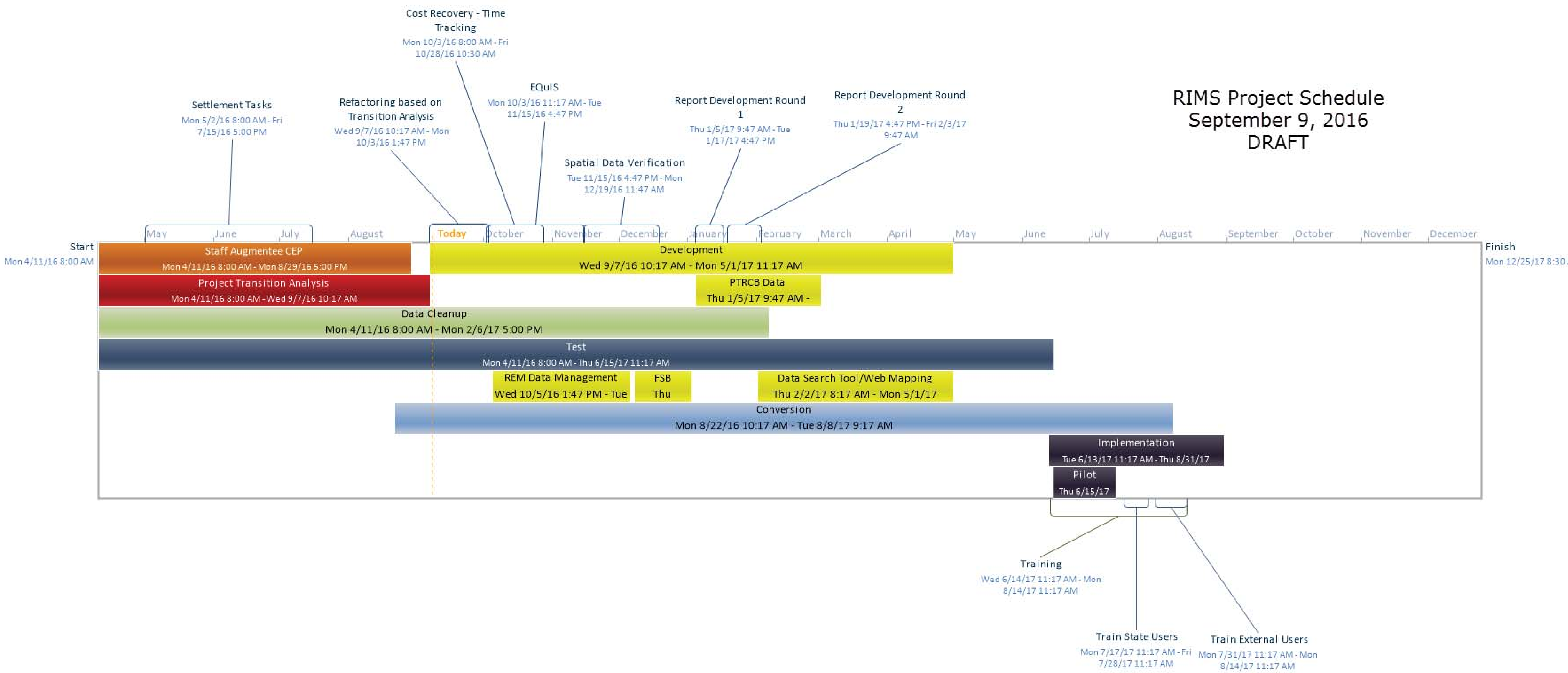
RIMS Project Schedule
September 9, 2016
DRAFT



Tracking Remedial and Environmental Actions Data System (TREADS)

Gap Analysis for Transition of Design, Development, and Implementation from Windsor to DEQ

Montana Department of Environmental Quality

September 8, 2016

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1 INTRODUCTION

1.1 About this Document

This document contains a discussion of the current state of the RIMS Project and the Tracking Remedial and Environmental Actions Data System (TREADS) and a corrective action plan to address deficiencies in both. Input to the document included:

- TREADS Priority 1 Requirements
- Project Change Requests
- Requirements Change Requests
- TREADS Bug List
- TREADS Backlog
- TREADS Deliverable Acceptance Requests
- DEQ Database Review Meeting Minutes
- DEQ transition analysis team feedback
- Knowledge gained from technical training received in .NET MVC and Angular.js

The DEQ Transition Analysis Team, referred to as the "team" within this document was comprised of the following DEQ staff:

Name	Organization	Role
Staci Stolp	WMRD/ATS	Project Manager/Systems Analyst (SA)
Kelly Hanna	ITB/ADS	Technical Lead
Bruce Arnold	ITB/ADS	Database Administrator
Sean Behlmer	ITB/ADS	Systems Analyst (SA)/Developer
Byrne Manley	ITB/ADS	Systems Analyst (SA)/Developer
Kate Cederlund	ITB/ADS	Systems Analyst (SA)/Developer
Kim Wells	WMRD/ATS	Observer/Trainee

1.2 Document Control

The DEQ Project Manager or designee will control this document via Document Number and Version Number, with Version 1.0 representing the first major release.

1.3 Revision History

Version	Date	Name	Description
0.1	09/2/2016	Staci Stolp	Initial Draft
0.2	09/07/2016	Staci Stolp	Incorporated Jenny Chambers Comments, feedback from transition analysis team, and revised budget
0.03	09/08/2016	Staci Stolp	Updated summary with full cost estimates

1.4 Reference Documents

Document No.	Document Title	Location	Author
NA	RIMS_P1_RD02_RTM_Consolidated.xlsx	http://deq.sharepoint.mt.gov/teams/Projects/equisEval/Execution/02a-Requirements/RIMS_P1_RD02_RTM_Consolidated.xlsx	Staci Stolp and Byrne Manley
PCR – 001 to PCR - 033	Project Change Requests	http://deq.sharepoint.mt.gov/teams/Projects/equisEval/Lists/RIMS_Tracker/PCR.aspx	Associated past and present team members
RCR – 001 to RCR - 041	Requirements Change Requests	http://deq.sharepoint.mt.gov/teams/Projects/equisEval/Lists/RIMS_Tracker/RCR.aspx	Associated past and present team members
NA	TREADS Backlog (User Stories/Sprints) at the time of the Windsor/DEQ Settlement Agreement	http://deq.sharepoint.mt.gov/teams/Projects/equisEval/Planning/Transition_Analysis/RemainingSprintsforTREADS_20160818.xlsx	Associated past and present team members
NA	Open List of TREADS Bugs	OpenListofTREADSBugs_20160818.xlsx This list is also available via the DEQ's JIRA site for TREADS: https://mtdeqtreads.atlassian.net *Note: You must log-into JIRA to see these bugs*	Associated past and present team members

1.5 Terms and Acronyms

Term	Definition
ADS	Application Development Section
AML	Abandoned Mine Lands
ATS	Administrative and Technical Section
BDS	Business Development Section
CSCB	Hazardous Waste Site Clean-up Bureau
DDI	Design, Development, and Implementation
DEQ	Department of Environmental Quality
DIR	Decision Information Request
FFB	Federal Facilities and Brownfields
FSB	Federal Superfund Bureau
ITB	Information Technology Bureau
ITSD	Information Technology Services Division

Term	Definition
PCR	Project Change Request
PTC	Petroleum Tank Cleanup
PTRCB	Petroleum Tank Release Compensation Board
RCR	Requirements Change Request
SAS	Systems Administration Section
SSU	State Superfund Unit
UST	Underground Storage Tank
WMRD	Waste Management and Remediation Division
WUTMB	Waste and Underground Tank Management Bureau

2 Background of Project and System

In August 2014, DEQ contracted with Windsor Solutions to serve as the Design, Development, and Implementation (DDI) vendor that would develop TREADS, ultimately replacing the department's legacy systems supporting:

1) Underground Storage Tank Section
2) Petroleum Tank Cleanup Section
3) Federal Facilities and Brownfields Section
4) Petroleum Tank Release Compensation Board
5) State Superfund Unit
    a) Site Response Section
    b) State Superfund Section
6) Federal Superfund and Construction Services Bureau
7) Abandoned Mine Lands Section

The following goals and objectives address how TREADS should operate in order to best support its associated programs. All goals and objectives are applicable to all programs unless otherwise noted.

1) The new system must be flexible, modular, reliable, easy to update, and easy to maintain.
    a) The State must be able to make changes easily within the system, including changes to reports, queries, tables, and business rules. The State must be able to maintain business rules if they choose to do so. This flexibility and updateability is required for the system to be responsive to evolving program business needs.
    b) The system must be maintained over the long-term with relative ease. End users must be able to perform this long-term maintenance.
    c) The system must be scalable and modular.
2) The system must be user-friendly from the State and external user (i.e., laboratories, consultants, regulated community, and the public) perspectives.
    a) The new system must be easy to learn for new and existing State employees. The onscreen text must be written in plain English, so a user can look at a screen and know

why he or she is on that screen, and know what to do to use the screen successfully. State employees must not have to remember illogical codes or workarounds to use the system. The system must be intuitive.

b) The system must incorporate a search functionality to make it more useable.
c) The system must incorporate system training modules and/or a system help function.
d) The system must incorporate policy training modules and/or links to department policy manuals. This will allow staff to answer questions quicker and more accurately, improving staff, business partner, and/or clients' experiences.
e) The system must have a common "intake" function so site and other shared information only needs to be entered once.
f) The system must be as paperless as possible.
g) The system must be accessible to all, including people with disabilities.
h) The system should be able to accept external information (e.g., sample data, plans, and reports).
i) The system must include spell check for case notes and notices.
j) The system must have flexible and easy to use correspondence, to which changes can be made easily. System-generated correspondence must have basic word processing functionality including word wrap, the ability to have different line spacing, and a variety of formatting options (e.g., fonts, and bold and italics).
k) At a minimum, online availability is required between 8:00 a.m. and 5:00 p.m. Mountain Time seven days a week. The system must be available for longer hours in special circumstances (e.g., to support large-scale emergency response).
l) The system must have a consistent look and feel.

3) The system must be able to exchange data with other systems easily.
   a) The system must coordinate with and be compatible with other information systems. Data must be exchanged between systems easily.
   b) Interfaces must be intelligent and real-time. The system needs to be able to interface with other Montana State systems and other non-State program partners (i.e., laboratories).
   c) System users must be able to smoothly transition to other software applications (e.g., MS Word, Excel, Adobe Acrobat Reader, ArcGIS) from the system.
4) The system must have the ability to create reliable, comprehensive, flexible, usable, ad-hoc and canned reports for case management, sample and field data management, and program management.
   a) The reporting capabilities must demonstrate accountability to and compliance with State and Federal standards.
   b) The system must automatically produce managerial reports, including case load reports, and the system must give staff the ability to query data to generate any other reports needed (ad-hoc reports).
   c) The system must have the ability to create accurate Federal reports (e.g., Underground Storage Tank Performance Measures Report).
   d) The system must have the ability to implement and accurately measure legislative performance measures.
   e) The system must be able to produce consistent reporting statistics.
   f) The system must retain accurate records.
   g) Reports must be clear, flexible, accurate, and timely.

5) The system must have robust security and controllable system access.
   a) Data within the system must be secure and accessible only to those with proper access.
   b) The system must have varying levels of access. Confidential information needs to be accessible only to people with a certain security level.
   c) The system must have theft and fraud prevention built in to it.
   d) The system must contain a history of each user ID and the dated actions taken by specific users.
6) System development processes must be efficiently and effectively coordinated with other systems.
   a) The system must be completed successfully under budget and on time.
7) The system must have well-defined data fields and rules. The system must serve the right people with the right services at the right time.
   a) Data must be accurate and reliable in the new system.
   b) The system must contain strong controls to limit and correct errors. Certain errors must be able to be corrected without programmer involvement.
   c) The system must minimize agency-caused errors.
8) The system must support efficient case management.
   a) The system must contain an effective case management capability
   b) The system must retain a history of case action, which must be easily searchable.
   c) The system must help department staff manage their time efficiently.
9) The system must support sample and field data management.

Key constraints associated with adoption of the new system include:

- The new system must be web-based.
- The new system must use State and Department accepted application and database technology
  - Application Technology
    - Windows servers are running IIS 7.
    - New applications are predominantly .NET applications.
    - We use SITSD's servers and hosting, rather than third party vendors.
    - Web applications must conform to the Federal 508 standard, where possible.
    - If the system has a public facing side there may be some design limitations in place (DEQ's website look and feel, or the "egov template" look and feel).
  - Database Technology
    - Oracle and SQL Server are the State's database standard. The Department does not have a preference between these two database platforms.
  - Sample Data Management Software
    - Current version of EQuIS Enterprise, Professional, EDP, and Data Quality Module.
  - GIS Technology
    - Reference the provided Location Based Application standard ITB-GIS-STD-001; section 2.5 Web based Mapping Applications. This document is located in the Procurement Library. The name of the zip file is DEQ_IT_Standards[1].

- All geodatabases and subsequent mapping/spatial services against them will be done through ArcGIS Server creating REST endpoints to access them. (Refer to ITB-GIS-STD-001-2.5-2.b.ii in the procurement library).
- ArcGIS API for JavaScript is the only DEQ ITB GIS supported web mapping development API
  - It is not specifically tied to an OS or browser plugin like Flex or Silverlight
  - It marries directly with supported spatial services from ArcGIS Server
  - It leverages/supports new web concepts like mobile development and HTML5 & CSS3.

- The new system must conform to Federal, State, and Department data standards, where possible.
- The new system must conform to State and Department security standards
- The proposed design, development, and implementation costs must remain within budget for priority 1 requirements. The budget for design, development, and implementation (does not include maintenance, supporting software, or hardware) of RIMS is $1,820,000.
- The State has approximately $150,000 set aside to support hardware and software costs (e.g., SITSD service rates and purchasing additional hardware or software). We have some flexibility with how we use these funds (e.g., in the case of a COTS solution we would expect more cost would be attributed to software costs compared to a custom system.) The State has also set aside some contingency funding for the project to address unforeseen project costs.

TREADS, as proposed by Windsor Solutions, was to be comprised of a combination of software products developed by Windsor Solutions, custom-developed software modules, and third-party software tools. Currently, the custom TREADS software integrates with the following applications from Windsor and third-party vendors:

- Windsor Solutions
  - nForm – Permitting and Release forms
  - nSpect – Inspection forms
  - nSite – GIS viewer and environmental data warehouse
- Alfresco – Document Management
- Brava for Alfresco – Viewer and redaction tool for documents in Alfresco
- EQuIS – Sample data management.

The custom TREADS software was also intended to integrate with the following State of Montana systems:

- ePass – Authentication for internal state and external users
- Common Checkout – On-line payment system (for eChecks and credit cards)
- SABHRS – HR and employee time tracking data
- SABHRS – Financial data on invoices to responsible parties (for cost recovery)
- MT Pi– Contracts for work plans and task orders with consultants and contractors
- SIA – Interface for submitting invoice transactions to SABHRS
- CEDARS – Enforcement Actions
- ArcGIS – Spatial data

- DST/WMA – Data Search Tool and associated Web Mapping Application - GIS viewer and environmental data warehouse.

