



Kent County Dispatch Authority
Kent County, Michigan

Strategic Plan

July 2, 2007

EXECUTIVE SUMMARY

This Strategic Plan provides a description of the direction for the Kent County Dispatch Authority (KCDA), with specific initiatives to support the consolidation of 911 call taking in Kent County. An initial FY 2007-08 telephone surcharge of 4.00% is proposed to the Kent County Board of Commissioners, with a subsequent request for a 4.00% surcharge in FY 2008-09. This would provide an estimated first and second year funding of approximately \$2.7 million and \$3.7 million respectively.

The primary goal of these initiatives is to improve the handling of emergency calls for service from the public. The completion of these projects will eliminate cumbersome call transfers and enhance the effectiveness of all the county's public safety responders, including law enforcement, fire and emergency medical service providers. Funding provided by the KCDA will create a clear environment of performance improvement in the delivery of public safety services.

Initial projects include E911 infrastructure changes, qualification of call takers for emergency medical dispatch protocols, and a shared Computer Aided Dispatch (CAD) system. These initiatives are expected to be complete within twenty-four months of initial funding, and are supported by the development of interagency agreements and detailed operational planning. The total one-time cost for these programs is projected at \$10.6 million.

The shared CAD system and its associated Wide Area Network will replace and upgrade outdated technology, and provide improved interoperability between first response agencies. The CAD system will allow every agency to have visibility as to the location and activity of its own resources as well as those of adjacent responders. This platform will provide the basis for future enhancements, such as closest unit dispatch, vehicle mapping and real-time location, and secure digital communications.

Significantly, the Authority will provide operational funding for 911 call taking in the County. This is intended to sustain a consolidated configuration of two primary 911 Public Safety Answering Points such that callers need not be transferred between communications centers except under specific circumstances. 911 call takers will receive and transmit the complete emergency call for service information to each agency's dispatch center through the common CAD platform.

Annual funding is provided to maintain call taker professional development activities and mandated quality assurance/quality improvement programs associated with emergency call taking. Including technology support costs, the operating costs of these programmatic changes are expected to be \$1.7 million annually.

While the first two years' of initiatives are known, additional funding requirements for voice and data radio communications improvements are also needed in subsequent years. Initial funding for the detailed planning for these needs is included in the present initiatives.

BACKGROUND

In early 2006, 911Insight completed a Cost Benefit Study Report for the interim Kent County Central Dispatch Authority (KCCDA). The report identified numerous opportunities for improvement to the receipt of emergency calls for service and dispatching public safety responders in Kent County. The report envisioned substantial benefits to be achieved through communications center consolidation, including:

- **Reduced transfers of 911 calls**, improving service to the public by avoiding delays in prioritizing and dispatching emergency responders.
- **Provide broader regional awareness** of active incidents and improved interagency coordination.
- **Improved communicator expertise**, with resource allocation sufficient to provide for employee development and continuing education.
- **Improved efficiencies** in the time to process calls for service and dispatch the appropriate responders.
- **Better accountability** for 911 services and visibility into system-wide performance.

At that time, the KCCDA interim Board concluded that technology improvements to standardize and integrate the existing emergency communications centers, including enabling Public Safety Answering Points to collect data and performance measures, would better benefit the County's agencies than pursuing dispatch center consolidation. Proposed projects included E911 performance reporting, common law enforcement and fire service CAD systems, network infrastructure and integration to connect the existing agencies, centralized Records Management Systems (RMS) and improved staffing for administrative and technical support.

Subsequently, the Kent County Dispatch Authority (KCDA) Board was chartered, with the City of Grand Rapids now a full participating member. The current Board has identified a need to create a "move forward" strategy for the desired technology initiatives, and retained 911Insight to facilitate this planning effort, allowing for funding recommendations to the Kent County Board of Commissioners. The Strategic Plan, described in this document, provides a description of specific project initiatives, identifies the scope and benefits to be achieved, and enumerates rates of telecommunications surcharges to fund the first two years' initiatives.

ORGANIZATION OF REPORT

The remainder of this report includes the following sections:

Methodology describes the strategic planning tasks, including activities undertaken to complete the prioritization and description of specific initiatives.

Strategic Direction describes the future vision for emergency call taking, public safety communications and related technologies in Kent County.

Additional Initiatives identifies further efforts with potential long-term benefits, requiring additional collaborative assessment to better identify business requirements and technology direction.

Resource Estimates presents the recommended 'work packages' comprising funding requirements, deployment schedules, a preliminary operating budget, a five-year budget, and a risk assessment of funding sources.

Benefits describes the outcomes be realized by Kent County's residents and visitors, as well as the emergency responder agencies, as a result of implementing the suggested initiatives.

Appendices provide further detailed spreadsheets utilized for the financial projections.

METHODOLOGY

The objectives of the current assignment were to collaborate with the Board members of the Kent County Dispatch Authority to define a package of technology initiatives to improve, standardize and integrate the existing Kent County public safety dispatch centers, identify decision criteria by which to prioritize the initiatives, create preliminary work packages describing each of the selected initiatives in detail (including resource requirements and timelines), leverage prior planning efforts, provide pro-forma capital and operating budgets for the first and second year initiatives, and identify potential funding opportunities to augment revenues to be generated via an increase to the 911 surcharge.

We conducted interviews with each of the KCDA Board members to discuss these objectives, and to solicit specific input on the following topics:

- Scope, capabilities and potential acceptable/desirable level of “service” integration
- Criteria for prioritizing implementation and funding of technology initiatives
- Initial list of candidate technology initiatives
- Other perceived planning or implementation issues, including organizational, funding, resource and technical challenges

Upon completion of our initial interviews and research, we conducted a strategic planning workshop with the KCDA Board. The purpose of this session was to share initial findings, define various concepts relating to provisioning of call taking and dispatch services, achieve consensus regarding prioritization criteria, and invite open discussion about potential approaches. During this workshop, the participants agreed that establishing a common set of criteria would streamline the prioritization process by limiting discussion of the relative merit and benefits of any particular project and eliminating the natural tendency to focus on projects perceived to best benefit one’s own organization.

A variety of decision criteria were identified, including:

- Broadest benefit to the participating jurisdictions
- Likelihood of success and time to deploy
- Alignment to the Board’s Charter
- Degree of fit with available funding

Two overarching goals emerged as well from these discussions:

1. **Improve Levels of Service** – Services relating to public safety communications are provided to two distinct “customer” groups: the public and the emergency service agencies. Service levels relating to the public include time to answer and the number of call transfers. Service levels relating to first responder requirements include the time to dispatch and coordination of responder communications. In either case, the current initiatives should move toward resolving identified issues in handling emergency calls for service from the public.

