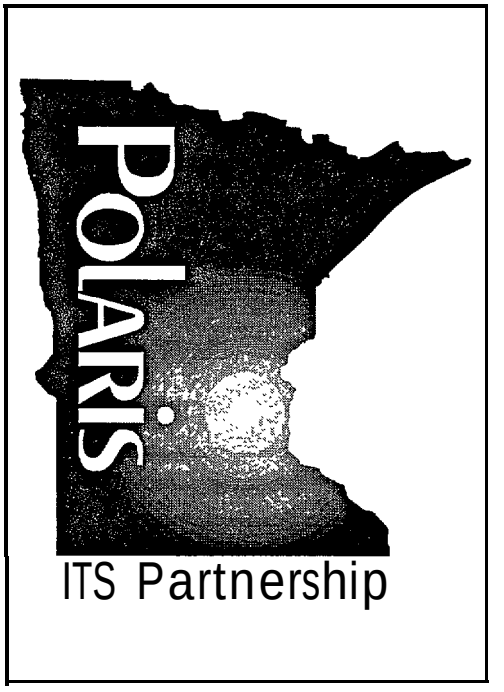
Minnesota Department of Transportation Agreement Number: 73807P

Minnesota Intelligent Transportation Systems

Statewide Intelligent Transportation Systems As-Is Agency Reports for Minnesota



Volume 8 Miscellaneous

Prepared for the Minnesota Department of Transportation by:

Lockheed Martin Federal Systems-Owego
Intelligent Transportation Systems
Mail Drop 0124
1801 State Route 17C
Owego, NY 13 827-3998

SRF Consulting Group, Inc.
One Carlson Parkway North
Suite 150
Minneapolis, MN 55447-4443

August 1996

Statewide ITS As-Is Agency Report for Minnesota
Volume 8
Miscellaneous

Volume 1 Mn/DOT Metropolitan Division
- 1.1 Generic Closed Loop Traffic Control Signal System
- 1.2 Mn/DOT Advanced Portable Traffic Management System
- 1.3 Mn/DOT Portable Traffic Management System
- 1.4 Mn/DOT Metro Division Lane Closure Information System
- 1.5 Mn/DOT Metro Division Construction Information System

Volume 2 Mn/DOT Traffic Management Center
- 2.1 Mn/DOT TMC Ramp Meter System
- 2.2 Mn/DOT TMC Video Surveillance System
- 2.3 Mn/DOT TMC Changeable Message Sign System
- 2.4 Mn/DOT TMC Communications System
- 2.5 Mn/DOT TMC Highway Helper AVL System

Volume 3 Operational Tests
- 3.1 AUSCI - Adaptive Urban Signal Control and Integration System
- 3.2 ICTM - Integrated Corridor Traffic Management System
- 3.3 DIVERT Incident Management System
- 3.4 Advanced Parking Information System

Volume 4 Metropolitan Council Transit Operations and Metro Mobility
- 4.1 MCTO Trapeze Scheduling/Planning System
- 4.2 MCTO Automated Passenger Counting System
- 4.3 MCTO Electronic Fare Collection System
- 4.4 MCTO TIC BusLine System
- 4.5 MCTO TIC Customer Phone Line Service System
- 4.6 Metropolitan Council Metro Mobility Reservation/Scheduling/Dispatch System
- 4.7 MCTO Construction Information System

Volume 5 City of Minneapolis
- 5.1 City of Minneapolis Fortran Traffic Signal Control System
- 5.2 City Of Minneapolis Parking Management System
- 5.3 City Of Minneapolis Construction Information System

Volume 6 City of St. Paul
- 6.1 City of St. Paul Computran Traffic Signal Control System
- 6.2 City Of St. Paul Construction Information System

Volume 7 Minnesota State Patrol
- 7.1 Minnesota State Patrol Mobile Data Terminal System
- 7.2 Minnesota State Patrol Laptop Mobile Data Terminal System
- 7.3 Minnesota State Patrol Emergency 911 Dispatch System

Volume 8 Miscellaneous
- 8.1 **Minnesota Travel Partners Kiosk System**
- 8.2 **Mn/DOT Pavement Condition And Weather Reporting System**
- 8.3 **Hennepin County Medical Center Emergency Vehicle Dispatch System**
- 8.4 **Metropolitan Airports Commission Parking Management and AVI System**
- 8.5 **Gopher State One-Call Excavation Notification System**
- 8.6 **Mn/DOT Statewide Construction Information System**
- 8.7 **Hennepin County Construction Information System**
- 8.8 **Ramsey County Construction Information System**
- 8.9 **Mn/DOT ESS Gopher State One-Call Access System**

Statewide ITS As-Is Agency Report for Minnesota
Volume 8
Miscellaneous

Appendices

1. INTRODUCTION

The purpose of the Polaris Project is to define an Intelligent Transportation Systems (ITS) architecture for the state of Minnesota. An architecture is a framework that defines a complex system, in terms of a set of smaller, more manageable systems which are fully defined in terms of their individual boundaries, functions, physical components, and interfaces. They illustrate how each of the systems interrelate and contribute to the overall ITS objectives and requirements.

A well defined architecture provides many benefits for a complex system. It defines and optimizes the location of system functions. It identifies critical interfaces, and illustrates how associated systems can be integrated to share resources and information. It establishes standards for communications and physical components so that inter-operability can be maintained as the system evolves to incorporate new capabilities and technologies.

The Minnesota Statewide ITS Architecture is a tailored version of the National ITS Architecture. Tailoring incorporates the prioritized wants and needs of the state's transportation users and stakeholders, as well as its existing ITS infrastructure. The functional architecture, physical architecture, system requirements and implementation plan are fully documented in the following project deliverables:

ITS Traveler Wants/ Needs - Information obtained from Minnesota residents in ten end user sessions held across the state. Used to establish and prioritize end-user requirements.

ITS Transportation Wants/ Needs - Information obtained from ITS stakeholder institutions. Used to establish and prioritize ITS service provider requirements.

ITS Wants/ Needs Analysis - Final results and recommendations of the wants and needs research.

Statewide ITS As-Is Agency Reports for Minnesota - Information about existing transportation systems that establish the starting point for the Architecture Implementation Plan.

ITS System Specification - Incorporates the results of the functional and physical architectures into specification format. The specification will clearly identify ITS system level requirements for the identified Minnesota ITS services.

ITS Component Specification - Incorporates the results of the functional to physical allocation in specification format. The specification will clearly identify the Minnesota ITS component systems requirements.

ITS Architecture Implementation Plan - A recommended ITS deployment strategy for future state initiatives.

2. SCOPE

This document, *Statewide ITS As-Is Agency Reports for Minnesota*, consists of a collection of individual system survey reports related to transportation systems. The Polaris Project will use the survey information collected to derive the existing architectural framework. After the existing architectural framework is derived, this information will be used as the baseline for developing the Minnesota Statewide ITS Architecture.

Agencies identified and contributed to this document were:

- Minnesota Department of Transportation Office of Advanced Transportation Systems
- Minnesota Department of Transportation Traffic Management Center
- Minnesota Department of Transportation Metropolitan Division
- Minnesota Department of Transportation Electrical Services Section
- St. Paul Department of Public Works
- Minneapolis Department of Public Works
- Hennepin County Department of Public Works
- Ramsey County Department of Public Works
- Minnesota State Patrol
- Hennepin County Medical Center
- Metropolitan Council Transit Operations
- Metropolitan Airports Commission
- Gopher State One Call
- Minnesota Office of Tourism

2.1 Document Overview

This document presents the methods, assumptions and procedures used to collect the baseline information. The documentation of systems that were inventoried is presented in Section 3.

2.2 Methods, Assumptions, and Procedures

2.2.1 System Identification

Agency and system candidates were based upon several factors prior to survey. Through market research, the highest wants and needs priorities for traveler and transportation related agencies identified the functional areas to be improved (i.e. Travel Conditions). The Polaris Project took the functional wants and needs and associated the wants and needs functions to current Minnesota Agencies. Another factor that contributed to identifying the candidate agencies was the presence of existing Intelligent Transportation Systems infrastructure that has been deployed to support integrating open systems for travelers, inter-agency and intra-agency needs.

One hundred twenty one pre-survey candidate systems identified by the process described previously, are listed in Appendix A. The pre-survey candidate list represents systems that were known by members of the Polaris Architecture working team, Mn/DOT Guidestar, and SRF

Consulting Group, Inc. Of the 12 1 candidate systems, 3 8 system surveys were performed and included in this document. The 38 systems were selected as "best representatives" of the 121 pre-survey candidates and provided a diverse base of information to use for developing the Minnesota Statewide ITS Architecture.

2.2.2 Data Collection Guide

The survey of systems required that a standard data collection approach be applied for the *Statewide ITS As-Is Agency Reports for Minnesota.* A data collection guide was prepared to help this effort.

The data collection guide was developed to provide interviewers with an overview of relevant information that needed to be collected during the survey for each system. The data collection effort focused on the following:

- A block diagram of the system and interfaces to external users and systems.
- All hardware elements that are interconnected to form the bounds of the system.
- All software components used by the hardware elements.
- All system interfaces that connect hardware components together and external systems to the system.
- All personnel using the system.

The Data Collection Guide is presented in Appendix B.

2.2.3 Field Data Collection

The survey collection activities were completed by two teams of interviewers. Prior to an on-site interview, an agency or system contact person was briefed as to the nature of the survey. In some cases, generally where agencies knew little of the Polaris project, a follow-up letter was sent to further outline the desired level of information.

The on-site interview was generally a free format discussion of the specific system elements. The data collection guide was only used to ensure all components where discussed. The interviewers recorded the audio portion of the interview in order to help with the documentation of the system. Where possible, the actual system components were also recorded on videotape, again, to help with the system documentation. In some cases, written documentation from the agency was reviewed to help describe the system.

A report of the surveyed system followed a standard format and consisted of two basic parts: 1) a system block diagram and 2) a data collection template. The block diagram is intended to depict the system components and interfaces while the template thoroughly describes the system configuration. The template is organized to step through the system related personnel, hardware, software and interfaces. All systems documented for the project used this standardized approach. The system documentation was separated by agencies into eight volumes.

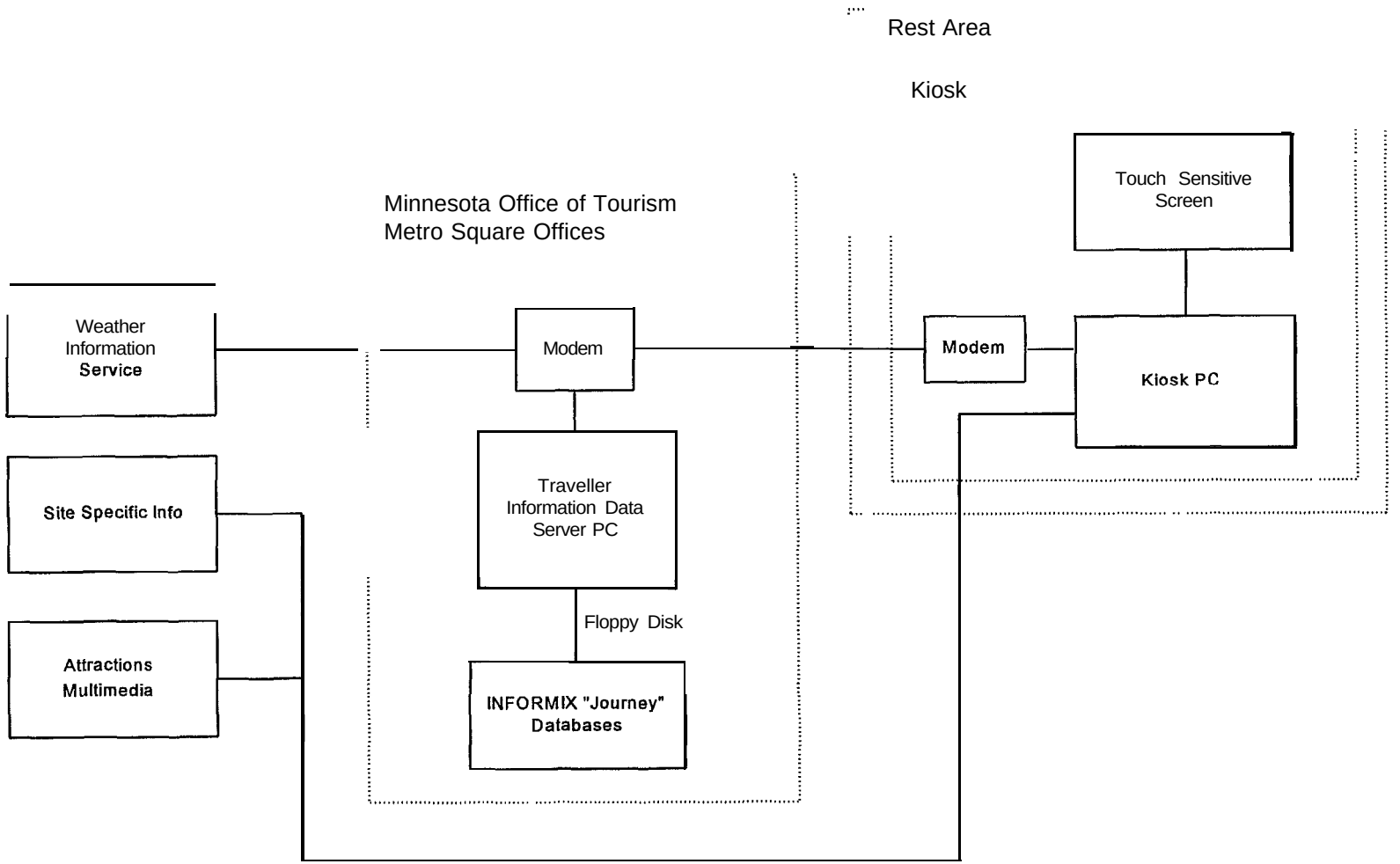
The system reports contained in this volume follow in Section 3.

3. As-Is Baseline System Documentation

3.8 MISCELLANEOUS

3.8.1 MINNESOTA TRAVEL PARTNERS KIOSK SYSTEM

POLARIS As-Is Baseline Data Collection
Minnesota Travel Partners Kiosk System



AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "MINNESOTA OFFICE OF TOURISM'

- Agency Type	State office; part of the Department of Trade and Economic Development.
- Agency Functions	Tourism / Travel promotion.
- Agency Location(s)	100 Metro Square 121 7th Place East St. Paul, MN 55101-2112
- Contacts	Richard Haskett - Assistant Director of Tourism Customer Services (612) 296-5027 (voice) (612) 296-2800 (fax)

2.0 SYSTEM "MlNNESOTA TRAVEL PARTNERS KIOSK SYSTEM"

- Date of As-Is Data Collection	February 29, 1996
- Purpose	Minnesota Travel Partners is a partnership between the Office of Tourism and the Minnesota Department of Transportation. The system provides several types of data to motorists at roadside rest facilities through interactive kiosks (For description of data see hardware section).
- Hours of Operation	24 hrs/day
- Geographic Coverage	One Kiosk at Duluth (Thompson Hill Rest Area) and 1 at St. Cloud Rest Area. Also one Portable kiosk.
- Status	Existing
- Policies	This system uses databases maintained by the Office of Tourism. In the future, it may be possible for businesses in the database to provide more promotional copy for distribution on the system for a fee.
- Recommended Improvements	Office of Tourism plans to add another fixed kiosk at the Dresbach rest area when funds are available.
- Block Diagram	See attached
- Typical Operational Scenario	A motorist stops at one of the equipped rest areas and touches the kiosk screen to start the program. The motorist can then choose from amongst several types of information which include: Current weather conditions, which are provided by a outside vendor. 1) A route planning utility which can create a route map to the motorists destination 2) A database of information relating to accommodations, attractions and special events. 3) A multimedia display of attractions (this display has severe limitations on information updates).

2.1 PERSONNEL "CLERK"

- Personnel Function	Carries floppy disks containing the traveler information database from the Informix database server to the data server PC. Clerk is responsible for updating the database for the Traveler Information system
- Quantity	1
- Location	Metro Square Offices
- Workload	This function is a minor part of Clerk's responsibilities
- Status	Existing

2.2 PERSONNEL "OFFICE OF TOURISM STAFF"

- Personnel Function	Conducts surveys to determine locations of facilities and attractions Updates Informix database

3.1 HARDWARE "MODEM'

- Hardware Type	Dial-up serial communications device
- Functions	Sends data to kiosk PC's
- Location	Metro Square Offices
- Data Name/Contents	There are several types of data being sent and received. Received Data: 1) Weather data service dials in at 15 minute intervals and downloads current weather info. 2) Kiosks download usage information (number of touches on a specific menu choice) on an as-needed basis. Sent Data: 3) Weather data is sent to kiosks at 15 minute intervals. 4) Updates to the Accommodations/ Events/ Attractions databases located at the kiosks are done an as-needed basis.
- Data Type	Data
- Status	Existing

3.2 HARDWARE "DATA SERVER PC"

- Hardware Type: Intel - based
- Functions: Receives and processes incoming data from weather info service and usage data from kiosks. Stores and sends data for database updates to kiosk databases.
- Location: Metro Square Offices
- Data Name/Contents: See HARDWARE 3.1
- Data Type: Data
- Status: Existing
- Contact: Richard Haskett (see above)

3.2.1 SOFTWARE "DOS/WINDOWS"

- Software Type: Operating system

3.2.2 SOFTWARE "INFORMIX"

- Software Type: Database Manager
- Functions: Stores and manages data, dials up and communicates with Informix databases at local kiosks
- Status: Existing

3.3 HARDWARE "MODEM'

- Hardware Type	Dial-up serial communications device
- Functions	Sends and receives data
- Location	At kiosk
- Data Name/Contents	Received Data: 1) Current weather is updated at 15 minute intervals. 2) Accommodation/ Events/ Attractions database is updated on an as-needed basis. Sent Data: 3) Usage data is sent to the Data Server PC at the Metro Square location.
- Data Type	Data
- Status	Existing
- Issues	The updates to the kiosk Accommodations/ Events/ Attractions database currently require approximately three hours per kiosk to complete. It was not clear during the interview if this was a software limitation or a connection speed limitation.
- Recommended Improvements	The Office of Tourism is currently examining options for upgrading communications between the Metro Square Computer and the kiosks, but no firm plans or time lines have been set.

3.4 HARDWARE "TOUCH SENSITIVE DISPLAY"

- Hardware Type	Color display and input device
- Functions	Displays menus, maps, graphics, video, audio and text information to users. Also functions as the device by which the user makes selections.
- Location	At kiosk
- Data Name/Contents	The displayed information can be any combination of information from the in-kiosk database, the weather information, or the in-kiosk mapping utility.
- Data Type	Text/Graphics (in some cases photographs and video)
- Status	Existing
- Recommended Improvements	The Office of Tourism is examining the possibility of using mechanical keypads in place of touch sensitive screens in any future installations

3.5 HARDWARE "KIOSK PC"

- Hardware Type	Intel-based PC
- Functions	1) Stores database info. 2) Processes data requests from users 3) Creates usage statistics 4) Communicates with Data Server PC at Metro Square Offices
- Location	At kiosk
- Data Name/Contents	Several types of data are stored and processed by this computer: 1) The Accommodations/ Attractions/ Events database is stored on each kiosk. Users can perform a variety of queries on this database. 2) There is a mapping facility which allows the user to select from 75 destinations in Minnesota. The software will provide a map and directions to the selected destination. 3) Weather information (i.e. temp, sky and precipitation conditions) is accessible through the kiosk. 4) There is also a multimedia database of attractions which is not updatable remotely.
- Data Type	Text/Graphics/Data
- Status	Existing
- Issues	1) The mapping facility cannot provide directions outside of the 75 preprogrammed locations, and generally operates on a city-to-city level, not giving specific local street directions. 2) The Office of Tourism has not been satisfied with the multimedia component of the system, as its content is hard-coded in the application software and cannot be changed by anyone other than the developer or a programmer.
- Recommended Improvements	The Office of Tourism is currently examining options for replacing both the mapping utility and the multimedia attractions database. Desired functionality would include: 1) Allowing users to specify any destination and supplying them with both a map and text directions to any point on any road in the state. 2) Allowing staff members to update the content of the multimedia database.

3.4 HARDWARE "INFORMIX DATABASE SERVER PC"

- Hardware Type	Intel Based PC
- Functions	Stores the "live" copy of the Accommodations/ Attraction/ Events database which is accessible through the "JOURNEY" Travel Planning System
- Location	Metro Square Offices
- Data Name/Contents	See attached survey form
- Data Type	Data
- Status	Existing

3.6.1 SOFTWARE "DOS/WINDOWS"

- Software Type	Operating System

3.6.2 SOFTWARE "INFORMIX"

- Software Type	Database manager

4.1 INTERFACE	Weather Information Service
- Connects to . . .	Modem In Data Server PC
- Interface Type	Data
- Interface Direction	output
- Interface Component	Voice grade telephone line (US West)
- Information Type/Content	Current weather Information,
- Information Direction	output
- Information Frequency	15 minute intervals

4.2 INTERFACE	Data server modem
- Connects to . . .	Kiosk modem
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Voice grade telephone line (US West)

4.3 INTERFACE	Kiosk PC
- Connects to . . .	Touch sensitive display
- Interface location	In kiosk
- Interface Type	Data and video graphics
- Interface Direction	Both
- Interface Component	VGA Cable + other unknown component, possibly serial RS-232
- Information Type/Content	Information from database is displayed on screen. User input is detected and sent to kiosk PC
- Information Direction	Both
- Information Frequency	As Needed
- Other	The Office of Tourism is considering using standard VGA displays and mechanical keypads in future installations, making this interface obsolete.

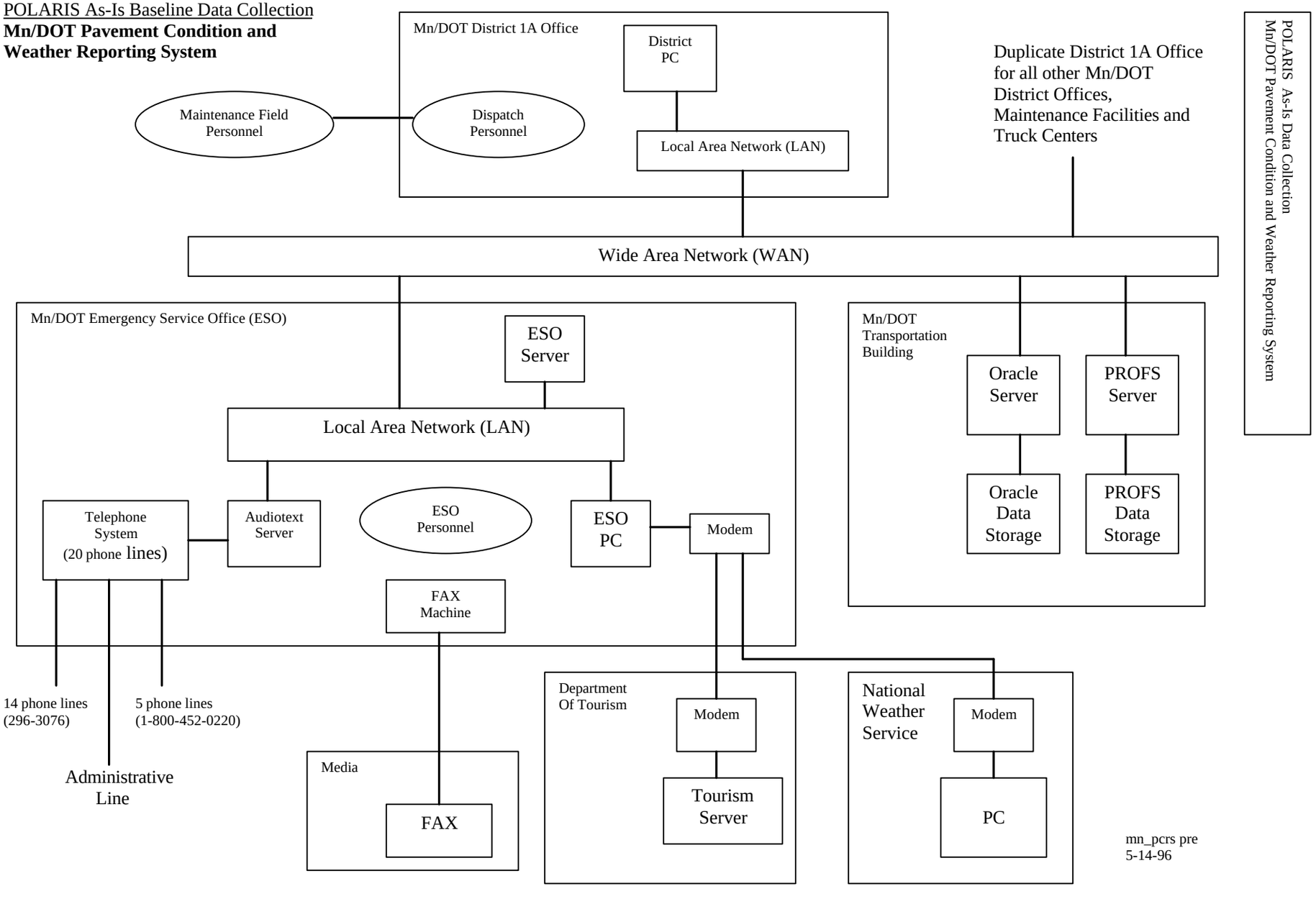
4.4 INTERFACE	INFORMIX DATABASE SERVER PC
- Connects to . . .	Data server PC
- Interface location	Metro Square Offices
- Interface Type	Data
- Interface Direction	output
- Interface Component	Diskette carried from INFORMIX Server to Traveller Information Server
- Protocol/Standard	N/A
- Information Type/Content	Changed records in the Accommodations/ Attractions/ Events Database
- Information Direction	output
- Information Frequency	As Needed
- Information Standards	INFORMIX Table

4.5 INTERFACE	Site Specific Info/ Attractions Multimedia Database
- Connects to . . .	Kiosk PC
- Interface location	At Kiosk
- Interface Type	Data
- Interface Direction	output
- Interface Component	These types of data are either carried to the kiosk PC on floppy diskettes or they are hand-keyed at the site.
- Protocol/Standard	N/A
- Information Type/Content	Site Specific Info: 1) Nearest Tow Service 2) Nearest Hospital 3) Nearest Gas Station 4) Nearest Restaurant 5) Emergency Service Info Multimedia Database: Photographs & Digital Audio/Video of major attractions in the area
- Information Direction	output
- Information Frequency	1) Site specific Info is keyed at the time the kiosk becomes active and can be updated as needed. 2) Multimedia attractions info is installed at the time software is loaded onto the PC. Afterward it can only be updated by the developer.

