

**IT Professional Technical Services
Master Contract**

**Statement of Work (SOW)
For Technology Services
Issued by**

Minnesota Department of Transportation (Mn/DOT)

Project Title:	Staff Augmentation for Project Management - Transportation Information System (TIS)
Service Categories:	Project Management

1. Business Need

Mn/DOT's Office of Transportation Data and Analysis (TDA) is seeking Professional/Technical Services to augment staff to manage the replacement and modernization of Transportation Information System (TIS). The project is a complex, multi-year effort to replace TIS and implement a multiple Linear Referencing System (mLRS). The range of information in the current TIS system is reviewed in Exhibit A: Mn/DOT's Transportation Information System Overview (attached).

TDA is currently staffed with very qualified personnel, but we have a need to augment this staff with one (1) additional skilled technical resource to manage the development, testing, and deployment of the replacement system.

The Selected Responder will work closely with Mn/DOT's Project Manager and technical staff for work direction and deliverables. The Selected Responder will provide detailed project planning, execution, including project task identification and estimation; project task scheduling; project budget management; project staffing management; project contract management; project communication; project status reporting; vendor and contract management; and risk management and mitigation.

This Statement of Work does not obligate the State to award a contract. Furthermore, the State reserves the right to cancel this solicitation if it is in its best interest.

1.1 Mn/DOT's TIS is a large, complex mainframe system that was built nearly 30 years ago. It was developed by researchers at Montana State University and is currently hosted on the State's Office of Enterprise Technology infrastructure.

TIS was designed as a giant data warehouse system for bringing together linear data on roadway characteristics, traffic volumes, and crashes. It includes data on all of the State's 140,000+ miles of roadway and serves as Mn/DOT's official source of information on mileage and vehicle miles traveled. It is used to support a host of federal reporting, transportation planning, project development, and permitting-related activities.

Data in TIS are updated as new information is received from construction plan changes, administrative orders, and local roadway authority status changes. Electronic transfers from the Department of Public Safety update crash data on a regular basis. Pavement condition data channel through TIS on the way to the Mn/DOT's pavement management system. Railroad and bridge management systems also interface with TIS.

Since TIS was first built, information technology systems have undergone dramatic changes. While the older TIS mainframe system continues to function, it does not meet all of Mn/DOT's current and future business needs for data and information.

- 1.2 Business Case
- 1.2.1 The focus of this project is to manage the replacement and modernization of TIS and the implementation of a Linear Referencing System along with converting and cleansing the data stored in the system.
- 1.2.2 The project stakeholders are the majority of the Offices and Districts within Mn/DOT including all the Districts; Office of Transportation Data and Analysis; Office of Information Technology and Services; Office of Land Management; Office of Traffic, Safety and Technology; Office of Materials and Road Research; Office of Bridge; Office of Freight and Commercial Vehicle Operations; and Office of Investment Management and Performance Measures. The Department of Public Safety, the Federal Highway Administration, and the local cities and counties also have a stake in TIS.
- 1.2.3 This SOW includes working with business areas to coordinate the replacement of various key systems (including traffic volume, traffic safety, pavement management). These systems may require contracting with other vendors and software providers. This contract will manage the integration of these various participants into an overall project plan, and coordinate the various replacement activities. This SOW is not responsible providing any of the new data systems, but rather coordinating and managing the overall replacement effort.
- 1.3 Project fits into the enterprise/agency strategic direction or plan by providing users better information, more quickly, and at lower cost.
- 1.4 Responder Required Work Location: 100% onsite at Mn/DOT Central Office in Saint Paul, Minnesota.

2. Project Duties and Deliverables

- 2.1 The Selected Responder will provide staff to serve as a Project Manager to a statewide, enterprise-level information technology project of a large and complex scale. Provide detailed project planning, execution, including project task identification and estimation; project task scheduling; project budget management; project staffing management; project contract management; project communication; project status reporting; vendor and contract management; and risk management and mitigation. To implement Mn/DOT's Information Technology (IT) program so that the information resources required to support Mn/DOT's business activities are developed and provide users better information, more quickly, and at lower cost.
- 2.2 Tasks and deliverables include but are not limited to:
- Initial assessment and project planning.
 - Project definition – including defining scope, goals, and deliverables in collaboration with senior management and stakeholders.
 - Assessment of work completed to date.
 - Task identification and estimation.
 - People (staffing) identification and gathering.
 - Facilities and equipment identification and gathering.
 - Budget (funding) estimation and gathering.
 - People and budget assigned to tasks.
 - Scheduling of tasks, people, and other resources.
 - Executing the project plan.
 - People management.
 - Budget management.
 - Contract management (SOW, RFP, RFP evaluation and vendor/product selection, contract negotiation, contract creation, and contract execution and monitoring).
 - Development of a project communication plan.
 - Communications based upon the communication plan.
 - Project communications.
 - Status reports on a predetermined basis.
 - Stakeholder communications.
 - Expectation management.

- Development Program Gate coordination.
 - Infrastructure impact assessment.
- Service level agreements.
- Vendor management.
- Change management.
- Measurement management.
- Risk management.
- Scope planning and control.
- Quality assurance

2.3 The Selected Responder will:

- 2.3.1 Follow all technical specifications and processes identified in this SOW
- 2.3.2 Provide informal training and knowledge transfer to key Mn/DOT staff as specified in this SOW.
- 2.3.3 Adhere to Mn/DOT's testing and acceptance criteria.
- 2.3.4 Submit a best practice work plan/schedule, and estimated durations to complete each deliverable upon contract award. In-depth discussion of work plans may occur during contract negotiations.
- 2.3.5 Report all work plans and completed requirements to Mn/DOT's Project Manager.
- 2.3.6 Coordinate and review unit and integration testing.
- 2.3.7 Monitor defect tracking using JIRA or other bug/issue tracking software.
- 2.3.8 Adhere to Mn/DOT's Project Documentation standards.

3. Project Milestones and Schedule

3.1	Project start date:		03/01/2010
3.2	Key deliverable dates:		
	3.2.1 Overall Project Plan	DUE DATE:	05/01/2010
	3.2.2 Communication Plan	DUE DATE:	06/01/2010
	3.2.3 Change Management Plan	DUE DATE:	07/01/2010
	3.2.4 Project Summary Document	DUE DATE:	06/01/2012
3.3	End date:		06/30/2012

4. Project Environment (Mn/DOT Resources)

- 4.1 Mn/DOT will provide expectations, reviews and approvals.
- 4.2 Mn/DOT will provide technical and business resources to assist with the project as follows:
 - 4.2.1 Mn/DOT's key expert and steward for TIS will be available to provide historical reference, response to questions, and assistance with functional testing.
 - 4.2.2 Mn/DOT will provide staff from various parts of department to assist planning for communication and training, training documentation and training delivery. The Selected Responder will be required to lead this team. Other IT staff may be available occasionally if appropriate for assistance.
 - 4.2.3 Mn/DOT's Project Manager will be located in the Office of Transportation Data and Analysis. The Mn/DOT Project Manager will provide oversight, expectations, reviews and approvals, but not the day-to-day Project Management. Day-to-day Project Management will be the responsibility of the Consultant Project Manager.
 - 4.2.4 For all inquiries regarding this SOW contact Mn/DOT's Contract Administrator Melissa McGinnis at 651-366-4644. Contact with any other Mn/DOT personnel regarding this SOW may result in disqualification.
 - 4.2.5 The basic project organizational structure consists of: Project Champion and Steering Committee, Project Sponsor, Project Manager, Office Steward/key expert, teams or experts from the key offices and districts with a stake in TIS.
- 4.3 The technical infrastructure and support structures in-place for this project include equipment for development and testing.
- 4.4 Mn/DOT will provide workspace and computer equipment at its Central Office location in St. Paul.

