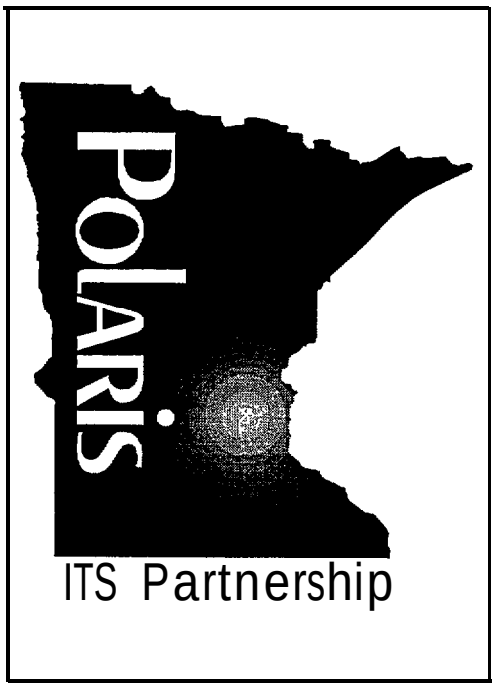
Minnesota Department of Transportation Agreement Number: 73807P

Minnesota Intelligent Transportation Systems

Statewide Intelligent Transportation Systems As-Is Agency Reports for Minnesota



Volume 6
City of St. Paul

Prepared for the Minnesota Department of Transportation by:

Lockheed Martin Federal Systems-Owego
Intelligent Transportation Systems
Mail Drop 0 124
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

FHWA

Statewide ITS As-Is Agency Report for Minnesota
Volume 6
City of St. Paul

Statewide ITS As-Is Agency Report for Minnesota
Volume 6
City of St. Paul

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 Svstem 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 121 candidate systems, 38 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.

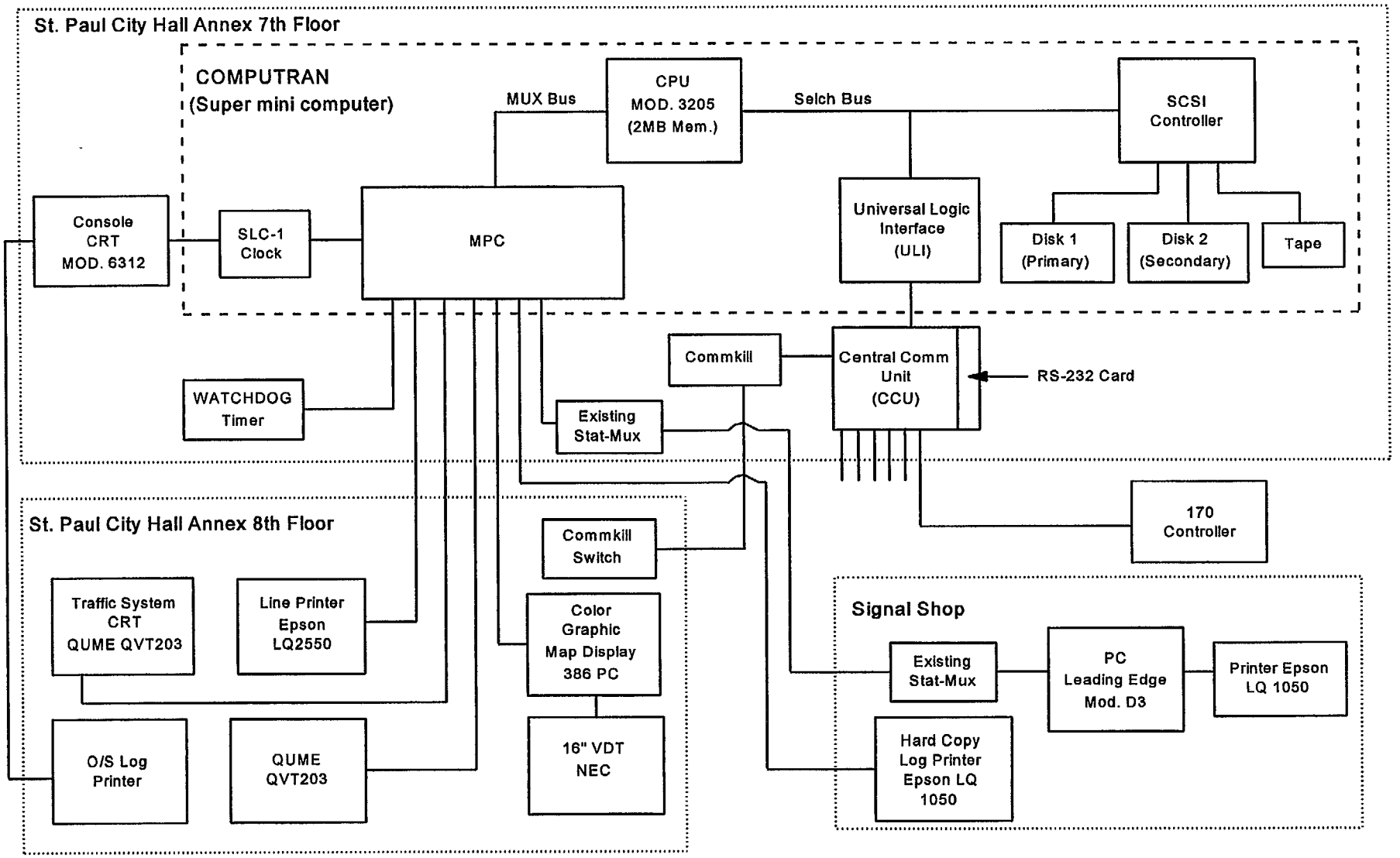
3. As-Is Baseline System Documentation

3.6 CITY OF ST. PAUL

3.6.1 CITY OF ST. PAUL COMPUTRAN TRAFFIC SIGNAL CONTROL SYSTEM

POLARIS As-Is Baseline Data Collection

City of St. Paul Computran Traffic Signal Control System



NOTE: All interconnect between 7th and 8th floor equipment are 125' RS-232 shielded cable

stp_comp.pre
14 May 1998

AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "CITY OF SAINT PAUL"

- Agency Type	Department of Public Works/Traffic Division
- Agency Functions	Manage Traffic Operations and Data
- Agency Location(s)	Traffic Division 800 City Hall Annex 25 West Fourth Street Saint Paul, MN 55 102- 1660 Traffic signal lighting and sign maintenance office 899 North Dale Street Saint Paul, MN
- Contacts	Paul T. Kurtz, P.E. Ph (612) 266-6203 Fax (612) 298-4559

2.0 SYSTEM "COMPUTRAN TRAFFIC SIGNAL CONTROL SYSTEM"

- Date of As-Is Data Collection	l/25/96
- Purpose	Provide central management of traffic control signal systems.
- Hours of Operation	24 hours/day - 2 intersections go to flash during late night hours.
- Geographic Coverage	Downtown St. Paul 115 traffic signals systems, 62 system vehicle loop detectors are controlled by the Computran system. A majority of the signals in the system are located in the downtown St. Paul area bordered by Kellogg Boulevard, John Ireland Boulevard, University Avenue, Wall Avenue, and Shepard Road. The system also controls signal systems on radial arterial streets from St. Paul Central Business District (CBD) including 7th Street on the east and west and Kellogg Boulevard. This system provides management control of the signals on city streets in the St. Paul CBD. The signal systems are partitioned into 7 sections of coordinated signal sub systems and 15 communication lines (maximum of 25 lines possible).
- Contacts	Paul Kurtz, City of St. Paul, Department of Public Works-Traffic Division, Field Engineering & Permits.
- Status	Existing
- Policies	The Dale St. shop has complete functional redundancy of the Computran management system.
- Constraints	1) Computran system limited to 250 intersections and 200 system vehicle loop detectors. 2) System is not very flexible or adaptable to integrate with new systems.

- Issues	Significant yearly maintenance agreement on Cornputran hardware and software (approximately $4500/yr.)
- Recommended Improvements	City will replace current Computran management computer system with a PC based system within one year. City will have the majority of the 350 total signal systems in the city under control of this new system. New system specifications are based on the system developed by Advanced Computing Technology (contact : Steve Fontaine) of Colorado Springs. New system will eliminate annual maintenance costs. New system may have some restrictions on access to source code, restrictions not known at this time because system has not been purchased. City to provide PC hardware. The new traffic control application software will use either Windows 95 or Windows NT operating system. The new application should provide better integration to other transportation-related systems and be more flexible. Plans for system installation to be completed by year end 1996.
- Block Diagram	See attached
- Typical Operational Scenario	(1) System monitors intersections for Emergency Vehicle Preemption events, communication failures, controller failures, system coordination errors. Operator can update/monitor intersection status from annex and maintenance facility. (2) System stores 4 timing plans used (AM peak, midday, PM peak, overnight) in all controllers. (3) System allows the City Traffic Engineer to create and store timing plans in the system.
- Other	Volume and occupancy data from the system vehicle loop detectors are not used for real time traffic responsive operation of the signal systems. The count data is used mainly for analysis and planning. There are 62 system loop detectors currently installed in the system. There are a total of 350 signalized intersections in all of St. Paul. The City also operates several closed loop signal system.