3.8.2 MN/DOT PAVEMENT CONDITION AND WEATHER REPORTING SYSTEM

POLARIS As-Is Baseline Data Collection

Mn/DOT Pavement Condition and Weather Reporting System



AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "MN/DOT EMERGENCY SERVICES OFFICE"

- Agency Type	Emergency Services Office
- Agency Functions	Provide weather and construction information
- Agency Location(s)	100 Stockyards Road South St. Paul, MN 55075
- Contacts	Darrel L. Schierman

2.0 SYSTEM "MN/DOT PAVEMENT CONDITION AND WEATHER REPORTING"

- Date of As-Is Data Collection	2-12-96
- Purpose	Provide statewide pavement condition and weather information to all Mn/Dot Districts and the general public.
- Hours of Operation	24 hours a day - November 1 to May 1
- Geographic Coverage	System covers all interstate, trunk highway and scenic routes in the state.
- Contacts	Darrel L. Schierman - Director Road and Vehicle Information and Service Mail Stop 415, Room 152 100 Stockyards Road South St. Paul, MN 55075 612-552-7535 (voice) 612-297-1908 (fax) 612-640-2609 (pager)
- Status	Existing
- Recommended Improvements	A new road weather information system is being field tested and is expected to be implemented at all districts beginning in November 1996.
- Block Diagram	See attached

- Typical Operational Scenario	1) The maintenance field personnel uses either radio or cellular phone communication to the dispatch personnel and reports by exception any conditions other than good winter driving conditions. This process is identical in the new system. 2) The dispatch personnel writes the information down for entry into the E-mail system. This step will be eliminated with the new system. 3) The dispatch personnel uses the office vision E-mail system (PROFS) and inputs the information into a standardized screen. The dispatch personnel then broadcasts the information to the Emergency Services Office (ESO). The new system will use a Microsoft Access interface with a real time connection to the Oracle 7 database server. Through this connection all district offices, maintenance facilities and truck centers will have instant access to update and review all data. 4) ESO personnel receive the information from all districts and produce a summary report. The summary report is then broadcast over the PROFS system to all district offices , maintenance facilities and truck centers. The new system will allow each district to view the data, therefore the ESO office will not have to broadcast the information back to each district, maintenance facility or truck centers. The new system database will be used to create graphic representation of the weather conditions on state and region maps using ESRI ArcView. 5) Information is put on the audio text server for access by the general public using the telephone. 6) The ESO also faxes the summary report to the media. 7) The information is also uploaded to the Department of Tourism server and the National Weather Service.

2.1 PERSONNEL "DIRECTOR"

- Personnel Function	Oversee operation of road weather information system
- Quantity	1
- Location	Emergency Services Office - Truck center Mail Stop 415, Room 152 100 Stockyards Road South St. Paul, MN 55075
- Working Hours	Normal business hours
- Status	Existing
- Contact	Darrel L. Schierman

2.2 PERSONNEL "TECHNICIAN/SUPERVISOR"

- Personnel Function	1) Summarize information from all districts. 2) Input information into the audio text server. 3) Fax information to media. 4) Upload information to the Department of Tourism server and National Weather System computer. 5) Oversee seasonal employees
- Quantity	1
- Location	Truck Center
- Working Hours	Normal business hours
- Status	Existing

2.3 PERSONNEL "SEASONAL EMPLOYEE"

- Personnel Function	1) Summarize information from all districts. 2) Input information into the audio text server. 3) Fax information to media. 4) Upload information to the Department of Tourism server and National Weather System computer.
- Quantity	4
- Location	Truck Center
- Workload	The system is operated and updated 7 days a week and 24 hours a day from November 1 to May 1. These employees work the evening and weekend shifts during this period.
- Working Hours	Variable
- Status	Existing

2.4 PERSONNEL "DISPATCH PERSONNEL"

- Personnel Function: Monitor communication with maintenance personnel and enter information into the database
- Quantity: 1
- Location: District office dispatch center
- Working Hours: 24 hours per day
- Status: Existing

2.5 PERSONNEL "MAINTENANCE FIELD PERSONNEL"

- Personnel Function: Communicate road weather information to the dispatch personnel from maintenance vehicle.
- Quantity: unknown
- Location: In field
- Workload: Variable
- Working Hours: Variable
- Status: Existing

3.1 HARDWARE "DISTRICT PC"

- Hardware Type	Personal computer
- Functions	(1) Runs office vision (PROFS) (2) Runs Microsoft Access software (3) Other office functions
- Location	District office dispatch center
- Data Name/Contents	Pavement condition data entered by the dispatch personnel. Existing system data: Although there is a standard screen for data input, the terminology and completeness of information was not always consistent. The new system was developed based on the existing system, but uses standardize terminology. New system data includes: - MN/DOT District - Roadway type, segment, mile post end and start - Visibility (clear, 1/2 mile, l/4 mile, less than 1000 feet, or zero) - Condition (dry, wet, frost, glazed ice, slush, snow, compaction or narrow cuts) - Precipitation (None, rain, drizzle, sleet, snow or fog) - Indicator (N/A, light, moderate, heavy or freezing) - Maintenance operation (None, plowing, sanding-salting, plowing-sanding-salting, blading or clean-up) - Traffic speed (posted, less than posted, slow or stop and go) - General condition (GWDC-good winter driving conditions, FWDC-fair, PWDC-poor, S. Spots-slippery spots, NTA-no travel advised or closed
- Data Type	Data
- Status	Existing
- Other	386 or 486 (if upgraded) PC

3.1.1 SOFTWARE "OFFICE VISION (PROFS)"

- Software Type	Data interchange
- Software Standards	Electronic mail
- Functions	Allows user to send and receive information from any MN/DOT office or facility.
- Status	Existing

3.1.2 SOFTWARE "MN/DOT PAVEMENT CONDITION REPORTING SYSTEM"

- Software Type: Database
- Software Standards: Microsoft Access (District version)
- Functions:
  (1) Opens direct connection to Oracle sever and database.
  (2) User interface for pavement condition data entry.
  (3) Prints reports of pavement condition conditions.
- Status: New
- Contacts:
  System designed and developed by:
  Sufficient Systems, Inc.
  2860 Patton Road
  Roseville, MN 55 113
  (612) 6389190 (voice)
  (612) 638-9290 (fax)
  Brad Wagner - Project Leader
  Government Systems Division
  bwagner@sufsys.com (E-mail)
  http://www.sufsys.com

3.2 HARDWARE "EMERGENCY SERVICES OFFICE (ESO) PC"

- Hardware Type	Personal computer
- Functions	(1) Runs office vision (PROFS) (2) Runs Microsoft Access software (3) Runs ESRI ArcView (4) Runs Hijaak (5) Runs Crosstalk for Windows (6) Other office functions
- Location	ESO office
- Data Name/Contents	Pavement condition data broadcast on PROFS system. New system data includes: - MN/DOT District - Roadway type, segment, mile post end and start - Visibility (clear, 1/2 mile, l/4 mile, less than 1000 feet, or zero) - Condition (dry, wet, frost, glazed ice, slush, snow, compaction or narrow cuts) - Precipitation (None, rain, drizzle, sleet, snow or fog) - Indicator (N/A, light, moderate, heavy or freezing) - Maintenance operation (None, plowing, sanding-salting, plowing-sanding-salting, blading or clean-up) - Traffic speed (posted, less than posted, slow or stop and go) - General condition (GWDC-good winter driving conditions, FWDC-fair, PWDC-poor, S. Spots-slippery spots, NTA-no travel advised or closed) - Graphical representation of road conditions on state and region maps. The maps will show road conditions and weather information on segment using color codes.
- Data Type	Data
- Status	Existing
- Other	Compaq 486- 66 MHz

3.2.1 SOFTWARE "OFFICE VISION (PROFS)"

- Software Type	Data interchange
- Software Standards	Electronic mail
- Functions	Allows user to send and receive information from any MN/DOT office or facility.
- Status	Existing

3.2.2 SOFTWARE "MN/DOT PAVEMENT CONDITION REPORTING SYSTEM"

- Software Type: Database
- Software Standards: Microsoft Access (Administrator's version)
- Functions:
  (1) Opens direct connection to Oracle sever and database.
  (2) User interface for pavement condition data entry.
  (3) Prints reports of pavement condition conditions.
  (4) Allows administrator to modify operational aspects of the system. It will allow the administrator to add or modify the list of descriptive words for any category.
  (5) Allows administrator to combine, divide or rename the road segments in the system.
  (6) Access to ArcView application.
  (7) Access to other applications for converting and transmitting map images.
- Status: New
- Contacts:
  System designed and developed by:
  Sufficient Systems, Inc.
  2860 Patton Road
  Roseville, MN 55 113
  (612) 638-9190 (voice)
  (612) 638-9290 (fax)
  Brad Wagner - Project Leader
  Government Systems Division
  bwagner@sufsys.com (email)
  http://www.sufsys.com

3.2.3 SOFTWARE "ESRI ARCVIEW"

- Software Type: Database
- Software Standards: GIS
- Functions: Accesses Oracle database to display road conditions on state or region maps.
- Status: New

3.2.4 SOFTWARE "HIJAAK'

- Software Type: File compression utility
- Software Standards: Other
- Functions: This software will batch all image files into a single file for transmission to the Department of Tourism server.
- Status: New

3.2.5 SOFTWARE “CROSSTALK for WINDOWS”

- Software Type	Communications software
- Software Standards	Other
- Functions	Used to upload map images to the Department of Tourism server.
- Status	New

3.3 HARDWARE "ESO SERVER”

- Hardware Type	PC
- Functions	Stores
- Location	ESO office
- Data Name/Contents	1) Pavement condition and weather reports 2) Base map images
- Data Type	Data
- Status	Existing

3.4 HARDWARE “AUDIOTEXT SERVER”

- Hardware Type	PC
- Functions	Stores
- Location	ESO office
- Data Name/Contents	Audiotext for dial-up phone line service
- Data Type	Data
- Status	Existing

3.5 HARDWARE “TELEPHONE SYSTEM”

- Hardware Type	Telephone audiotext processor and telephone line selector.
- Functions	Processes audiotext responses and controls telephone line off-hook, on-hook.
- Location	ESO office
- Data Name/Contents	Audiotext responses
- Data Type	Digitized voice
- Status	Existing
- Other	Local access number - 296-3076 Toll free access number l-800-452-0220 1) Touch tone menu 1- North 2- Central 3- South 4- Twin Cities metro area 2) Total of 20 phone lines, one is used for administrative purposes and five 800 ready lines

3.6 HARDWARE "FAX MACHINE"

- Hardware Type: Fax machine
- Functions: Sends summary reports to media.
- Location: ESO office
- Data Name/Contents: Summary pavement conditions and weather information.
- Data Type: Data
- Status: Existing

3.7 HARDWARE "ESO MODEM'

- Hardware Type: Modem 28.8 baud
- Functions: Uploads information to the Department of Tourism server and the National Weather Service
- Location: ESO office
- Data Name/Contents: Pavement conditions and weather information
- Data Type: Data
- Status: Existing

3.8 HARDWARE "ESO SERVER"

- Hardware Type: PC
- Functions: Stores
- Location: MN/DOT Transportation Building
- Data Name/Contents: All MN/DOT electronic mail
- Data Type: Data
- Status: Existing

3.9 HARDWARE "ORACLE SERVER"

- Hardware Type: PC
- Functions: Database for pavement condition and weather information
- Location: MN/DOT Transportation Building
- Data Name/Contents: All MN/DOT electronic mail
- Data Type: Data
- Status: Existing

3.9.1 SOFTWARE "ORACLE DATABASE"

- Software Type: Database
- Software Standards: ODBC
- Functions: Stores database of pavement condition and weather information..
- Status: Existing
- Other: Oracles NLM 7.1

3.10 HARDWARE "NATIONAL WEATHER SERVICE MODEM'

- Hardware Type	Modem
- Functions	Uploads information to the Department of Tourism server and the National Weather Service
- Location	ESO office
- Data Name/Contents	Pavement conditions and weather information
- Data Type	Data
- Status	Existing
- Other	It was stated in the interview this modem was slow possibly 2400 baud.

3.11 HARDWARE "DEPARTMENT OF TOURISM'

See the documentation for the system: Minnesota Department of Tourism Information Center Kiosks

4.1 INTERFACE	Maintenance field personnel
- Connects to . . .	Dispatch personnel
- Interface location	In field/district office
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Cellular telephone and/or radio
- Protocol/Standard	None
- Information Type/Content	Pavement condition and weather information
- Information Direction	Both
- Information Frequency	As needed
- Information Standards	None

4.2 INTERFACE	Local area network (LAN)
- Connects to . . .	Connect office computers
- Interface location	District office
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Ethernet or token ring
- Protocol/Standard	Novell,TCP/IP, IPX
- Information Type/Content	Pavement condition and weather information
- Information Direction	Both
- Information Frequency	As needed
- Information Standards	See database structure

4.3 INTERFACE	Wide area network
- Connects to . . .	All Mn/DOT district offices, maintenance facilities and truck centers
- Interface location	Transportation Building in St. Paul
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Tl phone line (leased continuous operation at 1.544 Megabits per second with 768Kbps dedicated to data transfer at most locations)
- Protocol/Standard	Novell,TCP/IP, IPX
- Information Type/Content	Pavement condition and weather information
- Information Direction	Both
- Information Frequency	As needed
- Information Standards	See database structure

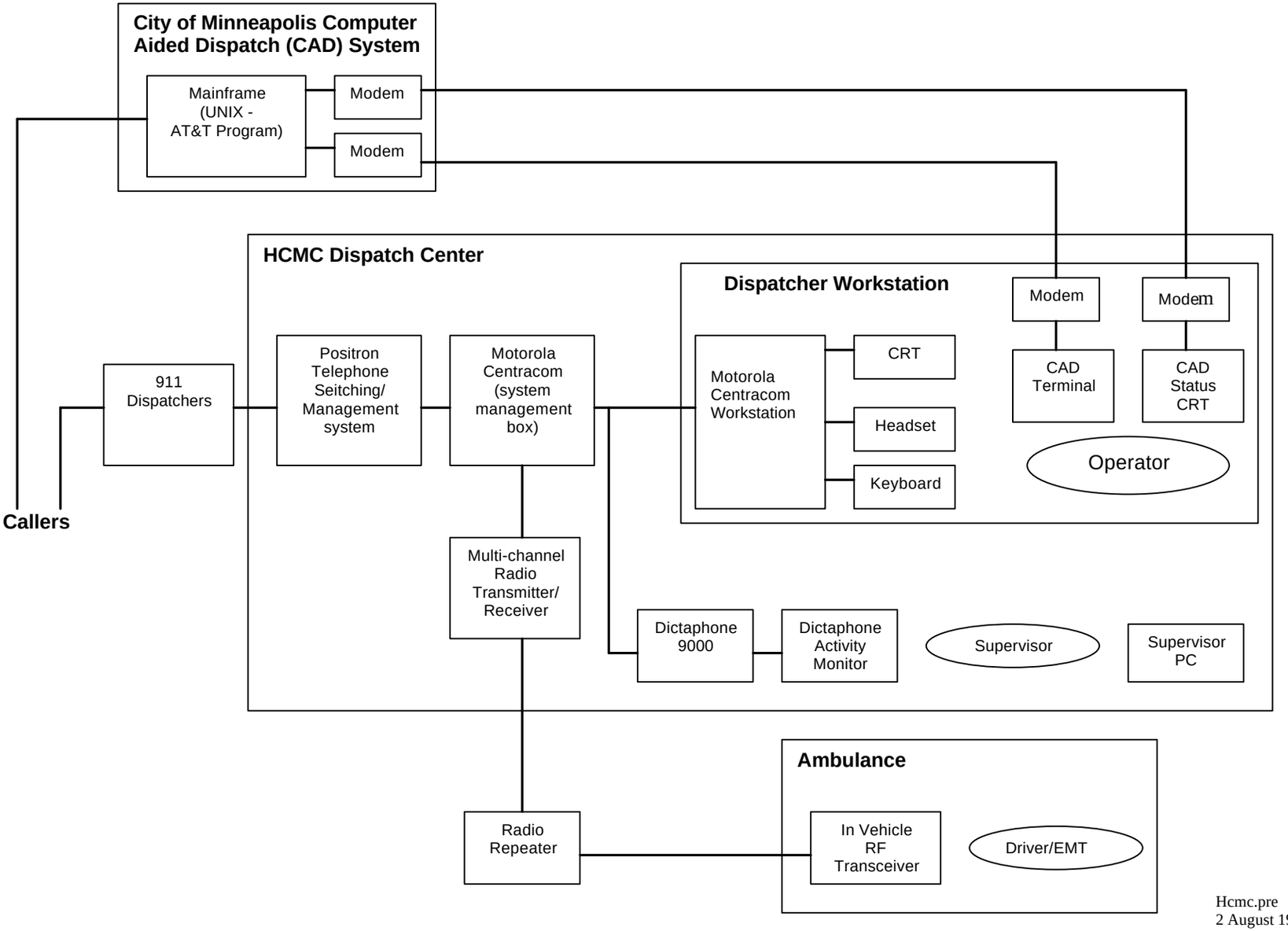
4.4 INTERFACE	Audiotext server
- Connects to . . .	Telephone system
- Interface location	ESO office
- Interface Direction	Both
- Information Type/Content	Audiotext messages
- Information Direction	output
- Information Frequency	As needed

4.5 INTERFACE	ESO fax machine
- Connects to . . .	Media fax machine
- Interface location	ESO office/Media office
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Service provider
- Information Type/Content	Pavement condition and weather information
- Information Direction	output
- Information Frequency	As needed

4.6 INTERFACE	ESO Modem
- Connects to . . .	Department of Tourism modem and National Weather Service modem
- Interface location	ESO office, Department of Tourism and National Weather Service
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Modem via service provider
- Information Type/Content	Pavement condition and weather information
- Information Direction	output
- Information Frequency	As needed

3.8.3 HENNEPIN COUNTY MEDICAL CENTER EMERGENCY VEHICLE DISPATCH SYSTEM

POLARIS As-K Baseline Data Collection
Hennepin County Medical Center Emergency Vehicle Dispatch System



Hcmc.pre
2 August 1996

AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "HENNEPIN COUNTY MEDICAL CENTER"

- Agency Location(s)	Hennepin County Medical Center 600 Park Avenue South Minneapolis, MN 55415

2.0 SYSTEM "EMERGENCY VEHICLE DISPATCH SYSTEM'

- Date of As-Is Data Collection	2/27/96
- Purpose	Receive requests for emergency services from Minneapolis Computer Aided Dispatch (CAD) system, seven 911 dispatch services or direct calls out from private parties. Then dispatch ambulances as needed.
- Hours of Operation	24 hrs/day
- Geographic Coverage	Two-thirds of Hennepin county, but will dispatch (mutual aid) ambulances to nearby communities if needed.
- Contacts	Clif Giese Supervisor, Ambulance Services (612) 347-3427
- Status	Existing

AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "METROPOLITAN AIRPORTS COMMISSION"

- Agency Type	Multi-jurisdictional air transportation facility planning and management commission
- Agency Functions	Owns and operates airports in the metro area
- Agency Location(s)	Minneapolis/St. Paul Airport (MSP)

2.0 SYSTEM "PARKING MANAGEMENT AND AUTOMATIC VEHICLE IDENTIFICATION (AVI) SYSTEM"

- Date of As-Is Data Collection	3/l 8/96
- Purpose	1) Control access of commercial vehicles to the MSP terminal 2) Provide automated billing for usage fees 3) Monitor parking space availability 4) Automatically provides transportation to public based on demand
- Hours of Operation	Continuous, 24 hours/day, seven days/week
- Geographic Coverage	MSP terminal and nearby taxi dispatch facility
- Contacts	Greg S. Leean Manager, Landside Operations Minneapolis/St. Paul International Airport. 4300 Glumack Drive Suite 324, Center Mezzanine St. Paul, MN 5511 l-3010 (6 12) 726-5244 (voice) (612) 726-5527 (fax)
- Status	Existing
- Block Diagram	See attached
- Typical Operational Scenario	The scenario described below contains information specific to taxis, other commercial vehicles are similar except for the dispatch functions. The MSP terminal has a special entry for commercial vehicles (busses, shuttles and taxis) which use the pick-up and discharge passengers at the terminal. 1) This special entry is equipped with a radio transmitter/receiver which broadcasts a signal to a transponder located inside commercial vehicles called a "tag". 2) Upon receiving the signal, the tag transmits a unique number to the system. The returned signal is processed by the system.

Operational Scenario (cont.)

3) A parking facility management system called "Dynacount", which records that a vehicle has entered the parking facility using loop detectors.
4) The unique number is compared to a list of valid numbers in a centralized database to determine if the number is valid and if the vehicle can be admitted into the facility.
5) If the number is valid, a gate arm raises and the taxi can proceed to the dispatch queue.
6) The dispatch queue consist of a parking-type lane, a passenger waiting area, and a monitoring kiosk. Passengers who wish to use a taxi can make special requests (i.e. station wagon, etc.)at the kiosk, in which a terminal connected to the dispatch system is located , otherwise they use one of the taxis already in the queue.
7) When the taxi leaves the airport, the tag is polled in a manner similar to the entry procedure. The vehicle is then recorded as having left the terminal.
8) After delivering the passenger, the taxi will return to a dispatch facility located at the Post Road Superamerica convenience store.
9) At the dispatch facility, the vehicle tag is read by RF equipment similar to that at the MSP terminal. The taxi then proceed to a parking lot where it waits for its assigned "fender number" to be displayed on a Variable Message Sign (VMS).
10) When the fender number is displayed, the taxi has five minutes to move into a queue to wait for release by having its number displayed on a second VMS. After a taxi is released, its tag is read by RF equipment as it leaves the dispatch facility.
11) The central AVI management computer at the MSP facility is informed that a taxi is en route. The taxi must arrive within a specified time or a time out occurs and the vehicle is invalid at the terminal.
12) When the taxi arrives at the MSP terminal, its tag is polled and the process begins again.
13) The AVI software tracks all entries, exits and cross over reads. The cross over vehicles are neither entry or exit, but a position indicator. The system automatically generates monthly billing statements for the vehicle owners to change for airport access.

2.1 PERSONNEL "MANAGER LANDSIDE OPERATIONS"

- Personnel Function: Oversees functions of the AVI/Parking system.
- Quantity: One
- Location: MSP Terminal
- Working hours: Regular workday
- Status: Existing

2.2 PERSONNEL "APPLIED MANAGEMENT CORPORATION PERSONNEL"

- Personnel Function: Install and assists in the maintenance of the AVI/Parking system.
- Quantity: One.
- Location: MSP terminal.

2.3 PERSONNEL "LANDSIDE OPERATIONS AGENT"

- Personnel Function: Administer commercial vehicle accounts.
- Location: MSP Terminal.
- Status: Existing

3.1 HARDWARE "ACTIVE RF TAG"

- Hardware Type: Battery powered in-vehicle transmitter/receiver.
- Functions: Receives a signal from the AVI transmitters at the parking facility and transmits a unique number.
- Location: In each commercial which has a billing account with MSP. These tags are also placed in emergency vehicles
- Data Name/Contents: Unique ID number which is set at the factory, but can be requested by the customer (MAC)
- Data Type: Data
- Status: Existing

3.2 HARDWARE "LOOP DETECTORS'

- Hardware Type	In-pavement magnetic induction loop vehicle detectors.
- Functions	Indicates presence of a vehicle to the AVI system. At MSP and the taxi dispatch facility, vehicle entry point loops activate the tag reader transceiver and a second loop detects vehicles which have passed by the gate arm indicating that it can safely be closed. Loops are positioned in a similar manner at commercial vehicle exits at both facilities and perform essentially the same functions.
- Location	1) At the MSP commercial vehicle entry and exit points. 2)At the taxi dispatch facility entry and exit points.
- Data Name/Contents	Vehicle presence.
- Data Type	Data.
- Status	Existing.

3.3 HARDWARE "TAG READ ANTENNA"

- Hardware Type	Directional RF antenna.
- Functions	Transmit/receive data.
- Location	Mounted in overhead positions at: At the MSP commercial vehicle entry and exit points. At the taxi dispatch facility entry and exit points.
- Data Name/Contents	The antenna use two types of data: Transmits a signal to poll vehicle tags. Receives a identification number from the polled tags.
- Data Type	Data.
- Status	Existing.

3.4 HARDWARE "RF TRANSCEIVER"

- Hardware Type	Environmentally shielded RF transmitter / receiver.
- Functions	Generates/transmits the polling signal to the vehicle tags. Receives the identification number form the polled vehicle tag. Passes the vehicle identification number to the Dynacount parking system controller.
- Location	At each of the commercial vehicle entries and exits and at the entry and exit of the taxi dispatch facility.
- Data Name/Contents	The transceiver uses three types of data: 1) Transmits a signal to poll vehicle tags. 2) Receives a identification number from the polled tags. 3) Sends a message to the Dynacount Controller to indicate that a vehicle has entered or exited (depending upon location).
- Data Type	Data

3.5 HARDWARE "DYNACOUNT CONTROLLER"

- Hardware Type	PC with specialized Dynacount software from Traffic and Safety of Detroit, MI.
- Functions	Monitors component status (i.e. gate position and open time, alarms for low tickets/ticket in chute (MSP entry only) loop detector on time, vehicle back-out). Sends vehicle in/out messages to the Dynapark and AVI system based on component status.
- Location	At commercial vehicle entries and exits. At entry/exit of the taxi dispatch facility
- Data Name/Contents	See functions
- Data Type	Data
- Status	Existing
- Other	For additional information see system City of Minneapolis Parking Management System and the addenda to this section.

3.5.1 SOFTWARE "DYNACOUNT"

- Software Type	Specialized parking facility management software.
- Functions	Detects vehicle entrances and exits and notifies the Dynapark.
- Status	Existing

3.6 HARDWARE "GATE ARM"

- Hardware Type	Traffic control gate
- Functions	Physical barrier to ingress and egress locations. Controlled by card reader controller, ticket dispensers, fee computers and count control system. Can be manually operated.
- Location	Commercial vehicle ingress and egress locations
- Data Name/Contents	On/off relay
- Data Type	N/A
- Status	Existing

3.7 HARDWARE "TICKET DISPENSER"

- Hardware Type	Peripherals - parking management system
- Functions	Records time/date/ticket number and puts information on hole punch ticket for incoming transient commercial vehicles or transient parkers who enter the commercial vehicle area accidentally
- Location	Commercial vehicle entrance locations at MSP
- Data Name/Contents	Hole punch card
- Data Type	Data
- Status	Existing

3.8 HARDWARE "ENTRY CONTROLLER (ADP)"

- Hardware Type	PC with Amtech of Dallas, TX software in firmware
- Functions	Receives tag read information from antenna/RF transceiver, looks up tag number, determine valid status, sends output to gate for open, send tag information (read date, time, status, etc) to CDC or CVCC (TCP). Communicates the ID number to the AVI system's CVCC computer
- Location	At MSP terminal entries At taxi dispatch facility entry
- Data Name/Contents	Sends tag ID number
- Data Type	Data
- Status	Existing

3.9 HARDWARE "EXIT CONTROLLER (ADP)"

- Hardware Type	PC with Amtech of Dallas, TX software in firmware
- Functions	Receives tag read information from antenna/RF transceiver, looks up tag number, determine valid status, sends output to gate for open, send tag information (read date, time, status, etc) to CDC or CVCC (TCP). Communicates the ID number to the AVI system's CVCC computer
- Location	At MSP terminal exits At taxi dispatch facility exit
- Data Name/Contents	Sends tag ID number
- Data Type	Data
- Status	Existing

3.10 HARDWARE "CVCC COMPUTER (MAIN TERMINAL)"

- Hardware Type: Pentium PC
- Functions: This hardware performs the management functions of the AVI system:
  1) Polls all lane controllers for tag read information
  2) Records entries/exits from the taxi dispatch
  3) Records entries/exits from the MSP Terminal facility
  4) Sends and receives information to the CDC for tracking, dispatch and logging purposes.
  5) Tracks "dwell time", the time between a tag read at a MSP entry point and a the same tag read at an exit. Commercial vehicle operators are charged for excessive dwell times.
  6) Runs algorithms to queue the appropriate number of taxis both at the MSP terminal and at the taxi dispatch facility.
- Location: MSP Terminal
- Data Name/Content: Input data is tag ID numbers.
  Output is in the form of custom designed reports.
- Data Type: Data
- Status: Existing

3.10.1 SOFTWARE "DR MULTI USER DOS 5.1"

- Software Type: Multitasking operating system.
- Functions: Enables CVCC and CDC to perform several tasks simultaneously.
- Status: Existing.