Windsor's nSuite products are integrated with a custom-developed TREADS-specific data management module that is focused on supporting the workflow process needs of the DEQ programs associated with TREADS. Document management and sample data management capabilities are provided by third party tools provided by Alfresco/IGC and EarthSoft. The diagram below (Figure 1) outlines the proposed application architecture for the TREADS:

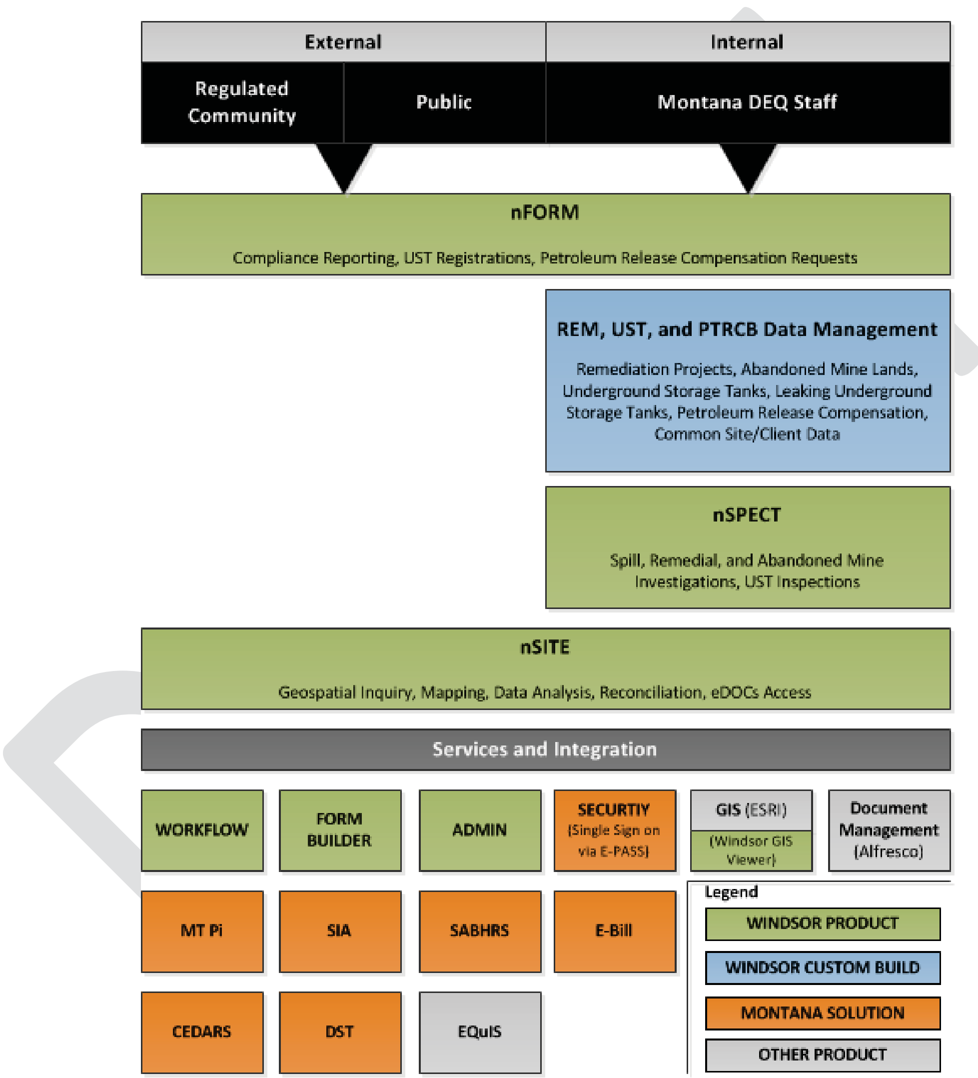

Figure 1. Proposed TREADS Architecture

On Jul 15, 2016, DEQ and Windsor entered a settlement agreement which ended the relationship between the two parties. The project and system was incomplete at the time.

3 CURRENT STATE

3.1 Project

3.1.1 Deliverables

Table 1 displays the status of the project deliverables for the RIMS Project. The RIMS Project was using an Agile development methodologies and thus, Design, Development, and Testing status reflect the % complete of TREADS functionality as the documentation and tasks associated with these project phases were being completed incrementally.

Table 1. Project Deliverable Status

Project Phase	Deliverables	Status
1. Prepare for Development		
a. Project Plan	1) Project Plan - including schedule, staffing, quality, and communication plans 2) Risk Register	Complete
b. Requirements Validation and Workflow Process Analysis	3) Training for product owners and other stakeholders on the Agile/Scrum process 4) Requirements validation and workflow process analysis workshop sessions 5) Product Backlog - a prioritized list of user stories that are aligned with the workflow processes 6) "To-Be" workflow process diagrams for each application area (Remediation, UST, PTRCB) 7) Requirements Traceability Matrix - Updated based on workflow analysis and validation 8) Change Management request for changes to requirements requested by DEQ.	Complete
c. Design and Architecture	9) Technical Architecture Specification: Network, Security, and Data architecture. 10) User Interface mock-ups and software prototypes 11) User Interface Style Guide - Visual design (colors, fonts, etc.) and user interactions 12) Information Model for each application area (Remediation, UST, PTRCB) 13) Entity Relationship Model and Data Dictionary for each application area (Remediation, UST, PTRCB) - Initial skeleton sufficient for starting development. 14) Design Specification Document - Initial skeleton sufficient for starting development 15) Product Backlog – Updated 16) Requirements Traceability Matrix – Updated 17) Change Management requests for changes to requirements requested by DEQ.	65% Complete
2. Development (sub-phases in parallel)		
a. Detailed Design and Development	18) Application software release candidate installed and running a Test environment in the Windsor Cloud - each iteration 19) Detailed Design Workshop sessions - for user stories in a sprint	65% Complete

Table 1. Project Deliverable Status

Project Phase	Deliverables	Status
	20) Product Backlog - Updated each iteration for user stories and acceptance criteria in a sprint. 21) Design Specification Document - Updated each iteration based on completed stories. This includes user interface mock-ups, business rule decision tables, and other information needed to support the user acceptance criteria for user stories. 22) Information Model for each application area (Remediation, UST, PTRCB) - Updated 23) Entity Relationship Model and Data Dictionary for each application area (Remediation, UST, PTRCB) - Updated each iteration. 24) Test Plan - Updated each iteration based on completed stories. Requirements Traceability Matrix - Updated each iteration based on completed stories. 25) Change Management requests for changes to requirements requested by DEQ.	
b. Data Conversion	26) Data converted from the legacy data sources into the new RIMS database 27) Data conversion scripts installed and ready to run in the User Acceptance Test (UAT) environment (in the Windsor Cloud or hosted internally by DEQ) 28) Data Conversion Design Specification: Covers the strategy, requirements, data mapping details, and test plan for data conversion work. 29) Data Conversion Test Results Report 30) Entity Relationship Model and Data Dictionary for each application area (Remediation, UST, PTRCB) - Updated each iteration. 31) Product Backlog - Updated each iteration based on completed stories. 32) Requirements Traceability Matrix - Updated each iteration based on completed stories. 33) Change Management requests for changes to requirements requested by DEQ.	65% Complete
3. Implementation		
a. User Acceptance Test and Training	34) User Acceptance Test (UAT) Plan 35) Training Plan and Training Materials 36) Training Classes Conducted 37) User Acceptance Test Environment - RIMS application software installed and running in a DEQ testing environment 38) Data converted from the legacy data sources into the new RIMS database 39) UAT Test Results recorded (in Windsor's Issue and Bug Tracking software) 40) Test Results Report 41) Product Backlog - Updated each iteration based on completed stories. 42) Requirements Traceability Matrix - Updated each iteration based on completed stories. 43) Change Management requests for changes to requirements requested by DEQ.	65% Complete
b. Pilot Operations	44) Pilot Operations Environment-RIMS application software installed and running in a DEQ testing environment 45) Data converted from the legacy data sources into the new RIMS database	Not Started

Table 1. Project Deliverable Status

Project Phase	Deliverables	Status
	46) Help Desk support services 47) Pilot Operations issues recorded (in Windsor's Issue and Bug Tracking software) 48) Pilot Operations Results Report 49) System Administration Guide 50) User Guide (Operations Manual) for each application area: Remediation, UST, and PTRCB. 51) Product Backlog - Updated each iteration based on completed stories. 52) Requirements Traceability Matrix - Updated each iteration based on completed stories. 53) Change Management requests for changes to requirements requested by DEQ.	
c. Production Deployment	54) Implementation Plan 55) Operational Readiness Assessment 56) Post-implementation Operational Monitoring Plan 57) Operations Plan 58) Obtain State Approval for Production Deployment 59) Application software installed and running in a Production environment at a DEQ hosted site 60) Data converted from the legacy data sources into the new RIMS database 61) Source Code 62) System Administration Guide - Updated based on Production deployment 63) Product Backlog - Updated each iteration based on completed stories. 64) Requirements Traceability Matrix - Updated each iteration based on completed stories. 65) Change Management requests for changes to requirements requested by DEQ	
4. Operations and Maintenance		
a. Operations and Software Maintenance	66) Help Desk support services 67) Software maintenance services 68) Change management request for training, configuration changes or software enhancements 69) Monthly Operations Report	Not Started
b. Turnover	70) Turnover Plan 71) Knowledge Transfer Strategy 72) Operational Resources 73) Knowledge Transfer Services	Not Started

3.1.2 Budget

Table 2 displays the status of the budget for the RIMS Project as of August 10, 2016. Total hard costs (i.e., not including DEQ staff costs), is $1,520,737.17

Table 2. Current Budget

Cost Category	Expected	Actual	Variance	Comments
State Costs				
DEQ Personnel Services (estimated)	$2,150,000.00	$1,650,000.00	$0.00	Soft costs for project
Communications	$335.00	$0.00	$335.00	Mail/FedEx other communication costs related to the project
Equipment and Supplies	$6,624.00	$0.00	$6,624.00	Includes paper, pens, binders, printing costs, etc. Includes copiers, printers, and computers for State Staff.
SITSD Hosting	$51,401.73	$39,224.42	$12,177.31	
Original Estimate	*$17,196.00*	*$17,196.00*	*$0.00*	
PCR-014 Software and SITSD hosting increases	*$34,205.73*	*$22,028.42*	*$12,177.31*	
Software	$285,903.73	$245,126.75	$40,776.98	
SITSD VPN	*$5,715.00*	*$1,507.90*	*$4,207.10*	
COTS Software	*$280,188.73*	*$243,618.85*	*$36,569.88*	
Original Estimate	*$245,983.00*	*$243,618.85*	*$2,364.15*	
PCR-014 Software and SITSD hosting increases	*$34,205.73*	*$0.00*	*$34,205.73*	
Training	$84,767.00	$48,447.00	$36,320.00	
Original Estimate	*$38,000.00*	*$35,146.00*	*$2,854.00*	$28,846 dollars was spent prior to the kick-off of the DDI project to train core team members. This funding was not officially assigned to the project when we moved to the DDI phase of the project.
PCR-008, Alfresco Administrator Training	*$16,767.00*	*$0.00*	*$16,767.00*	
PCR-026, Technical Training	*$30,000.00*	*$13,301.00*	*$16,699.00*	
Other	$9,928.00	$0.00	$9,928.00	Travel and meeting costs
Contracted Costs				
Design, Development, and Implementation	$1,527,605.80	$1,061,749.80	$465,856.00	
Windsor DDI Contract	*$1,061,749.80*	*$1,061,749.80*	*$0.00*	
Base Contract	*$1,820,000.00*	*$1,061,749.80*	*$758,250.20*	
Windsor Settlement (less contract)	*($758,250.20)*	*$0.00*	*($758,250.20)*	
Alfresco Consulting Services	*$5,856.00*	*$0.00*	*$5,856.00*	

Table 2. Current Budget

Cost Category	Expected	Actual	Variance	Comments
IT Staff Augmentation Contract(Pending)	*$300,000.00*	*$0.00*	*$300,000.00*	
PCR-003 EQuIS Adoption and Configuration	*$160,000.00*	*$0.00*	*$160,000.00*	
Independent Verification and Validation	$165,038.60	$126,189.20	$38,849.40	POD Data Solutions is our IV&V vendor
Base Contract	*$132,960.00*	*$126,189.20*	*$6,770.80*	
PCR-025, Contract extension - Mod 1	*$28,463.60*	*$0.00*	*$28,463.60*	
Mod 2	*$3,615.00*	*$0.00*	*$3,615.00*	Mod 2 was put into place to correct mathematical errors with Mod 1 calculations
Total including retainage and holdbacks[1]	**$4,281,603.86**	$3,170,737.17	$185,757.46	
Total minus soft costs	**$2,131,603.86**	$1,520,737.17	$185,757.46	
Contingency	$488,396.14			
Total including Contingency and Soft Costs	$4,770,000.00			

3.1.3 Resources

The current resources assigned to the project include:

1) Project Steering Committee (Table 3)
2) Core Team (Table 4)
    a) Project Manager
    b) Product Owners
    c) Development Team
    d) Subject Matter Experts
3) Independent Verification and Validation Contractor (Table 5)

Table 3. Current Project Steering Committee Members

Name	Organization	Role	Email Address	Voting Member
Dan Chelini	DEQ CIO	DEQ Chief Information Officer (CIO)	dchelini@mt.gov	Yes
Vacant	Fiscal Services	Manager, Accounting		Yes
Jerry Steinmetz	ITB/ADS	Chief, Application Development Section (ADS)	jsteinmetz@mt.gov	Yes
Dave Nagel	ITB/BDS	Chief, Business Development Section (BDS)	dnagel@mt.gov	Yes

Table 3. Current Project Steering Committee Members

Name	Organization	Role	Email Address	Voting Member
Mike Jares	ITB/SAS	Chief, System Administration Section (SAS)	mjares@mt.gov	Yes
Terry Wadsworth	PTRCB	Executive Director, Petroleum Tank Release Compensation Board (PTRCB)	twadsworth@mt.gov	Yes
Jenny Chambers	WMRD	Waste Management and Remediation Division Administrator (Sponsor)	jchambers@mt.gov	Yes
Autumn Coleman	WMRD/AML	Supervisor, Abandoned Mines Section (AML)	acoleman@mt.gov	Yes
Tom Stoops	WMRD/FSB	Chief, Federal Superfund Bureau (FSB)	tstoops@mt.gov	Yes
Mike Trombetta	WMRD/CSCB	Chief, Hazardous Contaminated Site Clean-up Bureau (CSCB)	mtrombetta@mt.gov	Yes
Ed Thamke	WMRD/WUTMB	Chief, Waste and Underground Tank Management Bureau (WUTMB)	ethamke@mt.gov	Yes
Nat Carter	ITB/ADS	DEQ GIS SME	ncarter@mt.gov	No
Roy Duelfer	ITB/ADS	Information Systems Supervisor (Web, SharePoint, and .NET Systems)	rduelfer@mt.gov	No
Leanne Hackney	WMRD/WUTMB/UST	Underground Storage Tanks Supervisor	lhackney@mt.gov	No
Sherry Blair	WMRD/FS	WMRD Fiscal Services Supervisor	sblair2@mt.gov	No
Jeff Kuhn	WMRD/CSCB/FFB	Federal Facilities and Brownfields Supervisor	jkuhn@mt.gov	No
Rebecca Ridenour	WMRD/CSCB/PTC	Petroleum Tank Cleanup Section (PTC) Supervisor	rridenour@mt.gov	No
Denise Martin	WMRD/CSCB/SSU	Site Response Supervisor	demartin@mt.gov	No
Moriah Bucy	WMRD/CSCB/SSU	State Superfund Supervisor	mbucy@mt.gov	No

