

December 1, 1998

## **Consolidated Detailed Work Plan<sup>1</sup>**

### ***(MetroGIS Fair-Share Financial and Organizational Model Project)***

The following work plan details the procedures that will be followed by the BRW Team to complete this project successfully. We expect to begin work on the project October 1, 1998, and to complete our tasks by August 15, 1999, in conformance with the RFP. A detailed time line for the tasks and deliverables can be found at the end of the work plan.

The BRW Team appreciates the opportunity to negotiate the scope of work and schedule with MetroGIS at the onset of the project. Strict limits and priorities must be established in the project scope for a variety of reasons. First, this project addresses many difficult questions. Obtaining adequate hard cost data for GIS in public sector organizations is difficult. The many organizations and individuals involved make the information gathering and internal validation activities theoretically endless. There are tricky legal and political considerations in issues such as revenue generation, liability, and fair-share of costs. Finally, the final review process must have some bounds for successful completion of the final report by August 15, 1999.

The work plan we put forth here could require several times the budget available for the project. To remain within this budget and still produce worthwhile results, we must stay on schedule and use project resources to maximum effect. The BRW Team and MetroGIS must initiate and execute the project with a careful definition of scope and priorities.

We reiterate that our approach to this project is completely collaborative. We look forward to working with MetroGIS participants and staff, as their substantial work is the foundation on which we must build. For the project to be successful, we will require the following from MetroGIS:

- Funding for the project and prompt payment of invoices
- Key participation in the formal determination of project scope, requirements, and resource allocation at project kick-off.
- Cooperation with the BRW Team in the maintenance and use of a formal project communication, reporting, and problem resolution process.
- Sharing responsibility for meeting project schedule while working within scope and budget constraints.
- Providing access to pertinent MetroGIS staff, documents, records, and resources necessary for the contractor to fulfill his role in the project.

<sup>1</sup> This document has been compiled for easy of administration from the consultant's August 20<sup>th</sup> proposal and two subsequently approved documents that clarify the scope of work and quality assurance measures. The source documents are attached to or referenced in the contract between the consultant and the Metropolitan Council. If any discrepancies exist between this consolidated version and the source documents attached to or referenced by the contract, the latter shall prevail.

- Assisting the contractor in obtaining the cooperation of MetroGIS stakeholders and access to pertinent records of MetroGIS member organizations.
- Participation in overall project review.
- Commitment to project completion and project sign off.

### **Task A: Clarify Appropriate Roles and Framework Functions**

This task will address the NSDI Framework Functions to clarify two critical points. First, the specific activities necessary to realize MetroGIS goals in conformance with NSDI Functions. Second, the appropriate roles of MetroGIS participants with respect to the seven Framework Functions and three highest priority Framework Themes. In addition, the task will address, in less depth and detail, the seven Framework Functions for all remaining priority Business Information Needs.

In Task A we will accomplish the following:

- Review definitions of NSDI framework functions, activities considered appropriate to each of these functions, and standards for the three high priority framework themes.
- Review the same for MetroGIS business needs corresponding to these framework themes.
- Analyze and document how local needs diverge and converge from NSDI Framework function guidelines.
- Extrapolate from work done on the three highest priority themes to outline the anticipated roles and responsibilities associated with each Framework Function for the remaining ten high priority information needs.

Throughout this process, we will take advantage of work completed by MetroGIS and others to minimize duplication of efforts. In the earliest stages of this project, the BRW Team will gather all available work products to determine where gaps exist. Duplication is justifiable only if necessary to achieve optimal results.

#### 1. NSDI Framework Functions

Drawing upon NSDI function guidelines, MetroGIS documents, and our professional GIS consulting experience, we will examine the NSDI framework function and theme definitions to determine their meaning at the operational level for MetroGIS and its participating organizations. The BRW Team will review activities necessary to accomplish framework functions and identify the responsibilities and procedures pertaining to the highest priority data sets within each NSDI data theme. These are region-wide parcel boundaries, as part of the Cadastral Theme, jurisdictional boundary lines as part of the Government Units Theme, and street address ranges as part of the Transportation Theme. We will extend a less intensive version of this process to the range of NSDI functions for the 10 other datasets identified by MetroGIS as high priority.

We will review current NSDI and MetroGIS documentation to confirm the terms, language, and specific requirements of the two programs. We will be alert to subtle differences between NSDI and MetroGIS definitions and between the expressed

needs and requirements of different participants. By these means we will develop an accurate and complete breakdown of the NSDI Framework Functions and identify where local needs diverge and converge with NSDI guidelines.

