

Tempe Municipal Court: Case Management System Development

Commission on Technology Update 5/20/05

Project Overview:

The Tempe Municipal Court, in collaboration with the Administrative Office of the Courts (AOC), is developing a case management system to replace its current Legacy application. This effort is driven by an announcement by Hewlett Packard that it will soon cease support of the HP e3000 server that the application operates on. Additionally, while the system has proven to be reliable it utilizes aging technologies.

The project team is building the new application utilizing current system functionality as a baseline. This effort will not only meet the court's needs, but will result in a case and financial management system that could be used by other limited jurisdiction courts. The project fully conforms to the *Arizona Judicial Branch Enterprise Standards* adopted by the Commission on Technology (COT) on January 9, 2004 and later codified in the *Arizona Code of Judicial Administration 1-505* (as adopted by Administrative Order 2004-18, effective March 18, 2004).

The case management system development is using the following technologies:

Development Environment

.NET
Visual Studio

Source Control

Visual Source Safe

Programming Language

Visual Basic. NET

Object Modeling/Code Generator

Visible Developer

Database

SQL 2005 (formerly known as 'Yukon')

Server(s)

Windows 2003 servers

Report Writer

Crystal Reports v. 10

Testing

Test Director

Data Exchange

Websphere MQ Messaging in XML Format using
JJXD standard tags

Current Status/Plans for Completion:

On May 5, 2005 the project team (see Appendix A) participated in a demonstration for the court community that included representatives from Scottsdale City Court; Phoenix Municipal Court; Tucson City Court; Flagstaff City Court; the Court Automation Coordinating Committee (and the associated review group); the Technical Advisory Council; Maricopa County Justice Court Administration; the AOC; the AGAVE, Maricopa Justice Court iCIS and JOLTS projects; and AZTEC trainers.

At the demonstration the project team showed general User Set-up and Navigation Groups, manual Complaint Entry and related functionality, a reusable data conversion tool, and “wire frame” screen mock-ups for Case/Party Search and Inquiry. According to feed-back forms completed by participants, the overall response to the demonstration was positive. Most noted that they liked what they saw and the general direction, with many appropriately noting that it is still relatively early in the development process.

Screen shots of the functional ATTC Complaint Entry process are shown below:

The screenshot displays a web-based form for entering a complaint. The form is organized into several sections:

- Header Section:** Includes fields for Filing Agency (TEMPE PD), Date Filed (5/20/2005), Party Type (PERSON), SSN, and DL Nbr (NONE).
- Personal Information Section:** Fields for First Name, Middle Name, Last Name, and Suffix.
- Medical and License Information Section:** Checkboxes for Military Injury, Accident Fatality, Comm, Haz Mat, 16 Pass, and DLP. Includes dropdowns for DL State (UN) and DL Country, and a field for Class.
- Address Section:** Two columns for Home Address and Employer Name. Each column includes fields for Address, City, State, Zip, and Country. There are also fields for AC, Phone, and Mailing Addr.
- Physical Characteristics Section:** Fields for Sex, Height, Weight, Eyes, Hair, Origin, DOB, Restrictions, and Language.

Plate Nbr: State: Country: Color: Year: Make: Model: Style: Reg Exp: VIN:

Violation Date: Time: Speed: Posted R/P: Meas Device: Direction: Violation Location:

New
Delete

Item	Violation Code	Unknown:	Occurrence	DV	Description

Officer Agency: Officer Nbr: Officer Name: Officer Signature Ind: Appearance Date: Appearance Time:

Comment

Pend Submit Cancel

In order to maintain momentum and continue to make progress, the development team has created a four-month project plan within the larger plan that will focus on certain deliverables including:

- Documentation of requirements for calendaring and then elaboration of those requirements.
- The development of the Generalized Case/Party Search GUI (Appendix B)
- A technical strategy for efficiently handling search functionality with a current assessment of OmniDex (currently used by TMC on its Legacy application) or InfoSearch (developed as part of the now defunct Maricopa County Court Financial System effort).
- Resolution of any errors/defects associated with the ATTC Complaint Entry GUI.
- The “cloning” of ATTC Complaint Entry GUI with modifications to other entry types including Photo Enforcement, Long Form, Parking, and Animal complaints.
- Coding of the 22 post-submit processes like courtroom/attorney assignments, noticing, etc. that occur once a case is created (10 processes have been coded thus far).

- The refinement of the Data Migration Tool that migrates information from the court's Legacy application to the CMS Developmental/SQL environment. This tool is reusable and could assist other jurisdictions with migration efforts in the future.
- Continued creation of forms and notices that will be translated into Spanish.

