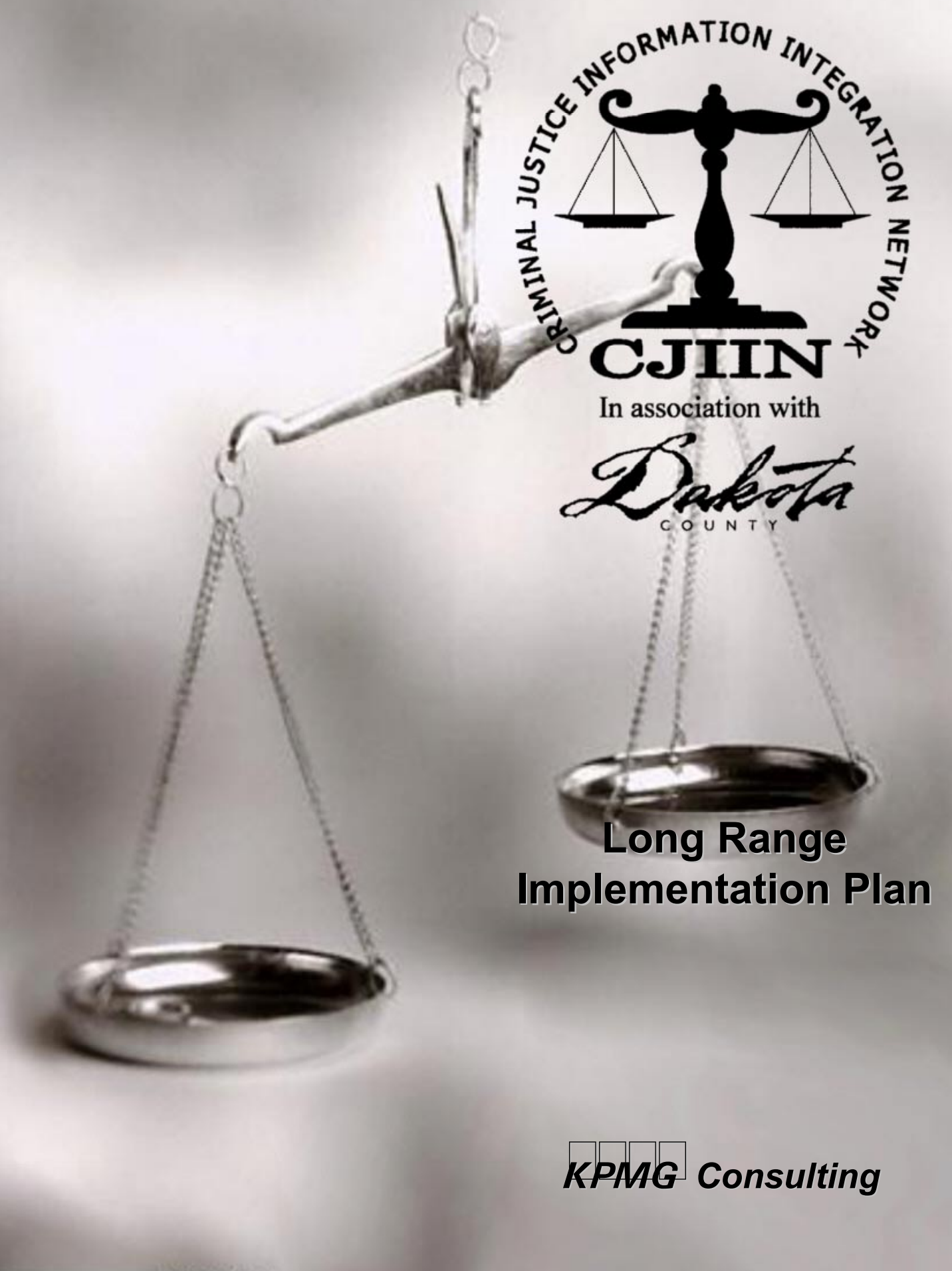


Long Range Implementation Plan

KPMG Consulting

For more information please contact:
Mary Cerkvenik
Dakota County CJIIN Project Manager
Administration Center
1590 Highway 55
Hastings, MN 55033
(651) 438-4559
Or
KPMG Consulting
Public Services/State & Local Government
4200 Wells Fargo Center
90 South Seventh Street
Minneapolis, MN (612) 305-5000

EXECUTIVE SUMMARY

This Long-Range Implementation Plan is the last of a series of deliverables that together comprise the Dakota County Criminal Justice Information Integration Network (CJIIN) Implementation Plan. The recommendations provided here by KPMG Consulting are presented in the form of initiatives that will guide the CJIIN in its role as a key component of CriMNet, the State of Minnesota's integrated justice network.

KEY RECOMMENDATIONS

The long-range plan includes a recommendation for continued governance of the CJIIN Project and five key initiatives.

Continued Governance of the CJIIN Project

As the CJIIN project moves from the planning to the implementation stage, governance of the project will continue to be a critical component to success. Over time, staffing and committee membership may take different configurations to best suite the project's needs, the general principles that will guide Dakota County's criminal justice integration, initially identified during the planning process, should be maintained. These integration principles, developed and agreed to by the current CJIIN Management and Steering Committees are:

- The Dakota County CJIIN shall be designed to optimize the workflow of the County's criminal justice enterprise.
- Implementation of the Dakota County CJIIN shall be phased and driven by practical and operational needs.
- Criminal justice information shall be captured at the originating point and shared with subsequent criminal justice business processes.
- Manual workload shall be reduced wherever possible.
- Multiple storage of the same information shall be eliminated or radically reduced.
- The Dakota County CJIIN shall comply with the vertical information-sharing requirements defined in CriMNet's State Enterprise Architecture.
- The Dakota County CJIIN technology infrastructure shall be component-based and use open standards consistent with the State Criminal Justice Architecture.
- The Dakota County CJIIN shall leverage existing technology investments where possible and economical.
- The CJIIN Technology Architecture shall be shared and, where possible be made available for other uses.
- A County-wide Governance Body shall enforce policies, standards and guidelines, and include representation from all criminal justice functions.
- The autonomy of each individual agency shall be respected.

The Development of these principles was guided by:

- The perceived values of the Dakota County criminal justice community.
- The business needs of Dakota County criminal justice workers
- The evolving State Criminal Justice Architecture
- Best practices in information systems integration, both within and without the criminal justice community.

By continuing to obtain criminal justice agency consensus around these principles through the implementation phase, the CJIIN will have a rationale for:

- defining common, shared business and technology initiatives that promote integration
- encouraging individual agency efforts to make their criminal justice information available to the larger criminal justice enterprise, and
- holding all participants accountable for participation in the larger enterprise effort.

Initiative I: Develop the CJIIN Hub

The CJIIN proposes to develop the CJIIN Hub, Dakota County's operational interface to CriMNet. Through the CJIIN Hub, criminal justice agencies shall securely access enhanced information on individuals, incidents and court cases throughout Minnesota. In a Phase I proof-of-concept, the CJIIN will provide criminal justice practitioners with the ability to query information on individuals, incidents and court cases located on multiple local information systems and at the State. In doing so, the CJIIN will test several of the technology standards proposed as part of the CriMNet architecture. Phase II, to be designed following further definition of the CriMNet Integration Backbone, will automate the transfer of information among Dakota County information systems in response to events in the criminal justice enterprise and provide full access to data in other CriMNet agencies.

Estimated Timeline: **March 2001 – January 2004**
Estimated Cost: **$6,107,500 - $8,107,500**

Initiative II: BCA/CJIIN Computerized Criminal History

Minnesota's criminal justice practitioners lack complete data on offenders due to shortcomings in the State's criminal history records. Mirroring a major effort planned by the Bureau of Criminal Apprehension, the CJIIN will analyze the causes of Dakota County's suspense file entries and recommend business process changes designed to eliminate further entries. In Phase I, the CJIIN Project Manager and participants will investigate the reasons for the significant number of Dakota County fingerprint and disposition submissions that end up in the suspense file and redesign the business processes within the County to significantly reduce the number of records in suspense. In

Phase II, the CJIIN will assist the State to develop new business processes to link Automated Fingerprint Identification System (AFIS) fingerprint submissions with the developing CriMNet Integration Backbone.

Estimated Timeline: **March 2001 – September 2002**
Estimated Cost: **Staff time**

Initiative III: CJIIN Business Process Improvement

The CJIIN Business Process Improvement Initiative seeks to further existing efforts to improve criminal justice business processes in Dakota County. This initiative will:

- Redesign critical horizontal exchange points to take advantage of the emerging capabilities of the CJIIN Hub and the CriMNet Backbone, and the evolving State Criminal Justice Data Model
- Continue work to implement the list of Quick Hits identified by Dakota County personnel and the CJIIN Steering Committee
- Identify shortcomings in data collection standards and recommend changes
- Expand CJIIN project planning activities to include all of the other criminal justice agencies throughout Dakota County

Estimated Timeline: **March 2001 – August 2001**
Estimated Cost: **Staff time**

Initiative IV: Expand the CriMNet Partnership

As the State's CriMNet Project moves forward from a conceptual architecture to a project plan, grantee counties will need to play key roles in influencing the direction of the Project. The CJIIN Project Manager, Steering Committee members, and staff from Dakota County's criminal justice organizations should be actively involved in directing the evolution of CriMNet, particularly, in regards to:

- Planning and Developing the State Integration Backbone
- Finalizing the State Data/Process Models
- Participation in a CriMNet Implementation Group
- Development of CriMNet Access and Criminal Justice Data Network (CJDN) Security Standards

Estimated Timeline: **March 2001 – November 2001**
Estimated Cost: **Staff time**

Initiative V: CJIIN Geographic Information System (GIS) Integration

The CJIIN proposes that Dakota County's substantial GIS resources be leveraged to improve crime analysis and the dispatch and deployment of law enforcement. In Phase I, the CJIIN will demonstrate the value of GIS data for investigation and crime analysis by deploying mapping tools that link local law enforcement incident data with county GIS data sources. An optional Phase II will integrate GIS data sources with local law enforcement dispatch centers and explore the use of Automated Vehicle Locator (AVL) technology to improve dispatch and deployment of law enforcement, medical, and fire units.

Estimated Timeline: **March 2001 – March 2002**
Estimated Cost: **$210,000**

CLIENT VALUE

This deliverable is important because it provides Dakota County a long range plan for implementation of manageable initiatives based upon recommendations in the Business Redesign Model for Dakota County's Criminal Justice Information Integration Network (CJIIN).