Table 4. Current Core Project Team Members

Name	Organization	Role	Email Address
Staci Stolp	WMRD/ATS	Project Manager/Systems Analyst (SA)	sstolp3@mt.gov
Development Team			
Vacant	ITB/ADS	Technical Lead/Manager	
Bruce Arnold	ITB/ADS	Database Administrator	barnold@mt.gov
Sean Behlmer	ITB/ADS	Developer	sbehlmer@mt.gov
Byrne Manley	ITB/ADS	Developer	bmanley@mt.gov
Kate Cederlund	ITB/ADS	Developer	kcederlund@mt.gov
Contractor 1	TBD	Senior Developer	
Contractor 2	TBD	Senior Developer	
Contractor 3	TBD	Senior Database Architect/Administrator	

Table 4. Current Core Project Team Members

Name	Organization	Role	Email Address
Roy Duelfer	ITB/ADS	Information Systems Supervisor	rduelfer@mt.gov
Nat Carter	ITB/ADS	Lead, GIS	ncarter@mt.gov
Product Owners			
Terry Wadsworth	PTRCB	Product Owner, PTRCB	twadsworth@mt.gov
Autumn Coleman	WMRD/AML	Product Owner, Abandoned Mine Lands	acoleman@mt.gov
Jason Seyler	WMRD/CSCB/FFB	Product Owner, FFB	jseylor@mt.gov
Rebecca Ridenour	WMRD/CSCB/PTC	Product Owner, PTC	rridenour@mt.gov
Moriah Bucy	WMRD/CSCB/SSU	Product Owner, State Superfund	mbucy@mt.gov
Tom Stoops	WMRD/FSB	Product Owner, Federal Superfund	tstoops@mt.gov
Leanne Hackney	WMRD/WUTMB/UST	Product Owner, UST	lhackney@mt.gov
Subject Matter Experts			
Kim Wells	WMRD/ATS	SME, Abandoned Mines Database	kwells@mt.gov
Sue Fairchild	WMRD/ATS	SME, LUST Database	sfairchild@mt.gov
Patrick Skibicki	WMRD/CSCB/FFB	SME, Brownfields and DSMOA	pskibicki@mt.gov
Scott Gestring	WMRD/CSCB/FFB	SME, DSMOA Back-up	sgestring@mt.gov
Reed Miner	WMRD/CSCB/PTC	SME, Petroleum Tank Cleanup	scala@mt.gov
Denise Martin	WMRD/CSCB/SSU	SME, State Superfund	demartin@mt.gov
Sherry Blair	WMRD/FS	SME, Fiscal Services	sblair2@mt.gov
Keith Large	WMRD/FSB	SME, Federal Superfund Data	klarge@mt.gov
Pam LaFountaine	WMRD/WUTMB/UST	SME, UST Database	plafountaine@mt.gov

Table 5. Independent Verification and Validation Contractor

Name	Organization	Role	Email Address
Ralph Whitaker	POD Data Solutions	Project Manager	Ralph.Whitaker@poddatasolutions.com
Patty Busch	POD Data Solutions	Analyst	Patty.Busch@poddatasolutions.com

3.2 System

The focus of the first production release of TREADS was to address 1,518 Priority 1 requirements intended to support the following high-level requirement categories:

1) Underground Storage Tanks
2) Remediation
3) Petroleum Tank Release Compensation Board
4) Common (e.g., Document Management, Security, etc.)
5) Contractor Services (include DDI activities for the project)
6) Interface (e.g., requirements for interfacing with other DEQ and State systems)

It is these requirements for which provide the basis for TREADS' functionality. The requirements traceability matrix (RTM) indicates the following status of the following areas in TREADS (Table 6):

Table 6. TREADS Percent Complete based on Priority 1 Requirements

Requirement Category	# Priority 1 Requirements	Priority 1 Requirements with no Development	% Complete
Underground Storage Tanks	126	16	87%
Remediation	462	207	55%
Petroleum Tank Release Compensation Board	152	62	59%
Common	738	231	69%
Contractor Services	30	30	0%
Interface	10	10	0%
Totals	**1518**	**556**	**64%**

Below is a summary of the areas under each requirement category that are incomplete:

Requirement Type/Category/Subcategory	Requirements Count
Common	**231**
Actions	**1**
Public Participation & Comment	1
Administrative	**1**
System Administration	1
Document and Records Management	**2**
Data Retention	1
Workflow	1
Financial Management	**155**
3rd Party Buy-Sell-Agreement	6
Accounts Payable	2
Bankruptcy	22
Bids	1
Contracts	12
Eligibility - Brownfields	1
Eligibility - PRTCB	6
Financial Assurance	19
Governmental Accounting Standards Board	1
Grants	5
Liens	13
Maintenance	5
Probate	15
Property Acquisition	12
Reports	3
Settlement	14
Task Orders	1
Time Tracking	17
General	**20**
Data Integrity	1
De-Duplication	4
Forms	1
Office Automation	1
Reports	13
Graphical User Interface & Navigation	**1**

Requirement Type/Category/Subcategory	Requirements Count
Online Help	1
Site Information	**38**
eAMLIS Administrative Information	5
Facility Site	14
Feature Information/ eAMLIS Program Areas	1
Feature/Problem Information	1
Geographic Coordinates	15
Release/Event Information	2
Staff Management	**2**
Employee Information	1
Supervisor/Program Management	1
Technical	**11**
Audits	1
Database	1
Exception Handling	2
External Interface Architecture	5
Security	2
Contractor Services	**30**
Contractor Support	**30**
Construction	1
Conversion	1
Design	1
Functional/Business Training	6
Help Desk	9
Implementation	1
Installation & Configuration	3
Operations and Maintenance	1
Pilot	1
Requirements Analysis and Validation	1
Start-up	1
Technical Training	2
Testing	1
Turnover	1
Petroleum Tank Release Compensation Board	**62**
Appeal Information	6
Claim Information	25
Forms	8
Insurance	2
Invoice Information	8
Rate Information	6
Release Information	7
REM	**207**
Coal/Hard Rock Maintenance & Monitoring	**11**
Annual Inspection	1
General Inspection	7
Re-Vegetation and Weed Control	1
Warranty Inspection	2
Coal/Hard Rock Priority	**2**
General	1

Requirement Type/Category/Subcategory	Requirements Count
Reclamation Investigation	1
Construction	**3**
Determine AML Litigation	1
Final Construction Report	1
Warranty Support	1
Control Implementation	**3**
Actions	3
Control Monitoring	**11**
Actions	7
Referral	4
Control Pre-Implementation	**1**
Actions	1
Control Termination	**4**
Actions	2
Control Termination Checklist	2
Controls	**46**
Engineering Control	4
IC Event	15
IC Instrument	8
IC Location	2
IC Objective	3
IC Resource	14
Delisting	**1**
Actions	1
LUST Trust	**4**
Cost Recovery	4
Public Facing Tools	**89**
Search	5
Tier 1 Results	7
Tier 1 Results-AML	1
Tier 2 Results	1
Tier 2 Results - Action Information	15
Tier 2 Results - Contaminant Information	17
Tier 2 Results - Documents	5
Tier 2 Results - General Information	9
Tier 2 Results - Location Information	12
Tier 2 Results - Release Information	2
Web Mapping Application	15
Release, Reporting, Investigation, and Confirmation	**1**
Leak Line	1
Reports	**24**
Actively Managed Sites	1
Affiliation By Site Report	1
Archived Records by Site	1
Brownfields Registry	1
Closure Status	1
Closures receiving NFCA	1
Complete Site Information Report	1
Confirmed Release Report	1

Requirement Type/Category/Subcategory	Requirements Count
Controls Report	1
Cost Recovery Summary Report	1
Emergency Response Report	1
Enforcement Report	1
Interim Actions Report	1
LUST Trust Fund Forecasting	1
LUST Trust Semi Annual Report	1
LUST Trust Site Performance Report	1
Petro board Report	1
Potential Sites list	1
Program Statistics Report	1
Public Comment Report	1
Response Priority Report 2	1
Site Planning Report	1
Sites Listed or Delisted by Year	1
Sites Under Order	1
Voluntary Cleanup and Redevelopment Program	**7**
Actions	1
Financial	3
Land Use	2
Operation and Maintenance	1
Underground Storage Tank	**16**
Reports	16
Grand Total	**546**

At the time Windsor stopped work on the project, the Project was conducting User Acceptance Testing (UAT) on the developed portions of the system. Between testing conducted by Windsor and DEQ UAT staff, there were 105 open items on the bug list as reported in JIRA (Table 7). Of these bugs, 41 had been confirmed to be "bugs." The remaining reported items still need to be triaged by the team to determine if the reported items is a bug, a user training issue, or related to functionality that has yet to be developed for the system.

This list included one Blocker, one Critical, and 39 High priority bugs. The remaining bugs had a Low or Medium priority level. Of the reported items, a few items of note include: 23 items were associated with Document Management, 6 were associated with data migration, 9 were related to workflow, 16 were associated with UST, 8 were associated with PTC, 7 items were associated with Environmental Events and Interests, and 10 were related to Administrative functions. A summary of the "components" affected by the reported items are listed in Table 8.

Table 7. Open TREADS bugs reported to date

Key	Summary	Priority	Status	Component/s
MTTREADS-6730	US Zip Code needs to display in TREADS UI formatted as 5-4 digits (i.e.,, 12345-6789)	Medium	Confirmed	TREADS- User Experience
MTTREADS-6921	UAT: User Admin suggestions	Medium	Triage	TREADS- Admin

Table 7. Open TREADS bugs reported to date

Key	Summary	Priority	Status	Component/s
MTTREADS-7363	Facility Date fields accept invalid data	Medium	Confirmed	TREADS- Site and Contact Management
MTTREADS-7504	Inspector Name is legacy data is not appearing in the control (Legacy data)	Medium	On Hold	TREADS- Admin
MTTREADS-7652	USER EX- I.E. Browser anomalies	Low	Confirmed	TREADS- User Experience
MTTREADS-7665	USER EX- System appears Locked up/ Screen Freezes (IE Only)	Low	On Hold	TREADS- User Experience
MTTREADS-7832	nFORM - The Breadcrumbs used in nFORM do not seem to respond via Treads	Low	On Hold	nForm
MTTREADS-7838	PDF files wont print correctly with default reader associated with Windows 8	Low	Confirmed	nForm
MTTREADS-7982	Facility/Site not shown for Permit notification in notifications list	High	Confirmed	TREADS- Notifications
MTTREADS-8016	User unable to create a Release Report after checking for notification duplicates.	Medium	Confirmed	TREADS- Workflow
MTTREADS-8061	Form Submission - Submission ID clickable link does nothing	Low	Confirmed	TREADS- Workflow
MTTREADS-8068	No notice sent to user that an nFORM revision of a submission (ex 24 hr. report) failed.	Low	Triage	nForm, PTC - Reporting, Investigation, Confirmation
MTTREADS-8084	Permissions to delete a report from dashboard is not set up	Medium	Confirmed	TREADS- Admin
MTTREADS-8090	nForm allows the user to select invalid data per TREADS	Medium	On Hold	nForm, PTC - Initial Response and Abatement, PTC - Reporting, Investigation, Confirmation
MTTREADS-8094	Institutions -Advanced Search field says "Search by Name, Abbreviation,"	Low	Confirmed	TREADS- Site and Contact Management, TREADS- User Experience
MTTREADS-8140	Process Role-Security Role dropdown not in alphabetical order	Low	Confirmed	TREADS- Admin
MTTREADS-8145	Forms - Alfresco Directory dropdown not alphabetical	Low	Confirmed	TREADS- Admin, TREADS- User Experience
MTTREADS-8154	Facility Detail, right utility bar link to Inspections is not a hypertext link if "Scheduled" inspections only	Medium	Confirmed	UST - Oversight Inspections
MTTREADS-8199	MAJOR - Pipe Installation (Supplement B) & Closure Import failed due to timeout	Medium	Confirmed	nForm
MTTREADS-8218	Release - Receptors - line highlighting	Low	Confirmed	TREADS- User Experience

Table 7. Open TREADS bugs reported to date

Key	Summary	Priority	Status	Component/s
MTTREADS-8278	Violations – When Creating New Violation, User allowed to Save without required field "Citation Significance"	Medium	Confirmed	UST - Compliance Inspections
MTTREADS-8280	Violations – When Creating New Violation or Editing an existing Violation, User allowed to Save Due Date and Violation Closed Date that are before Issued Date	Medium	Confirmed	UST - Compliance Inspections
MTTREADS-8317	UAT: Logging into Windsor test cloud through ePass	Medium	Confirmed	TREADS-Authentication
MTTREADS-8335	Facility - Affiliation - incorrect start date errors on Save	Medium	Confirmed	TREADS- Site and Contact Management
MTTREADS-8336	Notification Rule List Status does not match detail status	Medium	Confirmed	TREADS- Notifications
MTTREADS-8432	Document Access Level dropdown problem on Create New User action	Medium	Confirmed	TREADS- Admin
MTTREADS-8463	Double click on save required to confirm a petroleum release	Medium	Confirmed	PTC - Initial Response and Abatement
MTTREADS-8465	Release / SSU Event History Date Invalid	Medium	Confirmed	TREADS-Environmental Events and Interests Management
MTTREADS-8468	UAT: Suspect release folder is separate of confirmed release folder	Medium	Prepare to Triage	PTC
MTTREADS-8504	UAT: BF Eligibility Form loading errors	Medium	Prepare to Triage	FFB, nForm
MTTREADS-8509	UAT: nForm Submission - Time out errors	Medium	Client Testing	nForm, TREADS-Workflow
MTTREADS-8512	UAT: Cannot save document from Communications Tab on State Superfund and Release pages	High	Prepare to Triage	TREADS- Document Management
MTTREADS-8513	Disable or Hide 'Create New' folder option on Documents tab if don't have permissions	Medium	Confirmed	TREADS- Document Management, TREADS- User Experience
MTTREADS-8514	UAT: What logic is used to populate a letter template when there is more than one record available?	Medium	Prepare to Triage	TREADS- Form Letter Generation
MTTREADS-8518	UAT: View Document option not available to user (unless "restricted" access level); user selects download option to view	Medium	Prepare to Triage	TREADS- Document Management
MTTREADS-8519	Can't upload empty alfresco document	Medium	Confirmed	Alfresco
MTTREADS-8531	UAT: Closed date for petroleum release not appearing on right-hand bar (IE & Firefox)	Medium	Confirmed	PTC, TREADS- User Experience
MTTREADS-8532	Error saving user with dup email	Medium	Confirmed	TREADS- Admin