3.10.2 SOFTWARE "MAC AVI MANAGEMENT SOFTWARE"

- Software Type: Custom written AVI system software created by Metropolitan Airports Commission.

3.10.3 SOFTWARE "NOVELL NETWARE CLIENT SOFTWARE"

- Software Type: Network communications software.
- Software Standards: Novell NetWare (IPX/SPX).
- Functions: Enables communications between computers.
- Status: Existing

3.11 HARDWARE "NOVELL FILE SERVER"

- Hardware Type: Pentium PC
- Functions: Acts as a central repository of AVI system data
- Location: MSP Terminal
- Data Name/Contents: Records entries/exits from the MSP terminal and the taxi dispatch facility
  Data about the specific vehicle is stored on this server (vehicle type, ownership, license plate number)
  Data about drivers is stored on this server (name, age license number, employer)
  Information for billing purposes is store on this server (entries/exits, excessive dwell)
- Data Type: Data
- Status: Existing

3.11.1 SOFTWARE "NOVELL NETWARE SERVER"

- Software Type: Network communications and management software.
- Software Standards: Novell NetWare
- Functions: Makes centrally stored files available to network client computers
- Status: Existing

3.11.2 SOFTWARE "MAC AVI DATABASE MANAGEMENT SOFTWARE'

- Software Type: Custom written AVI system software created by Metropolitan Airports Commission.
- Functions: Stores all transaction and vehicle/operator account information
- Status: Existing

3.12 HARDWARE "FORM PRINTER"

- Hardware Type: Dot matrix printer
- Functions: Print monthly invoices for commercial vehicle operators (CVO'S)
- Location: MSP Terminal
- Data Name/Contents: Access charges for CVO's
- Data Type: Hard copy invoices
- Status: Existing

3.13 HARDWARE "TAXI DISPATCH QUEUE KIOSK"

- Hardware Type	This structure contains a dedicated color serial terminal and keyboard connected to the CVCC
- Functions	An attendant in the kiosk can monitor which vehicles (taxi's) are in the queue waiting for passengers and visually verify that the appropriate vehicles are in the queue in the proper order. The attendant can also use the terminal to dispatch a special vehicle (i.e. station wagon) at the request of a passenger.
- Location	Outside the MSP terminal in the taxi area
- Data Name/Contents	Terminal displays fender numbers of the vehicles in the queue at MSP and those queued at the Post Road taxi dispatch facility.
- Data Type	Data
- Status	Existing

3.14 HARDWARE "COMMERCIAL VEHICLE ADMINISTRATION WORKSTATION"

- Hardware Type	PC
- Functions	Allows update/creation of the vehicle/operator/owner database on the file server
- Location	MSP terminal
- Data Name/Contents	Complete contents of the database were not collected. For a general overview see HARDWARE 3.11
- Data Type	Data
- Status	Existing

3.14.1 SOFTWARE "DR MULTI USER DOS 5.1"

- Software Type	Multitasking operating system
- Functions	Allows CDC and CVCC computers to process several tasks simultaneously
- Status	Existing

3.14.2 SOFTWARE "NETWARE CLIENT"

- Software Type	Network communications software
- Software Standards	IPX/SPX
- Functions	Enables computer to communicate with LAN
- Status	Existing

3.14.3 SOFTWARE "AVI SOFTWARE"

- Software Type: MAC proprietary software
- Functions: Access to AVI records on the file server
- Status: Existing

3.15 HARDWARE "WAN BRIDGE"

- Hardware Type: Bridge to allow LAN's to communicate at various locations in and around MSP
- Functions: Permit access to data stored on the MSP LAN server by remote users and access to remote data by users at MSP
- Location: MSP terminal
- Data Type: Data
- Status: Existing
- Other: The exact usage of the hardware was not collected as it is not an integral part of the AVI system

3.16 HARDWARE "FEE WORKSTATION"

- Hardware Type: PC
- Functions: Processing billing and financial data
- Location: MSP terminal
- Data Name/Contents: Input of received payments from CVO's and output of monthly invoices
- Data Type: Data
- Status: Existing

3.16.1 SOFTWARE "DR MULTI USER DOS 5.1"

- Software Type: Multitasking operating system
- Functions: Allows CDC and CVCC computers to process several tasks simultaneously
- Status: Existing

3.16.2 SOFTWARE "NETWARE CLIENT"

- Software Type: Network communications software
- Software Standards: IPX/SPX
- Functions: Enables computer to communicate with LAN
- Status: Existing

3.16.3 SOFTWARE "AVI SOFTWARE"

- Software Type: MAC proprietary software
- Functions: Access to AVI records on the file server
- Status: Existing

3.17 HARDWARE "MSP TERMINAL LAN"

- Hardware Type	Ethernet Local Area Network
- Functions	Communication and transfer of data between computers and other devices at the MSP terminal
- Location	MSP terminal
- Data Name/Contents	For data specific to this system, see HARDWARE 3.11
- Data Type	Data
- Status	Existing

3.18 HARDWARE "CDC COMPUTER (POST ROAD)"

- Hardware Type	Pentium PC
- Functions	This hardware duplicates the CVCC (HARDWARE 3.10) functions and can operate the major functions of the system in case of a CVCC failure. Additionally the CDC: 1) Sends commands to another PC for video and voice dispatching inside the Superamerica convenience store. 2) Controls the messages on the Dispatching VMS's
- Location	Post Road
- Data Name/Contents	See Hardware 3.10
- Data Type	Data
- Status	Existing

3.19 HARDWARE "PC FOR DISPATCH MESSAGING"

- Hardware Type	PC with internal 16-bit sound card
- Functions	Displays Commercial vehicle owner and fender number to indicate that the taxi should enter the release queue Plays an audible message of the VMS text
- Location	Post Road taxi dispatch facility
- Data Name/Contents	1) Vehicle owner and unique fender ID number. 2) Spoken (digitally recorded) versions of the vehicle owner and fender ID number.
- Data Type	Data.
- Status	Existing.

3.20 HARDWARE "SCAN CONVERTER"

- Hardware Type: Electronic video signal format converter.
- Functions: Changes the VGA video output of the dispatch Messaging computer to NTSC composite video signals for use by a standard television monitor.
- Location: Post Road taxi dispatch facility.
- Data Name/Contents: Vehicle owner and unique fender ID number.
- Data Type: Data (video).
- Status: Existing.

3.21 HARDWARE "TV MONITOR"

- Hardware Type: Television set with composite (RCA jack) inputs.
- Functions: Display dispatch information to taxi operators.
- Location: Post Road taxi dispatch facility.
- Data Name/Contents: Vehicle owner and unique fender ID number to move to the release queue.
- Data Type: Data (video).
- Status: Existing.

3.22 HARDWARE "SPEAKER"

- Hardware Type: Audio Speaker.
- Functions: Announce dispatch information to taxi operators.
- Location: Post Road taxi dispatch facility.
- Data Name/Contents: Vehicle owner and unique fender ID number to move to the release queue.
- Data Type: Data (audio, digital recording).
- Status: Existing.

3.23 HARDWARE "TAXI QUEUE VMS"

- Hardware Type: Outdoor Variable Message Sign (five-line).
- Functions: Display dispatch information to taxi operators.
- Location: Post Road taxi dispatch facility.
- Data Name/Contents: Vehicle owner and unique fender ID number to move to the release queue.
- Data Type: Text.
- Status: Existing.

3.24 HARDWARE "TAXI RELEASE VMS"

- Hardware Type	Outdoor Variable Message Sign (five-line).
- Functions	Display dispatch information to taxi operators.
- Location	Post Road taxi dispatch facility.
- Data Name/Contents	Vehicle owner and unique fender ID number to leave the dispatch facility and proceed to the taxi queue at the MSP terminal.
- Data Type	Text.
- Status	Existing.

4.1 INTERFACE	ACTIVE RF TAG
- Connects to . . .	Card reader antennae
- Interface location	At MSP terminal commercial vehicle entrances/exits and at taxi dispatch facility entrances/exits at Post Road
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RF transmission
- Protocol/Standard	Proprietary manufacturers's protocol
- Information Type/Content	Tags receive a signal for antennae to transmit ID number; antennae receive ID numbers
- Information Direction	Both
- Information Frequency	As needed

4.2 INTERFACE	LOOP DETECTOR
- Connects to . . .	Dynapark Computer
- Interface location	MSP terminal commercial vehicle entry/exits and at taxi dispatch facility entrances/exits at Post Road
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Wire relay
- Information Type/Content	On/off message (vehicle presence)
- Information Direction	Both
- Information Frequency	Continuous

4.3 INTERFACE	GATE ARM
- Connects to . . .	Dynacount controller
- Interface location	MSP terminal commercial vehicle entry/exits and at taxi dispatch facility entrances/exits at Post Road
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Wire relay
- Information Type/Content	To gate: command to move arm up/down From gate: status of arm up/down
- Information Direction	Both
- Information Frequency	Continuous

4.4 INTERFACE	TAG READER ANTENNA
- Connects to . . .	RF transceivers
- Interface location	MSP terminal commercial vehicle entry/exits and at taxi dispatch facility entrances/exits at Post Road
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Wire lead
- Information Type/Content	Polling signal to cause tags to transmit is sent Tag ID number is received
- Information Direction	Both
- Information Frequency	Polling signal is sent continuously. Tag number is received as needed

4.5 INTERFACE	RF TRANSCEIVERS
- Connects to . . .	ADP's at lanes (AMC custom software in CDC)
- Interface location	MSP terminal commercial vehicle entry/exits and at taxi dispatch facility entrances/exits at Post Road
- Interface Type	Data
- Interface Direction	output
- Interface Component	Serial RS-232
- Information Type/Content	If a tag is read a signal indicating an entry or exit is sent to the Dynacount controller
- Information Direction	output
- Information Frequency	As needed

4.6 INTERFACE	DYNACOUNT CONTROLLERS
- Connects to . . .	Loop detectors
- Interface location	MSP terminal commercial vehicle entry/exits
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Copper wire
- Information Type/Content	Message indicating an entry or exit to the MSP terminal It is also possible to send a message back to the Dynacount controller to override the automated entry/exit sequence to prevent gate arms from opening or closing.
- Information Direction	Both
- Information Frequency	As needed

4.7 INTERFACE	ENTRY/EXIT CONTROLLERS (ADP's)
- Connects to . . .	CVCC Computer
- Interface location	MSP terminal
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Multimode fiber optic cable
- Information Type/Content	ADP's report entry/exit component status (tag read and ID read) and if an entry /exit has been recorded.
- Information Direction	Both
- Information Frequency	Continuous

4.8 INTERFACE	LAN
- Connects to . . .	1) CVCC Computer 2) Fee Workstation 3) WAN Bridge 4) Commercial Vehicle Administration Workstation 5) Form Printer 6) File Server 7) CDC computer
- Interface location	MSP Terminal
- Interface Type	Data
- Interface Direction	Both
- Interface Component	10 BaseT Ethernet cable
- Information Type/Content	All hardware components on this system pass their data across this interface. For specific descriptions, see Data Type/Content entries for HARDWARE 3.10 through 3.17
- Information Direction	Both
- Information Frequency	Continuous

4.9 INTERFACE	CVCC COMPUTER
- Connects to . . .	Taxi dispatch facility Dynacount controllers
- Interface location	MSP Terminal to MSP Post Road taxi dispatch facility
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Multimode fiber optic cable
- Information Type/Content	Messages indicating an entry or exit at the taxi dispatch facility.
- Information Direction	Both
- Information Frequency	As needed

4.10 INTERFACE	CVCC COMPUTER
- Connects to . . .	CDC Computer, LAN, Dispatch Kiosk (serial terminal)
- Interface location	MSP Terminal to MSP Post Road taxi dispatch facility
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Multimode fiber optic cable
- Information Type/Content	All system operational (i.e. entry/exit, Kiosk special request data, valid tag ID numbers) data is passed along this connection. The CDC receives this information from the CVCC at the MSP terminal. The CDC sends taxi dispatch-specific , such as message displayed or announced, information to the CVCC. If necessary this interface can be used to control the AVI system using the CDC instead of the CVCC
- Information Direction	Both
- Information Frequency	Continuous

4.11 INTERFACE	CDC COMPUTER
- Connects to . . .	PC for Messaging, CVCC for dispatch
- Interface location	Post Road taxi dispatch facility
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Multimode fiber optic cable
- Information Type/Content	Receives tag information from antenna, sends to CVCC via SPX conventional LAN. Command to select a message to display on the television monitor. Command to select a recording to play over the speaker.
- Information Direction	output
- Information Frequency	As needed

4.12 INTERFACE	PC FOR MESSAGING
- Connects to . . .	Speaker
- Interface location	Post Road taxi dispatch facility
- Interface Type	Audio
- Interface Direction	output
- Interface Component	Copper wire
- Information Type/Content	Prerecorded message which indicates which taxi fender number should move into the release queue
- Information Direction	output
- Information Frequency	As needed

4.13 INTERFACE	PC FOR MESSAGING
- Connects to . . .	VGA to NTSC Scan Converter
- Interface location	Post Road taxi dispatch facility
- Interface Type	Video
- Interface Direction	output
- Interface Component	VGA cable
- Information Type/Content	Text message which indicates which taxi fender number should move into the release queue
- Information Direction	output
- Information Frequency	As needed

4.14 INTERFACE	VGA TO NTSC SCAN CONVERTER
- Connects to . . .	TV Monitor
- Interface location	Post Road taxi dispatch facility
- Interface Type	Video
- Interface Direction	output
- Interface Component	RCA composite video cable
- Information Type/Content	Text message which indicates which taxi fender number should move into the release queue
- Information Direction	output
- Information Frequency	As needed

4.15 INTERFACE	CDC COMPUTER
- Connects to . . .	TV Monitor
- Interface location	Post Road taxi dispatch facility
- Interface Type	Video
- Interface Direction	output
- Interface Component	RCA composite video cable
- Information Type/Content	Text message which indicates which taxi fender number should move into the release queue
- Information Direction	output
- Information Frequency	As needed

4.16 INTERFACE	CDC COMPUTER
- Connects to . . .	Outdoor variable message signs (VMS) One taxi to release queue sign One taxi release sign
- Interface location	Post Road taxi dispatch facility
- Interface Type	Data
- Interface Direction	output
- Interface Component	RS-485
- Information Type/Content	Text message which indicates which taxi fender number should move into the release queue is displayed on the release queue sign Text message which indicates which taxi fender number leave the release queue and proceed to the terminal is displayed on the taxi release sign
- Information Direction	output
- Information Frequency	As needed

Supplement - Modified City of Minneapolis Parking Management System - Dynapark Documentation

3.6 HARDWARE "COUNT CONTROL SYSTEM COMPUTER"

- Hardware Type	Computer
- Functions	Runs Dynacount Software (Traffic and Safety)
- Location	Parking ramp offices (14 ramps)
- Data Name/Contents	Monitors parking system count information and system components status : gates, loops, full signs, alarms(low tickets, ticket in chute, gate open too long, loop detector on too long, back outs)
- Data Type	Data
- Status	Existing
- Other	Intel 386/486 computer-Latest DOS version with Windows

3.6.1 SOFTWARE "DYNACOUNT"

- Software Type	Count management software application
- Software Standards	Proprietary - Windows-based by Traffic and Safety, Detroit, MI
- Functions	Collects, controls, monitors and processes information from system components(gates, loops), activates full sign when appropriate, logs system events and produces reports for ramp manager review.
- Status	Existing
- Contact	Applied Management Corporation

3.6.2 SOFTWARE "DOS-LATEST VERSION"

- Software Type	Operating System
- Software Standards	DOS
- Functions	1) Control, PC hardware resources 2) Executes software applications
- Status	Existing

3.6.3 SOFTWARE "WINDOWS-LATEST VERSION"

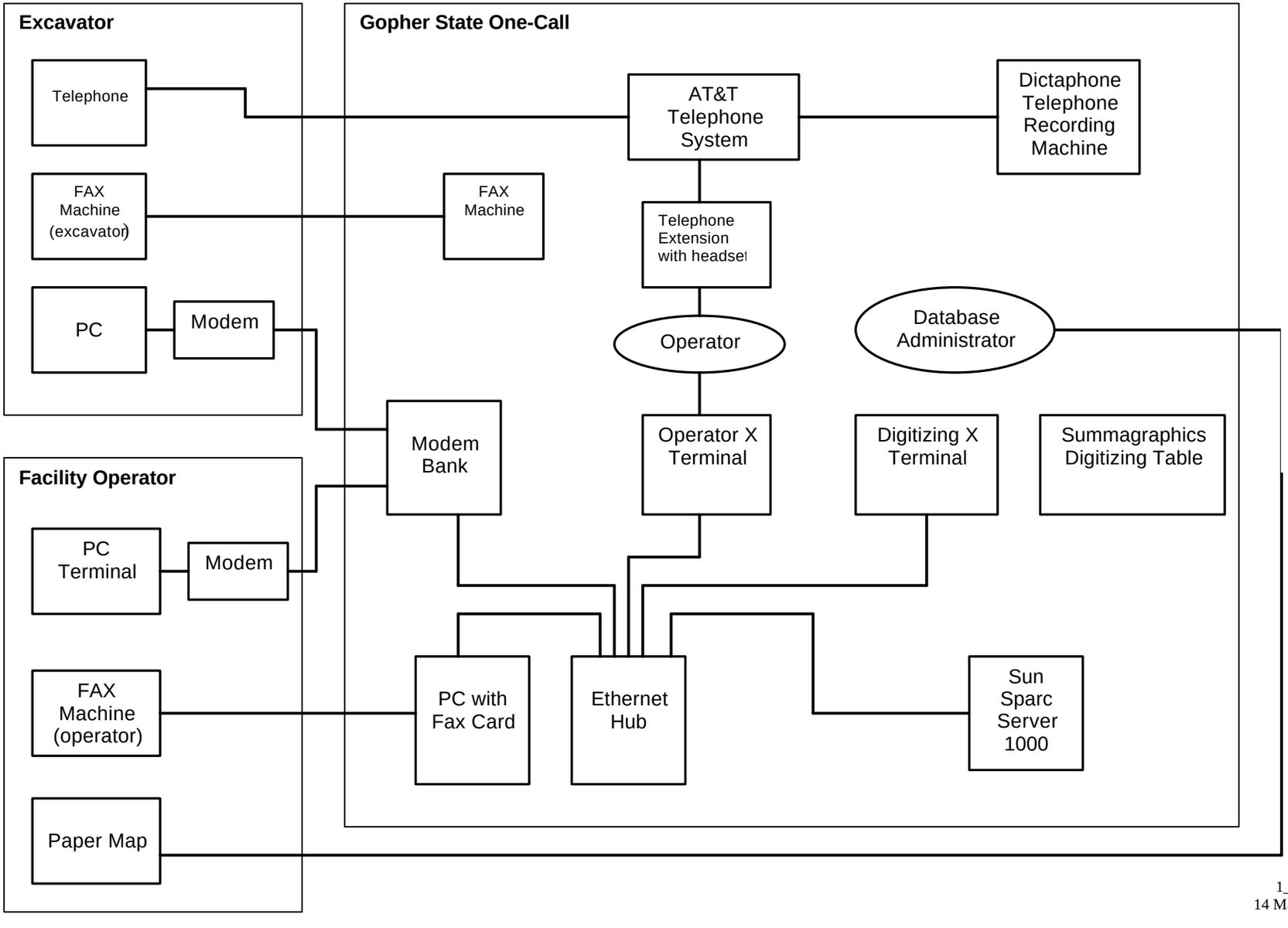
- Software Type	Operating System
- Software Standards	Windows
- Functions	1) Run applications 2) Provides graphical interface. 3) Controls operating system.
- Status	Existing

3.7 HARDWARE "COUNT CONTROL SYSTEM PRINTER"

- Hardware Type	Printer
- Functions	Print reports
- Location	Parking ramp office
- Data Name/Contents	Parking count information, event log (loop status, gate status, low tickets)
- Data Type	Data
- Status	Existing
- Other	Microline 320

3.8.5 GOPHER STATE ONE-CALL EXCAVATION NOTIFICATION SYSTEM

POLARIS As-Is Baseline Data Collection
Gopher State One-Call Excavation Notification System



AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "ONE CALL CONCEPTS"

- Agency Type	Private corporation
- Agency Functions	Operate "one call" information collection/ distribution systems. These systems are characterized by a single toll free telephone number which provides access to information from a central source for large geographic areas
- Agency Location(s)	2025 Centre Pointe Boulevard #310 Mendota Heights, MN 55120

2.0 SYSTEM "GOPHER STATE ONE-CALL"

- Date of As-Is Data Collection	March 20, 1996
- Purpose	Maintain a database of digitized maps showing approximate locations and jurisdictions of underground utilities/facilities. Collect requests throughout Minnesota for underground facility locations by excavators (48 hours minimum prior to excavating) Search the database for affected facility operators Notify facility operators that an excavation is planned Facility operators are responsible for marking actual location of underground facilites/utilities.
- Hours of Operation	24 hrs/day seven days/week.
- Geographic Coverage	Entire state of Minnesota
- Contacts	Jennifer Kirk Director of Education and Public Relations 2025 Centre Pointe Blvd. Suite 310 Mendota Heights, MN 55120 (612) 454-8388 (voice)
- Block Diagram	See attached

- Typical Operational Scenario	Facility locations are entered into the Gopher State One-Call system by a database administrator who digitizes polygons drawn on maps by individual facility operators. Once digitized, a map is printed and sent back to the facility operators who must check it for accuracy. Any person doing excavation is required by law to contact Gopher State One Call 48 hours (excluding weekends and holidays) prior to beginning work. Contact can take one of three forms: In the majority of cases, the excavator simply calls Gopher State One Call's toll free number (1-800-252-1166). An operator asks a set of predetermined questions and keys the information into the PRIZM database system. An excavator who is familiar with the process and information requested during the call may fax their information in. As above, the information is keyed into the PRlZM system manually. Several of the largest (i.e. NSP, Mn/DOT, communication service providers) users of the One-Call system have PCs with proprietary software written by One-Call Concepts which allows them to key excavation information directly into the system. The exact information requested is delineated on the attached copy of the "ticket format" Once excavation location data is entered into the system, a database search is performed to determine which underground facility operators have requested to be notified if excavation is to be performed in that location. The PRlZM system will then automatically fax (or alternately send via modem to a custom PC application) the ticket information to the appropriate facility operators. After the fax (or other transmission) is sent, Gopher State One-Call has no further interaction with either the facility operator or excavator. Facility operators must mark their own underground facilities they have in the area.

2.1 PERSONNEL "OPERATOR"

- Personnel Function	Communicates with excavators to get ticket information Enters information into the PRIZM system
- Quantity	50 to 60
- Location	Gopher State One-Call offices in Mendota Heights.
- Workload	This system is the sole responsibility of the operators
- Working hours	24 hrs/day in eight-hour shifts
- Status	Existing. More operators are added as necessary.

2.2 PERSONNEL "DATABASE ADMINISTRATOR"

- Personnel Function	Digitizes polygons drawn on maps by the facility operators.
- Quantity	One
- Location	Gopher State One-Call offices in Mendota Heights.

3.1 HARDWARE "TELEPHONE"

- Hardware Type	Voice communications telephone
- Functions	Communication of ticket information to One-Call operators
- Data Name/Contents	See attached example of ticket
- Data Type	Voice
- Status	Existing

3.2 HARDWARE "FAX MACHINE"

- Hardware Type	Document facsimile machine
- Functions	Sends ticket information to a fax machine at the One-Call offices in Mendota Heights
- Data Name/Contents	See attached example of ticket
- Data Type	Data
- Status	Existing
- Other	This is an alternative form of communication with Gopher State One-Call. It is used primarily by commercial contractors who are familiar with the One-Call system and the information needed

3.3 HARDWARE "PERSONAL COMPUTER"

- Hardware Type: Intel-based PC
- Functions: Runs One-Call software for direct input to the One-Call system
- Data Name/Contents: See attached ticket example
- Data Type: Data
- Status: Existing
- Other: This is an alternative form of communication with Gopher State One-Call. It is used primarily by high volume users of the system, such as NSP, Mn/DOT, and US West,

3.4.1 SOFTWARE "GOPHER STATE ONE-CALL DIAL-UP SOFTWARE"

- Software Type: Proprietary package which allows a remote PC to communicate with the PRIZM system
- Functions: Accepts user input for excavation information
  Communicates information to the PRIZM system
- Status: Existing

3.4 HARDWARE "MODEM"

- Hardware Type: Dial-up serial communications device
- Functions: Communications between excavator PC's and One-Call PRIZM system
- Data Name/Contents: See attached ticket example
- Data Type: Data
- Status: Existing

3.5 HARDWARE "FAX MACHINE"

- Hardware Type: Telephone document facsimile machine
- Functions: Receives fax documents containing ticket information from excavators
- Location: Gopher State One-Call offices in Mendota Heights.
- Data Name/Contents: See attached ticket example
- Data Type: Data
- Policies: Existing

3.6 HARDWARE "AT&T DEFINITY TELEPHONE SYSTEM"

- Hardware Type: Multi-line telephone switching and management system
- Functions: Receives incoming calls and routes to an available extension
- Location: Gopher State One-Call offices in Mendota Heights.
- Data Name/Contents: See attached ticket example
- Data Type: Voice
- Status: Existing

3.7 HARDWARE "DICTAPHONE TELEPHONE RECORDING MACHINE"

- Hardware Type: Multi-track audio tape recording machine with telephone system interface
- Functions: Records all telephone conversation
- Location: Gopher State One-Call offices in Mendota Heights
- Data Name/Contents: See attached ticket example
- Data Type: Voice
- Status: Existing

3.8 HARDWARE "TELEPHONE EXTENSION WITH HEADSET"

- Hardware Type: Telephone extension set with a dialing keypad, intercom controls, and a headphone/ microphone combination headset
- Functions: Communication with excavators via telephone
  Access to the AT&T Definity telephone switcher
- Location: Gopher State One-Call offices in Mendota Heights
- Data Name/Contents: See attached ticket example
- Data Type: Voice
- Status: Existing

3.9 HARDWARE "MODEM BANK"

- Hardware Type: Cabinet containing approximately 15 modems
- Functions: Receive incoming ticket information from excavators equipped with PC's and modems
  Send fax documents of ticket information to facility operators
- Location: Gopher State One-Call offices in Mendota Heights
- Data Name/Contents: See attached ticket example
- Data Type: Data
- Status: Existing

3.10 HARDWARE "OPERATOR X TERMINAL"

- Hardware Type	Diskless UNIX X-windows Terminal
- Functions	Accepts operator input from the excavator Displays maps of selected area (anywhere in Minnesota) and allows operators to draw polygons of the excavation area.
- Location	Gopher State One-Call offices in Mendota Heights
- Data Name/Contents	This hardware accepts operator input of ticket information. Terminal can also display maps of the excavation area described by the caller and overlay Township/Range grids to help Identify locations if necessary.
- Data Type	Data
- Status	Existing

3.10.1 SOFTWARE "PRIZM"

- Software Type	This is a proprietary Database/GIS package created by One-Call Concepts
- Functions	On these workstations, the software displays data entry forms for the operator to fill in with the appropriate data. Also, the software will display a map of an excavation area, on which the operator can draw a polygon to indicate the spatial limits of a database search.
- Status	Existing

3.11 HARDWARE "DIGITIZING X WINDOWS TERMINAL"

- Hardware Type	Diskless X Windows terminal
- Functions	Database Administrator uses this terminal to digitize polygons drawn on maps by the underground facilities operators to indicate locations of their facilities.
- Location	Gopher State One-Call offices in Mendota Heights
- Data Name/Contents	Spatial data showing approximate locations of underground facilities
- Data Type	Data
- Other	Gopher State One-Call does not maintain data of exact positions of facilities. One-Call requests only that facility operators indicate areas where they would like notification if excavation occurs. One-Call does not maintain data of the type or exact location of any underground facility.

