



ADOA - ASET

Arizona Strategic Enterprise Technology

Project Investment Justification

Version 01.02

A Statewide Standard Document for Information Technology Projects

Project Title:

Rostering Project

Agency Name:	Arizona Department of Education
Date:	07/25/2014
Agency Contact Name:	Program Support Office (<i>Chris Rosin</i>)
Agency Contact Phone:	
Agency Contact Email:	

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I. Management Summary*

In support of the Arizona Department of Education's (ADE) Arizona Education Learning & Accountability System (AELAS) initiative and the Maricopa County Education Service Agency's (MCESA) Rewarding Excellence in Instruction and Leadership (REIL) grant program ADE requires a capability to manage many types of Rosters. The immediate requirements are being driven by MCESA REIL needs as their grant requires a teacher to verify all of their rosters before the finish of their school year. Additionally ADE has encountered challenges in the past because of a lack of real time roster data from the schools and districts. The Roster Solution is being designed to be flexible and extensible to support all of these requirements.

In the context of this solution a roster is defined as an assemblage of related person roles and the context that relates them when observed. The types of rosters needed include a teacher course roster that defines a teacher, a course, the students assigned to the course and the types of assessments used to measure student performance for the course. Additionally there are rosters that define the teaching team that a teacher participates in, the teachers that an Academic Coach works with and the teachers that a Principal conducts observations for. Other uses for rosters can be providing course rosters to ADE's Assessment Vendors or track continuing education rosters for professional development courses.

The solution to be delivered is the MCESA teacher will be able to verify their roster in a Web based application with all the capabilities to support the teacher roster workflow by 5/1/2014 including any required integration with other systems providing necessary data for rosters. Several releases will be required to deliver the full roster solution, but this PIJ is focused on the first release which will deliver the minimum requirements to meet MCESA's need to have teachers verify their rosters between 5/1/2014 and 5/15/2014.

II. Project Investment Justification (PIJ) Type*

Yes No Is this document being provided for a Pre-PIJ / Assessment phase?

If Yes,

Identify any cost to be incurred during the Assessment phase.	
Based on research done to date, provide a high-level estimate or range of development costs anticipated for the full PIJ.	

Explain:

[Click here to enter text.](#)

Yes No Will a Request for Proposal (RFP) be issued as part of the Pre-PIJ or PIJ?

III. Business Case

A. Business Problem*

ADE does not currently have a flexible Roster Solution that can support different types of rosters as well as syncing the rosters with data provide from District and ADE systems. Only the course roster is currently captured at ADE via the Student Teacher Course Connection (STC) application and this data is only captured 4 times a year. The lack of this capability has caused challenges for the agency. In the past solutions such as FreeThrows and Assessments have had to develop their own approach to capturing the

roster data needed. In addition to these challenges, the MCEA REIL grant has a requirement that the teacher verify the rosters that will be used in helping to determine their performance reward before the end of the school year.

B. Proposed Business Solution*

After an initial requirements review and analysis of BFK Link, an existing COTS solution, the determination was made that ADE's requirements were beyond the capabilities of the BFK Link product, particularly its lack of an ability to sync data from external sources after the initial roster data load process, and the decision was made to develop a solution to meet the agency's roster needs. The solution will be developed leveraging ADE's standards for web application development and will be deployed in the same environment as the Decision Support Reporting System (DSRS).

The high level business requirements are:

