

## **Amendment to Exhibit A.6: Approved Work Plans and Deliverables**

This amendment relates an extension to the original agreement between the Library of Congress and Emory University, dated 09/16/2004, with amendments to exhibit A as approved on 01/04/2005. The 18-month extension to the period of performance and an Amendment to Exhibit A.2 ("Project Description") were approved on 03/14/2007. This amendment to Exhibit A.6 ("Workplan and Deliverable and Reporting Guidelines") details the work plan for the extension period including a portion of the work from the original workplan that will be continued into the extension phase, as documented in A.6.1.1 below. Unexpended funds from the original funding will be applied to this activity.

### **A.6 Summary:**

With support from the Library of Congress, the MetaArchive project partners will undertake an eighteen-month extension phase for their project (17-Sept-07 to 15-Mar-09). The aims of the extension are as follows:

1. to continue building the established MetaArchive of Southern Digital Culture, including adding content to the network, conducting additional network testing, and other tasks as needed;
2. to establish and formalize a sustainable business model for cooperative digital preservation by means of our distributed archiving strategy; and
3. to establish an outreach effort to educate cultural memory organizations with at-risk digital content or pressing digital preservation needs about distributed digital preservation and encourage their participation in or creation of LOCKSS networks.

These aims are intended to ensure the sustainability of our own technical and organizational infrastructure and to encourage the steady growth of private LOCKSS networks (PLNs) as a foundational component of a growing distributed digital preservation community. First, by continuing to harvest new materials and strengthen our technical infrastructure, we will actively preserve more of our nation's digital assets and further demonstrate the viability of the model PLN we have created. The work we completed in the first phase of funding has established a strong network that is preserving a critical body of material. Each of our member institutions possesses digital collections beyond those initially slated for harvest during the first project phase, and are interested in readying these collections for harvest and preservation during this second project phase. Similarly, each of our member institutions has continued to build its digital collections over the last three years, and this additional material now needs to be harvested and preserved. We will also seek opportunities to welcome new members into the Cooperative.

Second, we seek to transition our project into a sustainable program during the extension period. An integral step in this process is producing and formalizing a business model. By establishing our business model for the Cooperative, we will plan for and address the organizational and administrative tasks associated with creating and maintaining a distributed digital preservation business. Organizational challenges pose the largest barrier to wide adoption of the MetaArchive network and

private LOCKSS networks more generally. Creating and formalizing a business model and plan will enable our own Cooperative to grow through the addition of new members. As important, it will provide the organizational structure that is necessary to foster adoption of a practical new paradigm for distributed digital preservation via PLNs.

Third, we intend to establish a multifaceted outreach effort to a large number of communities and institutions, to facilitate broader participation in digital preservation by cultural memory organizations around the country, such as libraries, museums, historical societies, government agencies, and state archives. Many organizations have not yet invested in digital preservation methods because they have not been made aware of the maturity of such systems nor of their low investment requirements. We intend to provide interested parties with generalized knowledge about private LOCKSS networks (how to plan, design, implement, and run them) in order to mobilize efforts, nationally and internationally. For MetaArchive to have the fullest possible positive impact on the emerging field of digital preservation as a whole, we need to assist and advise others about the whole range of private LOCKSS network options, including (but not limited to) the MetaArchive implementation. Simultaneously, we need to provide the budding community with resources that enable them to share back what they create. To this end, the Cooperative will also provide a central resource for information, tools, documentation, and other PLN contributions from the wider community.

The proposed work plan for this project builds on the relationships and workflows developed during the first phase of this project. All funds requested from the Federal government will be matched one-for-one by the MetaArchive project partners.

### **A.6.1 Objectives**

A.6.1.1. Objective: Ensure the Sustainability of our Network. In the second phase, we will continue to harvest new materials and strengthen our technical infrastructure. To this end, we will continue to work on our technical infrastructure, conducting updates, network testing, and other tasks as needed. We will also actively preserve more of our nation's digital assets. One important finding from our first project phase is that not all collections are equally ready for harvest. Specifically, collections that have been stored off-line (*e.g.*, on CDs or DVDs) must be mounted, properly assembled, and documented in order to make them available for harvest within the network. These "data wrangling" activities have proven more time consuming than anticipated, and as a result, several large collections identified for harvest in the original agreement are now being readied for harvest. We anticipate completing these harvests within the first three months of the extension phase using unexpended funds from the original agreement. Similarly, the Library is now ready to fulfill the requirement for content transfer from the MetaArchive of Southern Digital Culture to the Library of Congress as established in the original agreement. To that end, the MetaArchive team will assist the Library of Congress as it creates a MetaArchive node.