3.11.1 SOFTWARE "PRIZM"

- Software Type	This is a proprietary Database/GIS package created by One-Call Concepts
- Functions	On this workstation, the PRIZM software accepts coordinate data from digitizing hardware Allows coordinate registration and performs projection transformations to align facility operator provided data with the spatial data in One-Call's database
- Status	Existing

3.12 HARDWARE "DIGITIZING TABLE"

Hardware Type	Summagraphics Microgrid III digitizing table with corded cursor
- Functions	Input of coordinate data from hard copy sources (maps in this case).
- Location	Gopher State One-Call offices in Mendota Heights
- Data Name/Contents	Spatial data showing approximate locations of underground facilities
- Data Type	Data
- Status	Existing

3.13 HARDWARE "PC WITH FAX CARD"

- Hardware Type	Intel-based PC with internal fax card
- Functions	Sends ticket information to facility operator
- Quantity	One
- Location	Gopher State One-Call offices in Mendota Heights
- Data Name/Contents	See attached ticket example
- Data Type	Data (fax protocol)
- Status	Existing

3.13.1 SOFTWARE "FAX COMMUNICATIONS SOFTWARE"

- Software Type	Facsimile rasterizer/communications protocol
- Functions	Sends ticket information to facility operators

3.14 HARDWARE "ETHERNET HUB"

- Hardware Type	Ethernet network hub/concentrator
- Functions	Manages movement of data across network
- Location	Gopher State One-Call offices in Mendota Heights
- Data Name/Contents	All of above
- Data Type	Data
- Status	Existing

3.15 HARDWARE "NETWORK APPLICATION SERVER"

- Hardware Type	Sun Sparc Server 1000
- Functions	Acts as application server for the PRIZM system software.
- Quantity	One
- Location	Gopher State One-Call offices in Mendota Heights
- Data Name/Contents	All ticket and spatial data for the system resides here.
- Data Type	Data
- Recommended Improvements	Will be replaced by Sun Microsystems model Sparc Server 1000E
- Status	Existing

3.15.1 SOFTWARE "UNIX (UNKNOWN VARIANT, PROBABLY SUN OS)"

- Software Type: Operating system/network OS
- Functions: Provides network software connectivity between server and X Windows terminals
  Manages application server functions
- Status: Existing

3.15.2 SOFTWARE "PRIZM"

- Software Type: This is a proprietary Database/GIS package created by One-Call Concepts
- Functions: On the server, this software stores the databases that must be searched to determine which facility operators must be notified of excavation
  It is not clear if database functions are hosted by this machine or if they are performed locally at the workstation.
- Status: Existing

3.16 HARDWARE "PC TERMINAL"

- Hardware Type: Intel based personal computer
- Functions: Receives Ticket information from Gopher State One-Call
- Location: Facility operator's offices
- Data Name/Contents: See attached ticket example
- Data Type: Data
- Status: Existing

3.16.1 SOFTWARE "PRIZM RECEIVER"

- Software Type: This is a proprietary remote access package created by One-Call Concepts
- Functions: Receives ticket data from the One-Call modem bank
  Displays data to the facility operators
- Status: Existing

3.17 HARD WARE "MODEM"

- Hardware Type	Dial-up serial communications device
- Functions	Receives information from the One-Call modem bank Can also be used to submit tickets when a facility operator also needs to excavate
- Location	Facility operator's offices
- Data Name/Contents	See attached ticket example
- Data Type	Data
- Status	Existing

3.18 HARDWARE "FAX MACHINE"

- Hardware Type	Stand-alone telephone-based document facsimile machine
- Functions	Sends ticket information to facility operator
- Location	Facility operator's offices
- Data Name/Contents	See attached ticket example
- Data Type	Data (fax protocol)
- Status	Existing

3.19 HARDWARE "PAPER MAP"

- Hardware Type	Any paper map, with any scale or projection
- Functions	The areas in which the facility operator desires notification if excavation occurs are drawn onto paper maps and sent to Gopher State One-Call for digitizing.
- Quantity	As many as needed
- Data Name/Contents	Polygons representing the areas of interest for facility operators.
- Data Type	Graphic hard-copy
- Status	Existing

4.1 INTERFACE	EXCAVATOR TELEPHONE
- Connects to . . .	Gopher State One-Call AT&T Telephone System
- Interface Type	Voice
- Interface Direction	Both
- Interface Component	US West telephone line
- Information Type/Content	See attached ticket example
- Information Direction	output
- Information Frequency	As needed

4.2 INTERFACE	EXCAVATOR FAX MACHINE
- Connects to . . .	Gopher State One-Call Fax Machine
- Interface Type	Data
- Interface Direction	Both
- Interface Component	US West telephone line
- Information Type/Content	See attached ticket example
- Information Direction	output
- Information Frequency	As needed

4.3 INTERFACE	PC (EXCAVATOR)
- Connects to . . .	Modem (excavator)
- Interface location	At excavator's office
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232 Serial
- Information Type/Content	See attached ticket example
- Information Direction	output
- Information Frequency	As needed

4.4 INTERFACE	MODEM
- Connects to . . .	Modem bank
- Interface Type	Data
- Interface Direction	Both
- Interface Component	US West telephone line
- Information Type/Content	See attached ticket example
- Information Direction	output
- Information Frequency	As needed

4.5 INTERFACE	AT&T TELEPHONE SYSTEM
- Connects to . . .	Dictaphone Telephone Recording Machine
- Interface location	Gopher State One-Call offices in Mendota Heights
- Interface Type	Voice
- Interface Direction	output
- Interface Component	unknown
- Information Type/Content	All telephone communication (generally restricted to ticket information)
- Information Direction	output
- Information Frequency	Continuous

4.6 INTERFACE	AT&T TELEPHONE SYSTEM
- Connects to . . .	Telephone Extension with Headset
- Interface location	Gopher State One-Call offices in Mendota Heights
- Interface Type	Voice
- Interface Direction	Both
- Interface Component	Unknown, but probably four-wire telephone wire (RI- 14)
- Information Type/Content	Ticket data from excavators
- Information Direction	output
- Information Frequency	As needed

4.7 INTERFACE	ETHERNET HUB
- Connects to . . .	Operator X Windows Terminal
- Interface location	Gopher State One-Call offices in Mendota Heights
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Thinnet ethernet cable
- Information Type/Content	Ticket data is received PRIZM software is sent to workstations Spatial data and maps are sent to workstations
- Information Direction	Both
- Information Frequency	Continuous

4.8 INTERFACE	ETHERNET HUB
- Connects to . . .	Digitizing X Windows Terminal
- Interface location	Gopher State One-Call offices in Mendota Heights
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Thinnet ethernet cable
- Information Type/Content	PRIZM software is sent to the workstations Coordinate data for facility location is sent through this interface to the server
- Information Direction	Both
- Information Frequency	Continuous

4.9 INTERFACE	ETHERNET HUB
- Connects to . . .	Sun Sparc Server 1000
- Interface location	Gopher State One-Call offices in Mendota Heights
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Thinnet ethernet cable
- Information Type/Content	All PRIZM software is stored on this server and sent to the workstations to be run locally All ticket data is sent to the server on this interface Coordinate data for locations of facilities is sent to the server on this interface
- Information Direction	Both
- Information Frequency	Continuous

4.10 INTERFACE	ETHERNET HUB
- Connects to . . .	Modem Bank
- Interface location	Gopher State One-Call offices in Mendota Heights
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Thinnet ethernet cable
- Information Type/Content	Incoming data from excavators using PC terminals to enter ticket data Outgoing ticket data to facility operators with PRIZM terminals at their locations
- Information Direction	Both
- Information Frequency	Continuous

4.11 INTERFACE	ETHERNET HUB
- Connects to . . .	PC with Fax Card
- Interface location	Gopher State One-Call offices in Mendota Heights
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Thinnet ethernet cable
- Protocol/Standard	Ticket data to be faxed to facility operators who do not use PCs with the PRIZM software to receive information
- Information Direction	Both
- Information Frequency	Continuous

4.12 INTERFACE	MODEM BANK
- Connects to . . .	Modem (facility operator)
- Interface Type	Data
- Interface Direction	Both
- Interface Component	US West telephone line
- Information Type/Content	Both incoming and outgoing ticket data can use this interface
- Information Direction	Both

4.13 INTERFACE	MODEM
- Connects to . . .	PC
- Interface location	At facility operator
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232 serial cable
- Information Type/Content	Both incoming and outgoing ticket data can use this interface
- Information Direction	Either input or output
- Information Frequency	As needed

4.14 INTERFACE	FAX MACHINE (ONE-CALL)
- Connects to . . .	Fax machine (facility operator)
- Interface Type	Data
- Interface Direction	Both
- Interface Component	US West telephone line
- Information Type/Content	Ticket data sent to facility operators for those who do not have a PC to receive data
- Information Direction	output
- Information Frequency	As needed

4.15 INTERFACE	PAPER MAP
- Connects to . . .	Database Administrator
- Interface Type	Paper hard copy
- Interface Direction	output
- Interface Component	USPS Mail
- Information Type/Content	Maps showing the areas that facility operators must be notified if excavation occurs within. Areas are shown as polygons.
- Information Direction	output
- Information Frequency	As needed

GOPHER STATE ONE-CALL
TICKET FORMAT

METRO AREA: 454-0002
IN /OR OUT OF MINNESOTA: 800-252-1166

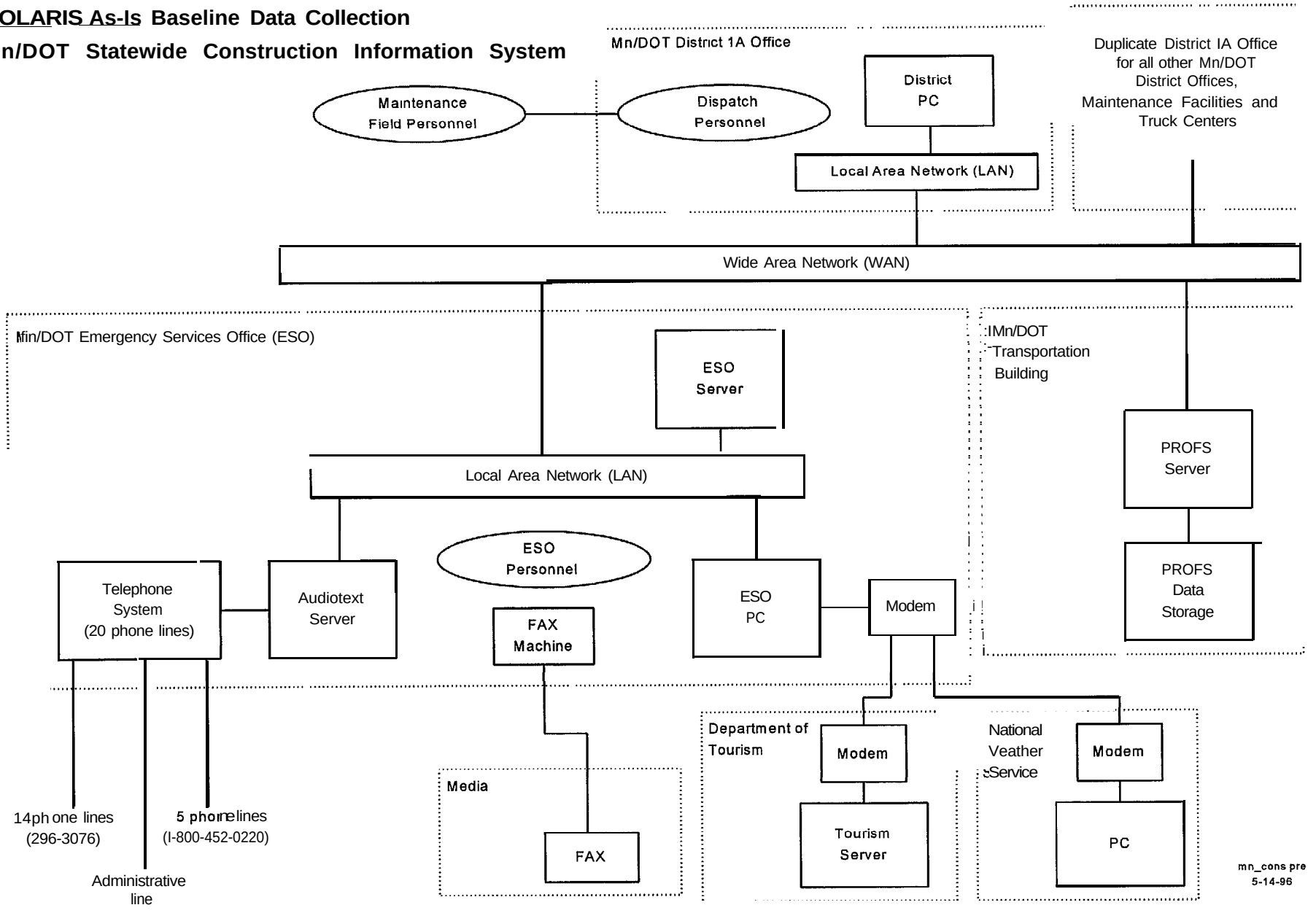
1. Type of call being placed: TICKET NO._____
   [] Excavation [] Planning excavation
   [] Excavation Appointment [] Surveying
   [] Emergency
2. Phone number_____ Ext.___Caller ID number _____
3. Caller name _____
   Company name _____
4. Mailing Address _____
   City_____State_____Zip _____
5. Alternate contact name- _____Phone _____
   Best time to contact _____
6. Work to begin date_____Time _____
7. Explosives (Y/N)- _____
8. R.O.W. (Y/N) _____
9. Duration of excavation _____
10. Type of work _____
    _____
11. Work being done for _____
12. County--_____-City/Place _____
13. Address_____Street _____
14. Marking instructions _____
    _____
    _____
15. Remarks _____
    _____
16. Township_____ Range_____Section._____Quarter _____
    Township_____ Range_____ Section ____ Quarter _____

REV. 3-91

3.8.6 MN/DOT STATEWIDE CONSTRUCTION INFORMATION SYSTEM

POLARIS As-Is Baseline Data Collection

Mn/DOT Statewide Construction Information System



AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "MN/DOT EMERGENCY SERVICES OFFICE"

- Agency Type	Emergency Services Office
- Agency Functions	Provide weather and construction information
- Agency Location(s)	100 Stockyards Road South St. Paul, MN 55075
- Contacts	Darrel L. Schierman

2.0 SYSTEM "MN/DOT STATEWIDE CONSTRUCTION INFORMATION"

- Date of As-Is Data Collection	2-12-96
- Purpose	Provide statewide construction information to all Mn/DOT Districts and the general public.
- Hours of Operation	7:30 AM to 4:30 PM Weekdays - May 1 to November 1
- Geographic Coverage	System covers all interstate, trunk highway and scenic routes in the state.
- Contacts	Darrel L. Schierman - Director Road and Vehicle Information and Service Mail Stop 415, Room 152 100 Stockyards Road South St. Paul, MN 55075 612-552-7535 (voice) 612-297-1908 (fax) 612-640-2609 (pager)
- Status	Existing
- Recommended Improvements	It is hoped that the new road weather information system that is being field tested will be able to be used for construction information.
- Block Diagram	See attached

- Typical Operational Scenario	1) The construction field personnel uses either radio or cellular phone communication to the dispatch personnel and reports and construction activities 2) The dispatch personnel writes the information down for entry into the E-mail system. 3) The dispatch personnel uses the office vision E-mail system (PROFS) and inputs the information into a standardized screen. The dispatch personnel then broadcasts the information to the Emergency Services Office (ESO). 4) ESO personnel receive the information from all districts and produce a summary report. The summary report is then broadcast over the PROFS system to all district offices , maintenance facilities and truck centers. 5) Information is put on the audio text server for access by the general public using the telephone. 6) The ESO also faxes the summary report to the media. 7) The information is also uploaded to the Department of Tourism server and the National Weather Service.

2.1 PERSONNEL "DIRECTOR"

- Personnel Function	Oversee operation of road construction information system.
- Quantity	1
- Location	Emergency Services Office - Truck center Mail Stop 415, Room 152 100 Stockyards Road South St. Paul, MN 55075
- Working Hours	Normal business hours
- Status	Existing
- Contact	Darrel L. Schierman

2.2 PERSONNEL "TECHNICIAN/SUPERVISOR"

- Personnel Function	1) Summarize information from all districts. 2) Input information into the audio text server. 3) Fax information to media. 4) Upload information to the Department of Tourism server and National Weather System computer.
- Quantity	1
- Location	Truck Center
- Working Hours	Normal business hours
- Status	Existing

2.3 PERSONNEL "DISPATCH PERSONNEL"

- Personnel Function	Monitor communication with construction and maintenance personnel and enter information into the database.
- Quantity	1
- Location	District office dispatch center
- Working Hours	24 hours per day
- Status	Existing

2.4 PERSONNEL "MAINTENANCE FIELD PERSONNEL"

- Personnel Function	Communicate construction and maintenance information to the dispatch personnel from maintenance vehicle.
- Location	In field
- Workload	Variable
- Working Hours	Variable
- Status	Existing

3.1 HARDWARE "DISTRICT PC"

- Hardware Type	Personal computer
- Functions	(1) Runs office vision (PROFS) (2) Runs Microsoft Access software (3) Other office functions
- Location	District office dispatch center
- Data Name/Contents	Construction information data entered by the dispatch personnel. Existing system data: There is a standard screen for data input, the terminology and completeness of information was not always consistent. The information contained in the E-mail generally includes project limits, type of construction, effect on traffic and estimated completion date.
- Data Type	Data
- Status	Existing
- Other	386 or 486 (if upgraded) PC

3.1.1 SOFTWARE "OFFICE VISION (PROFS)"

- Software Type	Data interchange
- Software Standards	Electronic mail
- Functions	Allows user to send and receive information from any MN/DOT office or facility.
- Status	Existing

3.2 HARDWARE "EMERGENCY SERVICES OFFICE (ESO) PC"

- Hardware Type	Personal computer
- Functions	(1) Runs office vision (PROFS) (2) Runs Crosstalk for Windows (3) Other office functions
- Location	ESO office
- Data Name/Contents	Construction information broadcast on PROFS system.
- Data Type	Data
- Status	Existing
- Other	Compaq 486- 66 MHz

3.2.1 SOFTWARE "OFFICE VISION (PROFS)"

- Software Type	Data interchange
- Software Standards	Electronic mail
- Functions	Allows user to send and receive information from any MN/DOT office or facility.
- Status	Existing

3.2.2 SOFTWARE "CROSSTALK FOR WINDOWS"

- Software Type	Communications software
- Software Standards	Other
- Functions	Used to upload map images to the Department of Tourism server.
- Status	New

3.3 HARDWARE "AUDIOTEXT SERVER"

- Hardware Type	PC
- Functions	Stores
- Location	ESO office
- Data Name/Contents	Audiotext for dial-up phone line service
- Data Type	Data
- Status	Existing

3.4 HARDWARE "TELEPHONE SYSTEM"

- Hardware Type: Telephone audiotext processor and telephone line selector.
- Functions: Processes audiotext responses and controls telephone line off-hook, on-hook.
- Location: ESO office
- Data Name/Contents: Audiotext responses
- Data Type: Digitized voice
- Status: Existing
- Other: Local access number - 296-3076
  Toll free access number l-800-452-0220
  1) Touch tone menu
     1- North
     2- Central
     3- South
     4- Twin Cities metro area
  2) Total of 20 phone lines
     one is used for administrative purposes
     five 800 ready lines

3.5 HARDWARE "FAX MACHINE"

- Hardware Type: Fax machine
- Functions: Sends summary reports to media.
- Location: ESO office
- Data Name/Contents: Summary pavement conditions and weather information.
- Data Type: Data
- Status: Existing

3.6 HARDWARE "ESO MODEM"

- Hardware Type: Modem 28.8 baud
- Functions: Uploads information to the Department of Tourism server and the National Weather Service
- Location: ESO office
- Data Name/Contents: Pavement conditions and weather information
- Data Type: Data
- Status: Existing

3.7 HARDWARE "ESO SERVER"

- Hardware Type	PC
- Functions	Stores
- Location	MN/DOT Transportation Building
- Data Name/Contents	All MN/DOT electronic mail
- Data Type	Data
- Status	Existing

3.8 HARDWARE "PROFS SERVER"

- Hardware Type	PC
- Functions	Database for pavement condition and weather information
- Location	MN/DOT Transportation Building
- Data Name/Contents	All MN/DOT electronic mail
- Data Type	Data
- Status	Existing

3.8.1 SOFTWARE "PROFS DATABASE"

- Software Type	Database
- Software Standards	ODBC
- Functions	Stores database of pavement condition and weather information..
- Status	Existing
- Other	Oracles NLM 7.1

3.9 HARDWARE "NATIONAL WEATHER SERVICE MODEM'

- Hardware Type	Modem
- Functions	Uploads information to the Department of Tourism server and the National Weather Service
- Location	ESO office
- Data Name/Contents	Pavement conditions and weather information
- Data Type	Data
- Status	Existing
- Other	It was stated in the interview this modem was slow possibly 2400 baud.

3.10 HARDWARE "DEPARTMENT OF TOURISM"

See the documentation for the system: Minnesota Department of Tourism Information Center Kiosks

4.1 INTERFACE	Maintenance field personnel
- Connects to . . .	Dispatch personnel
- Interface location	In field/district office
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Cellular telephone and/or radio
- Information Type/Content	Pavement condition and weather information
- Information Direction	Both
- Information Frequency	As needed

4.2 INTERFACE	Local area network (LAN)
- Connects to . . .	Connect office computers
- Interface location	District office
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Ethernet or token ring
- Protocol/Standard	Novell,TCP/IP, IPX
- Information Type/Content	Pavement condition and weather information
- Information Direction	Both
- Information Frequency	As needed
- Information Standards	See database structure

4.3 INTERFACE	Wide area network
- Connects to . . .	All Mn/DOT district offices, maintenance facilities and truck centers
- Interface location	Transportation Building in St. Paul
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Tl phone line (leased continuous operation at 1.544 Megabits per second with 768Kbps dedicated to data transfer at most locations)
- Protocol/Standard	Novell,TCP/IP, IPX
- Information Type/Content	Pavement condition and weather information
- Information Direction	Both
- Information Frequency	As needed
- Information Standards	See database structure

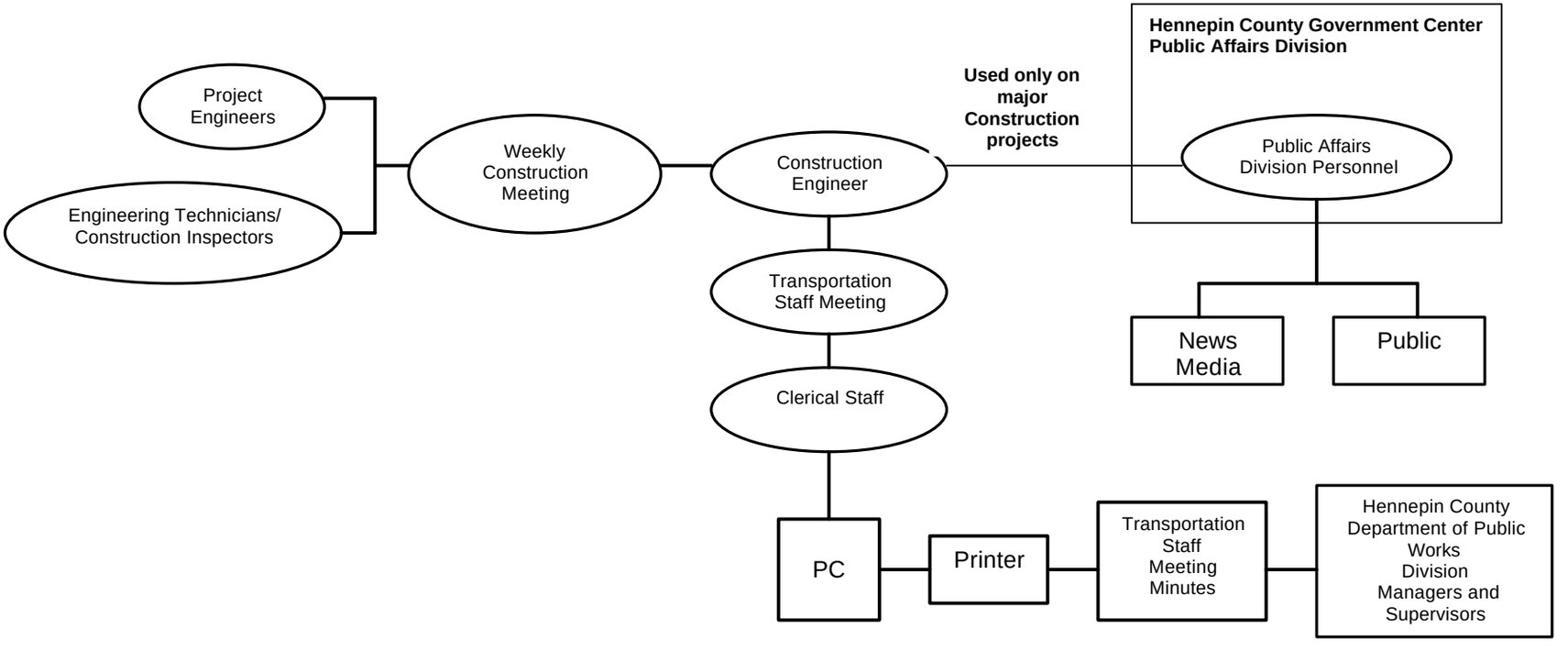
4.4 INTERFACE	Audiotext server
- Connects to . . .	Telephone system
- Interface location	ESO office
- Interface Direction	Both
- Information Type/Content	Audiotext messages
- Information Direction	output
- Information Frequency	As needed