- Gather or ensure that all data being gathered from its appropriate "single source of truth" is delivered on a timely basis into a repository used by the Rostering Solution. These sources include:
 - District Student Information Systems (SIS) that will provide course roster information
 - Highly Qualified Teacher (HQT) that will provide staff demographic information
 - Student Accountability and Information System (SAIS) that will provide student demographic information
 - Enterprise that will provide entity information
 - STC that will provide the state Course Catalog and the Crosswalk from District Codes to State Codes where necessary
- Provide web-based access to the Rostering Solution.
- Provide single sign-on capabilities via ADEConnect, ADE's identity management system
- Provide capabilities needed to support a clearly defined business workflow of roster and data verification processes and steps with potential routing through roles including Teachers, SPED Teachers, Coaches, Leaders, HR Administrators and/or Superintendents
- Provide capabilities for each logged in User to verify the accuracy and completeness of their roster and data including:
 - teachers assigned to each school
 - teachers assigned to teams
 - teachers assigned to coaching cadres
 - teachers or co-teachers assigned to each section
 - student's attending each section including the amount of calculated instructional time each teacher had for each individual student which should also account for pull-ins and pull-outs, transfers, etc.
 - student assessments associated with each course/section
- Provide the capability to electronically record and provide management process reports for all approved or rejected roster and data points at an individual, school, and district level. Provide repository to store roster linkage data for downstream usage required to support the MCEA REIL program and potential integration with other ADE applications
- **Provide capability for rosters to be unapproved/unverified, edited to correct discrepancies, and re-verified/re-approved. Modified data will be sent back to Basis for re-calculation of REIL Scores. This functionality will support inquiry resolution during the REIL Score verification process.**
- **Provide ability to lock rosters from being edited once a REIL Score has been validated in the Battelle For Kids Award product. A data interface back from BFK Award, including the REIL Score verification status, will be required (Note: BFK is not being leveraged for any Rostering functionality, it is specific to the the REIL Score verification and payout).**
- **Provide capability to show educators which roster data was used in the calculation of their REIL Score. A data interface back from Basis, including information on which data was used and how, will be required.**

- Provide capability to view multiple years of rosters, including the educator roles for the associated school year used to limit access to the correct data and functionality for the corresponding school year.

C. Quantified Benefits*

<input checked="" type="checkbox"/>	Service enhancement
<input type="checkbox"/>	Increased revenue
<input type="checkbox"/>	Cost reduction
<input checked="" type="checkbox"/>	Problem avoidance
<input type="checkbox"/>	Risk avoidance

Explain:

This web application will be used as a Horizontal Platform tool.

IV. Technology Approach

A. Proposed Technology Solution*

The proposed solution is for ADE to deliver a web-based application that will provide the required capabilities to meet the initial MCESA deadline for teacher roster verification to happen between 5/1/2014 and 5/15/2014. This solution will be built leveraging approved ADE technology and architectural patterns. Additional functionality to support the REIL Score verification will be added to allow the process to happen between 9/2/2014 and 10/31/2014.

1. Project Scope

The scope ADE is to deliver for Release 1.0 is the most critical roster capabilities to each participating MCESA REIL Alliance school district by June 1, 2014 as required by the REIL grant program agreement. To achieve this goal, the project will have three releases targeted for 4/1/2014, 5/1/2014 and 6/1/2014. The first two releases will be focused on delivering all required functionality to support teachers fulfilling their roster verification requirement during the roster verification window of 5/1/2014 to 5/15/2014. The final release will deliver capabilities needed by other users and any reporting needed to close out the 2013-2014 MCESA REIL Roster Verification requirement.

The additional scope ADE is to deliver for Release 2.0 is the scope required for educators to be able to verify their REIL Score. During the REIL Score verification process, if an educator disagrees with their REIL Score and launches an inquiry, one potential cause of the discrepancy could be inaccurate data in the Rostering application. As such, functionality needs to be added to Rostering to show which data from Rostering was used or not used in the REIL Score calculation, and to allow a roster to be placed back into the edit workflow for modifications. In addition, functionality needs to be added to no longer allow edits to a roster once the REIL Score has been verified in Battelle For Kids Award.

2. Project Risks

The roster project has a need to integrate with several existing data sources as well as external dependencies that increases the risk for the project. Significant complexities and challenges for this project may include:

- Short Timeline for the project - Mitigation – adding additional resources to assist in completing work
- AELAS District Data Extraction process will not be in production until after Roster which creates an additional requirement for the Roster Project to land district SIS data on a nightly basis. The AgencyODS will not be available with all data required by roster before the roster solution must be delivered, so the solution will leverage source systems instead – Mitigation – Work with the SIS vendors to provide the districts the ability to send requested data.