Table 7. Open TREADS bugs reported to date

Key	Summary	Priority	Status	Component/s
MTTREADS-8534	UAT: "Missing" listed as date in Status History for PTC releases	Medium	Client Testing	PTC, SSU
MTTREADS-8538	UAT: Erroneous constraint rules for End Date on Environmental Interests tab on Facility	High	Confirmed	TREADS- Environmental Events and Interests Management
MTTREADS-8543	Form Submission Delete (trash can icon) throws error	Medium	Confirmed	TREADS- Admin
MTTREADS-8544	UAT: Time stamp in TREADS off by 1 hour (UAT environment)	Medium	Confirmed	TREADS- User Experience
MTTREADS-8545	UAT: Error message is received when attempting to assign a process step or submit an nForm	Medium	Confirmed	TREADS- Workflow
MTTREADS-8546	UAT: Legacy Document Conversion	Medium	In Progress	TREADS- Document Management
MTTREADS-8547	UAT: Under 'Service Request' when you click on the "View History' button, nothing happens	Medium	Prepare to Triage	TREADS- Workflow
MTTREADS-8548	UAT: Task assigned to me is past due. No notification is received, (email or notification).	Medium	Confirmed	TREADS- Notifications
MTTREADS-8549	UAT: Once a document is loaded into a project, facility or TREADS; that document may not be deleted unless the deletion is performed by two DEQ staff. External users shall not be allowed to delete documents from the system.	Medium	Prepare to Triage	TREADS- Document Management
MTTREADS-8552	Document Search - Advanced search does not have search and select options	Medium	Confirmed	TREADS- Document Management, TREADS- User Experience
MTTREADS-8599	Do not get "Yes" / "No" removal confirmation on Communication entry created.	Medium	Confirmed	TREADS- Document Management
MTTREADS-8603	Edit Communication option and function for Document after removing Communication associated incorrect	Medium	Confirmed	TREADS- Document Management
MTTREADS-8604	Unable to Edit Communication after Deleting Document associated	Medium	Confirmed	TREADS- Document Management
MTTREADS-8616	AML Project - Upload Documents - cancel message	Medium	Confirmed	TREADS- Document Management
MTTREADS-8617	UAT: Error trying to login to EPASS with State Employee Credentials	Blocker	Triage	TREADS- Authentication
MTTREADS-8618	UAT: FFB, PTC & PTRCB document folders are being created using the event ID instead of the Release ID	Medium	Confirmed	TREADS- Document Management
MTTREADS-8619	UAT: Editable release on release details page	High	Confirmed	PTC
MTTREADS-8622	UAT: Checking documents in after editing in Alfresco	Medium	Triage	PTC

Table 7. Open TREADS bugs reported to date

Key	Summary	Priority	Status	Component/s
MTTREADS-8627	UAT: Status History should contain the complete history and reflect the correct status change dates.	Medium	Triage	TREADS- Environmental Events and Interests Management
MTTREADS-8628	UAT: Some facilities that have more than one release or are associated to more than one program are coming into TREADS as multiple facilities.	Medium	Triage	Legacy Data
MTTREADS-8629	UAT: There are facilities in TREADS that are also in TREADS as Institutions	Medium	Triage	Legacy Data
MTTREADS-8634	UAT: The system does not allow deletion of a document from documents tab	High	Triage	TREADS- Document Management
MTTREADS-8635	UAT: The system does not allow deletion of a document from documents tab	High	Triage	TREADS- Document Management
MTTREADS-8636	UAT: System allows deletion of communications, but does not delete associated document	High	Triage	TREADS- Document Management
MTTREADS-8637	UAT: Deletion warning prompt flashes, but does not allow selection of yes/no before deleting	High	Triage	TREADS- Document Management
MTTREADS-8638	UAT: Cannot enter an Individual and Institution in the Affiliations Tab	High	Triage	TREADS- Environmental Events and Interests Management
MTTREADS-8654	UAT: Odd error with Inspection Type Code Reference table	High	Triage	TREADS- Admin
MTTREADS-8655	UAT: Task cannot be edited/deleted from the State Superfund Work Plans tab	Medium	Triage	SSU
MTTREADS-8656	UAT: State Superfund Work Plans Tab, Work Plan Estimated Total field does not calculate as it should	Medium	Triage	SSU
MTTREADS-8657	UAT: Cannot save updates made to an existing communication	High	Triage	TREADS- Document Management
MTTREADS-8658	UAT: cannot save a new Affiliation in a Facility where an environmental event has not been created	High	Triage	TREADS- Environmental Events and Interests Management
MTTREADS-8659	UAT: cannot save a new SSU Event for a new or existing site	High	Triage	TREADS- Environmental Events and Interests Management
MTTREADS-8663	UAT: Search and Select fields erroneously entering information	High	Triage	TREADS- Document Management, TREADS- Site and Contact Management
MTTREADS-8664	UAT: UST cannot create service request	High	Triage	UST - General
MTTREADS-8665	UAT: UST Operating Permit Owner Information is incorrect (data conversion)	High	Triage	Legacy Data - UST/FITS

Table 7. Open TREADS bugs reported to date

Key	Summary	Priority	Status	Component/s
MTTREADS-8666	UAT: While testing in the Windsor cloud 6.0.357; Cannot delete an erroneously created service request/workflow	Medium	Triage	TREADS- Workflow
MTTREADS-8667	UAT: Tank information entered on nForm 1-V and/or Tank Questionnaire did not load to Tank tab of the Facility.	Medium	Triage	PTRCB - User Experience
MTTREADS-8669	UST-FITS data migration to TREADS errors	High	Triage	UST
MTTREADS-8670	UST - Treads not populating data from nForm	High	Triage	UST - Notification of Underground Storage Tanks
MTTREADS-8671	UST Licensee Renewal - cannot create service request to renew license	Medium	Triage	UST - Licensing-Renewal
MTTREADS-8672	UAT: UST cannot save a new violation for a facility	Critical	Triage	UST - Compliance Inspections
MTTREADS-8673	UAT: UST facility violation - cannot search and select on citation field	High	Triage	UST - Compliance Inspections, UST - User Experience
MTTREADS-8674	UAT: UST new violation for a facility - no default for citation significance	High	Triage	UST - Compliance Inspections, UST - User Experience
MTTREADS-8675	UAT: UST new violation does not create a default due date	High	Triage	UST - Compliance Inspections, UST - User Experience
MTTREADS-8676	UAT: UST new violation - issue date is not a default number	Medium	Triage	UST - Compliance Inspections, UST - User Experience
MTTREADS-8677	Release Number is required for AML Service Request	High	Triage	TREADS- Workflow
MTTREADS-8678	User can't create a new Facility/Site if steps are not completed in order	High	Triage	TREADS- Site and Contact Management
MTTREADS-8679	UAT: Data Migration - Individuals and Institutions should be linked	High	Triage	Legacy Data
MTTREADS-8680	UAT: Data Migration The institution and associated individuals should be associated systematically to the appropriate facility	High	Triage	Legacy Data
MTTREADS-8681	UAT - UST - New Facility Notification	High	Triage	UST, UST - Notification of Underground Storage Tanks
MTTREADS-8682	UAT - UST Owner/Operator Change Error	Medium	Triage	UST - Notification of Underground Storage Tanks
MTTREADS-8683	UAT - UST delete tanks button	Medium	Triage	UST - Notification of Underground Storage Tanks
MTTREADS-8684	UAT: Data Migration - Each address for an individual or an institution should be identified by program	High	Triage	Legacy Data, Legacy Data - PETRO, Legacy Data - UST/FITS

Table 7. Open TREADS bugs reported to date

Key	Summary	Priority	Status	Component/s
MTTREADS-8685	Service Request: No way to delete a Service Request	High	Triage	TREADS- Workflow
MTTREADS-8686	AML Problems Spatial Data	High	Triage	TREADS- Site and Contact Management
MTTREADS-8687	Facility/Site-Alias Tab- Available to Public Checkbox	High	Triage	TREADS- Site and Contact Management
MTTREADS-8688	AML Projects-Communications Tab-List	High	Triage	TREADS- Document Management
MTTREADS-8689	Facilities/Sites and AML Projects Documents and Communications Tabs	High	Triage	TREADS- Document Management
MTTREADS-8690	AML Projects Folders	High	Triage	TREADS- Admin, TREADS- Document Management
MTTREADS-8691	Task List Search- Task Status Dropdown List	Medium	Triage	TREADS- Workflow
MTTREADS-8692	1-R Eligibility Import Error	High	Triage	PTRCB - Eligibility
MTTREADS-8693	Form 1 V Error	High	Triage	PTRCB - Eligibility
MTTREADS-8694	UAT: When adding a new environmental interest, the user is not automatically taken to the new interest	Medium	Triage	TREADS- Environmental Events and Interests Management
MTTREADS-8695	UAT: TREADS automatically defaults the most recently added number to display on the main Individuals page	High	Triage	TREADS- Site and Contact Management
MTTREADS-8696	UAT: Not all Facility/Site communications are showing up under the State Superfund communications portion for the same site	High	Triage	TREADS- Document Management
MTTREADS-8697	UAT: There is no display of file name on Communications tab	High	Triage	TREADS- Document Management
MTTREADS-8698	UAT - UST nForm Supplement C	High	Triage	UST - Construction Permitting

Table 8. Summary of TREADS components associated with reported bugs

TREADS Component	Count of Component/s
Alfresco	1
FFB, nForm	1
Legacy Data	4
Legacy Data - UST/FITS	1
Legacy Data, Legacy Data - PETRO, Legacy Data - UST/FITS	1
nForm	3
nForm, PTC - Initial Response and Abatement, PTC - Reporting, Investigation, Confirmation	1

Table 8. Summary of TREADS components associated with reported bugs

TREADS Component	Count of Component/s
nForm, PTC - Reporting, Investigation, Confirmation	1
nForm, TREADS- Workflow	1
PTC	3
PTC - Initial Response and Abatement	1
PTC, SSU	1
PTC, TREADS- User Experience	1
PTRCB - Eligibility	2
PTRCB - User Experience	1
SSU	2
TREADS- Admin	8
TREADS- Admin, TREADS- Document Management	1
TREADS- Admin, TREADS- User Experience	1
TREADS- Authentication	2
TREADS- Document Management	18
TREADS- Document Management, TREADS- Site and Contact Management	1
TREADS- Document Management, TREADS- User Experience	2
TREADS- Environmental Events and Interests Management	7
TREADS- Form Letter Generation	1
TREADS- Notifications	3
TREADS- Site and Contact Management	6
TREADS- Site and Contact Management, TREADS- User Experience	1
TREADS- User Experience	5
TREADS- Workflow	8
UST	1
UST - Compliance Inspections	3
UST - Compliance Inspections, UST - User Experience	4
UST - Construction Permitting	1
UST - General	1
UST - Licensing- Renewal	1
UST - Notification of Underground Storage Tanks	3
UST - Oversight Inspections	1
UST, UST - Notification of Underground Storage Tanks	1
Grand Total	105

In addition, seven requirements change requests were submitted by the UST Program to clarify existing requirements and add new functionality for the project's consideration and include:

#	Title	Description	Justification/Reason
RCR - 035	Tank and Piping History	UST Tank and Piping History Requirements	Current database design does not meet the need for UST and PTRCB tank and piping history requirements.
RCR - 036	Tank serial number	The UST Program wants to be able to track the serial number of a tank in TREADS.	To assist owner regarding warranty information.
RCR - 037	Tank Buoyancy Calculation	The UST Program wants to maintain the buoyancy calculation for a tank.	To assist DEQ with construction compliance
RCR - 038	Tank recertification/repair date	The UST Program wants to track the tank recertification/repair date in TREADS.	To assist DEQ with construction compliance
RCR - 039	Tank lining/upgrade date	The UST Program wants to track the tank lining/upgrade date in TREADS.	To assist DEQ with construction compliance
RCR - 040	2015 EPA Rule Changes for UST	The UST Program needs to track and report on the following information: 1. Tank overfill device make and model (TREADS and Construction Permit) 2. Tank overfill prevention test date 3. Tank spill bucket test date 4. Tank double-walled spill bucket - check box (TREADS and Construction Permit) 5. Spill bucket continuous interstitial monitoring – check box (TREADS and Construction Permit) 6. Pipe MLLD function test date 7. Pipe ELLD function test date 8. Pipe sensor function test date 9. Certification for compatibility with alternate/biofuels	To support new 2015 EPA Rules
RCR - 041	UST Risk Assessment Model Fields	The UST Program will need to track and report on the following fields for their new Risk Assessment: • Under-dispenser containment • Tank riser containment • Age of tank • Age of oldest tanks • UDWSPZ (aka Drinking water protection zone) • Depth to groundwater • Soil Texture • Population density • Distance to POD • Compliance Points • Distance to streams • In Wetland • Distance to Lakes • Aquifer Access Zone • Water Quality Assessment • Current LUST • Previous LUST	To support UST's new Risk Assessment Model

#	Title	Description	Justification/Reason
		UST would need assistance with implementing the risk assessment process as well and would like a separate estimate for the analysis support needed to ferret out the process as well as the software development.	

3.2.1 Database

As mentioned in section 2, TREADS is comprised of multiple third-party applications and components as well as a custom DEQ business application also referred to as TREADS. The full system is comprised of several core databases associated with these applications, including:
1) TREADS
2) nSpect
3) nForm
4) nSite
5) EQuIS
6) Alfresco

All of these databases are hosted at SITSD. The database technology is Microsoft SQL Server 2012.Specific details regarding these databases can be found in the TREADS Technical Architecture Document.

While contracted with DEQ, Windsor Solutions used an Agile Development Methodology. As a result, the custom TREADS module and its associated database were developed iteratively and revised as needed per the Windsor development team, each development cycle. After the completion of each development cycle, Windsor submitted a Deliverable Acceptance Request (DAR) to DEQ for review. Feedback provided on DARs 8 – 15 indicated that DEQ's primary concern with the TREADS database was its incomplete normalization.

During the transition analysis phase of the project, the DEQ transition analysis team identified the following items they specifically felt should be refactored:
1) Normalize Tank table and absorb the PTRCBTankEligibility table
2) Collapse the 100 plus reference tables into a code/decode table
3) Restructure the workflow tables to allow more flexibility of use, specifically, to allow:
   a) Reuse of processes by multiple programs without the need to maintain a separate process for each program when the processes used by more than one program are the same.
   b) The association of sub-processes to high-level processes.
4) Add a cross reference table for 'Address,' 'Correspondence,' and 'Questions' so that a user can tie one document to multiple facilities, etc.
5) Collapse the following tables into the workflow engine to help reduce the multiple data stores between the workflow and data management tables that lead to data integrity issues resulting in incorrect or poor information for program decision making:
   a) Project
   b) Work plan
   c) Appeal
   d) Construction Permit Mod
   e) Enforcement Request
   f) Inspection
   g) Institutional Control
   h) Invoice/Claim
   i) Permit Closeout Requirements

j) Violation
k) Voluntary clean up
l) Sub-invoice claim
m) PTRCB tank eligibility
n) Process
o) Activity
p) Eligibility payment
q) Invoice/Claim adjustment

3.2.2 Code

The custom portion of TREADS is built using a variety of coding languages, development tools, development frameworks, and packages. The list of languages, tools, and frameworks is documented in (Table 9).

Table 9. Languages, Development Tools, and Development Frameworks used to Develop TREADS

Languages	Tools	Frameworks and Other
C#	Visual Studio	.NET MVC
aspx	NuGet	Angular.js
JavaScript	SQL Server Management Studio	REST web services
SQL		dynamic JavaScript webpage generation
xml		
html		
CSS		

The list of 3[rd] party packages used in the development of the custom TREADS module is documented in (0).

