

Final Report
for the
Minnesota Administrative Rules Status System
(MARSS) Pilot Project

Prepared for
Office of the Revisor of Statutes,
Minnesota Legislature

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31 January 2017

10 February 2017 – Minor grammatical and schedule changes, by Revisor's Office.

Contents

1	Executive Summary.....	3
2	Background – Rulemaking and the rulemaking record.....	5
2.1	Rulemaking.....	5
2.2	Rulemaking record	6
2.3	Rulemaking record preservation and public access	6
2.4	2012 Rule Status System (also known as the Revisor's "Beta" System).....	7
3	MARSS Pilot Project	8
3.1	Future vision for rulemaking	8
3.2	Pilot Project	9
3.3	Pilot Project activities.....	9
3.3.1	Project team.....	9
3.3.2	Current rulemaking processes and record.....	10
3.3.3	Contact states with similar systems.....	11
3.3.4	Technology research. Vendor evaluation and Risk mitigation.....	12
3.3.5	Prototypes.....	14
3.3.6	Final report.....	15
3.4	Observations and analysis	15
3.5	Build vs. Buy recommendation	15
4	MARSS Project Plan	17
4.1	System architecture	17
4.2	Schedule estimate	18
4.3	Implementation phases.....	18
4.4	People.....	20
4.5	IT purchases	21
4.6	Estimated implementation costs.....	22
	Appendix A - Glossary of Terms used in Functional Requirements	23
	Appendix B - Requirements	24
	Appendix C - Vendors Contacted/Evaluated	43
	Appendix D- Swimlane diagrams of 4 rulemaking processes	50

1 Executive Summary

Rulemaking background

Rulemaking is the process that executive branch agencies use to adopt, amend, suspend, or repeal administrative rules. Adopted rules have the force and effect of law.

Rulemaking processes require the participation of multiple state offices in addition to the agency proposing the rule. At specific points in the rulemaking process, documents are created. Minnesota Statutes section 14.365 defines the 11 document types constituting the official rulemaking record. Each agency must make documents in the rulemaking record available for public inspection and preserve the documents permanently.

Minnesota Administrative Rules Status System (MARSS)

The Minnesota Administrative Rules Status System (MARSS) is a concept for a new software application. The application would be built and maintained by the Revisor's Office. Executive branch agencies, and others, would upload their documents to the system. The goal is to improve public access, security, preservation, and transparency of state agencies' official rulemaking records through the creation of a single online records system. The envisioned system would serve as a single Internet location for the public to track rulemaking progress and access the official rulemaking record. Agencies could fulfill their requirement to maintain and preserve the official rulemaking record by submitting required documents to the Revisor for inclusion in the online records system. In summary, the benefits of MARSS will be:

- 1) Centralized Public Access – Provide a single, web accessible repository for all rulemaking records created by the 70+ agencies with rulemaking authority.
- 2) Centralized Preservation – Preservation of rulemaking records will be accomplished by the single office maintaining the rulemaking repository. Agencies with rulemaking authority will be relieved of this responsibility.
- 3) Search and Reporting Capabilities – Reports, including reports on rulemaking activity by agency, dates, and type of proceeding will be created by querying the contents of a single rulemaking repository.

MARSS Pilot Project

Using funds provided by the legislature during the 2015 legislative session a pilot project was conducted between July 2016 and January 2017. The product of the pilot project is this final report containing recommendations on the resources necessary to create the MARSS system.

Recommendations

The recommendations of the pilot project are:

1. Build the MARSS system using a combination of commercially available software applications, and custom written software to perform MARSS specific features.
2. Develop the system in 2 phases.
 - a. Phase 1 – Rulemaking record maintenance. System capabilities will be:
 - (1) Import existing data from the Revisor's current rule status system
 - (2) Authentication and authorization (i.e., logon and permissions) of users
 - (3) Rulemaking record creation. Add/remove documents to/from the record.
 - (4) Permanent preservation of rulemaking records
 - (5) Legislative staff receive notifications as rulemaking records are updated
 - (6) Public search of all rulemaking records
 - (7) Retrieval of complete rulemaking records or individual documents

b. Phase 2 – Rulemaking notifications and system enhancements. System capabilities will be:

- (1) Associate legislative committees with rulemaking proceedings, making committee-specific reporting possible.
- (2) Public subscription service. Subscribers receive notifications as rulemaking records are updated
- (3) Central repository for document templates maintained by the Inter-agency Rules Committee (IRC)
- (4) Search enhancements (e.g., ability to save complex searches)
- (5) System workflow enhancements and electronic routing
- (6) Digital signature enhancements (detects whether the signed document was altered or changed in any way).

3. Add 2 FTE positions to the Revisor's Office: a) Database Administrator; b) MARSS Administrator.

The estimated implementation costs for Phase 1 and Phase 2 are \$3,000,000 and \$2,000,000. Revisor IS staff, temporarily augmented by contractors, will build the system. Estimated annual maintenance cost for the resulting system is \$510,000.

2 Background – Rulemaking and the rulemaking record

2.1 Rulemaking

Rulemaking is the process that executive branch agencies use to adopt, amend, suspend, or repeal rules. The legislature delegates rulemaking power to agencies by enacting law. Upon receiving statutory authority from the legislature, agencies use their specialized knowledge and resources to implement and maintain rules. Adopted rules have the force and effect of law. The complete set of Minnesota Rules is compiled and published by the Revisor's Office and are available online at <https://www.revisor.mn.gov/rules/>.

The rulemaking process is a formal procedure defined in Minnesota Statutes, Chapter 14 and Minnesota Rules, Chapter 1400. A primary goal of these procedures is to keep the legislature and public informed of changes to rules, and provide opportunities for participation in the rulemaking process. Rulemaking follows several processes:

- 1) General rulemaking proceeding with public hearing.
- 2) General rulemaking proceeding without public hearing.
- 3) Good cause exempt rulemaking proceeding.
- 4) Obsolete rule repeal.
- 5) Exempt rulemaking.
- 6) Expedited rulemaking.
- 7) Special exempt rulemaking. Two examples are:
 - Department of Natural Resources (DNR) exempt emergency rulemaking.
 - Department of Labor and Industry (DOLI) OSHA rulemaking.

See Appendix D for flow chart diagrams of processes 1-4.

Each rulemaking process requires the participation of multiple state offices in addition to the agency proposing the rule. The following offices have a role in the rulemaking process or in the preservation of rulemaking records.

Executive Branch

1. Governor
2. State Agencies (approximately 70 agencies have rulemaking authority)
3. Office of Administrative Hearings
4. Department of Administration
5. State Register
6. Records Disposition Panel (Minnesota Statutes 138.17)

Legislative Branch

7. Standing committees of the House of Representatives with jurisdiction over agency rulemaking
8. Standing committees of the Senate with jurisdiction over agency rulemaking
9. Legislative Coordinating Commission
10. Office of the Revisor of Statutes (ROS)
11. Legislative Reference Library (LRL)

Attorney General

12. Attorney General

Secretary of State

13. Secretary of State

Judicial Branch

14. State Court Administrator

2.2 Rulemaking record

At specific points in the rulemaking process, documents are created. Minnesota Statutes, section 14.365 defines the 11 document types constituting the official rulemaking record. Each agency must make the documents in the rulemaking record available for public inspection and permanently preserve the documents.

Table 1 shows the documents that constitute a rulemaking record and the office creating each document. 70 agencies currently have rulemaking authority. A total of 117 agencies have had rulemaking authority since 1980.

TABLE 1. RULEMAKING RECORD

Document in rulemaking record	Document creator
(1) copies of all publications in the State Register pertaining to the rule (further explained in Administrative Rules Chapter 1400)	<ul style="list-style-type: none">• Agency
(2) all written petitions, and all requests, submissions, or comments received by the agency or the administrative law judge after publication of the notice of intent to adopt or the notice of hearing in the State Register pertaining to the rule;	<ul style="list-style-type: none">• Agency• Office of Administrative Hearings
(3) the statement of need and reasonableness for the rule;	<ul style="list-style-type: none">• Agency
(4) the official transcript of the hearing if one was held, or the tape recording of the hearing if a transcript was not prepared;	<ul style="list-style-type: none">• Agency
(5) the report of the administrative law judge, if any;	<ul style="list-style-type: none">• Office of Administrative Hearings
(6) the rule in the form last submitted to the administrative law judge under sections 14.14 to 14.20 or first submitted to the administrative law judge under sections 14.22 to 14.28 ;	<ul style="list-style-type: none">• Agency• Office of the Revisor of Statutes
(7) the administrative law judge's written statement of required modifications and of approval or disapproval by the chief administrative law judge, if any;	<ul style="list-style-type: none">• Office of Administrative Hearings
(8) any documents required by applicable rules of the Office of Administrative Hearings;	<ul style="list-style-type: none">• Agency
(9) the agency's order adopting the rule;	<ul style="list-style-type: none">• Agency
(10) the revisor's certificate approving the form of the rule; and	<ul style="list-style-type: none">• Office of the Revisor of Statutes
(11) a copy of the adopted rule as filed with the secretary of state.	<ul style="list-style-type: none">• Office of the Revisor of Statutes• Secretary of State

2.3 Rulemaking record preservation and public access

Each agency with past or present rulemaking authority is responsible for preserving and providing public access to the record. Methods for preservation and public access vary by agency. Preservation methods are paper, digital off-line media (e.g. DVDs), and digital on-line media (e.g. disk drives). Materials must be preserved permanently. To provide public access some agencies only offer paper copies while others offer digital documents available on the internet. Multiple preservation methods are

an inefficient duplication of effort. Agency-specific public access procedures and varying digital formats cause confusion for the public.

2.4 2012 Rule Status System (also known as the Revisor's "Beta" System)

Since 1980 the Revisor's Office has been collecting rulemaking data to aid in historical research of rulemakings. The data was collected from a variety of sources including paper files, digital versions of the State Register, SONARS obtained from the Minnesota State Archives and the Legislative Reference Library, digital documents from the Office of Administrative Hearings and information submitted to the office from an agency.

In 2012 the Revisor's Office released a system that allows public access and searching of the collected rulemaking data. (At the time, a caveat on the web page indicated that the system was being beta tested. To this day the system is sometimes called the Beta System.) Centralizing the data in a single database makes it possible to easily access information, and search for historical and in-progress rulemaking. The system has proven valuable to the agencies, public and the legislature.

However, the current system has limitations.

