Minneapolis
City of Lakes

Business Information Services

New Construction for Minneapolis Water Works Columbia Heights Membrane Filtration Plant

Job #:	880F4651
Date Prepared:	02/07/05
Revision:	020705-2
Submitted To:	Dale Folen, MWW Project Manager
Submitted By:	Stacy Hermanson, BIS Project Manager

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1. PROJECT APPROVALS

☑ **PROJECT IS AUTHORIZED TO PROCEED**

With my signature, I agree this project document is considered final.

Change Management

If at any point in the project, the final project cost is revised to exceed the agreed to amount by 10%, the Project Manager will be responsible for informing the sponsor, negotiating resolution, and receiving approval to proceed. Any changes to requirements after the requirements document is signed, will be subject to BIS change control procedures and will require sponsor approval.

Total Cost of Ownership

I additionally understand and agree that as a result of this new system, ongoing maintenance and support costs will be charged annually to my department budget as identified in this proposal.

Approvals:

Sponsor: _____ Date Approved: 5/11/05
Dale Folen

Sponsor: _____ Date Approved: 5/11/05
Greg Goeke

Director of ~~PPMD~~ ISCM _____ Date Approved: 5/13/05
~~Bill Beck~~ Lynn Hillenbing

Unisys Managed Services: _____ Date Approved: 5/13/05
Jim Collins

Prepared By:

BIS PM: _____ Date Approved: 5/13/05
Stacy Hermanson

2. PROJECT OVERVIEW

Project Name	New Construction for Minneapolis Water Works Columbia Heights Membrane Filtration Plant
Project Sponsor	Greg Goeke, Property Services
Project Manager	Dale Folen, Water Project Manager
Customer Name/ & Department	Dale Folen, Water
Customer Business Liaison	Carin Archer, Water
Requested Completion Date	April 1, 2005
Funding Number #	7400-950-9515
Explanation of Funding	This project is being paid for through capital funds (c5200020). BIS will bill Property Services and PS will bill the capital fund or customer.
Approved Budget $	?

2.1. PROJECT DESCRIPTION

The Minneapolis Water Facility is constructing a new membrane filtration plant on the Columbia Heights Campus. In addition to moving staff, computers and phones, the remodel includes new voice/data wiring for approximately 40 City drop locations (based on BIS City of Minneapolis standards), new Cisco switches, fiber backbone, dedicated power and a new telecommunications room meeting BIS standards for conduit, power, ventilation and static free flooring.

Since the Columbia Heights facility has not previously been connected to the City's network (other than dial up connections) new head end equipment will need to be installed in the basement of City Hall (B59 MPOP location) and new networking equipment at the Columbia Heights location. A "loaner" phone switch will also be installed. The loaner will be returned to the vendor once the IPDA installation is completed.

Property Services will coordinate the furniture, files and IT equipment that need to be relocated. BIS/Unisys will coordinate disconnecting the equipment (PCs, Printers & Phones), activation of necessary voice/data jacks, re-connection of the equipment, changes to network access, and installation and testing of the new networking equipment.

3. PROJECT COST ESTIMATES

3.1. One- Time Project Costs

One-time project costs are comprised of costs related to project planning and project implementation (i.e. procurement of hardware/software, installation of hardware/software, moving hardware, etc.). These costs will be billed via partial billings throughout the life of the project.

ONE-TIME PROJECT COSTS	
BIS:	
• Project Coordination	
• Telecom System Admin	
• Telecom Infrastructure Mgmt	
BIS Sub-Total	**$7,500**
Unisys:	
• Deskside	
• Network CSR	
• Project Management	
• Network	
Unisys Sub-Total	**$10,015**
Network Hardware Costs:	
• Cisco 2691 Router	
• 128MB Memory Upgrade	
• 2-Port RJ-48 Interface Card	
• Cisco 2611xm Router	
• 48MB Memory Upgrade	
• 2-Port RJ-48 Interface Card	
• Cisco 2950 48 Port Switch	
• 1000Base GBIC	
• Cisco 2950 12 Port Switch	
• APC Smart 1000 UPS	
Network Hardware Sub-Total	**$19,520**
Metro Communications:	
• Materials	
• Labor	
Metro Sub-Total	**$12,000**
Norstan:	
• Phone System Installation	
• Physical Phones	
Norstan Sub-Total	**$9,630**
T1 Costs:	
• T1 Installation	
T1 Sub-Total	**$670**
Project Sub-Total	**$59,335**
10% Contingency	$5,935
ONE-TIME PROJECT COST TOTAL	**$65,270**