Validation of this document indicates that the Dakota County CJIIN and KPMG Consulting share a common understanding of the initiatives necessary to guide development of subsequent integration strategies, the information needs of criminal justice stakeholders, and the integration objectives of the CJIIN.

APPROACH

KPMG Consulting used initiatives recommended in the Business Redesign Model to create a task driven long-range plan that will guide the Dakota County CJIIN Project Manager and the Management and Steering Committees in the implementation of these initiatives.

With that said, we believe a brief discussion of other approaches that Dakota County could have taken will be helpful in substantiating the integration model the County is pursuing. There are two other primary models currently being used in criminal justice integration efforts throughout the country. They are:

- Suites of Unified Criminal Justice System Applications
- Data Warehousing

Suites of unified criminal justice system applications can be purchased off the shelf and adapted to client needs or built from the ground up. Either way they require the replacement of legacy systems throughout a criminal justice system. The benefit of this option is that it provides a very comprehensive unified solution. A unified suite can

potentially integrate all of the criminal justice entities throughout a jurisdiction, thus streamlining workflow automation within and across departments using a proactive notification system. The client has the advantage of working with only one vendor to create the application and troubleshoot problems as they arise. The downside is that the client has to be in the position to initially purchase the system. Fiscal constraints and the need to integrate with the larger statewide CriMNet effort eliminated this alternative for the Dakota CJIIN Project.

Data warehousing is used when a jurisdiction chooses to maintain their legacy systems, submit data to a data warehouse and allow other agencies within the system to query against that database. This option does not have any messaging capabilities and is too limited in scope for the vision of the CJIIN Project. The ability to eventually *push, pull, publish and subscribe* key information with messaging technologies was a high priority to the CJIIN team and will likely be more in line with the eventual capabilities of the State Integration Backbone.

The third option, consistent with the direction of the CJIIN Project, is an *enterprise application integration approach*, where criminal justice entities maintain their own systems and transfer information to each other through messaging technologies. This option best addresses CriMNet's primary goal of getting the right information to the right people at the right time. Although the unified applications option would have met this goal as well, the desire for local autonomy and potential cost impacts eliminated it from consideration.

CJIIN LONG-RANGE IMPLEMENTATION PLAN INITIATIVES

INITIATIVE I: DEVELOP THE CJIIN HUB

Initiative Description

The CriMNet State Architecture envisions linking local criminal justice information systems to CriMNet through:

- The *CriMNet Integration Backbone*, a set of technology components, or integration services, developed by the State to track unique crime incidents, individuals and court cases throughout the State, and
- *Local Agency Operational Interfaces*, technology components developed by local government and designed to link local criminal justice agencies to the CriMNet Integration Backbone. These components are to provide all participating CriMNet agencies a secure "window" to data in local criminal justice information systems, and enable exchange of those data among criminal justice systems in response to key events, such as an arrest or court case disposition.

KPMG Consulting recommends that the CJIIN pursue design and development of the *CJIIN Hub*, Dakota County's operational interface to CriMNet. The CJIIN Hub will be designed to:

- Expose key criminal justice data in Dakota County's criminal justice systems to the larger CriMNet community
- Enable the transfer of key criminal justice data between CJIIN information systems through integration services that are complimentary, but not redundant, to those offered by the CriMNet Integration Backbone

Functional Design of the CJIIN Hub

KPMG Consulting recommends that Dakota County develop the CJIIN Hub using a design proven in the high-transaction, high-availability world of e-commerce. Private sector firms seeking to link their existing systems to the World Wide Web use a design that leverages their existing information systems while taking advantage of the widespread use of the web browser, the application that enables users to view web pages. This design, pictured in Figure 1, offers considerable advantages in:

- Processing power – separate technology components can be tuned to perform their unique duties quickly

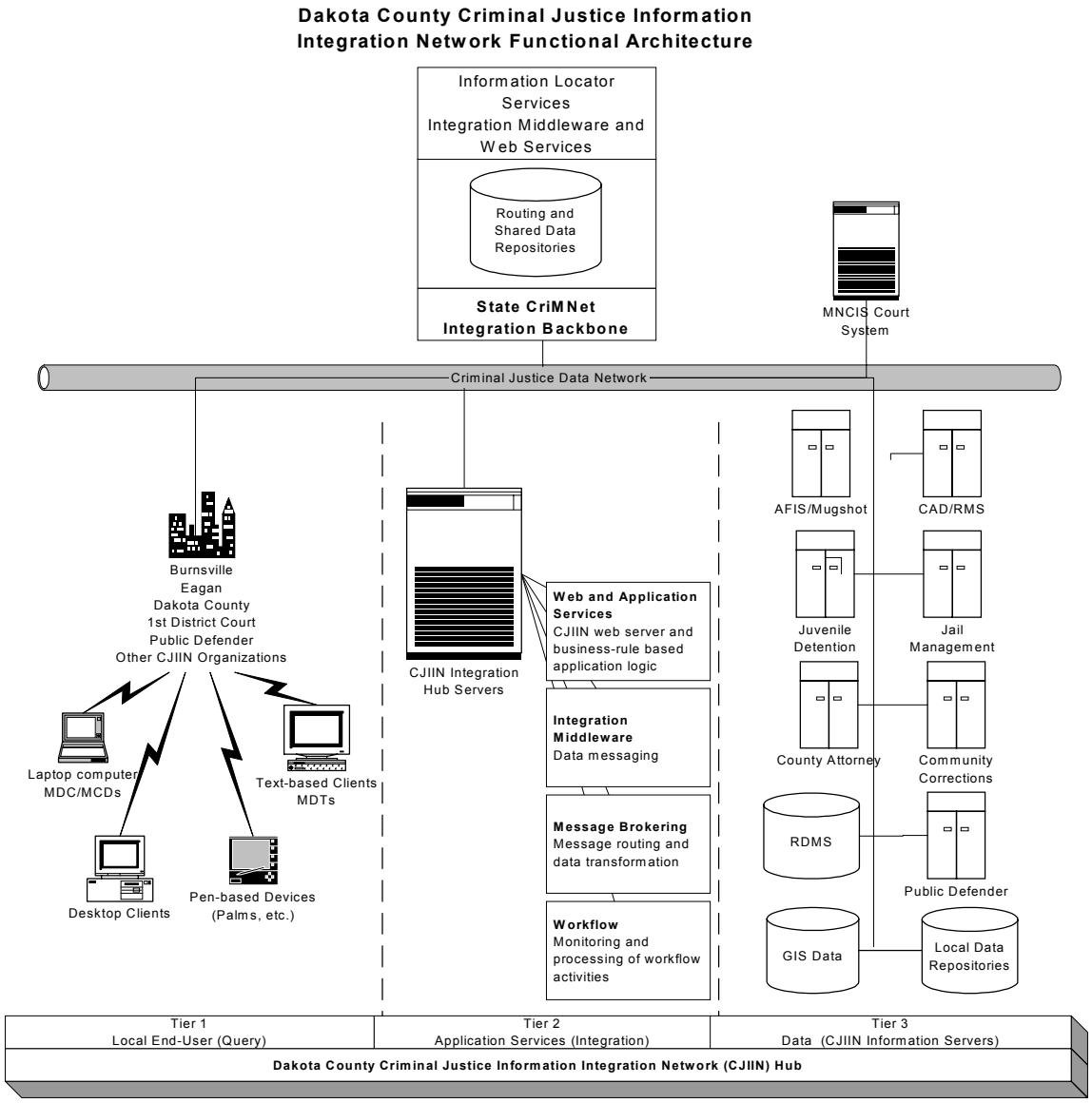


Figure 1: Functional Design of the CJIIN Hub

- Scalability – separate technology components can be "swapped out" in response to increases in user load
- Flexibility – separate technology components allow systems to exist on multiple platforms, operating systems and databases
- Multiple User Interfaces – Users can access systems using a variety of end-user interfaces: web browsers, "dumb" terminals, mobile computing devices, phones, pagers, etc.

- Reusability of components – System components can be used for multiple applications

Hub components shall have the following characteristics:

- Systems shall store their data in a common, SQL standard relational database management system. SQL Server, Oracle, Sybase and DB2 are common database platforms.
- Databases should support driver to permit data access, such as ODBC, OLEDB or JDBC.
- Databases should support triggers and/or stored procedures to permit the initiation of data messaging.
- Applications should support the export and import of data.
- Application platforms should support a TCP/IP network connection.
- Applications should be web-browser accessible.
- The Hub should support LDAP directory interaction.
- The Hub should support the eventual security architecture of CriMNet.

Three distinct component layers in the CJIIN Hub will fulfill different functions. The *Local End-User Layer* provides various methods for users to access the Hub. The *Application Services Layer* provides the interfaces to existing systems and permits information systems to communicate with each other in response to key business events, like an arrest or court case disposition. The *Data Layer* includes the information systems currently supporting CJIIN agencies.

Local End-User Tier

In the CJIIN Hub design, clients are those technology components that provide the interface to users. Clients can be web browsers, text-based "dumb" terminals, handheld, pen-based devices, or telephony devices. Clients generally do little processing, serving largely to pass data to the application tier.

One of the most popular clients today is the internet browser. It is widely deployed, platform independent, and offers a rich GUI environment. As Dakota County law enforcement upgrades the terminals in squad cars to mobile digital computer (MDC) units, the browser offers an attractive user interface option because it can be run on MDCs. Other clients can also be used, however, because processing is done at the application layer. Potential clients include legacy "dumb" terminals such as mobile digital terminals (MDTs), handheld pen-based computing devices, and telephony devices such as pagers and cellular phones.

Application Services Tier

Application-tier components process the data according to business rules – what happens to data in response to key business events. Applications are frequently referred to as

application services because they are available to multiple clients and can be used to process data residing in multiple databases.

While its final definition will need to await further definition of the State's CriMNet Integration Backbone, KPMG Consulting recommends that the CJIIN Hub offer four types of application services: Web/Application Services, Middleware Services, Message Brokering Services, and Workflow Services.

- **Web/Application Services** provide the applications and interfaces to criminal justice data in CJIIN information systems.
- **Middleware Services** provide the messaging software, connectors and queues that will permit the sending and receiving of data messages among systems.
- **Message Brokering Services** provide data transformation and single-point routing of data messages based upon business logic.
- **Work Flow Services** provide for monitoring and direction of work activities across systems and organizations.