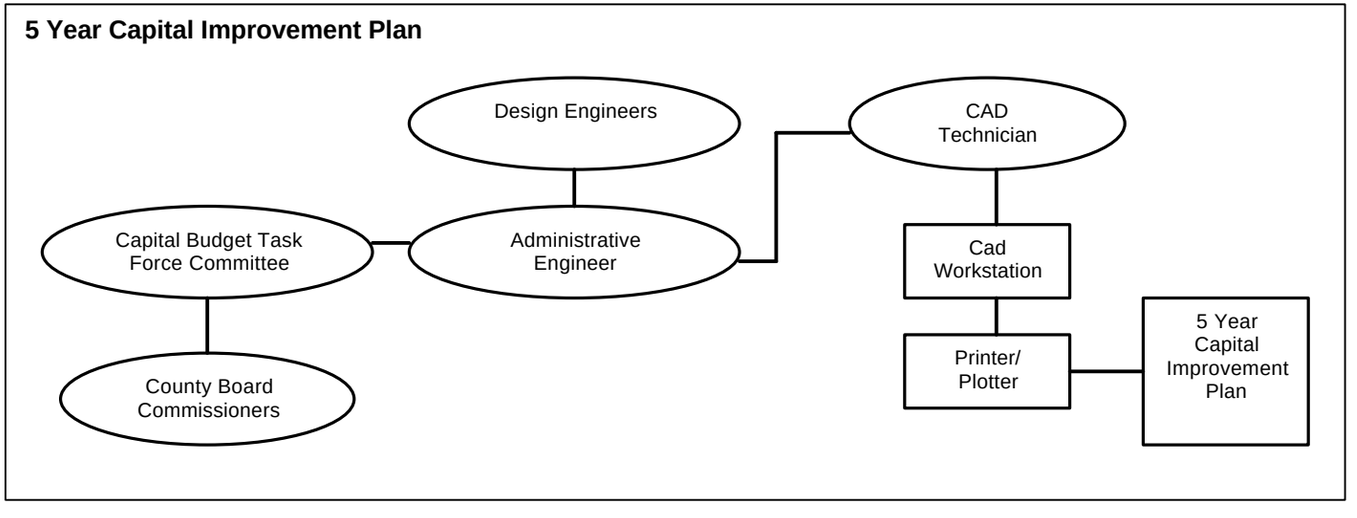
4.5 INTERFACE	ESO fax machine
- Connects to . . .	Media fax machine
- Interface location	ESO office/Media office
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Service provider
- Information Type/Content	Pavement condition and weather information
- Information Direction	output
- Information Frequency	As needed

4.6 INTERFACE	ESO Modem
- Connects to . . .	Department of Tourism modem and National Weather Service modem
- Interface location	ESO office, Department of Tourism and National Weather Service
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Modem via service provider
- Information Type/Content	Pavement condition and weather information
- Information Direction	output
- Information Frequency	As needed

3.8.7 HENNEPIN COUNTY CONSTRUCTION INFORMATION SYSTEM

POLARIS As-Is Baseline Data Collection
Hennepin County Construction Information System





Hen_cons.pre
20 March, 1996

AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "HENNEPIN COUNTY - DEPARTMENT OF PUBLIC WORKS"

- Agency Type	County government - Department of Public Works - Transportation Division
- Agency Functions	Manage traffic operations, planning, construction and maintenance.
- Agency Location(s)	320 Washington Avenue South Hopkins, MN 55343

2.0 SYSTEM "HENNEPIN COUNTY CONSTRUCTION INFORMATION SYSTEM"

- Date of As-Is Data Collection	2/20/96
- Purpose	1) Develop 5 year Capital Improvement Plan (CIP). 2) Collect information regarding existing construction projects in Hennepin County and distribute to county division managers and supervisors. 3) Provide information to the county Public Affairs Division on certain construction projects.
- Hours of Operation	Not applicable
- Geographic Coverage	Hennepin County designated roadways and other construction projects using county funding.
- Contacts	Dharam Bobra 320 Washington Avenue South Hopkins, MN 55343 (612) 930-2537 (voice) (612) 930-2513 (fax)
- Status	Existing
- Constraints	There is not enough funding or manpower for any improvement to the existing construction information system. Hennepin County would not be able to contribute funding for an ITS related project.
- Recommended Improvements	No improvements were recommended by the interviewee.
- Block Diagram	See attached

- Typical Operational Scenario	1) The county develops a 5 year Capital Improvement Plan. A list of construction projects that are planned and an estimate of the construction costs prepared by the design engineer(s) are reviewed by the capital budget task force committee. The committee, with input from the county board commissioners, recommends the projects for the 5 year CIP. A map is produced each year showing the construction projects and year of funding. Construction projects that are not funded in the 5 year Capital Improvement Plan are also shown. 2) The county construction personnel have weekly meetings for management of projects that are currently under construction. The meetings are attended by the construction engineer, inspectors, engineering technicians and the project engineer. The construction engineer reports the status of the current construction projects at the weekly/biweekly transportation staff meetings. The minutes from the staff meeting are typed by clerical personnel. The meeting notes are distributed to the managers and supervisor in all county divisions. 3) For large construction projects with significant traffic impacts the public affairs division will be used to distribute information concerning the project to the public and news media. This information typically contains a map of the project area, description of the project and right-of-way information.

2.1 PERSONNEL "CONSTRUCTION ENGINEER"

- Personnel Function	Oversee all construction projects and report the status of the projects to transportation staff.
- Quantity	1
- Status	Existing
- Other	There are approximately 45 people working in the construction department as project engineers, construction inspectors, engineering technicians and surveyors.

2.2 PERSONNEL "PROJECT ENGINEER"

- Personnel Function	Oversee project construction and report status to construction engineer.
- Status	Existing

2.3 PERSONNEL "ENGINEERING TECHNICIAN / CONSTRUCTION INSPECTOR"

- Personnel Function	Oversee project construction and report status to project engineer and/or construction engineer.
- Status	Existing

2.4 PERSONNEL "PUBLIC RELATIONS PERSONNEL"

- Personnel Function	Distribute information on major construction projects to the general public and the news media.
- Location	Hennepin County Government Center 300 South 6th Street Minneapolis MN
- Status	Existing
- Other	Did not collect any information concerning the size, scale or extent of a construction project that would have involvement from the Public Affairs Division.

2.5 PERSONNEL "CLERICAL STAFF"

- Personnel Function	Receives meeting minutes/notes from the transportation division staff meeting and prepares document for inter-office distribution. The notes are sent to all Hennepin County division managers and supervisors.
- Status	Existing

2.6 PERSONNEL "ADMINISTRATIVE ENGINEER"

- Personnel Function	Provides input to the development of the 5 year Capital Improvement Plan. Oversees the creation of the yearly map and other related documents.
- Quantity	1
- Status	Existing
- Other	The capital budget task force committee, with input from the county board commissioners and design engineers, makes the decision on what projects are selected for the 5 year Capital Improvement Plan.

2.7 PERSONNEL "TECHNICIAN(S)"

- Personnel Function	Provides construction and cost information to the administrative engineer for the development of the 5 year Capital Improvement Plan.
- Status	Existing

2.8 PERSONNEL "CAPITAL BUDGET TASK FORCE COMMITTEE"

- Personnel Function	Recommends construction projects for inclusion in the 5 year Capital Improvement Plan.
- Status	Existing

2.9 PERSONNEL "COUNTY BOARD COMMISSIONERS"

- Personnel Function	Provides input to the capital budget task force committee on development of the 5 year Capital Improvement Plan.
- Status	Existing

2.10 PERSONNEL "CAD TECHNICIAN"

- Personnel Function	Creates map showing project location, type of construction and year of construction for the 5 year Capital Improvement Plan.
- Status	Existing

3.1 HARDWARE "COMPUTER"

- Hardware Type	Computer
- Functions	Used to create the meeting minutes from the transportation division staff meeting.
- Data Name/Contents	Meeting notes which include the status of construction projects in the county.
- Data Type	Data
- Status	Existing
- Recommended Improvements	None

3.2 HARDWARE "PRINTER"

- Hardware Type	Printer
- Functions	Creates hard copy of the weekly/bi-weekly transportation division staff meeting minutes for distribution through the interoffice mail system.
- Data Type	Text
- Status	Existing

3.3 HARDWARE "CAD WORKSTATION"

- Hardware Type	Cad workstation
- Functions	Creates a hard copy of the weekly/bi-weekly transportation division staff meeting notes for distribution through interoffice mail.
- Data Type	Text
- Status	Existing
- Others	Map is produced using Ultimap system.

3.4 HARDWARE "PLOTTER"

- Hardware Type	Plotter
- Functions	Plot map of 5 year Capital Improvement Plan.
- Data Type	Text
- Status	Existing

4.1 INTERFACE	CONSTRUCTION MEETINGS
- Connects to . . .	Construction engineer, project engineers, engineering technicians and construction inspectors
- Interface location	Meeting location
- Interface Type	Paper (meeting notes)
- Interface Direction	output
- Interface Component	Person to person
- Information Type/Content	Construction project status
- Information Direction	output
- Information Frequency	Weekly meetings

4.2 INTERFACE	TRANSPORTATION STAFF MEETINGS
- Connects to . . .	Construction Engineer
- Interface location	Meeting location
- Interface Type	Paper (meeting notes)
- Interface Direction	output
- Interface Component	Person to person
- Information Type/Content	Construction project status
- Information Direction	output
- Information Frequency	Weekly / bi-weekly meetings

4.3 INTERFACE	TRANSPORTATION STAFF MEETINGS
- Connects to . . .	Clerical staff
- Interface location	Hennepin County Department of Public Works
- Interface Type	Paper (meeting notes)
- Interface Direction	Input
- Interface Component	Hand delivered
- Information Type/Content	Construction project status and meeting notes.
- Information Direction	Input
- Information Frequency	Weekly / bi-weekly

4.4 INTERFACE	COMPUTER
- Connects to . . .	Printer
- Interface location	Hennepin County Department of Public Works
- Interface Type	Data, text hard copy
- Interface Direction	output
- Interface Component	Parallel cable
- Protocol/Standard	Parallel
- Information Type/Content	Construction project status and meeting notes.
- Information Direction	output
- Information Frequency	Weekly / bi-weekly

4.5 INTERFACE	CLERICAL STAFF
- Connects to . . .	Hennepin County division managers and supervisors
- Interface location	Hennepin County Department of Public Works
- Interface Type	Text hard copy
- Interface Direction	output
- Interface Component	Interoffice mail
- Information Type/Content	Construction project status and meeting notes.
- Information Direction	output
- Information Frequency	Weekly / bi-weekly

4.6 INTERFACE	CONSTRUCTION ENGINEER
- Connects to . . .	Hennepin County Public Affairs Division
- Interface location	Hennepin County Department of Public Works and Hennepin County Government Center
- Interface Type	Interoffice mail
- Interface Direction	output
- Interface Component	Interoffice mail
- Protocol/Standard	N/A
- Information Type/Content	Project location, map, description of project and right-of-way information.
- Information Direction	output
- Information Frequency	As needed
- Other	Did not collect any information concerning the size, scale or extent of a construction project that would have involvement from the Public Affairs Division.

4.7 INTERFACE	ADMINISTRATIVE ENGINEER
- Connects to . . .	Design engineer
- Interface location	Hennepin County Department of Public Works
- Interface Direction	Input
- Information Type/Content	Construction project information and cost estimate.
- Information Direction	Input
- Information Frequency	As needed

4.8 INTERFACE	ADMINISTRATIVE ENGINEER
- Connects to . . .	Capital budget task force committee
- Interface location	Hennepin County Department of Public Works
- Interface Direction	Both
- Information Type/Content	Construction project information and cost estimate.
- Information Direction	Both
- Information Frequency	As needed

4.9 INTERFACE	CAPITAL BUDGET TASK FORCE COMMITTEE
- Connects to . . .	County board commissioners
- Interface location	Hennepin County Department of Public Works
- Interface Direction	Both
- Information Type/Content	Recommendation on 5 year Capital Improvement Plan.
- Information Direction	Both
- Information Frequency	unknown

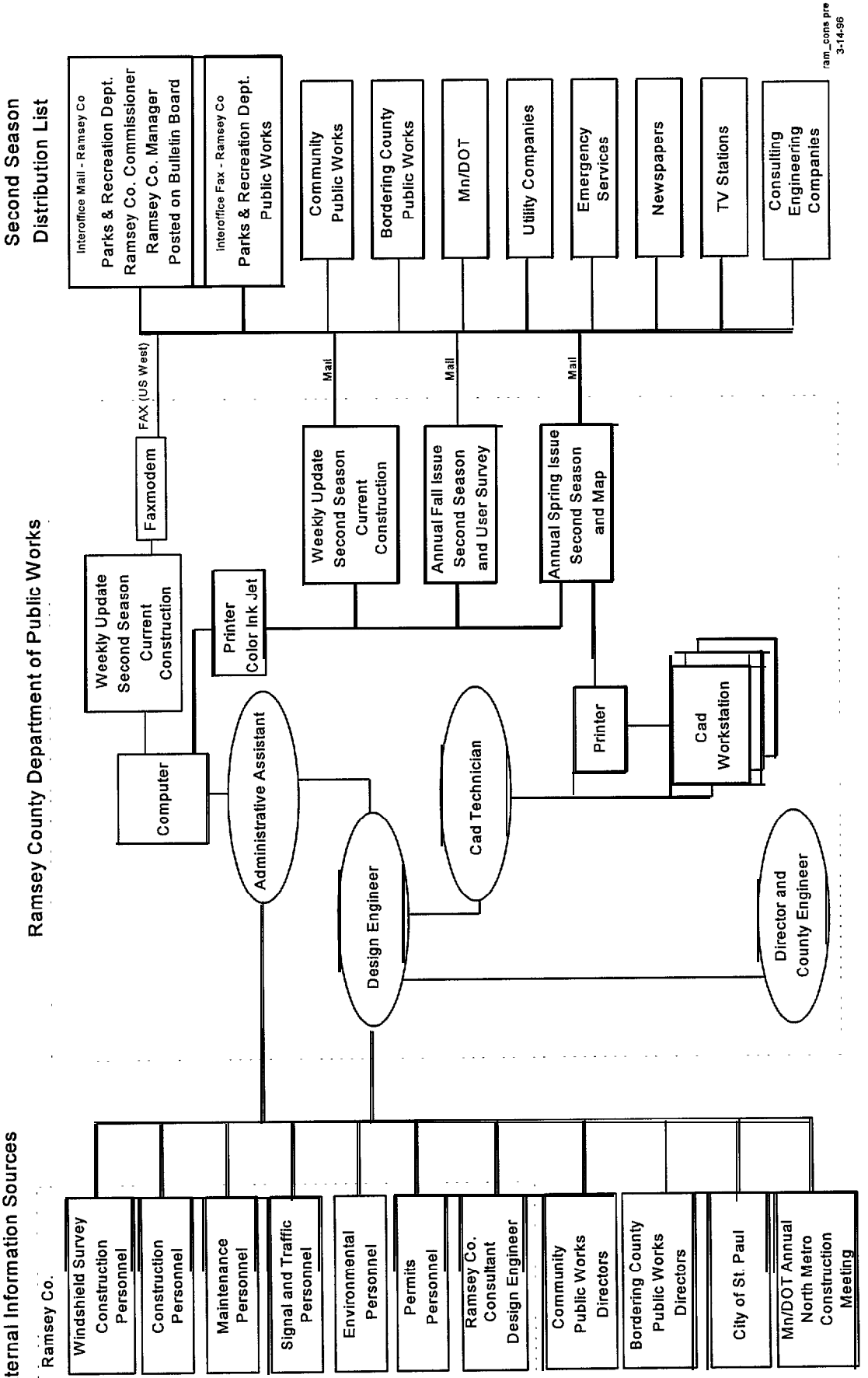
4.10 INTERFACE	ADMINISTRATIVE ENGINEER
- Connects to . . .	Cad technician
- Interface location	Hem-repin County Department of Public Works
- Interface Direction	Both
- Information Type/Content	5 year Capital Improvement Plan map.
- Information Direction	output
- Information Frequency	One time per year

4.11 INTERFACE	CAD WORKSTATION
- Connects to . . .	Plotter
- Interface location	Hennepin County Department of Public Works
- Interface Type	Data, county map
- Interface Direction	output
- Interface Component	Parallel cable
- Protocol/Standard	Parallel
- Information Type/Content	Map showing project location, type of construction and year of construction for the 5 year Capital Improvement Plan.
- Information Direction	output
- Information Frequency	Once time per year

3.8.8 RAMSEY COUNTY CONSTRUCTION INFORMATION SYSTEM

POLARIS As-Is Baseline Data Collection

Ramsey County Construction Information System



AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "RAMSEY COUNTY - DEPARTMENT OF PUBLIC WORKS"

- Agency Type	County Government - Department of Public Works, Construction Division
- Agency Functions	Manage traffic operations, construction and maintenance operations
- Agency Location(s)	3337 North Rice Street St. Paul MN 55126 voice (6 12) 484-9104 fax (612) 482-5232

2.0 SYSTEM "SECOND SEASON PUBLICATION"

- Date of As-Is Data Collection	2/12/96
- Purpose	(1) Publish annual beginning of construction season list of all known construction and maintenance projects within the county and a map that shows their location. Information is collected from the spring north metro pre-construction season meeting of all counties, city's and Mn/DOT. (2) Publish weekly one page summary during the construction season of current projects that upset traffic to an extent equal or greater than a "gawker" slow down. (3) Publish annual end of construction season listing of projects completed the previous year and the projects approved for construction the following year.
- Hours of Operation	Second Season is published weekly during the construction season and covers a six day period from Monday to Saturday. System updated/used during working hours (7:00 - 4:00).
- Geographic Coverage	Ramsey County
- Contacts	Larry K. Feldhahn, P.E. Design Engineer
- Status	Existing - Spring of 1996 will be the 6th year of publication.
- Policies	1) Weekly Information must be brief to keep to one page. 2) Traffic impact must be equal to or greater than a "gawkers" slow down , i.e. drivers slowing down to view the project. 3) Construction duration must be of sufficient length to be published weekly.

- Constraints	1) Because the information is only published weekly, small/short duration and emergency construction projects do not make it in publication. 2) All weekly publications must be kept to one page, at the request of most recipients.
- Issues	Not all agencies want/have fax, some have to be mailed. Automatic faxing of multiple page documents not available.
- Recommended Improvements	1) Want to go to DOS-based networked system to ease flow of data from Design Engineer to Administrative Assistant. 2) Also want to incorporate Second Season into the Ramsey County Internet Web Page.
- Block Diagram	See attached
- Other	Washington County (east border of Ramsey County) has a similar publication called Staying In Touch
- Typical Operational Scenario	This occurs when an unforeseen major project with significant traffic impacts is going to be constructed or when a project already included has a greater impact on traffic than previously expected. This has only occurred a few times in the 5 year history of Second Season. 2) Beginning year data is collected from annual north metro pre-construction season meeting and from previous years unfinished projects. Design Engineer types up text and submits to Administrative Assistant who re-types and formats. Hard copies are then made. Map of project locations is drawn on Ramsey Co. base map by Autocad technician and given to Administrative Assistant. Copies of Second Season and map are mailed (United States Postal Service) to all persons on distribution list. Some also receive a fax copy. 3) End of year data is collected by Design Engineer based on beginning year list of projects, updates made to list that include any additional projects, projects not started, completed projects, projects that were not completed and known projects for the following years construction season. This information is given to Administrative Assistant and re-typed/formatted. Copies are then mailed to all persons on distribution list and some also receive a fax copy.

2.1 PERSONNEL "DIRECTOR AND COUNTY ENGINEER"

- Personnel Function	County Engineer - Oversees publication of Second Season - Not directly involved with publication of Second Season.
- Quantity	1
- Location	Ramsey County Department of Public Works
- Contact	Paul L. Kirkwold

2.2 PERSONNEL "DESIGN ENGINEER"

- Personnel Function	Construction Inspector - Directly responsible for publication of Second Season, works on Beginning and Ending Second Season publications.
- Quantity	1
- Location	Ramsey County Department of Public Works
- Workload	8 hr./day, approximately 4 hr./ week spent on windshield surveys and documentation for weekly Second Season
- Working hours	7:00 am to 4:00 pm
- Status	Existing
- Contact	Larry K. Feldhahn, P.E.

2.3 PERSONNEL "ADMINISTRATIVE ASSISTANT"

- Personnel Function	Collect information, type, re-format, distribute Second Season as well as other Clerical Duties.
- Quantity	1
- Location	Ramsey County Department of Public Works
- Workload	8 hr./day, approximately 30 min./ week spent on Second Season
- Status	Existing
- Contact	Peg Mitrovich

3.1 HARDWARE "AUTOCAD WORKSTATION"

- Hardware Type	Computer
- Functions	Used to create annual beginning construction season project location map.
- Location	Ramsey County Department of Public Works
- Data Name/Contents	The map has the following information : approximate project limits designated by line on map and project reference number for corresponding text of Second Season
- Data Type	The map shows location and reference number for each construction project.
- Status	Existing
- Contact	Larry K. Feldhahn, P.E.
- Other	IBM Compatible PC

3.1.1 SOFTWARE "MS-DOS"

- Software Type	Operating System
- Software Standards	Dos
- Functions	1) Control, PC hardware resources 2) Executes software applications.
- Status	Existing

3.1.2 SOFTWARE "AUTOCAD V12"

- Software Type	CAD software application - computer aided design
- Functions	Record and display location of construction project information.
- Status	Existing

3.1.2 SOFTWARE "LOCAL AREA NETWORK"

- Software Type	Network
- Functions	Network interface
- Status	Existing
- Other	Approximately 15-20 Autocad stations connected to existing network.

3.2 HARDWARE "COMPUTER"

- Hardware Type	Computer
- Functions	Desktop publishing and faxing weekly publication to distribution list
- Location	Ramsey County Department of Public Works
- Data Name/Contents	Construction information
- Data Type	Data - Construction information: Street being constructed from street to street, type of construction and traffic impacts.
- Status	Existing
- Constraints	Memory limitation
- Issues	May go to PC based system and network
- Contact	Peg Mitrovich
- Other	Macintosh

3.2.1 SOFTWARE "CANVAS OR PAGEMAKER"

- Software Type	Software application - Desktop publishing
- Functions	Used to format and print Second Season document
- Status	Existing

3.2.2 SOFTWARE "FAX PRO"

- Software Type	Communications
- Functions	Distribute Second Season via faxmodem to distribution list.
- Status	Existing
- Constraints	Currently sharing phone line from another office, not a dedicated phone line
- Recommended Improvements	Faster faxmodem

3.3 HARDWARE "FAXMODEM"

- Hardware Type	Faxmodem (2400 Baud)
- Functions	Faxes weekly Second Season to distribution list.
- Location	Ramsey County Department of Public Works
- Data Name/Contents	Data - Construction information : street being constructed from street to street, type of construction and traffic impacts.
- Data Type	Data
- Status	Existing
- Constraints	The software application only permits single page fax, do not have ability to fax multiple page documents.
- Issues	May go to PC based system and network.
- Contact	Peg Mitrovich
- Other	Zoom faxmodem

4.1 INTERFACE	Design Engineer
- Connects to . . .	External information sources
- Interface location	Meeting location
- Interface Type	Paper (meeting notes)
- Interface Direction	Both
- Interface Component	Mn/DOT Annual North Metro Construction Meeting - Includes personnel from Mn/DOT, all municipal entities within County and bordering Counties.
- Information Type/Content	Construction information : Street being constructed from street and street, type of construction and traffic impacts.
- Information Direction	Both
- Information Frequency	1 per year
- Other	Last year - 1995 construction season was the first time Mn/DOT has held a north metro pre-season construction meeting and there are plans to make this an annual meeting.

4.2 INTERFACE	Design Engineer
- Connects to . . .	City of St. Paul
- Interface Type	Voice phone, person to person or fax
- Interface Direction	Both
- Interface Component	Facsimile machine, telephone communication, meetings
- Information Type/Content	Construction information : Street being constructed from street to street, type of construction and traffic impacts.
- Information Direction	Both
- Information Frequency	As needed
- Information Standards	None
- Other	The City of St. Paul and Ramsey County have a close working relationship for sharing construction related information.

4.3 INTERFACE	Design Engineer
- Connects to . . .	Project locations within county
- Interface location	In field
- Interface Type	Visual
- Interface Component	Paper
- Information Type/Content	Visual verification of construction project status and traffic impacts.
- Information Frequency	Inspections done on as-needed basis for projects where there is no other information regarding the status of construction and the affect on traffic.

4.4 INTERFACE	Design Engineer
- Connects to . . .	Ramsey County - Public Works Departments (Construction, Maintenance, Traffic, Environmental and Right of Way)
- Interface location	Ramsey County
- Interface Type	Paper/person to person/phone
- Interface Direction	Both
- Interface Component	Internal mail, phone, meetings
- Information Type/Content	Construction status, project location, type of work, affects on traffic.
- Information Direction	Both
- Information Frequency	As needed
- Other	As with other municipal agencies, all construction work done on County right of way must have a permit, and permit office notifies construction unit or Administrative Assistant directly.

4.5 INTERFACE	Administrative Assistant
- Connects to . . .	External information sources
- Interface location	Ramsey County
- Interface Type	Paper(changes on previous weeks Second Season), telephone conversations, person to person, fax
- Interface Direction	Input
- Interface Component	Internal mail, phone, fax, person to person
- Protocol/Standard	N/A
- Information Type/Content	Changes for Second Season weekly publication: project location (street names), type of work being done, if project is not a Ramsey County project a telephone number for more information is included.
- Information Direction	Input
- Information Frequency	Once per week
- Information Standards	Street name of construction project, from street to street, type of construction work being done, and affect on traffic.
- Constraints	Project descriptions have to be brief, people receiving information want it to be kept to one page.
- Other	Weekly updates come from only a few external information sources. If the Administrative Assistant has not received updated information, external sources are contacted.

4.6 INTERFACE	Design Engineer
- Connects to . . .	Administrative Assistant
- Interface location	Ramsey County
- Interface Type	Voice, paper
- Interface Direction	Both
- Interface Component	Person to person communications, typed paper
- Protocol/Standard	N/A
- Information Type/Content	Weekly -Street of construction project, from street to street. Type of construction work being done and the affect on traffic. Annual - all information to be included in publication.
- Information Direction	Both
- Information Frequency	Weekly
- Other	Text-based information can be sent to Administrative Assistant via O/A System Text Editor. System is being phased out and replaced with new computers and the network system.

4.7 INTERFACE	Design Engineer
- Connects to . . .	Autocad Technician
- Interface location	Ramsey County
- Interface Type	Voice, paper
- Interface Direction	Both
- Interface Component	Person to person communications, mock-up of map, previous years map with changes.
- Protocol/Standard	N/A
- Information Type/Content	Project locations and reference number
- Information Direction	Both
- Information Frequency	Once a year
- Other	County base map shows only major roadways (8.5 x11 format)

4.8 INTERFACE	Autocad PC
- Connects to . . .	Printer
- Interface location	Ramsey County
- Interface Type	Data
- Interface Direction	output
- Interface Component	Parallel Cable
- Protocol/Standard	Parallel
- Information Type/Content	Yearly map of project locations and reference number to be printed (8.5 x11 format)
- Information Direction	output
- Information Frequency	Once a year
- Information Standards	None
- Other	They keep historical files of map but currently nothing is done with them.