3.2. Ongoing Project Related Costs

Ongoing project related costs are comprised of monthly costs related to services provided following the initial project implementation (i.e. telephone charges, network monitoring charges, T1 charges, etc.).

Monthly Managed Services
Monthly Managed services will be included in a change order addendum to be presented to City Council for approval. This change order will reflect a managed services fee of $61,339.45 of which $32,712.00 will be invoiced over 58 months effective upon installation to provide services conterminously with the Managed Services agreement currently in place with the City of Minneapolis.

Per Month	$564
Per Year	$6,768
Total	$32,712

The above costs provide remote network managed services for the networking equipment installed during the project.

T1 Costs

Per Month	$324
Per Year	$3,888
Total	Ongoing

4. PROJECT MILESTONE SCHEDULE

Already Completed (Date Completed)	Due Date	Milestone
	2/28/05	Complete voice/data cabling rough-ins
	2/11/05	Order T1's
	2/11/05	Order Networking Equipment
	3/25/05	Termination of cabling & install of networking equipment
	4/1/05	Customer Move In & Install of Staff Telephones and PC's

5. SUPPORTING DOCUMENTS

5.1. Unisys Network Infrastructure Solution Document

Overview:

The City of Minneapolis requested that Unisys conduct a capacity planning study to determine equipment and bandwidth needs for both the Wide Area Network between City Hall and the Columbia Heights Membrane Filtration facility and the Local Area Network of the Columbia Heights Filtration facility.

The purpose of this proposal is to establish needed LAN infrastructure and WAN infrastructure to deliver connectivity to the Columbia Heights location.

There is currently no network infrastructure at the primary Columbia Heights Filtration Plant location. There are 3 desktops utilizing remote dial-up in an ancillary building within close proximity of the primary building.

Local Area Network Analysis:

The floor plans indicate the Columbia Heights Filtration plant is slated to have 41 network connections. The user population is reported to have the same usage pattern as the users at the Fridley Water plant. The reported number of active desktops in the main building is to be 18 initially, with 3 more active in the second building. It is assumed the Columbia Heights users will have desktop computers with the latest build of Windows XP reporting into the Active Directory structure.

There is no knowledge of a local server currently in production or slated to be deployed at this site. There are local printers, but no local print server is scheduled for deployment and printer volume has not been determined. Bandwidth load for the site is an assumption made using the Fridley Water Plant as a baseline.

Given the number of network drops in the main building and the number of users in the adjacent building, a Cisco WS-C2950G-48 will be installed in the main building and a Cisco WS-C2950G-12 will be installed in the secondary building, connected with GBIC uplinks and a length of multi-mode fiber between the locations.

Recommendations:

- Install a Cisco WS-C2950G-48 in the primary location
- Install a Cisco WS-C2950G-12 in the secondary location for additional 3 users
- Terminate multi-mode fiber between the two locations for connectivity
- Install a GBIC module into each switch for Gigabit connection between buildings
- When wiring the building for Ethernet operation, ensure the maximum distance from the switch end of the Cat5e copper run to the workstation is no greater than 328', including patch cord, in length.

Wide Area Network Analysis:

The only remote connectivity in place currently is 3 analog dial lines from the secondary building into the City of Minneapolis' network. This allows low speed basic connectivity for application access.

The objective of this project is to have the users at the Columbia Heights location connectivity to CityNet resources as any other City of Minneapolis entity. This site is not to be placed on the direct fiber-optic network back to City Hall. The only available connectivity method for this site is a Point-to-Point T1 circuit.

