and meeting of expectations related to any other required testing, Niche expects that NYS Information Technology Services personnel would be involved in the review and approval of the proposed test plans and any gaps would be addressed prior to the test plans being approved.

Supplementary material: Niche Quality Management / Acceptance Test Plan

Niche recommends Acceptance Testing to ensure that the product, as configured and implemented for the New York State Police, is functioning and performing as required. However, bear in mind that NicheRMS is a COTS product, most of the functionality is already thoroughly tested and already in production. For a COTS project like this one, where the software already exists and must be configured, the processes for Acceptance Testing must necessarily be different, if the customer is to be satisfied with the end product.

Niche Technology's approach to testing and acceptance

Niche Technology's core project methodology includes build-in procedures for ensuring that testing will be carried out so that the customer can accept the software and cut it over into production and live use.

We have provided a sample Acceptance Plan below, which defines testing responsibilities for the project. Briefly, testing is usually done in six stages:

1. Developer testing as part of the development process.
2. For server components, tests are added to the automated regression test system for automatic continuous testing.
3. Developer cross-testing, where other developers not involved with a particular ticket verify the work that was done.

4. Testing by project support staff prior to delivery to the customer.
5. Customer prototype and acceptance testing, either by a single customer or cooperatively through the user group.
6. Beta testing, where one or more customers put new functionality into production prior to widespread installation.

Any discrepancies found during these test stages will result in a new ticket being generated or a reopening of the original ticket, depending on the nature of the problem.

Niche and the customer also develop and finalize a Cutover Plan to map a closure to RMS system implementation. This plan explains how the system will be placed into live operation. This plan must be mutually approved.

Niche assists customers with developing and carrying out the Acceptance Test Plan (ATP), which defines the functional testing methodology for the project.

Our recommended Acceptance Test Plan uses a set of scenarios that cover major operational RMS functions, but our experience is that it must be jointly developed as a part of the implementation project so that we can work with New York State team members who understand both the system and the police policies and procedures that will determine what system users actually do on a day to day basis.

For similar reasons, it is important that the agreed-upon Acceptance Test Plan be carried out and documented by New York State personnel who understand both how their newly-configured system works, and the work processes their users will be required to carry out. Niche personnel understand how the product works; however, it is the customer who must ultimately carry out the test to ensure that it has been configured to meet their needs.

Load testing, failover testing, backup and recovery must all be tested jointly. Niche can supply and advise on the use of appropriate load testing tools and provide analysis of the results. We do this in most projects and highly recommend it.

NicheRMS uses standard backup and recovery tools, and uses Windows operating system and SQL Server features and/or virtual machine features to provide the required redundancy and failover. The solution for backup, recovery and failover is designed as part of the project and is fully integrated into the customer environment, which Niche has no expertise in nor access to. Examples include:

a) Backup and recovery are typically integrated with the existing enterprise backup and recovery software. They are standard Microsoft SQL Server-compatible tools, are part of the customer IT environment, and are operated according to the customer's backup and recovery policies and procedures.
b) Disaster recovery site failover can be implemented in a number of ways. Typically it includes some manual or automatic reconfiguration of network infrastructure, DNS entries, routers, firewalls, *etc*. These are all part of the IT environment and are not specific to NicheRMS.

Therefore, failover testing as well as backup and recovery testing must be performed by New York State personnel following the procedures that have been documented by New York State personnel. It is not only the infrastructure and configuration that is being tested, but also the ability of New York State personnel to perform the required steps accurately and in a timely manner. Niche will assist as needed to provide guidance and will help diagnose and correct any problems that are encountered.

Niche Acceptance Procedures (Sample)

We have provided our standard acceptance procedures immediately below. The most important point about Final System Acceptance is that this is achieved when the customer determines that the system is ready for go live.

1 ACCEPTANCE OF THE SOFTWARE

1.1 The SERVICE PROVIDER and Customer shall carry out Factory Acceptance and Site Acceptance Tests in compliance with this Schedule to confirm that each part of the Software is in accordance with the Specification and delivers the required functionality agreed between the Parties. The SERVICE PROVIDER shall be responsible for undertaking Factory Acceptance Tests and the Customer shall be responsible for the completion of the Site Acceptance Tests.

1.2 Factory Acceptance Testing (FAT)

1.2.1 The SERVICE PROVIDER shall undertake Factory Acceptance Testing (FAT) of the Software prior to the release of the Software to the Customer. It will include testing of the following:

1.2.1.1 Core Software functionality testing to ensure the Software is free from functional errors and is fit for purpose;

1.2.1.2 Configuration and accessibility of legacy data loaded as part of any back record conversion process;

1.2.1.3 Import and correct configuration of gazetteer information supplied by the Customer;

1.2.1.4 Configuration of constrained vocabularies and other “reference data”;

1.2.1.5 On-line help facilities;

1.2.1.6 Security and data control access configuration;

1.2.1.7 Audit logging and log enquires;

1.2.1.8 Software and database housekeeping procedures including start-up/shut-down;

1.2.1.9 Software and gazetteer administration facilities; and,

1.2.1.10 Remote access infrastructure as agreed between the SERVICE PROVIDER and Customer.

1.3 Site Acceptance Testing (SAT)

1.3.1 The SERVICE PROVIDER shall deliver a base release of the Software to the Customer for Site Acceptance Testing.

1.3.2 The SERVICE PROVIDER shall be responsible for providing support to the Customer’s site acceptance testing process. This shall include:

1.3.2.1 Providing advice and guidance to Customer’s staff carrying out technical and functionality testing (including interoperability of the Software with the Customer's existing IT infrastructure, applications and software);

1.3.2.2 Advising on any questions or issues arising from the SAT process;

1.3.2.3 Remotely accessing the Software for the purpose of carrying out monitoring of Customer testing;

1.3.2.4 Providing diagnostic information if relevant; and,

1.3.2.5 Providing overall quality assurance of the Customer's SAT process to ensure that the Software is fit for live operation.