2.1 PERSONNEL "SYSTEM TRAFFIC ENGINEER'

- Personnel Function	Oversee operations and maintenance of downtown signal system, signal timing plans, operational tests, and other related duties.
- Quantity	1
- Location	City of Saint Paul, Department of Public Works, City Hall Annex
- Workload	40 hours/week - only part of time dedicated to Computran system. Workload depends on number of problems with system, the need to change or revise timing plans and the addition of any new intersections to system.
- Working Hours	7:00am-4:00pm
- Status	Existing
- Policies	All existing signal timing plans are done by St. Paul Department of Public Works. New signal systems design and timing plans are developed by consultants with Department of Public Works supervision.
- Contact	Paul T. Kurtz, P.E.

2.2 PERSONNEL "TECHNICIAN"

- Personnel Function	High level engineering technician. Assists in operating Computran system and performing analysis on collected data. This is likely a person with a technical degree and many years of experience with St. Paul signal systems and not a traffic engineer.
- Quantity	2
- Location	City of Saint Paul, Department of Public Works, City Hall Annex
- Workload	40 hours/week Only part of time dedicated to Computran system. Workload depends on number of problems with system, the need to change or revise timing plans and the addition of any new intersections to system.
- Working Hours	8:00am-5:00pm
- Status	Existing

2.3 PERSONNEL "TECHNICIAN"

- Personnel Function	High level engineering technician, will assist existing personnel with operation of new ITS systems, DIVERT and Advanced Parking Information System.
- Quantity	2
- Location	City of Saint Paul, Department of Public Works, City Hall Annex
- Workload	Will probably not work with Computran system, but will use DIVERT system and Advanced Parking Information System
- Working Hours	6:00am-6:30pm
- Status	Future employees, funded for 2 years, for ITS support.

3.1 HARDWARE "COMPUTRAN"

- Hardware Type	Model 3205 (2MB mem) Super mini computer by Concurrent Computer Corporation
- Functions	Runs Computran traffic signal control software application.
- Location	City of St. Paul Annex
- Data Name/Contents	Signal timing plans(including min/max green time, walk time, clearance times, coordination parameters), counts(volume and occupancy).
- Data Type	Data
- Status	Existing
- Other	Can download new timing plans to 170 controller via Computran.

3.1.1 SOFTWARE "COMPUTRAN"

- Software Type	Transportation software application
- Software Standards	Urban Traffic Control System (UTCS) was modified and called Modified Traffic Control System (MTCS).
- Functions	(1) Commands intersection controllers to use one of four previously downloaded signal timing plans. (2) Collects and stores volume and occupancy data from the 62 existing loop detectors via communication with 170 traffic controllers. (3) Monitors 170 traffic controller status for failures of timing plans, controllers, and communications. (4) Prints and displays reports. (5) Allows traffic engineer to create and store timing plans.
- Status	Existing
- Issues	Proprietary software. Expansion and flexibility limited for integrating with other systems.

3.1.2 SOFTWARE "CONCURRENT 3200 OPERATING SYSTEM"

- Software Type	Operating system
- Software Standards	Other
- Functions	Control Model 3205 CPU 1) Run software applications, manages disk space and memory. 2) Perform data backups. 3) Control hardware resources, printers, displays, and controllers.
- Status	Existing
- Policies	None

3.2 HARDWARE "CENTRAL COMMUNICATIONS UNIT (CCU) - Winkomatic"

- Hardware Type	Type 202 Modem
- Functions	Sends and receives data from intersection controllers.
- Location	St. Paul City Hall Annex-7th floor
- Data Name/Contents	Timing plans, traffic counts, and controller events.
- Data Type	Data
- Status	Existing
- Constraints	Each modem can connect to 10 intersection modems (250 intersection capacity of system).
- Contact	Paul T. Kurtz, P.E.
- Other	There are 25 Type 202 modems.

3.3 HARDWARE "STATISTICAL MULTIPLEXERS"

- Hardware Type	Multiplexers
- Functions	Pre-determined sampling sequence of data from each intersection controller.
- Location	St. Paul City Hall Annex - 7th floor
- Data Name/Contents	Timing plans
- Data Type	Data
- Status	Existing
- Other	There are six multiplexers

3.4 HARDWARE "SLC-1 TIME CLOCK'

- Hardware Type	Clock
- Functions	Send time data to CPU. Centralized timing for all 170 traffic controllers to remain in coordination. NOTE: Safetran is a manufacturer of Type 170 controllers that the City of St. Paul uses.
- Location	St. Paul City Hall Annex - 7th floor
- Data Name/Contents	Time
- Data Type	Data
- Status	Existing
- Issues	Clock currently loses approximately 3 minutes of time per week and requires manual reset.
- Other	Clock has a battery backup.

3.5 HARDWARE "MODEL 63 12 CONSOLE CRT"

- Hardware Type	Terminal/Workstation
- Functions	1) Displays system information. 2) Reports system events
- Location	St. Paul City Hall Annex - 7th floor
- Data Name/Contents	System information
- Data Type	Data
- Status	Improve

3.6 HARDWARE "COMMKILL"

- Hardware Type	Communications Interrupter Device
- Functions	Disconnects all communications to Type 170 traffic controllers from Super mini computer when data is corrupted.
- Location	St. Paul City Hall Annex - 7th floor
- Data Name/Contents	None
- Data Type	None
- Status	Existing
- Other	The Comrnkill switch has never been used.

3.7 HARDWARE "WATCHDOG TIMER'

- Hardware Type: Timer/Clock
- Functions: Provides battery back-up time information.
- Location: St. Paul City Hall Annex - 7th floor
- Data Name/Contents: Time information.
- Data Type: Data
- Status: Existing
- Other: Provides time information after power failure and/or reboot.

3.8 HARDWARE "QUME QVT203 & CRT"

- Hardware Type: Terminal/Workstation
- Functions:
  1) Displays collected count and event information.
  2) Displays current timing plans.
  3) Receives input for creating timing plans.
  4) May be used as a workstation to control operating system.
- Location: St. Paul City Hall Annex - 8th floor
- Data Name/Contents: System information (existing timing plans, event logs, traffic counts)
- Data Type: Data
- Status: Existing

3.9 HARDWARE "COLOR GRAPHICS MAP DISPLAY UNIT'

- Hardware Type: PC 386 Leading Edge with 16" VDT NEC
- Functions: Graphically displays intersection status in map format
- Location: St. Paul City Hall Annex - 8th floor
- Data Name/Contents: Real time intersection status:
  1) Green status
  2) Communication status
  3) Preemption status
  4) Detector status
- Data Type: Data
- Status: Existing

3.10 HARDWARE "EPSON PRINTER LQ 2550"

- Hardware Type: Printer
- Functions: Prints data
- Location: St. Paul City Hall Annex - 8th floor
- Data Name/Contents: Intersection Controller/traffic count data
- Data Type: Data
- status: Existing

3.11 HARDWARE "O/S LOG PRINTER"

- Hardware Type: Printer
- Functions: Prints data
- Location: St. Paul City Hall Annex - 8th floor
- Data Name/Contents: System event/error data which include:
  1) Communication errors
  2) Controller failures
  3) Emergency vehicle preemption events
  4) Coordination errors (when timing plans don't match-Computran versus 170 controller)
- Data Type: Data
- status: Existing

3.12 HARDWARE "REMOTE COMMKILL SWITCH"

- Hardware Type: Switch
- Functions: Enables communication interrupter device which disconnects all communications to Type 170 traffic controllers from Super mini computer when data is corrupted
- Location: St. Paul City Hall Annex - 8th floor
- Data Name/Contents: None
- Data Type: None
- Status: Existing
- Other: The Cornmkill switch has never been used

3.13 HARDWARE "PC: LEADING EDGE MODEL D3"

- Hardware Type: PC
- Functions:
  1) Displays collected count and event information.
  2) Displays current timing plans.
  3) Receives input for creating timing plans.
  4) May be used as a workstation to control operating system.
- Location: City of St. Paul Signal Shop
- Data Name/Contents: System operation/status data
- Data Type: Data
- Status: Existing

3.14 HARDWARE "EPSON PRINTER LQ 1050"

- Hardware Type	Printer
- Functions	Prints data
- Location	City of St. Paul Signal Shop
- Data Name/Contents	Intersection Controller/traffic count data
- Data Type	Data
- Status	Existing

