Technology Obsolescence Compromises Strategic Priorities
Friends of the Zoo, Inc. – Kansas City, MO

Statement of Need

Visitor demand for more accessible, relevant and effective learning venues confirms improvements to IT infrastructure as high priority activity.

Technology has changed the way we communicate, educate and enrich our lives. Over the past decade the advances in online, instant and interactive technology have been significant. Yet Information Technology (IT) is not static. The need to upgrade and adapt is constant. To be effective, organizations must keep up.

Unfortunately, due to the harsh economic climate, the Kansas City Zoo has fallen behind. The scenario – if the situation is not remedied – would compromise the Zoo's ability to continue its mission to *conserve and provide access to wildlife in order to entertain and educate visitors and to instill a sustained respect for nature.* Though other Zoo initiatives – such as new and expanded animal exhibits – would provide more immediate visibility and public engagement, without an IT upgrade the Zoo's ongoing, long-term capacity to enhance our ties to the community we serve will be compromised.

In 2008 a national economic recession greater than any downturn since The Great Depression significantly reduced consumer confidence and spending, business profits and charitable support, and government tax revenues. Kansas City's funding commitments to the Zoo were cut back in 2008 and again in 2009 due to city revenue shortfalls and changing priorities. Private fundraising was also negatively impacted, interest costs as a percentage of the city budget delayed the sale of approved bond monies, and capital improvement completion dates were pushed out. As a result of these unexpected cuts in public and private funding the Zoo had to reduce staff, hours of operation, programming budgets and increase admission prices in order to maintain breakeven operations.

Investment in the increasingly critical IT infrastructure fell victim to economic realities. Today, there is no other activity that is as high a priority. Without an IT infrastructure investment, the Zoo's mission and strategic priorities may not be realized.

IT improvements are necessary to advance the current-state Kansas City Zoo mission as well as future-state strategic goals.

Over the past seven years the Zoo's reputation and relationship with the Midwest community has been rapidly recovering from decades of neglect. The Zoo has reclaimed a reputation for delivering relevant exhibits which educate and awe over 544,000 annual visitors (2009 attendance records.) Exhibits such as the newly opened *Polar Bear Passage*, *Snakes* and expanded African animal displays are innovative and strategically designed to serve the Zoo's mission. Since opening this past August the Polar Bear Passage has attracted over 220,000 visitors through October 18. Year-to-date the Zoo has hosted over 550,000 guests.

Yes, visitors enjoy watching the Polar Bear's antics. Yet, the exhibit is only a platform for presenting information in an accessible setting. How do environmental changes affect the bear's habitat and sea ice? What are polar bear migration patterns? Do bears interact with other arctic animals? How? Questions and curiosity piqued by the Polar Bear, provide the Zoo an opportunity to address a key strategic initiative, *"Offer outstanding year-round, affordable guest experiences that build attendance and membership and engage and compel our guests toward a greater appreciation of our natural world."*

If information dissemination is the strategic objective, the ability to affectively disseminate the information through information technology must become a strategic priority.

Through technology, we have become accustomed to current, relevant information delivered – if not instantaneously – with an immediacy unimagined a few years ago. Zoo visitors expect a Zoo experience to mirror the interactivity of their technologically networked lives.

This is positive, a welcome opportunity to share information that will engage and enlighten our lives. In fact our visitors' interest in learning more about the natural world supports another strategic Zoo priority, *"enhance the care and survival of wildlife through research, education and conservation."* We not only have the research, educational programs and conservation data to share, we are eager to share it. However, the Zoo's current IT system will not support the infrastructure necessary to develop the interactivity. To date, the Kansas City Zoo has missed a number of opportunities to educate through existing educational resources, simply because our current IT structure is inadequate.

This past spring the Zoo lost an opportunity to install Science on a Sphere through a grant from the National Oceanic and Atmospheric Association due to lack of IT infrastructure; we have had to pass on opportunities to engage in live web-cams with local media outlets; Polar Bear International has offered interactive opportunities we could not accept and the increasing opportunities to interact with our visitors through social media cannot currently be supported.