Each of our member institutions possesses digital collections beyond those initially slated for harvest during the first project phase, and all are interested in readying these collections for harvest and preservation during this second project phase. Similarly, each of our member institutions has continued to build its digital collections over the last three years, and this additional material now needs to be harvested and preserved. We will also seek opportunities to welcome new members into the Cooperative, adding their collections to our current network and potentially building additional

networks as needed. Finally, we will work with the Stanford LOCKSS team in order to jointly develop the cache manager and conspectus such that it can be seamlessly incorporated into other LOCKSS initiatives.

- **Action Item A: Content Harvest.** Our first priority will be to complete the content harvesting activities originally proposed in phase one of the project. This will entail additional “data wrangling” in order to mount the collections on the Internet in secure locations for harvest.
- **Action Item B: Assist the Library of Congress in establishing a MetaArchive node.** The team will work with the Library as it implements a new node on the MetaArchive of Southern Digital Culture network.
- **Action Item C: Ongoing Network Development.** We will continue to work closely with the LOCKSS project team to improve our technical infrastructure as new updates become available. We will also continue to perform regular network testing.
- **Action Item D: Software Assessment.** The MetaArchive Cooperative and the LOCKSS team will perform a joint assessment of the conspectus database and cache manager developed in the first phase of the project. We will jointly undertake technical work with the LOCKSS team to co-develop the cache manager and the conspectus database for use with other PLNs.
- **Action Item E: Additional Content Harvest.** We will identify, prepare, and harvest new collections from each of our partner institutions into the MetaArchive of Southern Digital Culture. We also hope to welcome new members into the Cooperative over the next two years and add their collections to our current network. We may add new networks on an as-needed basis to cover non-southern materials.

A.6.1.2. Objective: Formalization of the Digital Preservation Model. In the proposed project, we will work with a qualified business consultant to formalize our governance documents and to produce a Preservation Business Model for the MetaArchive Cooperative. This Model will build upon the governance documents that we produced in the first project phase. It will feature a business analysis of our distributed preservation strategy, including a careful analysis of the industry and market, a management plan, an operations plan, a risk assessment and contingency plan, a marketing plan, and a financial plan (including revenue streams, inputs and outputs, and budget projections).

With the assistance of our business consultant(s) we will ensure that our processes and procedures work effectively and are expressed legally. As part of the formalization of our Cooperative, we will also set up an administrative structure with the Educopia Institute to efficiently handle billing, payment schedules, processing payments, and other important administrative tasks associated with running a service organization. We also anticipate that other groups that replicate our approach and set up their own networks will find this documentation useful as a model for their own ventures. The formalization and dissemination of the Preservation Business Model will help to establish a community of practice, one that will develop consistently across different user communities as they collaborate to implement distributed networks for digital preservation.

- **Action Item A: Formalized Charter.** We will involve legal and business consultants in

revising our Charter and Membership Agreement. The revised and expanded documentation will be approved by all current members of the MetaArchive Cooperative.

- **Action Item B: Preservation Business Model.** This Model will feature a business analysis of our distributed preservation strategy, including industry and market analysis and management, operations, risk assessment, marketing, and financial plans. The formalized documents will be shared with potential new members, published on the MetaArchive website, and announced through other appropriate dissemination channels (listservs, conferences, newsletters) to facilitate their use by other groups of institutions.
- **Action Item C: Administrative Process.** Working with business and legal consultants, we will formalize the relationship between the MetaArchive Cooperative and the Educopia Institute, setting up the administrative structures needed for MetaArchive (including billing, payment schedules, and payment processing) through this Institute.

