ITEM 10.I.

MOORPARK CITY COUNCIL
AGENDA REPORT

TO: **The Honorable City Council**

FROM: **Mary Lindley, Parks, Recreation & Community Services Director**
Prepared by: **Shaun Kroes, Management Analyst** SK

DATE: **July 6, 2006 (CC meeting of July 19, 2006)**

SUBJECT: **Consider Metrolink Security Camera System Design Options**

SUMMARY

The City Council is being asked to approve Schirmer Engineering Corporation's (SEC) proposed design plan, Option A, for the Metrolink Station security camera system. If approved, SEC will proceed with designing specifications and drawings for the City's request for proposal for installation of the security camera system.

BACKGROUND

The City Council expressed a desire for a security camera system in the Metrolink Station (Goals and Objectives for FY 2005/06, B-10). To meet that goal, on March 1, 2006, the City Council awarded an agreement to SEC to design a digital security camera system. On May 11, 2006 City staff, along with Moorpark Police and Metrolink representatives, met with David Gallegos, Senior Security Consultant for SEC to discuss the security needs of the City, availability of current hardware at the Metrolink Station, and coordination needs with Metrolink. SEC also performed site visits to the Metrolink Station and Police Facility. On June 14, 2006, City staff again met with SEC to review the proposed design budget options (Attachment A). Staff is now presenting those proposed design budget options to the City Council.

The City has obtained $250,000 in funding for the security camera system project ($200,000 FTA; $50,000 Local TDA). This funding may vary a bit, as a portion of the funding ($32,500) is part of the FY 2006/07 Federal Transit Program of Projects, which could be adjusted later this year, depending on actual Federal funding. A portion of the total funding will be used to pay for SEC ($23,400). All three design options are within the project budget of $250,000, including the consultant's costs.

DISCUSSION

SEC created three design options with associated cost estimates. Products listed are intended to meet the performance requirements of the City, and do not specifically indicate the product brands that could be used on the project. Products proposed will be open to the bidder, so long as all products meet specification requirements created by SEC. Below is a brief description of all three options.

Option A: $195,637.34

- Four, 30-foot monopoles would be installed in the South Parking Lot for cameras and motion detectors. Two, 30-foot monopoles would be installed in the North Parking Lot for cameras and motion detectors.
- A 1,000 foot trench in the South Parking Lot and a 200 foot trench in the North Parking Lot would be used for power supply to the cameras and image feed to the Metrolink communications room, located in the northeast corner of the South Parking Lot.
- There would be six cameras, four in the South Parking Lot and two in the North Parking Lot. The cameras would be able to function in both the day and night, and would be capable of facial imaging.
- The cameras would record both parking lots and the Metrolink platform.
- All images would be recorded in the Metrolink communications room using a digital video recorder (DVR).
- The DVR would store two weeks of footage before re-recording. This would provide enough time to review scenes when vandalism is reported.
- The DVR would be connected to the Moorpark Police Services Station via radio frequency (RF) technology.
- Although the cameras would not be monitored at the station, personnel would be able to control the cameras if an on-going incident were reported. Recorded images at the DVR would be downloaded to the computer at the police station.
- Option A will provide the best image quality and will be the most reliable security system.

Option B: $188,011.92

- This option includes the same six camera poles noted in Option A, but power would be provided from different connections, requiring less trenching for wiring.
- The cameras would not be hard-wired to the Metrolink communications room, but would send recorded footage directly to the police station via RF transmitter.
- RF transmitters, though reliable, can be interrupted due to bad weather (fog, rain,

etc.). Some images might not be recorded, or might be recorded poorly, depending on the weather.

Option C: $134,531.92

- Only two monopoles would be installed in the North Parking Lot. The remaining four cameras would be mounted on existing light poles located on the Metrolink platform.
- The cameras would send footage directly to the police station, as noted in Option B.
- Images may be difficult to record at night, due to the high amount of light produced on the platform.

SEC recommends Option A. Video signal recording is dependent upon connection integrity from camera to hard-drive. The best method to use is direct cable connectivity. The other two methods rely on radio frequency and although reliable, are susceptible to inclement weather conditions. Although Option A does include radio frequency from the communications room to the police station, the recorded images from the cameras will be on the DVR in the communications room. This means the clearest image possible will be available through the DVR. In the case of Options B or C, if the cameras record an incident and there is signal interruption between the camera and the police station due to heavy moisture in the air, the image recorded at the police station will likely be grainy, unlike a clear image that could be recorded through a direct connection between the cameras and a DVR in the communications room. Option C includes installing cameras on existing light poles on the Metrolink Platform. The high illumination will degrade the images recorded. It will also reduce the distance that the cameras can see into the parking lots. This would be similar to turning on all the lights in a house, and then trying to see what is outside by looking through the window.