The Zoo currently has over 5,854 documents, artifacts, studies and reports in repository in our Resource Library. Reframing them within relevant, interactive programming is dependent on updated IT support.

IT is currently the Zoo's the most critical component in serving and advancing investment in institutional capacity.

The Zoo's information technology is shared through servers, the brute workforce that quietly and without fanfare keep the lights on, email streaming, tickets processed, data compiled, accounting accurate. Every five years these tireless workers require replacement. Typically replacement starts the fourth year; the sixth year the obsolete systems have been removed from the infrastructure. The servers at the Kansas City Zoo were purchased in October 2002 and put into service at the beginning of 2003. After seven years they are nearing the end of their life cycle; in fact they're on life-support.

The institutional capacity of day-to-day Zoo operations is compromised daily:

1) The "band-aid" fixes that have helped limp the system along are no longer working because requisite band-aids – the parts – are no longer available.

2) Over the past few years security policies have been rewritten. Though they're critical to public safety, the Zoo's ability to adhere is increasingly affected by obsolescence.

3) Every time new data is integrated – such as the Polar Bear Passage – more stress is put on the system.

4) The current servers are out of warranty. And, a most startling reality, they will not support the up-to-date versions of the software they are currently running.

Beginning in February, 2003 and continuing every day since for 24-hours a day, the Kansas City Zoo servers have maintained and managed the bulk of the Zoo's institutional capacity: accounting; day to day ticket sales; memberships; donations; communication – internal and external; education; media library and resource library.

The Kansas City Zoo's strategic planning process, the participants and the resulting plan.

In 2008 the Kansas City Zoo board of directors reviewed and updated an existing Business Plan and Master Facility plan intended to navigate Zoo development into the next decade. The planning documents were developed in response to decades of operational neglect and identified a "roadmap" capable of helping all stakeholders (board, management, funders, and other interested constituencies) pull together around a common goal – a more robust, relevant and financially sound future. This past year, an update to the plan was unveiled, discussed and approved. The result was the Zoo's current Strategic Plan reflecting progress and refocusing efforts to acknowledge our changing environment – physical, demographic, cultural and economic.

Though guest satisfaction has risen in recent years, overcoming poor prior perceptions of service and a large and aging infrastructure are anchoring strategic objectives. To compete effectively and efficiently against entertainment competitors the board and management have committed to find solutions to funding problems and guest satisfaction issues.

The Zoo's audience and how they will benefit from IT improvements.

Zoos offer something for everyone. Kansas City Zoo visitors reflect the diversity of the Zoo's intended audience. Young children are particularly curious to see the animals they learn about through school, books, movies and other media. Older children pursue their interests in the natural world through camps and educational programs. Parents see a "trip to the Zoo" as a great way to engage their children's curiosity and provide family-oriented entertainment and learning. Adults satisfy their need for lifelong learning through exhibit signage, docent tours, guest speakers and special events.

The Kansas City Zoo has a very broad audience profile which is positive yet also presents a challenge when faced with developing targeted audience messages and educational vehicles. Entertainment must be mixed with education; visitors want convenience yet they also want to be stretched with new experiences. Underpinning all audience satisfaction is a reliable IT infrastructure.

The Kansas City Zoo continues to be a source of pride within the community as evidenced by interest surveys and the community's history of voting support for bond elections and capital improvements. Attendance records are missing or incomplete for most of the early years, but it is safe to say that the Zoo has had a consistent following within the community from those who want to see and learn about animal wildlife.

Area demographics and how the Zoo's audience is served by the strategic plan.

The City of Kansas City, MO has a population of 447,306, while the SMSA has 1,862,288 according to the most recent updates from the U.S. Census Bureau. Attendance at the Kansas City Zoo in 2009 was 544,316, which is equivalent to 29% of the metropolitan area population visiting the zoo once.

The compilation of demographics by ethnicity and age is against Zoo policy. Specific audience statistics which are available include:

- 65% of all guests are from Missouri
- 87,000 visitors from outside the metroplex
- 254,000 Jackson county residents (the county in which the Zoo resides) visited the Zoo in 2009
- 42% of Zoo visitors have household incomes under $50,000

To summarize Information Technology as a statement of need, IT affects *all* components of the Zoo's strategic plan. Without IT, the Zoo cannot realistically implement any of their learning, education or public interface goals.