2. **Achieve Cost Savings** – Capital cost savings may be achieved by several means, including the elimination or reduction of independent (unnecessary redundancy) capital equipment, or incremental improvements in costs by sharing equipment, technology and facilities. Operating cost savings are realized through reductions in workloads through re-alignment or improvements in business processes or efficiencies embedded in the use of technology. Having new sources of revenue can also provide implicit cost savings through the reduction of existing budget requirements. Whether through cost savings or new revenue, the current initiatives should provide for improved staffing, which represents the most significant permanent cost of operations.

A preliminary list of immediate initiatives emerged through application of these prioritization criteria:

Deploy Time Synchronization – The KCDA Board has been frustrated by not having comprehensive, accurate data reflecting 911 system performance, such as call answer times, time to handle, transfer times, time to dispatch, and accurate (to the second) unit response times. By deploying a consistent time source at each emergency communications center, the chronology and duration of every incident and dispatch can be compared countywide.

Consolidated 911 Call Taking – By reducing the number of primary Public Safety Answering Points receiving 911 calls, the need to transfer to the ‘correct’ call taker is reduced if not eliminated. By incorporating Emergency Medical Dispatch (EMD) protocols in the initial call taking, the caller is not required to restate their need and location, and the prioritization of the dispatchable incident occurs sooner. This initiative would utilize the existing facilities and staffing at two of the existing 911 PSAPs.

Shared Computer Aided Dispatch – A common technology platform provides the simultaneous, shared information to the respective dispatch centers for each discipline (law enforcement, fire, and emergency medical responders). As the call taker is capturing the incident information, it is instantaneously provided to the appropriate responders. Shared access to incident and unit information allows for improvements in the first responder, since the awareness of the closest unit is now provided across jurisdictional boundaries.

Organizational Alignment and Operational Planning – During the course of planning, it became apparent that additional interagency agreements are necessary to clarify the substantial future changes to call taking responsibilities, and as a prelude to updating the Kent County E911 Plan. Further operational planning is also necessary to identify unique technology functions and features, and to document specific call handling procedures for both normal and backup operations. In all cases, any changes to emergency communications should occur in a planned, controlled manner.

We also identified several additional initiatives, including radio communications enhancements, improvements to records management systems, mobile data and Automatic Vehicle Location (AVL) technologies, which require additional research and planning to determine specific needs and requirements as well as the benefits to be derived.

In particular, the prior 2004 Kimball radio communications study was found to be deficient in its conclusions and recommendations. Since its publication, the County has resolved some of the facility issues identified in the report, and the costs of certain alternatives have changed significantly. In addition, the needs and analysis specific to the City of Grand Rapids was not adequately considered. However, much of the facility and inventory information remains an adequate baseline of county agency information for further planning and assessment.

STRATEGIC DIRECTION

The Kent County Dispatch Authority has an overall objective of enhancing public safety emergency communications. While the merits of ‘dispatch consolidation’ may seem obvious, there are several impediments to reducing the number of dispatch centers in Kent County:

1. Several dispatch centers (e.g., Michigan State Police and ambulance companies) have responsibility areas outside Kent County. The Dispatch Authority’s purview is limited to the boundaries of Kent County.
2. Organizing a consolidated dispatch center entity would create formal accountability to its ‘customer’ agencies. Estimated staffing levels to provide adequate, if not exemplary, service levels would require funding above current levels, thereby providing a cost increase rather than a cost savings.
3. In a shared environment, all costs would presumably be allocated in a fair and equitable manner. Unless some portion of costs was subsidized, all costs of operation must be funded. For many cost categories (such as facility operations), these costs are not explicit in current agency budgets, creating another category of new costs rather than cost savings.
4. Several agencies wish to maintain dispatch operations regardless of cost because the staffing is available for ‘other duties as assigned’. A perception also exists of additional community responsiveness since many types of non-emergency requests can be accommodated without an incremental cost of service that might accompany an outside provider.
5. Even if emergency call taking and dispatch responsibilities are handled by a ‘consolidated’ organization, most agencies would need to retain existing staff to handle other tasks, such as records management, public contact, or other administrative duties. Costs of service provided by another entity would result in additional costs to these agencies.

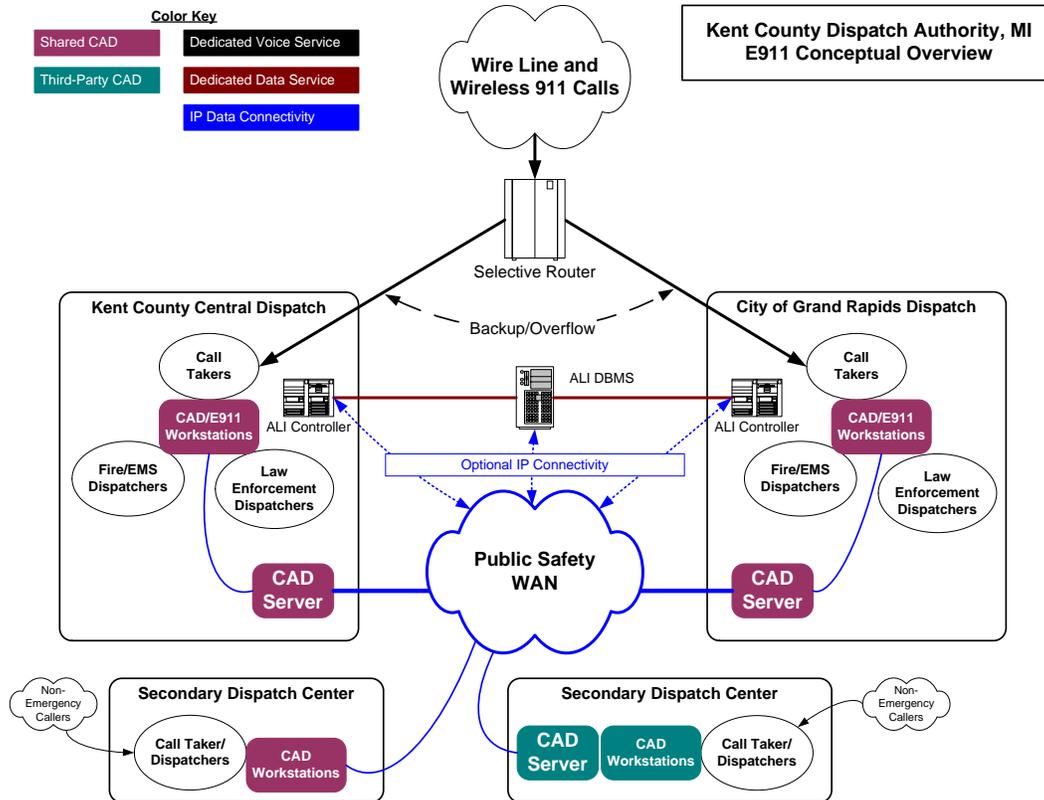
Recognizing the limited ability of the Authority to create incentives for public safety responder agencies to contract for dispatching services, a recommendation to consolidate the call taking portion of dispatching services was presented. The anticipated availability of a telephone service

surcharge sufficient to cover the costs of consolidated call taking operations and related technologies rendered this approach feasible.