1.3.3 The SERVICE PROVIDER will be responsible for supporting, as appropriate, the following Customer SAT testing to confirm that:

1.3.3.1 All Hardware is correctly installed, configured and working;

1.3.3.2 All Software is correctly installed, configured and working;

1.3.3.3 All supplied network connections and components are correctly installed, configured and working;

1.3.3.4 Remote access is correctly installed, configured, secure and working;

1.3.3.5 Software fail-over and recovery is correctly configured and working;

1.3.3.6 LEDS/NCIC Access facilities implemented by the Customer to integrate with the Software are configured and operate correctly;

1.3.3.7 All Software and database housekeeping, monitoring, maintenance procedures, as defined in this Agreement, are working correctly, and the appropriate and correct documentation supplied to the Customer;

1.3.3.8 The Customer's technical and support staff have been adequately trained and / or briefed to enable them to carry-out their responsibilities as defined in the Agreement;

1.4 The SERVICE PROVIDER and the Customer shall collaborate jointly on the following Site Acceptance Testing of the Software performance to confirm:

1.4.1 All interfaces to the Customer's infrastructure and applications are working;

1.4.2. The ability to view data loaded as part of any back record conversion Process;

1.4.3 The correct operation of the Software and required reference data and release upgrade process; and,

1.4.4 All reference data is correctly loaded;

1.5 The SERVICE PROVIDER shall advise on the minimum speed of the wide area network (WAN) necessary to run the Software. The Customer will be responsible for testing the performance of the Customer's network.

1.6 Test Plan

1.6.1. The Customer will provide a high level test plan for Site Acceptance Testing. This test plan will include testing that covers not only the Software, but also any relevant interfaces and third party Software.

1.6.2. The scope of testing will be agreed by both parties

1.6.3. The test plan will be drafted by the Customer.

1.7 Test Scripts

1.7.1. The Customer shall prepare a series of test scripts that will enable key aspects of Software functionality to be tested

1.7.2. The Customer may collaborate with other NicheRMS user forces in the development of generic test scripts.

1.7.3. The SERVICE PROVIDER shall provide guidance on the Customer's test scripts to ensure the Software is adequately tested prior to go-live.

1.8. Test Reporting

1.8.1. The SERVICE PROVIDER and the Customer shall agree a standardized format for fault reporting to the SERVICE PROVIDER

1.8.2. The Customer and SERVICE PROVIDER shall review fault report logs by either telephone-conference call or by review on site by SERVICE PROVIDER employee(s).

1.9 Test Personnel

1.9.1 The Customer shall:

1.9.1.1 Provide personnel for Site Acceptance Testing;

1.9.1.2 Ensure the testing personnel have an understanding of the Software functionality;

1.9.1.3 Ensure the testing personnel have received training on the Software prior to testing, and

1.9.1.4 Ensure the testing personnel are familiar with the functional requirements of the Software

1.10 Final Acceptance

1.10.1. Within a reasonable time agreed between the parties of the Software being delivered to the Customer, the Customer shall test the Software. The Software will be accepted only at such time as the Customer shall determine that the Software is fully functional and to the satisfaction of the Customer (acting reasonably) and the Software is signed-off by the Customer Project Manager.

1.10.2. In the event that during the Acceptance testing the Customer determines there are errors and/or deficiencies in the Software delivered, the Customer shall notify the SERVICE PROVIDER in writing of such errors or deficiencies and the Customer shall provide sufficient documentation to enable the SERVICE PROVIDER to recreate the errors and/or deficiencies or otherwise provide documented information demonstrating that an error occurred together with information describing applicable circumstances. The SERVICE PROVIDER will correct such errors and deficiencies within a reasonable period of time agreed between the parties, all without cost to the Customer.

1.10.3. The Customer, within a reasonable time agreed between the parties following the delivery of each error and/or deficiency correction, shall verify that the errors and/or deficiencies have been corrected to the satisfaction of the Customer and that the Software is satisfactory to the Customer. If the Customer determines that any error and/or deficiency has not been corrected, or that the correction has resulted in further errors and/or deficiencies, the SERVICE PROVIDER shall correct such errors and/or deficiencies within a reasonable period of time agreed between the parties and the Customer shall have a further period of time in which to verify that the error and/or deficiency has been corrected.

1.10.4 The foregoing process shall be repeated at the Customer's option until all reported errors and deficiencies have been corrected to the Customer's satisfaction, all without cost to the Customer.

1.10.5. Software that has not been 'Accepted' may be used for testing purposes only; it may not be used in a live environment.

1.10.6 When the software has passed the Acceptance Tests the SERVICE PROVIDER shall be entitled to apply to the Customer for the issue of the Acceptance Certificate and the Customer shall issue such Certificate within 7 days of an application, which the SERVICE PROVIDER was entitled to make.

1.10.7 If the Software shall fail, persistently and repeatedly, to pass the Acceptance Tests and any repeat Acceptance Tests as provided for in this Schedule the Customer shall be entitled by written notice to the SERVICE PROVIDER to reject the software as not being in conformity with the Agreement and terminate the Agreement.