3. Solution Overview

The Roster Solution will provide a web-based application to meet the requirements for Release 1 and 2. In addition to the application development effort, work will be required to integrate the various external data sources needed to fulfill the roster requirements. Finally the project effort is constrained by a short timeline and desired features will be deferred to future releases if they are not required to meet the MCESA REIL grant requirements.

a) Proposed Architecture

The Roster Solution will follow ADE architecture patterns and will minimize data redundancy by leveraging data directly from source systems when possible. There will be a data store dedicated to the Roster solution for storing the roster data coming from other sources and the snapshots of verified and approved rosters. Finally data integration will be accomplished through a combination of data services that provide data as needed and replication leveraging SSIS.

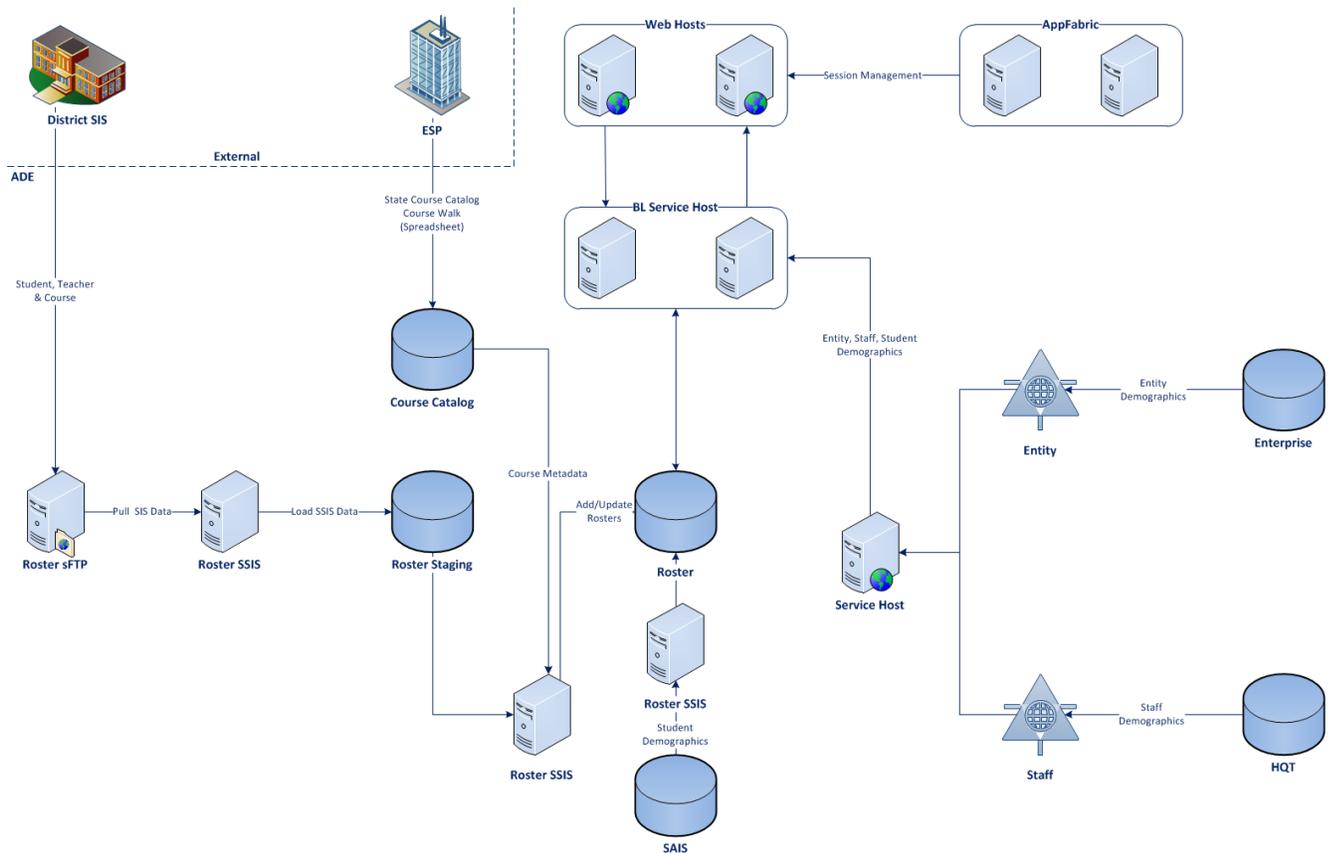


Figure 1 Roster Phase I Proposed Architecture

b) User Interface

The application user interface (UI) will be built using a Model View Controller (MVC) approach that removes dependencies between the UI and application logic. The UI will also be built on a fluid and responsive UI framework that will enable support for nontraditional UIs such as tablets.