A reduction in the number of primary 911 Public Safety Answering Points offers the following operational benefits:

- By having two primary PSAPs instead of one, a continuously available backup center is available to immediately assume call taking responsibilities in case of a significant outage at one center. Likewise, if call volumes surge, some work load can instantly be routed to the other primary PSAP.
- By taking calls for numerous jurisdictions, the coordination of responding agencies is improved. Duplicate calls for service can be evaluated immediately, lessening the overall workload of communications center personnel.
- If call takers in the primary PSAPs have the necessary qualifications, transferring callers to secondary centers to capture emergency medical dispatch protocol information is unnecessary. The initial dialogue and pre-arrival instructions can be provided by the initial call taker, with dispatch responsibilities handled by the respective agency dispatchers.

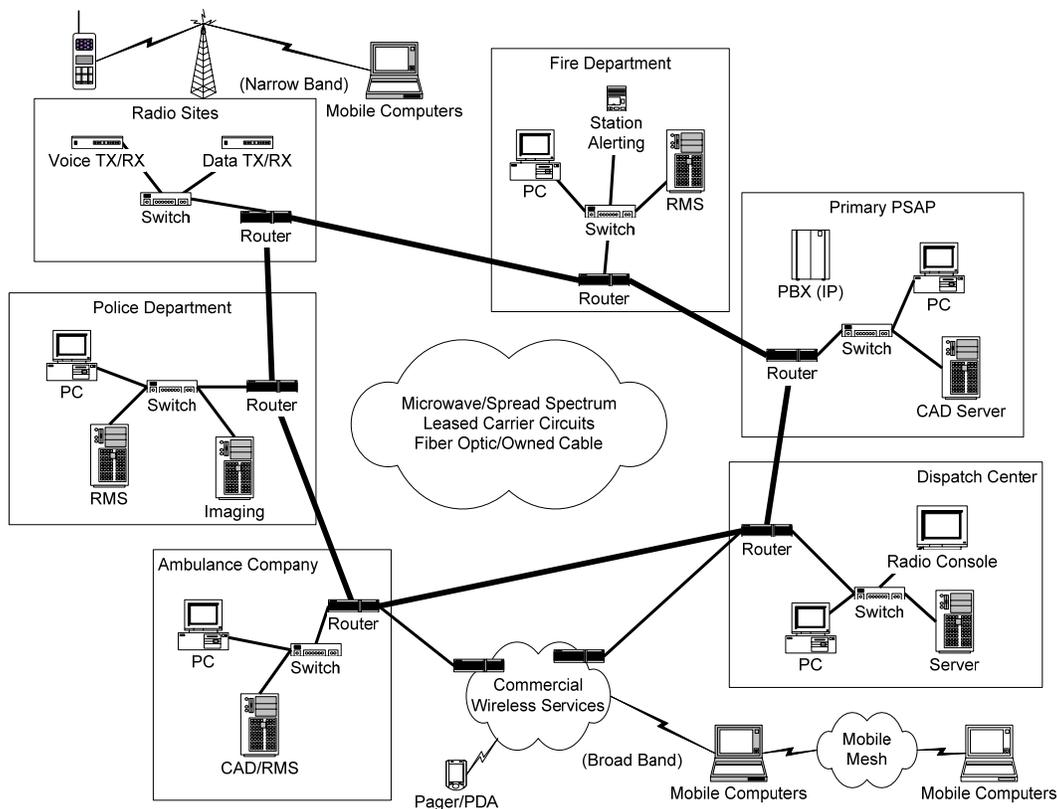
The following exhibit provides a graphical representation of this PSAP configuration:



To maximize the effectiveness of consolidated call taking centers, call for service, incident and unit response information would be made available to all communications center personnel simultaneously. Likewise, the ability to enter and dispatch lower-priority calls by each agency separately allows for distributed call entry, and retains the independence of individual agency resource management. This is a core functionality of contemporary Computer Aided Dispatch Systems, which manage incident and unit response activity.

The Board's future vision is to provide a shared, countywide computer-aided dispatch system supporting consolidated call taking and distributed dispatch operations. The CAD system will be integrated with existing mobile data systems to allow for electronic communications with field units and improved unit status and location information. In the future, AVL capability could be added to support 'closest unit dispatch' capabilities. The CAD system will be integrated with each agency's records management system to provide the core of incident reporting information. Alphanumeric paging via CAD could also be supported as an adjunct alerting methodology.

The CAD system will be integrated with automated Emergency Medical Dispatch (EMD) protocols, as well as run card, response plan, beat area and other procedural information specific to each agency. A public safety Wide Area Network (WAN) will be utilized to support connectivity between the various server and workstation platforms at the participating agencies. The WAN could be leveraged for future applications, such as backbone connectivity to remote radio sites and connectivity to commercial carrier services. The following exhibit provides an overview of the WAN:



The primary PSAPs will perform wire line, wireless and Voice over Internet Protocol (VoIP) Emergency (911) call taking. While call takers will generally not transfer calls to secondary centers, the specific business rules relating to call transfers will be determined during the operational planning process. Non-emergency and administrative calls to each agency will generally be handled as they are today.

The remaining dispatch centers will retain dispatch and related tactical operations support functions, remaining focused on their respective law enforcement, fire and EMS response resources. Each agency's dispatchers will receive call for service information via CAD and will continue to dispatch calls according to their defined agency response protocols. The number of secondary PSAPs may evolve over time as agencies independently evaluate the costs and benefits of additional dispatch consolidation.

To further enable this change, the Authority will direct Surcharge Funds to the Primary PSAPs for call taking services. Revenue from the anticipated surcharge will be utilized to fund the capital and operating expenses of the primary PSAPs for 911 call taking. The initial qualification and re-certification for EMD would be funded by the KCDA, as well as the initial capital costs to initiate service. The Authority will also fund the level of effort associated with answering 911 calls, providing a source of revenue and accountability for 911 call taking performance.