4.9 INTERFACE	MAC Computer
- Connects to . . .	HP Color Jet Printer
- Interface location	Ramsey County
- Interface Type	Data
- Interface Direction	output
- Interface Component	Printer cable
- Information Type/Content	Weekly Second Season Annual Spring Second Season Annual Fall Second Season and Survey
- Information Direction	output
- Information Frequency	Weekly
- Information Standards	None
- Other	Have ability to do color maps for Second Season but only the versions posted on bulletin boards are printed in color.

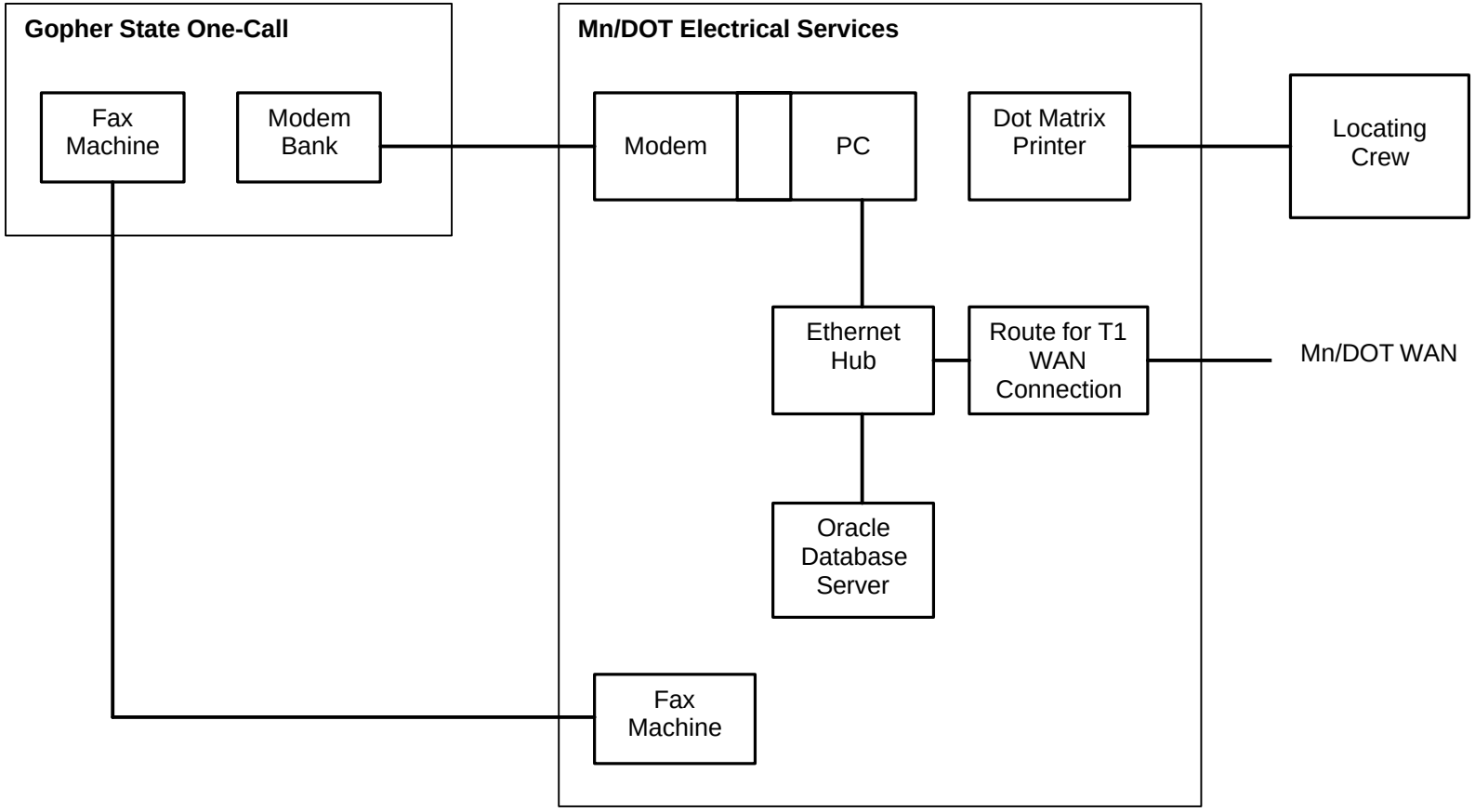
4.10 INTERFACE	MAC Computer -Faxmodem
- Connects to . . .	Distribution list
- Interface location	Ramsey County
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-422
- Information Type/Content	Weekly Second Season
- Information Direction	output
- Information Frequency	Weekly
- Information Standards	One page format

4.11 INTERFACE	Administrative Assistant
- Connects to . . .	Ramsey County Department of Public Works
- Interface location	Ramsey County
- Interface Type	Paper
- Interface Direction	Both
- Interface Component	Interoffice Mail
- Protocol/Standard	N/A
- Information Type/Content	Annual and weekly Second Season
- Information Direction	Both
- Information Frequency	Weekly during construction season

4.12 INTERFACE	Administrative Assistant
- Connects to . . .	Distribution List
- Interface location	Variable
- Interface Type	Paper
- Interface Direction	Both
- Interface Component	United States Postal Service
- Protocol/Standard	N/A
- Information Type/Content	Weekly Second Season - 7 Agencies/customers request that it be mail rather than faxed Spring and Fall Second Season are mailed to all on distribution list.
- Information Direction	output
- Information Frequency	Weekly during construction season / twice a year

3.8.9 MN/DOT ESS GOPHER STATE ONE-CALL ACCESS SYSTEM

POLARIS As-Is Baseline Data Collection
Mn/DOT ESS Gopher State One-Call Access System



AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "MINNESOTA DEPARTMENT OF TRANSPORTATION"

- Agency Type	State Department
- Agency Functions	Construct, maintain, and administer state transportation facilities.
- Agency Location(s)	Headquartered in St. Paul, MN Electrical Support Services (ESS) Division is located in separate facilities in St. Paul

2.0 SYSTEM "ESS GOPHER STATE ONE-CALL ACCESS SYSTEM"

- Date of As-Is Data Collection	2/26/96
- Purpose	Notify Mn/DOT ESS personnel that location and marking of an underground facility is required Store information received from Gopher State One-Call in an Oracle database
- Hours of Operation	24 hrslday
- Contacts	Tom Grimes Mail Stop 740 6000 Minnehaha Avenue St. Paul, MN 55111 (612) 725-2305 (voice) (612) 725-2386 (fax)
- Status	Existing
- Block Diagram	See attached
- Typical Operational Scenario	Information is sent via modem from the Gopher State One-Call system to a modem-equipped PC at ESS (for exact contents, see attached example). The PC runs a custom written C program which formats the incoming data and imports it into an Oracle database. The Oracle database runs on a separate computer. The Right of Way (ROW) indicator flag in the data is checked by software to determine if excavation is in the ROW. If this flag is "Y" the information is printed for ESS personnel to review to determine if a crew must be sent to mark the location of any Mn/DOT underground facilities. If a "locate" is required a crew is dispatched to the site within 48 hours to mark facilities with small flags. A report is generated by the Oracle database showing which ticket numbers did not require a locate. This report is faxed to Gopher State One-Call. Gopher State One-Call inputs the no locate required tickets into there database to credit Mn/DOT for the no locate required tickets identified within 24 hours.

2.1 PERSONNEL "REVIEWER"

- Personnel Function	Examines information received from Gopher State One-Call if it falls within the ROW to determine if a locate is required
- Quantity	Two
- Location	Mn/DOT ESS offices

2.2 PERSONNEL "TRANSPORTATION ELECTRICAL SUPERINTENDENT"

- Personnel Function	1) Oversees operation of the ESS Gopher State One-Call 2) Access System 3) Reviews system performance 4) Communicates with Gopher State One-Call as necessary 5) Also functions as a reviewer
- Quantity	One
- Location	Mn/DOT ESS offices

2.3 PERSONNEL "FIELD CREW'

- Personnel Function	Mark exact location of underground facilities with colored flags
- Quantity	Varies by season (up to 5)
- Location	Based at Mn/DOT ESS facility in St. Paul. Responsible for marking facilities in the seven county metro area. Each out state district has one field crew position.

3.1 HARDWARE - "MODEM BANK"

- Hardware Type	Cabinet connected to LAN containing approximately 15 modems.
- Functions	Send information to Mn/DOT ESS.
- Location	Gopher State One-Call offices in Mendota Heights, MN
- Data Name/Contents	See attached example
- Data Type	Data
- Status	Existing

3.2 HARDWARE "MODEM"

- Hardware Type	Dial-up serial communications device (9600 bps)
- Functions	Receive data from Gopher State One-Call
- Location	Mn/DOT ESS offices in St. Paul
- Data Name/Contents	See attached example
- Data Type	Data
- Status	Existing

3.3 HARDWARE "PC"

- Hardware Type	Intel-based personal computer
- Functions	1) Receives incoming data 2) Processes data using a proprietary C program for import into the Oracle database 3) On screen review of incoming tickets to determine if a locate is necessary 4) Sends reports and work orders for locating crews to the printer
- Location	Mn/DOT ESS offices in St. Paul
- Data Name/Contents	See attached example
- Data Type	Data
- Status	Existing

3.3.1 SOFTWARE "DOS"

- Software Type	Operating system
- Software Standards	16 Bit DOS

3.3.2 SOFTWARE "DATA CONVERTER"

- Software Type	Proprietary program to convert incoming data from Gopher State One-Call
- Functions	Receives data Performs conversion functions Formats and enters data in Oracle facility management database
- Application Language	C
- Status	Existing

3.3.3 SOFTWARE "PRIZM"

- Software Type	Proprietary software to receive information from Gopher State One-Call
- Functions	Communicates with Gopher State One-Call modem bank Receives and prints excavation ticket information
- Status	Existing

3.4 HARDWARE "PRINTER"

- Hardware Type	Laser printer (HP Laser Jet)
- Functions	1) Prints ticket information 2) Prints work orders for field crews to mark facilities 3) Prints reports to be faxed to Gopher State One-Call
- Location	Mn/DOT ESS offices in St. Paul
- Data Name/Contents	Ticket information Work order (see attached example) Ticket numbers which required locates
- Data Type	Data
- Status	Existing

3.5 HARDWARE "ETHERNET HUB"

- Hardware Type	Network hub/concentrator
- Functions	Routes and manages local area network data traffic
- Location	Mn/DOT ESS offices in St. Paul
- Data Name/Contents	See INTERFACE 4.5 through 4.7 below
- Data Type	Data
- Status	Existing

3.6 HARDWARE "ROUTER FOR Tl WIDE AREA NETWORK (WAN) CONNECTION"

- Hardware Type	Tl communications router
- Functions	Allows data stored at Mn/DOT ESS offices in St. Paul to be shared with other Mn/DOT offices
- Location	Mn/DOT ESS offices in St. Paul
- Data Type	Data
- Status	Existing
- Other	No information was available at the interview time about the specific functions of this hardware

3.7 HARDWARE "ORACLE DATABASE SERVER"

- Hardware Type	Intel-based microcomputer network server
- Functions	Stores ESS facility management database (for complete listing of field in database see attached pages) Stores received One-Call data
- Location	Mn/DOT ESS offices in St. Paul
- Data Name/Contents	See attachments
- Data Type	Data
- Status	Existing

3.7.1 SOFTWARE "ORACLE"

- Software Type	Database manger
- Functions	Stores and queries ESS database
- Status	Existing

3.8 HARDWARE "FAX MACHINE"

- Hardware Type	Telephone-based document facsimile machine
- Functions	Sends reports to Gopher State One-Call
- Location	Mn/DOT ESS offices in St. Paul
- Data Name/Contents	Report detailing the ticket numbers which did not require a locates.
- Data Type	Data
- Status	Existing

3.9 HARDWARE "FAX MACHINE"

- Hardware Type	Telephone-based document facsimile machine
- Functions	Sends reports to Gopher State One-Call
- Location	Mn/DOT ESS offices in St. Paul
- Data Name/Contents	Report detailing the ticket numbers which did not require allocate.
- Data Type	Data
- Status	Existing

4.1 INTERFACE	GOPHER STATE ONE-CALL MODEM BANK
- Connects to . . .	Modem
- Interface Type	Data
- Interface Direction	Both
- Interface Component	US West telephone line
- Information Type/Content	Excavation ticket information. See System 15.1 Gopher State One-Call
- Information Direction	output
- Information Frequency	As needed

4.2 INTERFACE	MODEM
- Connects to . . .	PC
- Interface location	Mn/DOT ESS St. Paul facility
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232 Serial
- Information Type/Content	Excavation ticket information. See System 15.1 Gopher State One-Call
- Information Direction	output
- Information Frequency	As needed

4.3 INTERFACE	PC
- Connects to . . .	Dot matrix printer
- Interface location	Mn/DOT ESS St. Paul facility
- Interface Type	Data
- Interface Direction	output
- Interface Component	Parallel cable
- Information Type/Content	Excavation ticket information. See System 15.1 Gopher State One-Call
- Information Direction	output
- Information Frequency	As needed

4.4 INTERFACE	DOT MATRIX PRINTER
- Connects to . . .	Locating crew
- Interface location	Mn/DOT ESS St. Paul facility
- Interface Type	Hard copy text
- Interface Direction	output
- Interface Component	Interoffice distribution
- Information Type/Content	Work order for a facility location
- Information Direction	output
- Information Frequency	As needed

4.5 INTERFACE	PC
- Connects to . . .	Ethernet Hub
- Interface location	Mn/DOT ESS St. Paul facility
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Twisted pair ethernet cable
- Information Type/Content	Excavation ticket data is sent across this interface to be stored on the Oracle database server. Results of queries performed on the facilities management database are received across this interface
- Information Direction	Both
- Information Frequency	Continuous

4.6 INTERFACE	ETHERNET HUB
- Connects to . . .	Router for Tl WAN connection
- Interface location	Mn/DOT ESS St. Paul facility
- Interface Type	Data
- Interface Direction	Both
- Information Direction	Both
- Information Frequency	Continuous

4.7 INTERFACE	ETHERNET HUB
- Connects to . . .	Oracle Database Server
- Interface location	Mn/DOT ESS St. Paul facility
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Twisted pair ethernet cable
- Information Type/Content	Excavation ticket information Facility management database information
- Information Direction	Both
- Information Frequency	Continuous

4.8 INTERFACE	ROUTER FOR Tl WAN CONNECTION
- Connects to . . .	Mn/DOT WAN
- Interface location	Mn/DOT ESS St. Paul facility
- Interface Type	Data
- Interface Direction	Both
- Information Direction	Both
- Information Frequency	Continuous

4.9 INTERFACE	FAX MACHINE (MN/DOT ESS FACILITY)
- Connects to . . .	FAX MACHINE (GOPHER STATE ONE-CALL)
- Interface Type	Data
- Interface Component	US West telephone line
- Information Type/Content	Reports detailing which ticket numbers required locates and which did not.
- Information Direction	output

APPENDIX A

As-Is Agency Reports
Pre-Survey Candidate Systems List

PRE-SURVEY CANDIDATE SYSTEMS

Traffic Signal Control Systems
- City of St. Paul Computran traffic signal control system
- City of St. Paul traffic signal intersection hardware (field equipment)
- City of Minneapolis Fortran traffic signal control system
- Mn/DOT Metro Division/District traffic office closed loop traffic signal system(s)
- County closed loop traffic signal systems (Hennepin, Ramsey, etc.)
- City closed loop traffic signal systems
- Video detection/control of signal system (T.H. 65 & 53rd, Lyndale and Franklin Ave)
- Pre-emption of traffic signals for emergency vehicles (EVP)
- Pre-emption of traffic signal at fire stations
- Pre-emption of traffic signals at railroad crossings (20 locations in Metro area)
- Minneapolis AUSCI operational test

Freeway Management System
- Mn/DOT TMC ramp meter system
- Mn/DOT TMC video surveillance system
- Mn/DOT TMC CMS control system
- KBEM radio broadcast system
- Mn/DOT TMC cable TV information system - (Triple Vision system)
- Mn/DOT Metro Division/District portable changeable message signs
- TMC traffic history database (volume and occupancy data)
- TMC incident log database
- U of M Autoscope incident detection system
- Genesis operational test
- Trilogy operational test
- Mn/DOT workzone traffic management system operational test

Transit Management Systems
- MCTO "Trapeze" scheduling/planning system (creates bus/driver schedules)
- MCTO "radio" system (computer assisted radio system, 7 channels)
- MCTO automatic passenger counters (on some buses)
- MCTO electronic fare collection boxes (on all buses)
- MCTO TIC BusLine system (voice responses system, customer service system)
- MCTO customer service system for route/schedule planning (live telephone operators)
- MCTO transportation section (provides construction information to MCTO)
- MCTO bus stop database (contains the attributes of each bus stop)
- MCTO Police crime/incident tracking system
- MCTO Opticom emitters (EVP on 80 buses)
- MCTO speed light system (ramp meter pre-emption on selected ramps)
- MCTO Route-0-Matic system - vectors around incidents and congestion
- Metropolitan Council Rideshare system (Mn dial-a-ride)
- MCTO funded paratransit systems
- Metropolitan Council Metro Mobility passenger registration system
- Metropolitan Council Metro Mobility passenger reservation system
- U of M transit management
- Southwest Transit
- Minnesota Valley Transit
- Plymouth Metrolink
- School bus dispatch systems

Incident Management Program
- Mn/DOT TMC Highway Helper program (including AVL system)
- Private tow contracts
- U of M police incident management
- St. Paul DIVERT operational test

Electronic Fare Payment Systems
- City of Minneapolis Parking fare collection (smart card)
- City of Minneapolis electronic parking meter maid system
- Smart Darts operational test

PRE-SURVEY CANDIDATE SYSTEMS (CONTINUED)

Electronic Toll Collection Systems
- Toll road proposals (5 proposals in MN)
- Congestion Pricing Study
- Mileage based tax study

Multi modal Traveler Information Systems
- Travlink operational test

Administrative Systems
- Mn/DOT Electrical Services maintenance management system
- Mn/DOT Electrical Service gopher state one-ca access system
- Mn/DOT TIS
- Mn/DOT automatic traffic recorder system
- Mn/DOT ISTEA management systems
- Mn/DOT CVO administrative systems
- DPS CVO administrative systems
- City of Minneapolis sign database

Other Information Systems
- Airline flight arrival/departure information - NW
- Airport rental car kiosk - Hertz
- Mn office of Tourism travel information center kiosks
- Mn/DOT TMC road weather information system access
- MnDOT Metro Division weather information access
- Mn/DOT Aeronautics weather information system
- Mn/DOT statewide road weather information telephone information
- Mn/DOT Pavement Condition and Weather Reporting System - future
- Internal distribution system Distribution of TMC loop data via the Internet
- RWIS - Mn/DOT future Road/Weather Information System

Emergency Response Systems
- Motorist call box system Mobile Data Terminals (MDT) in all State Patrol cars
- Laptop PC's in State Patrol cars to replace MDT's - pilot project in 1996
- Emergency 911 log system at State Patrol
- State Patrol information desk State Patrol South St. Paul information desk
- State Patrol access to drivers license information. via 911 center
- MnDOT Mayday operational test
- Demand response dispatch systems - numerous standalone systems

Parking Management Systems
- Metropolitan airports commission parking management
- City of Minneapolis parking management systems
- U of M parking management
- St. Paul Advanced Parking Information System operational test

Miscellaneous
- Mn/DOT portable traffic management system
- City of Minneapolis police special event management
- City of St. Paul special event management
- U of M special event management
- Mn/DOT pilot differential GPS broadcast base station
- Mn/DOT maintenance vehicle AVL
- Mn/DOT Metro Division/District maintenance dispatch
- Hennepin County Medical Center emergency vehicle dispatch
- MN Pollution Control Agency air quality monitoring sites
- Met. Council Forecasting models - uses data from Mn/DOT TIS database
- U of M traffic management system proposal

Interagency Systems
- ICTM - Integrated Corridor Traffic Management System operational test (includes Autoscope)
- ARCTIC - operational test in Virginia, MN

PRE-SURVEY CANDIDATE SYSTEMS (CONTINUED)

CVO Systems
- List of systems from MN Guidestar
- CVO call-in number
- State Patrol toll free Information number

Construction Information/Notification Systems
- Gopher State One Call system for utility locations
- Mn/DOT construction information dissemination
- Counties' systems (Hennepin County)
- Counties' systems (Ramsey County)
- City system (Minneapolis)
- City system (St. Paul)
- Utilities' systems

Communications Systems
- Mn/DOT TMC Fiber optic data communications system
- Mn/DOT Microwave Communication System
- Mn/DOT Tl system
- Mn/DOT Wide Area Network
- MNET (STARS)
- Voice radio - State Patrol, Mn/DOT Maintenance, DNR
- 800 MHZ Trunked Radio system (Metro area)
- Internet Communications
- Traffic Signal Interconnect systems
- RBDS - Radio Broadcast Data Systems
- Mn/DOT Video Conferencing

APPENDIX B

As-Is Agency Reports
Data Collection Guide

Minnesota Guidestar

As-Is Transportation Systems Inventory Data Collection Guide

LORAL
Federal Systems-Owego

POLARIS As-Is Transportation Systems Inventory
Data Collection Guide

PURPOSE

The purpose of this document is to provide information about the Polaris As-Is Transportation Systems Inventory Template. Information provided by this guide is representative but not inclusive as to the amount or all the types of information that may be found during a Polaris survey.

ORGANIZATION

Organization of this document is based on the Polaris As-Is Transportation Systems Inventory Template. For each template page in the Polaris As-Is Transportation Systems Inventory Template, a section in this document, will list the types of information to be collected, a description of how the data will be collected, recommended answers for known entities, and miscellaneous note area for unstructured items. The following list contains this documents sections:

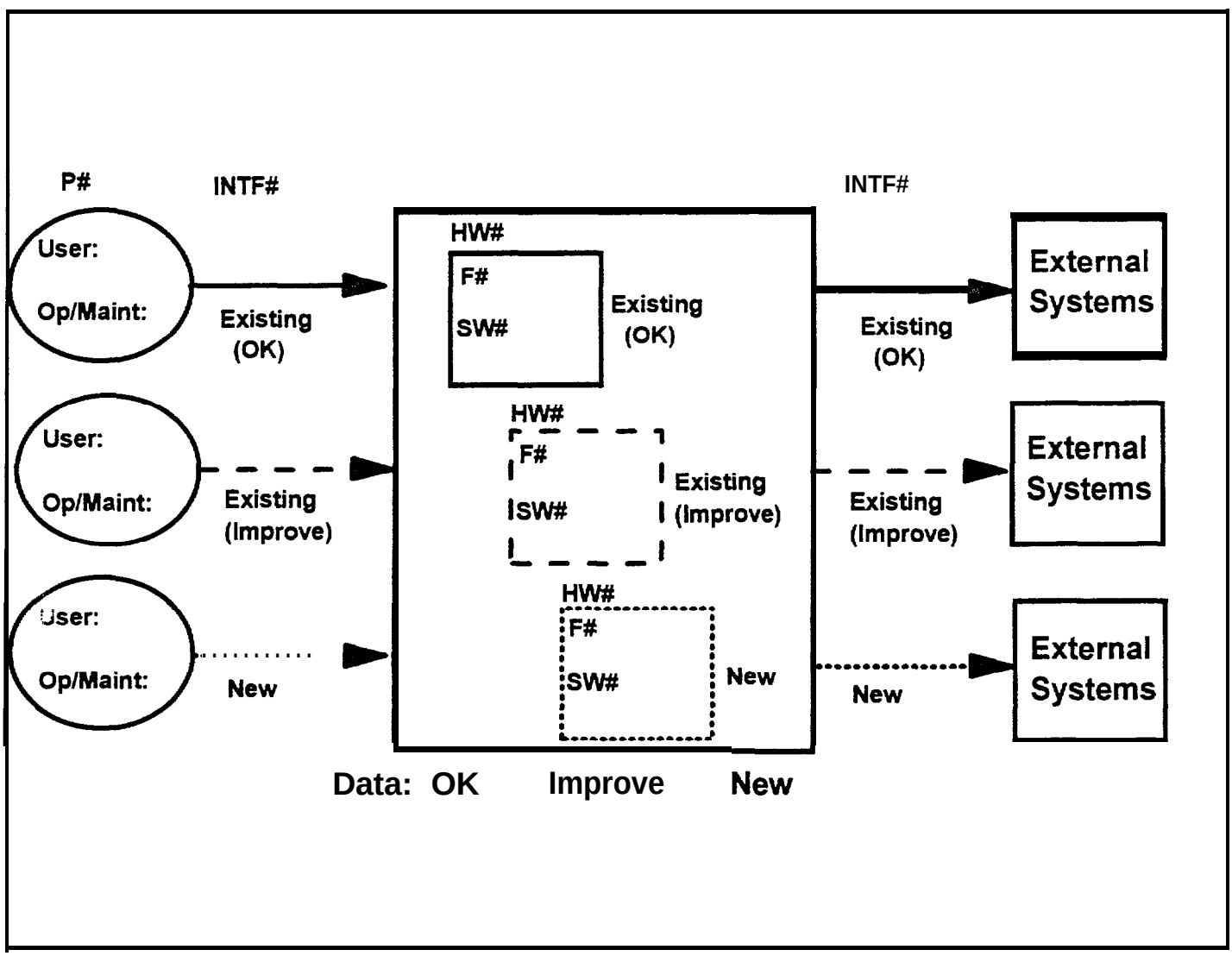
1.0 Systems
1.1 Hardware Components
1.2 Software Components
1.3 Software Interfaces
1.4 System Personnel
2.0 Agency
2.1 Agency Interfaces
2.2 Agency Systems

About the Template Document

The Polaris As-Is Transportation Systems Inventory Template is a document intended to assist the data collector in the field perform their task more expediently. The document is a collection of 8 sections that are identical to the sections in this document. Seven of sections are on one sheet of paper. One section expanded to two sheets of paper. The theory of the document structure was to duplicate each document section numerous until the entire system, or what ever thing you are collecting data on is captured on the templates.

1.0 Systems

In order to understand the system being surveyed, the surveyor shall draw the system in block diagram format. The block format shall conform to the following example. Template Page #1 is where the system block diagram shall be drawn.



1.1 Hardware Components

The purpose of Hardware Components, Template Page #1 is to list all the various hardware elements that are interconnected to form the bounds of the system to be described. For each hardware element, an identifier, HW#, shall be created and associated with hardware element graphic drawn in the System Block Diagram, Template Page #1

Template Page #1 contains the following columns to be completed during the survey process. Definitions for each column is provided to assist in providing consistency in collecting data. Where possible, suggested recommendations for collecting data is provided.