The typical warranty on security camera systems is one year. Thereafter, staff intends to secure a maintenance service agreement. Based on the Option selected by the City Council, the cost of an annual maintenance agreement is estimated to be $6,000. The costs will vary depending on the terms negotiated. Typical maintenance agreements include materials, time, and labor for repairs attributable to equipment malfunction, excluding vandalism.

Once the City Council has selected a design option, SEC will proceed with plan drawings and design specifications. Staff will return to Council for approval of the plans and specifications and authorization to bid the project construction.

STAFF RECOMMENDATION

Approve the Metrolink security system design Option A and direct staff to proceed with construction plans and specifications.

Attachment A: Project Budget

PROJECT BUDGET

MOORPARK METROLINK STATION
DIGITAL SECURITY CAMERA SYSTEM

PREPARED FOR THE

CITY OF MOORPARK

By

SCHIRMER ENGINEERING

MR. DAVID GALLEGOS

JUNE 14, 2006

1 | INTRODUCTION

Overview

In May of 2006, the city of Moorpark (MPK) awarded a contract to Schirmer Engineering Corporation (SEC) to participate in the consulting and design of a "Digital Security Camera System" to be located at the city of Moorpark Metrdink Station for the protection of private vehicle assets and the protection of users of the facility in compliance with the Request for Qualifications (RFQ), dated January 6, 2006.

To accomplish this goal, SEC has visited the site, the monitoring location, and observed environmental conditions during daylight and at night to ascertain light conditions for evaluation purposes.

SEC has memorialized these conditions and others to render a budget that demonstrates three (3) types of systems with associated probable installed costs. A labor figure was used as a basis for the entire budget, which represents the industry standard for the type and scope of work shown herein. Shipping and tax is included to better demonstrate the overall project expense.

Specification sheets have been included in this document to demonstrate the type of product that may be used. The equipment ultimately chosen will meet or exceed the performance of the equipment noted in this document.

Actual location of devices, alone with a full design is intended to be shown on contract documents, to be provided by SEC in the future.

2 | BUDGET

Components

The budget shown herein is divided into three (3) separate options, which identifies separate system design alternatives. Each option may contain components identified in any other option, although the quantity may have changed. In other cases, components may only be shown in only a single option.

Data sheets for components are assembled as Options A, B, and C. Option B&C are combined as those components are similar for both scenarios.

Tax on individual equipment is shown to be @ 7.50%. Shipping is included and is shown @ 3%. Handling is included in each labor figure associated with component, with some assumption; products may not be necessarily carried to

approximately 1000' feet. Within the trench will reside a low and high voltage conduit. The high voltage conduit will contain a 120vac circuit from the city meter to the communications structure to provide city power within the structure for equipment.

The low voltage conduit will be routed from the communications structure to four (4) steel galvanized camera poles (monopoles), 30' feet in height from their supporting foundations where the cameras will be mounted along with motion detectors. The poles will be spaced evenly along an 800' foot length of the south parking lot.

Foundation construction is included in the budget by the excavation contractor. However, the design will be accomplished by a structural engineer, procured by the city of Moorpark.

Each camera will be powered locally by a power supply located within the communications structure.

The north parking lot will also have a trench extending approximately 200' feet parallel to the tracks, but within the parking lot to two (2) more poles with cameras and motion detectors.

Signals from those cameras will be routed through the trench to an existing telephone box and extend through an existing conduit to the communications structure. Power will be provided from a landscape circuit located on the opposite side of the lot.

The total analog cameras in this scenario are six (6). Video signals from cameras will have direct connection to a digital video recorder (DVR) located in the communications structure, supported by an uninterruptible power supply (UPS).

Software is included with the DVR and will be loaded onto a city supplied computer for use at the police station, approximately 100 yards from the site.

Transmission for the control and upload of video signals from the DVR to the police station will be accomplished with the use of radio frequency (RF) technology with antennas mounted atop the police station and at the communications structure.

The overall design is intended to allow cameras to begin recording through programming during peak hours of unwanted activity by optical video and

the site by the contractor, but rather may be shipped to the site (FOB).

Components pricing is list with equipment markup@ 1.35%. Some component pricing is MSRP and therefore is reduced by 45% prior to the markup noted

Labor for installed equipment is shown as $95.00 per hour, and is included for the entire project. It is assumed the contractor may elect to utilize various skilled labor based upon the scope of work for any portion of the project.

Estimate

SEC invited a local subcontractor to provide installed costs for the excavation of parking lot and landscape material for the purpose of gaining budgetary figures for inclusion into the probable project budget. The single lineentitled "Excavation Contractor – Analog", per Option "A" includes the following tasks:

- Mobilization
- Sawcut, break and remove off-site 1,1001 f A/C as per job walk (all removal to be no greater than 4" inches).
- Machine and hand excavate 1,1001 f x 18" x 3' of new underground conduits.
- Backfill and compaction for above work using 1 sac slurry.