Agencies will continue to fund and operate their separate dispatch functions. Since the new shared CAD system will be funded by the surcharge, some agencies will realize cost savings through elimination of current CAD hardware and software maintenance costs. In addition, some agencies will realize implicit savings through the reduction in 911 call taking workloads that will be transferred to the Primary PSAPs. A diligent and comprehensive CAD selection process will be necessary to ensure that the necessary functional requirements for all the participating agencies are identified and included in the vendor scope of work.

We believe migrating to fewer communications centers offers the opportunity to reduce call transfers and improve coordination and interoperability, both essential to the concept of improving service levels to the community and to public safety response resources. However, we also recognize potential constraints inherent to the existing environment. First, the non-dispatch tasks performed by dispatch center personnel will persist and will not be absorbed by the primary PSAPs. While elimination of the call taking function from the smaller agencies may actually provide more time for addressing non-dispatch tasks, the headcount currently associated with the call taking and dispatch function at these agencies may not be completely eliminated. Additionally, while our plan assumes new surcharge monies will be used to fund the KCDA primary PSAPs, we understand any change rendering certain implicit costs explicit, such as executing non-dispatch tasks described above, impacts overall project costs and must be acknowledged in budget projections.

ADDITIONAL INITIATIVES

While the initial prioritization process revealed several projects that can yield immediate benefits, our findings also identified a number of other areas requiring additional study or collaborative action among Kent County's agencies to pinpoint specific, actionable needs.

Update Analysis of Radio Communications Needs – Due to the current participation of Grand Rapids in the Kent County Dispatch Authority, and since the Kent County Sheriff's Office has implemented numerous modifications and enhancements referenced in the Kimball report, we believe the findings and recommendations need to be reviewed and evaluated in the context of the current environment. The outcomes of this planning process will enable a precise definition of voice and data radio communications requirements. Funding for this initial planning is included in the current budget projections.

Evaluate Records Management Systems Needs – We also received various comments during interviews suggesting a requirement for a centralized, countywide records management system. Due to the cost and complexity of this topical area, we believe a separate RMS needs analysis should be undertaken. Key items to be discerned through such an evaluation include:

1. What RMS assets are currently deployed and what are the strengths and weaknesses of each? Are any of the current systems robust and sustainable enough to be expanded into and supported as a countywide enterprise system?
2. Do operational requirements exist that can be addressed only by acquiring and deploying a countywide enterprise RMS? If cross-agency data sharing is the driving requirement, could a data integration middleware solution afford the desired benefit for less cost and operational disruption?
3. What functional efficiencies could each agency realize by retaining its current system and implementing enhancements such as automated field reporting and a CAD-to-RMS interface?
4. What are the current costs of maintaining the existing records management systems compared to the cost of deploying and maintaining a shared, countywide RMS?
5. Should a single system be implemented, what would be required of Core Technologies to support the deployment from the perspective of I-SERVICES integration?
6. Does a countywide enterprise RMS deployment satisfy the requirements prioritization criteria agreed to by the Authority?

Assess Benefits of Expanded Mobile Data Computing and AVL Capabilities – Kent County Fire agencies have minimal mobile data computing capabilities, typically comprising a mobile data computer (MDC) installed in a single command vehicle. Expanded mobile data computing functionality could provide significant benefits through automated unit dispatch and the ability for personnel on responding units to perform status changes with the push of a button rather than voicing the change to a dispatcher. This would improve the recording of response information and reduce radio traffic, particularly during significant incidents to which multiple units are assigned. Implementing AVL could offer similar efficiencies, particularly to fire and EMS agencies with the ability to dispatch the closest available unit rather than selecting units based on station or post location.

RESOURCE ESTIMATES

This section includes a discussion of the one-time and recurring costs of the proposed initiatives. Further detail of the scheme for 911 call taking reimbursement is provided, as well as an assessment of the risks associated with the envisioned funding mechanism.

Initiative Capital Costs and Schedules

The following provides an overview of the specific resource budgets for the identified 'work packages' as well as individual deployment schedules.

- 1. Time Synchronization** – The cost to deploy time synchronization sources at the county's emergency communications centers ranges from \$75,000 to \$100,000, the implementation of which could likely be completed within twelve months. These costs include line items for equipment, vendor installation, integration, and technical assistance. Appendix 1 provides further detail of this work package.
- 2. Organizational Alignment** – The cost to create interagency agreements supporting a consolidated 911 call taking configuration could range from \$85,000 to \$140,000. This budget provides for facilitated discussion, development of a model interagency agreement, and legal review, and is expected to be complete within twelve months. Appendix 2 provides further information on this initiative.
- 3. Operational Review** – To resolve and document the operational planning necessary to ensure a smooth transition is anticipated to cost from \$90,000 to \$150,000, expended over a twelve month period. This includes a budget for facilitated discussion and technical writing support, as well as reimbursement for local agency participation. The outcome of this task will be updates to local agency policies and procedures consistent with the re-alignment of 911 call taking and the utilization of a shared CAD system. Appendix 3 provides further detail of this work package.
- 4. 911 System Consolidated Call Taking Transition** – The start-up costs to initially train call takers in EMD protocols, replace E911 equipment due to life cycle timing, carrier services to initialize the E911 call routing system, technical assistance, and reimbursement for agency participation is expected to cost from \$1.16 million to \$1.53 million. The initial deployment is projected to be complete within twenty-four months. Resource estimates include compensation to agencies for participation by their staff, including call takers, dispatchers, and technical resources. Appendix 4 provides further information on this initiative.
- 5. Computer Aided Dispatch System** – The initial cost to solicit vendor responses, complete system design, installation, and training for a shared countywide CAD and Wide Area Network (WAN) are projected to run between \$4.3 million and \$5.5 million. The budget includes the deployment to each participating agency, project management and technical implementation assistance, and reimbursement for agency

project participation. This initiative is expected to be complete within twenty-four months, coincident with the 911 Call Taking Transition. Appendix 5 provides further details of this initiative.

Staffing Reimbursement Estimate

To provide for accountability of 911 call taking to the Authority, it was considered that funding for 911 call taking would provide the necessary linkage between 'pay and performance'. To determine the appropriate allocation of operating revenues, we utilized the Project RETAINS staffing model. This model considers minimum training hours, as well as utilization factors in-line with national best practices.

Appendix 6 provides a staffing estimate for 350,000 annual 911 calls for service; this includes the call volumes for all jurisdictions within Kent County, and is based on recently provided carrier reports. At this call volume, 11 employees are required to provide for 24 hour staffing. Appendix 7 provides another estimate using 450,000 emergency calls for service annually; at this call volume, 15 Full Time Equivalents (FTEs) are required

One determinate of work load is call duration. EMD protocols necessarily extend the duration of the call for service. The model utilized considers an average call length exceeding two minutes, so this extended duration is considered in our estimates. It is also believed that existing staff should be sufficient to handle the new EMD responsibilities, since current practice is to remain on the line with the caller while EMD is performed by the ambulance companies.