A.6.1.3 Objective: Distributed Digital Preservation Community Building. This outreach effort will consist of a systematic attempt to reach four distinct communities of cultural memory organizations with at-risk digital content—archives, museums, libraries, and state digitization groups—through five pathways: 1) meetings and presentations, 2) workshops, 3) a published guide to producing PLNs, 4) hosting and managing a listserv for the Distributed Digital Preservation community, and 5) consulting activities for those seeking to implement private LOCKSS networks. A qualified project director will lead this effort.

Many cultural memory organizations currently shy away from digital preservation planning because they believe the process too work intensive and time/resource consuming. Making the broader community of such organizations aware of the options now available to them is a key goal of this project extension. The outreach component of this project aims to increase knowledge and adoption of distributed digital preservation practices using private LOCKSS networks, and will showcase two distinct elements of the MetaArchive Cooperative's work: the Preservation Business Model and the distributed preservation network. These workshops will enable us to analyze and advise on a range of additional scenarios for distributed digital preservation networks beyond any specific constraints of the MetaArchive technology.

As part of our outreach effort, we will also provide a range of consulting services to those running or participating in private LOCKSS networks of any kind. These include content selection/scoping procedures, conspectus building and management, plug-in creation, creating a technical infrastructure, network testing, and training. These consulting services and others will be available to member organizations as well as to groups who seek to replicate the MetaArchive Cooperative's network model or build alternate forms of private LOCKSS networks.

- **Action Item A: MetaArchive Cooperative Website.** The Cooperative will create and launch a website to further the mission of the MetaArchive Cooperative: to support, promote, and extend distributed digital preservation practices. The resulting website will serve three overlapping audiences, MetaArchive members, those interested in designing or joining a Private LOCKSS network, and those interested in (or participating in) distributed digital preservation. The site will contain such sections as 1) documentation on MetaArchive's

network, processes, business plan, and organizational framework; 2) a tools, scripts, and documentation registry for PLNs that will include both completed software/documentation and information about what work is in progress and where; 3) downloadable pdfs of the *Guide to Distributed Digital Preservation* chapters and appendices and other information about running PLNs; and 4) documentation regarding other distributed digital preservation methods and ways in which different projects (*e.g.*, LOCKSS, SDSC's Chronopolis, and others) are building bridges between their core infrastructures.

- **Action Item B: Meetings and Presentations.** We will present to library, museum, historical society, and state archive communities at major conferences (at least four presentations total) about MetaArchive and distributed digital preservation. At least one of these presentations will focus on the way that LOCKSS networks may fit into an institutions' broader workflow of Digital Curation.
- **Action Item C: Training Workshops.** These training workshops will teach political, cultural, and historical archives how to participate in and/or host private LOCKSS networks. We will host workshops in Atlanta and in conjunction with major events around the country for each of our specified communities.
- **Action Item D: Guide to Distributed Digital Preservation (*manuscript*).** This monograph will provide an overview of distributed digital preservation and detailed instructions on how to participate in and/or host a private LOCKSS network (PLN). The monograph's chapters will be made freely available as pdfs on our website.
- **Action Item E: Distributed Digital Preservation Listserv.** We will host a listserv that focuses on issues relating to PLNs and distributed digital preservation options, encouraging information sharing that will help to build our community of practice.
- **Action Item F: Consultation.** We will provide assistance to institutions that are interested in contributing to or hosting a MetaArchive node or network. We will also provide these services to groups that are working with other forms of private LOCKSS networks as appropriate.

#### **A.6.2 Work Plan for Extension Phase**

The project will take place over a period of eighteen months and is oriented around three activities that correspond to the three objectives of the project. The Steering Committee will meet twice a year (four times total) during these eighteen months—month one, month six, month twelve, and month eighteen to approve completion of project milestones and to plan implementation of project tasks and deliverables.

#### **A. Network Building**

**A1. Content Harvest (09/07 – 11/07).** Twelve weeks have been allocated for finalizing the harvest of materials identified during the first phase of the project, allotting time for data wrangling activities, plugin creation, and any contingencies that may arise.

**A2. Additional Content Identification (09/07 – 11/07).** Also during the first three months of the project, the Steering Committee will identify and begin to ready additional collections within their archives for harvest. We will conduct our first harvest of these materials in November, and will continue to harvest over the duration of the project period.