Project Design

Activities and overall goals

With the necessity of undertaking a complete re-tool of all information technology while meeting expanding visitor expectations *and* maintaining day-to-day operations, the Zoo required a project plan that was action-specific and timeline driven yet fluid enough to accommodate inevitable, unforeseen challenges. To assure the best outcome with minimum disruption the Zoo determined an outside consultant would provide the most reasonable, unbiased planning perspective as well as the most effective and efficient project implementation.

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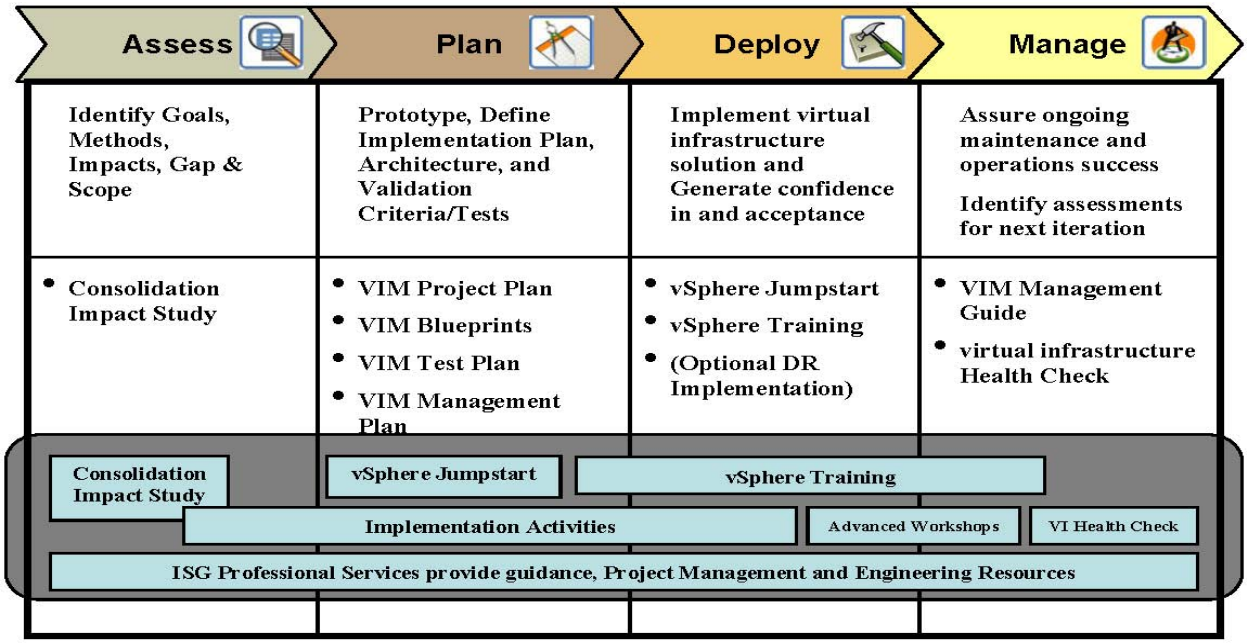
In November, 2009, the Kansas City Zoo engaged ISG Technology, Inc. ("ISG") to conduct a *Consolidation Impact Study.* Their directive was to evaluate the viability and potential financial impact of server consolidation and provide a model capable of achieving Zoo priorities, strategies and goals. This study was executed through four phases:

1. **Discovery** – Analysis of a target study group of 12 servers which compiled detailed inventory, performance, workload and utilization statistics. Additional relevant project information from on-site interviews was also gathered.
2. **Assessment** – Proven capacity planning metrics to the study group of servers identified the best consolidation scenarios based on both new hardware and possible re-use of existing servers.
3. **Financial Analysis** – Detailed Return on Investment (ROI) and Total Cost of Ownership (TCO) analyses compared the proposed consolidation scenario with the current server model.
4. **Recommendations** – Strategic recommendations, cautionary advice and a high-level roadmap for adoption of virtual infrastructure.