The work for Option "A" also includes the following:

- Commercial Liability Limits - $1,000,000 per occurrence.
- General Aggregate - $2,000,000
- Products $ completed Operations - $2,000,000
- Personal Injury & advertising - $1,000,000
- Fire Damage - $50,000
- Additional Insured Endorsement – CGL 1038 1103
- Auto Liability - $1,000,000 limited to hared autos of the private passenger or light truck type only.

Options "B and C" (Excavation Contractor) are based upon the work noted above and adjusted for the scope of work within those options. No actual quotation was received for those conclusions.

3 | OPTIONS

Option A

An infrastructure will be provided below grade through the longest dimension of the south parking lot, within 18" inches of the north bus curb and extending from the current communications structure to the site power meters – a distance of

approximately 1000′ feet. Within the trench will reside a low and high voltage conduit. The high voltage conduit will contain a 120vac circuit from the city meter to the communications structure to provide city power within the structure for equipment.

The low voltage conduit will be routed from the communications structure to four (4) steel galvanized camera poles (monopoles), 30′ feet in height from their supporting foundations where the cameras will be mounted along with motion detectors. The poles will be spaced evenly along an 800′ foot length of the south parking lot.

Foundation construction is included in the budget by the excavation contractor. However, the design will be accomplished by a structural engineer, procured by the city of Moorpark.

Each camera will be powered locally by a power supply located within the communications structure.

The north parking lot will also have a trench extending approximately 200′ feet parallel to the tracks, but within the parking lot to two (2) more poles with cameras and motion detectors.

Signals from those cameras will be routed through the trench to an existing telephone box and extend through an existing conduit to the communications structure. Power will be provided from a landscape circuit located on the opposite side of the lot.

The total analog cameras in this scenario are six (6). Video signals from cameras will have direct connection to a digital video recorder (DVR) located in the communications structure, supported by an uninterruptible power supply (UPS).

Software is included with the DVR and will be loaded onto a city supplied computer for use at the police station, approximately 100 yards from the site.

Transmission for the control and upload of video signals from the DVR to the police station will be accomplished with the use of radio frequency (RF) technology with antennas mounted atop the police station and at the communications structure.

The overall design is intended to allow cameras to begin recording through programming during peak hours of unwanted activity by optical video and

external motion detection via motion detectors. In thismanner, selective recording will take place thereby limiting video on the hard-drive of the recording equipment. This will reduce the amount of required hard-drive and thereby reduce the impact to the project budget. The intention of the system is to have a maximum of two (2) weeks of recording capacity. The city will not monitor the system, but would rather view previously recorded information upon an alarm condition, or when further investigation is necessary. The system therefore will operate in automatic mode for this and the other options as well.

Option B This option involves the same six (6) camera poles noted in option "A", but 120vac power will be routed from other locations on the site. Like option "A", motion detectors will be located atop the poles.

Unlike the analog cameras noted in option "A", these cameras will be IP addressable or sometimes referred to as "digital." Atop each camera location will be an RF transmitter sending signals from individual cameras directly to the police station and will be received as noted above.

This method will allow video signals to be recorded on a network video recorder (NVR) located at the police station and supported again by an UPS. No equipment will be required within the communications structure.

Option C This option involves the installation of only two (2) poles located as noted above in the north parking lot. The remaining four (4) cameras will be mounted upon existing light standards located on the pedestrian kiosk platform for a total camera count of six (6).

These cameras will also be IP addressable and will also communicate tothe police station as noted in option "B."

Like option "B", the signals will be recorded and supported as noted, and again no equipment will reside within the communications structure.

4 | SUMMARY

It is this writer's opinion; option "A" is the best method to embark upon. Video signal recording is dependent upon connection integrity from camera to hard drive. The best method to use is direct cable connectivity. The other two methods rely upon radio frequency and although reliable, are susceptible to inclement weather conditions.

The station and the city receive costal on-shore moisture in the form of rain and fog. This will obstruct video signal transmission on occasions. Certain RF channels and their respective frequencies have overcome this dilemma to a degree, but all will agree the problem of inclement weather obstruction is not surmountable.

In option "A", the signals are recorded through cable connectionto the hard-drive. The weakest link is the viewing of recorded information. The information may be requested during non-inclement weather conditions at anytime.

With the other two options, if signals are interrupted during recording of an unwanted activity, the signals will be lost if weather conditions are severe.

As for the installation methods and related costs, option "A" is by far the most expensive. Option "B" is less as the amount of trenching is reduced, with Option "C" the least expensive with the majority of the cameras mounted upon existing light standards.

The systems and installation methods noted within this document should be regarded as flexible until the full design is accomplished. The information herein should be regarded as a probable project scheme. Further investigation through design will provide reduced cost impact and better focus attention upon issues to be recognized at a later date.