5. Project Requirements

Mn/DOT implementation requirements include:

- 5.1 Compliance with the Statewide Enterprise Architecture
- 5.2 Compliance with Statewide Project Management Methodology
- 5.3 Compliance with applicable industry/agency standards
- 5.4 Mn/DOT locations where the system might be implemented include the Twin Cities Metropolitan area.
- 5.5 Training of Mn/DOT staff includes how to use the new system and any associated new business procedures.

6. Required Skills (These are to be rated on a pass/fail basis)

Required minimum qualifications are shown in the following table. The proposal must specifically indicate how members of the Responders team meet these minimum qualifications. This portion of the proposal review will be conducted on a pass/fail basis. If Mn/DOT determines, in its sole discretion, that the Responder fails to meet one or more of these requirements (or that the Responder has not submitted sufficient information to make the pass/fail determination), then the proposal will be eliminated from further review.

	Master Contract Resource Type/Categories	Minimum Number of Years Experience	Required Skill Type
6.1	Project Management	7 yr	Full life-cycle project management
6.2	Project Management	5 yr	Experience managing multiple, concurrent projects
6.3	Project Management	5 yr	Change management processes and procedures
6.4	Project Management	5 yr	Risk management processes and procedures
6.5	Project Management	5 yr	Enterprise technology standards, methods and tools
6.6	Project Management	5 yr	Testing practices for application development
6.7	Project Management	5 yr	Quality assurance processes and procedures
6.8	Project Management	5 yr	Project mentoring / coaching experience
6.9	Project Management	5 yr	Requirements management
6.10	Project Management	7 yr	Project scoping, Business case development
6.11	Project Management	7 yr	Process analysis / process development
6.12	Project Management	5 yr	Contracting / RFP development and management
6.13	Project Management	7 yr	People leadership skills
6.14	Project Management	5yr	Budget management

7. Desired Skills

	Master Contract Resource Type/Categories	Minimum Number of Years Experience	Desired Skill Type
7.1	Project Management	N/A	Project Management Professional (PMP) Certification from the Project Management Institute (PMI)
7.2	Project Management	N/A	Bachelor's or master's degree in computer science, project management, or related degree
7.3	Project Management	N/A	Information Technology Infrastructure Library (ITIL) concepts, planning, and Implementation knowledge and/or

			certification
7.4	Project Management	3	Database and application design
7.5	Project Management	3	Object-oriented skill and knowledge of tools, models, and modeling techniques
7.6	Project Management	N/A	Project management training attendance experience
7.7	Project Management	3	Functional, integration testing practices
7.8	Project Management	3	Strong communication, analytical and problem solving skills

8. Process Schedule

8.1	Deadline for Questions	03/03/2010 2:00 PM Central Standard Time
8.2	Posted Response to Questions	03/05/2010 2:00 PM Central Standard Time
8.3	Proposals due	03/10/2010 2:00 PM Central Standard Time
8.4	Anticipated proposal evaluation begins	03/11/2010
8.5	Anticipated proposal evaluation & decision	03/29/2010

9. Questions

All questions regarding this SOW must be addressed to the Mn/DOT Contract Administrator listed below. Proposers may not discuss the content of this SOW with other Mn/DOT staff. Any questions regarding this SOW must be received via e-mail by 03/03/2010, 2:00PM Central Standard Time.

Contract Administrator	Melissa McGinnis
Email Address:	melissa.mcginis@state.mn.us

It is anticipated that questions and answers will be posted on the Office of Enterprise Technology's web site by 03/05/2010, 2:00pm Central Standard Time (www.ot.state.mn.us). Note that questions may be posted verbatim as submitted.

10. Liability for Work Performed

The Contractor must indemnify, save, and hold the State and the State's agents and employees harmless from any claims or causes of action, including attorney's fees incurred by the State, arising from the performance of this contract by the Contractor, or the Contractor's agents and employees. This clause will not be construed to bar any legal remedies the Contractor may have for the State's failure to fulfill its obligations under this contract.

The "Standard Liability Clause" (see above) will apply to this project and will be incorporated into the work order issued for this project. No exceptions to, or deviations from, this clause will be permitted. Do not submit a proposal if you cannot accept this liability clause. Proposals which the State determines, in its sole discretion, indicate non-acceptance of this liability clause, will be rejected by the State.

11. SOW Evaluation Process

The selection process being used for this project involves a three step process. Step one will include the pass/fail assessment and a qualitative evaluation of Contractors' technical proposal. Step Two will be an interview of two or more Responders who received the top scores in step one. Step Two may be eliminated at Mn/DOT's discretion based on the results of the step one's evaluations. Step three will be an analysis of the cost proposal.

Mn/DOT will review proposals according to the following criteria:

•	Company background and expertise	10%
•	Experience of personnel assigned to this project	30%
•	Extent to which the personnel assigned to this project meet the Desired Skills	10%
•	References and previous performance reviews (if any)	10%
•	Interview	10%
•	Cost	30%

Mn/DOT reserves the right to check references and to review previous performance reviews for work performed for Mn/DOT or other state agencies, and to take such references and reviews into account for consultant selection purposes.

The following contains additional information describing the proposal evaluation process:

Step One

In step one the proposals will first be reviewed to verify whether the proposer meets the “Required Skills” (see section six). Proposals receiving a “fail” on one or more of the required skills will not be reviewed further. Proposals which pass the Required Skills review will then be scored on the non-cost and non-interview factors listed above.

Step Two

The two (or more, at Mn/DOT’s discretion) proposers receiving the highest score in step one may be required to participate in a structured interview. The interview will be approximately one hour in length and consist of structured interview questions prepared by Mn/DOT. Mn/DOT will designate the number and type of Proposer team members to attend the interview. The interview will be 10 points of the total evaluation. **Mn/DOT reserves the rights to eliminate Step Two interviews if in the judgment of Mn/DOT selection committee, additional questions are not required.** If, after completion of step one, Mn/DOT decides not to require interviews, then the 10 points will not be utilized and the selection will be based on a 90 point scale.

It is anticipated that interviews will be conducted during the week of 03/22/2010 so please plan accordingly. Interview questions will be available to the Proposers 15 minutes prior to the interview. The proposer will be responsible for its own interview costs.

Step Three

Cost proposal will be evaluated and scored in accordance with the percentage identified. Cost will not be revealed to selection committee members until after the technical scoring (and interviews, if any) has been completed.