In addition to providing all technical support ISG was also tasked with identifying the appropriate software. Their recommendation was VMWare (further defined on page six.) Founded in 1998, VMware has been recognized as the leader in virtual infrastructure technology. Over 4 million users have deployed VMware-based solutions for server consolidation, business continuity, improved software development & testing, and desktop manageability.

Project management and the process for corrections and adjustments is in place

The due diligence of the ISG study supported the Zoo's need for IT upgrade with confirmed, independent review (Asses.) It also provided the activities necessary for a fully implemented project management process (Plan, Deploy and Manage.) The first phase has been completed and paid for. The remaining phases will be initiated upon IMLS funding. Upon notification, ISG can begin immediately.



The decision to hire ISG for the implementation was a business decision made after Zoo board and management review of Zoo IT personal, their strengths, weaknesses and existing responsibilities. Because the project is so inclusive of all current IT functions and core to all strategic priorities the expert

status of ISG will best assure all projects planning, blueprints, testing, training and infrastructure checks are properly designed, employed and monitored.

Partnership confirmed with local Information Technology consultant, SMG.

To help the Zoo identify and implement opportunities to link the upgraded technology to the customer interaction the technology will enable, they are partnering with Service Management Group, Inc. (SMG). SMG will provide external oversight of all goals and objectives during the roll-out phase. Their commitment is to provide approximately four hours of consulting/week. SMG's team of consultants, headed by Gary Broils, Director of Planning & Implementation, will identify key issues, create plans to address, and keep everyone focused on the highest impact initiatives. SMG's oversight will reinforce ISG's accountability.

The Zoo realizes implementing a customer experience platform will bring a significant amount of change to the organization. Though the implementation programs will help engage internal, key stakeholders around a common goal, become more relevant to external Zoo visitors, all change is a challenge. SMG will help manage the process. Relevant history between SMG and the Zoo includes:

- SMG has offered a Visitor Satisfaction program for the KC Zoo since 2005 capturing visitor feedback and providing insights that identify key drivers to improve visitor satisfaction.
- The KC Zoo's IT Dept enlisted SMG's help in 2009 on several software and infrastructure projects. Discussion included topics such as database software migrations, advanced reporting, network configuration, servers/hardware plans, and virtualization.
- Andy Fromm (SMG's President/CEO) serves on the Friends of the Zoo board of directors.

Evaluation has been incorporated into the project design.

The extensive data gathered by ISG during Discovery was processed, analyzed and applied to derive the best possible models and key features of successful IT infrastructure implementation. The following Success Benchmarks will serve as the evaluation model.

Evaluation Table

CURRENT STATE	SUCCESS BENCHMARK
No manufacturer support of server equipment	Premium Vendor Support Program in place and utilized as needed, on-demand
IT staff spends average of 10 hrs/month on maintenance.	IT staff spend less than 5 hrs/month due to flexibility of the virtual environment
Application "down" time of approximately 4 hours/month	No down time
Limited disaster recovery abilities	Off-site data immediately available if recovery necessary
Excessive energy consumption. Est. $36,000 per year for power and cooling	Energy consumption reduced to $11,000 (supporting Zoo's corporate "Green" initiative)
Inefficient server utilization - one Application to one physical server	Consolidation goal of 6:1 ratio of virtual to physical servers achieved

Methods to reach the intended audience(s)

The primary audience *impacted* by the IT upgrade will be Zoo staff and management, an internal audience. The primary *beneficiary* will be Zoo visitors whose experience will be enhanced, an external audience. Internal communications will be developed and implemented by the Zoo's IT department. All external communications will be created in conjunction with SMG. A specific communication plan, including a timeline, will be developed pending funding.

After the implementation has been completed all Zoo personnel will attend a one-hour, mandatory lunch & learn session to familiarize them with the upgraded technology. The sessions will be offered over a two-week period, providing options to management and staff. Standard Operating Procedures will be reviewed and reference guides provided. The IT staff will be "on call" for a one-month time frame to provide assistance when needed.

Scholarly and/or community involvement in content, planning, or execution.

