Crash Records Modernization (DT23011)

State of Arizona – Arizona Department of Transportation

Project Investment Justification (PIJ)

Date of ITAC: *February 15, 2023*

ADOT

Agency Vision
Moving Arizona. Becoming the safest, most reliable transportation system in the nation.

Agency Mission
Connecting Arizona. Everyone. Everywhere. Every Day.

Team Introduction

Roles Present at ITAC

- **Steve West** - *ADOT Chief Information Officer*

- **David Knigge** - *ADOT MvM Project Director*

- **Don Logue** - *ADOT MvM Project Office Manager*

- **Benjamin Moraca** - *ADOT MvM Security Analyst*

Project Introduction

Stated Operational/Business Issue

- ADOT is required by Federal and State statutes to collect and report crash statistics.
- Crash data is critical to informing highway safety design.
- Accident Location Identification Surveillance System (ALISS), the legacy system, is over 20 years old, has significant technical debt, and lacks experienced support resources.
- Extensive manual data entry and corrections result in significant backlogs and delays in reporting.
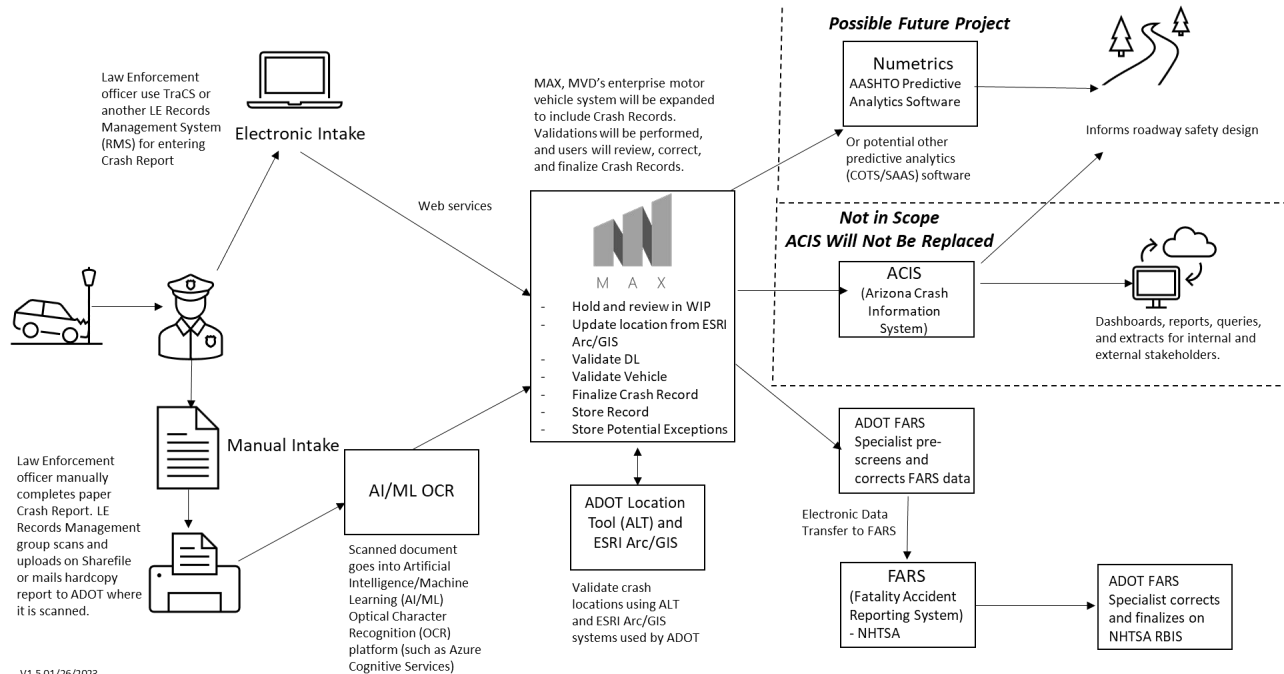
Benefit to the State Agency and Constituents

- Reduce overall business risk through enhanced support for compliance with state and federal laws and regulations;
- Implement a technology platform that is scalable, flexible, and can be more easily maintained and improved;
- Improve business processes by incorporating best practices inherent in the new system to achieve efficiencies and standardization that releases ADOT staff and staff of other agencies for other value-added work;
- Employ state-of-the-art OCR AI, as appropriate, to improve data quality and reduce both manual effort and report collection backlog;
- Implement and enhance electronic interfaces to reduce duplicate entry and manual entry.