12. Response Requirements

- 12.1 Introduction.
- 12.2 Company overview. Including responder’s company name, business address, the contact person’s name, telephone number, fax number and email address (as available).
- 12.3 Project overview.
- 12.4 Detailed response to Mn/DOT Project Requirements.
 Explain how the responder will approach their participation in the project. This includes:
 - 12.4.1 Organization and staffing. Include staff qualifications in the chart below **AND** a resume that will allow Mn/DOT to easily determine if assigned key staff meet the required skills and the extent to which assigned staff meet or exceed the desired skills. The resumes must clearly identify the skills and experience that are detailed in the chart. No change in personnel assigned to the project will be permitted without the written approval of Mn/DOT’s Project Manager.
- 12.4.2 A detailed work-plan, including a realistic plan to meet the project target completion date. The work plan must include a timeline and identify major tasks. The work plan must present the responder’s approach, work breakdown, deliverable milestones, dates, and a staffing plan to deliver the project results.
- 12.4.3 Contract/change management procedures.
- 12.4.4 Project management (e.g. quality management, risk assessment/management, etc.).

Required Skill type	Personnel/ Years of Experience	Project(s) worked on demonstrating these skills	Reference (name, company, phone number)

- 12.4.5 Documentation of progress such as status reports.
- 12.4.6 Description of the deliverables to be provided by the responder.
- 12.5 The forms and documents required under any other section of this SOW.
- 12.6 References: Provide three clients for similar type projects.
- 12.7 Submit a cost proposal in a separate sealed envelope. Rates proposed may not exceed the rates approved under this program. Cost proposal must include the number of anticipated hours, classifications of personnel, personnel hourly rates and a total project cost. If direct expenses are anticipated they must be detailed in the cost proposal. **The cost estimate must correspond to the detailed work plan and schedule that includes time estimates, associated deliverables, and staff assigned to each task.**
- 12.8 Required forms to be returned or additional provisions that must be included in proposal

12.8.1 **Location of Service Disclosure Form.**

12.8.2 **Conflict of Interest Form**

Proposer must provide a list of all entities with which it has relationships that create, or appear to create, a conflict of interest with the work that is contemplated in this request for proposals. The list should indicate the name of the entity, the relationship, and a discussion of the conflict.

The proposer warrants that, to the best of its knowledge and belief, and except as otherwise disclosed, there are no relevant facts or circumstances which could give rise to organizational conflicts of interest. An organizational conflict of interest exists when, because of existing or planned activities or because of relationships with other persons, a proposer is unable or potentially unable to render impartial assistance or advice to Mn/DOT, or the proposer's objectivity in performing the contract work is or might be otherwise impaired, or the proposer has an unfair competitive advantage. The proposer agrees that, if after award, an organizational conflict of interest is discovered, an immediate and full disclosure in writing must be made to Mn/DOT which must include a description of the action which the proposer has taken or proposes to take to avoid or mitigate such conflicts. If an organization conflict of interest is determined to exist, Mn/DOT may, at its discretion, cancel the contract. In the event the proposer was aware of an organizational conflict of interest prior to the award of the contract and did not disclose the conflict to Mn/DOT, Mn/DOT may terminate the contract for default. The provisions of this clause must be included in all subcontracts for work to be performed similar to the service provided by the prime contractor, and the terms "contract," "contractor," and "contracting officer" modified appropriately to preserve Mn/DOT's rights. Proposers must complete the attached "Conflict of Interest Checklist and Disclosure Form" and submit it along with the response, but not as a part of the response.

12.8.3 **Affidavit of non-collusion**

Proposers must complete the attached "Affidavit of Noncollusion" and include it with the response. The successful proposer will be required to submit acceptable evidence of compliance with workers' compensation insurance coverage requirements prior to execution of the Contract.

12.8.4 **Immigration Status Certification Form**

For all Contracts estimated to be in excess of \$50,000.00, responders are required to complete the attached "Immigration Status Certification Form" page and include it with the response.

12.8.5 **Affirmative Action Certification**

For all Contracts estimated to be in excess of \$100,000.00, responders are required to complete the attached "Affirmative Action Certification" page and include it with the response.

12.8.6 **Veteran-Owned/Service Disabled Veteran-Owned Preference**

In accordance with Laws of Minnesota, 2009, Chapter 101, Article 2, Section 56, eligible certified veteran-owned and eligible certified service-disabled veteran-owned small businesses will receive a 6 percent preference in the evaluation of their proposal.

Eligible veteran-owned and eligible service-disabled veteran-owned small businesses should complete the Veteran-Owned/Service Disabled Veteran-Owned Preference Form in this solicitation, and include the required documentation. Only eligible, certified, veteran-owned/service disabled small businesses that provide the required documentation, per the form, will be given the preference.

Eligible veteran-owned and eligible service-disabled veteran-owned small businesses must be **currently** certified by the United States Department of Veterans Affairs prior to the solicitation opening date and time to receive the preference.

Information regarding certification by the United States Department of Veterans Affairs may be found at <http://www.vetbiz.gov>.

13. Proposal Submission Instructions

Submit 7 copies of the response. Responses are to be submitted in a mailing envelope or package, clearly marked "Proposal" on the outside. Cost proposals are to be submitted in a separate sealed envelope. An authorized member of the firm must sign each copy of the response in ink.

All responses must be sent to:

Melissa McGinnis, Contract Administrator
Minnesota Department of Transportation
395 John Ireland Boulevard
Consultant Services Section, Mail Stop 680
St. Paul, Minnesota 55155

All responses must be received not later than 2:00 p.m. Central Standard Time on XX/XX/2010, as indicated by the time stamp made by the Contract Administrator. **Please note that Mn/DOT Offices have implemented new security measures.** These new procedures do not allow non-Mn/DOT employees to have access to the elevators or the stairs. You should plan enough time and follow these instructions for drop-off:

- Enter through the Rice Street side of the Central Office building (1st Floor).
- Once you enter through the doors, you should walk straight ahead to the Information Desk.
- **Proposals are accepted at the Information Desk only.** The receptionist will call the Contract Administrator to come down and to time stamp the proposal. Please keep in mind Mn/DOT is very strict on the proposal deadline. Proposals will not be accepted after 2:00pm.

14. General Requirements

14.1 Proposal Contents

By submission of a proposal, Proposer warrants that the information provided is true, correct and reliable for purposes of evaluation for potential award of a work order. The submission of inaccurate or misleading information may be grounds for disqualification from the award as well as subject the proposer to suspension or debarment proceedings and other remedies available by law.

14.2 Disposition of Responses

All materials submitted in response to this SOW will become property of the State and will become public record in accordance with Minnesota Statutes, section 13.591, after the evaluation process is completed. Pursuant to the statute, completion of the evaluation process occurs when the government entity has completed negotiating the contract with the selected Proposer. If the Proposer submits information in response to this SOW that it believes to be trade secret materials, as defined by the Minnesota Government Data Practices Act, Minn. Stat. § 13.37, the Proposer must: clearly mark all trade secret materials in its response at the time the response is submitted, include a statement with its response justifying the trade secret designation for each item, and defend any action seeking release of the materials it believes to be trade secret, and indemnify and hold harmless the State, its agents and employees, from any judgments or damages awarded against the State in favor of the party requesting the materials, and any and all costs connected with that defense. This indemnification survives the State's award of a contract. In submitting a response to this RFP, the Proposer agrees that this indemnification survives as long as the trade secret materials are in possession of the State.

Mn/DOT will not consider the prices submitted by the Proposer to be proprietary or trade secret materials.