c) Business Logic

The Roster business logic will be built in Microsoft .net as WCF services. The data access will be managed using Microsoft Entity Framework. This approach separates the business logic from the UI

d) Data Store

The Roster Solution will leverage Microsoft SQL Server to manage the data necessary to support the solution.

e) Data Integration

The Roster Solution will integrate data from several sources. The data will either be loaded into the Roster Data Store leveraging SSIS or accessed as needed through data services.

- (1) Student Demographics

Student Demographic data will be loaded on a nightly basis from SAIS. This will be necessary to match up to the students that are being provided from the district SIS systems.

(2) Staff Demographics

Staff Demographics will be accessed from a data service that will provide an interface into HQT. This service will be built as part of the roster project.

(3) Entity

Entity data will be accessed from a data service that will provide an interface into Enterprise. This service will be built as part of the roster project.

(4) Course Roster

Course roster data will be provided by the district SIS systems and loaded into roster using SSIS processes. The roster project will work with the participating districts and SIS vendors to build the necessary solution for the data sync.

(5) Course Catalog

The State Course Catalog will be provided from STC. This will be an annual load process that will capture any changes to state course codes. STC will also provide crosswalk data from Coursewalk for districts that did not adopt the state course codes.

(6) Roster Inclusion in REIL Score Calculations

Basis will provide data back to Rostring to indicate which rosters and what data within the rosters were used for calculating REIL Scores. Data will be provided manually, but an automated process should be developed for the data load into Rostering.

(7) REIL Status

The status of the REIL Score and Eligibility verification will be supplied by Battelle For Kids (BFK) Award. This will be an automated load on at least a weekly basis.

B. Technology Environment

The Roster Solution will leverage standard Agency Technology and Architectural Patterns. The environments will be hosted on the same servers that are leveraged by DSRS.

Roster User Interface:

- Web Based
 - Microsoft ASP.NET MVC 5
 - .NET 4.5
 - Bootstrap
 - Visual Studio 2012
- AppFabric Session Management to support scale

Data Access:

- Microsoft Entity Framework 6
- Business Logic:
- Microsoft WCF 4.5
- Data Integration:
- Microsoft SQL Server Integration Services 2012
- Source Control/Management:
- Microsoft Team Foundation Server 2012
- Database:
- Microsoft SQL Server 2012
- Application Servers:
- Microsoft Windows Server 2012R2
- AppFabric Servers:
- Microsoft Windows Server 2012R2
- Web Servers:
- Microsoft Windows Server 2012R2
 - Microsoft Internet Information Server 8.5

C. Selection Process

The Roster Solution is build option so there is not an RFP being conducted. ADE and MCESA reviewed possible buy solution and it did not fit our needs and the vendor would not be able to make changes that would be required in the time frame this project is needed. A power point is attached with build vs buy decision