In determining the most appropriate infrastructure best case practices from the industry were researched and a virtual infrastructure and platform was determined to be the best fit for the Zoo's objectives. Virtual infrastructure is a proven technology platform being utilized in production systems at over 90% of the Fortune 1000 companies to dramatically reduce costs, leverage existing IT investments, streamline IT management and provide higher levels of performance and Business Continuity. Per the literature, virtual infrastructure simplifies IT so users can leverage their storage, network, and computing resources to control costs, increase flexibility and respond faster to ever changing technology and business demands.

Project Resources

Time allocated to complete the project.

A complete one-year time line has been developed and is available as a *Schedule of Completion*, per the grant's directives. Time allocated is 155.5 days. The schedule is detailed in three steps, with multiple action items in each step: 1) software installation, 2) virtual server upgrade and 3) client upgrade (upgrades to all staff desktops, laptops and other staff-interfacing technology.)

Key staff, consultants and service providers involved in the project, their qualifications, commitment to project activities, and how they will balance project responsibilities with other ongoing duties.

One of the challenges which has necessitated the need for an outside consultant to define, implement and manage the IT upgrade is the limited size of the Zoo's IT department. Current staff consists of a Director of Facilities and IT, an IT Supervisor and an IT Assistant. Their resumes are titled Resumes.pdf as directed by the grant.

As noted previously the IT staff will continue with their day-to-day activities, with minimal interaction with the ISG team executing the implementation. Weekly meetings have been established to check status and monitor requisite Zoo oversight or action steps. However, with the additional oversight and involvement of SMG, the Zoo feels confident they will maintain the proper balance of ongoing duties with the weekly oversight. Also, all IT upgrades have the full support of the board and the Zoo's Executive Director/CEO Randy Wisthoff. (Resume also attached.)

Budget allocation to accomplish project activities, including both the applicant's contributions and how the applicant will meet the required 1:1 cost share.

Though the project goal is defined by retiring over 80 computers that are over ten years old and upgrading Zoo technology to current standards an additional, long-term and sustainable strategic goal is

to implement a plan to deal with technology life cycles. By implementing the defined plan in subsequent years the Zoo can budget small capitol expenditures each year to stay current with industry standards and avoid such dramatic gaps in equipment life cycle.

The budget will be allocated as follows:

Step 1
→ Installation of the VMWare Platform
→ Consolidation of existing servers into the virtual environment
→ Retire the obsolete servers
Estimated cost = $75,000

Step 2
→ Upgrade all virtual servers to current server OS software versions
→ Upgrade core business applications to current versions
Estimated cost = $10,000

Step 3
→ Client inventory for end-of-life cycle projection at 65 desktops
→ Upgrade operating system (OS) on usable client desktops and laptops
→ Upgrade business software (MS Office 2007 or 2010)
Estimated cost = $65,000

Specific detail referring to the 1:1 cost share is included in the budget documentation, Detailedbudgetyear1.pdf.

Impact

Information about any intended formal products (written reports, plans, publications, etc.) that will result from this project.

Other than development of Standard Operating Procedures for distribution to all Zoo staff and an end-of-project report to the board of directors, this project will have no formal products.

What are the intended measurable results (outcomes and outputs) and the process that will be used to evaluate and report on those results.

As identified on the Evaluation Table (page 5), specific outcomes will be very clear and immediate. Since the deterioration of the Zoo's IT infrastructure is so pervasive, measurable results will be, quite literally, available at the flip of a switch.

How this project or its results will be sustained over time and the long-term impact after IMLS funding ends.

In 2003 it cost the Zoo $90,000 to simply catch up to existing standards. With an investment of $150,000 the Zoo will not only elevate its IT infrastructure to current standards and expectations, it will position itself for lower IT costs/year in all subsequent budget cycles.