Table 10. 3rd Party Packages used in the Development of TREADS

3rd Party Packages	Description / Notes	Folder
Ajax	JavaScript library for asynchronous data transfers	TREADS
Alfresco	.net file management	TREADS
Alfresco	Commercial Enterprise Content Management System	Alfresco
Angular	JavaScript MVC library	TREADS
Apache Log4Net	.net error logging	TREADS
Autofac	.net - inversion of control container.	TREADS
Autofac		Tests (automated testing)
Automapper	.net - Maps one object to another. "AutoMapper is a simple little library built to solve a deceptively complex problem - getting rid of code that mapped one object to another."	TREADS

Table 10. 3rd Party Packages used in the Development of TREADS

3rd Party Packages	Description / Notes	Folder
Bcrypt	.net password encryption	TREADS
bootstrap	front end framework. (html, CSS, jQuery)	TREADS
Cassette	.net - builds JavaScript, CSS, and html templates	TREADS
DocX	.net - Word Document manipulate	TREADS
Edge.JS	calls .net functions from JavaScript	TREADS
Elmah	.net error logging, and handlers	TREADS
FakeO		Tests (automated testing)
HtmlAgilityPack		Tests (automated testing)
Humanizer	.net - formatter for strings, dates timestamps, numbers	TREADS
Ionic	javasscript mobile app SDK	TREADS
jQuery	JavaScript library	TREADS
KellermanSofware		Tests (automated testing)
lodash	JavaScript utility functions	TREADS
lodash.js	JavaScript library for handling arrays, numbers, objects, strings, etc.	TREADS
moment.js	JavaScript Parse, validate, manipulate, and display dates	TREADS
nClam	.net - file upload Virus Scanner	TREADS
Net.SourceForge.Koogra	.net excel file reader	TREADS
NewtonSoft.json	.NET code for generating JSON JavaScript objects. It is also part of the Windsor. Commons package	TREADS
Newtonsoft.Json		Tests (automated testing)
nForm	Windsor Solutions online form submission and management tool	TREADS
nSite	Windsor Solutions Spatial Data Viewer	TREADS
nSpect	Windsor Solutions mobile data collection software	TREADS
NVelocity	.net - generates documents from templates.	TREADS
Owin	.net -OWIN defines a standard interface between .NET web servers and web applications. The goal of the OWIN interface is to decouple server and application,	TREADS
PetaPoco	.net - Database ORM, it is included in the Windsor.Commons package	TREADS
Quartz	.net job scheduler	TREADS
restangular	JavaScript library for RES API data transfer, works with angular js	TREADS
RestSharp	.NET REST service tool	TREADS
SAML2	security assertion markup language. Authentication and SSO	TREADS

Table 10. 3rd Party Packages used in the Development of TREADS

3rd Party Packages	Description / Notes	Folder
Selenium	integration testing tool	Tests (automated testing)
SHA3Portable	c++ hashcode algorithms	TREADS
SQL Server Compact 4.0	.net SQL dll files. refer to section 1b of the SQL Server Compact 4.0 software license terms.	TREADS
stable.js	JavaScript sortable array	TREADS
techtalk SpecFlow	Use SpecFlow to define, manage and execute automated acceptance tests from business-readable specifications. SpecFlow acceptance tests follow the Behavior Driven Development (BDD) paradigm: define specifications using examples understandable to business users as well as developers and testers.	Tests (automated testing)
ThinkTecture	mobile and cloud code.	TREADS
validatejs	JavaScript validation	TREADS
WebDriver	automated testing tool	Tests (automated testing)
Windsor.Commons	.net custom made Windsor package; web validation, MVC, workflow, GIS…	TREADS
Xunit	unit testing	Tests (automated testing)

Overall, the DEQ transition analysis team did not see any catastrophic issues with the custom TREADS code that Windsor Solutions provided to DEQ. The recommendation is to move forward with finishing development using this code base. With that said, the development team has expressed the following concern related to the TREADS code that will add risk to the effort:

1) The application code has very specific requirements enforced through C#. This complicates determining which layer a bug occurs in (application, business logic, database or some combination). Some of these examples include that a table name cannot end with a 's', the table primary key must have the table name with 'Id' attached at the end, and the MVC model must have the primary key, changedon, changedby, createdon, createdby fields removed which is not commonly seen when using MVC.
2) Future development will also present the same challenges as it is not common to have imposed custom rules that restrict how database tables can be named or the form they must follow through the application code.
3) TREADS uses custom Windsor packages (reusable pieces of code) for which DEQ does not have source code. They do not know at this time, if these packages will present a problem with future development. Therefore, DEQ will add the fact that we do not have the source code for these packages as a risk. These packages include:
   a) Windsor.Commons.Core
   b) Windsor.Commons.Gis
   c) Windsor.Commons.Integration
   d) Windsor.Commons.Integration. Msmq

e) Windsor.Commons.MVC
f) Windsor.Commons.NewtonsoftJson
g) Windsor.Commons.PetaPoco
h) Windsor.Commons.WebValidation
i) Windsor.Commons.WorkFlow
j) Windsor.Commons.AspNet
k) Windsor.Commons.Authentication
l) Windsor.Commons.Authentication.Web
m) Windsor.Commons.Autofac
n) Windsor.Commons.AutofacAspnet
o) Windsor.Commons.AutofacMVC
p) Windsor.Commons.Language
q) Windsor.Commons.Messaging
r) Windsor.Commons.NVelocity

4) The Windsor custom HTML tags re-write standard html tags. For example, the text input fields use a custom Windsor directive that defines a text input across several javascript and html files. Errors have occurred while trying to use these custom tags when developing the workflow prototypes.
5) Reverse engineering functions that use the compiled C# Windsor code adds a significant amount of time.

The development team envisions a multitier approach for dealing with the above risks. For example, the Windsor custom developed tags should be replaced with standard HTML tags during any development activities. There would be little to no time effect on the schedule. Using standard html tags would take less time than using Windsor tags (there is a learning curve to implementing any custom developed tool of course). For example, replace the 'wnd-input' tag with the standard html 'input' tag.

The custom code restraints are a risk effecting bug fixing and development times, however, it is felt this cannot be avoided for release 1. The custom code should be removed after the first release. Details of how the custom code is removed would be discussed then.

3.2.3 Data Migration and Cleanup

As with database and application development, Windsor was working through data migration and cleanup of legacy data iteratively with each program throughout the project. The conversion process used by Windsor is outlined in the TREADS Data Conversion Plan. As outlined in Section 4.1 of the Conversion Plan, the conversion process was a relatively cumbersome multistep process. The process typically took several days from start to finish.

Initial testing of converted data by programs had identified several issues with data quality and conversion business rules. Some of these issues were recorded in the JIRA bug list, in addition, to being communicated directly to Windsor, including issues with key core data sets associated with Individuals, Institutions, Affiliations, and Facility/Sites. Windsor and DEQ were in the process of prioritizing and addressing these issues prior to the termination of the contracting relationship between the two entities.

As part of the Transition Analysis, the team reviewed Windsor's conversion process and rules. The team found errors in the conversion scripts, largely related to the core datasets discussed in the previous paragraph and inconsistencies between the projects data mapping documents and conversion scripts. The transition analysis team recommends revising the conversion process to address these errors and to allow for rapid conversion of legacy production data into the TREADS format. For development, the goal will be to refresh testing data from the current legacy production environment in 30 minutes or less. This will require technology to interface with oracle and SQL server in the same program. The development team will write a new front end allowing selection of only a portion of data to be rapidly refreshed, that is can be directly initiated by select non-IT team members and process is not expected to take more than 10 – 15 minutes.

Existing conversion will be evaluated and reorganized in the system. The code may need to be modified to only convert a subset of data instead of all. Program specific data will be done ahead of time, if time allows. Two-weeks prior to a program's development sprint a data conversion/clean up sprint will be scheduled. Known data elements will be evaluated for integrity and converted several times to test. Data identified in the development cycle will be included in future data cleanup and conversion sessions.

Similarly, the development team also is in the process of developing a front end for data cleanup that captures what action a user would like to have performed on the record identified as a potential issue. These action options may include Ignore(I), Delete(D), Merge(M), etc. After a user has identified these items, a batch process will be run (daily, weekly, monthly, or upon request) to go back into the legacy system and perform deletions and merges for the user. Missing data will be completed by the user in the legacy system.

4 Potential Alternatives to Address Deficiencies

Four development alternatives were evaluated based on feedback from the team:

TREADS Development Activities	Alternative 1	Alternative 2	Alternative 3	Alternative 4
REM Data Management 1) Refactoring of facilities and projects for a) AML b) FFB c) SSU 2) State Superfund Data Management 3) Federal Superfund Data Management	✓	✓	✓	✓
PTRCB Data Management	✓	✓	✓	✓
EQuIS Integration (facility and contacts) and updates to reference values	✓	✓	✓	✓

TREADS Development Activities	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Spatial Data Verification Tool	✓	✓	✓	✓
Time Tracking for Cost Recovery	✓	✓	✓	✓
Report Development	✓	✓	✓	✓
Public Facing, Data Search Tool and Web Mapping Integration	✓	✓	✓	✓
Bug fixes	✓	✓	✓	✓
PCR 27 - Data Cleanup	✓	✓	✓	✓
PCR 28 - Data Conversion and Migration	✓	✓	✓	✓
PCR 30 – Adding missing cross reference tables	✓	✓	✓	✓
PCR 33 – PTRCB Priority 1 Reports and Letters	✓	✓	✓	✓
PCR 31 - Reference/Code Table Consolidation		✓	✓	✓
PCR 32 - UST RCRs 35 - 40		✓	✓	✓
PCR 29, Phase 1 and 2 – Design/Build Application/Database Infrastructure Components for refactored workflow.			✓	✓
PCR 29, Phase 3, Refactor and Design pages for non-management users				✓

The following assumptions have been made regarding the Alternatives evaluated for this document:

1) All alternatives are developed using the existing code base and subsystems (e.g., nForm, nSpect) DEQ received from Windsor.[1]
2) Substitution of one or more subsystems (e.g., nForm) will affect
   a) Development costs
   b) Operation and Maintenance Costs
   c) Schedule
   d) Functionality
   e) Risk
3) The project is fully staffed, including contracted and DEQ development staff

Each alternative was evaluated in terms of the following five attributes:

- **Supports Business Functionality** – the ability to meet most, if not all, functional requirements
- **Supports Technical Strategy** – the extent to which the alternative can support the current technology strategy as documented in the Department CIO's strategic plan
- **Supports Time to Implement** – the time required to implement the information system under the proposed alternative
- **Cost** – the cost of implementing and operating the system

[1] Integration with Amigo Cloud was investigated as a possible alternative for nSpect, however, based on staffing, technology, and general workload constraints it is not recommended to move forward with Amigo Cloud integration for the first release of TREADS.

- **Risk** – the risks associated with each alternative including the following types:
  - **Financial Risk** – risk of deviation from the proposed budget
  - **Technical Risk** – risk related to the complexity of development and implementation
  - **Operational Risk** – risk associated with disruption to current operational processes and routines
  - **Schedule Risk** – the risk of deviation from the proposed schedule
  - **Implementation Risk** – the risk or complexity associated with implementation

4.1 Alternative 1

Alternative 1 proposes that the Department completes TREADS using the latest code base and subsystems DEQ received from Windsor. Areas that will need to be completed include:

a) REM Data Management
   i) Refactoring of facilities and projects for
      (1) AML
      (2) FFB
      (3) SSU
   ii) State Superfund Data Management
   iii) Federal Superfund Data Management
b) PTRCB Data Management (partially complete), in addition to priority 1 reports and letters defined in PCR 033.
c) EQuIS Integration (facility and contacts) and updates to reference values
d) Spatial Data Verification Tool
e) Time Tracking for Cost Recovery
f) Report Development
g) Public Facing, Data Search Tool and Web Mapping Integration
h) Bug fixes
i) Data Cleanup
j) Data Conversion and Migration

Table 11 shows ratings for Alternative 1 in terms of the five attributes. The following ratings apply:

- Red is the lowest attribute rating for an attribute and indicates there are significant barriers to implementation of the alternative.
- Yellow recommends caution in implementing the alternative because there are some barriers to implementation.
- Green is the highest rating for an attribute and indicates that issues and risks can be managed effectively.

Table 11. Attribute Ratings for Alternative 1

Attribute	Rating
Supports Business Functionality: The current system would meet a majority of the priority 1 requirements, but would not address the change requests received by the UST Program.	

Table 11. Attribute Ratings for Alternative 1

Attribute	Rating
Supports Technical Strategy: This alternative supports the department technical strategy.	
Time to Implement: This alternative is estimated to take the least amount of time to implement as it requires no major database or code changes for existing functionality that could would require additional time for development, testing, integration, and documentation updates. ***The estimated date of completion for this alternative is October 2017. Link to schedule: pdf or MS Project***	
Cost: This alternative is the least expensive alternative to implement as it requires no major database or code changes for existing functionality that could would require additional time for development, testing, integration, and documentation updates. ***Estimated costs for adding PCRs 30 and 33 to the project are ~ 5-10,000 in soft costs.***	
Risk: Out of all of the Alternatives proposed, Alternative 1 poses the lowest Technical risk as this Alternative is not proposing significant database or code changes for existing functionality that could would require additional time for development, testing, integration, and documentation updates. The biggest risk for Alternative 1 is acceptance of the system by the Underground Storage Tanks Program, as this Alternative does not include incorporation of any new requirements that the program has submitted as change requests to the project. If the product owners would like to add alternatives 2,3 or 4 at a later time it would require all of the design changes, refactoring on the front end, testing and retraining staff at a later date.	

4.2 Alternative 2: Alternative 1 plus Tank RCRs and Code Table Consolidation

Alternative 2 proposes additions to the effort proposed for Alternative 1, including six out of the seven change requests submitted by the UST Program and one change request submitted by ITB as follows:

- UST RCRs 35 – 40 (PCR 032)
- PCR 031 – Reference Code Table Consolidation

Alternative 2 would require multiple database changes to break apart the Tank associated tables and add additional fields. It would also require consolidation of over 100 reference tables and re-association of the relationships of these code tables to the rest of the database. Design and UI changes will be required for the Tank, Inspection, and Reference Table Administration pages of TREADS. Additional Design and form changes will be required for up to 11 UST nForm forms. Unit, System and User Acceptance Tests would need to be revised and re-run. Associated design documentation will need to be updated to account for the changes. It is estimated that it would take an additional four, two week sprints to complete the additional work associated with this Alternative.

Table 12 shows ratings for Alternative 2 in terms of the five (5) attributes.

Table 12. Attribute Ratings for Alternative 2: Alternative 1 plus Tank RCRs and Code Table Consolidation

<table>
<tr><th>Attribute</th><th>Rating</th></tr>
<tr><td>Supports Business Functionality: The current system would meet a majority of the priority 1 requirements and would include a majority of the new requirements for the Underground Storage Tank Program.</td><td></td></tr>
<tr><td>Supports Technical Strategy: This alternative supports the department technical strategy.</td><td></td></tr>
<tr><td>Time to Implement: It is estimated that Alternative 2 would take an additional six sprints or twelve weeks to complete versus Alternative 1. The estimated date of completion for this alternative is the end of January 2018. Link to schedule: pdf or MS Project</td><td></td></tr>
<tr><td>Cost: Alternative 2 is estimated as requiring an addition $185,743 in soft and hard costs to complete over Alternative 1 as follows:
<table>
<tr><th>Cost Categories</th><th>Cost</th><th>Comments</th></tr>
<tr><td>PCR 031</td><td>$63,120</td><td>• Hard Costs = $48,000.00 (Augmentation Staff)
• Soft Costs = $15,120 (DEQ staff)</td></tr>
<tr><td>PCR 032</td><td>$91,200</td><td>• Hard Costs = $48,000 (Augmentation Staff)
• Soft Costs = $43,200 (DEQ staff)</td></tr>
<tr><td>EQuIS Licensing</td><td>$20,000</td><td>Additional licensing due to extension of schedule</td></tr>
<tr><td>SITSD Hosting</td><td>$6,000</td><td>Additional hosting charges due to extension of schedule</td></tr>
<tr><td>VPN Charges</td><td>$1,251.60</td><td>Additional VPN charges due to extension of schedule</td></tr>
<tr><td>Project Status</td><td>$4,171.50</td><td>Additional project status meeting charges due to extension of schedule</td></tr>
<tr><td>Total Cost</td><td>$185,743.10</td><td></td></tr>
</table>
The soft cost estimate is based on additional Program, Developer, Database, Business Analyst, and PM support to complete this effort.</td><td></td></tr>
<tr><td>Risk: Alternative 2 poses a bit more Technical risk than Alternative 1due to multiple areas of refactoring in the database, UI, and several nForm forms. Program and technical staff will be required and engaged for these sprints to assist with design, development, testing, and documentation updates. The biggest positive risk for Alternative 2 is acceptance of the system by the Underground Storage Tanks Program.</td><td></td></tr>
</table>

4.3 Alternative 3: Alternative 2 plus Workflow Table and Workflow User Interface Changes

Alternative 3 proposes additions to the effort proposed for Alternative 2. These additions include complete restructuring of tables supporting the TREADS workflow and UI changes to support the revised table structure (PCR 29, Phase 1 and 2). The proposed benefit gain to restructuring the workflow tables is more flexibility and efficiency in the workflow module associated with TREADS, specifically, to allow:

1) Reuse of processes by multiple programs without the need to maintain a separate process for each program when the processes used by more than one program are the same.
2) The association of sub-processes to high-level processes.