HW#	Identifier for each component on the System Block Diagram (drawing). Each identifier used with the System Block drawing shall be unique for each System Block Diagram.
Hardware Name	A generic name for identification purposes within the user community. If no name is provided, then the Manufacturer and Model number is acceptable.
Hardware Type	Classifies the identifier, HW#, into a generic group. If the type of component is not known, then Make and Model will be required. Recommended choices for this column may be selected from the following list: 1. Computer Processors 2. Workstations 3. Telecommunication Devices a. Hubs b. Routers c. Transmitters d. Receivers e. Modems f. Decoders/Encoders 4. Peripherals i. Printers ii. Displays

c. Barcode Readers
d. Magnetic Stripe Readers
e. Punch Cards
f. Magnetic Tape
g. Diskette
h. CD ROM
i. Cartridge Tape

5. Telephones
   a. Wire Based
   b. Wireless
6. Two way Radio Transmitters/ Receivers
7. Radio Receivers
8. Traffic Signals
9. Video Cameras
10. Loop Detectors
11. Message Signs
12. Temperature Sensors
13. Optical Transmitters / Receivers
14. Microwave

Functions - (F#)

Describes the major functions of the system. For each major function, a new entry lines shall be used for writing the description. For each function, the F# is associated to the respective HW# on the System Block Diagram, Template Page #1 The following list contains some recommended functions that may be used to describe a component.

1. Process
2. Control
3. Store
4. Communicate
5. Signal
6. Log
7. Record
8. Speak
9. Write
10. Print
11. Messaging
12. Locate
13. Search

Location

States where geographically the HW# is located.

Considerations should be given for : Multiple buildings within one community, multiple cities, multiple states, countries and other Agencies or private sector. Try to limit the information to Building Name and relevant geographic location versus room number or address. Detailed information is not required unless there is multi-jurisdictional or multi-organizations within one building.

Data Name / Content

A brief description of the data or information is processed and stored by the HW#. Some examples are:

1. Database of System Users
2. Database of construction projects
3. Collect incident information and reformat the data

Data Type

Classifies the data into a generic group. Choices for this group are:

1. Voice
2. Data
3. Video
4. Paper
5. Other ____(specify)_____

Status

An indicator about the existence, transition, or non-existence of the HW#:

E=Existing (Currently in place, No modifications planned)
D=Deleted (An agency has plans to delete this element in the future, but at the time of survey the element existed.)
I=Improve (Currently in place, but requires modification due to element not meeting user needs, or system needs)
N=NEW (New system planned for future deployment, but at the time of survey is not currently deployed.)

Policies

List agency policies that are practiced with respect to the Hardware components. Listed below are a couple of examples of what would belong in this topic.

1. Maintenance of the radio equipment
2. Agency X requires all PC's to be hardware locked and anchored to a non-removable building structure.

Constraints / Restrictions

List agency constrained and/or restrictions with respect to

Hardware Components

1. The hardware is outdated and can no longer be upgraded.

2. Hardware maintenance is not available for the equipment because it is too old.

Issues

List any issues that are related to this specific componenet. If the issue is global to the system, then is only needs to be stated once.

Recommended Improvements / Planned Changes

List any system or component recommended improvement that the contact person discusses. State whether the improvement is planned or a “wish” and explain why they system and component is being improved. If the improvement is global to the system, then is only needs to be stated once.

Contacts / Phone Numbers

List the contact person from which you recieved this information and their phone number.

Other

List anything else that may be relevant about the system, but does not fit in the above columns.

1.2 Software Components

SW# — [Same description as HW# in Section 1.1]

Software Name — [Same description as Hardware Name # in Section 1.1]

Software Type — Classifies the identifier, SW#, into generic groups

1. Transportation Software Applications
2. Operating Systems
3. Communication Protocols
4. Database
5. Data Interchange
6. User Interface
7. System Management
8. Office Applications
9. Controller Programs
10. Firmware

Software Standards — Specify for each software type the associated product or standard. The following list is organized with the standards listed within software type.

1. Transportation System Applications
   a. Urban Traffic Control Sofware (UTCS)
   b. Sindney Control Adaptive Device Software (SCADS)
   c. SCOOTS
   d. 170 Software -WAPITI
   e. National Electrical Materials Association (NEMA) Software
   f. TRAPEZE
   g. AVL

2. Operating System
   a. DOS
   b. WINDOWS
   c. WINDOWS FOR WORKGROUPS
   d. WINDOWS95
   e. UNIX

f. OS/2
g. WINDOWS NT
h. Macintosh / System 7
i. OS/400
j. MVS
k. VM
l. VSE
m. VMSNSE
n. Other

3. Communication Protocols
   a. TCP/IP (UNIX, IBM, Microsoft, Beamon Whiteside, Exceed, FTP)
   b. SNA (IBM)
   c. IPX/SPX (Novell)
   d. OSI
   e. DECnet (Digital Equipment)
   f. BISYNC
   g. Frame Relay
   h. X.25
   i. FDDI
   j. ATM
   k. NetBios (IBM, Microsoft)
   l. Other
4. Database
   a. Oracle
   b. Sybase
   c. Informix
   d. Database 2
   e. FoxPro
   f. Microsoft Access
   g. Other
5. Data Interchange
   a. GIS
   b. Image
   c. Vector
   d. Vector Graphics
   e. Images
   f. Printing (PostScript, PCL, AFP)
   g. Computer Aided Logistics (CALS)
   h. Electronic Data Interchange (EDI)
   i. Electronic Mail (Email)
   j. Electronic Documents

k. Traffic Messaging
l. Weather Messaging
m. Location Messaging
n. Construction Messaging
o. Other

6. User Interface
   a. Windows (Microsoft)
   b. Windows for WorkGroups (Microsoft)
   c. X-windows (UNIX)
   d. Presentation Manager (IBM OS/2)
   e. Character Based
   f. Other
7. System Management
   a. Network
   b. Computer Devices
   c. Data
   d. Other
8. Office Applications
   a. Word Processors (WordPerfect, MS Word, DisplayWrite)
   b. Spreadsheets (123, Excel, Quattro Pro)
   c. Graphics (Corel Draw, MS PowerPoint, Freelance)
   d. Multimedia (Video Conferencing)
   e. Project Scheduling (Microsoft Project, Primivera)
   f. Other

Function

[Same description as Function in Section 1.1]

Application Language

This field is only applicable for Software Types of Transportation Software Applications when there is a software application that has been custom designed and coded for a specific need or requirements. (ie. There is only one or few software applications in existence) Then the programming language of the software application should be determined. The following list provides some of programming languages that may have been used:

1. C++
2. Visual C++
3. c
4. Visual C
5. Basic
6. Visual Basic

7. Pascal
8. COBOL
9. FORTRAN
10. Assembler
11. Ada
12. Other

Status — [Same description as Status in Section 1.1]

Policies — List agency policies that are practiced with respect to Software Components. Listed below are a couple of examples of what would belong in this topic.

1. Agency X does not permit any non-business related software to be installed on PC's .

2. Agency X requires all PC's Operating Systems to have password protection to prevent unauthorized system access to the networks.

Constraints / Restrictions — List agency constrained and/or restrictions with respect to Software Components

1. The software is outdated and can no longer be upgraded.

2. Software maintenance is not available for the equipment because it is too old.

Issues — List any issues that are related to this specific componenet. If the issue is global to the system, then is only needs to be stated once.

Recommended Improvements / Planned Changes

List any system or component recommended improvement that the contact person discusses. State whether the improvement is planned or a "wish" and explain why they system and component is being improved. If the improvement is global to the system, then is only needs to be stated once.

Contacts / Phone Numbers

List the contact person from which you recieved this information

	and their phone number.
Other	List anything else that may be relevant about the system, but does not fit in the above columns.

1.3 System Interfaces

The purpose of System Interfaces, Template Pages #5-7, is to list all the various interfaces that connect the Hardware Components together and External Systems to the system being surveyed. For each Hardware Component, HW#, listed, the interface, INTF#, between the two components shall be listed individually until ail the interfaces between Hardware Components are covered. For Systems outside the boundary of the system being surveyed, their respective interfaces shall be listed.

INTF#	[Same description as HW# in Section 1.1]
External System Name	[Same description as Hardware Name in Section 1.1]
Interface Locations	States which locations the interfaces are located. If the interface is co-located in the same location, then only one location is required.
Inter-face Type	Classifies the interface into a generic group. Choices for this group are: 1. Audio 2. Data 3. Video 4. Paper 5. Other ____(specify) _____
Interface Direction	Three choices are available for this item. Circle the applicable item.

Input	Flow of information is coming in to the surveyed system or component being described
output	Flow of information is going towards another component or external system.
Both	Flow of information is going both directions.

Interface Component	A name of the physical entity in which the interface is established. The following list contains some more popular types of Interface Components:

1. Wire Based
   a. Token Ring
   b. Ethernet
   c. FDDI
   d. SONET
   e. Arcnet
   f. Applenet
   g. ATM
   h. ISDN
   i. RS-232
   j. RS-422
   k. SDLC
   l. Modems (Bell 202, 212, 213, V.24, V.32 V.34)
   m. Other _____
2. Wire Based Media (cabling), if there is an external network geographically located.

   For wire based media (cabling), the wire/fiber count should be captured to
   a. Level 3 Unshielded Twisted Pair (UTP), (Telephone Voice / Data 2 MB)
   b. Level 4 Unshielded Twisted Pair,(UTP) [Data 10 MB]
   c. Level 5 Unshielded Twisted Pair,(UTP) [Data 100 MB]
   d. Shielded Twisted Pair (STP) [Data rate at 10 MB]
   e. Shielded Twisted Pair (STP) [Data rate at 100 MB]
   f. Multimode Fiber
   g. Single Mode Fiber
   h. Service Provider (ie. US West)
   i. Other _____
3. Wireless Based
   a. FM (ie. Two way / Broadcast)
   b. AM (ie. Broadcast)
   c. CDPD (ie. Digital Cellular Data Network)
   d. Ardis (ie. Digital Cellular, Two way paging)
   e. AMP (ie. Cellular Telephone)
   f. Microwave
   g. Other

Protocol / Standard — The interface should have a protocol or other standard

associated with how it operates. In some instances there will be multiple protocols and standards associated with the interface. All protocols and standards shall be listed. The following list identifies some of the protocols / standards that may be found.

a. TCP/IP (UNIX, IBM, Microsoft, Beamon Whiteside, Exceed)
b. SNA (IBM)
c. IPX/SPX (Novell)
d. OSI
e. DECnet (Digital Equipment)
f. BISYNC
g. Frame Relay
h. X.25
i. FDDI
j. ATM
k. NetBios (IBM, Microsoft)
l. Video (ie. Manchester Code Based)
m. Other

Information Type / Content

A description of the information that is being passed through the interface. (ie. road conditions, Traffic congestion, road construction information)

Information Direction

Three choices are available for this item. Circle the applicable item.

Input	Flow of information is coming in to the surveyed system or component being described
output	Flow of information is going towards another component or external system.
Both	Flow of information is going both directions.

Information Frequency

Specify what rate the data is exchanged between components

Information Standards

List any standards that are identified with the information being processed. Some areas where standards may be present presented listed in the following list:

1. If location information is provided, what is the units or other location attributes provided?
   a. Street Names of the nearest intersections
   b. Mile Markers
   c. Latitude / Longitude
   d. Addresses
   e. Internal Travel Interchange Standard
   f. State / Plane Coordinate
   g. Links / Nodes
   h. Other
2. Traffic Messaging
3. Weather Messaging
4. Location Messaging
5. Construction Messaging
6. Mapping Standards (GIS)
   a. Image
   b. Vector
7. Electronic Mail (Email)
8. Electronic Data Interchange (EDI)
9. Computer Aided Logistics (CALS)

Policies

List agency policies that are practiced with respect to System Interfaces. Listed below are a couple of examples of what would belong in this topic.

1. Agency X only operates the interface with System A Monday - Friday, 8AM - 5PM.
2. Agency Y requires authorization to use Agency X interfaces to their systems.

Constraints / Restrictions

List agency constraints and/or restrictions with respect to System Interfaces:

1. The interface hardware is outdated and can no longer be upgraded.
2. The maintenance of the interface is only supported by a vendor specializing in RF transmitters.

Issues

List any issues that are related to this specific componenet If

the issue is global to the system, then is only needs to be stated once.

Recommended Improvements / Planned Changes

List any system or component recommended improvement that the contact person discusses. State whether the improvement is planned or a “wish” and explain why they system and component is being improved. If the improvement is global to the system, then is only needs to be stated once.

Contacts / Phone Numbers

List the contact person from which you recieved this information and their phone number.

Other

List anything else that may be relevant about the system, but does not fit in the above columns.

1.4 System Personnel

The purpose of System Personnel, Template Page #9, is to capture the interaction a human being with the system being surveyed. For each type of personnel using the system, a P# shall be created on the System Block Diagram to identify the personnel and where they interface with the system.

P#	[Same description as HW# in Section 1.1]
Personnel Role	A description of the personnel interfacing with the system. Some examples of a role are: 1. System Maintainer 2. Data Input 3. Data Analysis 4. Data Collector 5. User 6. Other
Quantity	Approximate quantity of personnel who perform this particular role. A individual may have more that one personnel role in working with the system, therefore may be counted more that once.
Location	[Same description as HW# in Section 1.1]
Workload	Approximate amount of time per week the personnel spends interfacing with the system. The amount should be estimated on the total quantity of personnel for each role. Circle the appropriate designator on the template. Each designator is described in the following list. E Extensive Use = 90-100% Utilization H High - average hours are >70 - 120 per week M Medium - average hours are 30 -60 per week L Low - average hours are <20 per week
Status	[Same description as Status in Section 1.1]
Policies	List agency policies that are practiced with respect to System

Personnel. Listed below are a couple of examples that may be found in this topic.

1. Agency X only operates the System A with the System Administrator, Monday - Friday, 8AM - 5PM.
2. Educational requirements to operate System B is experience with UNIX.

Constraints / Restrictions — List agency constraints and/or restrictions with respect to Systems Personnel.

1. The personnel do not have the skills to maintain the system.

Issues — List any issues that are related to this specific componenet. If the issue is global to the system, then is only needs to be stated once.

Recommended Improvements / Planned Changes

List any system or component recommended improvement that the contact person discusses. State whether the improvement is planned or a “wish” and explain why they system and component is being improved. If the improvement is global to the system, then is only needs to be stated once.

Contacts / Phone Numbers

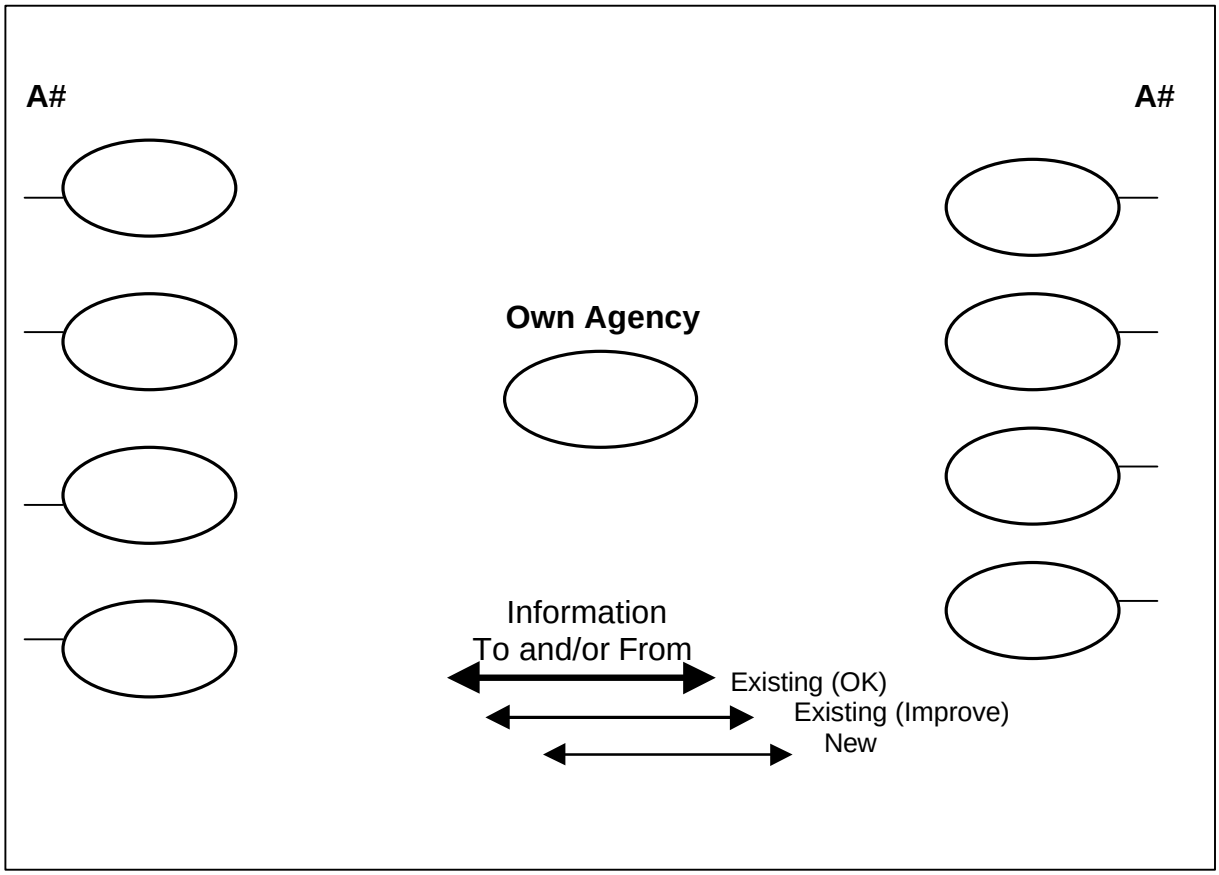
List the contact person from which you recieved this information and their phone number.

Other — List anything else that may be relevant about the system, but does not fit in the above columns.

2.0 Agency

Information about the organization which contains the system being surveyed is collected in this section. The purpose of this section is to identify any other systems or interfaces that an a agency has an established method for communicating.

Template Page #9 is a graphical view of who agencies have relationships with other agencies. For each agency surveyed, identify the external agencies by assigning an A## identifier, and placing the name of the external agency inside the oval. Indicate the type of interface between the agencies, by the legend in Template Page #7.



2.1 Agency Interfaces (Internal / External)

The purpose of Agency Interface, Template Page #11, is to further understand the type of relationship that is established with an external organization.

A#	[Same description as HW# in Section 1 .1]
Location	[Same description as Location in Section 1 .1]
information Content	This column is a summary of the information exchanged between the agencies. An few examples of the how to complete this item would be: Road Weather Information, Road Construction, and Incident Reporting
Interface Method	How is the information being exchanged today? Some recommended methods are presented in the following list: 1. Telephone 2. Fax 3. Mail 4. Computer Information Network a. Internet b. America Online c. Compuserve d. Prodigy e. Bulletin Board Service f. Other g. Two Way Radio h. Television 5. Radio Broadcast 6. Visual 7. Newspaper 8. Hardcopy Handouts (ie. Flyers, pamphlets)
Frequency	The frequency of information exchange shall be expressed in some type of units over a time period. 1. One time / minute 2. One time / hour 3. One time /day

4. One time /week
5. One time / month
6. One time / year
7. As needed
8. Post unplanned event (ie. traffic accident)
9. Other

Status — [Same description as Status in Section 1 .1]

Policies — List agency policies that are practiced with respect to the environment. Listed below are a couple of examples that may be found in this topic.

1. Agency X only operates the System A with the System Administrator, Monday - Friday, 8AM - 5PM.

2. Educational requirements to operate System B is experience with UNIX.

Constraints / Restrictions — List agency constraints and/or restrictions with respect to Systems Personnel.

1. The personnel do not have the skills to maintain the system.

Issues — List any issues that are related to this specific componenet. If the issue is global to the system, then is only needs to be stated once.

Recommended Improvements / Planned Changes

List any system or component recommended improvement that the contact person discusses. State whether the improvement is planned or a “wish” and explain why they system and component is being improved. If the improvement is global to the system, then is only needs to be stated once.

Contacts / Phone Numbers

List the contact person from which you recieved this information and their phone number.

Other — List anything else that may be relevant about the system, but does not fit in the above columns.

2.2 Agency Systems and Programs

Template Page #13 is collecting all the systems that an agency being surveyed is using. It is intended that for each system listed, a set of templates in Section 1 is completed.

APPENDIX C

As-Is Agency Reports
System Documentation Attachments

3.8.8 RAMSEY COUNTY CONSTRUCTION INFORMATION SYSTEM

RAMSEY COUNTY

THE SECOND SEASON

Ramsey County Department of Public Works
April 7, 1995

Minnesota's *Second Season* of road construction is again upon us. The Ramsey County Public Works Department will again be publishing a weekly newsletter entitled *The Second Season.* This spring marks the fifth year of publication.

The newsletter covers road construction in Ramsey County. It includes major maintenance, and environmental projects and provides information on the project location, the presence and duration of detours, and anticipated starting and completion dates. This year we will provide a more complete listing of state projects in the county. The newsletter will be published weekly in a shorter version throughout the construction season which normally begins in April and ends in November. This first edition which summarizes all work for 1995 includes a map this year and is provided below.

Two years ago we developed a survey for users of this newsletter. Our sincere thanks to all of you who completed the survey.

If you or someone you know would like to obtain a copy of the newsletter or would like to be added to the mailing list, please call the Ramsey County Public Works Department at 266-2600.

Paul L. Kirkwold
Director and County Engineer

PUT TOGETHER BY: Larry Feldhahn

1995 Maintenance/Construction At-a-Glance

The following projects in Ramsey County were not completed last season but are open to traffic except as noted. Construction will begin again later this spring.

- Carry-over project by Ramsey County with lane closures. Turf establishment and blacktop work remains with completion by July. Please call Bob Paine, 484-9104.

(1) County Road F — *Reconstruct between Lexington Avenue and Victoria Street.*
Lane closures for reconstruction.
Contractor: Forest Lake Contracting, 464-4500.

- Carry-over project by St. Paul with lane closures. Lanscaping and tree planting work remains. Please call Larry Leuth, 266-6083.

(2) Warner Road — *Reconstruct between Jackson Street and Child's Street.*
Work remaining is completion of landscaping and tree planting.
Contractor: Shafer Contracting, 462-7462.

Map Numbers

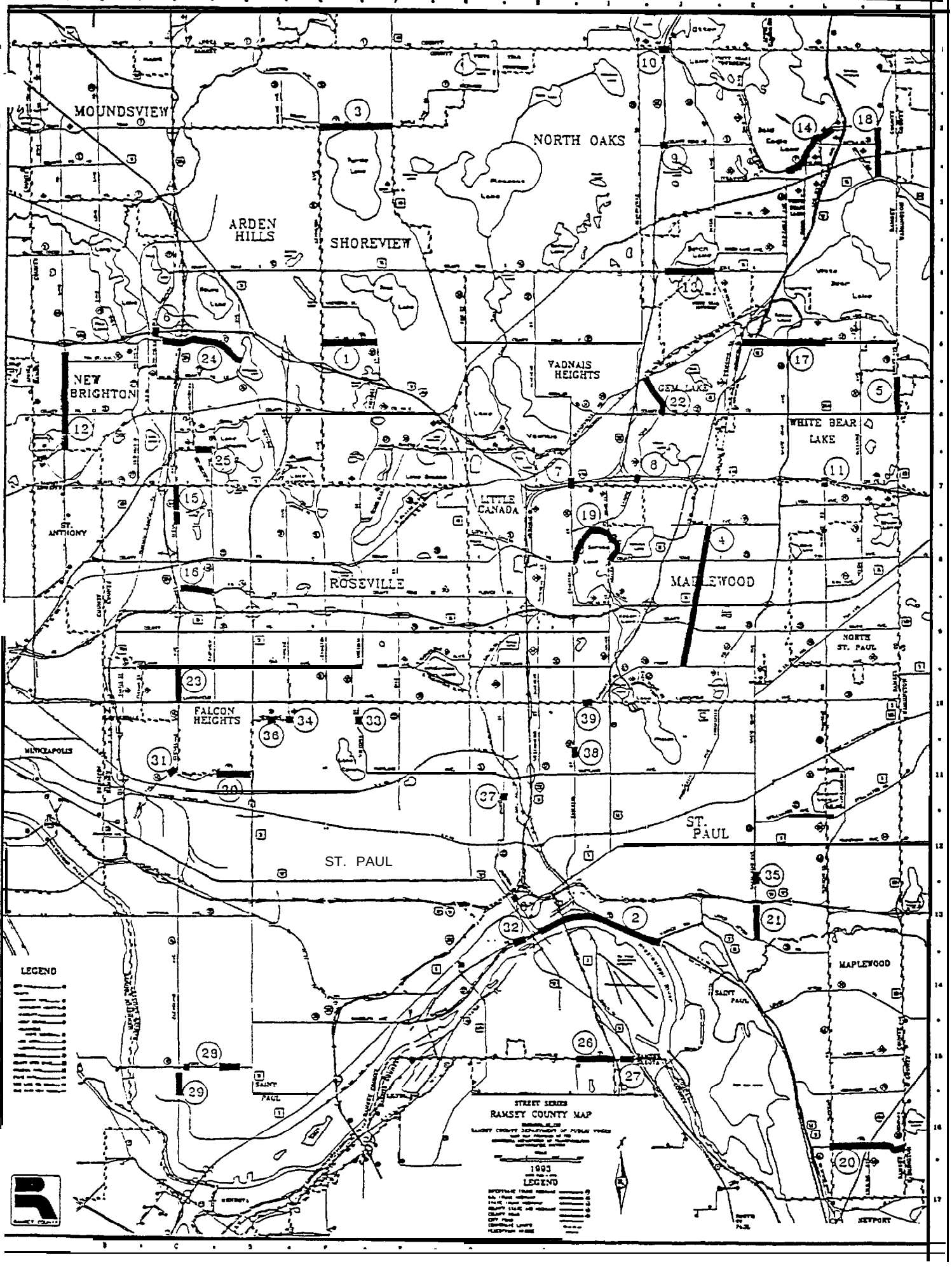
17	County Road F	*Hoffman Road to McKnight Road.*
18	Portland Avenue	*T.H.96 to Taylor Avenue.*
19	Keller Parkway	*Edgerton Street to County Road C.*
20	Caner Avenue	*House number 2221 to East County Line.*
21	White Bear Avenue	*Upper Afton Road to I-94.*
22	Labore Road	*County Road E to Goose Lake Road.*
23	Cleveland Avenue	*Between Larpenteur Avenue and Roselawn Avenue.* Lane closures for landscape construction.

- Reconstruction projects by Arden Hills (municipal) with traffic upset as noted. Please call the city at 633-5676.

24	County Road F	*Beween 1st Avenue and SneIling Avenue.* Street closure for reconstruction.
25	Stowe Avenue	*Between New Brighton Road and Lake Johanna Boulevard.* Street closure for reconstruction.
26	Annapolis Street	*Between Kansas Street and Robert Street.* Street closure for reconstruction.
37	Annapolis Street	*Between Stickney Avenue and Concord Street.* Street closure for reconstruction.

- Projects by St. Paul on county roads with traffic upset as noted. These will be constructed when required approvalsare received. Please call Larry Leuth, X6-6083.

28	Ford Parkway	*At Davern, Macalaster, Kenneth.* Short-term lane closures for sewer separation.
29	Cleveland Avenue	*Yorkshire to Hillcrest.* Street closure for sewer separation.
30	Como Avenue	*Stella Street to Snelling Avenue.* Street closure for sewer construction.
31	Raymond/Cleveland Avenues	*At Coma.* Lane closures for geometric improvements.
32	Shepherd Road	*At Wabasha Street.* Lane closures for sewer construction.
33	Victoria Street	*At Hoyt Avenue.* Street closure for reconstruction.