15. No State Obligation

Issuance of this Statement of Work does not obligate Mn/DOT to award a contract or complete the assignment, and Mn/DOT reserves the right to cancel this solicitation if it is considered to be in its best interest. Mn/DOT reserves the right to reject any and all proposals.

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**STATE OF MINNESOTA
LOCATION OF SERVICE DISCLOSURE AND CERTIFICATION**

LOCATION OF SERVICE DISCLOSURE

Check all that apply:

- The services to be performed under the anticipated contract as specified in our proposal will be performed ENTIRELY within the State of Minnesota
- The services to be performed under the anticipated contract as specified in our proposal entail work ENTIRELY within another state within the United States.
- The services to be performed under the anticipated contract as specified in our proposal will be performed in part within Minnesota and in part within another state within the United States.
- The services to be performed under the anticipated contract as specified in our proposal DO involve work outside the United States. Below (or attached) is a description of:
 - The identity of the company (identify if subcontractor) performing services outside the United States;
 - The location where services under the contract will be performed; and
 - The percentage of work (in dollars) as compared to the whole that will be conducted in each identified foreign location.

CERTIFICATION

By signing this statement, I certify that the information provided above is accurate and that the location where services have been indicated to be performed will not change during the course of the contract without prior, written approval from the State of Minnesota.

Name of Company: _____

Authorized Signature: _____

Printed Name: _____

Title: _____

Date: _____

Telephone Number: _____

**STATE OF MINNESOTA
AFFIDAVIT OF NONCOLLUSION**

I swear (or affirm) under the penalty of perjury:

- 1. That I am the Responder (if the Responder is an individual), a partner in the company (if the Responder is a partnership), or an officer or employee of the responding corporation having authority to sign on its behalf (if the Responder is a corporation);
- 2. That the attached proposal submitted in response to the Request for Proposals has been arrived at by the Responder independently and has been submitted without collusion with and without any agreement, understanding or planned common course of action with, any other Responder of materials, supplies, equipment or services described in the Request for Proposal, designed to limit fair and open competition;
- 3. That the contents of the proposal have not been communicated by the Responder or its employees or agents to any person not an employee or agent of the Responder and will not be communicated to any such persons prior to the official opening of the proposals; and
- 4. That I am fully informed regarding the accuracy of the statements made in this affidavit.

Responder's Firm Name: _____

Authorized Signature: _____

Date: _____

Subscribed and sworn to me this _____ day of _____

Notary Public

My commission expires: _____

CONFLICT OF INTEREST CHECKLIST AND DISCLOSURE FORM

Purpose of this Checklist. This checklist is provided to assist proposers in screening for potential organizational conflicts of interest. The checklist is for the internal use of proposers and does not need to be submitted to Mn/DOT, however, the Disclosure of Potential Conflict of Interest form should be submitted in a separate envelope along with your proposal.

Definition of “Proposer”. As used herein, the word “Proposer” includes both the prime contractor and all proposed subcontractors.

Checklist is Not Exclusive. Please note that this checklist serves as a guide only, and that there may be additional potential conflict situations not covered by this checklist. If a proposer determines a potential conflict of interest exists that is not covered by this checklist, that potential conflict must still be disclosed.

Use of the Disclosure Form. A proposer must complete the attached disclosure form and submit it with their Proposal (or separately as directed by Mn/DOT for projects not awarded through a competitive solicitation). If a proposer determines a potential conflict of interest exists, it must disclose the potential conflict to Mn/DOT; however, such a disclosure will not necessarily disqualify a proposer from being awarded a Contract. To avoid any unfair “taint” of the selection process, the disclosure form should be provided separate from the bound proposal, and it will not be provided to selection committee members. Mn/DOT’s Contract Management personnel will review the disclosure and the appropriateness of the proposed mitigation measures to determine if the proposer may be awarded the Contract notwithstanding the potential conflict. Mn/DOT’s Contract Management personnel may consult with Mn/DOT’s Project Manager and Department of Administration personnel. By statute, resolution of conflict of interest issues is ultimately at the sole discretion of the Commissioner of Administration.

Material Representation. The proposer is required to submit the attached disclosure form either declaring, to the best of its knowledge and belief, either that no potential conflict exists, or identifying potential conflicts and proposing remedial measures to ameliorate such conflict. The proposer must also update conflict information if such information changes after the submission of the proposal. Information provided on the form will constitute a material representation as to the award of this Contract. Mn/DOT reserves the right to cancel or amend the resulting Contract if the successful proposer failed to disclose a potential conflict, which it knew or should have known about, or if the proposer provided information on the disclosure form that is materially false or misleading.

Approach to Reviewing Potential Conflicts. Mn/DOT recognizes that proposer’s must maintain business relations with other public and private sector entities in order to continue as viable businesses. Mn/DOT will take this reality into account as it evaluates the appropriateness of proposed measures to mitigate potential conflicts. It is not Mn/DOT’s intent to disqualify proposers based merely on the existence of a business relationship with another entity, but rather only when such relationship causes a conflict that potentially impairs the proposer’s ability to provide objective advice to Mn/DOT. Mn/DOT would seek to disqualify proposers only in those cases where a potential conflict cannot be adequately mitigated. Nevertheless, Mn/DOT must follow statutory guidance on Organizational Conflicts of Interest.

Statutory Guidance. Minnesota Statutes §16C.02, Subdivision 10 (a) places limits on state agencies ability to Contract with entities having an “Organizational Conflict of Interest”. For purposes of this checklist and disclosure requirement, the term “Vendor” includes “Proposer” as defined above. Pursuant to such statute, “Organizational Conflict of Interest” means that because of existing or planned activities or because of relationships with other persons: (1) the vendor is unable or potentially unable to render impartial assistance or advice to the state; (2) the vendor’s objectivity in performing the contract work is or might otherwise be impaired; or (3) the vendor has an unfair advantage.

Additional Guidance for Professionals Licensed by the Minnesota Board of Engineering. The Minnesota Board of Engineering has established conflict of interest rules applicable to those professionals licensed by the Board (see Minnesota Rules Part 1805.0300) Subpart 1 of the rule provides “A licensee shall avoid accepting a commission where duty to the client or the public would conflict with the personal interest of the licensee or the interest of another client. Prior to accepting such employment the licensee shall disclose to a prospective client such facts as may give rise to a conflict of interest”.

An organizational conflict of interest may exist in any of the following cases:

The proposer, or its principals, own real property in a location where there may be a positive or adverse impact on the value of such property based on the recommendations, designs, appraisals, or other deliverables required by this Contract.

The proposer is providing services to another governmental or private entity and the proposer knows or has reason to believe, that entity's interests are, or may be, adverse to the state's interests with respect to the specific project covered by this contract. **Comment:** the mere existence of a business relationship with another entity would not ordinarily need to be disclosed. Rather, this focuses on the nature of services commissioned by the other entity. For example, it would not be appropriate to propose on a Mn/DOT project if a local government has also retained the proposer for the purpose of persuading Mn/DOT to stop or alter the project plans.

The Contract is for right-of-way acquisition services or related services (e.g. geotechnical exploration) and the proposer has an existing business relationship with a governmental or private entity that owns property to be acquired pursuant to the Contract.