In addition to Alternative 2, Alternative 3 would require additional database changes to restructure the workflow tables. Design and UI changes would be required for the New Service Request, Service Request, and Task. Task Detail, Process Template Administration, and Role Based-Security Screens. Unit, System and User Acceptance Tests will need to be revised and re-run. Associated design documentation will need to be updated to account for the changes. It is estimated that it would take an additional six, two week sprints to complete the additional work associated with this Alternative compared to Alternative 2.

Table 13 shows ratings for Alternative 3 in terms of the five (5) attributes.

Table 13. Attribute Ratings for Alternative 3: Alternative 2 plus Workflow Table and Workflow User Interface Changes

<table>
<tr><th>Attribute</th><th>Rating</th></tr>
<tr><td>Supports Business Functionality: The current system would meet a majority of the priority 1 requirements, would include a majority of the new requirements for the Underground Storage Tank Program, and would revamp the workflow portions of TREADS to allow for the reuse of processes by multiple programs without the need to maintain a separate process for each program when the processes used by more than one program are the same, and it would allow for the association of sub-processes to high-level processes.</td><td></td></tr>
<tr><td>Supports Technical Strategy: This alternative supports the department technical strategy.</td><td></td></tr>
<tr><td>Time to Implement: It is estimated that Alternative 3 would take an additional 12 sprints or twenty four weeks to complete versus Alternative 1. The estimated date of completion for this alternative is the end of April 2018. Link to schedule: pdf or MS Project</td><td></td></tr>
<tr><td>Cost: Alternative 3 is estimated as requiring an additional $356,600 in hard and soft costs to complete over Alternative 1.

<table>
<tr><th>Cost Categories</th><th>Cost</th><th>Comments</th></tr>
<tr><td>PCR 031</td><td>$63,120.00</td><td>• Hard Costs = $48,000.00 (Augmentation Staff)
• Soft Costs = $15,120 (DEQ staff)</td></tr>
<tr><td>PCR 032</td><td>$91,200.00</td><td>• Hard Costs = $48,000 (Augmentation Staff)
• Soft Costs = $43,200 (DEQ staff)</td></tr>
<tr><td>PCR 029, Phase 1</td><td>$108,800.00</td><td>• Hard Costs = $64,000.00 (Augmentation Staff)
• Soft Costs = $44,800 (DEQ staff)</td></tr>
<tr><td>PCR 029, Phase 2</td><td>$54,400.00</td><td>• Hard Costs = $32,000 (Augmentation Staff)
• Soft Costs = $22,400 (DEQ staff)</td></tr>
<tr><td>EQuIS Licensing</td><td>$20,000.00</td><td>Additional licensing due to extension of schedule</td></tr>
<tr><td>SITSD Hosting</td><td>$10,500.00</td><td>Additional hosting charges due to extension of schedule</td></tr>
<tr><td>VPN Charges</td><td>$1,627.08</td><td>Additional VPN charges due to extension of schedule</td></tr>
<tr><td>Project Status Meeting</td><td>$6,952.50</td><td></td></tr>
<tr><td>Total Cost</td><td>$356,599.58</td><td></td></tr>
</table>
The soft cost estimate is based on additional Program, Developer, Database, Business Analyst, and PM support to complete this effort.</td><td></td></tr>
<tr><td>Risk: Alternative 3 poses significantly more Technical risk thank Alternative 1due to extensive areas of refactoring in the database, UI, and several nForm forms. Program and technical staff will be required and engaged for these sprints to assist with design, development, testing, and documentation updates. The biggest positive risk for Alternative 3 is a workflow process that is more flexible, efficient, and intuitive.</td><td></td></tr>
</table>

4.4 Alternative 4: Alternative 3 plus Complete Workflow Table and User Interface Changes

Alternative 4 proposes additions to the effort proposed for Alternative 3. These additions include a revised configuration module for Workflow that would allow TREADS super users/administrators the ability to configure the right-hand panel of the Edit Task Screen. This would provide the means for DEQ to tailor these screens to assist users in completing tasks. Table 14 shows ratings for Alternative 4 in terms of the five attributes.

Table 14. Attribute Ratings for Alternative 4: Alternative 3 plus Complete Workflow Table and User Interface Changes

Attribute	Rating
Supports Business Functionality: The current system would meet a majority of the priority 1 requirements, would include a majority of the new requirements for the Underground Storage Tank Program, and would revamp the workflow portions of TREADS to allow for the reuse of processes by multiple programs without the need to maintain a separate process for each program when the processes used by more than one program are the same, and it would allow for the association of sub-processes to high-level processes.	
Supports Technical Strategy: This alternative supports the department technical strategy.	
Time to Implement: It is estimated that Alternative 4 would take an additional **sixteen sprints** or **32 weeks** (approximately eight months) to complete versus Alternative 1. ***The estimated date of completion for this alternative is the end of June 2018. Link to schedule: pdf or MS Project***	
Cost: Alternative 4 is estimated as requiring an additional $470,503.90 in hard and soft costs to complete over Alternative 1.	

Cost Categories	Cost	Comments
PCR 031	$63,120.00	• Hard Costs = $48,000.00 (Augmentation Staff) • Soft Costs = $15,120 (DEQ staff)
PCR 032	$91,200.00	• Hard Costs = $48,000 (Augmentation Staff) • Soft Costs = $43,200 (DEQ staff)
PCR 029, Phase 1	$108,800.00	• Hard Costs = $64,000.00 (Augmentation Staff) • Soft Costs = $44,800 (DEQ staff)
PCR 029, Phase 2	$54,400.00	• Hard Costs = $32,000 (Augmentation Staff) • Soft Costs = $22,400 (DEQ staff)
PCR 029, Phase 3	$108,800.00	• Hard Costs = $64,000 (Augmentation Staff) • Soft Costs = $44,800 (DEQ staff)
EQuIS Licensing	$20,000.00	Additional licensing due to extension of schedule
SITSD Hosting	$13,500.00	Additional hosting charges due to extension of schedule
VPN Charges	$1,877.40	Additional VPN charges due to extension of schedule
Project Status Meeting	$8,806.50	
Total Cost	$470,503.90	

Attribute	Rating
Risk: Alternative 4 poses a significantly more Technical risk thank Alternative 1due to multiple areas of refactoring in the database, UI, and several nForm forms. Program and technical staff will be required and engaged for these sprints to assist with design, development, testing, and documentation updates. The biggest positive risk for Alternative 4 is a workflow process that is more flexible, efficient, and intuitive.	

4.5 Summary of Findings

4.5 summarizes the ratings of the four alternatives across the five attributes. As in previous tables, the ratings are as follows:

- Red (R) is the lowest attribute rating for an attribute and indicates there are significant barriers to implementation of the alternative.
- Yellow (Y) recommends caution in implementing the alternative because there are some barriers to implementation.
- Green (G) is the highest rating for an attribute and indicates that issues and risks can be managed effectively

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Table 15. Comparison of Attribute Ratings for All Alternatives

Attribute	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Supports Business Functionality				
Supports Technical Strategy				
Time to Implement	**October 2017**	**January 2018**	**April 2018**	**June 2018**
Cost[2]	Total including retainage and holdbacks: $4,646,426.55 Total minus soft costs: $2,146,426.55 Contingency: $473,573.45 Total (Hard, Soft and Contigency Costs): $5,120,000.00	Total including retainage and holdbacks: $4,832,170.15 Total minus soft costs: $2,269,678.15 Contingency: $350,321.85 Total (Hard, Soft and Contigency Costs): $5,182,492.00	Total including retainage and holdbacks: $5,003,026.63 Total minus soft costs: $2,370,553.63 Contingency: $249,446.37 Total (Hard, Soft and Contigency Costs): $5,252,473.00	Total including retainage and holdbacks: **$5,116,930.95** Total minus soft costs: **$2,437,803.95** Contingency: $182,196.05 Total (Hard, Soft and Contigency Costs): $5,299,127.00
Risk				

- **Supports Business Functionality:** As shown in 4.5, Alternatives 2 through 4 received a Green rating on Supports Business Functionality. Alternative 1 received a Yellow rating even though it would meet all of the Department's functional priority 1 requirements as it does not cover the change requests for UST and PTRCB that cover missed and new requirements. Without these items being addressed in Alternative 1, the team does not believe the system will be accepted by these two programs.
- **Supports Technical Strategy:** All alternatives received a Green rating on Supports Technical Strategy.
- **Time to Implement:** Estimates to complete Alternative 1 suggest that the project can be completed in early October of 2017. Choosing Alternative 2, 3 or 4 extends the project out an additional three, six or nine months, respectively.
- **Cost to Implement:** All alternatives fall within the hard cost budget for the project of $2,711,343.04, but all alternatives are over the original budgeted amount of the project when soft costs are considered.
- **Risk:** Alternatives 3 and 4 involve substantial risk associated with cost, time and complexity to implement, but they provide for efficiencies in general users and maintenance of the system.

[2] Cost includes total of hard and soft cost estimates. Soft cost estimates include the costs of DEQ staff.

Legislative Finance Committee: IT Project Portfolio
Post Implementation Report

LFC Meeting Date: December 2, 2014

1. Agency: Labor & Industry
2. Project title: WSD ECM
3. Executive sponsor: George Parisot
4. Project close date:
5. Appropriated budget amount: $280,622
6. Total project development cost: $247,320
7. Expected average ongoing annual cost: Contractual cost with vendor, plus internal support costs:
8. Year the ongoing annual cost will start: Fiscal 2016
9. Funding source(s) for ongoing cost:
10. List the primary project goals: Migrate WSD (pilot) content management solution to the State's enterprise content management platform, enhance Job Seeker case management and Oversight workflows and integrations to WSD's legacy application.
11. List the key project objectives, the metrics used to measure these objectives, and the final metric results.

	Key Objectives	Metric Used	Final Results
1	Develop capture process and workflow for electronic management of job seekers case files	Does the capture process and workflow allow the office to maintain job seeker records electronically	Yes, job service offices around the state are scanning all job seeker files into the enterprise content management system.
2	Develop capture process and workflow for conducting audits of job service offices case files	Does the workflow allow the Oversight staff to conduct case file audits electronically.	Yes, Oversight staff can audit job service offices from their central office.
3	Implement the capture and workflow processes that meets the needs of the job service offices to store all case files in a secured central location accessible by case managers.	Does the system implemented meet the needs of the business users? Did the system streamline the intake process? Are case files stored in a central location accessible by case managers.	The DLI business users find the implemented system to provide enhanced capabilities over the manual paper storage. Case files stored electronically in a central secured location. The case files are available to another job service office immediately when a job seeker changes location, this has reduced the cost of mailing case files.

	Key Objectives	Metric Used	Final Results
4	Implement the capture and workflow processes that meets the needs of the staff that conduct audits of case files, allow for monitoring and oversight of the intake case files, ensure documentation is meeting the program guidelines, allow two-way communication between auditor and case manager and complete the audit report.	Does the system implemented meet the needs of the business users? Did the system streamline the audit process?	The DLI business users find the implemented system to provide enhanced capabilities over the manual audit process. Since the case files are stored electronically in a central secured location, the auditor has instant access to case files and can conduct the audit without traveling to the job service office. The process includes an automated method for two-way communication that facilitates the audit and completes the audit reporting efficiently by reducing the time to mail correspondence.

12. List and describe all post-implementation issues that have arisen and, if they have been resolved, what was the solution. If they have not been resolved, describe actions taken so far and possible solutions. Also list and describe any possible concerns.

Issue	Start Date	Resolved Date	Issues and Concerns
Migration Issues – documents missing	5/9/2016	5/21/2016	Documents were migrated into the 'default' folder instead of 'DLI' folder. Documents were moved to 'DLI' folder, views were modified in ECM and application. Testing and deployment protocols were followed.
Miscellaneous Migration Issues – Minor issues with PC or User process	5/9/2016	7/26/2016	Migration issues were being fixed when discovered. Ex. Users were setup on scan stations when needed; routing issues were resolved as soon as discovered by usage.
Secure URLs	5/9/2016	6/02/2016	Both Development and test environments were not using secure URLs that impacted Production. Once issue was isolated, code was modified but then the development environment had to be configured to use secure URL and certificates applied. Had to request the lower level environment configuration changes. Each change was managed by change and deployment processes.

13. Please add any additional comments the agency would like to provide to the committee, if any.

Legislative Finance Committee
IT Project Portfolio: Post Implementation Report

LFC Meeting Date: Sept 29-30, 2016

1. Agency: Department of Administration / MPERA
2. Project title: MPERAtiv
3. Executive sponsor: Dore Schwinden
4. Project close date: July 11, 2016 (phase 1)
5. Appropriated budget amount: $15,379,066
6. Total project development cost: $ 13,570,817 (12,374,364 paid, $1,196,453 accrued)
7. Expected ongoing annual cost: $300,000 – $722,000
8. Year the ongoing annual cost started:
    a. FY17 / FY (includes support and licensing)
    b. FY19 (only licensing of $300,000 / year)
9. Funding source(s) for ongoing cost: Public Employee Retirement Board
10. List the primary project goals: Migrate agency systems to a modern technology that better serves retirees and active system members.
11. List the key project objectives, the metrics used to measure these objectives, and the final metric results.

	Key Objectives	Metric Used	Final Results
1	**Convert existing paper documents to electronic images for ease of access.**	**Image all paper documents.**	**All general member paper documents are imaged and accessible by agency members**
2	**Replace end-of-life technologies with modern technology**	**Retirement of legacy system.**	**Mainframe and Oracle Forms and Reports are in “read-only” mode and will be retired before the end of the fiscal year.**
3	**Increase service response to retirees and members**	**Time to process requests**	**TBD**
4	**Increase data accuracy**	**Data errors on active member reporting**	**Employer reporting validation is supporting more accurate contribution and service reporting.**
5	**Accuracy in retiree payroll.**	**Did the retirees receive the same benefit the first month of the new system as they did in legacy?**	**July payroll was accurate 99.998%**

12. List and describe all post-implementation issues that have arisen and, if they have been resolved, what was the solution. If they have not been resolved, describe actions taken so far and possible solutions. Also list and describe any possible concerns.

	Start Date	Resolved Date	Issues and Concerns
1	7/11/2016	Ongoing, but decreasing	**Employers report their payroll for use in calculations for retirement benefits and potential service purchases (for optional or exempt positions). Many employers have to fix their data while learning the new system, which is causing delays in submission and additional calls for assistance to MPERA. This was anticipated prior to system release and additional people were assigned to assist employers during these initial payroll cycles.**
2	8/11/2016	Ongoing, but mitigated	**The end user wait time between tasks noticeably increased on 8/11/2016. In collaboration with SITSD, we have been researching the cause of the performance change. In the meantime, we modified the environment to mitigate the impact to end users.**

13. Please add any additional comments the agency would like to provide to the committee, if any.

The appropriated budget amount was for two project phases. The second project phase is for a member self-service portal, which will be reported starting in the next LFC cycle.

