Summary of Recommended Process/System Improvement Projects

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Introduction

The Montana Legislature's technology infrastructure is aging and at risk. Some of the core systems are nearing obsolescence. Others are operationally stable, but are based on designs that are at least 10 years old (and some much older). Action is needed soon to avoid significant problems.

This document describes several projects that will provide significant improvements and remediate several pressing risks. These projects are described in a list of major and minor recommended improvements (attached). This document describes the 8 major projects that deliver the most benefit or address known risks.

To complete all of the work described in these projects will require 3 to 4 calendar years. Timing of project activity must be coordinated with legislative activity and resource availability. In order to complete this development in time for use in the 2015 session, it is imperative that work begin as soon as possible, or these systems may not be ready until the next biennium's window of opportunity (see GANTT chart below). If no work occurs on these projects in 2011, the current systems will not be entirely replaced until the 2017 session or later – this creates significant obsolescence and cost risk.

The projects are described as stand-alone efforts, but have some dependencies between them. These descriptions represent program of activity and deliverables than may occur over the next 3 to 4 years. Some of these projects can be done earlier to familiarize staff with the technology, explore and prototype approaches and to build the beginnings of the entire platform that will ultimately be developed with the completion of the TextDBMS Replacement / XML Database project.

Proposed Project Schedules

Below is a timeline for the 8 major projects recommended as part of the MT Systems Analysis Project. The chart shows a possible schedule for each and some relationships and dependencies between these projects. The solid line indicates a dependency.
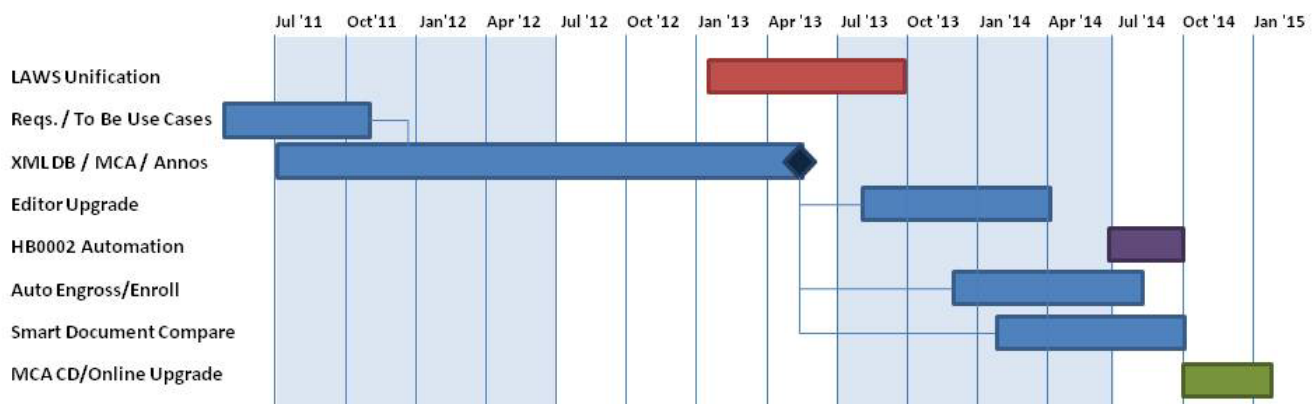
Effort / Costs for Recommended Projects

Option A. Fund and Complete All Recommended Projects

Project	PM	Analyst	DBA	Coder	Tester	FTE Mos	Est. $
Reqs. / Process design	1.75	14.00	-	-	-	15.75	$ 393,750
XML Repository / MCA / Annos	12.50	36.50	12.00	72.00	20.50	153.50	$ 3,837,500
Laws Database Unification	1.75	3.00	3.50	8.00	2.00	18.25	$ 456,250
Editor Upgrade	1.50	4.00	-	6.00	1.00	12.50	$ 312,500
HB2 Automation	1.00	2.00	-	2.00	1.50	6.50	$ 162,500
Auto Engrossing / Enrolling	1.50	3.00	-	6.00	3.00	13.50	$ 337,500
Smart Document Compare	1.50	3.00	-	6.00	3.00	13.50	$ 337,500
MCA Online/CD-ROM Upgrade	0.50	1.00	-	3.00	1.00	5.50	$ 137,500
Total	20.25	52.50	15.50	103.00	32.00	239.00	$ 5,975,000
					Mo / Yr	12	
					FTE Yrs	19.92	
					FTE / Yr	300000	
					Net	$ 5,975,000	
					FTE Mo$	$ 25,000	