Data Tier

Data Layer components are the multiple data sources which must be integrated in the CJIIN. Components include existing systems in local police departments and the Sheriff's office, the Jail and Juvenile Detention Center, the County Attorney, Public Defender's office, Community Corrections and the 1st District Court. Tier 2, the application services layer, would manage data transfer among these systems while permitting continued autonomy.

Other potential data sources include County GIS data, data repositories and warehouses, and any new Relation Database Management Systems (RDMS) that might be created to take advantage of the Application Services Tier.

Development Plan

KPMG Consulting recommends that CJIIN Hub development be guided by at least two teams:

- Project Management Team
- Integration Team

The *Project Management Team* should consist of at least the CJIIN Project Manager, management-level functional representatives from CJIIN agencies, and a management representative from Dakota County IT.

The *Integration Team* should consist of the Integration Team Project Manager, technical project staff and/or outside consultants, and functional/technical representatives from CJIIN agencies.

These teams will develop and implement a systems development work plan with common tasks. The work plan, composed of planning, execution, and testing tasks, is repeatable and can be applied to each major phase of CJIIN Hub development, though specific development activities may vary. The major tasks of the development plan for the CJIIN Hub should include at a minimum:

- Project Planning
- Joint Application Design (JAD)
- Data Access and Interface Design
- Technical Design
- System Construction
- System and Acceptance Testing
- Implementation

An overview of each task is presented in the following paragraphs.

Project Planning Task

The Project Planning Task will provide the opportunity for the Project Management Team and the Integration Team to define a work plan for the CJIIN Hub Project and the specific details for the Joint Application Design (JAD) sessions.

Project planning during this task includes detailed discussions of the overall implementation work plan and finalization of a detailed work plan for the Joint Application Design. For each component of the CJIIN Hub, the Technical Design, the Conversion and Interface Design, the System Construction, the Testing, and the Implementation Tasks will be presented at a higher level, but with sufficient detail to enable the contractor and the CJIIN to perform overall scheduling. Planning Task activities will include briefings, presentations, and training in the proposed integrated development environment, as needed.

The Project Planning Task will result in a Final Work Plan and Schedule, reflecting the detailed work breakdown, staffing, deliverables, and schedule for the JAD Task. A complete, but less detailed work plan and schedule will reflect the remaining project tasks, including planned deliverables. The Planning Task will continue throughout the project to the extent that the integration team will be required to prepare a Final Work Plan and Schedule prior to the start of each task.

Joint Application Design (JAD) Task

During this task, the integration team will build upon existing requirements analysis activities to finalize integration requirements and business processes and to validate system requirements previously defined.

JAD sessions should be focused in scope, be short in duration, and follow a sequential path. The system design documents resulting from the JAD will refine and provide the design solution for the system requirements. Use of prototypes to demonstrate functionality for stakeholders is a powerful JAD technique.

The primary product of the JAD sessions should be a Design Deliverable. This document will establish the final scope of work for the remainder of the project and must be approved by the stakeholders.

Data Access and Interface Design Task

The Data Access and Interface Design Task will consist of the planning, development, testing, and coordination of all data and file access strategies required to support the operation of the CJIIN Hub and each of its components. These strategies may include:

- Deployment of gateway access to modern relational databases
- Development of custom gateways to older legacy databases
- Data warehousing of data in older, legacy databases.

It will include finalization of the data mapping exercise begun as part of the CJIIN Implementation Plan's Gap Analysis, refining the data elements that need to be accessed, securing the data, development of data conversion and/or transformation requirements and exception processing procedures, and testing of conversion and transformation programs and procedures. This task also includes the deployment of all required system gateways.

In this task, the integration team will demonstrate, through comprehensive testing, that data required to support integration will be available and accurate and that all system interfaces are operational. The Data Access and Interface Design Task could be performed concurrently with the JAD Task, with the Technical Design Task, or overlapping both.

Technical Design Task

The Technical Design Task is intended to develop the highly detailed specifications to be used by programmers to develop the code for the system. These specifications will be documented in the Technical Design Document and must be approved by project management before work proceeds on construction of the component.

This task also includes product evaluation and selection of both software and hardware.

In addition to the technical design of the CJIIN Hub components, the Technical Design Document will consider the redesign of business processes identified in Initiative III of this document, CJIIN Business Process Improvement.

System Construction Task

During this task, the integration team will develop each component of the CJIIN Hub, then prove, through structured demonstrations, that completed application programs are ready for testing.

System and Acceptance Testing Task

The System and Acceptance Testing Task consists of two distinct testing efforts: integrated system testing and user acceptance testing. These testing efforts are designed to confirm that the CJIIN Hub, as installed by the integration team, meets CJIIN specifications and performs all processes accurately and in a highly automated manner. The System and Acceptance Testing Task should not be initiated until the Data Access and Interface Design Task and the System Construction Task are complete.

All CJIIN Hub components and modules shall be tested through integrated system testing. The integration team can demonstrate test results for all components to the stakeholders in structured demonstrations.

User acceptance testing should be conducted once the system is fully tested by the integration team and is determined to be operations-ready. The user/stakeholder community should conduct acceptance testing with the assistance of the integration team.

Implementation Task

During the Implementation Task, the integration team will deploy production version of CJIIN Hub components, train Dakota County criminal justice staff, and begin turnover to the maintenance team.

The Need for a Phased Development Approach

As noted in the Gap Analysis, the Department of Public Safety has just begun to define a work plan, schedule and functional descriptions of the integration services to be provided by the State-sponsored CriMNet Integration Backbone. CriMNet staff anticipate completing planning efforts for these services within the next 9 months.

Decisions made by the State regarding the scope of services to be provided by the Integration Backbone will significantly impact the scope, cost and development timeline of the CJIIN Hub. To the extent these services will be provided through the CriMNet Integration Backbone, the CJIIN may not need to develop them locally.

Figure 2 below depicts a representative sample of the services that would enable an integrated criminal justice network like CriMNet, and KPMG Consulting's estimate of their likely distribution between the Integration Backbone and local integration projects like the CJIIN. State Services (depicted in red) are those components most likely to be offered by the CriMNet Integration Backbone and offered for use by local agencies. State and/or Local Services (depicted in yellow) are those services which could be

assumed by either State or Local Government, or both, if the State elects not to extend these services to local integration projects. Local Services (depicted in blue) are those minimal services necessary for CriMNet participation.

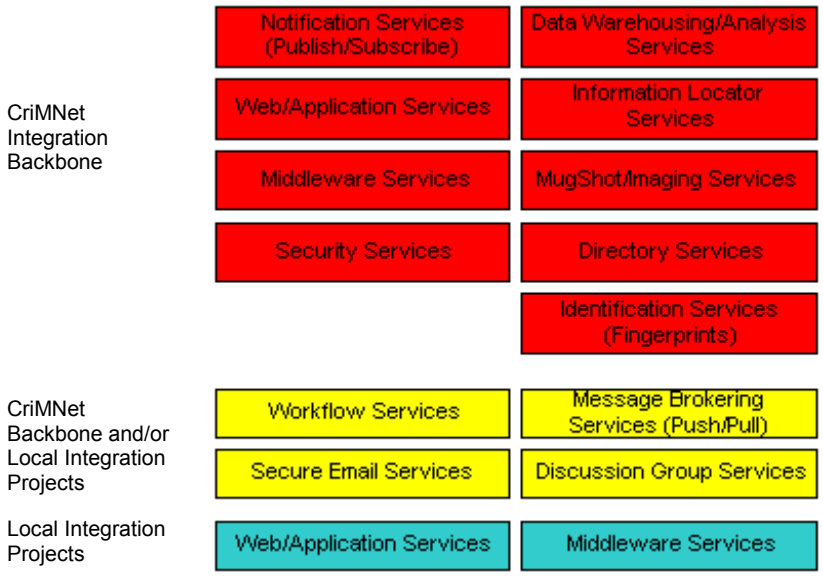


Figure 2: Potential Distribution of CriMNet Integration Services

Given the present uncertainty over the distribution of these services, we recommend that Dakota County move forward cautiously in designing and deploying the CJIIN Hub. A phased approach will:

- Provide Short-Term Success
- Demonstrate Progress in Designing CriMNet-compliant Local Integration Services
- Provide Validation of Each Phase After Completion
- Allow Use of Current Technologies Throughout the Implementation of the CJIIN Hub
- Provide Time to Incorporate the Still Evolving State CriMNet Architecture
- Avoid the Development of Local Integration Resources in Conflict with, or Redundant to, the State Integration Backbone

KPMG Consulting recommends that the CJIIN pursue development of the CJIIN Hub through two distinct phases. In *Phase I: Develop Web Interfaces and Browser-Based Query Tool*, the CJIIN would develop a set of web interfaces to existing criminal justice systems within the County and at the State. Data from these systems would be accessed through a secure web browser-based query tool.

Once the State CriMNet Project defines the functional services to be provided by the Integration Backbone, the CJIIN should pursue *Phase II: CJIIN Hub Integration and Workflow Services*. Phase II will focus on the design and development of integration and workflow services that will automate the County's criminal justice business processes and enable communication with the CriMNet Integration Backbone.

Phase I - Develop Web Interfaces and Browser-Based Query Tool

Though the CJIIN should exercise caution in determining the final functional design of the CJIIN Hub before the State Integration Backbone is defined, it can begin efforts to share criminal justice information through the development of:

- Web interfaces to existing criminal justice data, an Application Services Tier component, and
- A web browser-based query tool to access those data, an End-User Services Tier component.

Completion of this phase would allow criminal justice agencies throughout the county to access data from disparate county information systems through a web browser. This initiative could move forward as a partnership with the Minnesota Department of Public Safety. The Department is currently exploring a similar project for querying state databases, and has expressed interest in working with the Dakota County CJIIN to access selected state data.

Objectives of Phase I

Phase I seeks to develop a proof-of-concept for the CJIIN Hub. Central to the State's CriMNet architecture is the ability for application services to query, transform and organize key criminal justice data from a multitude of criminal justice information systems, securely, accurately and quickly. Phase I will test the feasibility of that concept.

By pursuing Phase I, the CJIIN will assist the State CriMNet project in testing the following architectural standards in the proposed CriMNet Technology Model:

- Network and Communication Service Standards
- Data and Information Service Standards
- Document Architecture Service Standards
- Security and Authentication Service Standards

In addition, Phase I will seek to validate the State Data Model by using proposed CriMNet data standards wherever possible.