Legislative Finance Committee
IT Project Portfolio: Post Implementation Report

1. Agency: Department of Administration
2. Project title: SABHRS: MBARS Upgrade
3. Executive sponsor: Cheryl Grey
4. Project close date: 9/1/2016
5. Appropriated budget amount: $1,820,973.00
6. Total project development cost: $1,755,565
7. Expected ongoing annual cost: $140,225
8. Year the ongoing annual cost started: 2015
9. Funding source(s) for ongoing cost: Proprietary
10. List the primary project goals:
    - Provide an enterprise budgeting system using current technology that provides increased flexibility to meet the needs to process owners and users
11. List the key project objectives, the metrics used to measure these objectives, and the final metric results.

	Key Objectives	Metric Used	Final Results
1	Deliver Gap Analysis documentation between MBARS and IBARS	Gap analysis documents were provided, reviewed and decisions documented for each module of the system.	100% Completed
2	Upgrade the client server MBARS application to the web-based IBARS application	SABHRS DBA's worked with AGS to setup the environment, databases and security.	100% Completed
3	Convert 2017 biennium budget data from MBARS into IBARS	Process was tested and validated in a system test environment, then performed and validated in the production environment.	100% Completed
4	Generate required publications	Required publications were identified by process owners. Each publication was designed, coded and tested to required specifications of the process owner.	100% Completed
5	Provide data that allows for the generation of the general appropriation bill	Required data elements were identified by the process owner. The data export was designed, coded and tested to the required specifications of the process owner.	100% Completed
6	Provide a means to integrate with the	Data files were identified for both the export of data from	100% Completed

	Key Objectives	Metric Used	Final Results
	SABHRS Financial and Human Resource systems	SABHRS to IBARS and import of data from IBARS to SABHRS. The integration files were designed, coded and tested to the required specifications of the process owner.	
7	Provide user training and guides	Process owners provided documentation and user training for each phase of the project	100% Completed

12. List and describe all post-implementation issues that have arisen and, if they have been resolved, what was the solution. If they have not been resolved, describe actions taken so far and possible solutions. Also list and describe any possible concerns.

	Start Date	Resolved Date	Issues and Concerns
1			
2			
3			

13. Please add any additional comments the agency would like to provide to the committee, if any.

Although the original scope of this project has been completed, there will be ongoing maintenance to the system to continue to improve functionality and reporting capabilities.

Legislative Finance Committee
IT Project Portfolio: Post Implementation Report

1. Agency: DPHHS
2. Project title: ACA Eligibility and Enrollment (E&E) Phase 2
3. Executive sponsor: Bob Runkle
4. Project close date: 06/06/2016
5. Appropriated budget amount: $6,616,031
6. Total project development cost: $4,677,832
7. Expected ongoing annual cost: Estimated ongoing annual maintenance cost will be included in the current annual CHIMES Medicaid/HMK and CHIMES EA O&M contracts totaling $3,855,264 for SFY 2017.
8. Year the ongoing annual cost started: 2017
9. Funding source(s) for ongoing cost: Estimated ongoing annual costs are funded through a split of general, state special revenue and federal funds.
10. List the primary project goals: Enhance CHIMES to increase automation and streamline processing.
11. List the key project objectives, the metrics used to measure these objectives, and the final metric results.

	Key Objectives	Metric Used	Final Results
1	**Implement SSP Real time and Auto Enrollment**	**Develop, test and implement new functionality and processes**	**Successfully Completed**
2	**Develop MMIS Real Time Interface services**	**Develop, test and implement new functionality and processes**	**Successfully Completed and enhanced batch file interface. Real time services deferred to be realigned with new MMIS Objectives.**
3	**Enhance Task Based Case Management functionalities in CHIMES**	**Develop, test and implement new functionality and processes**	**Successfully Completed**
4	**Increase CHIMES EA Automation**	**Develop, test and implement new functionality and processes**	**Successfully Completed**

12. List and describe all post-implementation issues that have arisen and, if they have been resolved, what was the solution. If they have not been resolved, describe actions taken so far and possible solutions. Also list and describe any possible concerns.

	Start Date	Resolved Date	Issues and Concerns
1	06/10/2016	06/17/2016	**Post Implementation Support needed for first week of production to address connectivity and performance.**
2	10/14/2015		**MMIS Web Services developed and tested. Resources available for necessary tweaks that may need to be made once the MMIS project begins their development to these specifications**

13. Please add any additional comments the agency would like to provide to the committee, if any.

Legislative Finance Committee: IT Project Portfolio
Supplemental Report

A. General Project Information

1. Agency: DPHHS
2. Project Title: Child Welfare Case Management System Phase 1
3. Date Prepared: 09/06/2016
4. Prepared By: Justyn Katsilas

B. Project Status

1. Overall Health: Yellow
2. Brief description of current project status

The purpose of this project is to replace, in a componentized approach, the case management, intake, and investigations business functions from the CAPS mainframe system. These major business functions will have the biggest impact to users, and provide the greatest opportunity to streamline and automate tasks for the CFSD staff.

Major milestones completed so far:

- None

3. Next milestone(s):
   - IDMS/SQL DB Sync – Initial (50% Complete)
   - IDMS/SQL DB Sync – Daily (30% Complete)
   - IDMS DB Sync – Real time (30% Complete)
   - MFSIS Database Design (55% Complete)
   - Intake (20% Complete)
   - Investigations (5% Complete)
   - Case Management (5% Complete)

C. Scope Changes

Title and Brief Description	Date Approved	Schedule Impact (weeks)	Budget Impact ($ amount)
Addition of IDMS/SQL DB Sync items, to exchange data from MFSIS and CAPS, keeping CAPS as the primary data repository for CAPS Reporting	07-01-2016	None	None

D. Issues and Risks

Title and Brief Description	Date Identified	Planned Resolution	Responsible for Resolution
Risk – Additional scope	07-01-2016	Add resources and enhance planning for project activities to complete additional scope within revised timeframe	Lori Keck/SITSD

E. Additional Comments

Please consider including any diagrams, charts, pictures or other visuals that will help the committee better understand the project.

This project is now being referred to as MFSIS (Montana Family Safety Information System). The SITSD contract team is continues to work on loading test data from extract data files provided by the Northrop Grumman contract team. Development has begun to a number of different components such as person search, demographics, addresses and an initial intake assessment tools. In addition both contract teams, NG and SITD, have agreed on a method for integration and will begin testing person information integration in the near future. The department is look to a hire a second business analyst to not only assist with requirements and writing user cases, but to also assist with writing technical documents, training development as well as help and user modules. The project team is targeting beta testing by 12/31/2016.

The SPI for this project appears exceeding low for a project that is not in a critical state. This low SPI is due to the method in which metrics are calculated to derive the SPI, as this project is using an Agile Approach. In addition, there was a scope change for this project to include the batch and some real time data exchanges with CAPS, which was not identified as part of the original scope. Lastly, the low SPI is also attributed to specific functionality spread across several sprints, as the effort is too large for a single sprint (CAPS batch and real time interfaces). While this SPI appears daunting, the schedule risks associated to these are actively being mitigated and tracked. There is a plan to continue to get us to our project goals within the identified timeline, and the time delays recovered.

Legislative Finance Committee: IT Project Portfolio
Supplemental Report

A. General Project Information

1. Agency: DPHHS
2. Project Title: Enterprise Services Phase 3
3. Date Prepared: 09/06/2016
4. Prepared By: Justyn Katsilas

B. Project Status

1. Overall Health: Yellow
2. Brief description of current project status

   This project is moving as follows: The conversion to ECM is waiting for the implementation of ECM by SITSD, and the EDX Phase 2 is in requirements/planning stages. The completion of the additional CMS Security Initiatives is on track.

   Some tasks have been delayed, waiting for CMS contract and IAPD approvals before work can begin. This project has a delivery date revised from 05/31/2017 to 12/31/2017. This re-baseline is due to the dependency of the Enhanced DMS Integration component on the full implementation of the Enterprise Content Management Tool (Perceptive) by SITSD.

   The low CPI is due to a combination of the minimal progress of the tasks coupled with the upfront costs of the ECM licenses.... Applying the cost up front inflates the planned cost to actual cost ratio at the start of the effort.

   This project is being reported as yellow due to having no more than one indicator in red (CPI), while the SPI is green.

3. Major milestones completed so far:
   - ECM License Purchase
4. Next milestone(s):
   - Enterprise Content Management integration with CHIMES
   - EDX Phase 2
   - MARS-E 2.0 SIEM for EDX
   - MARS-E 2.0 SIEM for CHIMES

C. Scope Changes

Title and Brief Description	Date Approved	Schedule Impact (weeks)	Budget Impact ($ amount)
None			

D. Issues and Risks

Title and Brief Description	Date Identified	Planned Resolution	Responsible for Resolution
Dependency on the full implementation of the Enterprise Content Management Tool in order to provide integration with CHIMES	08/31/2016	Plan for effort to begin when full ECM implementation has completed.	SITSD

E. Additional Comments

Please consider including any diagrams, charts, pictures or other visuals that will help the committee better understand the project.

This project has a delivery date revised from 05/31/2017 to 12/31/2017. This re-baseline is due to the dependency of the Enhanced DMS Integration component on the full implementation of the Enterprise Content Management Tool (Perceptive) by SITSD.

Legislative Finance Committee: IT Project Portfolio
Supplemental Report

A. General Project Information

1. Agency: DPHHS
2. Project Title: Medicaid E&E and CHIMES MA/HMK EA Integration
3. Date Prepared: 09/06/2016
4. Prepared By: Justyn Katsilas

B. Project Status

1. Overall Health: Green
2. Brief description of current project status

   Enhance the CHIMES system to implement an a streamlined, secure, and interactive client enrollment for health coverage. CHIMES will interface with client verification systems, and the Federal data services hub, to provide clients with "real-time" eligibility determinations. Modify the following: Document Management System, Montana's Online Application, MMIS, and Business Intelligence.

3. Major milestones completed so far:
   - ACA Phase 4 (Enhanced SSP Functionality)
   - SSP – Renew my Benefits
   - Upgrade to VLP33.0
   - SSP Upload to DMS
   - SSP Mobile
   - Task-Based Case Management Phase 1
   - Existing Alerts and Report Review
   - Transition Medicaid Interfaces to ESB
   - Automate ACA Redetermination
   - Notice Project Phase 2 – Medicaid Notices & BPA
4. Next milestone(s):
   - Final Medicaid Migration (90% complete)
   - Enhanced DMS Integration (Not Started)

C. Scope Changes

Title and Brief Description	Date Approved	Schedule Impact (weeks)	Budget Impact ($ amount)
None			

D. Issues and Risks

Title and Brief Description	Date Identified	Planned Resolution	Responsible for Resolution
Dependency of ECM Implementation	July 2016	Continue to plan for effort to begin once ECM has been fully implemented	SITSD

E. Additional Comments

Please consider including any diagrams, charts, pictures or other visuals that will help the committee better understand the project.

This project includes development and implementation of the agency Service First Initiative (Phase 1), including online application, phone cloud, and full integration of CHIMES MA/HMK into the enterprise architecture. The delivery date has been revised as the final MA migration has been delayed due to HELP Act activities.

Of the 12 IT initiatives included in this effort, all but 2 are complete. The Enhanced DMS Integration item is delayed in starting, and has a dependency on the enterprise deployment with the ECM. The last is the Final MA migration, wrapping up the last items to get CHIMES fully integrated into CHIMES EA system....and that is 90% completed, and on target for completion in September 2016.

This project has a delivery date revised from 08/31/2016 to 12/30/2017. This re-baseline is due to the dependency of the Enhanced DMS Integration component on the full implementation of the Enterprise Content Management Tool (Perceptive) by SITSD. In addition, the % of work completed was moved from 90% to 82%. Positive progress has been made on this project, but the extension of the due date coupled with the new method of calculating metrics for this report has shifted the calculation of the % of work complete.

Legislative Finance Committee
IT Project Portfolio: Post Implementation Report

1. Agency: Vocational Rehabilitation
2. Project title: Vocational Rehabilitation and Blind (VRB) Case Management System
3. Executive sponsor: Robert Runkel
4. Project close date: 07/27/2016
5. Appropriated budget amount: $1,796,951
6. Total project development cost: $1,775,732
7. Expected ongoing annual cost: $ 184,658 [SFY2016] 194,152 [SFY2017]
8. Year the ongoing annual cost started: SFY 2016
9. Funding source(s) for ongoing cost: The ongoing costs are funded through a combination of state general funds and federal Vocation Rehabilitation Grant funding
10. List the primary project goals: Upgrade platform to support technology and system that is usable with 508 assistive technology
11. List the key project objectives, the metrics used to measure these objectives, and the final metric results.

	Key Objectives	Metric Used	Final Results
1	Configure and implement new MIS for Voc Rehab	Successful testing and acceptance of all scope items in the State of Work	Success

12. List and describe all post-implementation issues that have arisen and, if they have been resolved, what was the solution. If they have not been resolved, describe actions taken so far and possible solutions. Also list and describe any possible concerns.