- 1) In some cases, the system does not contain complete rulemaking records.
- 2) The system does not store all documents. The system stores URLs to documents at OAH and the State Register. Installation of new software at both offices have changed document URLs resulting in broken links on the current system's web pages.
- 3) Public search pages are not user friendly or intuitive.
- 4) Documents and rule status information are entered into the system by a single Revisor employee when other duties permit.
- 5) Notification of document additions does not exist.
- 6) Document authentication does not exist.
- 7) Support for sensitive (unredacted) documents does not exist.
- 8) Support for audio files of hearings does not exist.

3 MARSS Pilot Project

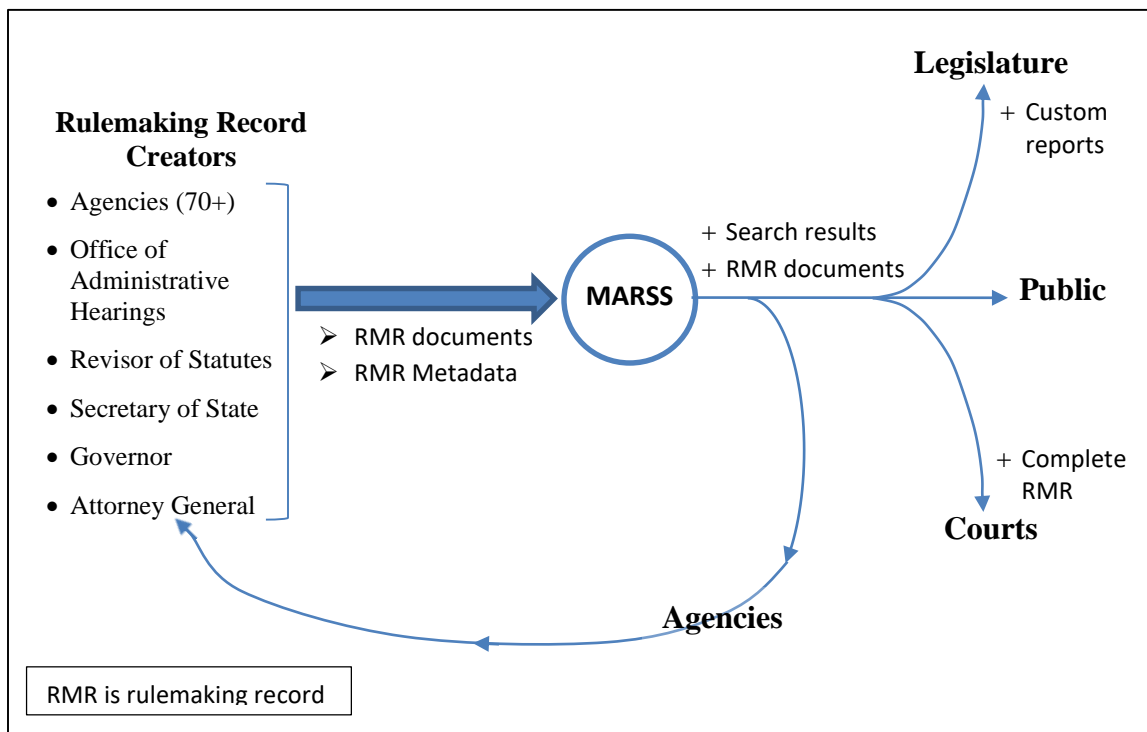
3.1 Future vision for rulemaking

The Minnesota Administrative Rules Status System (MARSS) is a concept for a new software application. The goal is to improve public access, security, preservation, and transparency of official state agency rulemaking records through the creation of a single online records system. The envisioned Minnesota Administrative Rules Status System would serve as a single Internet location for the public to track rulemaking progress and access the official rulemaking record. Agencies could fulfill their requirement to maintain and preserve the official rulemaking record by submitting required documents to the Revisor for inclusion in the online records system. In summary, the benefits of MARSS will be:

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- 2) Centralized Preservation – Preservation of rulemaking records will be accomplished by the single office maintaining the rulemaking repository. Agencies with rulemaking authority will be relieved of this responsibility.
- 3) Search and Reporting Capabilities – Reports, including reports on rulemaking activity by agency, dates, and type of proceeding will be created by querying the contents of a single rulemaking repository.

The MARSS system is envisioned to become a permanent system and the documents and data it contains will be permanently preserved and available. The system will consist of Revisor staff, computer hardware and software, and rulemaking record data. Figure 1 shows the flow of data into MARSS and the services it will provide to the legislature, public, courts, and agencies.

FIGURE 1. MARSS DATA FLOW AND FEATURES



3.2 Pilot Project

Using funds provided by the legislature during the 2015 legislative session a pilot project was conducted between July 2016 and January 2017.

The project team first learned about the current rulemaking process, then researched applicable technologies. Short-term licenses were obtained for three of the most promising commercial software products. Due to time constraints a prototype was built using only two of the commercial products. The resulting knowledge was used to develop the recommendations, schedule, and budget in this report.

3.3 Pilot Project activities

Pilot project activities had the common goal of collecting relevant information useful in preparing the recommendations in this report. The activities were:

1. Form the project team.
2. Learn the current rulemaking processes and items in the rulemaking record
 - a. Use business process modeling (BPM) techniques to document the rulemaking workflow
 - b. Capture current requirements, and potential future requirements
3. Contact states with similar systems
4. Technology research, vendor evaluation and risk mitigation
 - a. Meet with MN.IT to discuss experience with relevant technologies
 - b. Research vendors able to deliver a complete system
 - c. Research commercial software applications with which to assemble a solution
 - d. Analyze a complete system designed, developed, and delivered by Revisor staff
5. Prototypes
 - a. Prototype #1 (Granicus) – Attempted to repurpose a complete commercial off the shelf (COTS) software solution. The product is designed for managing public meeting documents. Creation of MARSS functions was accomplished by changing configuration settings.
 - b. Prototype #2 (Laserfiche) – Built MARSS features by integrating a COTS software product and custom written software. Used the application programming interface (API) that comes with the product to make the product and custom code function as a single system.
 - c. Prototype #3 (Nuxeo) – A prototype with this product is planned for February 2017. The same approach will be used as in prototype #2 (Laserfiche).
6. Write final report

3.3.1 Project team

The project team included Revisor's staff and two external contractors:

- Paul Marinac Revisor's Office
- Timothy Orr Revisor's Office
- Melissa Patsch Revisor's Office

- Jason Duffing Revisor's Office
- Isaac Holmlund Revisor's Office
- Janice Kuschner Project Consulting Group Software System Architect
 Minneapolis, MN
- LeAnn Simonson Zinncorp, Inc. Business Process Analyst
 Coon Rapids MN

The project team was supplemented but not limited to the following personnel with experience in the rulemaking process and/or applicable technologies.

• Patricia Winget	Department of Health
• Kerstin Forsythe Hahn	Department of Education
• Mary H. Lynn	Pollution Control Agency
• Beth Richter Scheffer	Department of Transportation
• Denise Collins • Katie Lin	Office of Administrative Hearings
• Bert Black • Nancy Breems • Tom Abel	Secretary of State
• Corrine Staeheli • Jessica Kidd • Ian Lewenstein	Revisor's Office
• Elizabeth Lincoln	Legislative Reference Library
• Jon Eichten	Minnesota IT Services (MNIT)
• Shawn Rounds • Sarah Barsness	Minnesota Historical Society

3.3.2 Current rulemaking processes and record

During August and September 2016, analysis work was led by the Business Process Analyst contractor. Several meetings were held with agency personnel to learn:

- their rulemaking processes
- points in the process at which documents in the rulemaking record are created
- agency-specific procedures for preservation and public access of past and active records

The information from these meetings was captured in four rulemaking process workflows found in Appendix D. These workflows cover:

- 1) General rulemaking proceeding with public hearing.
- 2) General rulemaking proceeding without public hearing.
- 3) Good cause exempt rulemaking.
- 4) Repeal of obsolete rule.

These meetings were also used to draft functional (what the system must do) and non-functional (what the system must be) requirements for MARSS. The full set of draft requirements is provided in Appendix B. At a high level the functional requirements fall into these categories:

- Security – user account authentication (logins) and authorization (permissions).
- Rulemaking Record – transmission of digital files and metadata from the creating office to the MARSS system. Reception and storage of the data.
- Reporting/Searching – immediate public access to public data, the ability to search the system using various criteria (text phrase, dates, agency, proceeding type, etc.), and retrieval of a single document or the entire rulemaking record. The ability to create custom reports for the legislature.
- Preservation – ensure the integrity and continuing usability of the documents and data in the rulemaking record
- Administration – maintenance of user accounts and data

The analysis work produced the following documents:

- Process models emphasizing the flow of information, and process models emphasizing roles and process sequence.
- Entity relationship model documenting the data created during the rulemaking process. An initial database design for storing the data.
- Event models representing the lifecycles of rule revisions in the context of rulemaking proceeding types.
- Use cases representing possible interactions with the MARSS system.
- Requirements for each use case detailing expectations for system functionality, collected in statements and business rule matrixes.

3.3.3 Contact states with similar systems

Early in the pilot project, the Software System Architect contractor sought to learn from the experiences of other states that have already built features envisioned for MARSS. Telephone interviews were conducted with five state offices performing similar work:

- California
 - Office of Administrative Rules, Riverside County
 - Software development experience with Granicus
 - Legislative project sizing
- Connecticut,
 - Office of the Secretary of the State,
 - eRegulations System at <https://eregulations.ct.gov/eRegsPortal/>
- Iowa
 - Office of the Chief Information Officer
 - Software development experience
- New York
 - Office of Administrative Rules, Upper East Side
 - Software development experience with Granicus
- Utah
 - Office of Administrative Rules
 - Rules system design experience

In addition to these contacts, customers of the vendors we evaluated were contacted in Texas, Florida, Colorado, North Carolina and Tennessee. They were asked about their project structure, requirements, how the vendor performed and about their own research that lead to vendor selection.

One thing became clear during these discussions; the State of Minnesota allows agencies the most autonomy in the rulemaking process. Some states have mandatory workflows that dictate the sequence agencies must follow in order to create a rule. Other states also include a rule drafting system for agencies to use whereas the Revisor's Office maintains control of rule drafting in Minnesota.

3.3.4 Technology research. Vendor evaluation and Risk mitigation.

Technology research for the MARSS project was performed by first evaluating software components used by MN.IT and other states. Personnel from MN.IT attended several meetings. The purpose of these meetings was to identify any relevant software applications that may already be in use at all state agencies. The applications of interest are:

- Digital signature (embeds a hash value in the document for perpetual document authentication)
- Workflow
- Optical character recognition (OCR)
- Audio or video storage applications

We learned that at present, there is no state-wide deployment of these software applications. Individual agencies may be using a vendor's product to solve an agency-specific need, but no products are currently deployed state-wide.