3.15 HARDWARE "LOG PRINTER EPSON LQ 1050"

- Hardware Type	Printer
- Functions	Prints data
- Location	City of St. Paul Signal Shop
- Data Name/Contents	System event/error data which include: 1) Communication errors 2) Controller failures 3) Emergency vehicle preemption events 4) Coordination errors (when timing plans don't match-Computran versus 170 controller)
- Data Type	Data
- Status	Existing

4.1 INTERFACE	CPU
- Connects to . . .	QUME - QVT 203 CRT Traffic system
- Interface location	St. Paul City Hall Annex - 7th/8th floor
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232
- Information Type/Content	System data
- Information Direction	Both
- Information Frequency	Continuous

4.2 INTERFACE	CPU
- Connects to . . .	QUME - QVT 203 terminal
- Interface location	St. Paul City Hall Annex - 7th/8th floor
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232
- Information Type/Content	System data System information (existing timing plans, event logs, traffic counts).
- Information Direction	Both
- Information Frequency	Continuous

4.3 INTERFACE	CPU
- Connects to . . .	Line printer LQ -2550
- Interface location	St. Paul City Hall Annex - 7th/8th floor
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232
- Information Type/Content	Database of timing plans and traffic counts
- Information Direction	output
- Information Frequency	On demand

4.4 INTERFACE	Model 63 12 Console CRT
- Connects to . . .	O/S Log printer (not specified)
- Interface location	St. Paul City Hall Annex - 7th/8th floor
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232
- Information Type/Content	Event reports, system errors
- Information Direction	output
- Information Frequency	On event occurrence

4.5 INTERFACE	CPU
- Connects to . . .	386 PC Leading Edge-Color graphics display
- Interface location	St. Paul City Hall Annex - 7th/8th floor
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232
- Information Type/Content	System status
- Information Direction	Both
- Information Frequency	Continuous

4.6 INTERFACE	SLC-1 Clock
- Connects to . . .	Model 63 12 Console CRT
- Interface location	St. Paul City Hall Annex - 7th floor
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232
- Information Type/Content	System event/error data which include: 1) Communication errors 2) Controller failures 3) Emergency vehicle preemption events 4) Coordination errors (when timing plans don't match-Computran versus 170 controller)
- Information Direction	Both
- Information Frequency	Continuous

4.7 INTERFACE	Central Communications Unit (CCU)
- Connects to . . .	Type 170 intersection controller
- Interface location	St. Paul City Hall Annex - 7th floor to each intersection (in field)
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Type 200 Modem at CCU / Type 400 Modem at Type 170 controller connected with twisted pair cable
- Protocol/Standard	RS-232
- Information Type/Content	Information to/from intersection controller/loops (signal timing data, intersection status, event information, detector count information)
- Information Direction	Both
- Information Frequency	Continuous

4.8 INTERFACE	CPU
- Connects to ...	Epson Log Printer LQ 1050
- Interface location	St. Paul City Hall Annex / Signal Shop
- Interface Type	Data
- Interface Direction	Output
- Interface Component	Twisted pair
- Information Type/Content	Event reports, system errors
- Information Direction	output
- Information Frequency	On event occurrence

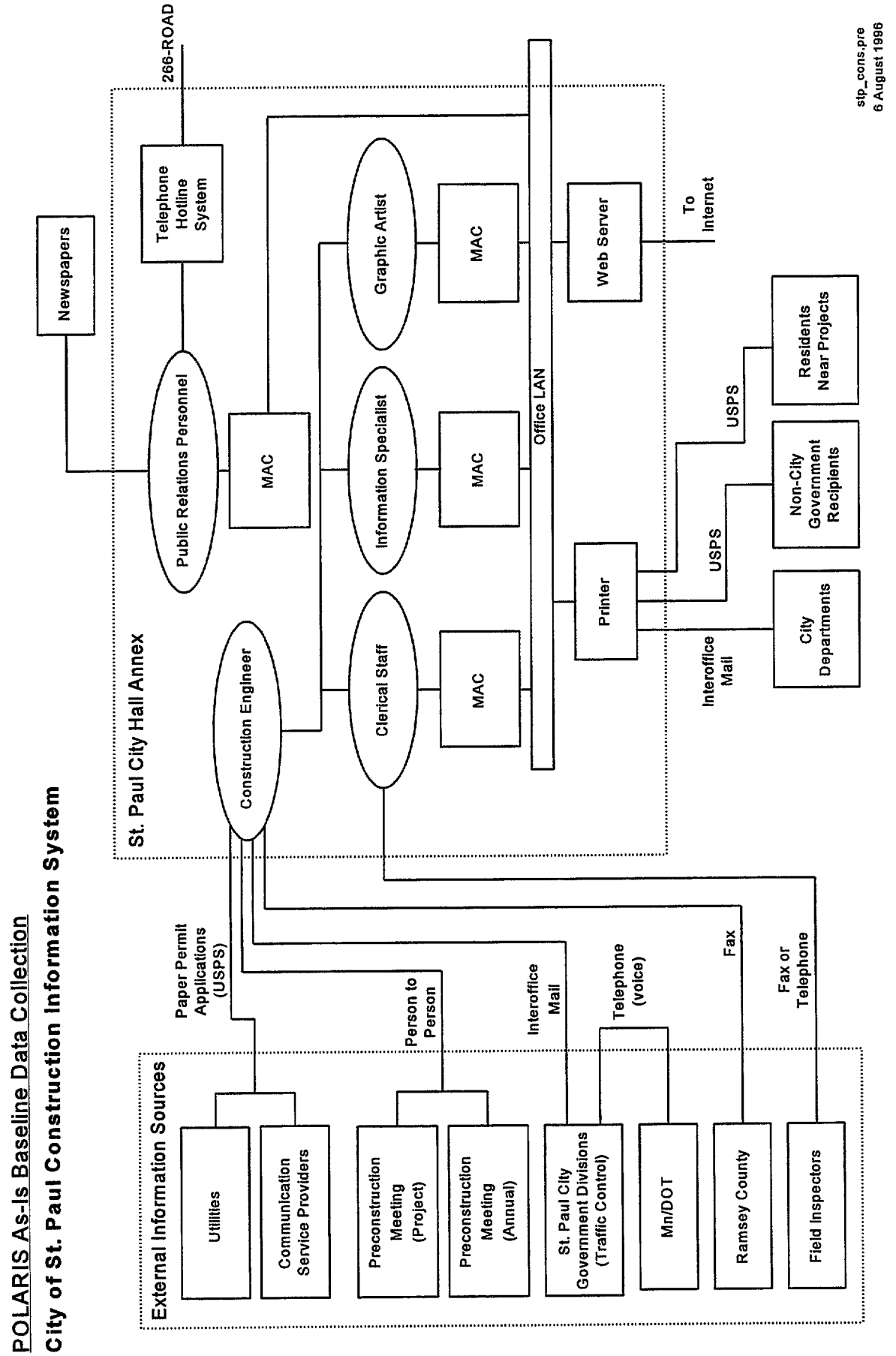
4.9 INTERFACE	CPU
- Connects to . . .	Existing Statistical Multiplexor
- Interface location	St. Paul City Hall Annex - 7th floor
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232
- Information Type/Content	System information
- Information Direction	Both
- Information Frequency	Continuous

4.10 INTERFACE	Existing statistical multiplexor - Annex
- Connects to . . .	Existing Statistical Multiplexor - Signal Shop
- Interface location	St. Paul City Hall Annex
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Twisted pair
- Information Type/Content	System information
- Information Direction	Both
- Information Frequency	Continuous

4.11 INTERFACE	Existing Statistical Multiplexor
- Connects to . . .	PC Leading Edge Model D3
- Interface location	City of St. Paul Signal Shop
- Interface Type	Data
- Interface Direction	Both
- Interface Component	RS-232 Serial
- Information Type/Content	System information
- Information Direction	Both
- Information Frequency	Continuous

4.13 INTERFACE	PC Leading Edge Model D3
- Connects to . . .	Epson printer LQ 1050
- Interface location	City of St. Paul Signal Shop
- Interface Type	Data
- Interface Direction	output
- Interface Component	Parallel cable
- Information Type/Content	Database of timing plans and traffic counts
- Information Direction	output
- Information Frequency	On demand

