Midwest Assistance Program

serving rural communities since 1979

RCAP NETWORK MEMBER

How To Hire An Engineer

About the Midwest Assistance Program, Inc.

The Midwest Assistance Program, Inc. (MAP) provides technical assistance and training on water, wastewater, solid waste, and community development issues to small, rural communities in nine states. MAP annually assists over 350 communities.

The service area includes Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota and Wyoming. All of MAP's services are delivered on-site with assistance provided to community leaders upon request and at no cost.

MAP's field-based staff tailor on-site technical assistance and training to each community. Utilizing a capacity-building process, skills are transferred from MAP professionals to rural community leaders. Community leaders develop the skills to respond to community problems rather than having MAP solve the problem for them. As a result, the community is able to develop sound strategies for dealing with present problems and may be able to prevent future ones.

Some examples of technical assistance and training include:

- ❑ Financial packaging
- ❑ Water/wastewater system compliance
- ❑ Record keeping, financial management
- ❑ Developing water or sewer entities
- ❑ Policy development

MAP's quarterly newsletter, "The Source," is an informative tool for local leaders. MAP's DVD, narrated by Pat Summerall, takes viewers on an entertaining journey into the services provided by MAP. For a free newsletter subscription or to receive the DVD, call MAP's central office at 800-822-2981.

MAP was incorporated in 1979 as one of six regional technical assistance centers making up the national Rural Community Assistance Program, Inc. (RCAP). The RCAP network includes the RCAP national office; six regional RCAP offices with multi-state service areas; and more than 150 field-based rural development specialists at the state and local levels in all states, Puerto Rico and the Virgin Islands.

Mission

The Midwest Assistance Program, Inc. is dedicated to helping rural communities improve their environment, quality of life and be self-sustaining.

How to contact MAP

MAP's central administrative office is located in Minnesota. Contact the central office for the Rural Development Specialist nearest you or visit our web site at http://www.map-inc.org.

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How To Hire An Engineer

Introduction

Hiring an engineer can be a difficult task. The engineer is responsible for planning, designing and overseeing construction of projects that can commit communities/districts to substantial expenditures. Often times, the value of this work must be accepted at face value if the town or district is unfamiliar with the technical aspects of the proposed project.

Prior to beginning the process of hiring an engineer, it is suggested that you do a comprehensive review of your system - What exactly do you have? What do you need? What do you want? What can you afford? In other words, know your expectations, as well as your limitations.

When is it necessary to have a professional engineer assist the district or community? A registered professional engineer is needed to prepare the preliminary engineering studies that are part of federal and state loan/grant applications. An engineer is also needed to prepare the final design and contract specifications for construction of new water and wastewater facilities. In addition, most states require a professional engineer for renovation, rehabilitation and repair projects for water and wastewater systems.

When selecting an engineer for a facility plan (preliminary design), you may want to go through the selection process (procurement process) as outlined in this how-to guide; the identification, notification, checking references, interviews, selection and contracting. These steps will assist you in selecting the best consultant (engineer) for your job.

This entire procurement process will also be required when selecting an engineer for the final design and construction of your project. That is, unless you met all of the procurement process requirements when you contracted with an engineering firm to complete your facility plan, and you choose to use the same firm for both preliminary and final design.

In order to stay in compliance with state regulations, we suggest you contact your state regulatory agency before undertaking any rehabilitation project to determine if an engineering plan is needed. Then if you do need an engineer, read this handbook in its entirety before you begin the process for hiring an engineer given in this guide.

A few terms to know are:

CDBG – Community Development Block Grant program

EPA – Environmental Protection Agency

DEQ – Department of Environmental Quality

DNRC – Department of Natural Resources and Conservation

RFP – Request for Proposals

RFQ – Request for Qualifications

SRF – State Revolving Fund

TSEP – Treasure State Endowment Program

USDA/Rural Development – formerly known as Farmers Home Administration

NOAORFP – Notice of Availability of Request for Proposals

The Selection Process

Selecting an engineer should be a well-considered judgment. A proper selection may mean the difference between a well-planned, economical and successful project, or a mediocre one. The process of selecting an engineer is straight forward...similar to hiring any employee.

The basic process involves the following nine steps:

1. Decide what **scope of work** you want an engineering firm to complete.
2. **Write** an **RFP** and/or a Notice of Availability of RFP.
3. **Publish RFP** or **NOAORFP** in your local paper and at least three regional daily newspapers and mail to several previously identified engineering firms.
4. **Mail RFP** to firms making inquiries.
5. **Accept and screen the proposals** that arrive from engineering firms.
6. **Check references** from all proposals.
7. **Identify two or three firms** with best proposals and interview principals of those firms.
8. **Select** an engineering firm.
9. **Negotiate contract** based on your earlier identified scope of work.

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Step 1. Decide what scope of work you want an engineering firm to complete

This decision should be based on a survey or analysis of the condition of your present system or your community's/district's identified need or problem. For example, if your town has outgrown its system, part of the scope of work would be to ask for an assessment of the present system, options for upgrades or expansions and projected costs for those options.

If you are constructing a new system, request options for types of systems to provide safe water or wastewater disposal for a set number of years (20?) considering population, land availability, water source and other issues you have identified. This "Scope of Work" will be the most important portion of your Request for Proposals (RFP).

2 Step 2. Write a Request for Proposals and/or a Notice of Availability of Request for Proposals

Some towns/districts prefer to provide notice that they have an RFP available for the engineering community by publishing a Notice of Availability of RFP. There are at least two reasons for this:

1. It shortens the announcement in the newspaper saving money in advertising costs;
2. It allows the town/district to know in advance approximately how many engineering firms are interested in the project by the number of inquiries they receive for the complete RFP.

Use the guidance and samples that follow to write your own RFP or NOAORFP.

Guidance for writing a Requests for Proposals

The Request for Proposals (RFP) is simply a notification of your intent to secure professional services. If you are using state or federal dollars in your project, be sure to check with the funding agency to see if they have specific requirements in the notification process. Most agencies will require a legal or public notice to be published in a newspaper of general circulation.

The RFP should be accompanied by a **cover letter** that includes the names of the contact persons in the community or district, telephone numbers (during regular business hours), and budget constraints of the community/district for this project. The budget limitation information is helpful if the community/district has limited funds for a preliminary engineering study. In final design, engineering costs are usually part of the project cost and are more difficult to list as a constraint in the RFP.

It is suggested that the RFP be prepared in four parts.

Part 1 - General Information for the Engineer

Part 2 - Technical Requirements

Part 3 - Criteria for Selection

Part 4 - Scope of Work Statement

Part 1. General Information for the Engineer

This section provides:

- ❑ The name of the community or district issuing the RFP,
- ❑ A brief description of the problem,
- ❑ Information on time frames,
- ❑ Type of contract (if known),
- ❑ Response date and
- ❑ Information on pre-proposal contacts in the community or district to clarify information or questions.

Part 2. Technical Requirements

This section asks the engineer to give his understanding of the community's/district's problem to be addressed by their proposal by including in the RFP:

- ❑ A written description of the work to be performed (for both preliminary study and final design) and
- ❑ A list of the services and/or products (maps, plans, O&M manual, etc.) to be delivered as part of this project (for final design and construction).

Request information to help assess the qualifications of the firm:

- ❑ References from related projects (listing contact names, addresses and telephone numbers),
- ❑ Projects where they have done similar work, and
- ❑ Personnel in the engineering firm who will be assigned to work on this project, with their prior experience in similar types of projects.

Proposals shall include the following information:

- ❑ Prior experience in this type of project (list of similar projects completed)

- ❑ References from each project listed above, including name, address and telephone numbers
- ❑ Listing of the qualifications of firm's staff
- ❑ Estimate of person-hours needed to complete the project work
- ❑ Current work load that might affect the project
- ❑ Statement of the technical approach to be used in this project, including potential alternatives

Part 3. Criteria for Selection

This section should describe the criteria you will use to evaluate the proposals, as well as the point factors attached to each. These criteria will help the engineer understand your concerns and how to respond to them.

Factors to be used to evaluate the proposals should include the following, which are of equal importance:

- ❑ Qualifications and experience of the project engineer
- ❑ Past experience with this type of project
- ❑ Experience in working with CDBG and other funding programs
- ❑ Present and projected workloads
- ❑ Capability to meet time and project budget requirements
- ❑ Location in proximity to the community/district

The community/district will not be responsible for costs incurred by any engineer in the preparation of their proposals. The community/district reserves the right to reject any and all proposals.

The community/district will review all proposals received and select the proposals most advantageous based on the evaluation criteria for oral interviews.

Part 4. Scope of Work Statement

This part should list the objectives of the RFP along with a listing of all known areas of concern to be addressed by the engineer. It should also include a list of services or products to be produced as part of the project; for example, original or reproducible copies of all maps and drawings; the number of copies to be turned over to the community/district; field and inspection notes; O&M manuals; training of operators, etc.

This is where the community/district may list the services it will be responsible for. For example, construction inspection; soil testing; local needs surveys, etc. In other words, identify the things the community/district will do for themselves.

You may choose to list the funding sources you are considering. This should protect your community/district from receiving a plan that does not meet some of the funding agencies' requirements.

Samples

Sample Notice of Availability of Request for Proposals

NOTICE OF AVAILABILITY OF REQUEST FOR PROPOSALS (NOAORFP) FOR ENGINEERING SERVICES

Anytown, Montana is requesting proposals for engineering services to assist the town council, at a minimum, in the preparation of a wastewater (or water) facility plan, and at a maximum, final design and construction management, in compliance with all applicable requirements of the Department of Environmental Quality (DEQ), State of Montana.

Copies of the detailed Request for Proposals (RFP) including a description of the services to be provided by the respondents, the minimum content of responses, and the factors to be used to evaluate the responses can be obtained by contacting Mary Smith, Clerk, PO Box 000 (or street address), Anytown, MT 50000. Telephone xxx-xxx-xxxx during regular business hours.

All responses to the detailed RFP for engineering services must be submitted by 5:00 PM, Friday, (month) (date), (year).

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This notice may be published in your local paper, three larger newspapers in your state/region, and mailed to several engineering firms.

Sample Request For Proposals

When your community/district clerk receives requests, they will provide the consulting firm making the request with the complete RFP, usually by mail, by fax, or in person.

REQUEST FOR PROPOSALS

Part 1. General Information

Anytown, Montana, located 17 miles south of Bigtown, Montana, is seeking an engineering firm to provide services which shall include at a minimum a wastewater (or water) facility plan/preliminary engineering report, and at a maximum final design and construction inspection/management for a proposed wastewater system (or system improvement) within the town/district.

(*Include any other information that is pertinent – population, any unique characteristics of your town/district, etc.)*

Proposals are to be submitted to Mary Smith, Clerk, PO Box 000 (or street address), Anytown, MT 50000 by the close of business (5:00 PM) on Friday, (month) (date), (year).

Part 2. Technical Requirements

(Ask for what you expect as a minimum of information to be provided by the proposing firm.)

Proposals shall include as a minimum the following information:

- ❑ Prior experience in projects of this type (*you may wish to request all similar project experience within past 7-10 years)*
- ❑ References for at least 3-5 projects listed
- ❑ Listing of qualification of staff to be assigned to this project
- ❑ (*Other experience or expertise you think is important to your town/district board)*

Part 3. Criteria for Selection

The town council/district board will review all proposals received by the given deadline and select the proposals most advantageous based upon the evaluation criteria for oral interview.

Part 4. Scope of Work Statement

The facility planning document for the wastewater (or water) project will include, at a minimum, the information required by the Department of Environmental Quality (DEQ) for facility plans funded by that agency. It should include:

(List the items you want included in YOUR facility plan/preliminary engineering report)

- Collection system options available to Anytown, including innovative/alternative systems *(wastewater)*
- Treatment system options available to Anytown, including innovative/alternative systems *(wastewater/water)*
- Sources of potable water *(water)*
- Distribution options *(water)*
- Potential/available funding options the town/district will want to consider in developing this wastewater (water) system

The town/district will use this study as part of its funding application to the Rural Development (USDA), Treasure State Endowment Program (TSEP), Community Development Block Grant (CDBG), Department of Natural Resources & Conservation (DNRC) and the State Revolving Fund (wastewater or water) for loans and grants. Therefore, it is imperative that the facility plan meets requirements of these various funding agencies.

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Step 3. Publish the RFP or NOAORFP in your local paper and in at least three regional daily newspapers, and mail the notice to several engineering firms you know that may be interested.

Produce a "laundry list" of engineers who may suit your needs. Consider experiences you have had with an engineer, experiences of nearby districts or towns with similar projects. In addition, check with regulatory and funding agencies for recommendations of engineers who have worked with their programs. It is important at this point, especially if you are going to look to these agencies for potential funds, that you get them involved in the process early on. Asking for their approved list of engineering firms is an excellent way to involve them.

You may also check with your state's Society of Engineers for a list of their members. We suggest that you look for at least four or five engineers/engineering firms to contact.

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Step 4. Mail your RFP to firms making inquiries

Once your NOAORFP is published, you will receive calls from engineering firms. Respond to each of these calls by obtaining a complete mailing address, name of person making request and a telephone number. Mail an RFP to each firm and keep a record of each RFP mailed, each inquiry, and each response given.

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Step 5. Accept and screen the proposals that arrive from engineering firms.

Your RFP will have a deadline for accepting proposals; the majority of the proposals may arrive on that date. Once you have accepted and recorded the receipt of each proposal, you may want to assign each board member one or more proposals for review. Ask each member write any questions they have and contact the references. Then schedule a special meeting to go over the proposals and questions, and to report on the results of the reference checks.

You may want to have an independent third party, who is knowledgeable about your project, complete a review of the engineering proposals in addition to your board. The staff of the Midwest Assistance Program is available to provide this “third party” review, if requested.

Step 6. Check references provided in each engineering firm's proposal

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The best way to understand how each firm worked with similar communities/districts, how satisfied the community/district was with the firm, their staff and overall work is to ask. This can be a time-consuming process, but it may prove to be the most valuable information you obtain and use in making your decision on which firms to interview and which firm to hire! Take the time necessary to contact the communities/districts for information on the projects listed as references by the engineering firms. You will obtain information on the community relations the firm/individual has had with previous clients.

Feel free to contact not only communities/districts listed as references, but also those listed as prior clients. Contact several references for each firm being considered.

A list of some useful questions you may want to ask in checking references follows:

- ❑ Were you satisfied with the quality and timeliness of the work?
- ❑ Was the engineer assigned to your project knowledgeable about the funding program, and its requirements, that you pursued?
- ❑ Was the engineer willing and able to work closely and effectively with your community/district board?
- ❑ Were the costs and charges reasonable in relation to the work actually performed?
- ❑ Was the engineering firm able to meet the time frame and schedules agreed upon in your contract?
- ❑ Did the engineer have other projects scheduled that caused time delays in your project?
- ❑ Did you experience any problems that would discourage you from hiring this engineering firm again?
- ❑ Did they assist with your grant application to your funding source? Was that application successful?

Step 7. Identify two or three firms with best proposals and interview principals of those firms

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If the interviews will be held during a special board meeting, you will need to notice the meeting with agenda at least three days prior to the meeting. Set up the interviews so they can all be held in one day. This provides you with information for a decision at one time, and it is a fair way to request firms to travel to your town, provide more details on their proposal, and give you an opportunity to ask the questions you raised when you reviewed the proposals.

When the firms are invited to interview, request the staff who will be working on your project attend. It helps to know who will be working with you and if that person has a similar philosophy as your board toward your project. For example, the firm's president may attend the interview, but not actually work with your community/district during your planning/designing/constructing phases.

Once the pre-screening is completed and the references have been checked, your list should be narrowed to two or three candidates for oral interviews. It is not necessary to interview a large number of candidates to insure adequate competition, and it is unfair to ask firms to take the time and incur travel expense if they are unlikely to be selected. Five candidates for interviews should be the very maximum. Remember, it is your time involved, too.

When interviewing the candidates, take into consideration that some board members may already have a "favorite" at this point in the process. The oral interview gives the engineer and the board the opportunity to clarify points in the proposal.

Allow sufficient time for each interview (about 45 minutes to 1 hour) with 15-minute breaks in between. Set time limits for engineer's presentations (30 – 40 minutes) and allow 10 – 15 minutes for questions from the board. A list of questions should be prepared by the board prior to the interviews. Ask each candidate the same questions from the list. This will give you a better feel for differences or similarities in the approach and ability of each firm.

When making your selection, remember to distinguish between the overall firm and the person(s) actually assigned to your project. A firm may have an excellent reputation, however, that does not guarantee the competence of the person who will be working for your community/district.

Sample interview questions

- What experience does your firm have in working with communities/districts such as ours?
- What other communities/districts have you worked with in the state?
- Are you familiar with our situation, and the local area, to know some of the particular needs we have?
- What is the design philosophy of your firm? Are you willing to look at innovative and/or alternative designs?
- What do you see as your duty as part of this project? Are there specific or itemized services that you do not provide? Detail services you will provide in addition to design plans and specifications.

- ❑ Are you familiar with the various funding programs in the state for water/wastewater as they relate to communities/districts? What has been your experience in working with these funding agencies before? Has your firm assisted communities/districts on grant writing and the application preparation? What has been the success rate of those applications?
- ❑ Who specifically in your firm would be working directly with our board? Have they worked with other communities/districts?
- ❑ What other projects are you currently working on that could take precedent and time away from our project? Is your firm under any time constraints for this year?
- ❑ How much of the work on our project would be subcontracted?
- ❑ If we select your firm, would it be acceptable for the firm to accept liability for the design of the project? If so, what would you have to do to assume that liability?

Have each member of the Board complete the rating form matrix to help narrow the selection. A sample is provided on the following page. You may want to also ask yourselves the question, "What other considerations should there be?" and use that in your evaluation process.

Competitive negotiations refers to the process of comparing qualifications, not just fees. Engineer selection should be based on qualifications, experience and approach to solving your problem. Specific costs should be discussed after the engineer has been selected. The budget constraints in the RFP already let the engineering firms know you have a limited amount of funds to allot to the project.

Public Law 92-582: Brooks Act, passed in 1972 established an architects/engineers federal selection policy. The Brooks Act sets forth a policy of selection based on qualifications at a fair and reasonable cost. Your state legislature may have passed a state law.

A sample form to rank the engineering firms' qualifications is presented below.

Project: **Date:** **Evaluation Criteria***	Firms				
1. Understanding Problem: Firms understanding of the objectives set out by the community/district.					
2. Qualifications: Specialized experience and technical competence to do the project.					
3. Meet Time and Budget: Past record of performance with respect to cost control, quality of work, and ability to meet schedules.					
4. Present and Projected Work Load: Conflicts that might affect the project.					
5. Soundness of Approach: Technique of analysis, sequencing and method of management.					
6. Location: Firms proximity to and familiarity with the area of project.					
TOTAL POINTS					

***Assign point values according to the importance of each factor to your community or district.**

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Step 8. Select an engineering firm

At the completion of the interviews (you are conducting a special meeting) the board should discuss the pros and cons of each firm. You should compare the scoring/ranking sheets used during the interviews. Once your discussion reaches all members' satisfaction, you may choose to take a recorded vote to offer a contract to the selected firm.

Once that vote is taken, the firm needs to be notified of your offer. You may find it expedient to call the firm and write the offer in order for the firm to begin writing the proposed contract. Also, notify in writing the unsuccessful firms.

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Step 9. Negotiate contract based on the Scope of Work

You will need to set up a time for the engineering firm to attend a meeting – regular or special – to discuss their proposed contract – content, work plans, costs, time frames, etc. If there are questions, **now is the time to ask them and receive clarification on any part of the contract!**

If there are changes to be made to the contract, the engineering firm will make them and return the changed contract to the board for their final acceptance. Most communities/districts benefit from having an attorney involved in the negotiating process to be sure they are fully represented and their interests are protected. Your board, attorney and engineer should carefully review the Work Plan to make certain you understand:

- what work will be performed by the engineer,
- what services will be provided by the engineer, and
- what items are the community's/district's responsibility.

These negotiations between community/district and engineer will take place for both preliminary studies, and final design and construction plans.

The following negotiation, budget and contractual information would be for communities/districts who are ready for final design and construction phases rather than in the process of doing a preliminary study. However, the information may be helpful to your decisions and discussions with your engineering firm whichever type of study you are having done for your community/district.

Once the Work Plan has been agreed upon, you should also discuss and agree on schedules for completion and the firm's requested compensation. Don't be reluctant to require a detailed estimate of person-hours and costs related to the requested compensation along with a compensation schedule. You can require the engineer to detail out the person-hours and costs according to the work plan in the RFP or the Work Plan set out in the contract.

When contract negotiations are underway, contact the federal/state funding agencies you are working with for their review of the contract. Some agencies have specific requirements or recommend specific types of contracts. The "cost

plus a percentage of costs" and "percentage of construction costs" method (contingent fees) cannot be used under some federally funded contracts.

If possible, the board should have an idea of your project budget and an estimate of engineering costs prior to receipt of the engineer's formal Work Plan. Consider comparative prices in your area for similar services, or check with professional organizations such as the consulting engineer's council or board of examiners. Potential funding agencies may also be a source of this type of information.

At this point the board can request the engineer agree to a "not to exceed" budget. This would ensure that no unexpected fees would be added to the original Work Plan without prior consideration and approval by the board.

After agreeing on a price that is fair and equitable to both parties, the board should negotiate payment terms. Payment, made in incremental amounts, should be tied to key tasks or milestones in the Work Plan at set timetables. For public facility projects, the board may want to retain the final payment (10 – 15 percent of the engineering fee) until the "as built" construction drawings or plans have been submitted to the state; an operation and maintenance (O&M) manual has been received; and your operator has been trained on-site in the system's operation. Preliminary planning and design work accomplished by the engineering firm is usually paid upon completion of work.

In addition, as part of the contract, the board may want to require a series of community-wide/district-wide public meetings to keep the residents informed on the progress of the project. The engineer may want to build the extra travel for these meetings into the budget. It is important that the community/district residents know at contract time what work will be done, how long it will take, and how much it will cost.

If the board is unable to negotiate a suitable contract with the first ranked firm, negotiations should be formally terminated (in writing) and then negotiations initiated with the second ranked firm. This process should be continued until a suitable contract can be arranged.

When the community/district representatives sign the engineering contract, IT IS A BINDING LEGAL DOCUMENT. The board is responsible for financing the work to be completed and paying for what gets done. There is no easy recourse for problems of higher than estimated costs or less than adequate work unless the contract is specific on a "not to exceed" budget, a time frame and public meetings.

The community/district will live with the project's design and final cost for a long time, so the selection of an engineer is no small matter.

Once the contract is completed, you are well on the way to solving the identified need in your community/district water or wastewater system.

The MIDWEST ASSISTANCE PROGRAM, INC. is available to provide more detail on any aspect of selecting an engineer on a one-on-one basis with your community/district – at no charge to you.

(Revised 2/2007)