After querying MN.IT, the team sought to identify relevant, commercial software applications. Three sources were used to create a list of companies and products. First, the conversations with other states, as described in section 3.3.3 above. Second, conference materials and contacts from the 2016 National Association of Legislative Technology (NALIT) conference. Third, prior work experience of the Software System Architect contractor with other reputable Content Management System (CMS) and Enterprise Document Management (EDM) vendors. Figure 2 shows Gartner's 2016 rating of ECM vendors.

FIG 2: MAGIC QUADRANT FOR ENTERPRISE CONTENT MANAGEMENT
SOURCE: GARTNER GROUP



To satisfy risk mitigation concerns, companies were first researched for company stability, reputation, and their ability to meet all MARSS requirements. Clients using the company's product were contacted to get an opinion regarding their products and services. This list of companies was shared with the Administrative Codes and Registers (ACR) online community to talk to customers who had personally worked with these vendors. A corporate legal proceedings search was performed as well for each vendor.

Companies that passed the selection criteria above were sent the functional, non-functional system requirements for MARSS and asked to say if they could meet each requirement. Of the requirements they said they could meet, companies were asked to identify their product that could meet the requirement. Vendors that could meet 50% of the requirements and all mandatory workflows were then invited to demonstrate how their product could meet the requirements.

The vendors that passed the demo were then invited to provide a cost quote for each COTS module as well as any custom development effort. See the list of vendor's and contact information provided in Appendix C.

Additional risk mitigation criteria used throughout the selection process include:

1. Setting the expectation that our vendor evaluation is based on the product's ability to meet MARSS project requirements – not the product's price alone.

2. Contacting mature companies that have been in business at least five years with no security breach or other lawsuits (Note: code patent violation allegations are common in the software industry and were therefore allowed).
3. Contacting companies ranked in the upper, right-hand quadrant of figure 2.
4. Dealing directly with the software vendor versus a reseller whenever possible.
5. Selecting vendors with good references in Minnesota state or local government.
6. Networking nationwide with other states that have done similar projects.
7. Networking with professional organizations like NALIT distribution list members.
8. Asking vendors to prove they can do what they say they can do via a demo or proof of concept.
9. Getting vendors to provide itemized quotes for off the shelf software, module by module wherever possible
10. Getting vendors to detail what an implementation of their product may look like in terms of time, staffing and cost.
11. Running a West Law, Better Business Bureau and client reference check on all qualified vendors.

The following vendors satisfied the above criteria and received additional consideration:

- Granicus
- Propylon
- eSignLive
- Drupal
- Django CMS
- Laserfiche
- Nuxeo

3.3.5 Prototypes

The vendor evaluation identified three viable products. Temporary licenses were acquired from the following vendors for the purpose of building a prototype to further evaluate their product:

- Granicus – Legistar product
- Laserfiche (obtained through MCCi, the top Laserfiche reseller in the world)
- Nuxeo

The temporary licenses allowed us to prototype two different types of systems. The first was a COTS system configured for MARSS using a trial license for Legistar by Granicus. Over a four week period Granicus engineers and executives answered all technical questions, provided product demonstrations, and made available a Legistar "sandbox" with which to build a prototype. Although their domain knowledge of legislative processes was excellent, the flexibility of the product to accommodate the current rulemaking processes did not exist. Legistar by Granicus is more focused on building agenda's and legislative document workflows. There was actually quite a bit of custom work to strip down the off the shelf software to make it applicable to Minnesota rulemaking. After considerable effort the prototype's objectives were partially satisfied. However, more effort was expended disabling out-of-the-box meeting agenda functions than building MARSS functions.

The second prototype system was built by Revisor staff using a trial license for Laserfiche. We evaluated the off-the-shelf capabilities including use of Forms and the web client. The prototype also

evaluated capabilities of the Laserfiche SDK – a software library that was accessed using .NET code written by Revisor staff. The prototype was developed over a three-week period. The product was able to accomplish an important, but limited, set of operations.

As of this report's date, Revisor staff did not have sufficient time to build a prototype using the Nuxeo trial license. Nuxeo provides the same components as Laserfiche and the trial license will be used to create a prototype similar to that of the one achieved with the Laserfiche license. The importance of also evaluating the Nuxeo product is that unlike Laserfiche, which would require Revisor staff to take on a new technology stack including .NET and MSSQL, Nuxeo fits into the office's current architecture and provides scalability in the skillsets already in use by the Revisor IS-unit.

Our search of over thirty-five vendors and resellers yielded two viable COTS options who most closely match all MARSS requirements: Laserfiche and Nuxeo. Of the two vendors, Nuxeo is the most scalable and able to work with existing Revisor's Office architecture. It lets staff build on their existing skill sets and expand their knowledge as they take on building new services to the public on a flexible open system architecture.

3.3.6 Final report

The final report consists of this document and its appendices.

3.4 Observations and analysis

The operation of the MARSS system will present challenges not faced by most states. Similar systems we looked at in other states were implemented by the executive branch and did not need to account for collaboration of the legislative and executive branches. The State of Iowa and Connecticut were close in their requirements and implementation strategy for rules. However, "close" meant that their projects and requirements were similar only about half of the time. The MARSS project and their projects differed in that MARSS spans autonomous agencies. The fact that Minnesota agencies are able to define their own process to meet statutory requirements where the rest of the country has significantly more standardized rulemaking processes built into their software is an important deviation in practice that drives every part of MARSS software development. Compared to other states, Minnesota has significantly more exceptions/non-standard rulemaking processes that do not fit with commercial off the shelf (COTS) software being used by other states. That being said, it was surprising to find not one but two vendors that had products that met about seventy percent of the MARSS requirements.

The Revisor's Office has valuable, relevant experience that can be used to implement the MARSS system. The office has experience in preserving, reporting on and presenting legal materials to the public. The office is involved in the rulemaking process and has been responsible for final publication of the Administrative Rules volumes since the 1981.

The best technology solution for MARSS is a COTS product containing a programming interface that the Revisor's Office can understand, improve upon, and maintain. Such a system will be responsive to future customer demands.

3.5 Build vs. Buy recommendation

It is recommended that MARSS not be built entirely in-house. Building an entire application without the assistance of vendor is not recommended for several reasons:

- 1) The money saved from not using a vendor is often spent on staff augmentation and time taken away from other critical tasks.

- 2) An in-house build would need to be limited to Phase 1 of MARSS as our staff cannot build workflow and notification capability required in Phase 2. There are several vendors on the market that can meet this need for a reasonable cost.
- 3) If we build Phase 1 in-house and want to proceed with Phase 2 functionality at some point, we would have a more severe software integration issue than had we started using a vendor product at Phase 1. Integration issues cost time and money. It is often easier to migrate from one vendor to another vs. migrating from in-house built to a vendor assisted build typical of the recommended hybrid approach.

The pilot project found no complete, out-of-the-box commercial solution that covers all MARSS requirements. Additionally, it was determined that having an entire system built by a vendor is not an option. A vendor working alone will not have the Minnesota rulemaking experience necessary to build the customized features of MARSS.

The Revisor's Office IS-unit is a group of seasoned technologists who want to take ownership of the software and services they provide. They want to own the solution and the code that builds it. In this situation, it makes more sense to hire a vendor that will partner with the Revisor's Office to create software built to MARSS requirements.

In summary, the entire system solution should be assembled from COTS software and custom-written software; making implementation a joint vendor/Revisor effort no matter what vendor we choose.

Components/types of technology needed and recommended are:

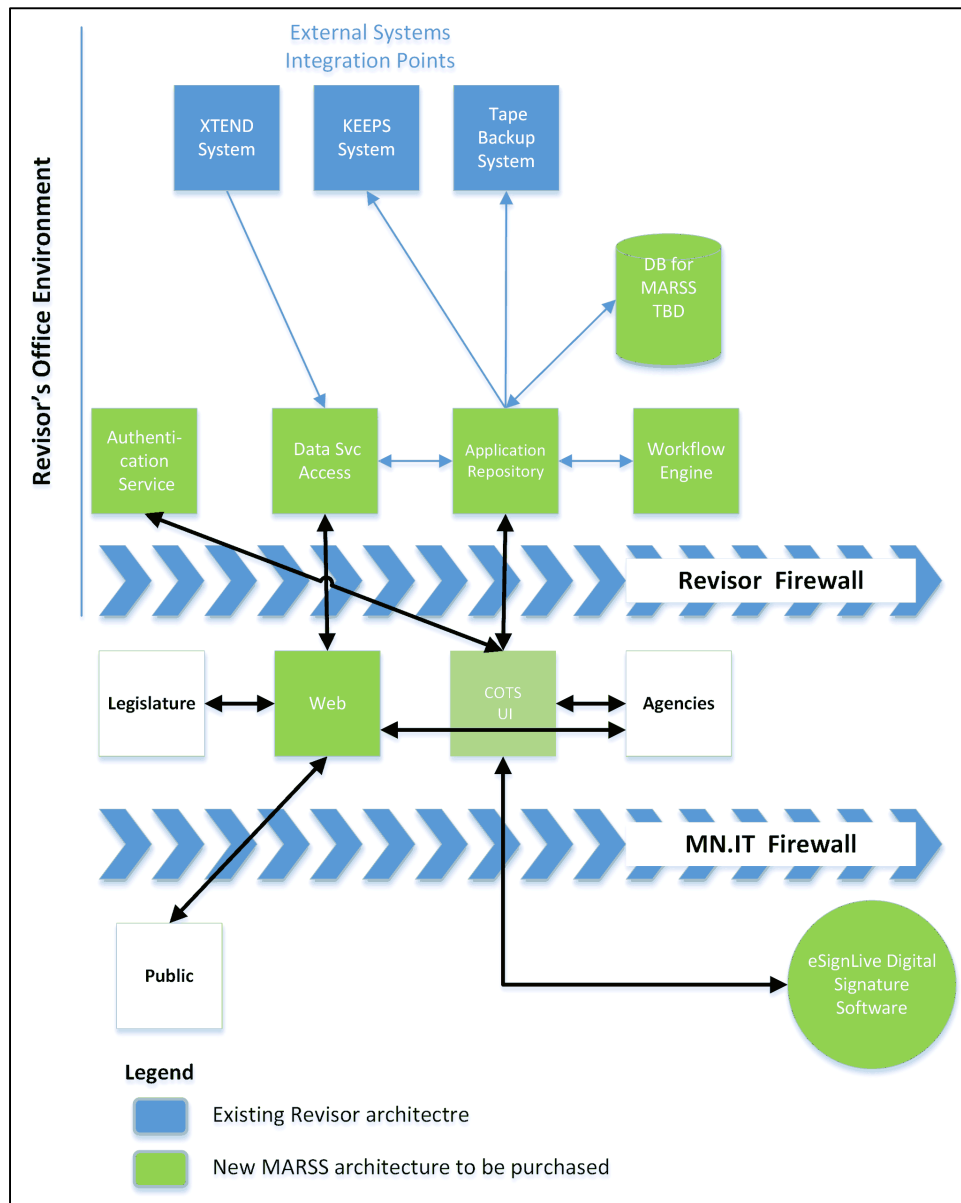
- 1) CMS – A Content Management System. CMS gives agencies a permanent place to put rulemaking data and retrieve it.
- 2) Digital Signature – Digital signature will certify that documents are genuine and that no unauthorized party has altered them. They will help the end user determine that the right version of the document is being used.
- 3) Single Sign-on – A user name and password system that allows people to view and manipulate rulemaking records according to predetermined permissions.
- 4) Case Management capability – Case Management capability takes the database concept of records retention a few steps further by helping us manage upload and editing of the rulemaking record. It helps us enforce version control on each record so end users that draft records are always certain to work with the most recent changes. This technology will also help researchers identify the status of a rule in the process during a specific period of time.
- 5) Scalable components – In general, we need to purchase components for the MARSS system where base functionality either matches what MARSS needs or can be customized to meet MARSS requirements. We will not use software designed for another purpose and strip it down to meet our needs. We will start with base code and build up.
- 6) Open API – All vendors must have an API that works with our existing Java, PHP, Django, Oracle and/or MS SQL technology. All components must work well with one another to allow optimal design flexibility.
- 7) Correct approach to software development – Internal staff needs to be able to learn and own solution. We need a vendor who understands this and will support us.