3.6.2 CITY OF ST. PAUL CONSTRUCTION INFORMATION SYSTEM


POLARIS As-Is Baseline Data Collection
City of St. Paul Construction Information System
External Information Sources
Utilities
Communication Service Providers
Preconstruction Meeting (Project)
Preconstruction Meeting (Annual)
St. Paul City Government Divisions (Traffic Control)
Mn/DOT
Ramsey County
Field Inspectors
Paper Permit Applications (USPS)
Person to Person
Interoffice Mail
Telephone (voice)
Fax
Fax or Telephone
St. Paul City Hall Annex
Construction Engineer
Clerical Staff
Public Relations Personnel
Information Specialist
Graphic Artist
MAC
MAC
MAC
MAC
Office LAN
Printer
Web Server
To Internet
Newspapers
Telephone Hotline System
266-ROAD
Interoffice Mail
USPS
USPS
City Departments
Non-City Government Recipients
Residents Near Projects
stp_cons.pre
6 August 1996

AS-IS DATA COLLECTION TEMPLATE

1.0 AGENCY "CITY OF ST. PAUL"

- Agency Type	City Government (Public Works Division)
- Agency Location(s)	Office of Director 600 City Hall Annex 25 West Fourth Street St. Paul, MN

2.0 SYSTEM "ST. PAUL CONSTRUCTION INFORMATION SYSTEM'

- Date of As-Is Data Collection	February 5,1996
- P u r p o s e	Collect information regarding construction within City of St. Paul Limits and provide that information to various entities.
- Geographic Coverage	St. Paul City Limits
- Contacts	Larry H. Lueth (6 12) 266-6083 (voice) (612) 292-6315 (fax)
- Status	Existing
- Block Diagram	See attached
- Typical Operational Scenario	Information regarding the location (avenue A from street B to street C), approximate date, and, in some cases, the nature of the construction taking place is gathered and incorporated into maps that indicated the area of the project (see attached). These maps are distributed to all city government departments, offices of all city council representatives, local newspapers, and residents who live in areas near the construction project. The annual maps are also made available through the City of St. Paul's Home Page on the World Wide Web (http://www.stpaul.gov/). During the summer construction season, the individual projects are regularly inspected by city personnel and reports are made to Construction Division clerical staff who format the information into a weekly report which is sent to City Departments, Ramsey County, and to a Public **Relations** staff person, who asses the impact of construction and includes the most significant ones on a road construction hotline service. Information for these reports is also obtained through interoffice mail from the Traffic Control Division, from attendance at project specific preconstruction meetings by Construction Division Engineers, and from reviews of construction permit applications from utilities.

2.1 PERSONNEL "CONSTRUCTION ENGINEER"

- Personnel Function: Contract administration, attend preconstruction meetings, communicate with other City Departments.
- Quantity: 1
- Location: City Hall Annex, 9th Floor
- Status: Existing
- Contact: Larry Lueth

2.2 PERSONNEL "PUBLIC RELATIONS PERSONNEL"

- Personnel Function: Analyze Weekly Construction Updates and record outgoing messages for inclusion on Road Construction Hotline, input information for WWW availability.
- Quantity: 1
- Location: City Hall Annex, 6th Floor
- Workload: Unknown, but not full time on this system
- Status: Existing
- Contact: Joanne Puankers
  266-6147

2.3 PERSONNEL "CLERICAL STAFF"

- Personnel Function: Receive information from field inspectors and Construction Engineer; Format information into Weekly Report form; Distribute report according to distribution list
- Quantity: l-2
- Location: City Hall Annex, 9th Floor
- Workload: Unknown, but not full time on this system. This appears to be a relatively small portion of the clerical staffs responsibility.

2.4 PERSONNEL "INFORMATION SPECIALIST"

- Personnel Function: Insert Armual maps into appropriate web pages.
- Quantity: 1
- Location: City Hall Annex, 6th Floor
- Workload: Unknown, but not full time on this system.

2.5 PERSONNEL "GRAPHIC ARTIST"

- Personnel Function	Creates annual maps for inclusion on web pages from a stock base map and information provided by Construction Engineer
- Quantity	1
- Location	City Hall Annex, 9th Floor
- Workload	Unknown, but not full time on this system.

3.1 HARDWARE "APPLE MACINTOSH'

- Hardware Type	Desktop Personal Computer
- Functions	Used to update information on WWW Server for Construction Home Page
- Location	City Hall Annex
- Data Name/Contents	Locations (as street addresses), dates and descriptions of construction projects. Maps showing the location of projects.
- Data Type	Data
- Status	Existing

3.1.1 SOFTWARE "HTML EDITOR"

- Software Type	Hypertext markup language editor used to create and update the information on the World Wide Web server. No other information was available

3.1.2 SOFTWARE "MAC OS"

- Software Type	Operating System

3.2 HARDWARE "TELEPHONE HOTLINE SYSTEM (266-ROAD)"

- Hardware Type	Automated telephone answering system with single outgoing message
- Functions	Supplies callers with a brief summary of selected construction projects and suggested alternate routes
- Location	City Hall Annex
- Data Name/Contents	Locations of major construction projects given as street names, approximate status (i.e. nearing completion), and suggested alternate routes.
- Data Type	Outgoing voice message (no interaction)
- Status	Existing

3.3 HARDWARE "APPLE MACINTOSH"

- Hardware Type	Desktop Computer
- Functions	Word processing to create weekly construction update reports in a standard format.
- Location	City Hall Annex
- Data Name/Contents	See attached example
- Data Type	Text
- Status	Existing

3.4 HARDWARE "APPLE MACINTOSH"

- Hardware Type	Desktop Computer
- Functions	Access to St. Paul web server to allow map updates.
- Location	City Hall Annex
- Data Name/Contents	See attached example
- Data Type	Text
- Status	Existing

3.5 HARDWARE "APPLE MACINTOSH"

- Hardware Type	Desktop Computer
- Functions	Create computer generated graphics
- Location	City Hall Annex
- Data Name/Contents	See attached example Maps are created by cropping a standard base map that has been created by the City of St. Paul and overlaying it with project info.
- Data Type	Graphics
- Status	Existing
- Other	This is a graphic, not a live piece of data (i.e. Arc/Info or AUTOCAD database)

3.7 HARDWARE "LASER PRINTER'

- Hardware Type	Laser printer output device
- Functions	Create hard copy of weekly reports for distribution to through interoffice and USPS mail
- Location	City Hall Annex
- Data Name/Contents	See attached example
- Data Type	Text
- Status	Existing

3.8 HARDWARE "WEB SERVER"

- Hardware Type	Workstation-Class micro-computer
- Functions	Serve HTML requests from Internet
- Location	City Hall Annex, 7th floor
- Data Name/Contents	See page at URL listed below
- Data Type	HTML/Graphics
- Status	Existing/on-line
- Contact	Domain Name: STPAUL.GOV Administrative Contact: Grittner, Dennis (DG41) dennis.grittner@STPAUL.GOV (612) 266-6095 Technical Contact, Zone Contact: Terveer, Derek (DT71) derek.terveer@STPAUL.GOV (612) 266-6092 Record last updated on 26-Aug-94. Record created on 27-Oct-86. Domain servers in listed order: BAMBI.STPAUL.GOV 199.86.16.38 NS.UU.NET 137.39.1.3
- Other	See http://www.stpaul.gov/public/works/ construction/l996/ projects/

4.1 INTERFACE	UTILITIES AND COMMUNICATIONS SERVICE PROVIDERS
- Connects to . . .	Construction Engineer
- Interface location	N/A
- Interface Type	Paper Plan Sheets
- Interface Direction	output
- Interface Component	USPS Mail
- Protocol/Standard	City of St. Paul Format (Covers borders and layout)
- Information Type/Content	Construction type, location (as street
- Information Direction	output
- Information Frequency	As Needed

4.2 INTERFACE	PRECONSTRUCTION MEETINGS (ANNUAL AND PROJECT)
- Connects to . . .	Construction Engineer
- Interface location	N/A
- Interface Type	Voice, text as notes
- Interface Direction	output
- Interface Component	Person to person
- Protocol/Standard	N/A
- Information Type/Content	Construction type, location (as street
- Information Direction	output
- Information Frequency	As Needed

4.3 INTERFACE	MN/DOT (THROUGH TRAFFIC CONTROL DIVISION)
- Connects to . . .	Construction Engineer
- Interface location	City Hall Annex
- Interface Type	Hard copy text as memo
- Interface Direction	output
- Interface Component	Interoffice Mail
- Protocol/Standard	N/A
- Information Type/Content	Construction type, location (as street
- Information Direction	output
- Information Frequency	As Needed
- Other	This interface is generally used as a successor to a telephone between MN/DOT and the City of St. Paul Traffic Control Division. MN/DOT will communicate a need for traffic control in a project area, the Construction Division will be notified by Traffic Control.