**A3. Establish the Library of Congress Node (09/07-12/07).** The MetaArchive team will work with the Library of Congress to establish an LC node on the MetaArchive network to meet the requirement from the original agreement for content transfer from the network to the Library of Congress.

**A4. Software Assessment (09/07 – 12/07).** The MetaArchive Cooperative and the LOCKSS team will jointly assess the conspectus database and the cache manager tools developed in the first phase of the project.

**A5. Subsequent Content Harvests (12/07 – 02/09).** Over final fifteen months, as new members join the Cooperative and as we identify the need for new (non-southern) network building, we will undertake subsequent content harvests.

**A6. Software Revision, Cache Manager (01/08 – 6/08).** We will collaboratively edit, and release a software tool for the cache manager with the LOCKSS team. We intend the open source release of this component to have broad applicability for PLNs.

**A7. Develop and Implement Network Testing (01/08 – 02/08).** We will develop testing modules that will be used at six-month intervals both during and beyond this project to test various elements of reliability, security, fault tolerance, and recovery processes of the MetaArchive networks. These modules will include reporting features that will allow the results of these tests to be distributed to the Library of Congress and to all MetaArchive member institutions.

**A8. Software Revision, Conspectus Database (06/08 – 11/08).** We will collaboratively edit, and release a software tool for the conspectus database with the LOCKSS team. We intend the open source release of this component to have broad applicability for PLNs.

**A9. Second Network Testing and Reporting (06/08 – 07/08).** We will run the testing and reporting modules to test various elements of reliability, security, fault tolerance, and recovery processes and report out on these to the Library of Congress and all MetaArchive member institutions.

**A10. Third Network Testing and Reporting (01/09).** We will run the testing and reporting modules to test various elements of reliability, security, fault tolerance, and recovery processes and report out on these to the Library of Congress and all MetaArchive member institutions.

## **Deliverables**

- MetaArchive node fully deployed at Library of Congress (12/28/07)
- Reports on network testing at six month intervals (02/01/08; 07/11/08;01/16/09)

- Documented assessment of cache manager and conspectus database (12/28/07)
- Release of enhanced cache manager (06/06/08)
- Release of enhanced conspectus database software (11/28/08)

## **B. Preservation Model and Business Planning**

**B1. Charter Review and Revision (09/07 – 10/07).** The PI, Project Manager, and business consultants will review and refine the charter and membership agreement.

**B2. Administrative Development (09/07 – 12/07).** Working with business and legal consultants, we will formalize the relationship between the MetaArchive Cooperative and the Educopia Institute, setting up the administrative structures needed for MetaArchive (including billing, payment schedules, and payment processing) through this Institute.

**B3. Preservation Model Market Analysis (11/07 – 02/08).** With our business consultants, we will plan and implement a market analysis for distributed digital preservation in the cultural heritage community.

**B4. Preservation Model Management Plan Development (02/08 – 03/08).** The Project Manager and the Steering Committee, together with the Business Consultants, will document the MetaArchive Cooperative's Management plan and practices.

**B5. Preservation Model Operations Plan Development (03/08 – 05/08).** The Project Manager and the Steering Committee, together with the Business Consultants, will document the MetaArchive Cooperative's current and future operations strategies and processes.

**B6. Preservation Model Risk Assessment/Contingency Plan Development (06/08 – 08/09).** The Project Manager and the Steering Committee, together with the Business Consultants, will document the MetaArchive Cooperative's risk assessment and contingency plan.

**B7. Preservation Model Marketing Plan Development (08/08 – 10/09).** The Project Manager and the Steering Committee, together with the Business Consultants, will develop a marketing plan for the Cooperative and its networks.

**B8. Preservation Model Financial Plan Development (10/08 – 12/08).** The Project Manager and the Steering Committee, together with the Business Consultants, will document the MetaArchive Cooperative's financial plan, including revenue streams, inputs and outputs, and budget projections.

**B9. Preservation Business Model Finalization (12/08 – 03/09).** The Project Manager and the Steering Committee, together with the Business Consultants, will finalize documentation of the MetaArchive Cooperative's business plan. The resulting Preservation Business Model will feature a business analysis of our distributed preservation strategy, including a careful analysis of the industry and market, a management plan, an operations plan, a risk assessment and contingency plan, a

marketing plan, and a financial plan.