More importantly, Phase I will, subject to the granting of access by those agencies providing data, provide CJIIN end-users in the Dakota County criminal justice community with online access to the following types of information:

- For an Individual, by Name and Date of Birth:
    - Local Data Sources
        - Local law enforcement agency arrest history
        - Dakota County Jail incarceration history
        - Dakota County Jail incarceration status
        - Involvement in crime incidents
        - Investigative status of those crime incidents
    - Statewide Data Sources
        - Active warrants, statewide
        - Order for Protection status, statewide
        - Gang involvement status, statewide
        - Arrest disposition
        - KOPS status, statewide
- For an Address:
    - Local Data Sources
        - Incident history
- Additional reports
    - Local Data Sources
        - Dakota County Jail census
        - Dakota County active warrants

As Phase I is developed, Project staff will explore integration with additional state data sources.

This information will be made available to CJIIN law enforcement personnel on their desktop PCs and, eventually, in the squad car as MDCs are deployed.

Data to meet these objectives shall be obtained from the following CJIIN information systems:

- Dakota County Jail ENFORS
- Department of Public Safety CJIS databases

- Minnesota Courts TCIS
- Burnsville Police Department VISIONS Record Management System
- Eagan Police Department LOGIS Record Management System

It is important to note that Phase I would provide the ability to *query* sources of data in existing criminal justice systems. It would not support the *transfer* of data between systems to support workflow that is at the heart of Phase II of the CJIIN Hub.

Development Approach

Design and development of Phase I shall be phased and driven by business need. KPMG Consulting recommends that data sources be added to Phase I of the CJIIN Hub sequentially. Figure 3 below depicts the order proposed.

In earlier deliverables, we identified the value of providing greater access to Sheriff's Office data. As the central organization that presently handles all arrest booking operations, longer-term detention and warrant entry, the Sheriff is a large provider of information to all other CJIIN criminal justice organizations. Providing greater access to those data first will provide the most immediate return for all CJIIN organizations.

Security concerns also dictate the phasing of the project. Deployment of the query tool will be initially limited to organizations within the secure Criminal Justice Data Network (CJDN) but will be expanded as security and authentication solutions are developed in cooperation with the Department of Public Safety.

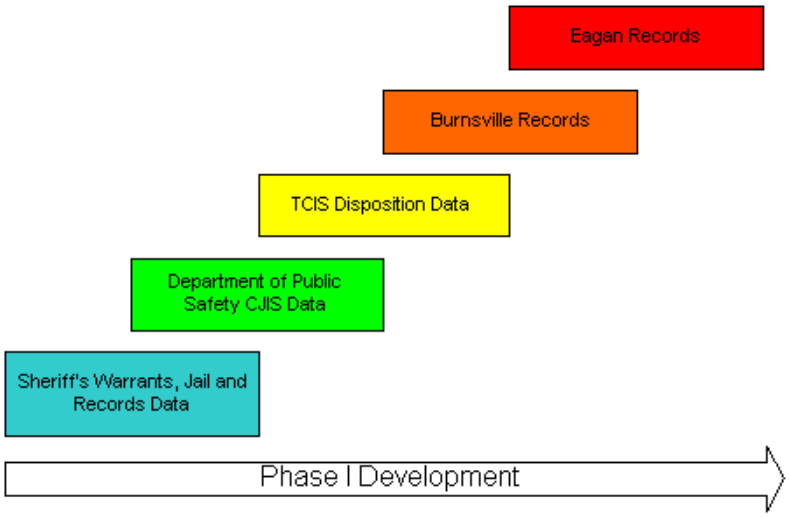


Figure 3 CJIIN Phase I Development

Tasks

Phase I development will be organized around completion of several high-level design and development tasks. In addition to the general tasks and objectives describe above in *CJIIN Hub Development Plan*, they include:

1. Project Planning
2. Joint Application Design (JAD)
   - 2.1. Identify Potential Users
   - 2.2. Validate Query Tool Design Objectives
   - 2.3. Validate Required Data Elements
   - 2.4. Develop Performance Standards
   - 2.5. Develop Query Tool Interface Design
   - 2.6. Design And Validate Prototype With End-Users
3. Technical Design
   - 3.1. Develop Network and Physical Security Design
   - 3.2. Develop Data Encryption and User Authentication Design
   - 3.3. Research and Select Development Tools
   - 3.4. Complete Detailed Technical Design
4. Data Access and Interface Design
   - 4.1. Design Database for Extract from ENFORS
   - 4.2. Develop Data Access Strategies for DPS CJIS Data
   - 4.3. Analyze ODBC/OLEDB connectivity to TCIS and LOGIS RMS, Develop Access Strategies
   - 4.4. Develop Access Strategies to VISIONS RMS
   - 4.5. Design Data Conversion/Transformation Routines to Address CriMNet Data Model compliance
   - 4.6. Develop search logic for organizing information according to individual
5. System Construction
   - 5.1. Construct User Security
   - 5.2. Construct Search Queries
   - 5.3. Develop Database for ENFORS Extract

5.4. Develop Browser-Based Query Tool

6. System and Acceptance Testing
7. Implementation

Phase II - CJIIN Hub Integration and Workflow Services

The second phase of developing the CJIIN Hub Initiative will involve design and construction of a common suite of *integration and workflow services* within the Hub. These services will support the horizontal work flow needs of the County criminal justice enterprise, and integrate vertically with the CriMNet Integration Backbone. The Hub's integration and workflow services will enable messaging of data among Dakota County and State criminal justice systems in response to criminal justice business events, and the monitoring of workflow between Dakota County's criminal justice organizations.

Because of the current lack of definition around services to be provided by the CriMNet Integration Backbone, Phase II should await further development of the CriMNet Integration Backbone planning efforts. Once the CJIIN has a clearer picture of the functional and technical specifications of the Integration Backbone, it can proceed in finalizing the functional specification of Phase II.

Objectives of Phase II

Phase II of the CJIIN Hub will provide full access to the statewide integration capabilities of the future CriMNet Integration Backbone. The CJIIN Hub, acting with the CriMNet Integration Backbone, will offer a window to data on individuals, incidents and court cases in the information systems of participating CriMNet agencies.

Phase II will also automate the workflow of CJIIN agencies through sophisticated data routing capabilities. CJIIN agencies will distribute data messages about key criminal justice events to other agencies by sending a single data message to the CJIIN Hub. The CJIIN Hub will also monitor these data transactions as they pass between information systems, enabling true workflow tracking across criminal justice agencies.

Development Approach

For purposes of illustrating the potential tasks and resources required to develop and deploy Phase II of the CJIIN Hub, KPMG Consulting assumed that the CJIIN Hub will be required to provide the following integration services.

Figure 4 Potential CJIIN Hub Phase II Integration Services

- **Web/Application Services** provide the applications and interfaces to criminal justice data in CJIIN criminal justice systems. These services will take advantage of the web interfaces and browser-based query tool developed in Phase I of the initiative.
- **Middleware Services** provide the messaging software, connectors and queues that will permit the sending and receiving of data messages among systems.
- **Message Brokering Services** provide data transformation and single-point routing of data messages based upon business logic.
- **Work Flow Services** provide monitoring and direction of work activities across systems and organizations.

While they are being depicted here as part of the CJIIN Hub, the State could develop Workflow Services and Messaging Brokering Services as part of the Integration Backbone.

Tasks

Phase II development will be organized around completion of several high-level design and development tasks. In addition to the general tasks and objectives describe above in *CJIIN Hub Development Plan*, specific project tasks may include:

1. Project Planning
   - 1.1. Identify Phasing of Integration Backbone Implementation and Replacement of Key Systems (MNCIS, LOGIS CAD/RMS, CAPS, ENFORS)
   - 1.2. Develop Phasing for Automation of Key Exchange Points Based on Business Value
2. Joint Application Design (JAD)
   - 2.1. Identify Potential Users
   - 2.2. Validate CriMNet Data Exchange Points
   - 2.3. Identify Additional CJIIN-Specific Data Exchange Points
   - 2.4. Model CJIIN Workflow, Including Event-Based Business Rules for Each Exchange Point

2.5. Develop Performance Standards for Each Exchange Point

3. Technical Design
   3.1. Incorporate CriMNet Network and Physical Security Design
   3.2. Incorporate CriMNet Data Encryption and User Authentication Design
   3.3. Incorporate Additional CriMNet Integration Services
   3.4. Research and Select Development Tools
   3.5. Research and Select Major Integration Components (Messaging Broker, Workflow Engine, Middleware)
   3.6. Complete Technical Design of Middleware Services and Local Agency Database Gateways
   3.7. Complete Technical Design of Workflow Services
   3.8. Complete Technical Design of Messaging Broker
   3.9. Complete Overall Detailed Technical Design
4. Data Access and Interface Design
   4.1. Design SQL Queries Based on CriMNet Web Query Design
   4.2. Design Modifications to Existing Systems to Send/Receive Missing CriMNet Data Elements
   4.3. Design Application Program Interfaces (APIs) to Existing Systems
   4.4. Analyze Legacy System Application and Database Code and Design Messaging Triggers
   4.5. Design Data Conversion/Transformation Routines to Address CriMNet Data Model compliance
5. System Construction
   5.1. Modify Existing Systems for Send/Receive Missing Data Elements
   5.2. Deploy Middleware and Complete System APIs
   5.3. Make System Modifications/Enhancements to Generate/Receive Messages
   5.4. Program Message Broker Routing with Event-Based Business Rules
6. System and Acceptance Testing
   6.1. Use Test Environment to Test All Data Exchanges
7. Implementation

Development Tools

The architecture recommended in the CJIIN Implementation Plan is very flexible, in that it can be implemented with a wide-range of technology tools. One of the most important tasks in the project schedule is the evaluation of the tools and selecting the right technology tool-set for the project going forward. Given the pace of technological change and the uncertainty around the State CriMNet Technology Architecture, final identification of tools should await the Technical Design Task.

Several factors need to be considered while evaluating and selecting these technology tool-sets. The following questions address these factors:

- Does the technology tool-set fit within the strategic technical vision of CriMNet and the CJIIN?
- What is currently the best technology tool-set available in the marketplace?
- How does the technology tool-set work with the existing technology tool-sets within the organization?
- Are there any compatibility issues with the technology tool-set?
- Is there long-term commitment and support for the technology tool-set from the vendor and within the industry in general?
- What will be the impact of the technology tool-set on technical staff in the organization?
- How difficult is it to learn and understand the technology tool-set?
- How difficult is it to hire people experienced with this technology tool-set?