4.4 INTERFACE	RAMSEY COUNTY
- Connects to . . .	Construction Engineer
- Interface location	N/A
- Interface Type	Paper (Fax)
- Interface Direction	output
- Interface Component	US West telephone service
- Protocol/Standard	N/A
- Information Type/Content	Second Season Construction Bulletin. Produced weekly by Ramsey County. See Ramsey County Construction Information Report
- Information Direction	output
- Information Frequency	Weekly (Friday pm)

4.5 INTERFACE	FIELD INSPECTORS
- Connects to . . .	Clerical Staff
- Interface location	N/A
- Interface Type	Voice as telephone call or text as fax
- Interface Direction	output
- Interface Component	US West Telephone Service
- Protocol/Standard	N/A
- Information Type/Content	Updates on progress of specific construction projects.
- Information Direction	output
- Information Frequency	Weekly

4.6 INTERFACE	INTEROFFICE PERSONAL COMMUNICATION
- Connects to . . .	Construction Engineer, Public Relations Personnel, Clerical Staff Information Specialist, Graphic Artist
- Interface location	City Hall Annex
- Interface Type	Person to Person communication as voice or hand-delivered hard copy
- Interface Direction	Both
- Interface Component	Person to Person
- Protocol/Standard	N/A
- Information Type/Content	Varies. In the case of communication between PR Personnel and Construction Engineer it is usually a voice communication to call attention to a specific project for inclusion in the telephone message system. Between Construction Engineer and Clerical Staff, it can take the form of either voice or hard copy notes to indicate information to be put into the weekly update document. Communication between the Construction Engineer and the Information Specialist is only on an as-needed basis and is not generally part of the weekly document creation process. This is also true for communication between the Construction Engineer and the Graphic Artist.
- Information Direction	Both
- Information Frequency	As needed

4.7 INTERFACE	OFFICE LAN
- Connects to . . .	All computers in City Hall Annex
- Interface location	City Hall Annex
- Interface Type	Data
- Interface Direction	Both
- Interface Component	Twisted Pair Cable
- Protocol/Standard	Ethernet
- Information Type/Content	Text and graphics describing the location, status and type of projects to be included on the weekly update and hotline.
- Information Direction	Both
- Information Frequency	As Needed
4.8 INTERFACE	Public Relations Personnel
- Connects to . . .	Newspaper (St. Paul Pioneer Press)
- Interface location	City Hall Annex
- Interface Type	Voice
- Interface Direction	Both
- Interface Component	Telephone (US West)
- Information Type/Content	Information regarding projects, both upcoming and in-progress, also other information such as suggested alternate routes.
- Information Direction	output
- Information Frequency	As Needed
4.9 INTERFACE	Public Relations Personnel
- Connects to . . .	Telephone Message System
- Interface location	City Hall Annex
- Interface Type	Voice recorder
- Interface Direction	output
- Interface Component	US West Telephone Service
- Information Type/Content	Updates on progress of specific construction projects, locations of projects as street names, suggested alternate routes
- Information Direction	output
- Information Frequency	As Needed
- Other	The Hotline (266-ROAD) system contains information about any projects, regardless of which entity (State, County, City) is responsible for them as long as they impact St. Paul Traffic. General the 10 or 12 most significant projects are included in the Hotline report

4.10 INTERFACE	Telephone Message System
- Connects to . . .	End Users
- Interface location	City Hall Annex
- Interface Type	Voice as pre-recorded message
- Interface Direction	output
- Interface Component	US West Telephone Service (266-ROAD)
- Protocol/Standard	N/A
- Information Type/Content	Updates on progress of specific construction projects, locations of projects as street names, suggested alternate routes
- Information Direction	output
- Information Frequency	On Demand/As Needed
- Other	See INTERFACE 4.9 entry

4.11 INTERFACE	CLERICAL STAFF MACINTOSH
- Connects to . . .	Laser Printer
- Interface location	City Hall Annex
- Interface Type	Data
- Interface Direction	output
- Interface Component	Apple Serial Printer Connection (RS-4222)
- Protocol/Standard	RS-422
- Information Type/Content	Weekly Project Report. See attached example.
- Information Direction	output
- Information Frequency	On Demand/As Needed

4.12 INTERFACE	LASER PRINTER
- Connects to . . .	City Department/ Council Members(See Attached List)
- Interface location	City Hall Annex
- Interface Type	Text hard copy
- Interface Direction	output
- Interface Component	Interoffice mail
- Protocol/Standard	N/A
- Information Type/Content	Updates on progress of specific construction projects, locations of projects as street names, suggested alternate routes (see attached example)
- Information Direction	output
- Information Frequency	Weekly
- Other	See attached distribution list

4.13 INTERFACE	LASER PRINTER
- Connects to . . .	Non-City Government Recipients
- Interface location	City Hall Annex
- Interface Type	Text Hard copy
- Interface Direction	output
- Interface Component	USPS
- Protocol/Standard	N/A
- Information Type/Content	Updates on progress of specific construction projects, locations of projects as street names, suggested alternate routes.
- Information Direction	output
- Information Frequency	Weekly
- Other	See attached distribution list

4.14 INTERFACE	LASER PRINTER
- Connects to . . .	Residents in project area
- Interface location	City Hall Annex
- Interface Type	Text Hard copy
- Interface Direction	output
- Interface Component	USPS
- Protocol/Standard	N/A
- Information Type/Content	Letters and maps describing upcoming projects sent to affected residents
- Information Direction	output
- Information Frequency	Weekly
- Other	See attached example

4.15 INTERFACE	Web Server
- Connects to . . .	Internet
- Interface location	City Hall Annex
- Interface Direction	Both
- Information Type/Content	See URL http//www.stpaul.gov/publicworks/ construction/l 996/projects/
- Information Direction	Both
- Information Frequency	As Needed/On Demand
- Other	See contacts listed for HARDWARE 3.8

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
- M.n/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-call 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
- Office of Tourism travel information center kiosks
- Mn/DOT TMC road weather information system access
- Mn/DOT 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 Internet 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
- Mn/DOT 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 reportable 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 Guldestar

As-Is Transportation Systems Inventory Data Collection Guide

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 Poiaris 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:

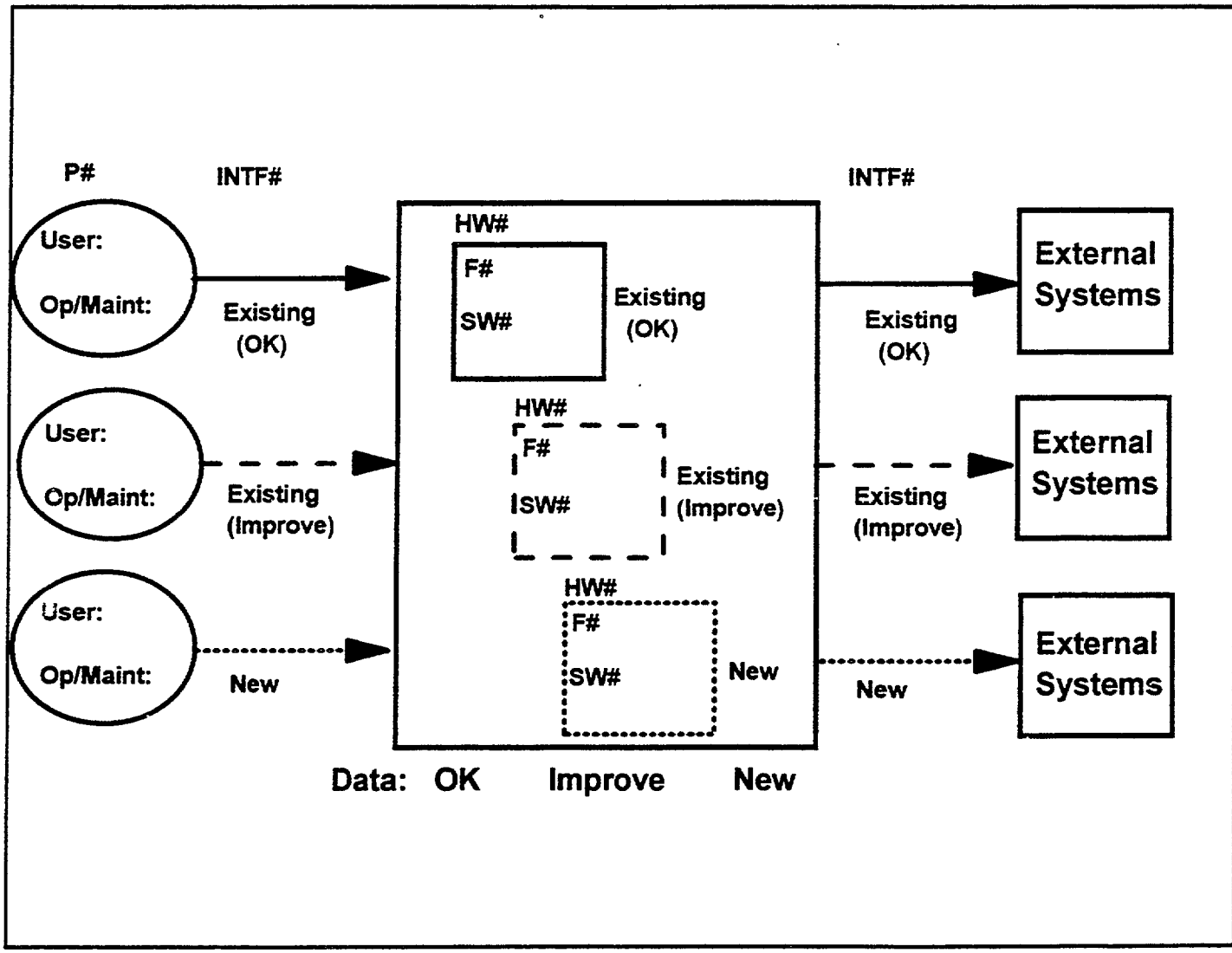
1.0 Systems
1.1 Hardware Components
1.2 Software Components
1.3 Software Interfaces
1.4 System Personnel
2.0 Agency
2.1 Agency interfaces
2.2 Agency Systems