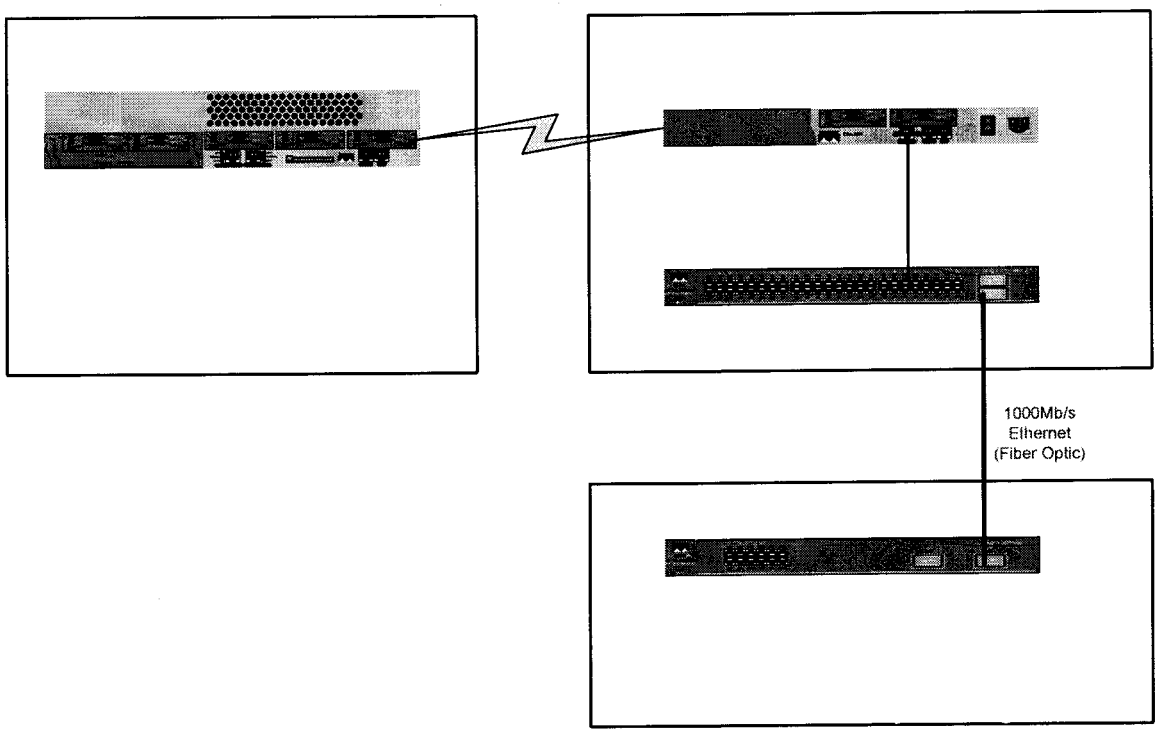
Total bandwidth required and projected average utilization are both unknowns and will remain as such until a detailed analysis of all applications to be deployed along with user population habits.

The recommendation of the NCC is that 2 T1s be put in place to provide bandwidth for any possible servicing requirements for any application set currently in general deployment across the City Of Minneapolis network.

It could be possible that a single T1 can provide a proper level of service for the users of the Columbia Heights location; however there are currently too many unknown variables to make that recommendation at the time of this writing.

Recommendations:

- Install a new head end Cisco 2691 router in B59 that will become the distribution point for Columbia Heights. Install a VWIC-2MFT into the Cisco 2691 to accommodate dual T1 access into the City of Minneapolis network.
- Install a new Cisco 2611XM router at Columbia Heights with a single VWIC-2MFT to support 2 dual T1 access into the City network.
- Install 2 T1 circuits between the Columbia Heights facility and B59.



Conclusion:

The current lack of equipment and wiring at these two locations requires deployment of an architecture that allows maximum growth while being cost-effective on a per-user basis. The proposed solution is the functional minimum that guarantees future growth and will not collapse under increasing application demands in the future.