There may be conflicting advantages and disadvantages to the answers. For example, should the CJIIN choose the best technology tool-set currently in the marketplace over another which has better long-term support and commitment in the future?

Most importantly, technology tool-set selection needs to be strategic in nature, opposed to project centric. Integration tools like those envisioned by CriMNet and the CJIIN have broad applicability for integrating other county and statewide business processes. The County should invest in integration tools that can be leveraged in other business areas, one of the principles of the CJIIN End-State Vision.

Currently in the marketplace there are two popular but distinct tool-sets. One of them, supported/marketed by Microsoft, might fit better with the Microsoft orientation of the Dakota County Information Technology Department. Alternatively, a JAVA-oriented tool set is supported/marketed by other major vendors, such as Sun Microsystems, IBM, and Oracle. Products are not necessarily mutually exclusive, and components from each could constitute an effective product suite.

A Microsoft tool set would include the products shown in the following table:

Tool Category	Products
Operating Systems	Windows NT Server
Relational Database Management Systems	SQL-Server
Development Languages	Object Pascal
Integrated Visual Development Environments	Delphi, Visual Basic
Web Browsers	Internet Explorer Netscape Navigator
Markup languages, scripting languages and associated tools	HTML, VBScript, Active Server Pages Microsoft Front Page
Web-Servers	Microsoft Internet Information Server
Application Servers	MIDAS, Microsoft Application Center
Directory Services (LDAP)	Microsoft Active Directory
Middleware and Messaging Technology	COM, DCOM, COM+ MSMQSeries/ MSMQ-MQSeries Bridge
Message-Oriented Middleware Brokers	Microsoft BizTalk Server 2000, Mercator, Tibco, SeeBeyond E*Gate, BEA Tuxedo, Vitria
Imaging Systems	FileNet
Workflow Systems	FileNet workflow
Design, Development, Modeling and Testing tools	Rational Rose, Requisite Pro, TestStudio DB-Artisan
Version Control Tools	Microsoft Visual SourceSafe
Reporting Tools	Crystal Reports

A sample JAVA tool-set could include the products shown in the following table:

Tool Category	Products
Operating Systems	Unix
Relational Database Management Systems	DB2
Development Languages	Java
Integrated Visual Development Environments	Jbuilder
Web Browsers	Internet Explorer Netscape Navigator
Markup languages, scripting languages and associated tools	HTML, SGML, XML JavaScript Java Server Pages ColdFusion
Web-Servers	Apache, iPlanet Web Server Enterprise Edition
Application Servers	IBM Websphere, iPlanet Application Server
Directory Services (LDAP)	iPlanet Directory Server
Middleware and Messaging Technology	CORBA EJB MQSeries
Message-Oriented Middleware Brokers	IBM MQSeries Integrator, Mercator, Tibco, SeeBeyond E*Gate, BEA Tuxedo, Vitria

Tool Category	Products
Imaging Systems	Content Manager
Workflow Systems	MQWorkflow
Design, Development, Modeling and Testing tools	Rational Rose, Requisite Pro, TestStudio Erwin, File-Aid
Version Control Tools	PVCS
Reporting Tools	Crystal Reports

Limitations/Dependencies

Full implementation of the CJIIN Hub is also dependent on additional technology projects. These include:

Replacement of ENFORS and CAPS

KPMG Consulting recommends that the County pursue replacement of two key legacy applications:

- ENFORS Jail, Records and Warrants
- County Attorney CAPS

As was noted in the Gap Analysis, these applications are based on a technology not well-suited to integration. ENFORS uses a flat file data structure, running on a proprietary operating system. Changes in application logic and extraction of data require custom COBOL coding, and there are no standard interfaces to system data. CAPS, with its Datacom database running on an MVS mainframe operating system, is likewise not well suited to integration.

Replacements for these systems should have the following characteristics:

- Store their data in a common, SQL standard relational database management system. SQL Server, Oracle, Sybase and DB2 are common database platforms.
- The database should support driver to permit data access, such as ODBC, OLEDB or JDBC.
- The database should support triggers and/or stored procedures to permit the initiation of data messaging.
- The application should support the export and import of data.
- The platform on which it resides should support a TCP/IP network connection.
- The application should be web-browser accessible.
- The application should support LDAP directory interaction.
- The application should support the eventual security architecture of CriMNet.

MDC Deployment

KPMG Consulting also recommends that CJIIN agencies pursue replacement of Mobile Digital Terminals (MDTs) with Mobile Digital Computers (MDCs) in local law enforcement squad cars. As noted in the Gap Analysis, MDCs will provide the ability to capture data in the field, through CAD/RMS field reporting modules. MDCs graphical user interface also provides the ability to access a wider variety of criminal justice applications in the field. The current status of MDC deployment in CJIIN agencies is:

- Eagan Police Department has deployed MDC units in squad cars.
- Dakota County Sheriff's Office has no immediate plans for MDC deployment.
- Burnsville Police Department plans MDC deployment in 2001.

Functional Design of the CriMNet Backbone

Final design of the Phase II of the CJIIN Hub will be influenced by the ongoing development of the CriMNet Integration Backbone.

Replacement of Other Key Criminal Justice Systems

The timing of the replacement of two other key criminal justice systems will affect the phasing of CJIIN Hub Development. The MN Court's MNCIS Project is nearing final vendor selection, and a detailed project plan and timeline for implementation will be forthcoming. As a participant in LOGIS, Eagan's CAD/RMS will be replaced in the near future. LOGIS will be issuing a RFP during the Spring of 2001. Short-term interfaces can be constructed to each of these legacy applications, but the cost must be balanced against the benefit of waiting for implementation of their replacements.

Implementation Timeline (March 2001–January 2004)

KPMG Consulting estimates that Phase I of the CJIIN Hub could be completed in 6 to 9 months. Phase II design, development and deployment to CJIIN participating agencies and the remaining 12 law enforcement agencies in Dakota County will take approximately 2 years.

Participants

Participants to accomplish this initiative will include:

- CJIIN Project Manager
- IT personnel from Dakota County criminal justice agencies
- Functional personnel from Dakota County criminal justice agencies

- Dakota County IT personnel.
- State of Minnesota, Department of Public Safety IT personnel

Resources

Estimating the cost of constructing the CJIIN Hub is difficult given the uncertainty around the CriMNet Backbone functionality and the integration services that will be required to be implemented by local integration projects like the CJIIN.

Based on similar projects conducted elsewhere, however, we believe that implementation costs could range between $6,207,500 and $8,207,500. Cost estimates are:

Phase I: Develop Web Interfaces and Browser-based Query Tool ($600,000 - $870,000)

- Professional System Design and Development Services: $550,000 – $820,000
- Hardware/Software: $50,000

Professional services were estimated assuming 3,140–4,690 hours of labor at a blended rate of $175 per hour.

Phase II: - CJIIN Hub Integration and Workflow Services ($3,200,000 - $4,930,000)

- Professional System Design and Development Services: $2,950,000 – $4,680,000
- Hardware/Software: $250,000

Professional services were estimated assuming 16,860–26,740 hours of labor at a blended rate of $175 per hour.

Ongoing CJIIN Hub Maintenance and Support ($42,500+)

- CJIIN Hub Application Maintenance and Support: will require additional IT staffing, funding to be provided potentially through a joint powers agreement among participating localities
- Ongoing Software/Hardware Maintenance and Support: $42,500

CJIIN Project Management ($200,000)

- Permanent Project Manager and Support Staff: $200,000

Replacement of Dakota County Legacy Systems- ENFORS, CAPS ($1,504,000)

- County Replacement of CAPS: $300,000

- County Replacement of Sheriff's Office ENFORS: $1,000,000
- Ongoing Software/Hardware Maintenance and Support: $204,000

These system replacement costs will be borne by Dakota County.

MDC Deployment to Sheriff's Office Patrol Cars ($661,000)

- MDC Hardware, Software, Switch Upgrades and Switching Software: $565,000
- Ongoing Software/Hardware Maintenance and Support: $96,000

As CriMNet Backbone functionality is further defined, KPMG Consulting will be pleased to provide revised cost estimates to the Dakota County CJIIN.

INITIATIVE II: BCA/CJIIN COMPUTERIZED CRIMINAL HISTORY

Initiative Description

The accuracy and timeliness of criminal history information is a key component to CriMNet. Reduction and eventual elimination of the current criminal history suspense file at the Bureau of Criminal Apprehension (BCA) is one of the Department of Public Safety's major goals. The BCA will be sponsoring a major initiative designed to reduce the number of suspense file entries and prevent their creation.

CriMNet will be designed to eliminate the need for a suspense file. Its design calls for a statewide index of information on individuals in the criminal justice system, regardless of conviction status. When an individual enters the criminal justice system via the booking process, a unique identification number will be assigned and all subsequent criminal data regarding that individual will be attached to that record.

As CriMNet is developed, the Automated Fingerprint Identification System (AFIS) fingerprint submission will link individuals with incidents and court cases. Integration of AFIS with the CriMNet Integration Backbone is essential for CriMNet's success. As State AFIS systems are designed to meet the needs of CriMNet, local assistance will be critical to designing appropriate business processes and fingerprint submission procedures.

This initiative has two phases:

Phase I - Redesign Current Business Processes To Reduce Suspense File Entries

Phase I will investigate the reasons for the significant number of Dakota County fingerprint and disposition submissions that end up in the suspense file, and redesign the business processes within the County to significantly reduce their numbers.

Tasks:

1. Create an ad hoc working group to share and coordinate the work of this initiative and report progress to the CJIIN Steering Committee
2. Document the protocol the BCA uses to determine whether a submission is acceptable or goes into suspense
3. Document the process the BCA uses for notifying law enforcement agencies that a submission has been suspended
4. Document the protocol the BCA uses to establish a CCH File

5. Document the process(es) Dakota County local law enforcement agencies use to submit fingerprints to the BCA via AFIS or fingerprint cards
6. Document the process the Courts use to submit dispositional information to attach to an existing CCH File or fingerprint card at the BCA
7. Document Dakota County's process for submitting the Offender Tracking Form to the BCA
8. Document the process the BCA uses upon receipt of an Offender Tracking Form
9. Determine role of AFIS submissions in initiating CCH Files
10. Develop and document new business practices for Dakota County local law enforcement and the Courts that will reduce the number of submissions that land in the suspense file.
11. Develop protocol with BCA for notification of problematic submissions
12. Train appropriate Dakota County personnel in correct submission procedures

Phase II - Assist the BCA With AFIS/CriMNet Integration

Reengineer the process of submitting fingerprints through AFIS or by fingerprint cards and subsequent criminal data on individuals to meet the requirements of CriMNet as they become defined.