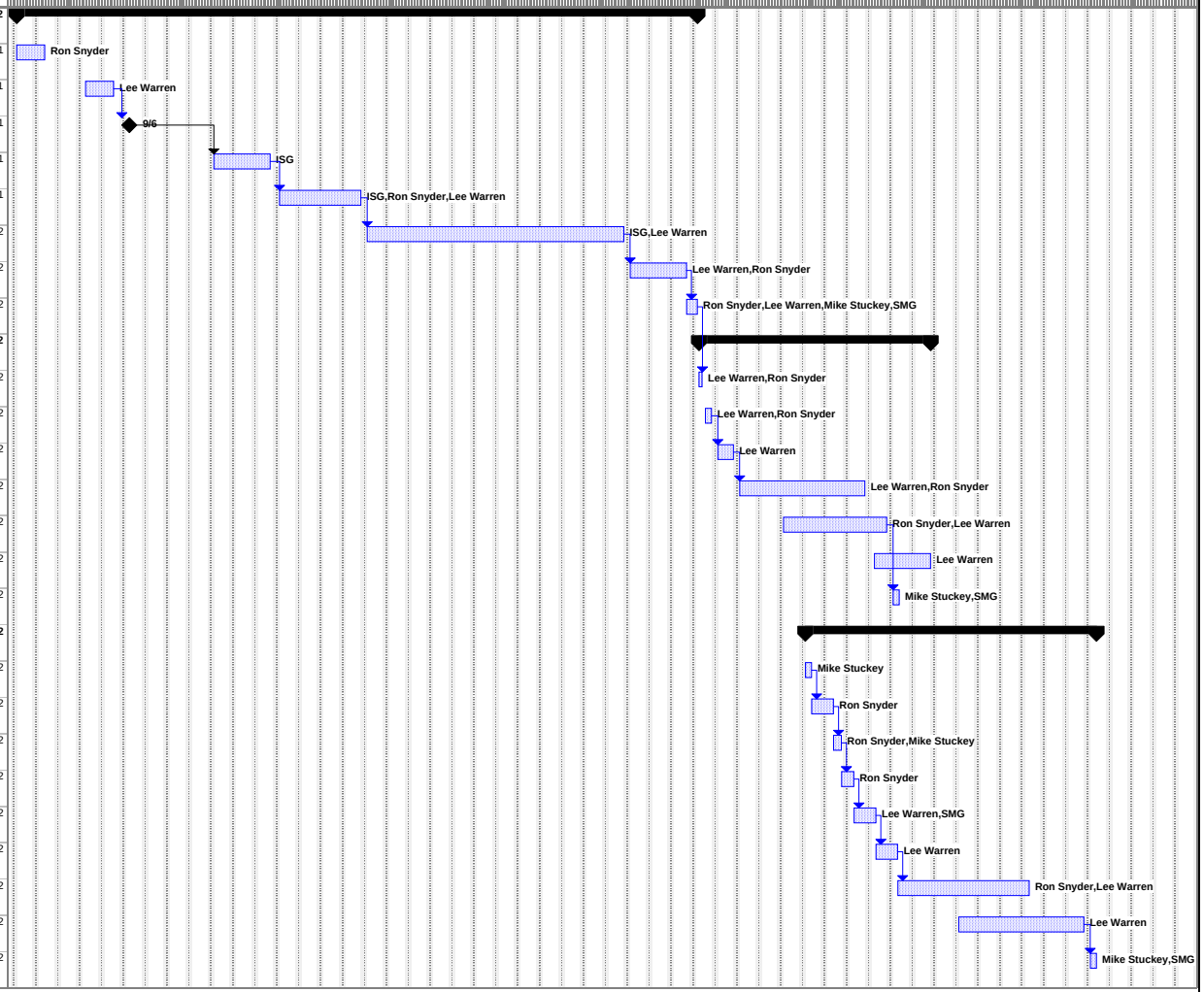
Because the staff has not been able to source and service replacement parts (they are no longer available) it has been difficult to set a realistic IT budget. With an IT infrastructure upgrade, the yearly IT budget will manageable with a small yearly investment to maintain and support the system.

SUMMARARIZING STATEMENT.

Zoos are uniquely equipped to connect people to science; curiosity to knowledge; the natural world to the everyday decisions we make. Our nation's zoos are essential in sharing information about our interdependent, increasingly fragile relationship with the physical world around us. And in today's world, information technology is the conduit through which more relevant connections can flow.