Operational Budget

A preliminary annual operating budget was also developed. Operating costs include reimbursements for 911 call taking effort, recertification costs, and vendor maintenance contracts. These costs would generally not be incurred until at least the second fiscal year when technology deployments and call answering responsibilities would change.

In addition to specific allocations for vendor technology support and EMD recertification, allocation is made for a new position to support Quality Assurance/Quality Improvement initiatives at the two primary PSAPs. This position could be staffed through a services contract, potentially with Kent County EMS which is a key consumer of the Quality Improvement data from EMD.

Call taking costs are anticipated to range from \$660,000 to \$900,000 annually; Professional Development & Quality Assurance activities would costs from \$155,010 to \$195,000; and technology support costs would range from \$420,000 to \$587,000. Total annual Operating costs would range from \$1,235,010 to \$1,682,000. Appendix 8 provides further detail of the projected annual operational budget.

Depending on the complexity of the new software applications and technology infrastructure, local technical support may be considered in the future. Many of the agencies have internal staff

supporting technology platforms, so they may continue in those roles and contribute to the support of shared subsystems.

Five Year Budget

A pro-forma five year budget was drafted to reflect the immediate capital projects and the initiation of operating costs in year two. Surcharge revenues were based on a Base Billing Rate of \$16.95 and 450,000 Subscriber Lines. Note that the revenue will fluctuate based on carrier-reported subscribers, as well as lag the initiation of the surcharge approval by the County Commissioners. At a 4.00% surcharge, annual revenues are projected at \$3,661,200.

In addition to the capital project initiatives, reimbursement for the start-up costs of KCDA of \$164,400 are include in first and second year costs. Since the high range of cost projections was utilized for the Pro-Forma budget, contingency values are considered to be contained within each line item.

Appendix 9 provides further detail of line items and extended amounts. Surcharge rates are intended to be adjusted to meet annual funding needs; however, depending on the selected initiatives, the funding requirements of the proposed capital projects tend to substantially draw on future revenues.

For the most part, the envisioned capital projects are complete within two years; project schedules do not begin until funding approval is received and surcharge collections are initiated. Additional initiatives (e.g., radio communications equipment) are not known at this time, but may be incorporated into the second year's budget depending on the detailed planning timelines.

Funding Assessment

Senate Bills 410 and 411 have been introduced in the Michigan State legislature. Both seek to modify the current 911 landline surcharge legislation sunsetting at the end of 2007 by providing new surcharges on both landlines and cellular phones. SB410 provides for a \$.25 monthly State charge for both landlines and cellular telephones, as well as an optional Emergency 911 technical charge. County 911 charges could be allowed by "...resolution, millage, with the approval of voters in the County, or any combination thereof." Both the Emergency 911 Technical Charge and County 911 Charge could be assessed up to the cost of providing the services. Initial analysis by local stakeholders suggests this legislation is comparable to the current legislation, which permits charges of up to \$.80 per month per landline, but could better address the declining volume of landlines and increasing number of cellular subscribers.

While these bills appear to be sound and are endorsed by local public safety agencies, the potential risks associated with this legislation must be considered:

- The bills might not pass in this session due to political positioning or unfavorable public opinion. Should that occur, extending the sunset on the current legislation is an option, but is risky in that it offers only a temporary funding mechanism.

- Funding for competitive programs is rumored to be sought via other legislation, although it has not yet been introduced. These sweeping program requirements targets funding in six areas: the Public Safety Coalition, First Responder Intelligence and Communication, the Forensic Science Fund, the Traffic Law Enforcement and Safety Fund, Probation and Parole System and State Court Administrator's Office. The legislation will reportedly seek to generate nearly \$133 million per year via a \$1.35 per month subscriber line fee. The programs also provide direct benefit to local government in terms of elimination of some fees and funding for new grant programs, with Kent County in line to realize approximately \$1.98 million in savings. While this legislation could generate cost savings for the County that could arguably be re-directed to fund the priorities identified through this study, some fear the County Commissioners would be unlikely to approve the 4% surcharge if this primary surcharge were assessed at the State level.
- Any sustained funding requirement above the 4% surcharge level requires voter approval. We understand the Board of Commissioners may be reluctant to pursue a ballot initiative due to the current economic challenges facing Kent County. Higher capital requirements would need to consider the longer term collection of revenues above the projected funding level of approximately \$3.6 million annually.
- Grant programs may offer funding alternatives for specific acquisitions, but will not fund ongoing operational costs for personnel, maintenance and support. Additionally, the non-supplanting rule attached to most federal grant programs requires that primary funding sources (i.e., revenue to be generated via surcharges) be in place before seeking grants for any items that might be funded via the surcharge. In this case, a grant seeking strategy may be appropriate for ancillary requirements. Such a strategy must account for other cost factors associated with grants, such as the need for matching funds, as well as non-cost factors related to the timing of federal grant programs and timeframes imposed by the State for submission of local plans and risk assessments.

BENEFITS

The KCDA's strategy and specific technology initiatives are positioned to yield demonstrable benefits to the Kent County community:

- **Resolves Short Term Technical and Operational Requirements** – The suggested immediate initiatives enable short-term functional and operational improvements within the current environment, essentially offering “quick wins” to energize KCDA for more complex, long-term efforts.
- **Enhances Service to Public** – Implementing the suggested operational emergency call taking configuration and supporting technologies will result in enhanced service to the public in the form of fewer call transfers and reduced response times.
- **Enhances Service to Public Safety Responders** – In addition to enhancing service to the public, the suggested strategy will enable the dispatch community to better serve the public safety responders. Faster unit dispatching, enhanced information available to field personnel, more accurate unit and incident response times, and heightened interoperability among the multiple disciplines countywide are anticipated.
- **Enables Evolution of Dispatch Consolidation** – By implementing consolidation of E911 call taking, a natural evolution of dispatch consolidation is facilitated, as agencies are provided with an improved “point of entry” for emergency communications services.
- **Leverages Surcharge Funding for Collective Benefit** – By directing surcharge funding to address common countywide requirements, KCDA ensures the funding is utilized for the collective benefit of the public as well as the first responder community.
- **Yields Positive Cost-Benefit to Public Safety Agencies** – By utilizing the new surcharge revenues, all agencies enjoy the improved performance of 911 services with no effective increases in existing operating budgets.
- **Provides Path to a “Future-Proof” Architecture** – Finally, the defined strategy enables deployment of a stable, standards-based technology platform that is both flexible to accommodate evolving dispatch requirements and extensible to support new or expanded application needs. The entire envisioned infrastructure is useful regardless of the future dispatch center configuration.