The proposer is providing real estate or design services to a private entity, including but not limited to developers, whom the proposer knows or has good reason to believe, own or are planning to purchase property affected by the project covered by this Contract, when the value or potential uses of such property may be affected by the proposer's performance of work pursuant to this Contract. "Property affected by the project" includes property that is in, adjacent to, or in reasonable proximity to current or potential right-of-way for the project. The value or potential uses of the private entity's property may be affected by the proposer's work pursuant to the Contract when such work involves providing recommendations for right-of-way acquisition, access control, and the design or location of frontage roads and interchanges. **Comment:** this provision does not presume proposers know or have a duty to inquire as to all of the business objectives of their clients. Rather, it seeks the disclosure of information regarding cases where the proposer has reason to believe that its performance of work under this Contract may materially affect the value or viability of a project it is performing for the other entity.

The proposer has a business arrangement with a current Mn/DOT employee or immediate family member of such employee, including promised future employment of such person, or a subcontracting arrangement with such person, when such arrangement is contingent on the proposer being awarded this Contract. This item does not apply to pre-existing employment of current or former Mn/DOT employees, or their immediate family members. **Comment:** this provision is not intended to supercede any Mn/DOT policies applicable to its own employees accepting outside employment. This provision is intended to focus on identifying situations where promises of employment have been made contingent on the outcome of this particular procurement. It is intended to avoid a situation where a proposer may have unfair access to "inside" information.

The proposer has, in previous work for the state, been given access to "data" relevant to this procurement or this project that is classified as "private" or "nonpublic" under the Minnesota Government Data Practices Act, and such data potentially provides the proposer with an unfair advantage in preparing a proposal for this project. **Comment:** this provision will not, for example, necessarily disqualify a proposer who performed some preliminary work from obtaining a final design Contract, especially when the results of such previous work are public data available to all other proposers. Rather, it attempts to avoid an "unfair advantage" when such information cannot be provided to other potential proposers. Definitions of "government data", "public data", "non-public data" and "private data" can be found in Minnesota Statutes Chapter 13.

The proposer has, in previous work for the state, helped create the "ground rules" for this solicitation by performing work such as: writing this solicitation, or preparing evaluation criteria or evaluation guides for this solicitation.

The proposer, or any of its principals, because of any current or planned business arrangement, investment interest, or ownership interest in any other business, may be unable to provide objective advice to the state.

DISCLOSURE OF POTENTIAL CONFLICT OF INTEREST

Having had the opportunity to review the Organizational Conflict of Interest Checklist, the proposer hereby indicates that it has, to the best of its knowledge and belief:

- Determined that no potential organizational conflict of interest exists
- Determined a potential organizational conflict of interest as follows:

Describe nature of potential conflict:

Describe measures proposed to mitigate the potential conflict:

Signature _____ Date _____

If a potential conflict has been identified, please provide name and phone number for a contact person authorized to discuss this disclosure form with Mn/DOT Contract personnel.

Name _____ Phone _____

CERTIFICATION REGARDING LOBBYING
For State of Minnesota Contracts and Grants over \$100,000

The undersigned certifies, to the best of his or her knowledge and belief that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, A Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned will complete and submit Standard Form-LLL, Disclosure Form to Report Lobbying in accordance with its instructions.
- (3) The undersigned will require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans and cooperative agreements) and that all subrecipients will certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification will be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.

Organization Name

Name and Title of Official Signing for Organization

By: _____
Signature of Official

Date

State of Minnesota — Immigration Status Certification

By order of the Governor (Governor’s Executive Order 08-01), vendors and subcontractors MUST certify compliance with the Immigration Reform and Control Act of 1986 (8 U.S.C. 1101 et seq.) and certify use of the *E-Verify* system established by the Department of Homeland Security.

E-Verify program information can be found at <http://www.dhs.gov/ximgtn/programs>

If any response to a solicitation is or could be in excess of \$50,000.00, vendors and subcontractors must certify compliance with items 1 and 2 below. In addition, prior to the delivery of the product or initiation of services, vendors MUST obtain this certification from all subcontractors who will participate in the performance of the Contract. All subcontractor certifications must be kept on file with the Contract vendor and made available to the state upon request.

1. The company shown below is in compliance with the Immigration Reform and Control Act of 1986 in relation to all employees performing work in the United States and does not knowingly employ persons in violation of the United States immigration laws. The company shown below will obtain this certification from all subcontractors who will participate in the performance of this Contract and maintain subcontractor certifications for inspection by the state if such inspection is requested; and
2. By the date of the delivery of the product and/or performance of services, the company shown below will have implemented or will be in the process of implementing the *E-Verify* program for all newly hired employees in the United States who will perform work on behalf of the State of Minnesota.

I certify that the company shown below is in compliance with items 1 and 2 above and that I am authorized to sign on its behalf.

Name of Company: _____ Date: _____

Authorized Signature: _____ Telephone Number: _____

Printed Name: _____ Title: _____

If the Contract vendor and/or the subcontractors are not in compliance with the Immigration Reform and Control Act, or knowingly employ persons in violation of the United States immigration laws, or have not begun or implemented the *E-Verify* program for all newly hired employees in support of the Contract, the state reserves the right to determine what action it may take. This action could include, but would not be limited to cancellation of the Contract, and/or suspending or debaring the Contract vendor from state purchasing.

For assistance with the *E-Verify* Program

Contact the National Customer Service Center (NCSC) at **1-800-375-5283** (TTY 1-800-767-1833).

For assistance with this form, contact:

Mail: 112 Administration Building, 50 Sherburne Avenue, St. Paul, Minnesota 55155
E-Mail: MMDHelp.Line@state.mn.us

STATE OF MINNESOTA
VETERAN-OWNED/SERVICE DISABLED VETERAN-OWNED PREFERENCE FORM

In accordance with Laws of Minnesota, 2009, Chapter 101, Article 2, Section 56, eligible certified veteran-owned and eligible certified service-disabled veteran-owned small businesses will receive a 6 percent preference in the evaluation of their proposal.

Eligible veteran-owned and eligible service-disabled veteran-owned small businesses include certified small businesses that are majority-owned and operated by either (check the box that applies and attach the certification documents required with your response to this solicitation):

Recently separated veterans, who are veterans as defined in Minnesota Statutes §197.447, who have served in active military service, at any time on or after September 11, 2001, and who have been discharged under honorable conditions from active service, as indicated by the person's United States Department of Defense form DD-214 or by the commissioner of veterans affairs. Required Documentation:

Certification by the United States Department of Veterans Affairs as a veteran-owned small business
Discharge form (DD-214) dated on or after September 11, 2001 with condition honorable

OR

Veterans who are veterans as defined in Minnesota Statutes §197.447, with service-connected disabilities, as determined at any time by the United States Department of Veterans Affairs. Required Documentation:
Certification by the United States Department of Veterans Affairs as a service-disabled veteran-owned small business.

Eligible veteran-owned and eligible service-disabled veteran-owned small businesses must be **currently** certified by the United States Department of Veterans Affairs prior to the solicitation opening date and time to receive the preference.

Information regarding certification by the United States Department of Veterans Affairs may be found at <http://www.vetbiz.gov>.

You must submit this form and the documentation required above with your response in order to be considered for this preference.