### **Deliverables**

- Revision of Charter and Membership Agreement (11/02/07)
- Formalization of administrative relationship between MetaArchive Cooperative and Educopia Institute (12/28/07)
- Preservation Business Model complete and available on the Cooperative website (03/13/09)

### **C. Community Building**

**C1. Community Building Program Implementation Plan (09/07 – 12/07).** The Outreach Committee and the Project Manager will design an Outreach Program Implementation Plan that will detail the workplan for the following activities: 1) Update and populate the MetaArchive website; 2) Identify and secure presentations at one or more conferences and meetings that address each of four identified communities (archives, museums, libraries, and state digitization groups); 3) Structure and author a book on Distributed Digital Preservation to serve as a guide/manual to our organizational models and technical systems; 4) Design and advertise workshops that the team will host at Emory University and in conjunction with large conferences elsewhere to train interested groups in how to host private LOCKSS networks (PLNs); and 5) Identify at least two new institutional sites that are interested in developing a MetaArchive node, and engage in conversation with them about potential consulting opportunities.

**C2. Community Building Implementation, Listserv (09/07).** The Project Manager will create and manage a Distributed Digital Preservation listserv for workshop participants and other interested parties. This listserv will provide a forum for broad discussion of the methods, tools, and organizational infrastructures associated with the emerging field of distributed digital preservation practices.

**C3. Community Building Implementation, Website (11/07 – 03/09).** The Steering Committee will work with the Project Manager to launch the revised framework of the MetaArchive website and to populate the site with all relevant project materials and information on distributed digital preservation. The site will be continually updated through March 2009.

**C4. Community Building Implementation, presentations (12/07 – 02/09).** The Outreach Committee will secure and give presentations at one or more conferences and meetings that address each of the four identified communities: archives, museums, libraries, and state digitization groups.

**C5. Community Building Implementation, *Guide to DDP* (01/08 – 05/08).** The Outreach Committee will work with the Project Manager to author, edit, and publish the *Guide to Distributed Digital Preservation* manuscript.

**C6. Community Building Implementation, workshops (01/08 – 02/09).** The Outreach Committee will design, advertise, and host workshops at Emory University and elsewhere to train interested groups in how to host private LOCKSS networks.

**C7. Community Building Implementation, consulting (03/08 – 02/09).** The Outreach Committee will identify at least two new institutional sites that are interested in developing a MetaArchive node and engage in conversation with them about potential consulting opportunities. The Outreach Committee will also create a document detailing the consultant offerings of the MetaArchive Cooperative and their pricing structure.

### **Deliverables**

- Launch of listserv on Distributed Digital Preservation (9/28/07)
- Outreach Program Implementation Plan (12/28/07)
- Release of new website for MetaArchive Cooperative (12/28/07)
- Publication of the *Guide to Distributed Digital Preservation* manuscript (by the MetaScholar Initiative at Emory University) (05/02/08)
- Progress reports on Outreach Program Implementation at six-month intervals (02/01/08; 07/11/08;01/16/09)

### **A.6.3 Milestones:**

Major project milestones will be marked by meetings of project personnel coming together to discuss issues and document results. Both milestones and work plans should be read in conjunction with the project schedule.

**A.6.3.1 Steering Committee Meets (September 2007):** During this meeting, which will focus on Community Building, the Steering Committee and the business consultants will A) approve a design direction for the MetaArchive Cooperative website; B) name the Outreach Committee; C) launch the listserv for distributed digital preservation; D) draft the Community Building Implementation Plan; E) draft Harvest Plan for the extension phase. Meeting Outcomes: A) Community Building Implementation Plan; B) listserv; C) Harvest Plan to guide network development for the extension.