We will review the results of this subtask with the MetroGIS staff and committee members to verify that our interpretations of MetroGIS needs and corresponding Framework requirements are consistent with theirs. We will document similarities and differences for consideration by the appropriate MetroGIS player and for inclusion in project reports.

In addition, we will collaborate with MetroGIS representatives to evaluate the findings of previously contracted work which identified roles and responsibilities for developing and maintaining metadata and posting it with MetroGIS Data Finder and the State's Node of the NSDI Clearinghouse. If necessary, we will suggest clarifications of these roles and responsibilities to enable their integration with the findings of this project. The project reports will fully document the results of this evaluation and our recommendations. The findings of this task will provide input for the evaluation of Data Finder itself in Task B.

#### 1. Clarify Appropriate Roles and Responsibilities

This step applies the results of Framework Function analysis, together with MetroGIS's prototype information needs and data evaluation process, to the resources identified by the MetroGIS Information Needs Workgroup to support the priority themes. In collaboration with the MetroGIS Information Needs Workgroup and staff, we will clarify appropriate roles and responsibilities for organizations in the execution of the activities identified above. These draft determinations will be based upon the most efficient, effective, and equitable distribution of activities. However, appropriation of roles and responsibilities under the activities plan will not be finalized until Tasks B & C of this project have been concluded and their results considered.

In addition, we will evaluate the MetroGIS Information Needs Workgroup Process. MetroGIS has already applied this process to the jurisdictional boundary and address information themes. MetroGIS will conduct the process for the parcels theme this fall. BRW's role in that process will be to observe. MetroGIS will provide Information generated by this process for all three themes to BRW for analysis. By examining pertinent documents, interviewing selected participants, and observing the process, we will learn how progress made on assigning functions has been accomplished and gain an understanding of the process' perceived strengths and weaknesses. If appropriate, we will suggest ways of improving the process or making it more easily replicable.

We will document, from both MetroGIS and NSDI perspectives, criteria for determining the effectiveness of an organization in performing the framework function roles. We will then apply these criteria to the evaluation of information obtained from the Information Needs Workgroup Process. This evaluation will determine whether the organizations identified are best suited to fulfill framework functions with respect to the production, integration, maintenance, documentation, and sharing of these data sets.

We will fully document recommended assignments of roles and definitions of responsibilities and summarize them in matrices (as in Attachment 5 to the Scope of Work). We will evaluate whether these are consistent with NSDI guidelines. We will provide a completed matrix for each of the MetroGIS top three information needs. We will provide completed matrices to identify responsible entities for all other NSDI Framework Functions for all other MetroGIS priority information needs. Please note that we will devote most of our effort in this task to the three top MetroGIS information needs as specified in the RFP. The other 10 information needs will be handled with less rigor.

To the extent possible, without going through a formal needs assessment and data evaluation process, matrices for other priority data needs will also be created. We assume that MetroGIS will provide us with any work on these Framework themes that has been accomplished so far. We may be able to incorporate additional information based on our knowledge and experience with data sets of these types.

Based on our results, we will identify activities required to meet NSDI or MetroGIS data sharing requirements that are not currently supported by any local organization. We will also identify activities necessary for data sharing that may exceed the current needs of data providers or custodians in producing or maintaining data for their own use.

In addition, we will review the dataset standards recommended by the workgroup for each priority theme, as well as the standards met by the selected datasets, to determine whether they meet or exceed recommended NSDI standards.

These results will provide key input for Tasks B (Estimating Costs) and C (Fair-Share Financing Model and Organizational Structure). Task A findings will begin to identify areas of divergence and convergence between the Framework guidelines and the needs of local organizations. Task B will further refine this analysis to identify where costs of data sharing, in compliance with NSDI, may place an additional burden on local data providers.

Collaboration with the MetroGIS staff and Workgroups will be instrumental to the successful completion of this task. We will work with them on a proactive, as needed basis. We would anticipate having the same successful relationship with MetroGIS that we have achieved with our clients on a number of complex projects, such as Mn/Model and NAIS.

Elizabeth Hobbs will direct work on this task.

### **Task B: Estimate Costs of Collaboration**

Meeting MetroGIS needs and NSDI standards may incur costs beyond those already committed for meeting an organization's internal GIS needs. The objective of this task is to develop profiles and estimates for these additional costs. These estimates will include all seven Framework functions as detailed in Task A and concentrate the majority of effort on the three highest priority NSDI Framework Themes/MetroGIS information needs. These are government units/jurisdictional boundaries, cadastral/parcels, and transportation/address locations.