SAMPLE WORK ORDER LANGUAGE

STATE OF MINNESOTA IT Professional Services Master Contract Work Order

This work order is between the State of Minnesota, acting through its Commissioner of Transportation ("State") and [fill in name of contractor, be sure to indicate if corporation, partnership, limited liability company, sole proprietor, etc] ("Contractor"). This Work Order is issued under the authority of Master Contract T-Number 502TS, CFMS Number [fill in CFMS number from the contractor's master contract], and is subject to all provisions of the Master Contract which is incorporated by reference.

Recitals

1. Under Minn. Stat. § 15.061 [Insert additional statutory authorization if necessary] the State is authorized to engage such assistance as deemed necessary.
2. The State is in need of [Add brief narrative of the purpose of the contract].
3. The Contractor represents that it is duly qualified and agrees to perform all services described in this work order to the satisfaction of the State.

Work Order

1 Term of Work Order; Incorporation of Exhibits; Survival of Terms

- 1.1 Effective date.** This Work Order will take effect on the date the State obtains all required signatures as required by Minn. Stat. § 16C.05, subd. 2.
The Contractor must not begin work under this work order until it is fully executed and the Contractor has been notified by the State's Authorized Representative to begin the work.
- 1.2 Expiration date.** This Work Order will expire on [fill in date], or when all obligations have been satisfactorily fulfilled, whichever occurs first.
- 1.3 Exhibits.** Exhibits [fill in, e.g. A – D] are attached and incorporated into this Work Order.
- 1.4 Survival of terms.** All clauses which impose obligations continuing in their nature and which must survive in order to give effect to their meaning will survive the expiration or termination of this Work Order.

2 Contractor's Duties

The Contractor, who is not a state employee, will:

[Provide a detailed scope of services. The services must define specific duties, deliverables, and deliverable completion dates. Do not simply attach the same scope that was used in the "Statement of Work" (RFP) as a greater level of detail is needed in this work order. If using a separate attachment, use "Perform the duties specified in Exhibit A, "Scope of Services".]

3 Consideration and Payment

3.1 Consideration

The State will pay for all services performed by the Contractor under this work order as follows:

3.1.1 Compensation. The Contractor will be paid as follows:

[Provide a detailed explanation of how the Contractor will be paid, for example a fixed hourly rate, or a lump sum per deliverable, some examples may be:

an Hourly Rate of \$ _____ up to maximum of _____ hours, but not to exceed \$ _____.

a Lump Sum of \$ _____.]

[Rate: rates paid may not exceed the Contractor's rates specified in their Master Contract.]

- 3.1.2 *Travel Expenses.* Reimbursement for travel and subsistence expenses actually and necessarily incurred by Contractor, as a result of this Work Order, will be reimbursed for travel and subsistence expenses in the same manner and in no greater amount than provided in the current Minnesota Department of Transportation Travel Regulations. Contractor will not be reimbursed for travel and subsistence expenses incurred outside Minnesota unless it has received State's prior written approval for out of state travel. Minnesota will be considered the home state for determining whether travel is out of state. See Exhibit ____ for the current Minnesota Department of Transportation Reimbursement Rates for Travel Expenses.
- 3.1.3 *Total Obligation.* The total obligation of the State for all compensation and reimbursements to the Contractor under this Work Order will not exceed \$ [fill in].

3.2 **Payment**

- 3.2.1 *Invoices.* State will promptly pay Contractor after Contractor presents an itemized invoice for the services actually performed and State's Authorized Representative accepts the invoiced services. Invoices must be submitted in the format prescribed in Exhibit ____ and according to the following schedule:

[INDICATE WHEN YOU WANT THE CONTRACTOR TO SUBMIT INVOICES, FOR EXAMPLE: "MONTHLY" OR "UPON COMPLETION OF SERVICES," OR IF THERE ARE SPECIFIC DELIVERABLES, LIST HOW MUCH WILL BE PAID FOR EACH DELIVERABLE. THE STATE DOES NOT PAY MERELY FOR THE PASSAGE OF TIME.]

- 3.2.1.1 Each invoice must contain the following information: Mn/DOT Contract Number, Mn/DOT Contract invoice number (sequentially numbered), billing address if different from business address, and Contractor's original signature attesting that the invoiced service and costs are new and that no previous charge for those services or goods has been included in any prior invoice.
- 3.2.1.2 Direct nonsalary costs allocable to the work under this Work Order must be itemized and supported with invoices or billing documents to show that such costs are properly allocable to the work. Direct nonsalary costs are any costs that are not the salaried costs directly related to the work of Contractor. Supporting documentation must be provided in a manner that corresponds to each direct cost.
- 3.2.1.3 The original of each invoice must be sent to State's Authorized Representative for review and payment. A copy of the invoice will be sent to State's Project Manager for review.
- 3.2.1.4 Contractor must provide, upon request of State's Authorized Representative, the following supporting documentation:
- 3.2.1.5 Direct salary costs of employees' time directly chargeable for the services performed under this Work Order. This must include a payroll cost breakdown identifying the name of the employee, classification, actual rate of pay, hours worked, and total payment for each invoice period; and
- 3.2.1.6 Signed time sheets or payroll cost breakdown for each employee listing dates and hours worked. Computer generated printouts of labor costs for the project must contain the project number, each employee's name, hourly rate, regular and overtime hours, and the dollar amount charged to the project for each pay period.
- 3.2.1.7 If Contractor is authorized by State to use or uses any subcontractors, Contractor must include all the above supporting documentation in any subcontractor's contract, and Contractor must make timely payments to its subcontractors. Contractor must require subcontractors' invoices to follow the same form and contain the same information as set forth above.
- 3.2.2 *Retainage.* Under Minnesota Statutes § 16C.08, subdivision 5(b), no more than 90% of the amount due under this Contract may be paid until State's agency head has reviewed the final

product of this Contract. The balance due will be paid when State's agency head determines that Contractor has satisfactorily fulfilled all the terms of this Contract.

- 3.2.3 *Federal Funds.* If federal funds are used, Contractor is responsible for compliance with all federal requirements imposed on these funds and accepts full financial responsibility for any requirements imposed by Contractor's failure to comply with these federal requirements.
- 3.2.4 *Progress Reports.* Contractor will submit progress reports in a format and timeline designated by the State's Project Manager.

4 **Liability**

[Note: the following clause is the "standard" liability clause, an alternative liability clause may have been agreed to as part of the Statement of Work, in which case the liability clause offered by a vendor should have been part of the selection criteria. The contract must include a liability clause, either the standard clause or an approved alternate. Contact Contract Management if you have questions about whether to use the standard clause or an alternative]

The Contractor must indemnify, save and hold the State, its agents, and employees harmless from any claims or causes of action, including attorney's fees incurred by the State, arising from the performance of this Work Order by the Contractor or the Contractor's agents or employees. This clause will not be construed to bar any legal remedies the Contractor may have for the State's failure to fulfill its obligations under this Work Order.

5 **Foreign Outsourcing**

The Contractor agrees that the disclosures and certifications made in its Location of Service Disclosure and Certification Form submitted with its proposal are true, accurate and incorporated into this work order contract by reference.