V. Project Approach

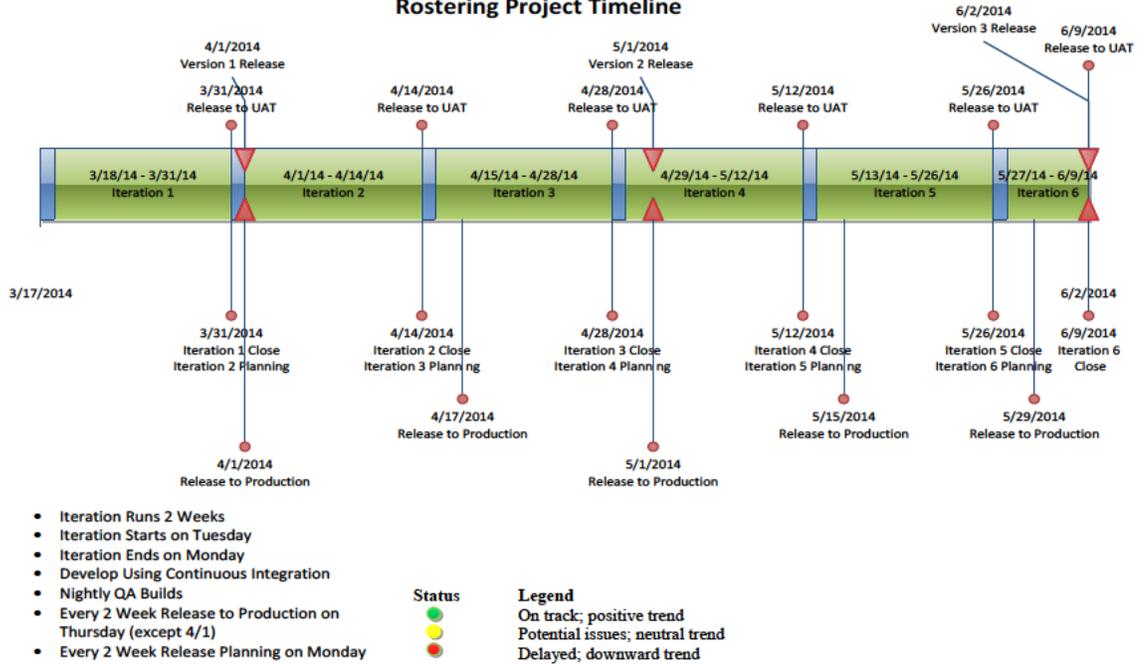
A. Project Schedule*

Project Start Date: 3/17/2014 **Project End Date:** 10/31/2014

B. Project Milestones

Release I of the Roster project will have three releases to meet the MCESA REIL deadlines.

Rostering Project Timeline



Major Milestones	Start Date	Finish Date
Teacher Workflow / Principal Workflow	03/17/2014	04/22/2014
Coach Workflow / Team Workflow	04/22/2014	05/01/2014
Additional Modifications	05/01/2014	06/01/2014
<i>Roster Edit Workflow (unapproved/re-approve)</i>	<i>07/28/2014</i>	<i>09/02/2014</i>
<i>BFK Award Interface and Read Only rosters</i>	<i>07/28/2014</i>	<i>09/26/2014</i>
<i>Data integration with Basis</i>	<i>08/26/2014</i>	<i>10/31/2014</i>
<i>Multi Year Rostering</i>	<i>09/02/2014</i>	<i>10/31/2014</i>

VI. Roles and Responsibilities

A. Project Roles and Responsibilities

- **Program Sponsor(s)** Kristine Morris (MCESA), Amit Soman (ADE)
- **Program Manager** Laurie King (MCESA), John Springfield (ADE)
- **REIL Program Director** Lori Renfro (MCESA)
- **Product Manager** Al Dullum (MCESA)
- **Project Manager** John Springfield (ADE)
- **Key Stakeholders** REIL Alliance Districts, BASIS Research, MCESA, ADE
- **Solution Architect** Brent Erdman

B. Project Manager Certification

- Project Management Professional (PMP) Certified
- State of Arizona Certified
- Project Management Certification not required

C. Full-Time Employee (FTE) Project Hours

Total Full-Time Employee Hours	320
Total Full-Time Employee Cost	

VII. Risk Matrix, Areas of Impact, Itemized List, PIJ Financials

VIII. Project Approvals

A. Agency CIO Review*

Key Management Information	Yes	No
1. Is this project for a mission-critical application system?	X	
2. Is this project referenced in your agency's Strategic IT Plan?		X
3. Is this project in compliance with all agency and State standards and policies for network, security, platform, software/application, and/or data/information as defined in http://aset.azdoa.gov/security/policies-standards-and-procedures , and applicable to this project? If NO, explain in detail in the "XI. Additional Information" section below.	X	
4. Will this project transmit, store, or process sensitive, confidential or Personally Identifiable Information (PII) data? If YES, in the "XI. Additional Information" section below, describe what security controls are being put in place to protect the data.	X	
5. Is this project in compliance with the Arizona Revised Statutes (A.R.S.) and GRRC rules?	X	
6. Is this project in compliance with the statewide policy regarding the accessibility to equipment and information technology for citizens with disabilities?	X	

B. Project Values*

The following table should be populated with summary information from other sections of the PIJ.