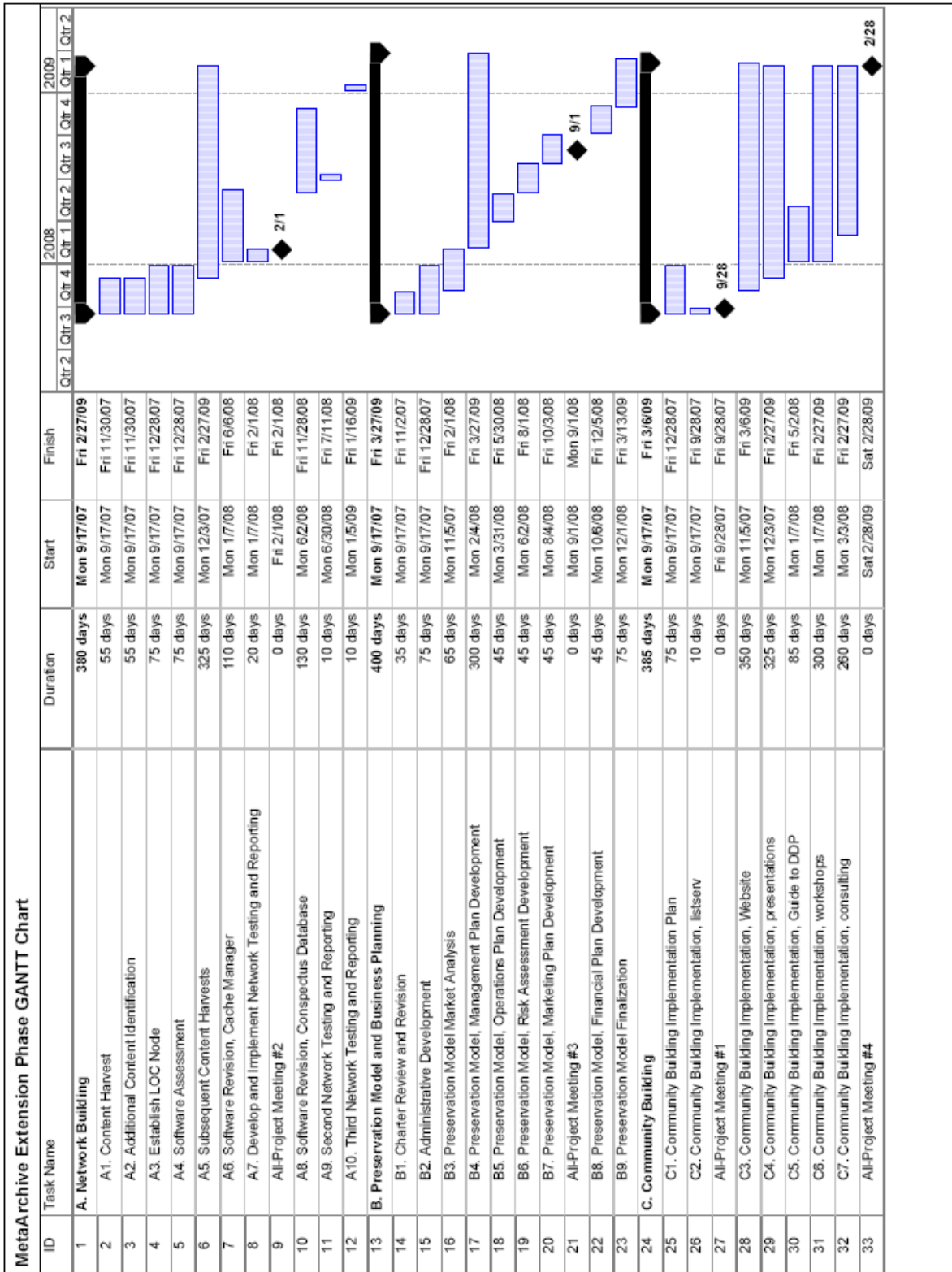
**A. 6.3.2 Steering Committee Meets (February 2008):** During this meeting, which will focus on Network Building, the Steering Committee will A) review the joint analysis of the conspectus database and the cache manager; B) review the first network test; C) review harvesting plan and progress to date; D) review and approve the Market Analysis. Meeting Outcomes: A) Conspectus/Cache Analysis; B) Network Testing Documentation; C); Harvesting Plan Progress Report; D) publish Market Analysis on the MetaArchive website.

**A.6.3.3 Steering Committee Meets (September 2008):** During this meeting, which will focus on the

Preservation Business Model, the Steering Committee will A) approve the management plan, operations plan, and risk assessment/contingency plan with the business consultants; B) outline the marketing and financial plans. Meeting Outcomes: A) Management Plan; B) Operations Plan; C) Risk Assessment/Contingency Plan all published to the MetaArchive website.