6 **Authorized Representatives**

6.1 State's Authorized Representative. State's Authorized Representative will be:

NAME, TITLE
ADDRESS
TELEPHONE NUMBER
FAX NUMBER
E-MAIL ADDRESS

State's Authorized Representative or his /her successor, will monitor Contractor's performance and has the authority to accept or reject the services provided under this Work Order.

6.2 State's Project Manager. State's Project Manager will be:

NAME, TITLE
ADDRESS
TELEPHONE NUMBER
FAX NUMBER
E-MAIL ADDRESS

State's Project Manager, or his/her successor, has the responsibility to monitor Contractor's performance and progress. State's Project Manager will sign progress reports, review billing statements, make recommendations to State's Authorized Representative for acceptance of Contractor's good or services and make recommendations to State's Authorized Representative for certification for payment of each Invoice submitted for payment.

6.3 Contractor's Authorized Representative. Contractor's Authorized Representative will be:

NAME, TITLE
ADDRESS
TELEPHONE NUMBER

FAX NUMBER
E-MAIL ADDRESS

If Contractor's Authorized Representative changes at any time during this contract, Contractor must immediately notify State.

- 6.4** Contractor's Key Personnel. Contractor's Key Personnel will be:
(names, titles)

Key Personnel assigned to this project cannot be changed without the written approval of the State's Project Manager. Contractor will submit a change request in writing to the State's Project Manager along with a resume for each potential candidate. Potential new or additional personnel may be required to participate in an interview. Upon approval of new or additional personnel, the State's Authorized Representative may issue a change order to add or delete key personnel.

7 Time

The Contractor must comply with all the time requirements described in this Work Order. In the performance of this Work Order, time is of the essence.

8 Employee Status

Pursuant to the Governor's Executive Order 08-01, if this contract, including any extension options, is or could be in excess of \$50,000, Contractor certifies that it and its subcontractors:

- 8.2** Comply with the Immigration Reform and Control Act of 1986 (U.S.C. 1101 et. seq.) in relation to all employees performing work in the United States and do not knowingly employ persons in violation of United States immigrations laws; and
- 8.3** By the date of the performance of services under this contract, Contractor and all its subcontractors have implemented or are in the process of implementing the E-Verify program for all newly hired employees in the United States who will perform work on behalf of the State of Minnesota.

Contractor must obtain certifications of compliance with this section from all subcontractors who will participate in the performance of this contract. Subcontractor certifications must be maintained by Contractor and made available to the state upon request. If Contractor or its subcontractors are not in compliance with 1 or 2 above or have not begun or implemented the E-Verify program for all newly hired employees performing work under the contract, the state reserves the right to determine what action it may take including but not limited to, canceling the contract and suspending or debaring the contractor from state purchasing.

9 Additional Provisions

[Use this space to add information not covered elsewhere in this Work Order. If not needed, delete this section or state "None". The following should be used in any Work Order that includes web design:

The Contractor will comply with the "Minnesota Office of Enterprise Technology: Web Design Guidelines" available at the URL: <http://www.state.mn.us/portal/mn/jsp/content.do?programid=536911233&id=-536891917&agency=OETweb>.

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Exhibit A: Mn/DOT's Transportation Information System Overview

Background and Current Status

In the 1970s Mn/DOT became one of the first DOTs to implement an integrated roadway information system. The Transportation Information System (TIS) was developed on a mainframe architecture and provides integrated information on roadway jurisdictions and characteristics, crash data, traffic data, bridges and rail grade crossings, and intersections. Other systems and applications have been developed for various items not included in TIS, such as video-log or roadway furniture, but TIS remains the main storehouse of roadway data within the department.

Since the inception of TIS, Minnesota has been nationally recognized as a leader in quality, integrated data systems. In the mid-1980s, the Federal Highway Administration (FHWA) assembled a multi-state database bringing together the best available data on roadway, traffic, and safety information to support decisions regarding highway design and operation. The resulting project, the Highway Safety Information System (HSIS), included Mn/DOT as one of the eight initial states, largely due to the quality and scope of data within the TIS system. Mn/DOT continues to participate in this program.

TIS also provides the core of the data supplied to the FHWA as part of the annual Highway Performance Management System (HPMS), used to produce a number of federal reports for Congress and others. TIS provides the basis for the "universe" roadway information and various elements, including traffic, for the HPMS sample segments.

Description and Contents of TIS

Mn/DOT's TIS integrates a number of different tables pertaining to a variety of roadway characteristics and features or events along the roadways themselves. The core business tables in the TIS are listed below.

Roadlog and Logpoint Files

These files contain an inventory of Minnesota's roadways. The roadlog file contains complete descriptions of all roadways, including physical characteristics (such as surface width) and jurisdictional information (such as county number). The logpoint file contains verbal descriptions of various intersecting features and their associated mileage along the route. Typically, users interact with a merged version of these two tables so they see the entire listing of events along a route. The merged file is officially called Mergelog, however, most users refer to it as Roadlog.

True Mileage File

The true mileage (TRM) file is the heart of TIS. It allows roadway locations to be identified in terms of reference points without placing undue constraints on the location of reference posts. All trunk highways and some non-trunk roadways are physically reference posted (or mile posted). When a route is originally posted, an attempt is made to place the posts exactly one mile apart - reference post 1 is placed one mile after the beginning of the route, post 2 is placed one mile past post 1, etc. Some posts cannot be placed exactly one mile past the preceding posts (e.g., if the exact location would be in the middle of an intersection), and some posts wind up being a little less than a mile apart while others wind up being a little more than a mile apart. As time passes, roadway construction will change the lengths of portion of the route making more of the posts misplaced.

Non-trunk roadways that are not physically reference posted are assigned "paper reference posts" that are exactly one mile apart. Again, as time passes, roadway construction will eventually move the paper reference posts less or more than one mile apart. The true mileage file allows the reference posts to be used for locating points along roadways. It contains one record for each reference post in the system, and provides the distance from the beginning of the route to the reference post.

Intersection/Interchange Files

The intersection/interchange (II) files contain information pertaining to only the intersections and interchanges for which accident analysis reports are desired. They do not contain a complete inventory of Minnesota's intersection and interchanges. The II files are physically stored as two separate files: (1) the INT file (intersection details) and (2) the INX file (cross-reference file). The INT file contains one record per intersection. The INX file contains one or more records per intersection.

The records stored in the INT file are variable-length records. Each record consists of one INT segment (intersection details) and 1-9 INL segments (leg details). One record is stored in the INX file for each INL segment stored in the INT file. Application programs view the II files as three separate files: (1) the INT file (details), (2) the INL file (leg information), and (3) the INX file. The INT and INX files are seen as fixed-length records. The INL file is seen as an array containing 1-9 fixed-length records.

The INT file (as seen by application programs) contains data elements that apply to individual intersections as a whole. Examples of data elements in this file are:

- Key of intersection (route system, route number, and reference point of one of the intersecting routes).
- Intersection type (e.g., interchange or railroad crossing).
- Traffic control devices installed at the intersection.

The INL file (as seen by application programs) contains 1-9 records for each INT record. Each record describes one intersecting route, and can describe either 2 legs (the route continues through the intersection) or 1 leg (the route begins or ends at the intersection). Examples of data elements in this file are:

- Key of intersecting route (route system, route number, and reference point)
- ADT on each leg.
- Number of lanes on each leg.