Completed tasks thus far are located in Appendix C. Project plans, including a high level planning document, the four month summer plan (through September 9, 2005), and summary are in Appendix D.

Challenges:

This is a highly complex development project. The addition of human resources including two VB.NET programmers and a tester (limited availability) along with those currently on the development team, should have a profound impact on meeting project milestones. However, there are still some challenges in completing this project as follows:

- **Technical Staffing** – It is difficult to find Visual Basic.NET programmers that have a skill set that includes Visible Developer, the code generating tool. The more likely scenario is to obtain a VB.NET programmer who can then learn to use Visible Developer. Currently the project has one VB.NET/VD programmer and other programmers are learning the tool. Additionally, the team contracts with a consultant Visible Systems Inc., when other programming resources are required. Programmer options beyond the consultant is a strategic objective.

Testing will become more of a concern as we progress in the development. At this point a tester with limited availability is appreciated, but before the end of the project a dedicated full-time test manager will be essential.

- **Maintaining Project Scope/Focus** – In order for this application to be completed and implemented within present time frames, it is imperative to remain cognizant of the project scope. The baseline for system functionality, in accordance with an Intergovernmental Agreement between the AOC and City of Tempe, is Tempe Municipal Court's current Legacy application with the addition of improved calendaring, electronic disposition reporting to the Department of Public Safety, nightly export to the state data warehouse, and integration points for FARE.
- **Project Dependencies** – The nature of the project necessitates collaborative efforts and requires extensive coordination of resources, both personnel and technology infrastructure. This is and likely will continue to be a daunting task. For example, the development environment and related project activities are configured in such a way that the team is dependent on the Information Technology Departments at both the AOC and City of Tempe to ensure connectivity and therefore efficiency and effectiveness in generating work

product. This requires significant communication, and responsiveness amongst all members of the development team, the AOC, and Tempe.

Anticipated Needs:

Programmer resources have been added to the project; however, there will also be an ongoing need to contract with Visible Systems Inc., for skilled application of the development tool. This will be especially true when certain aspects are highly complex or during periods when available on-site programming resources may be scarce or committed to other tasks.

For these reasons, the Tempe Municipal Court will be seeking an additional \$250,000 in State Judicial Collection Enhancement Funds (JCEF) to be used primarily for programming resources.

Thus far, a \$250,000 State JCEF grant was authorized for use on the Tempe Municipal Court Case Management System Development. The AOC retained \$153,400 in funds that have been encumbered to cover salary and ERE costs associated with a Business Analyst position for the duration of the project. The Tempe Municipal Court has received \$50,000 in two disbursements and has paid Visible Systems Inc. \$42,500 for programming. Another \$21,000 in recent invoices (through April 29, 2005) is owed to Visible Systems, Inc. for services rendered.

Effective May 2, 2005, the Tempe Municipal Court suspended activity with Visible Systems, Inc., pending additional project planning and assessment of the impact of two programmers being added to the development team. On May 12, 2005 the Tempe Municipal Court requested the final disbursements totaling \$46,600. After receipt of the requested funds and payment of the outstanding invoices, there will be \$31,100 available in the remaining state JCEF grant for the project

<i>Authorized JCEF Grant</i>	\$250,000
Retained by AOC (Business Analyst)	- \$153,400
Disbursements Received	\$50,000
Expended/Pending Invoices (Visible Systems Inc.)	- \$63,500
	<hr/>
	<\$13,500>
Disbursements Requested	<hr/>
Remaining Funds after payment of Pending Invoices	\$46,600 \$33,100

Appendix A:

Tempe Municipal Court: Case Management System Development Team

Lead Analyst:

Harvey Lowe, AOC

Business Analysts:

Amy Drew, AOC (funded by State JCEF Project Grant)

Bill Strout, Tempe Information Technology

Programmers:

Danny Pugh, Lead Programmer, Tempe Municipal Court (contract)

Craig Erwin, Senior Programmer, Tempe Information Technology

Quentin Morris, VB .NET Programmer, Tempe Municipal Court (contract)

Lucky Kanwal, Lead Programmer Analyst, AOC

System Architecture:

William Earl, Chief Architect, AOC

Database Development:

Fred Prose, Information Technology Consultant, AOC (contract)

Subject Matter Experts:

Tom Brady, Court Manager, Tempe Municipal Court

Jennifer Dubois, Supervisor, Tempe Municipal Court

Jacque Frusetta, Supervisor, Tempe Municipal Court

Christy Slover, Supervisor, Tempe Municipal Court

Mark Stodola, Deputy Court Manager, Tempe Municipal Court

Carla Tack, Supervisor, Tempe Municipal Court

Jeanette Wiesenhofer, Supervisor, Tempe Municipal Court

Testing:

Barbara Todd, AOC

Tempe Municipal Court Staff

Project Steering Committee:

Louraine Arkfeld, Presiding Judge, Tempe Municipal Court

Karl Heckart, Chief Information Officer, AOC

Rick Rager, Deputy Court Manager/Automation Manager, Tempe Muni. Court

Ron Smith, Application Services Supervisor, Tempe Information Technology

Appendix B (Generalized Case/Party Search GUI):

Last Name:	First Name:	Middle Name:	Person or Business Name:							Search
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>							<input type="button" value="Search"/>
DOB:	Sex:	SSN or EIN:	DL Nbr:	Party ID:	AC:	Phone:		New Search		
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="button" value="New Search"/>		
From Address:	To Address:	Complaint Nbr:	Complaint Type:	IR Nbr:	Legacy Def ID:					
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
Officer Nbr:	Officer Name:	From Violation Date:	To Violation Date:	Violation Code:	From Violation Location:	To Violation Location:				
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>				
Plate Nbr:	Make:	Model:	VIN:							
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>							

Party ID	Name	DOB	Case Nbr	Complaint Type	Status	W	D	Plate Nbr	Party Role
[Empty Table]									

Record: of 1

Party Type:	Name:	SSN or EIN:	DL Nbr:	DL State:							
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>							
DOB:	Sex:	Height:	Weight:	Eye:	Hair:	Origin:	Language:	Juv:			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
Address:		Phone:			Legacy Def ID:						
<input type="text"/>		<input type="text"/>			<input type="text"/>						
<input type="text"/>		<input type="text"/>			<input type="text"/>						
City:	State:	Country:	Zip:								
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>								

Plate Nbr:	State:	Country:				
<input type="text"/>	<input type="text"/>	<input type="text"/>				
Color:	Year:	Make:	Model:			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
Style:	Reg Exp:	VIN:				
<input type="text"/>	<input type="text"/>	<input type="text"/>				

Appendix C (Completed Tasks):

Planning Activities and Milestones

- ✓ Identified TMC External Data Exchanges
- ✓ Profiled TMC's CMS
- ✓ Prepared preliminary Project Plan
- ✓ Assessed TMC's CMS's data base
- ✓ Loaded TMC's Database Schema into Power Designer to produce initial TMC Relational Data Model
- ✓ On going evolution of Relational Data Model
- ✓ Updated preliminary Project Plan
- ✓ Submitted JPIJ to AOC for presentation to the CACC and COT
- ✓ JPIJ approved by CACC for submission to the COT
- ✓ Proof of Concept (POC) - Phase 1
- ✓ Established Scope
- ✓ Visible Developer (VD) Orientation at AOC
- ✓ Prototyped Violation-Master Related Screens
- ✓ "COT approves TMC's JPIJ and \$250,000 of funding"
- ✓ Presentation to TMC of POC and Proposed GUI and Navigation
- ✓ Initial Proof of Concept accepted by TMC
- ✓ Crystal 10 will replace Fantasia at TMC

- ✓ Elaborate JPIJ Project Plan

- ✓ Identify Functional Development Clusters
- ✓ Conceptualize Layered Development of Functional Clusters
- ✓ Functional Cluster Development Cycle Template
- ✓ Table Specifications
- ✓ Prepare Table Specifications
- ✓ Identify and conceptualize data stores
- ✓ "Draft Table Specifications, elaborating the attributes and related Business Rules"
- ✓ Assess data conversion feasibility and issues
- ✓ Update the Physical Data Model (PDM)
- ✓ Review the PDM's ERD and Specifications with Court Staff
- ✓ Revise the Table Specifications as necessary
- ✓ Incorporate the Changes into the PDM; produce revised ERD
- ✓ Prepare a Plan to populate the SQL Tables
- ✓ "Approve ERD, Table Specifications and Data Migration Plan"
- ✓ Update the Application's Data Dictionary (Glossary)
- ✓ Process Specifications
- ✓ Identify the Use Cases (Data Panels and Service Objects) for the Functional Cluster
- ✓ Meet with Court Staff to review Use Case Lists and identify and prioritize desired functional changes and extensions
- ✓ Document and publish salient decisions
- ✓ For each identified Data Panel:
 - ✓ Prepare a Use Case Characterization as part of the Data Panel Specification
 - ✓ Complete the Data Panel Specification
 - ✓ Identify and document relevant Business Rules
 - ✓ Identify and Evaluate Unusual Business Practices
 - ✓ Review the Data Panel Specification and related Business Rules with Court Staff; revise as necessary
 - ✓ Approve the Specifications
- ✓ For each identified Service Object
 - ✓ Prepare a complex Business Rule documenting the functional requirements
 - ✓ Review the Business Rule with court Staff; revise as necessary
 - ✓ Approve the Specifications
- ✓ Data Panel Generation and Testing
 - ✓ Generate the Data Panel using Visible Developer
 - ✓ Assess the generated Data Panel against the specifications
- ✓ Data Panel Elaboration
- ✓ Service Object Development
- ✓ Integration Testing
- ✓ Approval of Clusters and Development Process
- ✓ "Revise Project Plan elaborating layered, phased development"