**A.6.3.4 Steering Committee Meets (February 2009):** During this meeting, the Steering Committee will A) approve the marketing plan and the financial plan with the business consultants; B) review the software revisions and documentation; C) draft the final report. Meeting Outcomes: A) Full Preservation Business Model published on the website; B) final report wiki (final report to be submitted by 15 March, 2009).

**A. 6.4 Revised MetaArchive Project GANTT Chart**



## A.9 Approved Schedule

The deliverables, project reports, and meetings described in the amendment to Exhibit A.6 are incorporated into the Schedule set forth below. MetaArchive will comply with the Schedule. MetaArchive will also prepare reports and deliver Work Plan deliverables to the Library in a timely fashion. MetaArchive staff will attend and participate in meetings and conference calls as reasonably requested by the Library.

1	<b>Project Continuation</b>	400 days	17-Sep-2007	15-Mar-2009
2	<b>A. Network Building</b>	380 days	17-Sep-2007	27-Feb-2008
3	A1. Content Harvest	55 days	17-Sep-2007	30-Nov-2007
4	A2. Additional Content Identification	55 days	17-Sep-2007	30-Nov-2007
5	A3. Establish LOC Node	75 days	17-Sep-2007	28-Dec-2007
6	A4. Software Assessment	75 days	17-Sep-2007	28-Dec-2007
7	A5. Subsequent Content Harvests	325 days	3-Dec-2007	27-Feb-2009
8	A6. Software Revision, Cache Manager	110 days	7-Jan-2008	6-Jun-2008
9	A7. Develop and Implement Network Testing and Reporting	20 days	7-Jan-2008	1-Feb-2008
10	All-Project Meeting #2		1-Feb-2008	1-Feb-2008
11	A8. Software Revision, Conspectus Database	130 days	2-Jun-2008	28-Nov-2008
12	A9. Second Network Testing and Reporting	10 days	30-Jun-2008	11-Jul-2008
13	A10. Third Network Testing and Reporting	10 days	5-Jan-2009	16-Jan-2009
14	<b>B. Preservation Model and Business Planning</b>	400 days	17-Sep-2007	13-Mar-2009
15	B1. Charter Review and Revision	35 days	17-Sep-2007	2-Nov-2007
16	B2. Administrative Development	75 days	17-Sep-2007	28-Dec-2007
17	B3. Preservation Model Market Analysis	65 days	5-Nov-2007	1-Feb-2008
18	B4. Preservation Model, Management Plan Development	40 days	4-Feb-2008	28-Mar-2008
19	B5. Preservation Model, Operations Plan Development	45 days	31-Mar-2008	30-May-2008
20	B6. Preservation Model, Risk Assessment Development	45 days	2-Jun-2008	1-Aug-2008
21	B7. Preservation Model, Marketing Plan Development	45 days	4-Aug-2008	3-Oct-2008
22	All-Project Meeting #3		1-Sep-2008	1-Sep-2008
23	B8. Preservation Model, Financial Plan Development	45 days	6-Oct-2008	5-Dec-2008
24	B9. Preservation Model Finalization	75 days	1-Dec-2008	13-Mar-2009
25	<b>C. Community Building</b>	385 days	17-Sep-2007	6-Mar-2009
26	C1. Community Building Implementation Plan	75 days	17 Sep-2007	28-Dec-2007
27	C2. Community Building Implementation, listserv	10 days	17-Sep-2007	28-Sep-2007
28	All-Project Meeting #1		28-Sep-2007	28-Sep-2007
29	C3. Community Building Implementation, Website	350 days	5-Nov-2007	6-Mar-2009
30	C4. Community Building Implementation, presentations	325 days	3-Dec-2007	27-Feb-2009
31	C5. Community Building Implementation, <i>Guide to DDP</i>	85 days	7-Jan-2008	2-May-2008
32	C6. Community Building Implementation, workshops	300 days	7-Jan-2008	27-Feb-2009
33	C7. Community Building Implementation, consulting	260 days	3-Mar-2008	27-Feb-2009
34	All-Project Meeting #4		27-Feb-2009	27-Feb-2009