4 MARSS Project Plan

4.1 System architecture

Figure 3 is the proposed system architecture. MARSS will be an independent stand-alone system assembled from COTS software and custom-written software. The Revisor's Office will use existing IT resources and buy new software products as needed. Existing Revisor IT resources include a network firewall, hardware and software for building virtual servers, a tape backup system, and a long-term preservation system (called KEEPS).

FIGURE 3. MARSS SYSTEM ARCHITECTURE



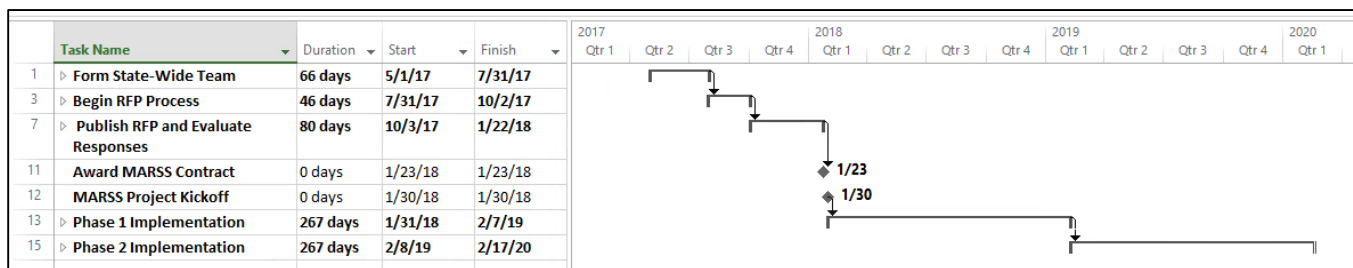
The new software products that will need to be purchased are:

- Content Management System (CMS)
- Relational database
- Digital Signature
- WebEx collaboration software

4.2 Schedule estimate

The following is a high-level time line for building and deploying the MARSS system:

TASK NAME	DURATION	START	FINISH
Form State-Wide Team	66days	Mon 5/1/17	Mon 7/31/17
Begin RFP Process	46 days	Mon 7/31/17	Mon 10/2/17
Publish RFP	80 days	Fri 10/3/17	Thurs 1/22/18
– Evaluate proposals			
– Evaluate demos			
– Evaluate prototypes			
Award MARSS Contract	1 day	Fri 1/23/18	Fri 1/23/18
MARSS Project Kickoff	1 day	Fri 1/30/18	Fri 1/30/18
Phase 1 Implementation	267 days	Tue 1/31/18	Wed 2/7/19
Phase 2 Implementation	267 days	Tue 2/8/19	Wed 2/17/20



4.3 Implementation phases

Specific MARSS goals by implementation phase:

Phase 1 Implementation

- (1) Import Revisor's current rule status system
 - a. Populate data related to a rulemaking from the XTEND system. The current rule status system is populated with rule parts that were affected by a rule draft.
 - b. Ability for an Admin/IS-staff to handle agencies merging and/or being renamed.
- (2) Use authentication and authorization (i.e., logon and permissions)
 - a. Ability to create user accounts and assign specific permissions.
 - Done by a MARSS Administrator
 - Allows for account suspension.
- (3) Rulemaking record creation. Add/remove documents to/from the record.
 - a. Agencies control when the data is added to the system. Anything added to the system is immediately available to the public and legislators. The ability to mark items as non-public will be available to all documents.
 - b. Topic and keyword classification of rulemaking proceedings.
 - c. Access to sensitive documents only by authorized users. Phase 1 does not include performing the redaction. Agency staff will be able to upload a sensitive version and a redacted version of a file. Only the redacted version is shown to the public.
 - d. Audio support for hearings. Also allow for transcripts of audio files.
- (4) Permanent preservation of rulemaking records
- (5) Legislative staff receive notifications as rulemaking records are updated

- a. Predefined notification content. Manually maintained list of recipients.
- (6) Public search of all rulemaking records
 - a. Searching/reporting on all public data will be provided. This includes the ability to run multi-faceted searches on various data fields.
 - Predefined searches will produce reports of interest to legislative committees
 - Text searching.
 - All searching capabilities of the current rule status system will be supported. Work on making the searches easier to use.
 - PDF documents uploaded without the necessary text content needed for keyword searching will be OCR'd on input.
 - Searches and reports will be downloadable in a printer friendly format.
 - Search result sets will allow for easy navigation to the full rulemaking record as well as the specific document. Results should indicate if there are specific rulemaking record items that match a specific search term if one was used.
 - b. Public facing web pages will be written using the same accessibility standards as the Revisor's website. Conforming to the states accessibility standards for rulemaking record items will be a responsibility of the agency.
- (7) Retrieval of complete rulemaking records or individual documents
 - a. Export rulemaking data from the system.
 - Export the entire rulemaking database for archival purposes.
 - b. Reports on rulemakings. These reports could be helpful to agencies in generating the Rulemaking Docket
 - c. Entire rulemaking records. This can be used to transmit to OAH, to the courts, for the agency or possibly the public/legislature.

Phase 2 Implementation

- (1) Associate legislative committees with agency rulemaking proceedings.
- (2) Public subscription service. Subscribers receive notifications as rulemaking records are updated.
 - a. "MyRules" features allowing individuals to start, stop, and customize their notifications.
 - b. Self-provisioning accounts
 - The public will be able to create their own account for MyRules
 - Password resets and expirations will be supported for all users in an automated manner. MARSS Admin will not need to be involved.
- (3) Central repository for document templates maintained by the Inter-agency Rules Committee (IRC).
 - a. Host the IRC templates within the MARSS system. Agencies would be able to download the templates from MARSS to complete the documents necessary for a rulemaking. The system could show the "recommended" templates for the specific rulemaking proceeding type so that it is easy for the agency to find. The system may pre-populate some data in the templates.
- (4) Search enhancements
 - a. Ability to save custom searches and reports.
 - b. Highlighting found search terms in results.
- (5) System workflow enhancements
 - a. System calculates required dates for rulemaking events, such as the 30-day comment period.

- b. Support for a rulemaking timeline. For example, if a rulemaking is using the “with a hearing’ process, the system could provide a list of the standard events associated with that type of rulemaking and keep the legislature/public informed about what is left to be done on a rulemaking.
 - c. Workflows – these can automate sending record items to the correct offices for approvals and automatically change the “status” of the rulemaking based on events. There are several different workflow automations to consider.
 - d. Automatically transmit data to external systems such as OAH or the courts.
- (6) Digital signature enhancements (detects whether the signed document was altered or changed in any way).

4.4 People

Recommend hiring five contractors.

1. Project Manager. Manages the work for phases 1 & 2. Schedules the COTS vendor's personnel dedicated to the project. Leads the development team using agile software development techniques. Uses agile techniques to engage users and stakeholders throughout the project.
2. Business Process Analyst. Documents rulemaking processes and aids in requirements finalization and vendor selection.
3. Senior Software Developer. Has existing skills and experience to be quickly productive in the selected COTS product. Will work on team of developers to program the custom features of MARSS. Will teach these skills to the team as needed.
4. Senior Web Developer. Has existing skills and experience to be quickly productive. Will develop custom search screens used by the public. Will utilize the COTS product's programming interfaces, as needed, to make web pages interact with the COTS product.
5. Senior Java Developer. Legislative experience is preferable. The developer will backfill for the Revisor IS staff person reassigned as the MARSS Software Architect. The Java Developer works on existing Revisor applications, not MARSS.

Recommend limited use of existing Revisor IS-staff. The expertise of the Revisor's IS staff will be necessary during the MARSS project. Correctly integrating new technologies into the existing IT architecture will result in reliable operation of MARSS and lower, long-term maintenance costs. At the same time, existing IS staff will have limited time to work on MARSS because they are fully utilized maintaining existing essential applications. Recommendations for existing IS-staff are:

1. Software Architect. Re-assign one person to the MARSS project for its duration. The person will ensure that the project adheres to IT best practices, Revisor conventions and standards, and will work towards seamless integration of MARSS with the Revisor's existing architecture.
2. Database Administrator (DBA). The staff DBA will consult on MARSS database and data structure issues. He will also train the new DBA (see next paragraph) on Revisor conventions and standards.
3. Web programmer. A staff web programmer will consult on MARSS web site and web page issues. He will also train the Senior Web Developer contractor on Revisor conventions and standards.

Recommend adding two FTE positions.

1. Senior database administrator (DBA). This person will install, configure, and maintain the commercial database holding rulemaking records and associated metadata. This person will design the database tables for storing data, connect the database to the selected commercial content management system (CMS), develop database queries for use in the custom written software.
2. MARSS Administrator. This person will monitor rulemaking records for completeness, serve as a resource to authorized users (e.g., agency users) on system usage, and facilitate communication between authorized users and IS staff.

4.5 IT purchases

The following expenses will be incurred to build and maintain the MARSS system.

Hardware

Desktop hardware for contractors and new FTEs

COTS CMS Software

License(s) for the selected COTS Content Management System (CMS) software. The first year cost includes the license(s) and product support. Only product support need be purchased in the second year and beyond.