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
   a. Printers
   b. 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
a. 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, Tempfate 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 component. 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 received 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. WINDOWS 95
   e. UNIX

f. OS/2
g. WINDOWS NT
h. Macintosh / System 7
i. OS/400
j. MVS
k. VM
i. VSE
m. VMS/VSE
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 component 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 received 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 all 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.
Interface 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 component 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 f Phone Numbers

List the contact person from which you received 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 component. 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

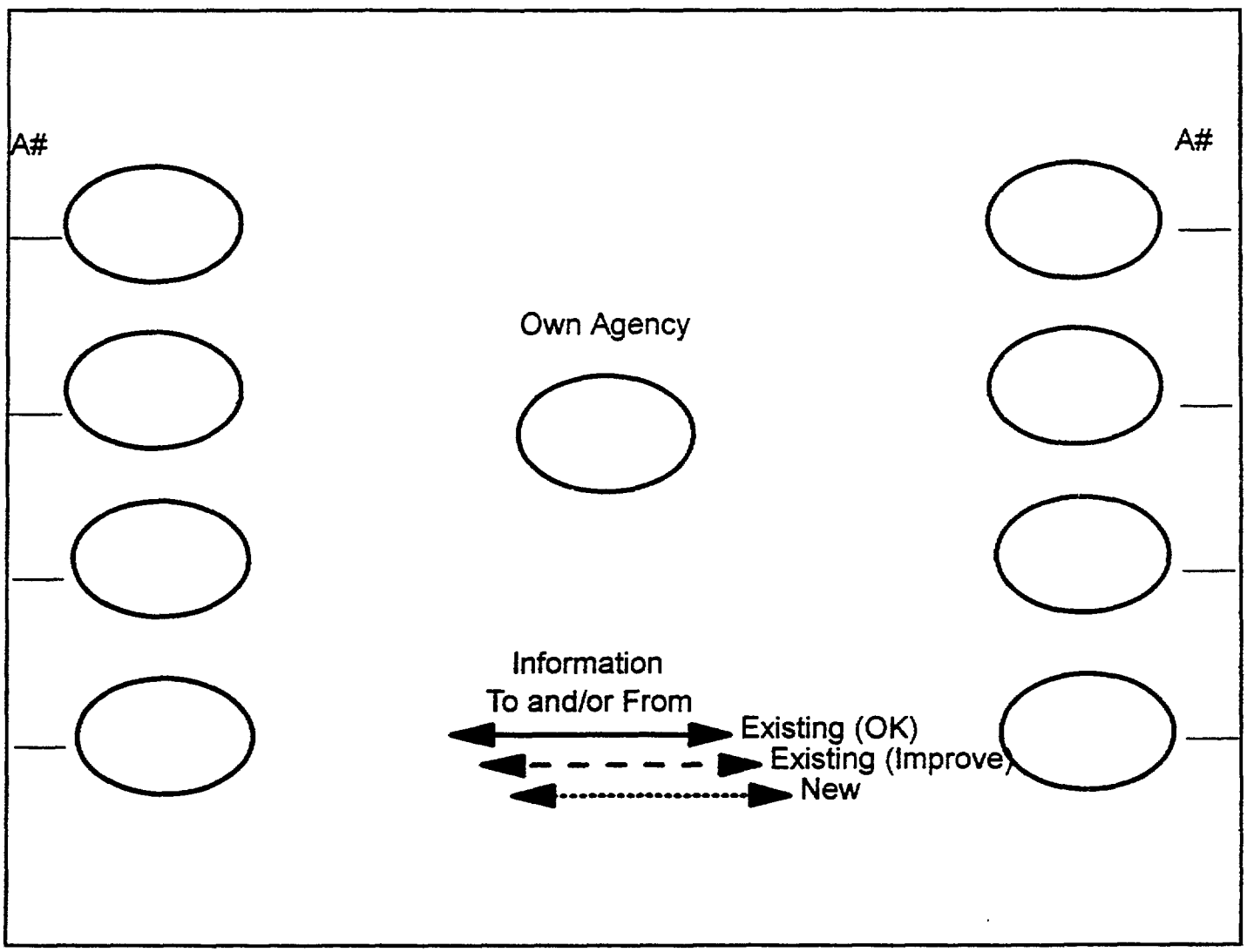
List the contact person from which you received this information and their phone number.

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 component. 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 received 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

3.6.2 CITY OF ST. PAUL CONSTRUCTION INFORMATION SYSTEM

CITY OF SAINT PAUL
DEPARTMENT OF PUBLIC WORKS
Construction Bureau

Construction Report for Period Ending September 23, 1995

PAVING PROJECTS

95 Alleys — Bituminous Consulting Inc.
City Project No. 95-P-1127, P-1128 & P-1131

Fine graded and paved alley north of Randolph between Chatsworth and Milton; rough graded alleys south of Rose between Forest and Mendota and by Gotzian and Johnson Parkway. Next week, fine grade and pave alleys south of Rose and Gotzian and Johnson Parkway and start grading on two alley's that have been added to the project.

BURLINGTON NORTHERN REGIONAL TRAILWAY — Shafer Contracting Co.
City Project No. 95-P-1108

Completed placing topsoil along trail; cleared right-of-way lines for fence placement; began installing fence; removed sidewalk and placed class 5 aggregate base along Johnson Parkway from tennis courts to East Shore Drive. Next week, continue installing fence; and pave bituminous base for entire trailway.

CLARENCE COURT — D.F. Campbell , Inc.
City Project No. 95-P-1130; Permit #182

No progress this week. The wearing course is left to be placed after the manholes are adjusted.

GEORGE STREET — Palda & Sons, Inc.
City Project No. 95-P-1117

Constructed catch basins and leads at the Gorman and Robert intersections; replaced lead water services from Gorman to Robert; poured concrete sidewalks and drives from Waseca to Stryker; paved asphalt base from Waseca to Stryker. Next week, pave binder course from Smith to Stryker; start removals and sewer work in the Stryker intersection.

HILLCREST TRANSIT HUB
Permit #187

No report submitted this week.

HOYT AVENUE — Danner, Inc.
City Project No. 95-P-1114

Paved sidewalks and driveways from Lexington to Victoria; grading boulevards and placing topsoil east of Lexington; subcut, granular borrow and class 5 from Lexington to Merrill. Next week, continue subcut from Merrill to Huron and boulevard grading east of Lexington.

HOYT AVENUE - VICTORIA TO AVON — Danner, Inc.
City Project 95-P-1133

Poured concrete sidewalks and drives. Next week, grade boulevards and place topsoil.

PROSPERITY REALIGNMENT **Danner, Inc.**
City Project No. 95-P-1119

Continued bringing in common borrow to raise Rose Street up to finished grade and started filling on new Prosperity Avenue north of Rose Street. Next week, continue raising Rose and Prosperity Streets to grade and install storm sewer in Rose Street.

WHITE BEAR AVENUE **Danner, Inc.**
City Project No. 95-P-1092

This project is now complete except for punch list work

CONSULTANT PROJECTS

COMO-ARONA SEWER & PAVING Arcon Construction Co.
City Project No. 95-S-8102 & 95-P-8085

Installed storm sewer on Breda between Winston and Snelling, and on Winston between Breda and Wynne; installed catch basins at the intersections of Albany/Snelling; Albany/Arona; Breda/Winston and Como/Pascal; relayed lead water services on Breda between Winston and Snelling; poured curb and gutter on Albany between Arona and Snelling; placed class 5 on Chatsworth between Pierce Butler Road and Burgess, and on Topping between Chatsworth and Oxford; paved wear on Como between Oxford and Churchill and on Chatsworth between Pierce Butler Road and Seminary. Next week, install storm sewer on Wynne between Winston and Snelling; work on street restoration on Chatsworth, Albany and Winston.