Tasks:

1. Assist the BCA in determining the role of AFIS, fingerprint card submissions and criminal history information in the context of the CriMNet Backbone
2. Participate in the development and documentation of new business practices to meet the requirements of CriMNet
3. Develop protocol with the BCA for notification of problematic submissions
4. Train appropriate Dakota County personnel in correct submission procedures to meet CriMNet requirements

Limitations/Dependencies

The success of both the elimination of the suspense file and reengineering the criminal history file business process to meet the requirements of CriMNet are dependent on the willingness of the BCA to work with local law enforcement booking agencies and district courts throughout the state. Because of the multitude of reasons that submissions from counties can end in suspense, a county by county evaluation is likely to be necessary. There will need to be a cooperative hands-on effort by both BCA and County personnel.

Phase II will be dependent upon the role of AFIS in the Integration Backbone which is yet to be defined.

Implementation Timeline (Phase I: March 2001–August 2001; Phase II: January 2002 -)

Phase I of this initiative can begin immediately assuming cooperation and dedication of personnel time from the BCA as well as dedicated personnel time in the County.

Phase II will begin after capabilities of the CriMNet backbone and protocol regarding AFIS and criminal history information submissions are determined. This could begin as early as January 2002 assuming the architecture of the Integration Backbone stays on schedule.

Participants

Accomplishing this initiative would require participation of:

- CJIIN Project Manager
- Representatives from the CJIIN Project
- Representatives from the BCA
- Dakota County law enforcement personnel responsible for submitting AFIS and fingerprint card information to the BCA
- First District Court Administrative personnel responsible for submitting dispositional information to the BCA
- Dakota County Attorney personnel responsible for submission of the Offender Tracking Form to the BCA

Resources

This initiative will require dedication of County personnel time to work with other County criminal justice staff and BCA officials to determine why submissions are ending in the suspense file, what business practices need to change to avoid future suspense submissions, and business practice changes necessary for AFIS integration with the CriMNet Backbone.

INITIATIVE III: CJIIN BUSINESS PROCESS IMPROVEMENT

Initiative Description

As the CJIIN effort continues to move forward several business process initiatives will require continued work and analysis**.** We have identified four projects upon which we believe the Dakota County CJIIN should concentrate effort and resources:

1. Redesign critical horizontal exchange points to comply with CriMNet standards and to take advantage of the emerging capabilities of the CriMNet Backbone and CJIIN Hub
2. Continue work to implement the list of Quick Hits identified by Dakota County personnel and the CJIIN Steering Committee
3. Identify shortcomings in data collection standards and recommend changes
4. Expand CJIIN project planning activities to include all of the other criminal justice agencies throughout Dakota County

1. Redesign Critical Exchange Points

As the State CriMNet Project finalizes the standards for data exchange through the CriMNet Backbone and defines its functional services, the CJIIN should complete a more detailed analysis and redesign of the exchange points identified in its Current Process Model. The objective of this redesign will be to define the information workflow to be automated through the Integration Backbone and/or CJIIN Hub.

Tasks

1. Participate in State and County workgroups to analyze and redesign horizontal exchange points
2. Confirm the critical exchange points within the Dakota County criminal justice system
3. Determine for each exchange point the specific data elements necessary to accomplish the exchange requirements
4. Identify any additional data exchange opportunities not defined by the CriMNet model
5. Prioritize the exchange points in order of desired implementation

Implementation Timeline (March 2001–June 2001)

The CJIIN's involvement with the State CriMNet Project in defining key exchange points can begin immediately. Potential interactions with the Integration Backbone, however,

will be emerging over the next six months as the State determines the scope of its capabilities.

Participants

Accomplishing this initiative would require participation of:

- CJIIN Project Manager
- Representatives from all Dakota County criminal justice agencies interested in participating in the electronic data exchange project
- Technology experts representing the various criminal justice data systems participating in the electronic data exchange project
- State CriMNet Project staff

Resources

The CJIIN Project Manager and County business subject matter experts will need to spend considerable time working with personnel throughout Dakota County's criminal justice system to identify and prioritize the key exchange points and critical data fields, as well as with CriMNet staff to refine exchange point development. These subject matter experts will need to be available for weekly meetings during this development phase. KPMG Consulting does not anticipate the need for outside consulting help for this initiative.

2. Continue Quick Hits Implementation

Dakota County personnel and the CJIIN Steering Committee identified a list of Quick Hits to accomplish several short-term business and technology solutions to information needs. They fall into four categories:

- Provide Increased Access to Databases
- Streamline Reporting
- Enhance Usage of Existing Systems
- Design and Implement Web Query Application for Legacy Systems

Many of these efforts are progressing successfully under the direction of the CJIIN Project Manager. We encourage Dakota County to continue to pursue these projects where economical.

Tasks

1. Identify County criminal justice personnel who would benefit from access to additional data systems

2. Research certification requirements for Dakota County investigators to gain access to CJIS/NCIC CCH Files
3. Research issues related to data privacy when applicable
4. Develop a plan to fund additional terminals and licenses
5. Obtain management commitment to support training and additional equipment costs for CCH access
6. Schedule installation implementation
7. Identify and schedule appropriate training for County personnel

Limitations/Dependencies

Increasing access to agency databases will require personnel time and some expense by Dakota County. For County personnel to maximize the benefit of access to more criminal justice data, training on the systems may be necessary. Commitment on the part of County IT personnel to maintain these systems will also be required.

Obtaining CJIS/NCIC CCH certification for County investigators will require negotiations with BCA personnel and commitment on the part of County management to pay training and equipment costs.

Implementation Timeline (March 2001–August 2001)

This initiative is already underway under the direction of the CJIIN Project Manager. Most of the initiatives should be able to be accomplished within the next six months assuming data privacy issues do not become overly burdensome and funding for additional licenses and terminals is available.

Participants

- CJIIN Project Manager
- Representatives from criminal justice agencies interested in obtaining increased systems access
- IT personnel from affected criminal justice agencies
- Dakota County IT personnel
- Dakota County Attorney representative
- BCA CCH personnel

Resources

This initiative can be accomplished if the CJIIN Project Manager and County personnel continue their commitment to implementing the list of Quick Hits. Responsibilities for various tasks to accomplish these initiatives have already been assigned to CJIIN Steering Committee members. If funding for the additional terminals and licenses is forthcoming, implementation of all of the projects in the Quick Hits initiative should be possible.

3. Identify Shortcomings In Data Collection Practices

When CriMNet data requirements are finalized, it will be necessary for Dakota County CJIIN project personnel to verify that the current criminal justice systems throughout the County are collecting data appropriately to support the requirements. In our study of the three law enforcement agencies' records management systems, we discovered anecdotal evidence that some information required in the current draft of the State Data Model is not stored electronically in those systems (i.e., investigative statements, names of all individuals involved in an incident, and evidence collected). Although modules for the required data elements exist in all of the records systems, they are not currently being fully utilized. Agencies' participation in CriMNet may require business practices to change to ensure that information is collected and stored to ensure successful integration.

Secondly, there is the potential that the State may decide to report criminal justice data in accordance with the National Incident-Based Reporting System (NIBRS) standards. This could mean changes in data collection practices in law enforcement agencies throughout the County and require expenditures to comply with the new requirements. Dakota County CJIIN Project staff need to keep a close eye on this potential decision. KPMG Consulting recommends that Dakota County wait pursuing NIBRS compliance until the State makes a policy decision to require it.

Tasks

1. Evaluate data collection practices for each of the data elements in the exchange point model
2. Recommend changes to business processes necessary to ensure systems store appropriate data elements for CriMNet
3. Create a means of communicating requirements and updates from CriMNet to County criminal justice and systems personnel
4. Evaluate the impact of NIBRS compliance on existing systems and data collection practices
5. Research steps to obtain funding for converting to NIBRS

Limitations/Dependencies

CJIIN Project staff have limited information regarding the data collection practices in the numerous law enforcement agencies throughout the County. Once CriMNet requirements become more defined, verification that County agencies are collecting and storing appropriate data will be necessary.

Implementation Timeline (June 2001–August 2001)

This initiative can begin after CriMNet Exchange Point standards are finalized in June 2001. If the State decides to mandate NIBRS compliance, evaluation of the impact on existing systems would need to begin at that time.

Participants

- CJIIN Project Manager
- Dakota County criminal justice personnel from participating agencies
- IT personnel from participating criminal justice agencies

Resources

Once the CriMNet data requirements become finalized, the evaluation of the data elements and data collection practices can be done relatively quickly based upon mapping of data elements in existing County systems. This analysis will require participation from IT personnel both at the County level and in each criminal justice agency planning to participate in data exchange activities through CriMNet.

4. Expand CJIIN Project Participants

As the CJIIN project moves into the implementation phase, participation by other law enforcement agencies in Dakota County will be required. We recommended in the Business Redesign Model that the current composition of the CJIIN Steering Committee be changed to include representation from additional municipalities as well as a balance of large and small law enforcement agencies. The initial opportunities for participation are:

- Participation in the Web Query Tool
- Representation on the proposed CJIIN Technology Committee
- Representation on the proposed criminal justice GIS working group

Participation in the Web Query Tool:

The web query initiative will be a phased project beginning with the Dakota County's jail, warrants and case management modules, followed by DPS CJIS data, District Court dispositions and Burnsville and Eagan Police Department's case management modules. Assuming successful implementation of this technology, the plan is to expand access to the information systems of other law enforcement agencies in the County.

Representation on the proposed CJIIN Technology Committee:

In the Business Redesign Model, we recommended that the CJIIN establish a permanent Technology Committee to support the CJIIN Management and Steering Committees. This committee should include representation from the technology departments of the law enforcement agencies throughout the County to provide input into design and development activities and to prepare local criminal justice agencies for integration.