APPENDICES

Appendix 1

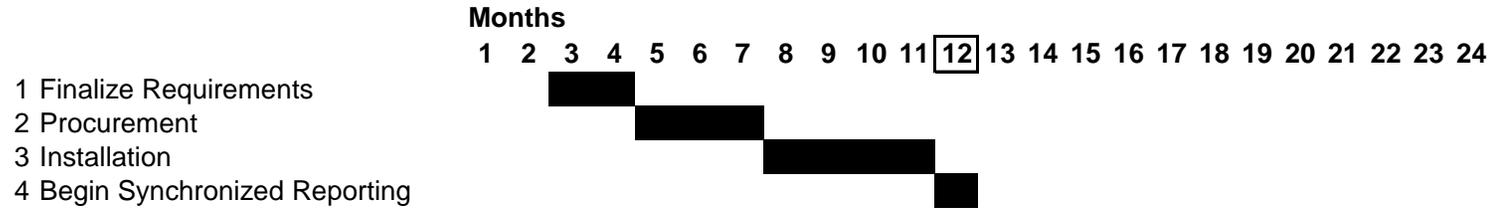
Project: Time Synchronization

Scope: Provide time synchronization source at each facility for CAD, RMS, recorders, etc.
Benefit: Enables direct comparison of automated information and reconciliation of various information sources.

Budget Estimate:

			<u>Notes</u>	
Equipment	\$ 40,000	-	\$ 50,000	Assumes 10 devices; GPS source or similar.
Installation/Integration	25,000	-	35,000	Vendor hardware installation; agency integration with platforms.
Project Management	10,000	-	15,000	Procurement, contract administration
Subtotal	\$ 75,000	-	\$ 100,000	<i>Potential to add application to consolidate data sets.</i>

Schedule Estimate:



Appendix 2

Project: Organizational Alignment

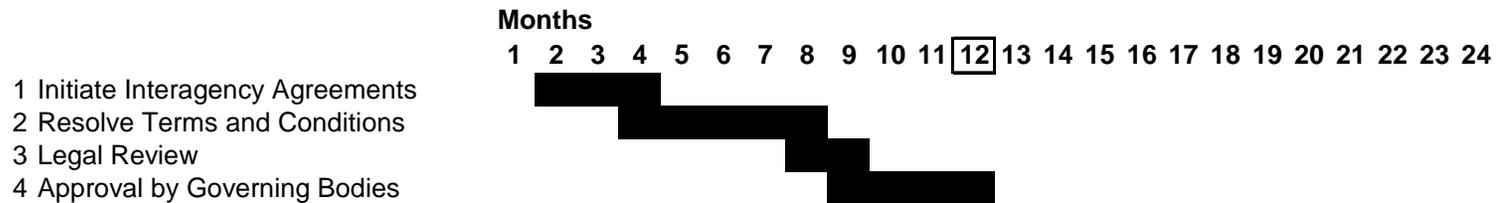
Scope: Create interagency agreements supporting consolidation of emergency call taking.

Benefit: Ensures awareness and agreement to new 911 call taking configuration; resolves funding and cost allocation issues.

Budget Estimate:

				<u>Notes</u>
Facilitation	\$ 50,000	-	\$ 75,000	Provides budget for outside assistance, technical support.
Legal Review	25,000	-	50,000	Provides for attorney review of agreements.
Project Management	10,000	-	15,000	Administration and status reporting to KCDA Board.
Subtotal	\$ 85,000	-	\$ 140,000	

Schedule Estimate:



Appendix 3

Project: Operational Review

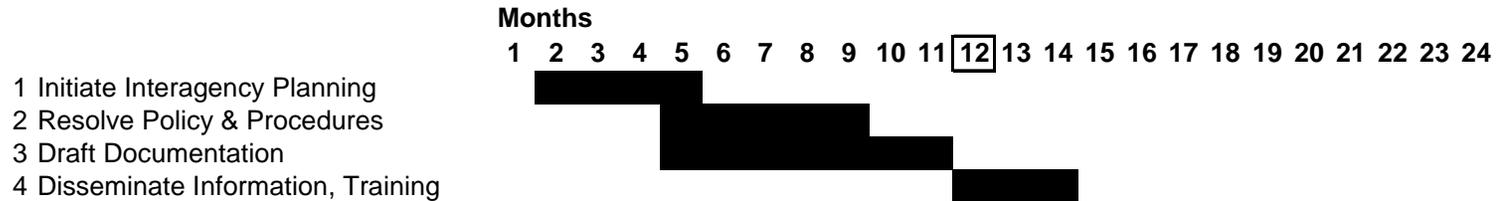
Scope: Resolve interagency operational issues related to consolidation of call taking, shared CAD system.

Benefit: Ensures adequate transition planning & identification, communication of policy/procedural changes.

Budget Estimate:

			<u>Notes</u>	
Facilitation	\$ 50,000	-	\$ 100,000	Provides budget for outside assistance, technical support.
Documentation, Logistical Support	25,000	-	30,000	Provides budget for outside assistance.
Project Management	15,000	-	20,000	Administration and status reporting to KCDA Board.
Subtotal	\$ 90,000	-	\$ 150,000	

Schedule Estimate:



Appendix 4

Project: 911 System Consolidated Call Taking Transition

Scope: Modify 911 system call routing for two primary PSAPs, Implement EMD.

Benefit: Ensures adequate transition planning, network and facility provisioning; EMD training and certification.

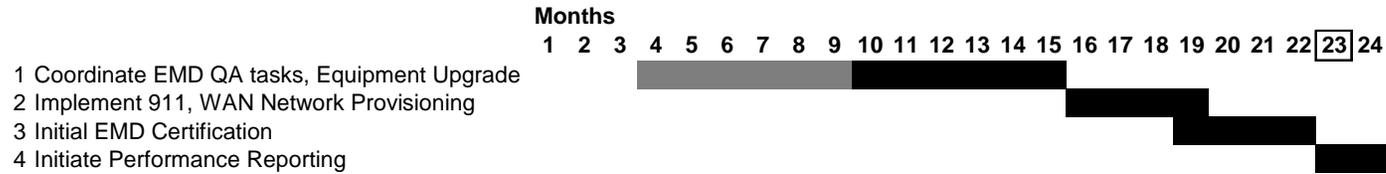
Budget Estimate:

Upgrade E911 CPE	\$ 800,000	\$ 1,000,000
EMD Protocols	150,000 -	175,000
Carrier Services	25,000 -	50,000
Implementation Assistance	50,000 -	100,000
Agency Training & Certification	80,000	120,000
Agency Cost Offset	35,000 -	50,000
Contract Administration	20,000	35,000
Subtotal	\$ 1,160,000	\$ 1,530,000

Notes

Life Cycle Equipment Replacement (Customer Premise Equipment; 16 positions)
Automated and manual EMD protocol references, initial training/certification.
Network provisioning, testing.
Budget for outside technical review, project management.
One-time training costs (overtime, etc.)
Provides budget to reimburse agency participation (coordination tasks).
Administration and status reporting to KCDA Board.