## **1. Develop Cost Profiles**

For each of these themes, we will develop separate cost profiles for developing, maintaining, integrating, managing, and distributing data. Our work process will include:

- Creating a list of MetroGIS data providers and custodians to be actively included in the study. This list may include metro counties, the Metropolitan Council, city governments, other local units of government such as school districts, and some private sector organizations. We expect to be guided in this selection by the results of the MetroGIS Business Information Needs Workgroup process, the results of Task A and input from the MetroGIS Project Steering Committee. The selection of information sources will be a joint decision made by the Steering Committee and the consultant's key project staff.
- Conduct interviews with GIS practitioners from the selected responsible parties to obtain:
  - An overview of their GIS activities.
  - Breakdowns of their GIS work into component activities that are as similar as possible to the activities identified from Framework Functions for specific data sets in Task A
  - Estimate staff time for component activities to satisfy external standards.
  - Estimate any additional hardware, software, space, utilities, office supplies, and other resources needed for compliance with external standards.
- Estimate costs of collaboration based upon break downs from high-level cost estimation guidelines and 'rules of thumb' (heuristics) in common use in our GIS consulting practice.
- Build a well-documented list of assumptions. All methods listed above depend on an extensive set of assumptions, which we must document for the study to have validity.
- Build a spreadsheet-based financial model for cost profiling that will calculate the marginal costs of external standards compliance based on variations in input kinds, values, and assumptions. This model will contribute to the Fair Share cost allocation work done in Task C. (In this case the accounting term, "marginal costs" refers to those costs that are incurred only for external standards compliance and for no other reason.)

### **Data Distribution**

Our team will help evaluate work done under separate contract concerning MetroGIS Data Finder and NSDI Clearinghouse design. MetroGIS has invested in a web-based data search and retrieval tool, Data Finder. Its core functionality became operational this year, with the initial emphasis on the posting of metadata. Eventually, it should also become a mechanism for distribution of data. However, Data Finder will require modification to bring it into compliance with NSDI's Clearinghouse specifications.

As we now understand it, there are two main differences between the Data Finder site and NSDI clearinghouse guidelines:

- Metadata: Data Finder uses the Minnesota metadata standard, which is a slightly refined version of the FGDC standard. This is a minor difference, as all essential fields of the FGDC are retained. We will assess costs for correcting any discrepancies between Data Finder and NSDI stemming from different metadata standards.
- Indexing for search engines is the issue that keeps Data Finder from becoming a node on the NSDI search net. By NSDI standards, metadata are indexed according to z39.50 standard. The NSDI indexing method assures that the NSDI search engine of choice can perform multiple searches simultaneously across various sites like Data Finder. Currently, metadata at the Data Finder site have been assembled in a Microsoft Access database and completely indexed. This supports the desired functions at the site, but does not support inclusion into the grand network of NSDI metadata sites.

We will research these differences and determine all of the points of non-compliance. There may be several ways to rectify the problem:

- A technological fix involving the use of commercial software as a gateway.
  - Create a dual index by re-indexing the 70+ records at the Data Finder site so the ISITE search engine can read them.
  - Switch site architecture and metadata retrieval to the NSDI indexing method.
  - Other methods we may determine during research on this problem.
- We will provide cost estimates and cost sharing breakdowns for each option we identify as feasible.

Though not part of the problem posed by the RFP, we are aware that the Land Management Information Center (LMIC) has been dealing with these issues as well. They would like to see a structure where they are the main node and entry point for Minnesota, in a network made up of other Minnesota nodes like Data Finder. Our report will aid LMIC as well as MetroGIS in this area.

## **2. Estimate Costs for Other Information Needs**

The methods described above to determine the marginal cost of external standards compliance are also pertinent to the other information needs identified by MetroGIS. These information needs, some of which fall under the general Framework Theme definitions of NSDI, include existing land use, land use plans, rights to property, hydrology, census boundaries, addresses, land regulations, road networks, socioeconomic information, and parcel identifiers. In some cases, the data sources are the same as for the high priority needs (for instance, parcel identifiers are usually associated with parcel boundaries) or the data may be available from the same source as a higher priority item. In most cases, we can estimate the marginal costs of external standards compliance for these data sources from the same or similar

investigation and modeling. Without going into the same level of detail, we will provide general estimates for the cost to address these additional needs.