MOUNDSVIEW
NORTH OAKS
ARDEN HILLS
SHOREVIEW
NEW BRIGHTON
VADNAIS HEIGHTS
GEM LAKE
WHITE BEAR LAKE
ST. ANTHONY
LITTLE CANADA
ROSEVILLE
MAPLEWOOD
NORTH ST. PAUL
FALCON HEIGHTS
MINNEAPOLIS
ST. PAUL
LEGEND
STREET SERIES
RAMSEY COUNTY MAP
1993
LEGEND

RAMSEY COUNTY

THE SECOND SEASON

Ramsey County Department of *Public Works*
Week beginning August 28, 1995

WEEKLY CONSTRUCTION AND MAINTENANCE AT-A-GLANCE

ANNAPOLIS STREET New!
Between Robert Street and Kansas Street.

Road closed to thru traffic. Major activities are utilities and mill bituminous surface. City of West St. Paul – 552-4131.

CLEVELAND AVENUE
Yorkshire* Avenue *to Hillcrest Avenue.

Road ciosed to thru traffic, focal access only for approximately two months. Detour provided will be St. Paul Avenue. Major activity is storm sewer construction. City of St. Paul – 266-6083.

CLEVELAND AVENUE BRIDGE
Over Soo Line Railroad between County Road D and county Road E-2.

Emergency bridge closure due to fire. Detour provided until further notice.

COUNTY ROAD I
Between Lexington Avenue and T.H.49.

Road is Closed to thru traffic with detour provided. Major activities are grading, curbing, utilities and driveways.

KELLER PARKWAY
Between Edgerton Street and County Road B-2

Periodic lane cIosures until the middle of September for pulverization of old pavement, resurfacing, and restoration.

LABORE ROAD
Between County Road E and Goose Lake Road.

Periodic lane cIosures until the end of August for restoration.

STLVER LAKE ROAD
Between Silver Lane and 1-694.

Single lane traffic on bypass with delays. Major activities are utilities and grading.

T.H. 96
Between White Bear Parkway and Otter Lake Road.

Single lane traffic on bypass with delays. Four-way stops at previously signaled intersections. Major activities are grading, paving, and utilities. .

WHITE BEAR AVENUE
Between Upper Afton Road and I-94.

Periodic lane closures until the end of August for restoration.

WHTTE BEAR AVENUE
Between Conway Avenue and Fremont Avenue.

Road is closed to thru traffic with detour provided. Road will be open August 29 with periodic lane closures. Major activities are paving and landscaping. City of St. Paul – *266-6083.*

Questions??
Ramsey County Public Works-484-9104

RAMSEY COUNTY

THE SECOND SEASON

Ramsey County Department of Public Works
December 11, 1995

Ramsey County's 1995 Second Season of road construction is now behind us. The Ramsey County Public Works Department will end its year of publication with this summary issue. The Second Season will resume again in the spring.

Please complete the enclosed users survey. Your feedback will help us to serve you better.

If you or someone you know would like to receive a copy of this newsletter by Fax or would like to be added to the mailing list, please call the Ramsey County Public Works Department at 266-2600.

Paul L. Kirkwold
Director and County Engineer

1995 Maintenance/Construction At-a-Glance

The following construction projects by Ramsey County were completed during the 1995 season and are open to traffic.

County Road I	***Between Lexington Avenue and T.H.49.***
Burlington Northern Railway Trail	***Between Frost Avenue and Beam Avenue.***
East County Line Road	***Between T.H.244 and Cedar Avenue.***
County Road F	***Between Le.xington Avenue and Victoria*** Street.
T.H.96	***Between White Bear Parkway and Otter Luke Road.***

The following bridge projects by Mn/DOT are approved and will be constructed in 1996.

5th Avenue NW	***At I-694.***
Edgerton Street	***At I-694 and I-35E Commons.***
County Road H-9.	***At I-35E.***
County Road J	***At I-3SE.***

The following maintenance projects were completed in 1995.

Bald Eagle Boulevard East	***Bald Eagle Avenue*** to ***Park Avenue.***
County Road B-3	***Cleveland Avenue*** to ***Fairview Avenue.***
Portland Avenue	***T.H.96 to Taylor Avenue.***
Keller Parkway	***Edgerton Street to County Road C.***
Carver Avenue	***House number 2221 to East County Line.***
White Bear Avenue	***Upper Afron Road to l-94.***
Labore Road	***County Road E to Goose Lake Road.***
Cleveland Avenue	***Between Larpenteur Avenue and Roselawn Avenue.***
Keller Parkway	***Arcade Street to County Road C.***
Arcade Street	***T.H.36 to Keller Parkway.***

Thefollowing reconstruction projects by municipalities were completed in 1995.

County Road F	***Between 1st Avenue and Snelling Avenue.***
Stowe Avenue	***Between New Brighton Road and Luke Johanna.***
Annapolis Street	***Between Kansas Street and Robert Street.***
Annapolis Street	***Between Stickney Avenue and Concord Street.***
Ford Parkway	***At Davern, Macalaster, Kenneth Streets.***
Cleveland Avenue	***Yorkshire Avenue to Hillcrest Avenue.***
Como Avenue	***Stella Street to Snelling Avenue.***
Shepherd Road	***At Wabasha Street.***
Victoria Street	***At Hoyt Avenue.***
Hamline Avenue	***At Hoyt Avenue.***
White Bear Avenue	***Between Conway Avenue and Freemont Avenue.***
Hoyt Avenue	***East of Pascal Avenue.***
Jackson Street	***At Lawson Street.***
Edeerton Street	***At Ivy Street.***
Larpenteur Avenue	***At Payne Avenue.***

The following project by Ramsey County was not completed during the 1995 construction season. Construction will resume in the spring.

Silver Lake Road	***Between Silver Lane and I-694.***

Except as noted, the following projects by MnDOT are bridge projects and may be constructed in 1996 contingent upon availability of funds.

Hamline Avenue	***At T.H.36.***
Victoria Street	***At T.H.36.***
Arcade Street	***At T.H.36.***
County Road E-3	***At I-35W.***
T.H.96	***At I-35W.***
County Road I	***At I-35W.***
Beam Avenue	***At T.H.61 intersection: reconstruction.***
Maryland Avenue	***At I-35E intersection; reconstruction.***

The following projects are planned for 1996 construction and will be constructed when required approvals are received.

County Road D	***Reconstruct between I-35W and Cleveland Avenue.***
5th Avenue NW	***Reconstruct between 6th Street NW and I-694.***
T.H.96	***Reconstruct between Otter Luke Road and T.H.61.***
Cleveland Avenue	***Mill and overlay between County Road C and County Road D.***
Como Avenue	***Reconstruct intersection at Raymond/Cleveland Avenues.***
Prosperity Avenue	***Reconstruct between Rose Avenue and Maryland Avenue.***
Dale Street	***Reconstruct between University Avenue and Minnehaha Avenue.***
County Road E	***Mill and overlay between Labore Road and T.H.61.***
Lexington Avenue	***Mill and overlay between Larpenteur Avenue and Grey Fox Road.***
White Bear Avenue	***Reconstruct intersections between County Road C and I-694.***
Edgerton Street	***Reconstruct Bridge over Bush Avenue and CNRY.***

Happy Holidays!

THE SECOND SEASON SURVEY

Ramsey County Department of Public Works
December 11, 1995

The Ramsey County Department of Public Works is asking for your input in planning future editions of *The Second Season*, Ramsey County's weekly construction update. *The Second Season* was created to keep you informed about construction projects that could affect your travel plans.

We're interested in determining how this information is used by your organization. We'd also like to take this opportunity to update our mailing list.

Please take a few minutes to complete this survey and return to:

Public Affairs Division
Ramsey County Public Works
3377 North Rice Street
Shoreview, Minnesota 55126
(612) 484-9104 or (612) 482-5232 FAX

1. Who receives the weekly editions of *The Second Season* in your organization?
   Name:
   Title:

2. Is this the correct person to receive this mailing? Yes ☐ No ☐
   If "no", who should receive it? Name:
   How do you receive *The Second Season?* *FAX No.* _____ Mail_____

3. Would you like to continue receiving this information? Yes ☐ No ☐
   If no, please attach your mailing label to the completed survey or call to have your name removed from our list.

4. Do you make additional copies of the weekly *Second Season* update? Yes ☐ No ☐

5. Do you route the weekly update to others in your organization? Yes ☐ No ☐

6. Is it posted within your organization? Yes ☐ No ☐

7. Do you find the information in each edition:
   Helpful? Yes ☐ No ☐
   Timely? Yes ☐ No ☐
   Easy to Understand? Yes ☐ No ☐

8. What does your organization use the information from *The Second Season* for?

9. How valuable is this information to you?
   ☐ Very valuable ☐ Somewhat valuable
   ☐ Not very valuable ☐ Not valuable

10. Do you have any suggestions for improvements?

Thank you for your time and cooperation!

FE# 12 '96 13:36 PUBLIC WORKS-GARAGE
TUE, FEB 13, 1996 1:36 AM

Second Season : Weekly Fax List

Boka County:	Jon Olson	Call After:	12:00 AM
Internal Fax:	9,7543532	Call Before:	11:59 PM
Delivery:			
Comments:			
BRA:	Little Canada/Mike Lynch & Spring Lake Park	Call After:	12:00 AM
Interal Fzx:	9,6361311	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Blaine:	Chuck Lenthe	Call After:	12:00 AM
Internal Fax:	99,7843844	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Falcon Heights:	SusanHoyt	Call After:	12:00 AM
Internal Fax:	9,6448675	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Lauderdale, OSM		Call After:	12:00 AM
Internal Fax:	9,5955773	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Little Canada:	David B. Harris	Call After:	12:00 AM
Internal Fax:	9,74844538	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Maplewood:	Gary Bastina & KenHaider	Call After:	12:00 AM
Internal Fax:	9,7704597	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Mounds View:	Michael Ulrich	Call After:	12:00 AM
Internal Fax:	9,7840548	Call Before:	11:59 PM
Delivery:			
Comments:			
City of New Brighton:	Les Proper	Call After:	12:00 AM
Internal Fax:	9,6382044	Call Before:	11:59 PM
Delivery:			
Comments:			
City of North at Paul:	David Kotilinek	Call After:	12:00 AM
Internal Fax:	9,7709099	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Rosevile:	Director of Public Works	Call After:	12:00 AM
Internal Fax:	9,4902275	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Shoreview:	Director of Public Works	Call After:	12:00AM

Second Season

Internal Fax:	9,4904699	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Spring Lake Park:	Barbara Nelson	Call After:	12:00 AM
Internal Fax:	9,7843638	Call Before:	11:59 PM
Delivery:			
Comments:			
City of St. Anthony:	Larry Hamer	Call After	12:00 AM
Internal Fax:	9,7819323	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Vadnais Heights:	Gene Lindholm, SEE	Call After:	12:00 AM
Internal Fax:	9,4902150	Call Before:	11:59 PM
Delivery:			
Comments:			
City of Vadnais Heights	Gerald Urban	Call After:	12:00 AM
Internal Fax:	9,4298282	Call Before:	11:59 PM
Delivery:			
Comments:			
City of White Bear Lake	Mark Burch	Call After:	12:00 AM
Internal Fax:	9,4298500	Call Before:	11:59 PM
Delivery:			
Comments:			
Dave Nesheim, Nesheim & Associates		Call After:	12:00 AM
Internal Fax:	9,4847094	Call Before:	11:59 PM
Delivery:			
Comments:			
KARE		Call After:	12:00 AM
Internal Fax:	9,5468606	Call Before:	11:59 PM
Delivery:			
Comments:			
KMSP		Call After:	12:00 AM
Internal Fax:	9,9420455	Call Before:	11:59 PM
Delivery:			
Comments:			
KSTP		Call After:	12:00 AM
Internal Fax:	9,6424409	Call Before:	11:59 PM
Delivery:			
Comments:			
Lake Johanna Fir, Don Szurek		Call After:	12:00 AM
Internal Fax:	9,4868826	Call Before:	11:59 PM
Delivery:			
Comments:			
Lillia Suburban Newspaper		Call After:	12:00 AM
Internal Fax:	9,7778288	Call Before:	11:59 PM

Second Season

Delivery:
Comments:

MetroTraffic Control — Call After: 12:00 AM
Internal Fax: 9,3328362 — Call Before: 11:59 PM
Delivery:
Comments:

Mn/DOT: Judy Jacobs — Call After: 12:00 AM
Internal Fax: 9,5821368 — Call Before: 11:59 PM
Delivery:
Comments:

MSA: Arden Mills/Falcon Heights, TerryWaurer — Call After: 12:00 AM
Internal Fax: 9,6449446 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Electric: Bob Barosa — Call After: 12:00 AM
Internal Fax: 9,2292309 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Electric: Erv Westphal — Call After: 12:00 AM
Internal Fax: 9,7393139 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Electric: Mark Rucker — Call After: 12:00 AM
Internal Fax: 9,4581260 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Gas: Dave Stillman — Call After: 12:00 AM
Internal Fax: 9,2295585 — Call Before: 11:59 PM
Delivery:
Comments:

Ramsey County — Call After: 12:00 AM
Internal Fax: 9,4825232 — Call Before: 11:59 PM
Delivery:
Comments:

Ramsey County Parks & Recreation — Call After: 12:00 AM
Internal Fax: 9,7776519 — Call Before: 11:59 PM
Delivery:
Comments:

Ramsey County PublicWorks: Paul Kirkwood — Call After: 12:00 AM
Internal Fax: 9,2662615 — Call Before: 11:59 PM
Delivery:
Comments:

Rick Forsluad, Brookfield — Call After : 12:00 AM
Internal Fax: 9,2976222 — Call Before: 11:59 PM
Delivery:
Comments:

Second Season

Delivery:
Comments:

MetroTraffic Control — Call After: 12:00 AM
Internal Fax: 9,3328362 — Call Before: 11:59 PM
Delivery:
Comments:

Mn/DOT: Judy Jacobs — Call After: 12:00 AM
Internal Fax: 9,5821368 — Call Before: 11:59 PM
Delivery:
Comments:

MSA: Arden Mills/Falcon Heights, TerryWaurer — Call After: 12:00 AM
Internal Fax: 9,6449446 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Electric: Bob Barosa — Call After: 12:00 AM
Internal Fax: 9,2292309 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Electric: Erv Westphal — Call After: 12:00 AM
Internal Fax: 9,7393139 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Electric: Mark Rucker — Call After: 12:00 AM
Internal Fax: 9,4581260 — Call Before: 11:59 PM
Delivery:
Comments:

MSP Gas: Dave Stillman — Call After: 12:00 AM
Internal Fax: 9,2295585 — Call Before: 11:59 PM
Delivery:
Comments:

Ramsey County — Call After: 12:00 AM
Internal Fax: 9,4825232 — Call Before: 11:59 PM
Delivery:
Comments:

Ramsey County Parks & Recreation — Call After: 12:00 AM
Internal Fax: 9,7776519 — Call Before: 11:59 PM
Delivery:
Comments:

Ramsey County PublicWorks: Paul Kirkwood — Call After: 12:00 AM
Internal Fax: 9,2662615 — Call Before: 11:59 PM
Delivery:
Comments:

Rick Forsluad, Brookfield — Call After : 12:00 AM
Internal Fax: 9,2976222 — Call Before: 11:59 PM
Delivery:
Comments:

Mailing List

Ramsey Co
Second Season

Inter office →

Ramsey Co Parks Dept
Ramsey Co Commissioner
Ramsey Co Manager
City of St. Paul
Tom Eggum
Larry Lueth
Allen Lovejoy

GEM LAKE
1369 County Road E East
Gem Lake, MN 55110

LAUDERDALE
Kathleen Miller
1891 Walnut Street
Lauderdale, MN 55113

MARK LENTE
5605 Royal Oaks Drive
Shoreview, MN 55126

MN/DOT
INFO CENTER
404 Transportation Bldg
395 John Ireland Blvd
St. Paul, MN 55155

NORTH OAKS
City Engineer
100 Village Center Drive
#150
North Oaks, MN 55127

WHITE BEAR TOWNSHIP
1281 Hammond Road
White Br Tsp, MN 55110

MPLS STAR & TRIBUNE
355 North Wabasha #275
St. Paul, MN 55102

GEM LAKE
1369 County Road E East
Gem Lake, MN 55110

LAUDERDALE
Kathleen Miller
189l\Walnut Street
Lauderdale, MN 55113

MARK LENTE
5605 Royal Oaks Drive
Shoreview, MN 55126

MN/DOT
INFO CENTER
404 Transportation Bldg
395 John Ireland Blvd
St. Paul, MN 55155

NORTH OAKS
City Enginker
100 Village Center Drive
#150
North Oaks, MN 55127

WHITE BEAR TOWNSHIP
1281 Hammond Rqad
White Br Tsp, MN 55110

MPLS. STAR & TRIBUNE
355 North Wabasha #275
St. Paul, MN 55102

3.8.9 MN/DOT ESS GOPHER STATE ONE-CALL ACCESS SYSTEM

State of Minnesota

Department of Transportation

OFFICE MEMORANDUM

To: Curt Gobeli **DATE: February 20, 1996**

FROM: Tom Grimes **PHONE: 725-2305**

SUBJECT: One Call Locating System

Attached is a summary of One Call activity showing a monthly breakdown of tickets and charges for 1995, and a graph of weekly transmissions.

	1995	1994	1993	1992	1991	1990
Transmissions	140,238	139,440	129,694	107,585	85,098	87,815
NLR	129,070	127,247	116,234	98,942	78,046	79,665
Locations	4,269	4,092	3,718	4,229	2,861	2,268
Cancellations	2,674	2,715	2,684	2,517	1,736	1,804
Rexmissions	0	203	125	92	474	751
Charges (GSOC)	$ 14.142	$ 15,630	$ 27,165	$ 17,882	$ 13,151	$ 15,605
NLR Credit	$161,338	$247,695	$290,585	$247,355	$195,115	$199,163
Peak Month (May)	21,111	19,586	15,735	13,910	11,704	11,318
Peak Week	(5-6)	(5-14)	(4-23)	(5-22)	(4-26)	(5-11)
# of Tickets	4,905	4,790	4,364	3,544	3,151	2,909
Weekly Avg (4-10)	3,726	3,602	3,346	2,755	2,319	2,252
Weekly Avg (Winter)	1,412	1,713	1,167	949	728	964
%Not on R/W	49%	46%	41%	32%	31%	
% Locates/ Xmission	3.0%	2.9%	29%	3.9%	3.1%	26%

In February 1996 GSOC implemented the **PRISM** system using Latitude and Longitude and a sofisticated mapping system which is expected to reduce the number of transmissions that are presently NLR. PRISM should reduce the number of tickets received by 50%. I will continue to persue the programming changes needed to improve the conversion and audit processes.

CC:
Mike Robinson
Dean Raske
Marlin Reinardy
Roger Vandenheuvel

Gopher State One Call 1

Ticket No: 20101 LORQ ROUTINE
Send To: XDOT10 Seq No: 1 Map Ref:

Transmit Date: 2/23/96 Time: 4: 08 pm Op: opbb
Original Call Date: 2/23/96 Time: 4: 04 pm Op: opbb
Work to Begin Date: 2/27/96 Time: 4: 15 pm

Company : DEPARTMENT OF TRANSPORTATION
Contact Name: ROGER KLAUSTERMEIER Phone: (612)496-4191 Ext. : 203
Alt. Contact: TODD/ROGER/DUAYNE Phone: (612)867-0912

Type of Work: GUARD RAIL REPAIR
Work Being Done For: DEPARTMENT OF TRANSPORTATION
Explosives: N Duration: 1 DAY. R.0.W: Y

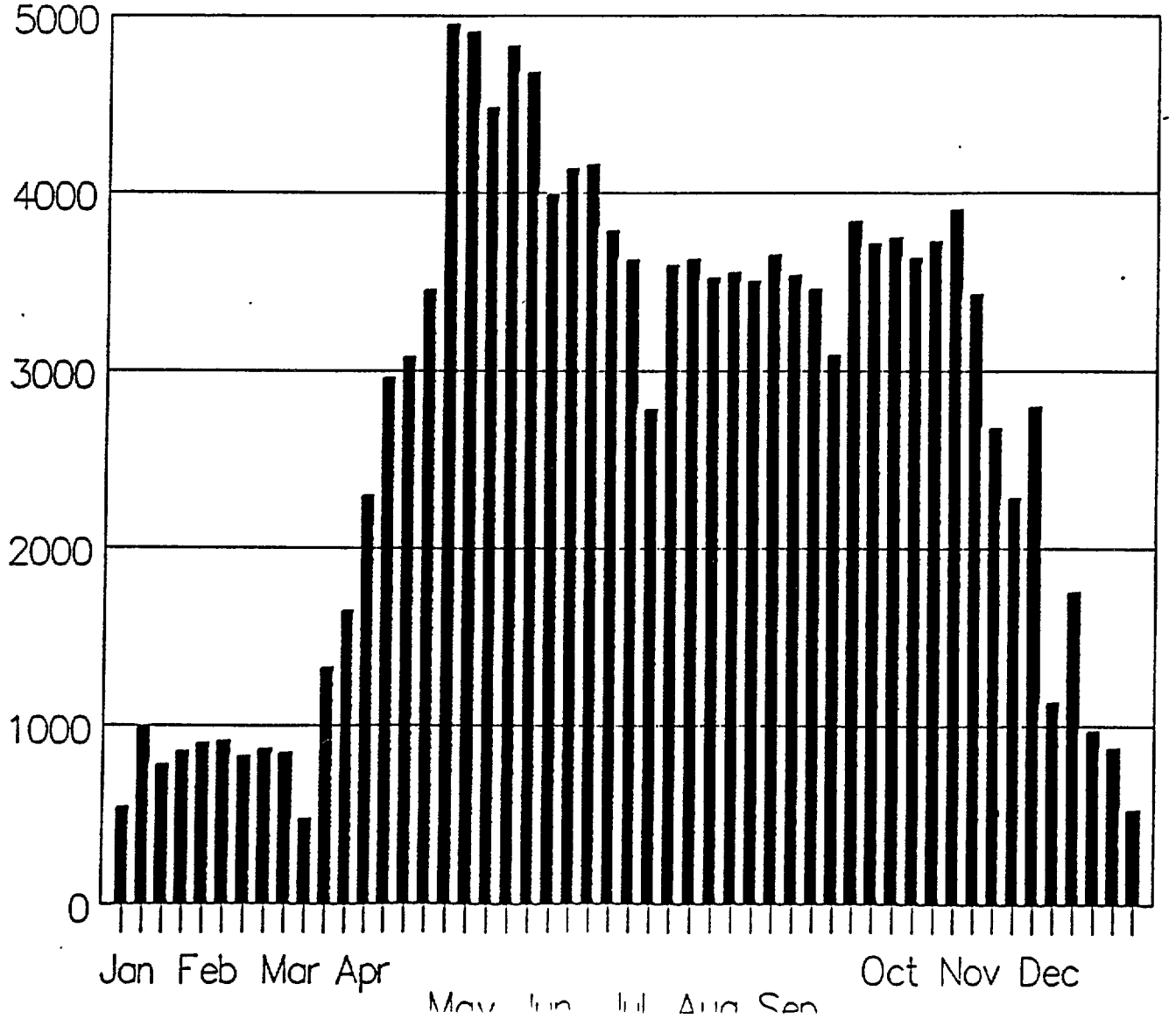
State: MN County: CARVER Place: CHANHASSEN CITY
Address: Street: TH 7
Nearest Intersecting Street: PIPEWOOD CURVE
Location of Work: TH 7 800FT WEST OF JCT 7 AND PIPEWOOD CURVE WEST BOUND. :MARK AREA WHERE GUARD RAIL ARE BROKE OR MISSING.
Remarks: FAXED LOCATE REQUEST

Twp: 116N Rng: 23W Sect-Qtr: 5SE-SW-NE-NW
Twp: *MORE Rng: 23W Sect-Qtr: 32-SE-SW,33-SW
Legal Given:
CCHNSN01 CSHRWD01 METWAS0l MINGAS02 MNDCBL01. MNVAEC01 NOSTPW02 USWEST03 XDOT10

End Of Transmission

	TOTAL CALLS	CORR	CANC	BILL-ABLES	NLRS	BILL-ABLES	RETR	LOC	MO. VAR	TOTAL	CHARGE'S	CHARGE'S	CHARGE'S	ROW
01	3523	26	81	3416	3270	146	0	56	90	146	$255.50	$.00	$255.50	1423
02	3482	31	69	3382	3179	203	0	105	98	203	$355.25	$.00	$355.25	1543
03	5514	114	115	5285	4580	705	0	273	432	705	$1,233.75	$.00	$1,233.75	3006
04	14462	130	268	14064	12897	1167	0	331	836	1167	$2,042.25	$.00	$2,042.25	7383
05	21111	169	349	20593	17819	2774	0	571	2203	2774	$4,854.50	$.00	$4,854.50	11547
06	17491	142	355	16994	16644	350	0	395	-45	350	$612.00	$.00	$612.00	8881
07	14317	101	268	13948	13572	376	0	383	-7	376	$658.00	$.00	$658.00	6933
08	16315	132	327	15856	15462	394	0	527	-133	394	$689.50	$.00	$689.50	7932
09	14943	113	233	14597	14597	777	0	496	281	777	$1,359.75	$.00	$1,359.75	6990
10	16051	101	256	15694	15097	597	0	578	19	597	$1,044.75	$.00	$1,044.75	7428
11	8957	94	233	8630	8181	449	0	416	33	449	$785.00	$.00	$785.00	3501
12	4072	36	120	3916	3772	144	0	138	6	144	$252.00	$.00	$252.00	1536
	140238	1189	2674	136375	129070	8082	0	4269	3813	8082	$14,142.25	$.00	$14,142.25	68103

GSOC95GF



Work Order

Minnesota Department of Transportation
ESS Onecall Locate Worksheet

Date: 02/22/1996
Time: 10:22
Page: 1

Ticket No: 19302 Type: LORQ
Seq No: 49 Update of:
Work Begin Date: 02/26/1996 Time: 10:00 am

Company: DEPARTMENT OF TRANSPORTATION
Contact Name: GUST S Phone: (612)779-5150
Alt. Name: GUS SCHARFFBILLIG Phone: (507)280-7480

Type of Work: REPAIR GUARD RAIL POST
Work Done For: MN DOT
Work Duration: 1 DAY

County: WASHINGTON Place: OAKDALE
Address: Street: I-694
Nearest Intersection: 15TH ST
Location:
NORTHBOUND 694 200FT SOUTH OF 15TH ST BRIDGE EAST SIDE OF FREEWAY. LOCATE 5FT EITHER SIDE OF GUARD RAIL BETWEEN WHITE FLAGS.

Remarks:
FAXED LOCATE REQUEST

System: 5568 Thru Highway: 694
Location: HARVESTER RD/15TH ST N
Feed Point: N06P Charge No: 07005 ESS Area: M2
Note: Initial: _____

Action Taken [indicate all (Signal, Lighting) Systems Located]

clear

Initial	Date	Time Arrived	Time Left	Hours	Miles	Unit
DC	2-23	10:00	10:10	1	20	95570

Date Completed: 2-23-96