DAVERN OUTLET PHASE C Barbarossa & Sons, Inc.
City Project No. 95-S-8085C

Barbarossa worked on raising manholes and gate valves on the project and graded the last block of Stewart from Springfield to Rankin for bituminous base.Knife Lake worked Monday and Thursday pouring concrete curb and driveways on Stewart while Bituminous Roadways milled and overlaid West 7th Street from Madison to State Highway #5. Next week, remainder of the manholes and valves will be raised; bituminous base will be poured on the last block of Stewart, and the wearing course completed on the project; Jordan will try and complete the majority of the sodding on the residential streets with Knife Lake finishing the concrete work on the project.

EUSTIS-DESNOYER Brown & Cris, Inc.
City Project No.95-S-8103 & 95-P-8087

Completed storm sewer in the Eustis/Desnoyer intersection; began subgrade excavation on Eustis at Mississippi River Blvd., paved base course on Doane, east of Pelham, Glendale, north of Doane, and Clifford: this completes all base course paving except for Eustis and some alleys. Next week, continue storm sewer north on Eustis; continue subgrade excavation to Frontenac; pave wear course next Wednesday through Friday on Doane east of Pelham, Glendale, north of Doane, and Clifford. sodding is scheduled for the week **after** next on all remaining streets except Eustis.

7th CEDAR SEWER SEPARATION Lametti & Sons, Inc.
City Project No. 95-S-8 104

Completed trench restoration on Wabasha from 4th Street to 6th Street on the west side of the street; traffic was switched to the west side for catch basin and stubs to be completed on the east side; tunnel work continued at Spring/Market, 5th/Cedar and 9th and Exchange; catch basin and mainline trench restoration continue at Kellogg and Wabasha, Cedar and 10th, and 7th Place and Wabasha; *river* outlet construction on Shepard Road continues; storm sewer on Market from Shepard to tunnel continues.

Next week, begin catch basin and storm stub construction on Wabasha from 4th to 6th on the east side; tunnel construction will continue at Spring and Market, 5th and Cedar, and 9th and Exchange; continue catch basin and storm stub work at 5th and Market and restorations continue at Wabasha and Kellogg (east side); continue mainline storm sewer on Market from Shepard Road to tunnel connection structure; river outlet on Shepard Road will be completed and restorations will begin.

SMITH AVENUE RECONSTRUCTION — Ashbach Construction Co.
City Project No. 95-P-1116

Completed removal and replacement of the Kellogg Blvd. left turn lane to Smith Avenue; completed all remaining concrete work; completed all traffic signal work and signals were turned on Thursday morning; began restoration with placement of ten benches and seven waste receptacles on the hospital side of Smith Avenue; completed some sod work. Next week, complete all sod work and restoration.

SEWER PROJECTS

BATES-MCLEAN SEWER & PAVING — Danner, Inc.
City Project No. 95-S-8100 & 95-P-8084

Poured walls 9' high in lower dropshaft structure; continued placing steel rebars and forms for walls and arch of lower dropshaft structure; completed placing granite curb on Maria from McLean to Cherry; poured driveways on Maria from Short to Cherry; poured driveways and outwalks on 4th Street from Germain to Kennard, and on Plum from Mounds to Maria; placed class 5 aggregate base on Maria from Short to Cherry and in trenches on Hudson Road from Earl to Forest; raising manholes and gate valves on the entire project; completed lead water service renewals on Hudson Road from Maple to the west; completed 6" sanitary sewer in Pacific from Mound to Bates; completed sanitary sewer repairs on Hudson Road at Forest and at Plum; continued 72" storm sewer on Hudson Road; continue jacking 72" RCP under I-94, completed approximately 120'. Next week, pour concrete base on Hudson Road; continue sewer work on Hudson Road; complete lead water service renewals on Hudson Road; continue jacking 72" RCP under i-94; pour walls and arch for lower dropshaft structure; continue raising manholes and gate valves; pave bituminous base on Maria, Cherry and in overlook park; begin paving bituminous wear.

GRAND-ST. ALBANS SEWER & PAVING — Kenko, Inc.
City Project No. 94-S-8099 & 94-P-8080

Completed main line storm sewer and catch basin construction on Selby Avenue between Summit and Maiden Lane; began catch basin installation at Selby and Nina; completed concrete driveways and sidewalks on Osceola east of Grotto; Grotto between Osceola and Linwood; and Linwood east of Grotto; completed B624 concrete curb on St. Clair between Victoria and Lexington and began pouring concrete sidewalks and drives; prepared the subgrade and placed aggregate base on Heather Place, Grotto, and Linwood; paved bituminous wearing course on Portland, Grand Hill, Crocus Hill, and Fairmount; began paving bituminous base course on St. Clair; replaced lead water services on Selby and on Mackubin north of Selby; graded boulevards and placed topsoil and sod on Nina, Ashland, Arundel and Dale. Next week, continue base course paving on St. Clair and begin base course on Grotto and on Linwood; and place concrete base on Selby.

HOWELL-MONTREAL SEWER & PAVING — Palda & Sons, Inc.
City Project No. 95-S-8106 & 95-P-8088

Continued on sanitary and water work on Bohland; poured concrete base on west bound Montreal; curbed Saunders from Kenneth to Fairview; made miscellaneous concrete pours on Wilder, Montreal and Cleveland; placed class 5 on Saunders, Delano and Kenneth; graded boulevards on Montreal, Cleveland and Beechwood. Next week, finish Bohland utility work; pour Cleveland trench areas; pave bituminous base on Kenneth, Saunders, Delano and Cleveland and work on boulevard restorations.

INFLOW/INFILTRATION CORRECTIONS **Schurcon Construction**
City Project No. 95-S-1844

No report submitted this week.

IRVINE AVENUE Danner, Inc.
City Project No. 95-S-8027 & 95-P-8028

Removed pavement from the alley which runs between Lower Irving and Pleasant Avenue; removed existing Lofflestein and concrete retaining walls at the Irvine crossover, installed storm sewer from an existing manhole up the alley to Lower Irvine; began construction of the storm sewer west of the crossover on Lower Irvine. Next week, continue storm sewer construction and replace lead water services west of the crossover.

UNIVERSITY I & I **Danner, Inc.**
City Project No. 95-S-1843

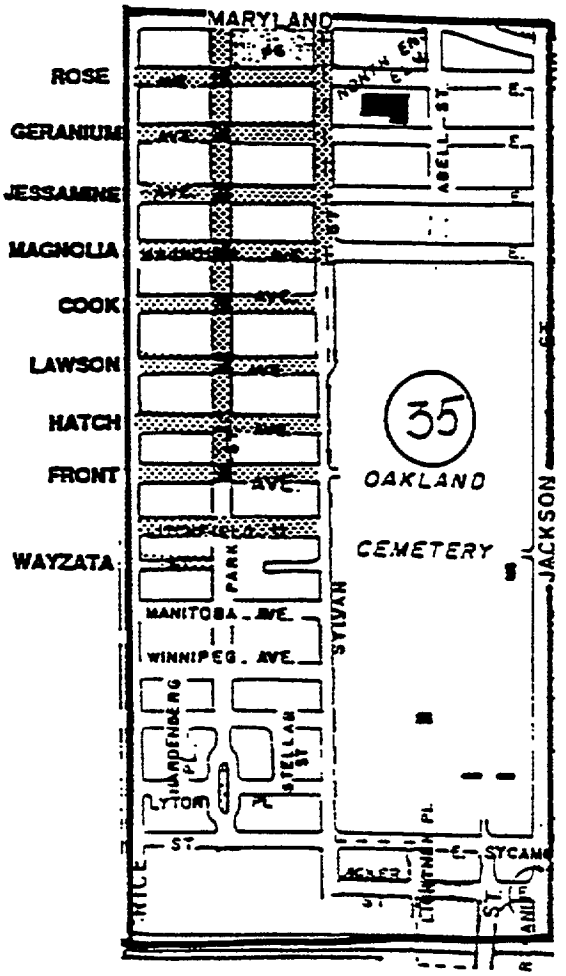
No report submitted this week.

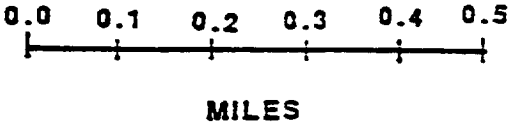
STREET MAINTENANCE

OILED STREETS City Forces
No report submitted this week.

STREET CLEANING City Forces
Regular operations continue with a special focus on sweeping before overlay jobs and sweeping after the lower town fest. Sanders made a first appearance of the season Friday early morning because of icy bridges.