### **3. Other Costs of Coordination**

Other costs of coordination are different in nature from those considered above. They will require a separate line of investigation during the interview and survey process with GIS practitioners. The MetroGIS Scope of Services document, adopted by the MetroGIS Policy Board on September 30, 1998, will provide the context for identifying costs of coordination in addition to data development, integration, and maintenance. We will also require input from MetroGIS about goals and plans for such coordination and services.

#### ***Technical Services***

MetroGIS may need technical assistance from staff or consultants to help participants retrieve, translate, and use data. These needs will become at least partly apparent during the information gathering analysis accomplished to estimate the costs of coordination. Their costs will be included in the financial model. We will provide estimates of such costs, where possible, and ranges of likely costs in other cases.

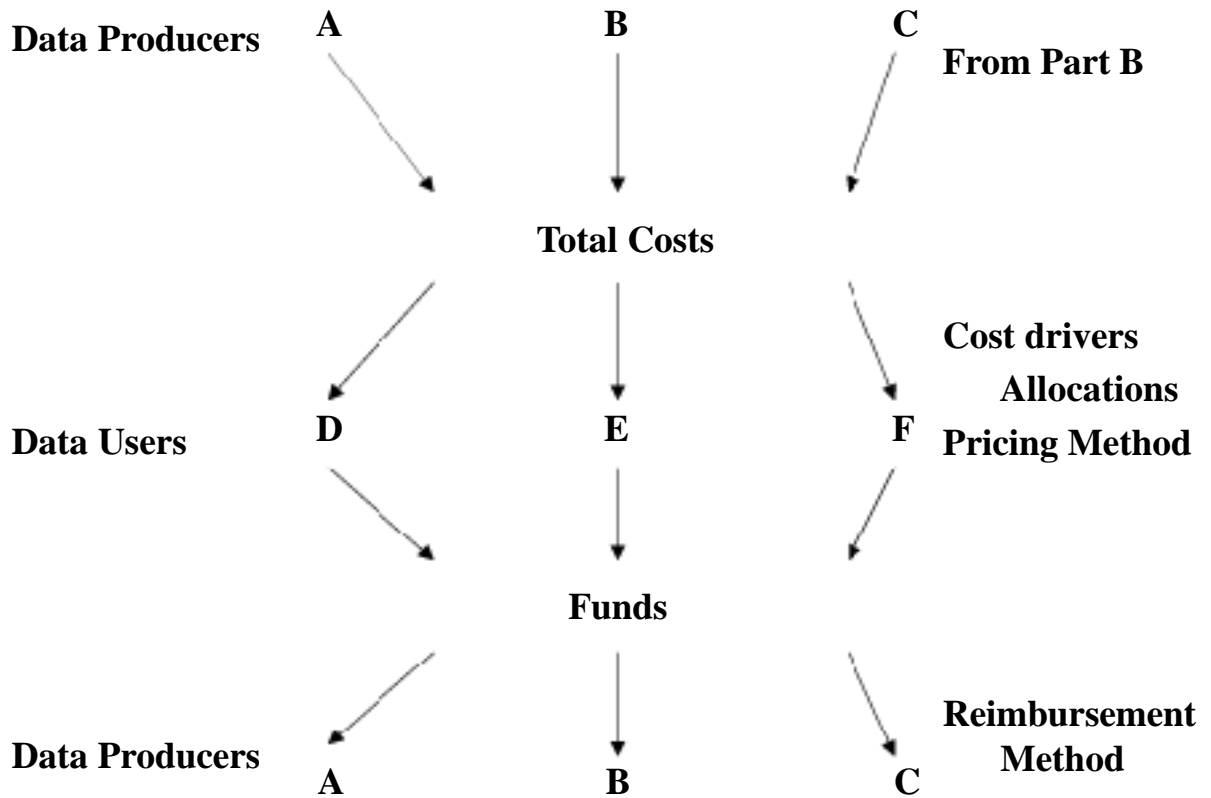
#### ***Coordination, Research, and Outreach***

We will also estimate costs for a mature MetroGIS organization using any data that can be provided by MetroGIS, our professional judgment, and the experiences of other multi-jurisdictional consortia and governmental organizations in our professional practices. We assume that MetroGIS' past is not in itself adequate to serve as a guide to its future. Some examples of these costs may include:

- Supporting executive guidance activities (MetroGIS Policy Board, its Coordinating Committee, and the Advisory Teams)
- Maintaining Data Finder, supporting and maintaining multi-user data transfer facilities (ftp)
- Producing and maintaining metadata (if in excess of internal needs)
- Supporting a mechanism MetroGIS has prototyped to monitor user satisfaction with regional data sets
- Negotiating and administering contracts and agreements
- Communications and promotions costs (i.e., the MetroGIS web site and *Coordinates* newsletter, conferences, efforts to keep decision-makers informed about issues and opportunities, and efforts to extend the program to other participants)
- Providing technical assistance consistent with approved scope of services  
Anticipated future activities include:
- Identifying training and education needs and encouraging participation

# MetroGIS

## Design of Fair-Share Financing Model



- Research to meet common regional needs
- Promoting of collaborative funding of projects to meet regional needs
- Promoting exchange of applications and procedures
- Providing a repository of GIS human resources
- Marketing MetroGIS data and products

John Lunde of Sufficient Systems will manage the work for this task.