This item also includes project management and software engineering hours for the vendor's staff.

Other COTS Software

These are software products needed for software development, project management, and communication with project participants.

Local Contractors

Five, contractors working on-site in Revisor office space.

New FTEs

Two, new, permanent, Revisor FTEs.

4.6 Estimated implementation costs

Item	Phase 1	Phase 2	Annually	Note
<u>Hardware</u>				
Laptops (7)	\$10,500	-		[1]
Phone (7)	\$1,750	-		[1]
Virtual servers	\$0	\$0		
<u>COTS CMS Software</u>				
Product & support	\$1,200,000	\$280,000	\$280,000	
<u>Other COTS Software</u>				
Oracle DB Standard ed.	\$23,485	\$2,117	\$2,117	
eSignLive	\$6,000	\$6,000	\$6,000	
WebEx teleconference	\$4,000	\$4,000		
MS Office (7)	\$1,400	\$1,000	\$400	[1]
MS Project (3)	\$1,187	-		[2]
MS Visio (3)	\$1,014	-		[2]
Tivoli Service Manager	\$2,700	\$350	\$350	
<u>Local Contractors</u>				
Contractors (5)	\$1,560,000	\$1,560,000		
5 x 40 x 52 x \$150/hr =				
<u>New FTEs (with benefits)</u>				
Senior DBA	\$125,000	\$125,000	\$125,000	
MARSS Administrator	\$96,046	\$96,046	\$96,046	
TOTAL	\$3,033,082	\$2,074,513	\$509,913	

Notes:

[1] Count of 7 = 5 contractors + 2 new FTEs

[2] Count of 3 = Project Manager + Business Process Analyst + Software Architect

Appendix A - Glossary of Terms used in Functional Requirements

The following terms are used in the Functional Requirements listed in Appendix B.

Term	Definition
Rulemaking Proceeding	The overall rulemaking process, including all activities and events associated with a specific type of a rulemaking proceeding, such as an expedited rulemaking proceeding or an exempt rulemaking proceeding.
Rulemaking Action	New, amended or repealed actions taken in the course of a rulemaking proceeding specific to a rulemaking provision.
Rulemaking Event	A specific event occurring as an outcome of a rulemaking activity to advance a rulemaking proceeding, such as “Publish a Notice of Intent to Adopt Rules without a Hearing.” Or, “Schedule a hearing.” Or, “Hold hearing.” An event may associated rulemaking record items.
Rulemaking Record	A particular rulemaking proceeding’s set of rulemaking record items as required by Statute.
Rulemaking Record Item	A logical description of a rulemaking record item required by Statute within a rulemaking record. For example, “SONAR.” Or, in the case when MMB provides cost analysis separately from the SONAR for a hearing, “MMB Cost Analysis.” Or, “Request for Comments.” There may be many documents associated with the same rulemaking record item, such as a transcript and an audio file may both be submitted for “OAH Hearing.” Or, a redacted and unredacted version of a rule revision might be maintained. A rulemaking record item might be the result of one type of event, but it could be that a rulemaking record item is generated from more than one type of event. The same event and item pairing can happen more than once in the same rulemaking proceeding.
Supplemental	Information that is not officially part of the rulemaking record, but agencies desire to keep the information with the rulemaking record, e.g. fact sheets/forms, per Governor Policy.
Supporting Documentation	Rulemaking record item that is within another rulemaking record item, such as when MMB Cost Analysis is within the SONAR.
Rule Revision	A collection of new or changed rule provisions which may span more than one rule Chapter and may contain any combination of new rule provisions, amended rule provisions and/or repealed rule provisions.
Rulemaking Provision	The most atomic section of a rule Chapter that is subject to a new, amended or repealed action, which could be a part or subpart or item.

Appendix B - Requirements

The requirements listed below cover both functional and non-functional requirements found in the Revisor's pilot project for the MARSS system. The requirements listed cover ALL phases of the project. Further refinement and validation of these requirements will be done at the beginning of the formal project implementation. At which time each requirement will be formally categorized into the appropriate phase of project implementation.

Functional Requirements			
Use Case	Req	Name	Use Case or Requirement Description
U000	0	Cross-Cutting Features	A number of desired features apply generally to many or all use cases, as identified below.
U000	R001		The user will be allowed to opt out of required data entry throughout the system.
U000	R002		If the user opts out of a constraint, the user will be provided with a configured alert as to which associated notifications or data changes will be disabled (e.g. a notification when a temporary grant of authority is approaching expiration will be disabled if statutory authority is not entered).
U000	R003		The system will provide general validation checks for dates.
U000	R004		The system will provide spell check validation checks.
U000	R005		The system will apply date calculation rules accounting for calendar days, working days, non-holiday days, and leap years.
U000	R006		The system will support viewing of all screens via a mobil device, with all displays optimized for mobile viewing. This includes being able to use a mobile device to view reports and to input data.
U000	R007		A user will be able to flag rulemaking events, rulemaking record items and documents as non-public. Non-public events, items and documents will NEVER display to a public user.
U000	R008		The system will support workflow configuration, supporting the actions taken in a rulemaking proceeding which may or may not include the upload of rulemaking record items.
U000	R009		The system will provide a personal dashboard with tasks and information relevant to the particular user, configurable by the user, e.g. adding reports to a personal list.
U000	R010		An admin user will be able to leverage, programmatically, real-time events sent to the Xtend system from the MARSS system.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U000	R011		An agency user will be able to delete events, items and documents which the agency user or someone within the agency user's group has entered prior to the formal adoption of a rule revision . After formal adoption of a rule revision, records will be locked for the rule proceeding for any agency user, but a Revisor Admin would have the rights to delete records.
U001		Create Rulemaking Proceeding	The user will be able to create a rulemaking proceeding - provided they have the permissions to do so.
U001	R001		A revisor ID will be assigned to a rulemaking proceeding in any status provided that it is the initial entry. The Revisor ID will be produced sequentially in the format of R-#####.
U001	R002		The system will enforce that all data required for a rule proceeding has been provided and validated before allowing creation of the proceeding record.
U001	R003		The user will be able to select the applicable rulemaking proceeding type {General with Hearing, General without Hearing, Expedited, Exempt...} for a rulemaking proceeding.
U001	R004		The user will enter a rulemaking revision description, the statutory authority and effective dates of this authority (no end date for permanent).
U001	R005		The user will be able to supply as much of the meta data about a rulemaking proceeding as they choose at creation time. The same features for updating a rulemaking proceeding apply.
U001	R006		More than one user from different agencies might need permissions for the same rulemaking proceeding for instances where the ownership is shared across agencies.
U001	R007		An agency user will be able to get a user-friendly/clean URL permalink from the system's webpage that is specific to the rulemaking proceeding to add to an agency website.
U001	R008		User entered citations to Revisor documents (Statutes, Laws, Rules) should link to the cited documents located on the Revisor of Statutes website (citation algorithm available from Revisor's Office).
U002		Update Rulemaking Proceeding Record	The user will be able to update a rulemaking proceeding extending from the creation of a rulemaking proceeding or from a view whereby the specific rulemaking proceeding can be selected for edit.
U002	R001		The user will be able to update all data associated with a rulemaking proceeding that is not limited by permissions.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U002	R002		The user will be able to cancel a hearing date and enter a cancellation date.
U002	R003		The user will be able to update keywords or topics associated with a particular rulemaking proceeding that may later be used as search criteria. Keywords may be selected or entered. Topics may only be selected.
U002	R004		The data entered for rulemaking record items may aggregate up to the rulemaking proceeding, such as an aggregate number of requests for hearing uploaded on different dates. Derived data will be displayed with a rulemaking proceeding.
U002	R005		The user will be able to select the committee(s) with jurisdiction for a particular rulemaking proceeding.
U002	R006		The user will be able to enter or select the corresponding contacts for a committee and their emails for the purpose of notifications.
U002	R007		The system will provide the committee representatives previously entered for an agency as a list of values from which the agency user can select or disregard and then enter a new contact(s) and/or email(s).
U002	R008		If an agency user submits a new email for an existing committee contact, the user will be prompted to specify whether to just add the email or to also delete a previously associated email for the contact.
U002	R009		The user will be able to add rulemaking events to a rulemaking proceeding.
U002	R010		When selecting a rulemaking event, if the rulemaking event has a deadline calculation associated with it, the system will auto-populate the deadline date for the user which the user can change.
U002	R011		The user will be able to edit the deadline dates regardless of whether they were auto-populated or user-entered.
U002	R012		The user will be able to add rule provisions to the rulemaking proceeding in addition to the list automatically received from the Revisor Xtend System.
U002	R013		The user will be able to assign detail on a rulemaking provision event as: new, amended or repealed by adding it if it does not already exist or by editing the existing value.
U002	R014		The user will be able to remove any rule provisions listed as affected by the rule making proceeding. This includes rule provisions that were supplied by the Revisor Xtend System.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U002	R015		The user will be able to enter the OAH Docket number.
U002	R016		The user will be able to enter an agency contact for a rulemaking proceeding, with first name, last name, title, phone and email.
U002	R017		If the rulemaking provision effective dates are permanent, The user will be able to enter an effective date for the rulemaking provision as well as a compliance date if the compliance date is different than the effective date.
U002	R018		If the rulemaking provision effective dates are temporary, The user will be able to enter both an expiration date and an effective date for the rulemaking provision as well as a compliance date if the compliance date is different than the effective date.
U002	R019		The user will be able to to apply default values that are then editable for the entry of effective date, expiration date and a compliance date at the rulemaking proceeding level that then populate all associated dates of the same type at the rulemaking provision level. The user can then update the dates of any rulemaking provision selectively.
U002	R020		The user will be able to change a rulemaking proceeding to a proposed status earlier in the process then the automated triggers established, and if changed, the user will be alerted to any notifications or system events that will fire based on a rulemaking proceeding being in the "proposed" status, such as a notification to the Governor of a change in status. The user will be able to opt out of these automated notifications or system events.
U002	R021		The user will be prompted to enter a hearing date and hearing location if a rulemaking proceeding type selection auto-populates a hearing to be required, or if the user indicates that a hearing is required, or if a request for hearing threshold is met through the entry of the number of valid hearing requests triggering the hearing to be required.
U002	R022		The system will calculate whether a hearing date is scheduled 60 days or more after the date of a "Publish Request for Comments" event. If the calculated number of days is less than 60, the user will be provided with an alert of this fact, which will persist as a display with this data as long as the fact remains true.
U002	R023		Support for notifications sent to legislative staff and other required agencies and committees will be provided.
U003		View Standard Rulemaking Events	The user will be presented with a list of standard rulemaking events associated with the rulemaking proceeding type selected.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U003	R001		Based on the user's selection of a rulemaking proceeding type, the user will be presented with a list of standard rulemaking events with associated rulemaking record items, other rulemaking events associated with the rulemaking event, projected deadlines where possible for rulemaking events, roles with permissions for each rulemaking event, and an indication of whether an electronic signature will be required.
U004		Update Rulemaking Events	The user will be able to update the list of rulemaking events planned for a specific rulemaking proceeding.
U004	R001		The user will be able to update the list of rulemaking events and associated rulemaking record items for a specific rulemaking proceeding without affecting the standard list displayed for other users creating a rulemaking proceeding.
U004	R002		The user will be allowed to adjust the projected completion dates for each rulemaking event.
U004	R003		The user will be allowed to update which planned rulemaking events are associated with other rulemaking events.
U004	R004		The user will be presented with the role(s) with permissions for a specific rulemaking event but will not be allowed to update the associated role(s).
U004	R005		The user will be presented with default designations of the need for an electronic signature and the role(s) with signatory authority for a specific rulemaking record item associated with a rulemaking event and be allowed to adjust the designation but not the role(s).
U004	R006		The user will be able to select for a publicly viewable schedule the planned rulemaking events with associated data for the specific rulemaking proceeding. Items not selected will be viewable by users with permissions to view.
U004	R007		Upon entry of a rulemaking event, the user may be presented with a suggested associated rulemaking event type and, if applicable, a deadline based on a business rule for a rulemaking event type. For example, the event type of "Issue a Response" after a rulemaking event of "Receive Comments" is entered. The user may choose to add and/or adjust the suggested event type with corresponding data and associations, including electronic signature requirements.
U005		Update My Rulemaking Events	The user will be able to update planned or actual events associated with a rulemaking proceeding.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U005	R001		The user will be able to create actual standard or non-standard rulemaking events with associated respective standard or non-standard rulemaking record items even when the event was not previously identified as a planned event.
U005	R002		The user will be able to update a planned rulemaking event as an actual event with actual dates, other data, and associated events and document uploads.
U005	R003		Upon entry of a rulemaking event of "Publish Request for Comments," an alert will display for the user that a hearing cannot occur before 60 days after the publication date of the request for comments.
U005	R004		The user will be able to provide an electronic signature for a rulemaking record item requiring a signature from the user's role.
U006		Download IRC Approved Template for Rulemaking Record Item	The user will be able to download one or many IRC Approved Templates for a rulemaking record item.
U006	R001		The system will present The user with the IRC approved template(s) appropriate for a rulemaking record item for the user to select for download and use and to later upload in a completed state as a rulemaking record item.
U006	R002		Downloaded templates will be pre-populated with known data at the point of download, e.g. Agency name or Rulemaking Proceeding Revisor ID.
U007		Create Rulemaking Record Item	The user will be able to create a rulemaking record item for a rulemaking event
U007	R001		The user will be able to create a rulemaking record item for a rulemaking event. More than one rulemaking record item might apply to a rulemaking event and more than one rulemaking event might relate to the same rulemaking record item.
U007	R002		The user will be able to enter specific data corresponding to a particular rulemaking record item, for example, an upload of a set of requests for a hearing will have a corresponding data input for the valid number of requests for a hearing.
U008		Update Rulemaking Record Item	The user will be able to update a rulemaking record item.
U008	R001		The user will be able to update all rulemaking record item data within permissions.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U009		Upload Rulemaking Record Item Document Version	The user will be able to upload rulemaking record item "documents." (Documents is generally used for documents, audio files, video files or any other formats.)
U009	R001		The user will be able to upload a version of a rulemaking record document such as an updated version, alternative ADA version, State Register version or a redacted version, and associate the document with one or more rulemaking record items (the logical description of the document(s)).
U009	R002		Upon uploading a replacement version for any rulemaking record item, the user will be prompted to select whether the replacement is a correction, triggering a logical delete of the replaced item, or a replacement leaving the last version as an accessible historical record.
U009	R003		The system will provide file format conversion of an uploaded document to another desired format or a choice of file formats for rulemaking record items drafted in the system upon download.
U010		Assign Topics	The user will be able to assign topics to a particular rulemaking proceeding or rulemaking record item.
U010	R001		The user will be able to select or enter topics for a particular rulemaking proceeding or rulemaking event or rulemaking record item.
U011		Assign Keywords / Tags	The user will be able to assign or enter keywords/tags for a particular rulemaking proceeding or rulemaking record item.
U011	R001		The user will be able to select keywords/tags for a particular rulemaking proceeding or rulemaking event or rulemaking record item.
U012		Assign Rulemaking Event or Item to Reviewer	The user will be able to assign rulemaking events or rulemaking record items to a user within the allowable role constraints.
U012	R001		A user will be able to select a reviewer for a particular rulemaking event or rulemaking record item, establishing an assignment based on the configured roles for an agency.
U013		View Rulemaking Information	The user will be able to view rulemaking proceeding information in various forms within assigned permissions.
U013	R001		The user will be able to view rulemaking proceeding information via a number of prepared queries and canned reports as well as via the user's ability to customize queries and reports and to apply search criteria (see variations below).
U013	R002		The user will be able to download or export reports/queries in a variety of printer-friendly formats. (PDF, Word)