Proposed Solution

Overview of Proposed Solution

Crash Records Modernization Conceptual Design

Law Enforcement officer use TraCS or another LE Records Management System (RMS) for entering Crash Report

Electronic Intake

Web services

MAX, MVD's enterprise motor vehicle system will be expanded to include Crash Records. Validations will be performed, and users will review, correct, and finalize Crash Records.

Possible Future Project

Numetrics
AASHTO Predictive Analytics Software

Or potential other predictive analytics (COTS/SAAS) software

Informs roadway safety design

Not in Scope
ACIS Will Not Be Replaced

MAX
- Hold and review in WIP
- Update location from ESRI Arc/GIS
- Validate DL
- Validate Vehicle
- Finalize Crash Record
- Store Record
- Store Potential Exceptions

ACIS
(Arizona Crash Information System)

Dashboards, reports, queries, and extracts for internal and external stakeholders.

Law Enforcement officer manually completes paper Crash Report. LE Records Management group scans and uploads on Sharefile or mails hardcopy report to ADOT where it is scanned.

Manual Intake

AI/ML OCR

Scanned document goes into Artificial Intelligence/Machine Learning (AI/ML) Optical Character Recognition (OCR) platform (such as Azure Cognitive Services)

ADOT Location Tool (ALT) and ESRI Arc/GIS

Validate crash locations using ALT and ESRI Arc/GIS systems used by ADOT

ADOT FARS Specialist pre-screens and corrects FARS data

Electronic Data Transfer to FARS

FARS
(Fatality Accident Reporting System) - NHTSA

ADOT FARS Specialist corrects and finalizes on NHTSA RBIS

V1.5 01/26/2023

Proposed Solution

Due Diligence and Method of Procurement

- Custom development of new Crash Records database by the same ADOT MvM team that successfully developed MAX and AZ MVD Now.
- Development on MAX platform for reusability and to leverage MAX foundation and technologies.
- Validation of driver and vehicle data in MAX.
- Leverage existing software tools (ESRI ArcGIS for crash location validation) and vendors (Microsoft Azure).
- Modernize existing electronic interfaces (TraCS and other Records Management Systems).
- Add electronic data transfer to NHTSA for Fatality Accident Record System (FARS).
- Implement AI/ML Optical Character Recognition (OCR) to automate capture of handwritten crash reports (Azure Cognitive Services).
- Export data to Arizona Crash Information System, portal, and possible future highway safety predictive analytics solution.
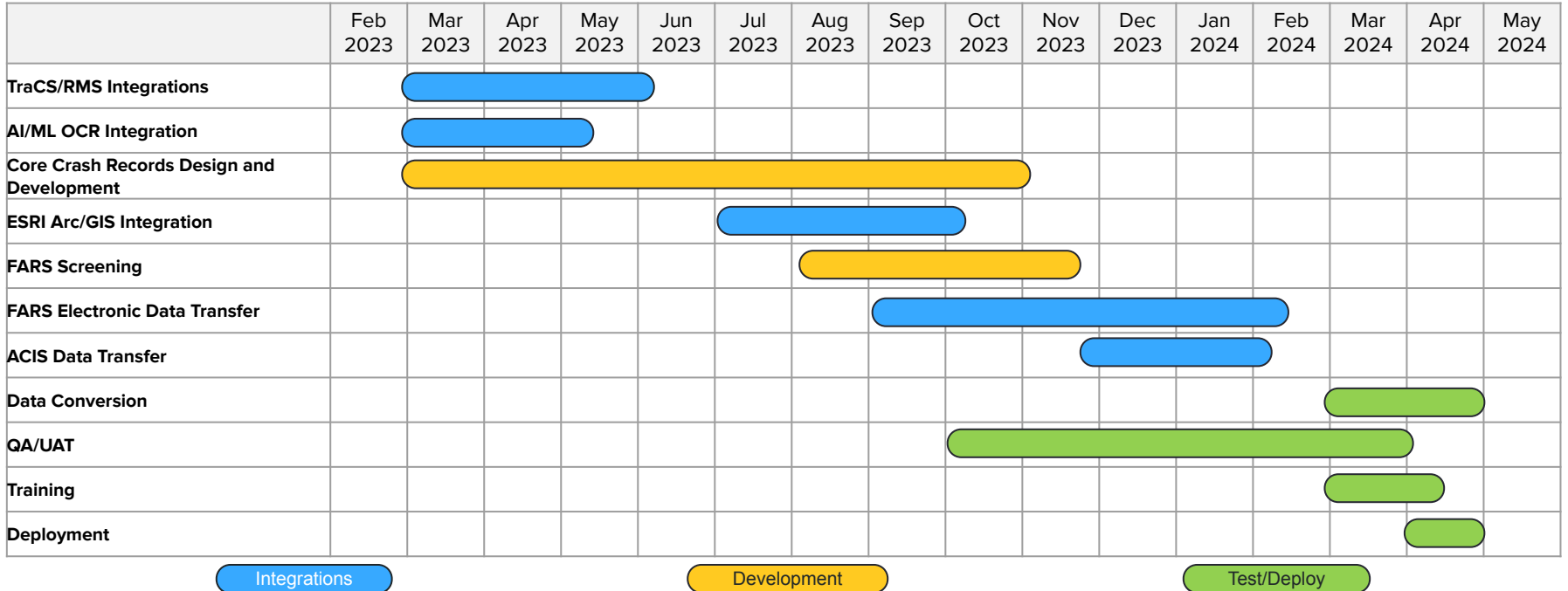- No procurements required at this time.