The INX file (as seen by application programs) contains one record for each INL record. It allows access to the INT record via the key of any intersecting route of an intersection. The data elements in the INX file include:

- Key of intersecting route.
- Key of intersection.
- Construction district, maintenance area, patrol station.

- City number and county number.

Accident File

The accident file contains data translated from the Department of Public Safety accident records database. The accident file in TIS does not include any data categorized as sensitive or confidential from the accident record. Each record in the file contains:

- ACD - Accident details segment (exactly one)
- ACP - Accident person segment (0-99), one per person involved
- ACV - Accident vehicle segment (0-99), one per vehicle involved
- ACJ - Accident person/vehicle segment (0-99), one per person

The file contains data for accidents from 1978 to the present. Accidents that could not be exactly located by reference point location are termed "non-geocoded." These accidents contain route system and route number location information only.

Traffic File

The traffic file contains traffic volume information. Each record in the file contains volumes at one particular location. Up to 40 volumes can be stored in each volume record. The volumes are stored as annual average daily traffic volumes for particular years. For example, one record might contain three volumes - one for 1977, one for 1978, and one for 1979. Descriptor records, which contain no volumes, are also stored in the file. These are gap and endpoint records which correspond to those stored in the roadlog file.

Sections File

The sections file contains information used to define sections of roadway for accident analysis reports. The file is maintained by individual construction districts for their own analysis purposes, and is not a complete inventory of the state's roadways. The information pertaining to each section is not at the level of detail as found in the roadlog file. Data elements include:

- Codes describing general design and environment.
- Speed limit.
- Categorization codes.
- Verbal description.

Bridge File

The bridge file is no longer maintained in TIS. It is an inventory of bridges (including culverts, pedestrian bridges, etc.) in the state. The file is linked to the other TIS files through reference point location. Bridge file data elements include:

- Administrative and jurisdictional.
- Span types, construction, and lengths.
- Clearances.
- Roadway and sidewalk widths.
- Condition ratings and appraisals.
- Defense requirements.
- Proposed improvements.
- Numerous miscellaneous items.

This data is currently updated on a semi-annual basis by accessing PONTIS (bridge management system) maintained by Mn/DOT's Bridge Office.

Rail Grade Crossing File

The rail grade crossing file is no longer maintained in TIS. It contains information about at-grade railroad/roadway intersections, including:

- Types of protection and warning signs.
- Traffic data for railroad and roadway.
- Physical characteristics (such as number of tracks).
- Location information.

This data is currently updated on a periodic basis by personnel in Mn/DOT's Office of Freight & Commercial Vehicle Operations (OFCVO).

Condition Rating File

The condition rating file contains information about the surfaces of roadways. The information is historical, dating back to 1967, and includes:

- Surface rating.
- Present serviceability rating.
- Condition rating.
- Percentage defects.

Roadway History File

The roadway history file includes construction and maintenance data for trunk highways, such as:

- Contract number and dates.
- Layers of work:
- Roadway (undivided, road-1 or road-2).
- Layer position, material, width, and depth

Note: The Condition Rating File and the Roadway History File together form the core data for Mn/DOT's Highway Pavement Management System. TIS creates the base files for the pavement condition measuring vans; data is collected and then returned to TIS for processing. After processing, the data is exported to the actual pavement management system for further analysis.

Support Files

Several support files are also maintained in TIS. These files are not part of Mn/DOT's standard business data, but are essential to the internal functioning of the reporting operations and internal maintenance of the system. These files are as follows:

- *The Coincident File:* Where multiple trunk highways cover the same pavement, one of the routes is determined to be the "Primary Route" and all data in the business tables are referenced according to mileage along this primary route. The Coincident File maintains the connection between the name and mileage of trunk highways that run concurrently on a primary route and the name and mileage on the primary route itself.
- *The Street Name File:* This file maintains street name information for routes in TIS. For many data providers, particularly local road authorities, street names provide an essential description of location. The Street Name file provides an index to associate a particular street name to a route and mileage that is used in the rest of TIS.
- *The Township Name file:* This relatively simple file is comprised of township names and IDs and is used as a look up table for various TIS functions.
- *The City Name file:* This relatively simple file is comprised of city names and IDs and is used as a look up table for various TIS functions.
- *The County Name file:* This relatively simple file is comprised of county names and IDs and is used as a look up table for various TIS functions.
- *The Cross-Reference Files:* There are several cross reference files (City, County, Maintenance Area, Patrol Station, and Construction District) which have the same format and function. Each one lists the portions of roads by route name and mileage that exist within each of the various organizational boundaries of the table. For instance, the County Cross Reference table lists all of the routes and the mileages of those routes that exist in each of the counties in the state. These tables are used extensively for report generation as information is commonly asked for grouped by the various organizational units.

Non-tabular TIS Contents

In addition to the tables of business data listed above, there are database functions and report functions that are carried out by the TIS mainframe.

System Maintenance functions: TIS has 35 system maintenance commands that are used by the TIS administrator to manage the system and carry out system checks.

User Commands (roughly 200): This is a broad category that encompasses both significant report generation, and data processing and maintenance functions. Of these 200, at least 30% are not believed to be used at this time.

TIS serves as the system of record for many reports supplied to a variety of customers including the federal government, Mn/DOT customers outside of TDA, and local customers and partners. Annual federal reports include the Highway Performance Management System and the Highway Safety Information System. Other reports cover everything from crash safety analysis to cross-sectional pavement information. Ad hoc reports can also be generated to answer most requests made of the many integrated data sets within the system. In addition, information from TIS is extracted for import into several other Mn/DOT systems, including the Highway Pavement Management System and the Route Builder application.

Data processing and maintenance functions are also varied and complex. Perhaps the most critical of the processing functions conducted by TIS is the multi-file operation. This process manages the conversion of all the data sets maintained in TIS when a route is redesignated or mileage along a route is adjusted. Since the route and reference point system is the key for locating TIS data sets relative to one another, improper or incomplete changes to this data can result in lost data or data that is inadvertently assigned to the wrong section of pavement.

In addition to this multifile process, there are other data maintenance and processing commands available to TIS users that carry out a variety of functions.

- Maintaining system data tables internal to TIS that are required for effective data integration and retrieval
- Preprocessing data for the evaluation of statistically significant differences in crash rates among a collection of route segments
- Supplying system management information to evaluate and diagnose system errors

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Transportation Information System Specifications

Language:	PL/1 procedural code makes up about 75% of the total lines of code with the remaining 25% providing file access routines written in IBM Assembler.
Lines of Code:	JCL – 300K to 375K; IBM Assembler: 100K to 125K
Size of the Database:	Roughly 4.2 GB
Number of Programs:	398 panvalet source Modules in Assembler; 1855 panvalet source modules in PL/1. Source Modules of either type are roughly 250 lines of code each.
Number of Files:	Business data files in use: 29 Business Support files: 11 Business data files no longer in use: 16 System Decode files: 8 For details see end of this document.
Number of Screens:	SPF dialogs (185 clists, 206 panels)
Number of Reports:	Roughly 100 – less than 50% used currently
Number of Transactions/Day:	Roughly 100/day
Number of Records:	Roughly 12 Million

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