- ✓ Create Spreadsheets for Tracking Component Development and Reporting Progress

- ✓ Table Specifications
- ✓ Data Panels
- ✓ Service Objects
- ✓ Business Rule Specifications
- ✓ Forms
- ✓ Reports

Development Prerequisites

- ✓ Intergovernmental Agreement (IGA)

- ✓ Initial Draft of IGA based on AOC's MOU
- ✓ Meeting between TMC and Tempe ITD to review IGA draft
- ✓ TMC provides proposed IGA to the Supreme Court
- ✓ "Supreme Court agrees to the IGA ""in principle""
- ✓ Tempe City Council signs the IGA

- ✓ Finalize Architectural Standards and Conventions:
 - ✓ Error Handling and Error Messages
 - ✓ On-Line Help and Hover Help mechanism
 - ✓ Acquire Development Tool Set

Establish Development Environment

- ✓ Provide Hardware and Software Specifications

- ✓ Establish a Development Environment
 - ✓ Acquire Development Server HW/SW
 - ✓ Order Hardware/Software
 - ✓ Receive Hardware/Software
 - ✓ Install and Configure Hardware/Software
 - ✓ Network the Development Team
 - ✓ Install and Configure SQL 2005
 - ✓ Establish Connectivity to AOC's Development Environment
 - ✓ TMC/AOC Database Synchronization
 - ✓ Development Environment/Connectivity Established

Forms Development (Fantasia Replacement)

- ✓ Planning
 - ✓ Identify and Inventory all computer-generated forms used by the Court
 - ✓ Assess use of Crystal Reports as Forms Generator at Tucson City Court
 - ✓ Develop a mechanism to track the specification and development of each form
 - ✓ Prioritize each form by associating the form with a Functional Cluster
 - ✓ Develop a Forms Production Schedule
 - ✓ Reflect Production Schedule in tracking mechanism and the Project Plan

- ✓ Crystal Reports Training - Forms Generation
 - ✓ Schedule Crystal Reports Professional Designer Training
 - ✓ Crystal Reports Training
 - ✓ Crystal Reports v10 - Beginner Part I
 - ✓ Crystal Reports v10 - Beginner Part II
 - ✓ Crystal Reports v10 - Intermediate Part I
 - ✓ Crystal Reports v10 - Intermediate Part II
 - ✓ Install and Configure TMC PCs.

- ✓ Create Forms Specification for each Functional Cluster
 - ✓ Forms Specification Initiated
 - ✓ Develop forms specifications

Application Specification

- ✓ Specification Phase 1 (FC 01-06)
 - ✓ FC01 - Application Users & Navigation Groups
 - ✓ Obtain ERD View from AOC
 - ✓ Review features of AOC deliverable
 - ✓ Evaluate ERD View
 - ✓ Propose Changes as Needed
 - ✓ Review TMC Requirements with William Earl
 - ✓ Revise Table Specifications as needed
 - ✓ Update Physical Data Model
 - ✓ Complete Development of Security and Navigation Tree Maintenance Modules
 - ✓ Deliver and Install Security Release to TMC
- ✓ FC02 - Violation Code Maintenance