### **Task C-1: Devise Fair-Share Financing Model**

MetroGIS is requesting development and design of a Fair-Share Financing Model to be used by its stakeholders. It is crucial that this model demonstrate the benefits of collaboration to all participants.

The objective of the Fair Share Financial Model is to ensure the long-term financial stability of MetroGIS, while keeping stable or reducing costs for data providers and data consumers. To achieve these objectives, constraints on fees and costs were developed by the MetroGIS Policy Board, Coordinating Committee, and county participants. These constraints limit the overall costs based on:

- 1) Equivalent Effort
- 2) Costs of Data Development
- 3) Costs of Data Distribution
- 4) Existing Business Functions
- 5) Forms of Contributions

In addition to these constraints on costs, the principles recommend that revenue, from sale of information in excess of the costs of delivery, may be considered as a source of revenue to support the ongoing financial stability of MetroGIS.

The primary input to this task will be the cost estimates developed in Task B. If available, findings of Will Craig's NSDI Benefits Grant project, "Evaluating the Effectiveness of MetroGIS" will also be used. Once the pricing to the data consuming organization is determined, then a model will be developed that reimburses the data producing organizations for the increased costs that they incur in providing an area wide GIS system.

#### 1. Establishing Base Costs

To achieve the objectives outlined in the RFP, a cost of service study will be performed. This cost of service study will break out the cost to serve each type of organization based upon the costs of collaboration developed in Task B. Each type of cost will be analyzed to determine the appropriate cost-driver based upon cost-

causation, that is, what causes the cost to occur. This will require separate analysis of each of the data producer organizations and the data consuming organizations they serve. The cost-drivers will be used to allocate costs to the organizations. Once the costs to serve are determined, then a fee structure will be established to recover the costs in a fair and equitable manner. The resulting fee structure will be compared with the fair-share principles established by the committee to ensure that it meets the established objectives.

The BRW Team will interview key MetroGIS personnel, policy board members, data producers, and data users (may be done as part of Task B). As part of the interview, we will review the overall concept and financial objectives of MetroGIS, the type of cost of service study to perform (cash basis, utility basis, marginal cost), and the strengths and weaknesses of each type. We will discuss each of the functions identified by MetroGIS as well as alternative allocation techniques that may be used to allocate the costs. We will also discuss the availability of accounting data and the implications that limited data may have on the cost of service study.

VK will use an activity-based approach to cost allocation. Cost-drivers will be developed based on why the costs were incurred. This will require us to research each function to determine the type of costs (i.e. labor, supplies, capital expenditure) that have been charged into the function and the primary benefit that the function provides to the participants. Cost-drivers will be developed based on the benefits to the participants and used to allocate the costs to the various participants. Dr. Craig's "Evaluating the Effectiveness of MetroGIS" will be used to assist us in development of the cost-drivers.

Based on our past experiences, we are aware that development and use of some cost drivers are relatively easy and others require the use of estimates, judgment, and experience. The large number of cost of service studies that VK has performed for electric, water, wastewater, fiber optic, and GIS utilities provides us with the experience to develop logical cost-drivers for Metro-GIS. VK will document any assumptions that are made in this process.

#### 1. Develop Options

Based the cost to provide service we will develop pricing methodologies to recover the costs and revenue to be shared among the data producers. MetroGIS has identified three methods of cost recovery:

- Data Maintenance Supplement Fee: A data consuming organization would regularly contribute to a pool of funds that would be available to compensate the data producers and other organizations incurring special costs.
- Organization Category Subscription Fee: Assignment of costs to types of organizations, similar to customer classes. Each organization would then contribute an amount based on the number who participate.
- Individual Organization Subscription Fee: Assignment of costs to organizations based on other factors.
- Other options determined during the cost of service study.

Each pricing alternative will be reviewed to ensure it meets the evaluation criteria identified in the RFP.