Schedule Estimate:



Appendix 5

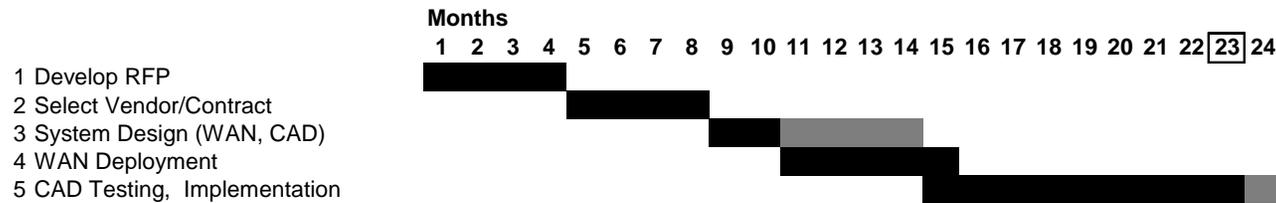
Project: Computer Aided Dispatch System/Wide Area Network

Scope: Select vendor and product for shared, county-wide CAD system.
Benefit: Provides for shared information platform and initial wide area connectivity.

Budget Estimate:

			<u>Notes</u>	
Hardware and Software	\$ 3,000,000	-	\$ 3,600,000	Vendor-provided hardware, software.
Vendor Services	500,000	-	750,000	Vendor installation, integration services, training, warranty, first year maintenance.
Wide Area Network (Initial)	250,000	-	350,000	Carrier-provided, administered WAN; leverages existing connections.
Vendor Selection	150,000	-	200,000	Provides budget for outside assistance, documentation, technical support.
Implementation Assistance	250,000	-	350,000	Provides budget for project management, technical support.
Agency Cost Offset	100,000	-	200,000	Provides budget to reimburse agency participation (design, testing, coordination).
Contract Administration	20,000	-	35,000	Administration and status reporting to KCDA Board.
Subtotal	\$ 4,270,000	-	\$ 5,485,000	

Schedule Estimate:



Appendix 6

911 Call Taking Projections: Two Primary PSAPs

Net Available Work Hours		
A	2,080	Total hours for one full time employee
B	160	Average vacation and holiday leave [total hours]
C	40	Average sick leave [total hours]
D	0	Average personal leave [total hours]
E	24	Average training leave [total hours]
F	16	Average military, FMLA leave, etc. [total hours]
G	250	Average lunch and break [total hours]
H	0	Average other (meetings, light duty, special assignments, etc.)
I	490	Total unavailable time = Total B through H
J	1,590	Net Available Work Hours: (NAWH) = A - I
1,590 Net Available Work Hours per employee (NAWH from J above)		

Calculate Hourly Processing Capability		
A	1.67	Average telephone busy time (call duration in minutes, using decimals), from phone records [minutes]
B	0.50	Average call completion time (in minutes, this includes time for data entry, address verification, etc.) [minutes]
C	2.17	Average Processing Time: (APT) = A + B [in minutes]
D	28	Average Hourly Processing Capability: (HPC) = 60 ÷ APT [calls hourly]

Planning Assumptions		
80	Annual Vacation [Hours]	
80	Holidays [Hours]	
15%	Turnover Rate	
0 Consoles (Coverage Positions / Radio)		
	Supervisor	
	Law Enforcement	
	Fire	
2 Consoles (Volume Positions / 911 Call Taking)		
Estimated Staffing Need (FTE) ÷ 5 (average number of staff per position)		

Staffing Needed for Coverage Positions		
Hours Needing coverage:		
A	0	Total number of consoles that need to be covered for this position
B	24	Number of hours per day that need to be covered
C	7	Number of days per week that need to be covered
D	52	Number of weeks per year that need to be covered
E	0	Total Hours needing coverage = A x B x C x D
Employee Availability:		
F	1,590	Net Available Work Hours: enter average NAWH from worksheet
Staff Needed:		
G	0	Full Time Equivalent base estimate: (FTE) = E ÷ F
H	15%	Turnover Rate: from retention worksheet, convert to decimal
I	0	Full Time Equivalent required to accommodate turnover, prior to any adjustments based on quality indicators: FTE = G x (1 + H)
0 Estimated Staffing Need (in FTEs from Step I above)		
FTE = Hours needing coverage ÷ Employee Availability x Turnover Adjustment		

Staffing for Volume-Influenced Positions		
Workload:		
A	350,000	Total Call Volume for this position (TCV), from phone records [calls]
B	2.17	Average Processing Time for this position (APT), from phone records [minutes per call]
C	28	Hourly Processing Capability: (HPC) = 60 ÷ B [calls hourly]
D	12,639	Workload in hours: (W) = A ÷ C (call hours)
Employee Availability:		
E	1,590	Net Available Work Hours: enter average NAWH from worksheet
F	80%	Agent Occupancy rate: enter AO, convert percent to decimal
G	1,272	True Availability per person: (TA) = E x F
Staff Needed:		
H	10	Full Time Equivalent base estimate: (FTE) = D ÷ G
I	15%	Turnover Rate from retention worksheet: convert to decimal
J	11	Full Time Equivalent required to accommodate turnover, prior to any adjustments based on quality indicators: FTE = H x (1 + I)
11 Estimated Staffing Need (in FTEs from Step J above)		
FTE = Workload ÷ Employee Availability x Turnover Adjustment		

Appendix 7

911 Call Taking Projections: Two Primary PSAPs

Net Available Work Hours	
A	2,080 Total hours for one full time employee
B	160 Average vacation and holiday leave [total hours]
C	40 Average sick leave [total hours]
D	0 Average personal leave [total hours]
E	24 Average training leave [total hours]
F	16 Average military, FMLA leave, etc. [total hours]
G	250 Average lunch and break [total hours]
H	0 Average other (meetings, light duty, special assignments, etc.)
I	490 Total unavailable time = Total B through H
J	1,590 Net Available Work Hours: (NAWH) = A - I
1,590 Net Available Work Hours per employee (NAWH from J above)	