- ✓ Complete the Proof of Concept at the AOC by using Visible Developer (excluding Fee Codes and Surcharge Maintenance)
- ✓ FC03 - Complaint Entry-Related Code Tables
- ✓ Identify prerequisite code tables
- ✓ Generate Code Table Maintenance Processes
- ✓ Install into Development Environment
- ✓ Test Code Table Maintenance Processes
- ✓ Adjust the data panels as needed
- ✓ FC04 - Complaint Entry
- ✓ Scope desired enhancements to legacy functionality
- ✓ Meet with Court Staff to review scope & identify and prioritize desired functional changes and extensions
- ✓ Review policies and procedures @ pending and rejected complaints: When does a complaint become a case?
- ✓ Specify imbedded person and vehicle search requirements
- ✓ Document desired case assignment requirements
- ✓ Civil
- ✓ Criminal
- ✓ Prepare Table Specifications
- ✓ "Complete Drafting Table Specifications, elaborating the attributes and related Business Rules"
- ✓ Update the Physical Data Model (PDM)
- ✓ Review and accept Complaint Entry-related DB
- ✓ Incorporate the Changes into the PDM; produce revised ERD
- ✓ Process Specifications
- ✓ Prepare Specification for each identified Complaint Entry Data Panel:
- ✓ Police ATTC (Paper)
- ✓ Prepare a Use Case Specification; identify and document related Business Rules
- ✓ Prepare Data Panel Specification Template
- ✓ Develop Interim Business Object Specification Tool
- ✓ Draft design specification for paper ATTC Entry module
- ✓ Incorporate Data Panel Specifications in Use Case
- ✓ Prototype ATTC Entry using draft design specification
- ✓ Revise Design Specification tool as needed
- ✓ Demonstrate prototype ATTC Entry to TMC Staff
- ✓ Implement changes from demo (Visible Developer Task)
- ✓ Parking Complaint (Paper)
- ✓ Prepare a Use Case Characterization as part of the Data Panel Specification
- ✓ Prepare the Data Panel Specification
- ✓ Identify and document relevant Business Rules
- ✓ Review the Data Panel Specification and related Business Rules with Court Staff; revise as necessary
- ✓ Approve the Specifications
- ✓ Photo Enforcement Complaint (Paper)
- ✓ Prepare a Use Case Characterization as part of the Data Panel Specification
- ✓ Prepare the Data Panel Specification by comparing and contrasting with the Police ATTC entry process
- ✓ Identify and document relevant Business Rules
- ✓ Review the Data Panel Specification and related Business Rules with Court Staff; revise as necessary
- ✓ Approve the Specifications
- ✓ Long Form Complaint (Paper)
- ✓ Prepare a Use Case Characterization as part of the Data Panel Specification
- ✓ Prepare the Data Panel Specification by comparing and contrasting with the Police ATTC entry process
- ✓ Identify and document relevant Business Rules
- ✓ Review the Data Panel Specification and related Business Rules with Court Staff; revise as necessary
- ✓ Approve the Specifications
- ✓ Neighborhood Enhancement Complaint (Paper)
- ✓ Prepare a Use Case Characterization as part of the Data Panel Specification
- ✓ Prepare the Data Panel Specification by comparing and contrasting with the Police ATTC entry process
- ✓ Identify and document relevant Business Rules
- ✓ Review the Data Panel Specification and related Business Rules with Court Staff; revise as necessary
- ✓ Approve the Specifications
- ✓ Animal Complaint (Paper)
- ✓ Prepare a Use Case Characterization as part of the Data Panel Specification
- ✓ Prepare the Data Panel Specification by comparing and contrasting with the Police ATTC entry process
- ✓ Identify and document relevant Business Rules
- ✓ Review the Data Panel Specification and related Business Rules with Court Staff; revise as necessary
- ✓ Approve the Specifications
- ✓ Prepare Business Rule Specification for each identified Service Object
- ✓ Electronic Parking Complaint
- ✓ Research legacy electronic parking complaint processes
- ✓ Electronic Photo Enforcement Complaint
- ✓ Research legacy electronic photo enforcement complaint processes
- ✓ FC06 - Generalized Case/Party Search
- ✓ Prepare a Use Case Characterization as part of the Data Panel Specification

- ✓ Prepare the Data Panel Specifications
- ✓ Identify and document relevant Business Rules
- ✓ Review the Data Panel Specification and related Business Rules with Court Staff; revise as necessary

- ✓ Additional Analysis Resource

- ✓ Interview Candidates and Extend Offer
- ✓ Analyst On-Staff
- ✓ Orient and train analyst / OJT

- ✓ Specification Phase 2 (FC 07-12)

- ✓ FC07 - Disposition & Calendaring (Current)
- ✓ Reference Code Analysis
- ✓ Identify Reference Code Related Program Logic
- ✓ Document Use of Reference Codes

- Application Generation Using Visible Developer**
- ✓ Contract Visible Developer

- ✓ Recommend Contract Resource to TMC
- ✓ Contract and Schedule Visible Developer
- ✓ Set Up Work Area for Visible Contractor
- ✓ Plan Project Orientation for Visible Developer
- ✓ Visible Developer Contactor On-Site
- ✓ Conduct Orientation for Visible Developer
- ✓ Establish a Test Environment

- ✓ Develop a Plan
- ✓ Implement the Plan
- ✓ Test Environment Established

Appendix D

(High Level Plan):

(Summary Four Month Plan):

(Four Month Plan – September 9, 2005):