	Start Date	Resolved Date	Issues and Concerns
1	07/27/2015		TSD: TAM Login Page – User has to click the back button after logging in. TSD has not gotten to this issue
2	07/27/2015	01/29/2016 02/04/2016 02/05/2016 03/04/2016	TSD: Load Balancing system – We worked on this issue on multiple occasions, but have not been able to implement it successfully yet.
3	7/27/2015	8/18/2015	MTVR-421 Printing of Single Case journals
4	7/28/2015	8/18/2015	MTVR-193 Maintaining Veteran status when editing the case summary
5	7/30/2015	8/18/2015	MTVR-570 Limiting the use of the Authorization refund button to only administrators
6	08/13/2015	8/18/2015	MTVR-576 Creation of VR case creates Eligibility Review and HIPAA Review work requests

7	7/27/2015	8/18/2015	MTVR-585 Duplicate Task/Reminders removed
8	07/31/2015	8/18/2015	MTVR-470 General assistance not selectable on a case closure
9	07/27/2015	8/21/2015	MTVR-519 Removal of alerts from closed cases
10	08/06/2015	8/26/2015	MTVR-590 User saved a final closure for a status 10 case to status 30. Closure was saved but status was not updated.
11	08/18/2015	02/04/2016	SF00065714 Close Status 26 Case with Encumbered Amounts
12	08/06/2015		MTVR-594 Service Request "other" reclassified as a Work Request **SF 6540**1
13	08/05/2015	08/26/2015	MTVR-591 Editing the CoE resets the case status back to 10. Iron Data will provide a list of these cases and fix the data
14	08/06/2015	08/26/2015	MTVR-592 Final Pay authos from AWACS are not showing as Final Paid in MACS
15	08/05/2015	08/26/2015	MTVR-593 DLO and OOS Priority reporting incorrectly
16	08/03/2015	08/26/2015	MTVR-587 Data cleanup for cases re-statused to 10 from 30
17	08/06/2015	08/26/2015	MTVR-604 Closed cases stuck in status 10
18	08/13/2015	08/26/2015	MTVR-598 Multiple payments are being made for the same autho
19	08/10/2015	09/11/2015	MTVR-541 Final Pay – Hold Reasons not displaying (Broken into 6 fixes)
20	08/18/2015	09/11/2015	MTVR-605 Case Info – VR Case Info changes to PSS type and amount
21	08/19/2015	09/11/2015	MTVR-611 Closures – Cannot close cases when Authos are in Complete status after being zeroed
22		09/14/2015 09/21/2015	Client Pay Authorizations and Hold Reason
23	09/03/2015	09/21/2015	MTVR-667 Cases are not moving to Status 10
24	08/24/2015	09/21/2015	MTVR-630 Final Paid – Reverse final paid not removing transaction
25	09/02/2015	09/28/2015	MTVR-659 Case Edit VR Case info edit causes all races to be checked
26	09/01/2015	09/28/2015 10/29/2015	MTVR-653 Data – New Providers from Provider Search
27	07/29/2015	09/28/2015 10/21/2015 10/29/2015 11/30/2015	MTVR-573 Reports – Print zero balance of N not working
28	08/18/2015	09/28/2015 10/29/2015 11/30/2015	MTVR-606 Advice Slip for payment needs client name
29	08/27/2015	09/28/2015 10/21/2015 10/29/2015 11/30/2015	MTVR-644 IPE entry and print are different
30	09/02/2015	09/28/2015 10/21/2015 11/05/2015 11/30/2015	MTVR-660 IPE supported employment coding changing incorrectly
31	09/08/2015	09/28/2015 10/21/2015 10/29/2015 11/30/2015	MTVR-671 IPE amendment re-statusing PES case to 12
32	08/24/2015	09/28/2015 10/21/2015 10/29/2015 11/30/2015	MTVR-632 IPE – Tried to delete a draft IPE but Final IPE was deleted instead

		12/04/2015	
33	09/02/2015	09/28/2015	MTVR-658 Budget lines-none-Conversion budget lines still exist
34	09/15/2015	09/28/2015	MTVR-693 Closure – Edit Closure resetting date and status
35	09/17/2015	09/28/2015 11/02/2015 12/01/2015	MTVR-695 Data – Fix cases re-statused to 26
36	09/14/2015	09/28/2015	MTVR-704 Final Paid – Max 5 Items Final Paid
37	07/28/2015	10/21/2015 10/29/2015 11/30/2015 03/01/2016	MTVR-613 New vendors not showing up in MACS
38	08/25/2015	10/21/2015 10/29/2015 11/30/2015	MTVR-633 Payments to vendors that should be EFT or Interunit Journal
39	09/14/2015	10/21/2015 10/29/2015	MTVR-643 Autho – Authorization address print is incorrect
40	11/07/2014	10/21/2015 10/29/2015	MTVR-183 RSA 7OB Report - Need correct lines & counts [MTVR-163]
41	07/28/2015	08/17/201 10/21/2015 10/29/2015 11/30/2015 01/26/2016 02/04/2016 03/01/2016 03/31/2016	MTVR-622 REPORTS - RSA113 - D2 does not match caseload count
42	08/24/2015	10/21/2015	MTVR-626 WORK REQUESTS - Generating for the wrong time frame
43	09/02/2015	10/21/2015 10/29/2015 11/30/2015	MTVR-663 ALERTS - Case Alert List report is not giving correct data
44	07/28/2015	08/18/2015 08/26/2015 09/14/2015 09/28/2015 10/29/2015 11/30/2015	MTVR-569 Errors with 911 data file – FY 2015
45	09/22/2015	11/30/2015	MTVR-709 9 month budget lines not in report drop down
46	08/20/2015	01/26/2016	MTVR-615 Service Start Date
47	09/17/2015 09/21/2015	10/21/2015 11/05/2015 11/30/2015 11/03/2015	MTVR-700 & MTVR-711 Budget Lines for Co 07, 70, and 76 - Budget vs Encumbered report has incorrect totals
48	07/17/2015	10/21/2015 01/26/2016 02/05/2016	MTVR-543 IPE carrying over completed Service Request
49	09/17/2015	10/21/2015 10/29/2015 11/30/2015	MTVR-697 IPE Amendments with disappearing services
50	09/17/2015	10/21/2015 10/29/2015 11/30/2015	MTVR-701 IPE amendment estimated amounts are wrong
51	09/21/2015	10/21/2015 10/29/2015 11/30/2015	MTVR-708 IPE failed to print & is not in document console

52	09/30/2015	10/21/2015 10/29/2015 11/30/2015	MTVR-724 IPE edit for period review re-statused case
53	09/17/2015	03/31/2016	MTVR-702 ALERTS - Eligibility Alerts are 30 days instead of 60
54	09/17/2015	03/01/2016	MTVR-703 AUTHO - Authos displaying double lines [SF66556]
55	09/25/2015	01/04/2016	MTVR-721 [MTVR-666] Need System Time-out changed from 30 to 60 minutes TSD - Need System Time-out changed from 30 to 60 minutes
56	09/30/2015	11/03/2015	MTVR-725 Authorizations stuck in final pay
57	12/03/2015	1/26/2016	SF 68677 to correct IPE amendments so that they retain the original service start date.

57	10/08/2015	11/05/2015 11/30/2015	MTVR-739 FINAL PAID - Authos will not process as final paid
58	10/08/2015	10/29/2015 11/30/2015	MTVR-741 REPORTS 911 coding error for Column 18
60	10/06/2015	10/29/2015 11/30/2015	MTVR-636 Final Pay – Remove Hold Reason, change app function
61	09/17/2015	10/29/2015 11/30/2015	MTVR-699 Final Pay – Pagination displaying all results
62	10/01/2015	10/29/2015 11/30/2015	MTVR-728 Closing Case 224261 did not change Status 10 to 30
63	12/01/2015	12/04/2015	MTVR-775 Intake: Cannot enter OBP cases for two existing clients
64	12/01/2015	12/04/2015	MTVR:772 Reports: Case Load Summary-no data found for OBP program

13. Please add any additional comments the agency would like to provide to the committee, if any.

The following builds represent the Post Go-Live items that were implemented as part of the original project scope, but completed after the initial implementation of the system in 2015:

a. Build 1.1 -- Delivered 01/04/2016 included 23 major & minor defects
b. Build 1.2 -- Delivered 03/31/2016 included 16 major & minor defects
c. Build 1.3 -- Delivered 05/25/2016 included 15 defect fixes along with the PCR'd Admin Console Enhancement to lessen the need for data fixes.
d. Build 1.4 -- Delivered in 4 phases included 29 defect fixes for reports and letters. First build deployed to UAT 6/28/2016 with the last build delivered on 7/21/2016. Promoted to production on Wednesday, 7/27/2016

Legislative Finance Committee
IT Project Portfolio: Post Implementation Report

1. Agency: Montana Department of Transportation
2. Project title: Bridge Information Management System (BIMS)
3. Executive sponsor: Dwane Kailey
4. Project close date: 8/15/2016
5. Appropriated budget amount: $692,770
6. Total project development cost: $692,770
7. Expected ongoing annual cost: $50,000 Annual Maintenance Fee (est)
8. Year the ongoing annual cost started: August 2016
9. Funding source(s) for ongoing cost: FHWA @ 87%, State @ 13%
10. List the primary project goals:
    a. Maintain an inventory of all bridges subject to the National Bridge Inspection (NBI) Standards and under MDT Policy.
    b. Inspect all bridges in accordance with NBI/NBE and MDT requirements.
    c. Maintain a high degree of accuracy in the inspection program.
11. List the key project objectives, the metrics used to measure these objectives, and the final metric results.

	Key Objectives	Metric Used	Final Results
1	Submit required yearly bridge data to FHWA	Acceptance of submittal files by FHWA and testing of files through FHWA's error checker	No errors returned from file checker in final submittal; both submittal files were accepted by FHWA
2	Give MDT the ability to collect the newly required National Bridge Elements	Use of the software by MDT bridge inspectors to collect NBE data.	Data collected and stored properly, bridge inspectors are pleased with the user interface and features of the software.
3	Move to all-electronic bridge files	Ability of the software to store documents and photos as well as inspection data	Software has capability to store documents and photos at multiple levels for a bridge and its inspections. All bridge correspondence and photos are now saved in electronic format and are retrievable through the software interface.
4	Minimize errors due to data transfer from hand-written inspections into the Bridge Management System	Successful implementation of Microsoft Windows-based tablets in the field.	Microsoft Windows-based tablets are now being used in the field by bridge inspectors, eliminating the need for hand-written inspections. Eliminates dual entry.

12. List and describe all post-implementation issues that have arisen and, if they have been resolved, what was the solution. If they have not been resolved, describe actions taken so far and possible solutions. Also list and describe any possible concerns.

	Start Date	Resolved Date	Issues and Concerns
1			**None**
2			
3			

13. Please add any additional comments the agency would like to provide to the committee, if any. None

Legislative Finance Committee: IT Project Portfolio
Supplemental Report
LFC Meeting Date: September, 2016

A. General Project Information

1. Agency: Montana Department of Transportation (MDT)
2. Project Title: RSS Aerial Photography
3. Date Prepared: 9/7/2016
4. Prepared By: Aaron L. Dennis

B. Project Status

1. Overall Health: Yellow
   a. Due to rebaseline of schedule.
   b. Decision between STISD and ISD over data storage.

2. Brief description of current project status:

   The aerial **camera** was installed in February and testing began to take place. Overall, the testing for the hardware associated has gone well. Additionally the software associated with the camera has been tested and works. The only item which remains is the Datum (calibration) issue. The vendor is working to resolve and has told MDT that the issue will be resolved by the end of September.

3. Cardinal Systems mapping software **(photogrammetry)** has been the issue. It appears they have overpromised and underdelivered. Currently, there are 35 open tickets to be completed prior to UAT sign-off. To thoroughly test the 3 projects identified for testing, it requires 600 hours per project. As of early September, the first project is 90% tested, while the remaining 2 projects have yet to begin, thus the need to re-baseline. The MDT business unit has been working daily with Cardinal Systems to test the software with the aerial photogrammetry workflow used at MDT. To date the first three pieces of the workflow are working with the remaining two requiring extensive testing.

Workflow
Project set-up and management – Passed
Bridging – Passed
Mapping – Passed
CADD translations – Currently Testing
Ortho photo mosaics – Currently Testing

4. Aerial Camera Data Storage
The recent Executive Order to consolidate all IT infrastructure under DOA caused MDT ISD and ENG to take a different approach to where the data would be stored. Initially ENG had worked with ISD on a solution in which the data would be stored at MDT. However, with the recent Executive Decision, the storage site changed to the State Data Center. Additionally, with this change, MDT (ISD & ENG) needed to understand the costs and timeframe associated with this change. To date, the costs are understood, however MDT is still working with STISD on an agreed upon timeframe.

C. Scope Changes

a. None

D. Issues and Risks

Title & Brief Description	**Date Identified**	**Planned Resolution**	**Responsible for Resolution**
Datum Issue (Calibration)	June, 2016	Vendor has committed to resolve by end of September	Bryce Larson
Photogrammetry Software (Cardinal Systems)	May, 2016	Vendor has committed to resolve the remaining “punchlist”	Bryce Larson
Data Storage	May, 2016	MDT ISD working with STISD on completion date	John Levick

Legislative Finance Committee
IT Project Portfolio: Post Implementation Report

LFC Meeting Date: June 11, 2013

1. Agency: Office of Public Instruction
2. Project title: K20
3. Executive sponsor: Susan Mohr
4. Project close date: 06/30/2016
5. Appropriated budget amount: 4,138,860
6. Total project development cost: 3,977,861(this was the total amount of the grant)
7. Expected ongoing annual cost: 0
8. Year the ongoing annual cost started:0
9. Funding source(s) for ongoing cost: 0
10. List the primary project goals: Further develop a longitudinal database of Montana students, K12 through postsecondary institutions, to assess what factors are associated with college readiness in Montana
11. List the key project objectives, the metrics used to measure these objectives, and the final metric results.

	Key Objectives	Metric Used	Final Results
1	**Form K-20 data governance structure for linking postsecondary data to K-12 data**		**Operational**
2	**Provide dedicated K-20 data research analyst and business analyst positions to meet requirements of the K-20 data system project**		**Operational**
3	**Create the exchange mechanism**		**Operational**

	Key Objectives	Metric Used	Final Results
	with the MUS and collect and validate the data required for analysis		
4.	Build transport mechanism and validation process		Operational
5.	Establish electronic delivery of the K-12 transcript to Montana universities		Operational

12. List and describe all post-implementation issues that have arisen and, if they have been resolved, what was the solution. If they have not been resolved, describe actions taken so far and possible solutions. Also list and describe any possible concerns.

Green indicated complete and in production – no further work is required

Yellow indicate in development or testing

Item	Priority	Assignee	% Complete
CR 24 TFS 3032 - Add an AD verification step to authenticate users 08/17/2016	4 – Low	In house	50%
TFS 3040 Submission Status_ RejectedSummary.aspx Runs slowly	4 – Low	In house	75%
TFS 3048 – Change security questions	4- Low	In house	75%

TFS 3072 Online change to the course file doesn't trigger validation. 08/17/2016 - Done early next week.	2 - Medium	In house	0%
TFS 3049 – Allow state users to reset own password	4 – Low	In house	0%
3087 (Sifter 104) PESC Error – DTS sees an odd character inserted by IC and thinks the address is filled in when it's not	1- High	In house	0
TFS 3086 – Add Link to DTS help menu	4 – Low	In house	0%
TFS 3091 – Duplicative Assessment Records with Same Date	3 – Medium	In house	0%
TFS 3092 Sifter 103 – Fix file handing for zero padded text coming out of IC	3 – Medium	In house	100%
TFS 3043 – Upload Failed user message still available after school staff changes districts	3 – Medium	IBM	25%

CR 31 (TFS 3034) – SFTP solution 08/17/2016 Actual SFTP Service is running. Crush FTP	1-High	In House	75%
TFS 3085 Certification Error Reports and Logic Revision – Make Certification Date reflect the date of Certification, not the date_created (the date the Certification was initiated) because this ends up with the only reports available are for those Certifications that were initiated and not completed.	2-High	IBM	100%
TFS 3093 - Demo, Course and Assessment File User ID Field Not Populated	2 High	In house	100%
TFS 3044 – OPI Security Admin cannot change the User Information or User Level on Admin_UserSecurity.aspx in TEST and PROD	4 – Low	In house	0%

TFS 3046 – Certification >Transcript Course Detail Report needs to be optimized	4- Low	In house	0%
TFS 3047 – Expired while new condition requires database change to reset user password	4 – Low	In house	0%
TFS 3076 – Class Rank and Class Size and No Warning	3 – Medium	In house	100%
TFS 3094- Error Code Text Changes - School Reference	4- Low	In house	95%
TFS 3095- Error Code Text Change - Date	4- Low	In house	95%
TFS 3096- Error Message Text Change - School Code, Index Error when missing school code	4-Low	In house	0%

TFS 3090 CERT002J throwing a fatal error with wrong message and wrong field	2 High	In house	100
TFS 3097 - IC Fix Padding Check	2 High	In house	50%
TFS 3098 - Submission Error Report Filter Handling	2 High	In house	100
TFS 3099 Certification Reports and tracking changes	4 Low	In house	0

TFS 3100 Course Passed Summary Does not Show Student ID	3 medium	In house	0
TFS 3101 Include student ID and name in submission status passed	3 medium	In house	0
TFS 3102 - SFTP Assessment file for Bdot not transferring to DTS	1 high	In house	100
TFS 3103 Internal Error Message - School Filter	4 Low	In house	100%
TFS 3106 Error Message - Invalid School Code	4 Low	In house	0

13. Please add any additional comments the agency would like to provide to the committee, if any.