Installing a proper and scalable network infrastructure at these facilities will create a network that will facilitate rapid and seamless deployment of emerging technologies, meet current and future business demands and accelerate deployment cycles across the enterprise.

A determination will need to be made on how the cost of the new 2691 will be distributed as the new head-end router could potentially provide connection for more than one remote site.

Solution Document for City of Minneapolis

Request for
New Columbia Heights Filtration Facility Network

UNISYS

Request for Quote Number: 880F4651 Date: 02/01/05

Project Description:

The City of Minneapolis and Unisys will jointly coordinate the network integration for the new Columbia Heights Filtration facility. This project includes network infrastructure from City Hall B59 to the Columbia Heights campus as there currently is no network connectivity to that site.

Unisys Responsibilities:

- Unisys will provide overall project leadership for the implementation of this solution.
- Unisys will acquire and install the identified equipment to support this solution implementation.
- Unisys will be responsible for the initial set up and configuration of the network equipment.
- Unisys will provide remote network managed services for the identified equipment.
- Unisys will implement this stated solution within 60 days of signature to this document.
- Unisys will provide managed services as defined in the Outsourcing and Managed Network Services contract, dated as of December 31, 2002, between Unisys Corporation and the City of Minneapolis.

City of Minneapolis Responsibilities:

- The City of Minneapolis will provide a liaison to the Unisys project team.
- The City of Minneapolis will provide Unisys access to facilities required to implement.
- The City of Minneapolis will order the T-1 circuits.
- The City of Minneapolis will complete any cabling requirements for each installation.

Assumptions:

- The equipment purchased for this project will be transferred to Unisys and will be added to the Asset Management Data Base.
- The hardware for this project will be invoiced upon receipt.

Pricing:

Hardware:

Item	Description	Qty.	Price
Head End (B59)			
Router	Cisco 2691 Router (5,036 Ea)	1	$5,036.00
Memory	128MB Compact Flash Upgrade (526 Ea)	1	526.00
Interface Card	2-Port RJ-48 Multiflex Trunk T-1 (1,518 Ea)	1	1,518.00
Remote Office			
Router	Cisco 2611XM (1,996 Ea)	1	1,996.00
Memory	48MB Flash Memory Upgrade (564 Ea)	1	564.00
Interface Card	2-Port RJ-48 Multiflex Trunk T-1 (1,518 Ea)	1	1,518.00

Solution Document for City of Minneapolis

Request for
New Columbia Heights Filtration Facility Network

UNISYS

Request for Quote Number: 880F4651

Date: 02/01/05

Switch	Cisco 2950 – 48 Port (3,596 Ea)	1	$3,596.00
GBIC	1000BASE-SX-GBIC (374 Ea)	2	748.00
Switch	Cisco 2950 – 12 Port (1,836 Ea)	1	1,836.00
UPS	APC Smart 1000, 2U Rack Mount (496 Ea)	2	992.00
	Hardware Subtotal		$18,330.00
	Sales Tax (6.5%)		$1,191.45
	Hardware Total		**$19,521.45**

Labor:

Source	Description		Price
Project Mgmt.	Unisys Project Management		$1,050.00
NCC	Network Command Center Architect Implementation		2,880.00
CSR Network	Unisys Field Operations Network Engineer		4,576.00
CSR Deskside	Unisys Field Operations Client Service Rep		600.00
	Labor Total		**$9,106.00**

Implementation Totals:

Source	Description		Price
Hardware	Total		$19,521.45
Labor	Total		9,106.00
	Grand Total		**$28,627.45**

Implementation Services Total: $28,627.45

Managed Services Monthly Total: ** $564.00

Managed Services @ 58 Months $32,712.00

Project Total $61,339.45

** Monthly Managed services will be included in a change order addendum to be presented to City Council for approval. This change order will reflect a managed services fee of **$61,339.45** of which **$32,712.00** will be invoiced over 58 months effective upon installation to provide services conterminously with the Managed Services agreement currently in place with the City of Minneapolis.