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U013	R003		The system will support the export of information into specific formats which include Excel, PDF, Word, and CSV.
U014		View Report	The user will be able to view a variety of canned reports.
U014	R001		Reports will be created for, but not limited to, legislative staff, agencies and the public. Specifics on reports is TBD.
U015		Search for Records or Topics or Keywords/Tags	The user will be able to search rulemaking proceeding records by a variety of search parameters and filters, including topics and keyword/tags and Revisor ID. More than one search parameter might be chosen at one time, further filtering the results.
U015	R001		A user will be able to input search terms or phrases that will be combined with other search criteria that are matched to metadata for rulemaking proceedings, rulemaking events, rulemaking record items, and/or documents.
U016		View Search Result Set	The user will be able to view a result set from a query and be able to step through any keywords/tags selected.
U016	R001		Upon submitting keyword search criteria, the result set will be aggregated up to a list of rulemaking proceedings where the terms or phrases have matched for any of the levels, but the user will also be presented with a navigable series of highlighted results within the documents that they can step through.
U016	R002		A user will be able to save the result set of a query.
U016	R003		A user will be able to select sort by and group by parameters for a result set, and change these parameters.
U017		View Specific Rulemaking Proceeding	The user will be able to view a particular rulemaking proceeding record either by searching for a particular Revisor ID or by selecting a rulemaking proceeding record from another view's result set.
U017	R001		The user will be able to view history for a particular rulemaking proceeding record, such as all previous rulemaking proceeding versions or maintained rulemaking record item history.
U017	R002		The user will be able to conduct faceted searches (i.e. searching within a specific result set) for a topic or keyword or more than one topic or keyword or an intact phrase.
U018		View My Saved Rulemaking Info	The user will be able to save and return to a dynamic view of rulemaking proceeding records of personal interest through interaction with various filters and then saving the desired query results.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U018	R001		A logged in user will be able to name and save the query behind a desired result set of rulemaking proceeding records in order to run the query and obtain dynamic results at a later time.
U018	R002		If the user attempts to save the query behind a desired result set of rulemaking proceeding records and is not logged in, the user will be prompted to input his or her credentials to save the query without having to re-specify and rerun the displayed query in focus.
U019		Log In	The user will be able to provide and manage login credentials (username and password).
U019	R001		The user will be able to present credentials (username and password) in order to log into the system.
U019	R002		The user will be able to recover a forgotten password, such as through the establishment of a hint and/or validation questions.
U019	R003		The user will be able to change his or her password.
U020		Authenticate User	The system will authenticate the credentials entered by the user (see nonfunctional security requirements).
U020	R001		The system will authenticate the user based on the submitted username and password.
U021		Authorize User	The system will determine and control the user's permissions throughout the user's active session.
U021	R001		The system will ensure an authenticated user can only perform functions for which his or her role has assigned permissions, such as entering rulemaking events for a particular agency or accessing an unredacted version of a document.
U021	R002		The system will ensure that an unauthenticated user can only perform public functions available to any user.
U022		Manage System Trigger Configurations	An admin user will be able to configure scheduled, on-event or on-demand actions based on data or temporal triggers
U022	R001		The system will allow an admin user to use temporal and/or data trigger(s) that will transfer data via a desired interface protocol to and from the systems of such entities as the Secretary of State, State Archives, Courts, Legislative Committees, or Agencies.
U022	R002		An admin user will be able adjust and test code generated by the system trigger configuration.
U022	R003		The system will allow an administrative user to configure whether a configured trigger and action is fully automated or whether user approval is needed to launch the action.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U023		Establish User Account	An admin user or a user will be able to establish an account.
U023	R001		An admin user or a user, through a self-help feature, will be able to establish an account.
U024		Provision User with Permissions	An admin user will be able to manage user accounts and permissions.
U024	R001		The admin user will be able to create, delete (logically) and suspend an account for a user.
U024	R002		A temporary username and password will be provided to the user upon account creation, which can be changed by the user.
U024	R003		The administrator user will be able to create an account via copying another account as a starting template.
U024	R004		The admin user will be able to assign a user or a group to a role, and a user to a group.
U024	R005		The user will be forced to change a temporary password upon its use.
U024	R006		The system will manage expirations of passwords and force the user to change a password at an interval determined by the admin.
U024	R007		The user's account will lock after a certain number of failed attempts, as determined by the admin.
U024	R008		The admin can configure whether a user can log in after an account is locked if after a certain amount of time, or if an admin is required to unlock.
U024	R009		The admin user will be able to assign functional permissions with create, read, update and delete rights specific to a user role.
U024	R010		The admin user will be able to assign permissions to a role based on data classifications (such as an unredacted rulemaking record item) with create, read, update and delete rights.
U025		Self-Provision Account	The user will be able to create an account in order to perform public functions that rely on knowing the user's identity, such as the ability to save queries and to sign up for notifications.
U025	R001		A potential user will be able to use a self-service feature to create an account and obtain user credentials to enable limited capabilities, such as saving a query.
U026		Manage Opt Out Alerts	An admin user will be able to configure the language included in alerts displayed for opt outs.
U026	R001		An admin user will be able to configure messages that will pop up when an agency opts out of a constraint or required data.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U026	R002		The user will be able to define a pop-up display for rule revision status that will define the status choices, such as "a draft proposed rulemaking proceeding is deemed ready by the Agency to be part of a public rulemaking proceeding record and available for first comments but not yet ready for formal public review and comment."
U027		Manage Report Offerings	An admin user will be able to configure canned reports, as well as other report configurations.
U027	R001		Canned reports will be configurable by an admin user using a report configuration feature available to general users and then making these preconfigured reports available to users in a canned report list.
U027	R002		An admin will be able to configure sort by algorithms for data elements with complex structures, such as alpha-numeric Statutory citations that might have more than one sort order behavior within a string.
U028		Manage Pop-Up Info	An admin user will be able to configure informational pop-ups for fields.
U028	R001		An admin user will be able to configure messages that will pop up next to fields throughout the user interface.
U029		Establish Notifications	An admin user or a user will be able to establish configured notifications.
U029	R001		An admin user through an admin interface or a user through a self-help interface will be able to establish configured notifications.
U030		Sign up for Notifications	The user will be able to sign up for notifications.
U030	R001		A user will be able to sign up for notifications based on available options presented via a self-help interface. A user will have a variety of options such as signing up through email notifications, RSS feeds, or text message notifications.
U031		Manage Notification Configurations	The user will be able to to manage notification configurations for particular recipients.
U031	R001		An admin user will be able to configure notifications to persons or groups through associated roles based on data or temporal triggers as well as configure notifications for which users can sign up.
U031	R002		The system will provide a user interface for an admin user to select data or temporal trigger(s) for notifications and the groups to which the notifications should be sent with the ability to customize and test the code to be used dynamically at runtime.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U032		Manage Domain Value Lists	An admin user will be able to manage domain value lists.
U032	R001		All domain value lists will be configurable by an IRC-approved admin with the ability to instruct the system to either migrate old values to new values, leave historical values intact, merge more than one old value into a new value, or split a value into more than one new values).
U033		Manage Standard Rulemaking Events & Items	An IRC-approved administrator will be able to manage standard rulemaking events and rulemaking record items for a particular rulemaking proceeding type.
U033	R001		An admin user will be able to create, update or delete standard rulemaking events and rulemaking record items for a particular rulemaking proceeding type.
U033	R002		An admin user will be able to associate standard rulemaking events to other rulemaking events.
U033	R003		An admin user will be able to establish formulas for projecting deadlines where possible for rulemaking events, such as 30 days after another type of rulemaking event is entered.
U033	R004		An admin user will be able assign roles with associated permissions to specific rulemaking event-rulemaking record item pairing.
U033	R005		An admin user will be able to indicate whether an electronic signature will be required for a particular rulemaking record item.
U034		Upload IRC Approved Template for Rulemaking Record Item	An IRC-approved administrator will be able to upload IRC-approved templates for particular rulemaking record items to then be made available for download by agency users.
U034	R001		An admin user will be able to upload templates specific to a particular rulemaking record item.
U034	R002		An admin user will be able to input and change data about a template, such as instructions, effective date, deprecation date, or discontinued date.
U035		Manage Topics	An Admin will be able to manage topics used by users to categorize rulemaking proceedings.
U035	R001		An admin user will be able to manage topics used by users to categorize rulemaking proceedings using an IRC determined taxonomy.
U036		Optimize Search Engine Results	An Admin will be able to optimize search engine behavior.