PAVED STREETS City Forces
Skin parch crews continued to patch paved alleys; patch crews continued to route patch paved alleys; and responded so street and alley service requests; paving crew completed Earl, Maryland to Lawson; Arkwright, Maryland to Case; 6th at Sibley and Horton, Hamline to Lexington. The concrete crew restored city-wide utility cuts.





HATCH/PARK

1996

STREETS TO BE PAVED IN 1996

- EXISTING OILED — 2.7 MILES
- EXISTING OLDER PAVED — 0.0 MILES

8/17/95

Project No. 35
96-P-8093

DEPARTMENT OF PUBLIC WORKS
Stacy M. Becker, Director

CITY OF SAINT PAUL
*Norm **Coleman, Mayor***

600 City Hall Annex
Saint Paul, MN 55102

Telephone: 612-266-6070
Facsimile: 612-292-7857

March 24, 1994

Dear Highland Area Resident:

The City of Saint Paul has entered into a contract with Shafer Contracting Company, Inc., for the improvement known as ***ALBERT-ELEANOR SEWER & PAVING,*** City Project Nos. 94-s-8095 & 94-P-8077. We anticipate this project will start April 4, 1994, and if all goes well, the total project should be completed by November l5, 1994.

This improvement consists of constructing a storm sewer system; constructing watermain, water and sewer service connections and reconnections if requested by the property owner; constructing concrete curb and gutter and a new bituminous surfaced roadway; and installing a lantern style street lighting system. Boulevards will be sodded where new curb is constructed. No street widening will be done if interference with boulevard trees is encountered. ***(See attached map for listing of streets included in this project)***

Concrete driveway aprons will be constructed in areas where drives presently exist. Their width will be 10'or match the existing drive, whichever is greater. Existing walks from the residence to the public walk will be continued through the boulevard to the new curb. They will be 3'wide unless a wider poured concrete walk existed. Any questions you have regarding these policies should be addressed to the Construction Bureau prior to work beginning on your block.

It is the City's intention that Albert from Randolph to Highland will remain a two-way street during construction and also after construction is completed.

Portions of this project require ***watermain replacement.*** During this work, you may be without water for a short period of time. The Water Department will notify you before turning the water off.

If you have an ***underground sprinkler system*** in the boulevard, it is the property owner's responsibility to remove the system before our Contractor begins work; repair the system if the Contractor damages it; and replace the system after the Contractor has completed the work.

In restoring the ***boulevards,*** sod work will be done. Contract specifications require sod placed on the project to be guaranteed by our Contractor for ***30*** growing days. There is no credit for growing days during the hot portion of the summer nor during the winter months. New sod requires frequent watering until it ***is*** fully established. Your cooperation and assistance in watering your new boulevard sod would be greatly appreciated.

After the 30-growing-day guarantee period expires, boulevard maintenance becomes the adjacent property owner's responsibility. We caution you not to over fertilize the new sod for approximately one year as the new sod contains optimum amounts of nutrients and, if overfertilized, the sod can be damaged. Thereafter, the sod will require additional fertilizer and frequent watering for three or four years until it is fully established.

Along with our sewer and paving work, ***Northern States Power Gas*** will be performing some gas main and service replacement work. Affected residents will be notfied by N.S.P.

Also during construction activity, circuits for the existing street ***lighting system may*** be disrupted. Please call the Public Works ***Street Lighting Maintenance Division at 489-8871*** to report any outages you notice. A repair will be undertaken as soon as possible.

Along with the construction activity comes the ***"No Parking"*** sign. Parking will not be tolerated in posted "No Parking" areas during the workday (typically 7:00 a.m. to 6:00 p.m., Monday through Friday). During the evening hours (6:00 p.m. to 7:00 a.m. and on weekends) parking will be allowed if job site conditions permit. Occasionally the Contractor may work past 6:00 p.m. or on a weekend. If it appears he is still working, I would suggest parking at some other location until he ceases his operation for the day.

During construction, ***children*** are likely to be attracted by the activity and heavy equipment. Since they cannot always be seen by workers intent on their jobs, we encourage everyone to assist in warning children of the danger they could encounter. We ask parents to keep their children away from the work site both during the work day and during evenings and weekends when workers are absent.

By nature, roadway and sewer construction is noisy, dusty, dirty, and causes inconvenience. We believe the finished roadway improvement will justify your inconvenience. We appreciate your cooperation in this regard, and plan to do everything possible to keep any inconvenience to you to a minimum. If you have any questions about the construction, you are invited to call the Department of Public Works Construction Bureau at ***266-6080.*** You may also contact ***Shafer Contracting Company,*** by phone at ***462-7462*** *or* correspond by mail at ***P.O. Box 128, Shafer, Minnesota, 55074*** Thank you for your help and patience.

Yours very truly,

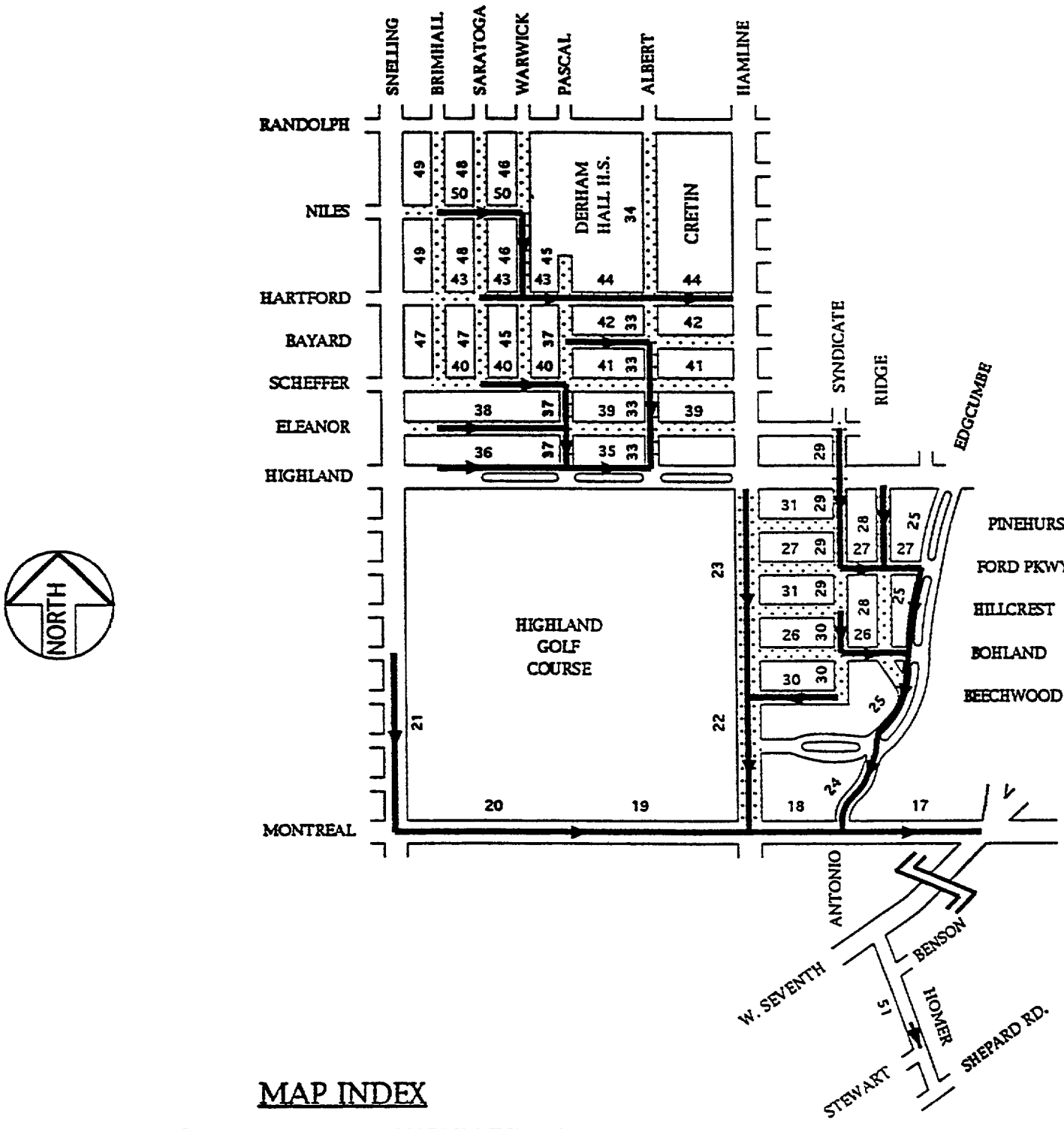
Larry H. Lueth
Assistant City Engineer

LHL:mf

Attachment

ALBERT/ELEANOR

94-S-8095 94-P-8077



MAP INDEX

8 INDICATES SHEET NUMBER

SEWER CONSTRUCTION

PAVING CONSTRUCTION