It is important that the recommended pricing method be thoroughly reviewed, with the advantages and disadvantages identified for each type of participant. Collaborative efforts among governmental entities, although beneficial, can sometimes be viewed with a certain amount of skepticism by the participants. Our experience dealing with complex financial arrangements will assist us in developing a plan that is acceptable to participants. Virchow, Krause & Company, LLP will maintain its required independence in the development of the fair-share financial model.

### *Deliverables*

The Fair-Share Financial Model will be presented in spreadsheet form. The model will include an input field for costs by data producer and an input field for the cost drivers. It will include an output field that will show the costs that are allocated to the various types of participants. This will allow MetroGIS to periodically update the Fair Share Financial Model.

The model will be documented in a report identifying significant assumptions used, how the model was developed, and recommendation on implementation. This report will be incorporated into the project final report.

Mark Beauchamp will manage Task C-1. As indicated in our proposed meeting schedule, Mr. Beauchamp will meet three times with the Steering Committee for direction and feedback. The three meetings will focus on 1) reviewing the conceptual/philosophical context of the financial model, including data, objectives, & pricing techniques; 2) reviewing the three alternative methods mentioned in the RFP, plus any others that might evolve from this study, and their assumptions; 3) presenting the recommended financial model.

### **Task C-2: Develop Organizational Structure**

To recommend the appropriate organizational structure for the MetroGIS, RRA will implement a study reviewing MetroGIS' organizational function, activities, and financing. The framework for this organizational structure evaluation will involve the following steps:

- Summarize the context for MetroGIS' structure. This activity includes a review of the mission, objectives, and challenges of the organization. This exercise will identify the critical elements necessary for MetroGIS' organizational structure.
- Research appropriate organizational alternatives for MetroGIS. There are many organizational models that could be considered for the MetroGIS structure. A limited number of options will be reviewed for their appropriateness. Organizational options could take a variety of forms, including an association, a joint powers board, and a single purpose unit of government. Each option would be evaluated and summarized based on the following information:
  - A general description of the alternative

- Definition of organizational responsibilities
- Intergovernmental relationships
- Authority and powers of organization
- Administration/staffing
- Financing of organization
- Decision making structure of organization
- Predict consequences for each structure alternative. The next step in the evaluation is to anticipate the issues that may arise under each organizational scenario. The areas that will be thoroughly reviewed are the legal considerations and the economic or cost implications associated with each option. Further, a review focusing on anticipated impacts on MetroGIS' service delivery will be conducted for each alternative considered.
- Examine each alternative in terms of criteria that is important to the organization. Prioritizing issues and concerns of the organization will further assist in identifying the criteria that should be applied to the considered options. Examples of criteria that may be reviewed:
  - Accountability
  - Efficiency
  - Political feasibility
  - Administrative capability
  - Equity
  - Service capacity
- Recommend an organizational/legal structure that would be most appropriate for the goals and objectives of MetroGIS. A synthesis of the evaluation will be analyzed, resulting in an appropriate recommendation for MetroGIS' organizational structure. This recommendation will be fully substantiated by the results of the evaluation, documentation of the advantages and disadvantages of each option, and clear rationale for choosing the recommended structure.

Trudy Richter will manage this task. In the initial stages of the task, RRA will explore a number of formal and informal governance structures, first by the consultant team sharing information and philosophical and other discussions they have had with the client that may be relevant to organizational structure issues. An initial work session to be held with the Steering Committee will be used to refine goals, roles and responsibilities of member organizations. In the same meeting, presentation and discussion of the breadth and variety of organizational options available to MetroGIS will be provided to the Committee. The Steering Committee will determine which three options should be developed further pursuant to the analysis/criteria laid out on page 31 of the original proposal. Finally, an analysis of the three will be shared for discussion (second meeting)

and a fully documented final recommendation made and implementation strategies identified (third meeting).

## **Task D: Document Project Results**

MetroGIS has underscored the importance of project documentation by assigning it a separate task. Documentation provided by the BRW Team will provide for full disclosure of project findings to the client, to stakeholders, and to the funding agency. We will write it for completeness and clarity, with appropriate supporting tables and figures.

Three required components of documentation have been identified for this project:

### 1. Project Status Report

NSDI requires a project status or interim report. The agreement signed by NSDI and MetroGIS on September 11, 1998 indicates this report is due six months from the date of award. At the Grant Recipient Kick-off meeting in Charleston, SC, September 22-24, the report was tentatively scheduled for May 18, 1999. The BRW Team's Interim Report will be submitted to MetroGIS by April 20, 1999.