Functional Requirements

Use Case	Req	Name	Use Case or Requirement Description
U036	R001		An Admin will be able to optimize search engine behavior to achieve the desired search engine results, such as tweaking the order of display or rank of some search terms over others. Some keywords/tags are user-inputted and assigned to a particular rulemaking proceeding or rulemaking event or rulemaking record item.
U037		Programmatically Manipulate Data	An admin will have access and permissions to programmatically manipulate data.
U037	R001		An admin will have access and permissions to programmatically manipulate data to handle instances such as agency name changes or agency splits.

Non-Functional Requirments

Use Case	Req	Name	Use Case or Requirement Description
NF001	R001	Availability	The system shall be made available for state entities (Revisor's, Agencies, Legislature, etc.) 24/7 with the most critical times being the 12 hour period M-F from 6 AM to 6 PM.
NF001	R002		Public and Office of Administrative Hearing access to the system shall also be 24/7
NF001	R003		System maintenance shall be scheduled outside of the M-F from 6 AM to 6 PM timeframe.
NF002	R001	Flexibility	The system shall allow for flexibility in workflows and documents required as changes in law can occur at any time with various lengths of time to conform.
NF002	R002		The system shall allow for the ability to change layouts of reports, styling of materials, and general descriptions and headings is required. Preferably by Revisor administrative staff.
NF002	R003		Ability to assign Revisor's office look and feel via configurable UI where no code changes are required.
NF003	R001	System Support	Technical support for the system will be available Monday – Friday from 6am – 6pm Central Time.
NF004	R001	Hardware Maintenance and Reliability	Hardware failures will not cause more than 4 hours of downtime.
NF005	R001	Software Maintenance and Reliability	The software solution must be viable for at least 10 years
NF005	R002		Custom developed components must be maintainable and expandable by Revisor Staff

Non-Functional Requirments

Use Case	Req	Name	Use Case or Requirement Description
NF005	R003		Critical bug fixes will be fixed in 24 hours
NF005	R004		Vendors are expected to test their own software before releasing to Revisor's Office Development Team. We will not Beta test Vendor software in our production environment.
NF005	R005		System must pass compliance with the Americans with Disabilities act testing. At a minimum the testing areas must ensure changes to the system will not prevent access to the permanent records or prevent legislature from gaining the oversight of the rulemaking process.
NF005	R006		System must be unit and regression tested in-house. Unit and regression testing must be done in an automated fashion.
NF005	R007		System must be integration tested in-house
NF005	R008		Contract must have software escrow agreement provisions. These provisions require the licensor to deposit with a third party the source code with periodic updates in the event that the licensor is unwilling or unable to support the software.
NF006	R001	Intellectual Property	All documents and data stored in the system are the exclusive property of the State of Minnesota.
NF007	R001	System Support	Self-service assistance via a web page is desirable.
NF008	R001	Disaster Recovery	Time for full recovery of data is 24 hours or less.
NF008	R002		Time for full recovery of servers is 24 hours or less.
NF009	R001	Data Migration	16.724 GB of Beta System documents and data will be migrated into MARSS.
NF009	R002		SONARs from the LRL will be migrated into MARSS.
NF009	R003		Beta System documents and data will be accessible from MARSS on the 1st day of operation.
NF009	R004		14.1 GB of additional data may be added to the Beta System dataset in MARSS after MARSS is operational.
NF009	R005		The Beta System data will be flagged in a way to identify it as such. That is, the system can identify: a) Beta System dataset b) Beta System data entered using MARSS, to augment the Beta system dataset c) MARSS data
NF010	R001	Capacity	2.904 GB of new MARSS documents and data is estimated for the first year of operation.

Non-Functional Requirments

Use Case	Req	Name	Use Case or Requirement Description
NF010	R002		The system must be able to increase data capacity as needed.
NF010	R003		Retention of documents in the rulemaking record (RMR) is permanent i.e., forever.
NF011	R001	Data Integrity	Documents shall be verifiable as authentic. This process may follow the same standards as the Revisor's Office has set forth for compliance with Minnesota Statute Chapter 3E .
NF011	R002		Digital signatures will be supported as part of the MARSS project.
NF011	R003		Digital signatures may be applied by authorized users from their own devices. These users may be physically located anywhere in the state of Minnesota.
NF011	R004		Audit trail for changes to rulemaking record items. Metadata will be collected and stored upon every change to official items in the rulemaking record. This change tracking metadata will be accessible by authorized personnel.
NF011	R005		Monthly, the Revisor's Office will obtain a complete database copy of all data stored off-site. The copy will be delivered in a vendor-neutral format, or a format acceptable to the Revisor's Office.
NF012	R001	Data Import	Only authorized users can add data or documents to MARSS.
NF012	R002		Data being sent to MARSS by authorized users will be encrypted.
NF012	R003		At the time new data or documents are added to MARSS, the system will perform automated validation of the data to detect errors or inconsistencies.
NF012	R004		Supported file formats for rulemaking record (RMR) documents are[1]: a) PDF/UA (ISO 14289-1-compliant) b) PDF/A (ISO 19005-compliant) c) PDF (highest quality available, with features such as searchable text, embedded fonts, lossless compression, high resolution images, device-independent specification of color, space, content tagging; includes document formats such as PDF/X). d) PDF files containing hidden OCR text. e) PDF files containing only raster or vector data. This is the least desirable format. To support MARSS's text search functions, an OCR program will be used to create and add text to the PDF. The OCR program may misspell words, so it is preferable that the document creator deliver a text PDF.

Non-Functional Requirments

Use Case	Req	Name	Use Case or Requirement Description
NF012	R005		If a raster or vector PDF is imported into MARSS, the system will use an OCR program to create and add text to a new copy of the PDF. MARSS will store both the original raster PDF and the second PDF containing OCR text.
NF012	R006		Supported file formats for supporting (non-RMR) documents are: a) Documents b) Audio - MP# and c) Video MP4
NF012	R007		MARSS needs to support capturing pages out of the State Register. The captured pages will be stored as PDF files.
NF012	R008		The system will confirm to the authenticated user that the data import was successful or unsuccessful.
NF012	R009		Immediately following successful data import, the data will be searchable and retrievable by all users – authenticated and public
NF013	R001	Sensitive Data	Data stored in the MARSS system with be protected in accordance with Minnesota Statutes Chapter 13 and Minnesota Rules Chapter 1205.
NF013	R002		Private and confidential data about individuals shall only be accessible to people with the required permissions: either the agencies who created the information or the Courts. Examples of sensitive data include: a)o Personal addresses (protected under the MN Safe at Home Act) b) Defamatory Comments c) Trade Secrets
NF013	R003		MARSS will allow agencies to load both: the sensitive document and a redacted, public version.
NF013	R004		Protecting sensitive data is the responsibility of the document creator (i.e., an agency responsibility).
NF013	R005		MARSS UIs will: Remind authenticated users to handle sensitive data appropriately "It is the responsibility of the party or their attorney to determine if the document contains not public, confidential or sensitive information"
NF013	R006		Sensitive data will be encrypted in the data repository. Encryption by application software may be considered.
NF013	R007		Only a subset of authorized users can obtain keyword search results on sensitive documents. Public users will not receive search results identifying or displaying sensitive documents.
NF014	R001	Data Export/Delivery	Data being sent from MARSS to any destination will be encrypted.
NF014	R002		The ability to deliver data "feeds" to subscribers is desirable.
NF015	R001	Records Retention	Completed rule making records are permanent in nature. They MUST be preserved forever.