KC Zoo I.T. Infastructure Upgrade Projet

ID	Task Name	Duration	Start	Finish
1	**Step One - VM Ware Install**	**155.5 days**	**Mon 8/1/11**	**Mon 3/5/12**
2	Prepare Server Equipment Rm	7 days	Mon 8/1/11	Tue 8/9/11
3	Receive Hardware / Inventory / Setup	7 days	Tue 8/23/11	Wed 8/31/11
4	Test/Break-in New Equipment Phase	14 days	Tue 9/6/11	Fri 9/23/11
5	ISG Starts Install of VM Ware Platform	14 days	Mon 10/3/11	Thu 10/20/11
6	Testing and Training Period with ISG	20 days	Mon 10/24/11	Fri 11/18/11
7	Start of Physical to Virual Server Conversion	60 days	Mon 11/21/11	Fri 2/10/12
8	Stress testing of Virtual Environment	14 days	Mon 2/13/12	Thu 3/1/12
9	Acceptance of VM Ware Install	1.5 days	Fri 3/2/12	Mon 3/5/12
10	**Step Two - Upgrade Virtual Servers**	**54 days**	**Tue 3/6/12**	**Fri 5/18/12**
11	Identify All Software Packages	1 day	Tue 3/6/12	Tue 3/6/12
12	Make Backups of all Virtual Servers	2 days	Thu 3/8/12	Fri 3/9/12
13	Create Timeline of Upgrade Actions	5 days	Mon 3/12/12	Fri 3/16/12
14	Start Upgrade Process	30 days	Mon 3/19/12	Fri 4/27/12
15	Roll Out of Upgraded Client Software	25 days	Mon 4/2/12	Fri 5/4/12
16	Phase I -Client Training - Lunch and Learn Program	14 days	Tue 5/1/12	Fri 5/18/12
17	Acceptance of Back Office Upgrades	2 days	Mon 5/7/12	Tue 5/8/12
18	**Step Three - Client Upgrades**	**67 days**	**Mon 4/9/12**	**Tue 7/10/12**
19	Client Inventory Approval for Upgrade	2 days	Mon 4/9/12	Tue 4/10/12
20	Identify Order of Replacement	5 days	Wed 4/11/12	Tue 4/17/12
21	Order Replacment Hardware	2.5 days	Wed 4/18/12	Fri 4/20/12
22	Receive / Inventory Hardware	2 days	Fri 4/20/12	Tue 4/24/12
23	Develop Corporate Software Image	5 days	Tue 4/24/12	Tue 5/1/12
24	Testing of Corporate Image	5 days	Tue 5/1/12	Tue 5/8/12
25	Roll Out of New Hardware	30 days	Tue 5/8/12	Tue 6/19/12
26	Phase II - Client Training - Lunch and Learn Program	30 days	Mon 5/28/12	Fri 7/6/12
27	Acceptance of Client Upgrades	2 days	Mon 7/9/12	Tue 7/10/12



Project: Timeline In Project
Date: Tue 10/19/10

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

BUDGET FORM - PAGE FOUR

Section B: Summary Budget

	$ IMLS	$ Cost Share	$ TOTAL COSTS
1. Salaries and Wages		135,328.00	135,328.00
2. Fringe Benefits		31,802.08	31,802.08
3. Consultant Fees		14,500.00	14,500.00
4. Travel			0.00
5. Supplies and Materials	142,000.00		142,000.00
6. Services	8,000.00		8,000.00
7. Student Support			0.00
8. Other Costs			0.00
TOTAL DIRECT COSTS (1—8)	150,000.00	181,630.08	331,630.08
9. Indirect Costs		5,266.40	5,266.40
TOTAL COSTS (Direct and Indirect)	150,000.00	186,896.48	336,896.48

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	150,000.00
2. Cost Sharing:	
a. Cash Contribution	172,396.48
b. In-Kind Contribution	14,500.00
c. Other Federal Agencies*	
d. TOTAL COST SHARING	186,896.48
3. TOTAL PROJECT FUNDING (1+2d)	336,896.48
% of Total Costs Requested from IMLS	44.50%

* If funding has been requested from another federal agency, indicate the agency's name: