

IOWA DEPARTMENT OF TRANSPORTATION

Request for Proposal

for

DEVELOPMENT

OF A

STATEWIDE TRAVEL DEMAND MODEL

for

THE STATE OF IOWA

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I. GENERAL

The Iowa Department of Transportation (DOT) is inviting consultants to develop the first phase (Phase I) in the development of a Statewide Travel Demand Model for the State of Iowa. The Iowa DOT has available \$100,000 for this project and consultants are invited to prepare proposals considering this constraint.

A. Introduction

The Iowa Department of Transportation (Iowa DOT) is requesting a technical proposal from consultant engineering/planning firms concerning their qualifications, experience and availability to complete Phase I of a two-phase process that will deliver a fully operational Statewide Travel Demand Model for the state of Iowa.

Essential groundwork must be conducted before a model is actually developed. The Phase I Request for Proposal is intended to focus solely on this groundwork. Phase I will consist of three major parts. Part 1 will focus on educating a Steering Committee and Iowa DOT staff in current statewide modeling practices. The Consultant Team will provide information and examples concerning how other states are using and applying statewide travel demand models. This education process is intended to facilitate ideas from the Steering Committee and Iowa DOT staff for applications of a statewide model to our current business practices.

Part 2 is essentially a Needs Assessment that will determine specifically what components the statewide model should contain. The Consultant Team will work with Iowa DOT staff and a Steering Committee to determine appropriate applications of a statewide model to accommodate the various types of analyses desired by the Iowa DOT and Steering Committee representatives. The needs determined would be a function of both benefit/utility and cost to include in the model architecture.

Part 3 will entail the development of a detailed model architecture designed to support the various types of analyses identified in the Needs Assessment. The architecture will identify all model specifications, data requirements and sources, user interfaces, batch routines and information post processing methodologies. The deliverables for Phase I will be the basis for construction of the model.

Iowa DOT staff has assigned a Project Manager for this contract. The Project Manager will be the main contact for the Consultant Team and responsible for final approval of all products of this contract.

The actual development of the model will be completed in Phase II and will include a separate RFP and consultant selection process.

B. Project Background

The Iowa DOT is responsible for major transportation investment projects located throughout the state. With the continuing situation of increasing needs and limited financial resources, the decisions concerning which projects to construct and in what priority are critical to the future economic vitality of Iowa. Currently, the prioritization of highway and modal construction projects is based on a variety of technical and non-technical performance measures.

Urban areas such as those encompassed by Metropolitan Planning Organizations (MPOs) use highly sophisticated travel demand models to support corridor planning studies, major investment studies, long-range transportation plan alternatives analyses, estimation of future travel patterns and flows for roadway design, interchange justification studies and much more. The U.S. Department of Transportation and Federal Highway Administration place a great deal of emphasis on the development and use of travel demand models to support transportation decision making in metropolitan areas. Iowa has nine metropolitan areas that use these models on a regular basis.

However, the Iowa DOT does not have this type of tool available for use in the rural areas of the state or to supplement the MPO urban models. With highway and modal construction projects often costing hundreds of millions of dollars, more informed decisions are part of Iowa DOT's accountability for efficiently investing public funds.

As proven in the metropolitan areas, a travel demand model is a tool that can offer information in a consistent and timely manner to decision-makers and provide a robust technical process to support decision-making. Similarly, a statewide model can have an impact on a State DOT's core business activities such as planning and programming, design, construction and maintenance and safety. A statewide model can provide unbiased information that can be used as the basis for making tough decisions when allocating scarce resources.

A few capabilities of a statewide model include, but are not limited to, analysis of rural travel patterns, examination of long-distance interstate travel, determination of the impacts of improvements to parallel facilities, forecast of VMT (vehicle miles of travel), identification of deficient routes, facilitation of work zone and detour analysis, bypass studies and identification and prioritization of projects.

The Iowa DOT is committed to providing the best analytical tools to support the decision-making process and thus is interested in the development of a statewide travel demand model.

II. SCOPE OF SERVICES

A. Phase I – Statewide Travel Demand Model

This project, entitled **Phase I—Investigative Assessment and Determination of Model Specifications and Architecture**, is to be followed by a future project, to be called Phase II—Model Development. The focus of Phase I is the analyses required to determine the specifications and architecture of Iowa’s future Statewide Travel Demand Model. Major work tasks to be covered under this proposal include:

B. Part 1 – Statewide Model Education

Statewide models can include multiple components such as a passenger car element, truck model, freight component, intercity bus travel, rail transportation plus many more. The sophistication of the model structure is directly dependent upon the types of analyses desired. Decision makers will need basic background information on travel demand modeling to enable them to make the best decisions about what specific components a statewide model should include. By conducting focus group meetings, a better understanding of modeling needs in Iowa will be determined and a pro-active coalition of users throughout the state will be formed.

The development of the architecture for the statewide model will be guided by a Steering Committee comprised of a mixture of transportation professionals with varying levels of understanding regarding the travel demand modeling process. Therefore, a paramount first step in understanding how a statewide model can benefit the everyday business practices of the Iowa DOT and other transportation planning organizations is to provide an education on its capabilities through examples of how other states are currently using them.

The Consultant Team will hold a focus group meeting with the Steering Committee to increase the level of education on the topic of statewide modeling. The first educational meeting with the Steering Committee will also include high-level decision makers who will provide input to Part 2-Needs Assessment. The Consultant Team will first provide an overview of the modeling process while focusing on statewide applications. The overview will cover all potential components of the process such as truck models, freight models, inter-city passenger, etc. and describe how they can be used and their potential benefit. Also of importance will be the discussion of the level of forecasting accuracy that can reasonably be obtained for the different highway system classifications—Interstate, National Highway System, other Primary, major roadways within the MPO regions and major county routes as well as modal components such as freight and rail transportation.

The Consultant Team will also present a synopsis of the current state-of-the-practice regarding statewide modeling structure and application. The Consultant Team will identify other states that currently have or are in the process of developing a statewide model while focusing on the architectural components, common applications and use,

covering the relative incremental component costs and providing illustrative examples of model application at various project levels.

Once the Steering Committee has an idea of the capabilities and applications of a statewide model, they can better identify the types of analyses they see as beneficial to the Iowa DOT and associated transportation planning organizations. This knowledge will allow for a more thorough and comprehensive Needs Assessment in Part 2. The steering committee will be expected to provide input to Part 2 for their specific needs and desires regarding the capabilities of the statewide model.

C. Part 2 – Needs Assessment

Part 2 Needs Assessment is designed to specifically identify what components the statewide model should contain.

The Needs Assessment will have four major goals:

- 1. Determine the types of analysis to be accomplished with the statewide model.**
- 2. Determine the subsequent components of the model required to support the desired analyses.**
- 3. Assemble an inventory of currently available data to support all desired components of model development.**
- 4. Identify all data needs not currently available to support specific components of the model. Include a cost estimate to obtain that data.**

The critical information for the Needs Assessment will be comprised of input gained from various focus group meetings. The first focus group meeting takes place in Part 1 –Statewide Model Education and includes the Steering Committee and other high-ranking decision makers. Information gleaned from this meeting will be used to start the Needs Assessment.

A second meeting with the Steering Committee and the group of high-ranking decision makers will be held to solicit input on the specific components needed in the statewide model architecture. Based on the educational meeting and time to reflect on their respective business practices, it is anticipated that quality input will be gathered at this meeting.

An important element of this study will be consensus building with Iowa's nine Metropolitan Planning Organizations. The Consultant Team will attend and present at a Metropolitan Planning Organization Directors' meeting. Attendance at this meeting will give the Consultant Team an opportunity to solicit input from the MPO level as to the specific capabilities of the statewide model and its interaction with the MPO models.

A meeting will be held in conjunction with the quarterly Midwest Travel Model User Group meeting. This meeting will give the Consultant Team an opportunity to solicit input from the actual modeler's level as to the specific capabilities of the statewide model.

Once the Consultant Team has received input from all groups on the possible types of analyses the statewide model can support, the Consultant Team will prepare a report illustrating each individual model component recommended, its relative benefit and subsequent cost to develop. The Steering Committee will then consider the report and make a final decision on the specific model components to include in the architecture. Should some components be left for development at a later time, it is the intent for the model architecture to be developed in a scalable manner in order to accommodate the seamless integration of additional components in the future.

D. Part 3 – Model Architecture

The objective and deliverable for Part 3 and Phase I in general will be a statewide model architecture.

Precursors to the development of the Model Architecture will require the Consultant Team to:

- 1. Conduct a review of other states' model specifications regarding their trip generation, assignment, and distribution methodologies.**
- 2. Determine the elements that would be applicable for incorporation into Iowa's model.**
- 3. Review and evaluate the state-of-the-art technologies other states have implemented.**
- 4. Determine and report on how effective the models have served these states.**

The Consultant Team will prepare a detailed report that first of all establishes the need and justification for a travel demand model for Iowa, illustrating the benefits and positive impact on the decision-making process and unbiased guidance in making transportation investment decisions.

Second, the report will present a recommended architecture that identifies the necessary model components and structure that will enable the Iowa DOT and associated transportation planning organizations to meet their desired analysis requirements. This product will include documented development procedures, recommended design of the model and identification of data requirements. Essentially, all information needed to construct a statewide model will be included in this report.

The Model Architecture will include, but not be limited to, specifics on the following information:

- ◆ Structure and data needs for each step in the modeling process such as Trip Generation, Trip Distribution, Mode Split, Truck Component, Freight Component and Traffic Assignment.
- ◆ Expected calibration and validation standards and techniques.
- ◆ Origin/Destination Data for Calibration.
- ◆ How external travel will be dealt with.
- ◆ Determine precisely how Iowa's nine Metropolitan Planning Organizations' urban traffic models will function/integrate with the statewide travel demand model.
- ◆ Geographic information data needs such as line layer development for highways and rail lines, waterways, traffic analysis zone polygons, aerial imagery and key attribute data.
- ◆ Traffic count data for validation.
- ◆ Reebie economic data use.
- ◆ Number and type of trip purposes.
- ◆ Discuss key socio-economic variables recommended to be included in the model; sources for these data; and appropriate growth rates for each element.
- ◆ Develop options for handling short-and-long distance trips in terms of reflecting actual travel patterns.
- ◆ Level of transit and freight applicability for the model; as well as their sources of data.
- ◆ Post processing methodologies for traffic volumes.
- ◆ Custom user interfaces.

The final report will be evaluated by the Steering Committee and the Project Manager for acceptance.

E. Status Reports

Biweekly status reports must be submitted in writing via hard copy or e-mail to the Iowa DOT Project Manager to provide information concerning the project status and progress.

F. Future Compatibility

Caliper Corporation's TransCad is the chosen software platform for this project and GISDK is the supporting programming language. The current TransCad version for Iowa DOT is 4.8 Build #393 11/21/2005. All products, programs, code or scripts, graphic user interfaces (GUI's) or other model components must be built using this or the most recent version and be compatible with future versions and Builds of TransCad. Compatibility with the Windows operating system is also required. Use of any

additional software or program languages will be at the discretion of the Project Manager.

G. Ownership

All delivered proposals, documents, reports, model files, data, programs/scripts and GUI's will become property of the Iowa DOT.

H. Administration

Consultant Team performance will be monitored by the Steering Committee and the Iowa DOT Project Manager. Failure of the Consultant Team to adhere to the deliverable schedule shall render the Consultant Team in default. The Iowa DOT Project Manager has the right to terminate the contract with the Consultant Team should such a default occur.

The Iowa DOT Project Manager has the right to approve all changes in key staff listed in the original Proposal. The Iowa DOT Project Manager has the right to terminate the contract with the Consultant Team if suitable replacements of key staff are not found in a timely manner to keep the project on schedule.

The Consultant Team shall disclose any of its work for other clients that may be affected by work on the proposed contract, to avoid a potential conflict of interest.

The Consultant Team shall identify the project manager and all key staff that will be working on the contract and provide their individual contact information. The address location where the majority of the work will be performed shall also be identified.

I. Miscellaneous

It is anticipated that the Consultant Team will consider state-of-the-art modeling techniques wherever possible.

The specific elements and order of Phase I components are recommended by the Iowa DOT; however, modifications to Phase I are a possibility if the Consultant Team, Steering Committee and Project Manager are in agreement and the result is an overall benefit to the entire project.

For all documents and reports, ten (10) copies will be delivered to the Project Manager.

J. Phase II – Model Development

The deliverables for the Phase I study will not include the actual development of the travel demand model. The actual development of the model will be completed in Phase II and will include a separate RFP and consultant selection process.

A requirement for Phase II includes Iowa DOT staff as an integral partner with the Consultant Team throughout the effort; providing data, conducting analyses, hosting discussion workshops, and heavily participating in each work task element. Specifics on Phase II will be discussed further in the Phase II - Request for Proposals.

The Consultant Team submitting on this RFP should have the resources and experience necessary to complete Phase I and also be willing to execute a future contract for Phase II. Award for Phase II will be at the discretion of the Iowa DOT Project Manager and subject to a separate Request for Proposal and the normal Iowa DOT process for consultant selection.

K. Phase I – Request for Proposals Time Schedule

The following is a list of the activities relevant to the RFP process. The Iowa DOT reserves the right to change these dates and will notify applicants in such a case. It is expected the duration of the Phase I study will take a maximum of nine months.

- | | |
|---------------------|---|
| ◆ January 9, 2006 | Mail out RFP |
| ◆ January 30, 2005 | Deadline for Questions |
| ◆ February 6, 2006 | Deadline for Proposals to be submitted |
| ◆ March 6, 2006 | Proposal evaluations completed. Selection of short list of consultant teams for formal presentations. |
| ◆ March 13, 2006 | Presentations conducted in Ames (if required) |
| ◆ March 20, 2006 | Contract awarded |
| ◆ March 20, 2006 | Begin of Project |
| ◆ November 20, 2006 | Final Draft of Model Architecture Report Due for Review |
| ◆ December 20, 2006 | Phase I Project Completion and Deliverable of Final Model Architecture Report |

L. Project Cost Proposal

The Iowa DOT will not consider cost as a part of the evaluation criteria. If costs are submitted they will not be considered as part of the proposal.

III. PROPOSAL REQUIREMENTS

A. Proposal Contents

Proposals must include complete and accurate information.

The proposal should include, but not limited to:

1. Describe how the Consultant Team will address each item outlined in the tasks described in the Scope of Services Section of this Request for Proposal.
2. Set forth a work plan specifying the tasks to be performed, when the actual work will begin if the contract award is received and the completion date. Include a preliminary work plan and schedule.
3. Include a detailed resume and a time commitment for each professional or technical person to be assigned to the project. Identify the principal or manager who will serve as the project manager and their office address. Provide a list of sub-consultants and the work they will perform. The Iowa DOT reserves the right to approve sub-consultants employed by the principal consultant.
4. Include final reports or work products from other projects undertaken by the personnel to be assigned to this project, with particular emphasis on projects of similar scope and effort. It is desirable that a summary of the projects be included in the proposal. These reports or work products may be attached as an appendix to the proposal. Multiple copies of the reports or products are not required. The names, addresses, and telephone numbers of agencies for which the consultant has previously conducted similar efforts, including projects in progress, may be included. Iowa DOT will contact the Consultant Team's listed references. References will be questioned on technical capabilities, level of creativity, and project management skills.

B. Consultant Selection

Proposals will be evaluated by a selection committee (established by the Iowa DOT), which will select the proposal deemed most appropriate. *In selecting a proposal, the committee shall consider, but not be limited to, each of the following factors: (factor weights are in parenthesis)*

- ◆ Consultant Team's proposed statement of work. (35%) Emphasis will be on the Consultant Team's grasp of the project, the soundness of the approach, the

ability to complete the work in a timely fashion, and the quality of the recommendations for modification (if any) in the tasks to be performed.

- ◆ Background and previous experience of personnel (35%), including consultant and sub-consultants, to be assigned to the project and their demonstrated competence in the type of work each is to perform, including the quality of previous reports and work products. Consultant Team should demonstrate expertise in urban and statewide travel demand modeling.
- ◆ Proposed work plan and schedule (20%) broken down by the appropriate personnel and timetable to complete each task. Consideration will be given to management and project control, ability to commit staff within time requirements and relevant performance record.
- ◆ Proposed work relationships and communication (10%) between the Iowa DOT staff and the steering committee.

As part of its final evaluation process, the Iowa DOT may request oral presentations from the highest ranked Consultant Team if there is no clear choice. Those selected will be provided with no less than seventy-two (72) hours' notice. Presenters must include the proposed project manager and other key members of the proposed study team. There shall be no cost to the Iowa DOT for oral presentations.

C. Proposal Submission

Ten (10) copies of each proposal must be received **on or before 3:00 PM February 6, 2006**. Proposals are limited to twenty pages, double sided, between proposal covers, not including blank dividers. Example work can be included in an appendix and does not count towards the page limitation. Proposals exceeding the specified limits shall not be accepted. Mail proposals to:

Phil Mescher, AICP
Statewide Travel Demand Model Project Manager
Office of Systems Planning
Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa

Iowa DOT is not responsible for any costs incurred in the preparation of proposals. Late proposals will not be accepted; they will be returned unopened to the sender. All proposals must be complete. Incomplete proposals may not be considered for review or evaluation.

The Consultant Team shall notify the Project Manager (Phil Mescher) in writing if it does not plan to submit a proposal for this RFP.

D. Proposal Inquiries

Questions concerning this RFP should be directed only to Phil Mescher, Office of Systems Planning, Iowa Department of Transportation, 800 Lincoln Way, Ames Iowa, 50010 in writing by email: phil.mescher@dot.iowa.gov. Contacting individual selection team members (other than the team leader) is considered inappropriate. The deadline for inquiries is January 30, 2006. Any questions and corresponding answers will be posted with the RFP on the consultant utilization web site.

E. Consultant Team Selection

The selection committee will evaluate proposals and Consultant Team selected for interviews with the selection committee, if required, will be notified in early **February of 2006**.

If deemed necessary, the selection committee will conduct oral presentations in **March 2006 in Ames, Iowa**.

F. Notice of Award

Notice of the Award shall be issued on or before **March 20, 2006**.

G. Contract Period

Consultant Team shall begin work on date of agreement with the DOT, with completion of the project no later than **December 20, 2006**.

H. Pre-Qualification

Selected Consultants must be pre-qualified prior to submitting a proposal to the Department. Pre-qualification information can be obtained at the Iowa DOT Consultant Utilization website <http://www.prof-tech-consultant.dot.state.ia.us>

Selected pre-qualified categories for this project include:

- 111 – Statewide Regional Systems Planning**
- 112 --Urban Area Transportation Planning
- 113 – Local/Regional Systems Planning

IV. GENERAL REQUIREMENTS

A. Upon Submission of Proposal

1. Signature of Consultant's Agent

An officer of the offering firm, or a designated agent empowered to bind the firm in a contract, shall sign the proposal and any clarifications to that proposal.

2. Proposal Obligation

The contents of the proposal and any clarifications to the contents submitted by the successful Consultant Team shall become part of the contractual obligation and incorporated by reference into the ensuing contract.

3. Disposition of Proposals

All timely proposals become the property of the Iowa DOT and will not be returned to the Consultant Team.

4. Disclosure of Proposal Content

The laws of Iowa require that at the conclusion of the selection process the contents of all proposals be placed in the public domain and be open to inspections by interested parties.

5. Acceptance Period

In submitting a proposal, consultants agree that the proposal shall remain valid for a period of sixty (60) days after the closing date for submission of proposals, and may be extended beyond that date by mutual agreement.

6. Rejection of Proposals:

The Iowa DOT reserves the right to reject any and all proposals or parts of proposals. The Iowa DOT will not pay for any information nor is it liable for any costs incurred by the Consultant Team.

Consultants whose proposals do not meet the mandatory requirements will be so notified. After evaluation of the proposals and approval by the Iowa DOT, all consultants will be notified of the successful proposal.

B. Contract Conditions

1. Conflicts Between Terms

The Iowa DOT reserves the right to accept or reject any exception taken by the contractor to the terms and conditions of this Request For Proposal.

2. Non-Appropriations Clause

The State's performance and obligation to pay under this contract is contingent upon an annual appropriation. Should said funds not be appropriated, the State may terminate this agreement with respect to those payments for succeeding fiscal years for which such funds are not appropriated. The State will give the Consultant Team thirty (30) days' written notice of such termination. All obligations of the State to make payments after the termination date will cease.

3. Security of Data

Some data files of the Iowa DOT may be of confidential nature. The contractor's employees shall be allowed access to these files only as needed for their duties related to the contract and in accordance with the rules established by the Iowa DOT. The contractor shall maintain positive policies and procedures for safeguarding the confidentiality of such data and may be liable civilly or criminally under privacy legislation for negligent release of such information.

4. Subcontracts

The Iowa DOT reserves the right to approve any subcontracts entered into by the Consultant Team who is awarded the contract for the purpose of completing the provisions of the contract. The Iowa DOT shall not assume any liability for any contract entered into between the principal contractor and any subcontractor. All restrictions that apply to the principal contractor will also apply to the subcontractors.

All records relating to subcontractors shall be available for audit or examination as required under the "Audit or Examination of Records" section of this Request for Proposal.

5. Immunity from Liability

Every party to the contract resulting from this Request for Proposal is notified and agrees the Iowa DOT is immune from liability and suit for

or from contractor's activities involving third parties and arising from a contract.

6. Audits or Examination of Records

The Consultant Team who is awarded the contract agrees that the auditor of the Iowa DOT or an authorized representative of the state shall have access to, and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of this contract. All records relating to the awarded contract shall be retained for three years after the date of final payment or completion of any required audit.

Compliance with this clause does not relieve a contractor from retaining any records required by other laws or regulations of federal, state, or local governmental units.

7. Status of Consultant Team

The Consultant Team shall at all times be deemed an independent contractor and not an employee of the Iowa DOT. The Consultant Team shall also be responsible for all its withholding taxes, social security, unemployment, workers' compensation, and other taxes and shall hold the Iowa DOT harmless for any claims for the same.

C. Prohibited Interest

No member of, or delegate to the Iowa State Legislature or the Congress of the United States shall be admitted to any share or part of this contract or to any benefit arising there from. No member, officer, or employee of the Iowa DOT, during his/her tenure or for one year thereafter shall have any interest, direct or indirect, in a contract or proceeds resulting from this solicitation.

D. Disadvantaged Business Enterprises (DBE)

It is the policy of the Iowa DOT that Disadvantaged Business Enterprises (DBE) as defined in 49 CFR Part 26 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds. However, for this project there is no specific goal for DBE participation.