Non-Functional Requirments

Use Case	Req	Name	Use Case or Requirement Description
NF015	R002		Retention schedule for abandoned rules can be decided by the Agencies. Agencies are allowed to keep their own records retention requirements for non-adopted rules.
NF016	R001	Preservation	The Minnesota Historical Society will receive and maintain a digital copy of all rulemaking records.
NF016	R002		Only authorized users can: a) Delete data and documents, b) Delete sensitive documents
NF017	R001	Security	The system will accommodate a minimum of 300 authorized concurrent users.
NF017	R002		When a user is removed from the list of authorized users, all metadata about the user remains in the system, permanently. A user's authorization may expire, but their account information will remain in the system permanently.
NF018	R001	Authentication	Only Revisor staff can create or delete authorized users.
NF018	R002		Authentication must comply the latest MN.IT Enterprise Identity and Access Management Standard.
NF018	R003		If practical, the system will use the identity management solution implemented by MN.IT.
NF018	R004		As required by statutes, the public shall have access to all documents in the rulemaking record. If documents in the record have been redacted, the public will only have access to the redacted document and a reason for the redaction.
NF019	R001	Authorization and Permissions	Only Revisor staff control the assignment, and deletion of permissions for authorized users.
NF019	R002		Agency personnel shall have access to create and modify all records assigned to their agency.
NF019	R003		Document level permissions shall be supported.
NF019	R004		Role-based authorization is preferable.
NF020	R001	Performance for the Authenticated User	The response time for loading a documents into MARSS should not exceed 15 seconds.
NF020	R002		Response time performance will not degrade (become slower) as the total amount of data in the system increases.
NF020	R003		A minimum of 70 agencies have rulemaking authority.
NF021	R001	Performance for the Public, Non-Authenticated User	The system must support 200 concurrent, public users.

Non-Functional Requirments

Use Case	Req	Name	Use Case or Requirement Description
NF021	R002		The system must support 50,000 page views in 8 hours, on business days.
NF021	R003		Searches that return 300 documents should present results to the user in less than 5 seconds.
NF021	R004		Searches against metadata only should return results to the user in less than 3 seconds.
NF021	R005		Response time performance will not degrade (become slower) as the total amount of data in the system increases.
NF021	R006		Load intensive web pages that take longer than 3 seconds to complete should provide feedback to the user indicating that processing is occurring (e.g., a spinning hour glass)
NF021	R007		MARSS will support audio playback of two hour, MP3 files
NF021	R008		MARSS will support video playback of two hour, MP4 files
NF022	R001	Web Support	Supported Browsers are: a) Internet Explorer 7+ b) Google Chrome c) Mozilla Firefox d) Safari
NF022	R002		User interfaces shall adhere to the MN.IT Accessibility Standard.
NF022	R003		Web pages must be displayable on mobile devices.
NF022	R004		All URLs shall be designed as permanent URLs.
NF022	R005		Searches defined by a public user (using a MARSS form) can be saved by the user for future reuse; emailing to someone else.
NF022	R006		Creating accessible documents remains the responsibility the office creating each document.
NF022	R007		User interfaces will be evaluated by the following:
NF022	R008		Data entry screens and searching screens should be assistive. They must support tabbing for entry fields.
NF022	R009		Data entry screens and searching screens must have a spell check feature.
NF022	R010		Data entry screens and searching screens must provide users with selection boxes for things like topics, actions and other common meta data whenever possible.
NF022	R011		For date entry fields, the system will use equations to compute a probable date.
NF022	R012		The date entry field will be pre-populated with the probably date.

Non-Functional Requirments

Use Case	Req	Name	Use Case or Requirement Description
NF022	R013		The user may change the default date
NF022	R014		Date entries will have calendars for selecting dates.
NF023	R001	Programatic Interfaces	MARSS will provide a web service so Revisor software applications can dynamically READ MARSS data.
NF032	R002		MARSS will not provide an externally accessible web service to programmatically WRITE MARSS data.
NF023	R003		Using a predefined list of recipients, MARSS can programmatically send a notification to each recipient. Notifications will be sent using a TBD protocol (e.g. email, text, etc.).

Appendix C - Vendors Contacted/Evaluated

1. Digital Signature Vendors

Vendor	Contact
Docusign	Kevin Tamura Government Sales Rep Kevin.Tamura@docusign.com o: +1 415-767-2567 m: +1 408-427-6672 Ryan Legallet Ryan.Legallet@docusign.com Lay Boon Implementation Engineer LayBoon.Tran@docusign.com
Carahsoft	Josh Green Josh.green@carahsoft.com TJ Shaw Resale Account Rep for Adobe Tj.shaw@carahsoft.com
SHI International – Reseller for Docusign	www.shi.com Plaza VII, 45 S 7th St #2240, Minneapolis, MN 55402 (952) 888-1212
AdobeSign	Steve Saman ssaman@adobe.com Tiffany Person tiperson@adobe.com 847-224-2746

Vendor	Contact
eSignLive	<p>Aviv Lubell Aviv.Lubell@esignlive.com 888-745-2647</p> <p>Joe Dragone joe.dragone@esignlive.com</p> <p>Joseph McKairnes Principle Systems Engineer Joseph.McKairnes@esignlive.com 215-834-5352</p>
eSignNow	<p>Robin Duncan rduncan@barracuda.com</p> <p>Kaylyn Thomas kthomas@barracuda.com Sales Rep 408.342.5498</p>
RightSignature	<p>Brittany Vandagriff brittany.vandagriff@citrix.com</p> <p>805.724.3312</p>
GetAccept	Carl Carell carl@getAccept.com

2. User Authentication and Permissions

Vendor	Contact
Shibboleth	Scott Cantor cantor.2@osu.edu
<p>Note: Several vendors provide single sign-on and app level security along with other features. There weren't a lot of options found for standalone vendors in this area.</p>	

3. Secure File Transmission

Vendor	Contact
FireEye CyberSecurity Malware Protection	Hollie Bowman hollie.bowman@FireEye.com John Phyle john.phyle@FireEye.com
AirWatch by VMWare Mobility Management Software	http://www.air-watch.com/

4. Content (CMS) and Enterprise Data (EDM) Management Applications

Vendor	Contact
Granicus – Legistar	John Cichon VP John.Cichon@granicus.com O: 312.386.5976 C: 630.338.7873 Stephanie Delsignore stephanie.delsignore@granicus.com (D) 415-967-5587 (M) 617-947-4002
Laserfiche - Laserfiche Avante Laserfiche Rio	Ester Chow esther.chow@Laserfiche.com 562-988-1688 X123
MCCI – Laserfiche Reseller	Gareth Cales Vice President, Professional Services gcales@mccinnovations.com 850.701.0710
OPG-3 – Laserfiche Reseller	Ivan Franklin Vice President ifranklin@opg-3.com Direct: (651) 233-5068
GovDelivery	Richard Fong Developer Richard.fong@govdelivery.com Brian Szymanski Sales Brian.Szymanski@govdelivery.com

Vendor	Contact
Oracle	<p>Lance Kandel lance.kandel@oracle.com 703.364.4229 Mobile: 240.486.5070</p> <p>Abhineet Kumar Federal Middleware Account Manager abhineet.kumar@oracle.com 614-943-1936</p>
AST Corporation Oracle Reseller	<p>Timothy J. Brocker Sr IT Architect tbrocker@astcorporation.com 815-382-0232</p> <p>Gena DeRemer Sales GDeRemer@astcorporation.com Mobile: 608-3543631</p>
International Roll Call	rphysioc@roll-call.com
Xcential (referred by IRC Pres. Bill Schaefer)	<p>Mark W.C. Stodder President mark@xcential.com M: 414.520.7260 O: 414.269.9282</p> <p>Grant Vergottini CEO+Eng grant.vergottini@xcential.com 858.361.6738</p>
Propylon	<p>padraig.supple@propylon.com</p> <p>nicola.higgins@propylon.com VP of Eng Delivery US Tel: +1 614 356 7669 / Irl Tel: +353 86 385 7670</p>

Vendor	Contact
IBM FileNet	erice2@us.ibm.com Connecticut Legislature eRegs Kirstin.Breiner@cga.ct.gov (860) 240-0580 Chris Drake C.Drake@ct.gov 860-418-6403
Drupal (Core) 8	Gabe Ormsby Web Application Developer (using Drupal) University of Minnesota Libraries 612-626-3424
Divio – Django CMS	joel.burch@divio.com Head of Accounting & Controlling Tel.: +41 44 480 12 70
Nuxeo	Melinda Cormier 1-888-882-0969 contact@nuxeo.com
	Delbert A. Ross III Vice President, Worldwide Channel Sales 631.413.7914
<u>OnBase</u> (Hyland)	Lupe.Gimenez-Islas@onbase.com Paul.Clapp@onbase.com 216-385-0752 Govt Account Manager Supporting Databank Lew Holder Lew.Holder@onbase.com Kevin.flanagan@onbase.com 440-788-5723
Naviant Inc. – OnBase Reseller	Matt Hein mhein@naviant-inc.com Strategic Account Executive 608.848.0932 Direct

Vendor	Contact
Documentum D2	Nicholas Sabol 1-248-760-2027

5. Automated workflow applications

Vendor	Contact
Granicus	See contact information above.
Salesforce.com	Russel Schomberger Sr. Account Executive rschomberger@salesforce.com 248-648-0119
<u>Tallan</u>	Brian Sampson Director, Government Systems brian.sampson@tallan.com Office: (860) 368-3178 Mobile: (860) 6808217
Laserfiche/MCCI/OPG-3	See contact information above.
Nuxeo	See contact information above.

6. Permanent preservation of the rulemaking record

Vendor	Contact
Granicus	See contact information above.
Minnesota Historical Society for Dark Archiving	Shawn Rounds shawn.rounds@mnhs.org
<u>Accela</u>	Ken Anderson kanderson@accela.com (303) 507-2116

7. Other Add on Vendors

Vendor	Contact
Xilisoft Audio and Video encoding software	sales@xilisoft.com
Sliq Media Services Online Streaming Services	

Vendor	Contact
Ross Video Video and Video production specialists only	Brian Stumpf bstumpf@rossvideo.com (608) 798-9578
Affiliated Resource Group Communication Management Solutions for the Public Sector	Mike.Moran@aresgrp.com
Cisco WebEx	Michael McAlister mimcalis@cisco.com 1 408 922 4289

Appendix D- Swimlane diagrams of 4 rulemaking processes

A PDF file containing the following 4 rulemaking process is available from the Revisor's office. The size of each PDF page is 39 x 22 inches.

The remainder of this appendix contains thumbnail images of the 4 processes.

- (1) General Rulemaking Proceeding with Public Hearing
- (2) General Rulemaking Proceeding without Public Hearing
- (3) Good Cause Exempt Rulemaking Proceeding
- (4) Obsolete Repeal Rulemaking Proceeding

General Rulemaking Proceeding with Public Hearing