Representation on the proposed Criminal Justice GIS Working Group:

In the GIS/AVL Integration Initiative described later in this document, KPMG Consulting recommends that the CJIIN establish a county-wide Criminal Justice GIS Committee. This committee would be responsible for planning and implementing GIS/AVL initiatives for criminal justice agencies throughout the County. Representation from technology departments, records management and law enforcement investigative personnel will be required for this committee to plan useful applications using GIS and AVL technologies.

Tasks

1. Broaden the web query tool to include other agencies records management information systems
2. Include technology representatives from all law enforcement agencies throughout the County on the CJIIN Technology Committee
3. Include representatives from other law enforcement agencies on the proposed criminal justice GIS working group

Limitations/Dependencies

Extending access to the web query tool to agencies outside of the Sheriff's segmented network will require a strategy for dealing with data privacy and security issues.

Implementation Timeline (March 2001 -)

- **Participation in the Web Query Tool:** Dakota County plans to move ahead with the web query tool initiative in February 2001. However, because the tool will only initially be built to query systems within the Sheriff's Department and then

the Court, participation by other County criminal justice agencies will not likely happen in the next few months.

- **Representation on the proposed CJIIN Technology Committee**: If the recommendation to establish a CJIIN Technology Committee is approved by the CJIIN Steering and Management Committees participation by all law enforcement IT departments throughout the County can and should begin immediately.
- **Representation on the proposed Criminal Justice GIS Working Group:** If the recommendation to establish a GIS Crime Analysis Working Group is approved by the CJIIN Steering and Management Committees, participation by any interested law enforcement agency and municipal GIS personnel can and should begin immediately.

Participants

- CJIIN Project Manger
- CJIIN Steering Committee Members
- Dakota County law enforcement agencies' records management personnel
- Dakota County law enforcement agencies' investigative personnel
- Dakota County law enforcement agencies' technology personnel
- Representatives from Dakota County city and county GIS departments

Resources

Resources for the committee initiatives are almost entirely personnel time from the various criminal justice and municipal agencies throughout the County and time from the CJIIN Project Manager to coordinate the recommendations from the committees with the CJIIN Management and Steering Committees.

INITIATIVE IV: EXPAND THE CRIMNET PARTNERSHIP

Initiative Description

As the State's CriMNet Project moves forward from a conceptual architecture to a project plan, grantee counties will need to play key roles in influencing the direction of the project. Without local involvement in all stages of the design, development and implementation of CriMNet, Minnesota risks creation of a criminal justice network that is not integrated with local partners.

Involvement of the Dakota County CJIIN in the specifics of CriMNet development should not end with the planning phase of its project. Steering committee members and staff from Dakota County's criminal justice organizations should be actively involved in influencing the evolution of CriMNet, particularly in regards to:

- **Planning and Development of the State Integration Backbone** – County technical and business process staff will need to influence both the technical architecture to be deployed as well as the definition of the criminal justice business transactions to be supported by the Backbone.
- **Finalization of the State Data and Process Models** – Considerable work remains on finalizing the State Data and Process Models. Large subject areas have yet to be defined. We recommend that the CriMNet Project use SEARCH's Exchange Point tool to focus additional work on those data elements and business processes critical to driving the workflow of Minnesota criminal justice agencies.
- **Participation in a CriMNet Implementation Group** – We have suggested to CriMNet project staff that a CriMNet Implementation Working Group be created, either separately or under the aegis of the current State Data Group, one of the groups that makes up the Minnesota Criminal & Juvenile Information Policy Group and Task Force. A CriMNet-sponsored venue for interaction among parties actively involved in design and development of CriMNet is necessary to share information, findings and ideas.
- **Development of CriMNet Access and CJDN Security Standards** – Decisions made regarding access and security protocols within the Criminal Justice Data Network will have great influence upon local CriMNet development efforts. CJIIN representatives need to actively engage with the State in the development of these standards.

Tasks

- CJIIN Project Manager should attend meetings regarding planning the State's Integration Backbone
- CJIIN Project Manager should attend weekly meetings of the State Criminal and Juvenile Justice Information Data Group

- CJIIN Project Manager and staff should identify key Dakota County criminal justice exchange points and associated data elements and communicate that information to the State Data Group and the Integration Backbone Planning Committee
- CJIIN Project Manager or County and local law enforcement agencies' IT staff should assist the CriMNet Staff in determining Application Interface Specifications to be used by local agencies in designing interactions with the Integration Backbone

Limitations/Dependencies

Progress dependent on State's completion of the CriMNet implementation plan and finalization of the State Data Model. Successful completion will depend on the State's commitment to soliciting meaningful input from grantee counties.

Implementation Timeline (March 2001-November 2001)

State facilitated meetings to plan the Integration Backbone and finalize the State Data and Process Models are anticipated to extend over the next six to nine months.

Participants

- CJIIN Project Manager
- Technology staff from CJIIN criminal justice organizations
- Representatives from the CriMNet Grantee Counties, BCA, DPS, Minnesota Courts and participants in the Minnesota Criminal & Juvenile Information Policy Group and Task Force and Data Group

Resources

- CJIIN Project Manager's time attending State facilitated planning meetings.
- CJIIN Project Manager's time working with County law enforcement agency records management staff.
- County law enforcement IT staff to advise the direction of the final Data and Process Models.
- Dakota County IT and local law enforcement IT to advise the State in determining security standards.

INITIATIVE V: CJIIN GIS INTEGRATION

Initiative Description

Geographic Information System (GIS) data provides a spatial element to link crime and geographic data. GIS is a powerful tool that can improve the ability of Dakota County criminal justice agencies to investigate, evaluate, and respond to crime. As described in the CJIIN End-State-Vision, one of Dakota County's goals is to make better use of the County's considerable existing GIS capabilities. Although GIS data is available for law enforcement as it is for other County organizations, use of this tool for criminal justice is still in its infancy. Eventually, the CJIIN will make use of GIS for investigation and analysis as well as dispatch and deployment of law enforcement resources.

This initiative will occur in two phases. In Phase I , the value of GIS data for investigation and crime analysis will be demonstrated by deploying mapping tools that link law enforcement incident data with county GIS data sources**.** Phase II will integrate GIS data sources with local law enforcement dispatch centers and describes an option available to the Dakota County dispatch centers to use Automated Vehicle Locator (AVL) technology to improve dispatch and deployment of law enforcement, medical, and fire units.

Dakota County is currently using a general tool called ArcView, an application with spatial analysis capabilities, in assisting Apple Valley and Burnsville. Burnsville is planning on implementing CrimeView and FireView, customized add-on interfaces to ArcView in 2001.

Eagan currently has an add-on similar to CrimeView called "Cop Map" which detects crimes by address, area, and type of crime. Cop Map was written to link information between Eagan's in-house geofile and CAD database. Eagan's geofile was created to store data specific to their criteria. Eagan dispatch believes their geofile is the most complete database they have, but it is not used for routing purposes, only as a verification tool to make sure all entries are consistent before dispatching services.

Phase I: GIS for Investigation and Crime Analysis

GIS technology offers enormous potential in enabling a law enforcement agency to:

- **Improve investigative capabilities** – The geographic distribution of specific crimes can lead to the identification of patterns useful to investigators pursuing a suspect. The visual format shows relationships and patterns that can many times be buried in all of the data.
- **Identify crime and accident patterns to guide resource deployment** – Identification of crime and accident patterns can improve deployment of law enforcement resources and point to needed changes in traffic routing and enforcement of traffic laws.

Tasks

This phase of the initiative will involve the following tasks:

- Create a GIS Crime Analysis Working Group
  - Motivate and develop awareness of GIS capabilities among law enforcement personnel through educational training
- Identify Potential Applications of GIS Data to CJIIN Law Enforcement Agencies Applications may include:
  - Crime Prevention
    - Tactical Crime Pattern Analysis (identify recurring patterns of crimes such as stolen property, burglaries)
    - Time-series Analysis (patterns of crime occurring during specific days and hours or over a time period)
    - Hot Spot Analysis (taking other data such as population, land use into account to find underlying characteristics and linkages with crime patterns)
    - Criminal Profiling (identify/locate suspects based on characteristics of a community)
    - Public Relations Tool (track offenders and notify community in compliance with Megan's Law)
  - Mapping Systems
    - Resource Allocation (use basic incident data and maps to deploy officers more efficiently)
    - Routing (use to determine escape routes for police officers, fastest route to scene)
    - Siting of Police and Fire Stations (i.e. fire department location chosen based on history of calls)
  - Conduct Joint Application Development (JAD) sessions and individual interviews to collect user requirements and identify potential applications
- Identify Strategies to Geocode Incident Data Within Existing Systems
  - Review format of incident location data
  - Identify shortcomings of data entry practices
  - Identify potential system modifications and field level edits to ensure data entries are in compliance with geocode standards
- Create County-wide Crime Incident Data Warehouse

- Review data structure of RMS location data and define common format for warehouse data
- Determine data warehouse technical architecture and create database
- Obtain data extracts from local law enforcement RMS
- Cleanse and geocode incident data
- Design and construct reports and applications
- Design and construct web interface

■ Build GIS Crime Analysis Capabilities in Local Agencies

- Review available tools
- Select common tool set
- Develop customized reports and applications
- Provide training and help desk assistance

■ Train Local Law Enforcement Personnel in The Use of GIS Tools

Limitations/Dependencies

Data collection practices of Records Management Systems (RMS) by local law enforcement agencies may limit the amount and type of crime data available for mapping.

Phase II: GIS for Dispatch and Deployment (Optional)

As described in the End-State Vision, GIS technology would assist dispatchers with deploying officers and emergency medical services to an incident location. A CAD system combined with GIS data could:

■ Eliminate errors in geocoding by enabling law enforcement personnel to input location data at the incident through Global Positioning System (GPS) devices

■ Reduce critical response time by identifying the law enforcement, fire, and medical response units closest to the location of the incoming call and displaying possible travel routes to the location via Automated Vehicle Location (AVL) technology

In addition, emergency response patterns can be easily accessed, analyzed and displayed by type, time of call, location, and other criteria. With this data, trends, volume of business, and areas of high impact can be visually displayed and quickly reviewed.

KPMG Consulting recommends that the AVL portion of Phase II be considered optional. Individual law enforcement agencies will differ in their need and desire to use GPS for dispatch and deployment purposes. In addition, there is very little benefit to be gained by pursuing a county-wide strategy to develop these resources, as GIS/AVL technology will

be specific to the communications and CAD environment in each agency. GPS technology, however, is widely and economically available for recording incident locations in the field and eliminates problems inherent in other methods for recording the same (i.e. address and milepost). While GPS technology supports AVL, it can be used independently for this purpose.