Project Responsibilities

Identify Proposed Solutions Responsibilities

- ADOT's Motor Vehicle Modernization (MvM) Team, part of the Motor Vehicle Division, will be responsible for managing, developing, operating, and maintaining the new Crash Records solution.

- Will partner with ADOT's Information Technology Group (ITG) for:
  o TraCS Interface
  o Integration with ESRI ArcGIS
  o Data Conversion
  o ACIS Interface

- Cloud hosting with Microsoft Azure Government Cloud (as with all of MAX).

- No new outside vendors.

Project Timeline

Identify timeline for Proposed Solution

	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024
TraCS/RMS Integrations																
AI/ML OCR Integration																
Core Crash Records Design and Development																
ESRI Arc/GIS Integration																
FARS Screening																
FARS Electronic Data Transfer																
ACIS Data Transfer																
Data Conversion																
QA/UAT																
Training																
Deployment																

Integrations — Development — Test/Deploy

Project Costs

Project Costs by Category	FY23	FY24	FY25	FY26	FY27	Total
Professional & Outside Services (Contractors)	$267,378	$668,442				$946,320
Hardware						
Software						
Communications						
Facilities						
Cloud Hosting		$10,500	$66,150	$69,458	$72,930	$208,538
Operations & Maintenance Support		$40,590	$255,717	$268,503	$281,928	$846,738
Total Development	$267,378	$678,942				$946,320
Total Operational		$40,590	$321,867	$337,961	$354,858	$1,055,276

Financial Impact

Breakdown of Financial Impact

Project Development Funding	
Base Budget - Available	$946,320
Base Budget - To Be Requested	0
APF Budget - Available	0
APF Budget - To Be Requested	0
Other Appropriated - Available	0
Other Appropriated - To Be Requested	0
Federal - Available	0
Federal - To Be Requested	0

Total Development Project Funding	
Available Budget	$946,320
To Be Requested Budget	0

Total Operational Funding - Project	
To Be Requested Budget	$1,055,276

What Success Looks Like

Measures of Success

- *Quantifiable measures that will help the agency to determine if the project was delivered successful and the outcome of the project is a success.*

- Reduction in FARS backlog from 8 months to 2 months within one year of project completion.
- Reduction in Crash Records backlog from 4 months to 1 month within one year of project completion.
- Reduce manual entry from 16% of crash reports to 12% within 6 months of project completion. An additional 8% of reports manually entered will have at least 75% of information automatically populated (outcome dependent on effectiveness of OCR AI).

Q & A
Session

Recommended Conditions

ADOA-ASET Conditions

1. Should development costs exceed the approved estimates by 10% or more, or should there be significant changes to the proposed technology scope of work or implementation schedule, the Agency must amend the PIJ to reflect the changes and submit it to ADOA-ASET, and ITAC if required, for review and approval prior to further expenditure of funds.

2. Monthly reporting on the project status is due to ADOA-ASET no later than the 15th of the month following the start of the project. Failure to comply with timely project status reporting will affect the overall project health. The first status report for this project is due on April 15, 2023.

ITAC Voting Options

What ITAC May Consider In Review Whether:

a. The proposed solution addresses the stated problem or situation;
b. The budget unit is competent to carry out the project successfully;
c. Sufficient sponsorship and support by budget unit leadership exists;
d. Cost estimates provided are accurate;
e. The proposed project aligns with the budget unit's Strategic IT Plan; and
f. The proposed solution complies with statewide IT standards.

ITAC Motions:

a. Move to Approve with Conditions As Presented

b. Move to Approve with Conditions

       i. Committee may modify or
      ii. add conditions

c. Move To Deny

Relevant Statutes and Rules

Per A.R.S. § 18-101 - Per Administrative Code R2-18-101