Task Managers for Tasks A, B, and C-2 will write separate sections of the Interim Report, documenting all findings to date. The Project Manager will edit these to a report format that will be determined in consultation with MetroGIS.

To keep MetroGIS informed of progress on an ongoing basis, we will prepare monthly progress reports. Task Managers will write separate sections of these for all ongoing tasks. The Project Manager will collate and edit these, then add any additional information that may be relevant. Report content will include descriptions of tasks accomplished, activities in progress, and activities anticipated in the period following each report. Describing anticipated activities and accomplishments will establish a mechanism for measuring progress with respect to project goals, the original time schedule, and any adjustments made in goals or schedules as the project proceeds.

### 2. Presentation of Draft Final Report

Upon completion of tasks A, B, and C, the BRW Team will prepare a draft final report. This report will be consistent with the NSDI reporting requirements and will document all of the activities, findings, and results of this project. The BRW Team Project Manager will be directly responsible for the final report. She will ensure that all NSDI reporting requirements are met, that the report contents are complete and accurate, and that the writing style is clear, concise, and consistent throughout. Where possible, information will be summarized in tables, flow charts, maps, or other figures for efficiency and clarity of communication.

Report contents will include:

- Executive summary
- Introduction
- Background

Review the goals and accomplishments of MetroGIS since its inception. Particular emphasis will be placed on priority information needs of MetroGIS stakeholders, as identified in May 1997, how these needs are being met under interim agreements, and the status and capabilities of Data Finder.

- **NSDI Framework**  
Introduce the history and goals of NSDI, and outline the Framework. Identify how current practice falls short of meeting NSDI framework functions and goals. Clarify appropriate roles for MetroGIS stakeholders as data producers and integrators with respect to the NSDI Framework functions identified. Evaluate how these roles contribute to identified information needs.
- **Costs of Collaboration**  
Identify the costs of collaboration for data development and maintenance, as well as the additional costs of providing ongoing data sharing mechanisms as envisioned by this project. Summarize the net value of collaboration to potential participants in balance sheets. Clarify the costs and benefits of NSDI framework functions in the same balance sheets. Provide a working digital copy of the Task B and C financial models in spreadsheet form.
- **Combined Use/Integration Needs**  
We will create an appendix documenting datasets and/or GIS practices that data custodians must improve to meet the needs of MetroGIS or NSDI for combined use or integration. This will not represent an exhaustive study of data integration issues, but will document information we collect in the course of other project tasks.
- **Fair-Share Financial Models and Organization Structures**  
Identify the financial and organizational issues that must be resolved for MetroGIS and the NSDI framework model to succeed and suggest strategies for addressing these issues. Present specific guidelines for equitable allocation of MetroGIS costs among its stakeholders.
- **Summary and Recommendations**  
Summarize the findings of the study, including the pros and cons of any alternative models presented. Identify and prioritize topics that may require further research.
- **Conclusion**  
Progress reports will be the foundation for the development of the draft final report. These will be assembled and organized by the BRW Team Project Manager. Additional information required to fulfill the reporting requirements will be requested from the task managers. The BRW Team project manager will then write introductory and summary material and edit the report for style. Task managers will review the edited document, make suggestions, and submit any additional material needed to complete the report. BRW cartographic technicians and graphics staff will prepare figures. The BRW Team Project Manager will be responsible for the final edit.

On July 6, 1999, the BRW Team will submit an unbound original and eight copies of this draft report to the MetroGIS Project Manager for review and comment by the Steering Committee. We request that the Committee reviews this draft and is

prepared with their comments for discussion on July 15, 1999. Comments received from the Steering Committee on that date will be incorporated into a revised draft report for presentation to a forum of MetroGIS stakeholders. BRW will provide XX (number to be negotiated with MetroGIS) copies of the revised report for this forum on July 23, 1999. We suggest that the forum take place between July 26 and July 30, 1999, to keep the project on schedule. The Project Manager for the BRW Team will attend the forum. BRW would appreciate receiving comments and suggested revisions from the forum by August 3, 1999. The Project Manager will discuss these with the Steering Committee on August 5, 1999, and incorporate them into the Final Report to be submitted to the Steering Committee August 16, 1999.

1. Submittal of Final Report

Upon receipt of the comments collected from the forum, the BRW Team will incorporate them into a final report that fully documents activities of the MetroGIS NSDI Framework Demonstration Grant Project. After final review by the BRW Team project manager, this report will be submitted to the MetroGIS Project Manager for acceptance. Within two weeks of this acceptance, a digital copy in MSWord/Office97 format, two bound hard copies, and an original unbound hard copy will be delivered.