Option B. Fund and Complete Core Text DB & Editor Upgrade

Project	PM	Analyst	DBA	Coder	Tester	FTE Mos	Est. $
Reqs. / Process design	1.75	14.00	-	-	-	15.75	$ 393,750
XML Repository / MCA / Annos	12.50	36.50	12.00	72.00	20.50	153.50	$ 3,837,500
Editor Upgrade	1.50	4.00	-	6.00	1.00	12.50	$ 312,500
MCA Online/CD-ROM Upgrade	0.50	1.00	-	3.00	1.00	5.50	$ 137,500
Total	14.50	41.50	12.00	81.00	22.50	187.25	$ 4,681,250
					Mo / Yr	12	
					FTE Yrs	15.60	
					FTE / Yr	300000	
					Net	$ 4,681,250	
					FTE Mo$	$ 25,000	

Option C. Fund and Complete Text DB Only

Project	PM	Analyst	DBA	Coder	Tester	FTE Mos	Est. $
Reqs. / Process design	1.75	14.00	-	-	-	15.75	$ 393,750
XML Repository / MCA / Annos	12.50	36.50	12.00	72.00	20.50	153.50	$ 3,837,500
MCA Online/CD-ROM Upgrade	0.50	1.00	-	3.00	1.00	5.50	$ 137,500
Total	13.00	37.50	12.00	75.00	21.50	174.75	$ 4,368,750
					Mo / Yr	12	
					FTE Yrs	14.56	
					FTE / Yr	300000	
					Net	$ 4,368,750	
					FTE Mo$	$ 25,000	

Note: The FTE annual rates above (FTE / Yr) assumes the work is done by contractors. Costs may be lower if internal staff can augment the development team.

Terminology Notes: The following terms are used throughout this document:

Coder	Application Developer
DBA	Database Administrator
FTE	Full Time Equivalent of a single person
FTE Mos	Effort expressed as FTE Month
FTE Mo$	Cost per FTE per Month
PM	Project Manager
Tester	Software Quality Assurance Tester

Project Descriptions

Detailed Requirements Gathering and Analysis: The "next step" in regard to all other recommendations listed below, is to conduct a detailed and comprehensive requirements analysis exercise. This can be commenced immediately and expediently (spring 2011). A Request for Proposals (RFP) for this work would be prepared in the fall of 2010.

TextDBMS Replacement / XML Database: This project entails completely replacing the TextDBMS system which is currently used to produce the MCA and Annotations publications. The content preparation for MCA and Annotations updates can be greatly simplified in a XML Solution (database & applications) approach. This effort is described in more detail in the MT Repository project plan / description.

LAWS Database Unification: Each legislative session currently has a separate database instance. Reconfiguring the database to support a continuous multi-session instance will reduce hosting costs and improve access to prior session information and reporting across multiple sessions. This effort will require database design work and configuration, possible changes to integration points, and data migration of old session information to the new unified database instance.

Editor Upgrade/Reintegration: The current WordPerfect editor has attractive features and is already highly integrated via Perfect Script, but it is an aging system whose future is unpredictable. This project involves switching to one or more alternative editors will reduce risks and provide opportunities for unique functionality to be applied to processes such as engrossing and enrolling. This project should evaluate the use of structured XML editing tools and thin client editors for application throughout the legislative process. It will entail evaluating features of different editors, configuring the new editor(s), building the integration scripts tied to LAWS and elsewhere, testing the new integration and stylesheets, and training users in their use.

HB2 Automation: Streamline the HB 0002 transformation process to simplify budget narratives production. The current MBARs extract can be loaded into a simple XML database and can be processed automatically to have tagging and markup applied, and pages generated.

Automated Engrossing / Enrolling / Preview: Tools can be developed that can automatically apply engrossing and enrolling changes and other document transformations.

Smart document compare tools for drafters / editors / proofreaders: A "smart" document compare tool is one that is aware of the XML markup and document version differences, and only highlights significant content changes (and not markup or boilerplate differences). This is a non-trivial requirement of an XML solution, and will improve the reviewing of changes being implemented considerably.

MCA Online / CD-ROM System Upgrade: XML solution and query-based MCA Online (instead of persistent HTML files) could save a lot of manual content preparation and be more current. This upgrade will be required when the repository is replaced due to the changes in the content and markup that will be made. Independent of the repository project, the production of the MCA Online & CD-ROM could be simplified with an XML database and set of XQuery processing applications. These queries can be used in conjunction with the larger repository when it is completed, so this effort does not need to wait for that project to be