Burnsville Police Department will deploy AVL technology in the near future. AVL receivers will be part of new cellular modems in their squad cars. Burnsville will contract with AT&T Cellular for these services. Burnsville will be able to track each squad car's cellular modem by the IP Number assigned by AT&T. Burnsville plans on implementing AVL receivers at the end of 2001 when grant money will be available.

Apple Valley Dispatch currently uses a Map Objects-based component called "Map Link" provided through VisionAir. When an address is inputted from a phone call, the information is automatically geocoded and Map Link returns the coordinates of the site. In addition, Apple Valley is using AVL technology in their squads, but in a very limited application.

Tasks

Phase II will deploy the necessary technology to accomplish these goals, and might include the following tasks:

- Create a GPS/AVL Working Group
  - Motivate and develop awareness of GPS/AVL capabilities among law enforcement personnel through educational training
- Collect User Requirements and Performance Standards
- Identify Needed Technology Components
  - Hardware
    - In-vehicle hardware such as AVL (Automatic Vehicle Locator) receivers located in a squad car continuously monitor the location, speed, and direction of the vehicle. This information is then transmitted via wireless communication to a dispatch center.
    - Handheld GPS Receivers would allow for law enforcement personnel to immediately calculate their position and record the location of the incident. Mobile computing is the basis for effective, real time data management.
  - System Software
    - Used in dispatch centers to process position and status reports from vehicles and manage communications over the network.
  - Communication System

  - Analyze changes to communication systems necessary to support GPS/AVL technology
- Evaluate GIS Capabilities and Interfaces in Existing CAD/RMS Systems
- Recommend System Modifications/Enhancements to Incorporate and Implement Map-based Dispatch Capabilities
- Develop Other GIS Overlays (i.e.: hazardous materials, current road conditions databases, etc.) to Improve Efficiency in Dispatching and Routing Emergency Units
- Purchase and Deploy GPS/AVL Technology for Squad Cars
- Train Dispatch Center and Law Enforcement Personnel in the Use of GIS-enabled Dispatch Tools

Implementation Timeline

Phase I : GIS for Investigation and Crime Analysis (March 2001-March 2002)
Working with Dakota County Survey and Land Information, a GIS Crime Analysis Working Group should be capable of completing Phase I in approximately one year.

Phase II: GIS for Dispatch and Deployment (March 2001-)
A GPS/AVL Working Group can be formed immediately to begin identifying GPS and AVL applications, to continue obtaining support for GPS/AVL use, and to develop a standard project outline for use by local law enforcement. Completion time of this optional phase will vary by agency.

Participants

- CJIIN Project Manager
- Dakota County Director of GIS
- Law Enforcement Investigators
- Police Officers
- CAD Dispatchers
- Law Enforcement Records Management Personnel
- City and County IT Staff

Resources

Phase I :
Dakota County's Survey and Land Information Department will be able to support all of the Phase I project tasks within their budget.

We estimate the potential cost of deploying GIS analysis tools to local agencies to be $15,000 each, depending on the services, or a total of $210,000 for all of Dakota County's law enforcement agencies. If agencies elect to standardize their tool set, they could benefit from cheaper licensing fees and lower support costs.

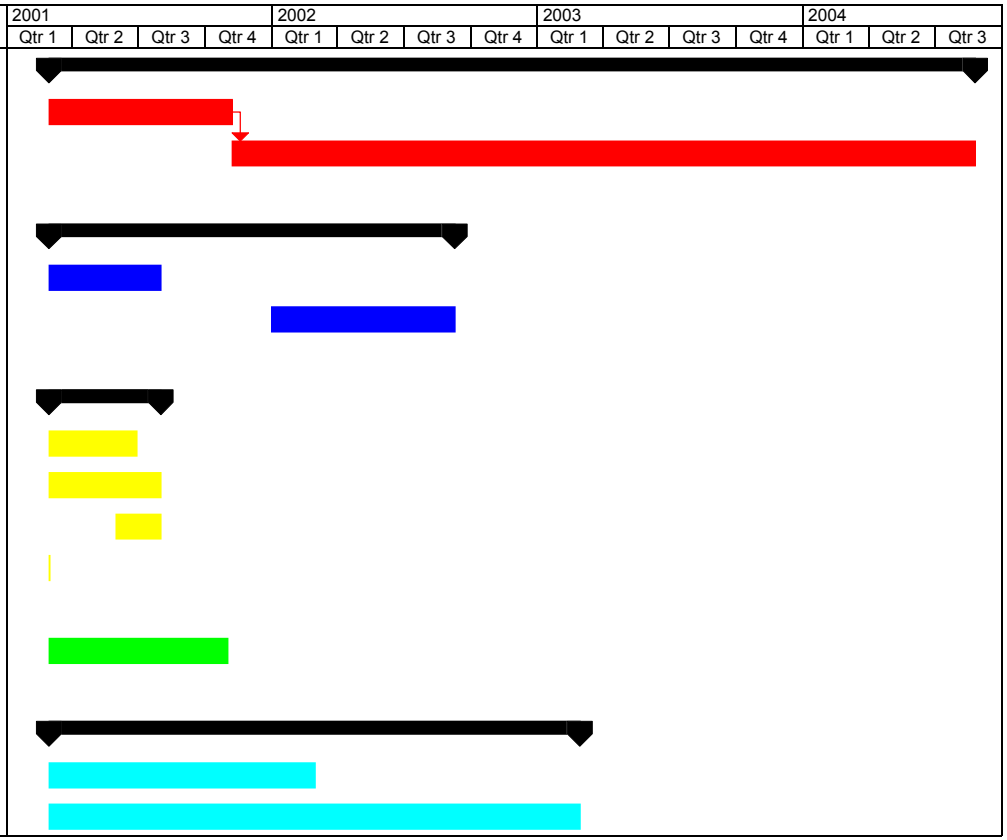
The GIS working group will require active participation from law enforcement investigators. Grants may be provided if working groups are able to justify their time and commitment in this county-wide effort to utilize GIS.

Phase II:
The cost and time of GPS/AVL deployment will vary from agency to agency depending on needs such as communication systems, hardware, software, etc. The cost estimate will be developed at the time when efforts toward utilizing GPS/AVL occur.

Appendix A

Dakota County Criminal Justice Information Integration Network (CJIIN) Implementation Plan Timeline

ID	Task Name	Start	Finish
1	**Initative I: Develop the CJIIN Hub**	**03/01/2001**	**08/25/2004**
2	Phase I: Web Interfaces and Browser-Based Query Tool	03/01/2001	11/07/2001
3	Phase II: CJIIN Hub Integration and Workflow Services	11/08/2001	08/25/2004
4			
5	**Initiative II: BCA/CJIIN Computerized Criminal History**	**03/01/2001**	**09/09/2002**
6	Phase I: Redesign Business Processes to Reduce Suspense File	03/01/2001	08/01/2001
7	Phase II: Assist BCA with AFIS/CriMNet Integration	01/01/2002	09/09/2002
8			
9	**Initiative III: CJIIN Business Process Improvement**	**03/01/2001**	**08/01/2001**
10	Redesign Critical Exchange Points	03/01/2001	06/29/2001
11	Continue Quick Hits Implementation	03/01/2001	08/01/2001
12	Identify Shortcomings in Data Collection Practices	06/01/2001	08/01/2001
13	Expand CJIIN Project Participants	03/01/2001	03/01/2001
14			
15	**Initiative IV: Expand the CriMNet Partnership**	**03/01/2001**	**11/01/2001**
16			
17	**Initiative V: CJIIN GIS Integration**	**03/01/2001**	**02/28/2003**
18	Phase I: GIS for Investigation and Crime Analysis	03/01/2001	03/01/2002
19	Phase II: GIS for Dispatch and Deployment (Optional)	03/01/2001	02/28/2003



APPENDIX B: GLOSSARY

Automated Fingerprint Identification System (AFIS)	Software and hardware that enable the electronic capture, transmission and storage of fingerprint images.
Automated Vehicle Location (AVL)	Technologies that enable the automated tracking of vehicle locations, typically used to improve the effectiveness of vehicle dispatching.
Bureau of Criminal Apprehension (BCA)	State bureau charged with providing accurate, timely and complete investigative assistance, forensic laboratory services, criminal justice information systems, fingerprint information and training to the criminal justice community throughout Minnesota.
CJIIN	(see Criminal Justice Information Integration Network)
CJIIN Hub	A proposed set of technology-enabled integration services to be developed and managed by the Dakota County CJIIN. These services will work in conjunction with the CriMNet Backbone to enable communication and integration between CJIIN agencies and other state and local criminal justice organizations.
Computerized Criminal History (CCH)	Computerized records maintained by the State that provide a history by individual of criminal offenses and associated convictions.
Criminal Justice Data Network (CJDN)	A highly secure private network provided by the State for transmission of criminal justice data among the State's criminal justice community.
Criminal Justice Information Integration Network (CJIIN)	Dakota County's criminal justice integration project, conducted under the auspices of the State's CriMNet Project.
CriMNet	The State of Minnesota's criminal justice integration project.
Data Warehouse	Information sharing technique that relies on a separate database created by transforming data from several sources into a single database, along with application programs to retrieve the transformed data.
Enterprise Application Integration (EAI)	A set of technologies that allows the movement and exchange of information between different applications and business processes, within and between organizations.

Geographic Information System (GIS)	A computer system capable of assembling, storing, manipulating, and displaying geographically referenced information , i.e. data identified according to their locations.
Integration Backbone	A proposed set of technology-enabled integration services, to be offered by the State, that will enable the integration of criminal justice systems throughout Minnesota.
Joint Application Design (JAD)	A facilitated information-gathering technique used to gather user requirements for a system design and development project.
Lightweight Directory Access Protocol (LDAP)	A standardized way to connect with a directory that might hold passwords, addresses, public encryption keys, and other exchange-facilitating data.
Mobile Digital Computers (MDCs)	A mobile computer used in a squad car to access, process and input criminal justice information. MDCs are rapidly replacing older Mobile Digital Terminals (MDTs).
Record Management System (RMS)	An information system used by local law enforcement to collect and store information on incidents and cases.