Elizabeth Hobbs, of BRW, will be Task Manager for Task D.

**Work Schedule**

We assume that the schedule provided in Attachment 3 to the Scope of Work applies to activities undertaken by MetroGIS. Our proposed schedule is illustrated on the following page, with specific dates detailed in the table below. Our schedule shows several of the project tasks continuing past the August 15 deadline. To meet the deadline for completion of all consultant tasks, we have adjusted the start and end dates of most project tasks. We also show more tasks running concurrently. To provide adequate time for development of the costs estimates and cost model, we have proposed a very aggressive schedule for preparation and review of the final report. Meeting this schedule will require full cooperation by MetroGIS. To insure this cooperation, all of the start and end dates, as well as the dates for deliverables, are negotiable at the initiation of the project along with the scope of work.

Our revised schedule is detailed in the table below.

Task	Start date	Completion date
Task A: Roles and Functions	October 1, 1998	February 19, 1999
A1: Jurisdictional Boundaries	October 1, 1998	November 25, 1998
A2: Addresses	October 1, 1998	November 25, 1998
A3: Parcels	November 1, 1998	February 19, 1998
Task B: Estimate Costs of Collaboration	November 15, 1998	April 30, 1999
B1: Jurisdictional Boundaries	November 15, 1998	February 19, 1999
B2: Addresses and Streets	November 15, 1998	February 19, 1999
B3: Parcels	January 1, 1999	April 30, 1999
B4: Generalize to Other Needs	March 1, 1999	April 30, 1999
Task C: Design Fair-Share Model	February 1, 1999	June 30, 1999
C1: Cost model	May 1, 1999	June 30, 1999
C2: Organization Structure	February 1, 1999	June 30, 1999
Task D: Project Reports	May 1, 1999	August 15, 1999
D1: Interim Report	April 1, 1999	April 20, 1999
D2: Final Technical Report	June 1, 1999	August 15, 1999
Project Status Reports	November 6, 1998	Monthly
Submit draft final report for review & comment by Project Steering Committee		July 6, 1999
Submit revised draft report for comment at forum of stakeholders		July 23, 1999
Submit final report		August 16, 1999

In conjunction with the work schedule, we propose the following schedule of meetings with MetroGIS bodies:

Date	Body	Team Representatives	Topic
10/15/98	Steering Committee	Hobbs	Task A, kickoff & research approach
12/3/98	Steering Committee	Hobbs, Lunde	Task A, review preliminary findings regarding functions & activities, jurisdictional boundaries & addresses matrices; review roles & responsibilities regarding metadata. Task B, kickoff & research approach.
1/21/99	Steering Committee	Hobbs	Preparation for Policy Board
1/27/99	Policy Board	Hobbs	Presentation about project
2/11/99	Steering Committee	Hobbs, Richter	Task A, review preliminary findings on Information Needs Workgroup Process, parcel matrix. Task C-2, kickoff and clarify mission, roles, and responsibilities to further clarify organizational needs
3/4/99 (tentative)	Steering Committee	Hobbs, Lunde	Task B, review preliminary profiles and estimates
4/1/99 (tentative)	Steering Committee	Hobbs, Lunde, Richter	Task B, review data distribution recommendations Task C-2, present general overview of options and narrow to 3 for further analysis
4/22/99 (tentative)	Steering Committee	Hobbs, Lunde	Task B, review costs of technical assistance, coordination, research, & outreach; report on data and program deficiencies that may need addressing.
5/6/99 (tentative)	Steering Committee	Hobbs, Beauchamp	Task C-1, kickoff, review conceptual/philosophical context, including data, objectives, & pricing techniques

Meeting schedule (continued)

Date	Body	Team Representatives	Topic
6/17/99 (tentative)	Steering Committee	Hobbs, Beauchamp	Task C-1, review three alternative methods from RFP plus any others that might evolve from study and their assumptions.
7/1/99 (tentative)	Steering Committee	Hobbs, Beauchamp, Richter	Task C-1, present recommended financial model Task C-2, present analysis of three options, including pros and cons, and make recommendation on preferred option. Discussion. Following consensus, a memo including steps necessary to implement preferred option will be provided.
7/15/99 (tentative)	Steering Committee	Hobbs	Task D, discuss draft final report
7/26/99- 7/30/99 (tentative)	Forum	Hobbs	Task D, present revised draft final report
8/5/99 (tentative)	Steering Committee	Hobbs	Task D, discuss revisions for final report