Calculate Hourly Processing Capability	
A	1.67 Average telephone busy time (call duration in minutes, using decimals), from phone records [minutes]
B	0.50 Average call completion time (in minutes, this includes time for data entry, address verification, etc.) [minutes]
C	2.17 Average Processing Time: (APT) = A + B [in minutes]
D	28 Average Hourly Processing Capability: (HPC) = 60 ÷ APT [calls hourly]

Planning Assumptions	
80	Annual Vacation [Hours]
80	Holidays [Hours]
15%	Turnover Rate
0	Consoles (Coverage Positions / Radio)
	Supervisor
	Law Enforcement
	Fire
3	Consoles (Volume Positions / 911 Call Taking)
Estimated Staffing Need (FTE) ÷ 5 (average number of staff per position)	

Staffing Needed for Coverage Positions	
Hours Needing coverage:	
A	0 Total number of consoles that need to be covered for this position
B	24 Number of hours per day that need to be covered
C	7 Number of days per week that need to be covered
D	52 Number of weeks per year that need to be covered
E	0 Total Hours needing coverage = A x B x C x D
Employee Availability:	
F	1,590 Net Available Work Hours: enter average NAWH from worksheet
Staff Needed:	
G	0 Full Time Equivalent base estimate: (FTE) = E ÷ F
H	15% Turnover Rate: from retention worksheet, convert to decimal
I	0 Full Time Equivalent required to accommodate turnover, prior to any adjustments based on quality indicators: FTE = G x (1 + H)
0 Estimated Staffing Need (in FTEs from Step I above)	
FTE = Hours needing coverage ÷ Employee Availability x Turnover Adjustment	

Staffing for Volume-Influenced Positions	
Workload:	
A	450,000 Total Call Volume for this position (TCV), from phone records [calls]
B	2.17 Average Processing Time for this position (APT), from phone records [minutes per call]
C	28 Hourly Processing Capability: (HPC) = 60 ÷ B [calls hourly]
D	16,250 Workload in hours: (W) = A ÷ C (call hours)
Employee Availability:	
E	1,590 Net Available Work Hours: enter average NAWH from worksheet
F	80% Agent Occupancy rate: enter AO, convert percent to decimal
G	1,272 True Availability per person: (TA) = E x F
Staff Needed:	
H	13 Full Time Equivalent base estimate: (FTE) = D ÷ G
I	15% Turnover Rate from retention worksheet: convert to decimal
J	15 Full Time Equivalent required to accommodate turnover, prior to any adjustments based on quality indicators: FTE = H x (1 + I)
15 Estimated Staffing Need (in FTEs from Step J above)	
FTE = Workload ÷ Employee Availability x Turnover Adjustment	

Appendix 8

First Year Annual Operating Cost Projection

Call Taking Operations

Annual Emergency Calls For Service		350,000		450,000
Full Time Equivalents (FTE)		11		15
Average Annual Compensation	\$ 60,000	\$ 660,000	-	\$ 900,000
Subtotal		\$ 660,000	-	\$ 900,000

Notes

Based on Staffing Model

KCDA reimbursement for 911 call taking.

Professional Development & Quality Assurance

Annual Recertification Training Program		\$ 15,000	-	\$ 25,000
Hours Reimbursement (40 hours/year)	\$28.85/hour	75,010	-	90,000
Quality Assurance Program Administrator		65,000	-	80,000
Subtotal		\$ 155,010	-	\$ 195,000

To meet EMD Continuing Education Requirements

Currently 65 individuals

One individual to support QA program at Primary PSAPs

Technology Maintenance and Support

CAD Vendor Maintenance		\$ 350,000	-	\$ 500,000
Priority Dispatch/ProQA Product Support		10,000	-	12,000
Network Equipment Maintenance		25,000	-	30,000
Network Administration		35,000	-	45,000
Local Application, Technical Support		TBD	-	TBD
Radio Network Maintenance		TBD	-	TBD
Subtotal		\$ 420,000	-	\$ 587,000

Vendor Help Desk, Trouble Resolution

Training Program, Product Support

Vendor Help Desk, Trouble Resolution

Carrier-provided network administration

Future cost item

Future cost item

TOTAL **\$ 1,235,010** - **\$ 1,682,000**

Appendix 9

Pro Forma Budget

	Fiscal Year					Notes
	2007-08	2008-09	2009-10	2010-11	2011-12	
Funding						
Surcharge Revenue Estimates	\$ 2,745,900	\$ 3,661,200	\$ 3,661,200	\$ 3,661,200	\$ 3,661,200	1st year collection beginning 3rd Quarter 2007.
<i>Surcharge Level</i>	4.00%	4.00%	4.00%	4.00%	4.00%	
<i>Base Billing Rate</i>	\$16.95	\$16.95	\$16.95	\$16.95	\$16.95	
<i>Subscriber Lines</i>	450,000	450,000	450,000	450,000	450,000	
Reimbursements/Discounts	\$ -	\$ 25,000	\$ -	\$ -	\$ -	State EMD Training Reimbursement
Subtotal	\$ 2,745,900	\$ 3,686,200	\$ 3,661,200	\$ 3,661,200	\$ 3,661,200	
Capital Expenditures						Values are High Estimates
Time Synchronization	\$ 100,000	\$ 50,000	\$ 50,000			
Organizational Alignment	140,000	70,000	70,000			
Operational Review	150,000	75,000	75,000			
911 System Consolidated Call Taking Transition	1,530,000	175,000	600,000	500,000	255,000	
Computer Aided Dispatch System/Wide Area Network	5,485,000	2,190,000	1,080,000	1,490,000	725,000	
Radio Communication Improvements	3,200,000	100,000	100,000	TBD	1,000,000	2,000,000
Subtotal	\$ 10,605,000	\$ 2,660,000	\$ 1,975,000	\$ 1,990,000	\$ 1,980,000	\$ 2,000,000
KCDA Start-Up Reimbursement	\$ 164,400	\$ 82,200	\$ 82,200			Repayment of Initial KCDA Capitalization
Operating Expenditures						Values are High Estimates
Call Taking Operations	\$ -	\$ 900,000	\$ 900,000	\$ 900,000	\$ 900,000	Full fiscal year reimbursement.
Professional Development & Quality Assurance	-	195,000	195,000	195,000	195,000	
Technology Maintenance and Support	-	587,000	587,000	587,000	587,000	
Local Application, Technical Support	-	TBD	TBD	TBD	TBD	
Radio Network Maintenance	-	TBD	TBD	TBD	TBD	
Subtotal	\$ -	\$ 1,682,000	\$ 1,682,000	\$ 1,682,000	\$ 1,682,000	
BALANCE	\$ 3,700	\$ 29,200	\$ (10,800)	\$ (800)	\$ (20,800)	