Description	Section	Number or Cost
Assessment Cost (if applicable for Pre-PIJ)	II. PIJ Type - Pre-PIJ Assessment Cost	\$
Total Development Cost	VII. PIJ Financials tab	\$ 743,799
Total Project Cost	VII. PIJ Financials tab	\$ 743,799
FTE Hours	VI. Roles and Responsibilities	320

C. Agency Approvals*

Contact	Printed Name	Signature	Email and Phone
Project Manager:	Keith Showers		
Program Manger	Sheri Johnson		
Agency PSO Director	Chris Rosin		
Agency Information Security Officer :	Mark Masterson		
Agency CIO:	Mark Masterson		

Agency Director:	Elliott Hibbs	
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IX. Optional Attachments

A. No Attachments

X. Glossary

A. Agency Program Terms

ADE - Arizona Department of Education

MCESA – Maricopa County Education Service Agency

AELAS – Arizona Education Learning & Accountability System

SPED – Special Education Teacher

REIL – Rewarding Excellence in Instruction and Leadership, MCESA’s grant program for providing performance incentives to teachers to improve student outcomes

Pull-ins and Pull-outs – When a student requires additional support for a course, the teacher providing that service can either sit with the student during the class (Pull-in) or remove the student from a class (Pull-out) to provide additional assistance

Basis Research– Third Party Vendor that provides statistical modeling and support for the REIL Program

DSRS – Decision Support Reporting System

SIS – Student Information System, District system for managing students

HQT – Highly Qualified Teacher, ADE System for tracking staff

Enterprise – ADE System for managing Entities

REIL Alliance School District – Districts within Maricopa county that are participating in the MCESA REIL Program

B. Technology Terms

Microsoft ASP.NET MVC – Microsoft’s implementation of a Model View Controller framework for developing User Interfaces

SSIS – Microsoft SQL Server Integration Services, a tool that supports Extract, Transform and Load to enable data integration between sources.

SQL – Microsoft’s database server technology leveraged by ADE

.NET – Microsoft’s application development framework. Used for developing Desktop, Web and Mobile applications.

TDE – Transparent Database Encryption is a capability of the Microsoft SQL Server 2008 and later platforms that provides a means of encrypting a database at rest. It also provides key management and protection.

TFS – Team Foundation Server. Microsoft’s platform for managing the SDLC of a project.

SDLC – Software Development Life Cycle, the process of ensuring source control management, effort tracking and application delivery. This process is managed via TFS leveraging the Microsoft Scrum Template.

XI. Additional Information

A. *Agency CIO Review**

Will this project transmit, store, or process sensitive, confidential or Personally Identifiable Information (PII) data? Yes the Roster Solution will use and display Restricted Personal Identifying Information (RPII) as shown in the ASET Privacy Data Classification Matrix E901. The information that will potentially be used is:

For Student

- First Name
- Middle Name
- Last Name
- Data of Birth
- Public SAISID
- Gender

For Teacher

- Educator Stakeholder ID
- First Name
- Middle Name
- Last Name
- Data of Birth (Display but not store)
- Email Address

RPII will be protected as per ASET Privacy Data Classification Matrix E901 using the following techniques:

- Secure Transmission provided by SSL transport for all end-user access to data
- Microsoft SQL Server Transparent Database Encryption (TDE) to protect stored data at rest
- Secure Portal Access to the Roster Application/Module will be through ADEConnect, ADE's authentication and authorization system for end-user access to ADE applications

Links:

[ADOA-ASET Website](#)

[ADOA-ASET Project Investment Justification Information Templates and Contacts](#)

Email Addresses:

[Strategic Oversight](#)

[ADOA-ASET Webmaster@azdoa.gov](mailto:Webmaster@azdoa.gov)