Schirmer Engineering Corporation
City of Moorpark
Digital Security Camera System

Quantity	Model Number	Description	Labor $Cost	Equipment Unit $Cost	Equipment $Total	Equipment $Total+Labor	Final Markup $Total
		OPTION A					
		Surveillance Pole System - Analog					
6	SD53CBW-HCPE1	Pelco - Environmental Pan-Tilt-Zoom Camera Dome	2,280.00	3,794.00	25,154.22	27,434.22	37,036.20
6	IWM-GY	Pelco - Camera Dome Mount	570.00	98.00	649.74	1,219.74	1,646.65
1	R2432300ULCB	Alarmsaf - Rack Mount Camera Power Supply	190.00	600.00	663.00	853.00	1,151.55
1	DX8008-1000DVD	Pelco - Digital Video Recorder - 8 Position	570.00	7,795.00	8,613.48	9,183.48	12,397.69
1	LOT	Pelco - Client Workstation Software (included)	-	-	-	-	-
6	SDI-77XL2-D	Protech - Outdoor Motion Detector, Long Range	1,140.00	500.00	3,315.00	4,455.00	6,014.25
1	SUA2200RM2U	APC - Uninterruptable Power Supply	380.00	1,050.00	1,160.25	1,540.25	2,079.34
2	NV-652R	NVT - UTP Receiver	380.00	200.00	442.00	822.00	1,109.70
1	3600-2400	FireTide - Transmitter	190.00	2,295.00	2,535.98	2,725.98	3,680.07
1	3600-2400	FireTide - Receiver	190.00	2,295.00	2,535.98	2,725.98	3,680.07
1	WS-C2950-12-E1	Cisco Systems - Switch	190.00	2,295.00	2,535.98	2,725.98	3,680.07
1	ACRL-191B	Atlasoundolier - AC Distribution Unit	95.00	119.00	131.50	226.50	305.77
6	Monopole	Western Towers - 30 Foot Camera Pole	9,120.00	5,600.00	33,600.00	42,720.00	42,720.00
			15,295.00	26,641.00	81,337.11	96,632.11	**115,501.34**
		Excavation Contractor - Analog					
1	LOT	Trenching, Pole Foundations, Conduit - Backhoe				80,136.00	**80,136.00**
							195,637.34
		OPTION B					
		Surveillance Pole System - IP					
6	232D	AXIS - Network Dome Pan-Tilt-Zoom IP Camera	4,560.00	2,299.00	15,242.37	19,802.37	26,733.20
6	25734	AXIS - Vandal Dome	2,280.00	849.00	5,628.87	7,908.87	10,676.97
6	25736	AXIS - Goosneck Pole Mount	2,280.00	99.00	656.37	2,936.37	3,964.10
1	NVR1000	JVC - Network Video Recorder - 2TB of Storage	570.00	7,795.00	8,613.48	9,183.48	12,397.69
1	LOT	JVC - Client Workstation Software (included)	-	-	-	-	-
6	SDI-77XL2-D	Protech - Outdoor Motion Detector, Long Range	1,140.00	500.00	3,315.00	4,455.00	6,014.25
1	SUA2200RM2U	APC - Uninterruptable Power Supply	380.00	1,050.00	1,160.25	1,540.25	2,079.34
6	3600-2400	FireTide - Transmitter	1,140.00	2,295.00	15,215.85	16,355.85	22,080.40
2	3600-2400	FireTide - Receiver	380.00	2,295.00	5,071.95	5,451.95	7,360.13
1	WS-C2950-12-E1	Cisco Systems - Switch	190.00	2,295.00	2,535.98	2,725.98	3,680.07
1	ACRL-191B	Atlasoundolier - AC Distribution Unit	95.00	119.00	131.50	226.50	305.77
6	Monopole	Western Towers - 30 Foot Camera Pole	9,120.00	5,600.00	33,600.00	42,720.00	42,720.00
			22,135.00	25,196.00	91,171.61	113,306.61	**138,011.92**
		Excavation Contractor - Pole, IP					
1	LOT	Trenching, Pole Foundations, Conduit - Backhoe				50,000.00	**50,000.00**
							188,011.92

Schirmer Engineering Corporation
City of Moorpark
Digital Security Camera System

Quantity	Model Number	Description	Labor $Cost	Equipment Unit $Cost	Equipment $Total	Equipment $Total+Labor	Final Markup $Total
		OPTION C					
		Surveillance Platform System - IP					
6	232D	AXIS - Network Dome Pan-Tilt-Zoom IP Camera	4,560.00	2,299.00	15,242.37	19,802.37	26,733.20
6	25734	AXIS - Vandal Dome	2,280.00	849.00	5,628.87	7,908.87	10,676.97
6	25736	AXIS - Goosneck Pole Mount	2,280.00	99.00	656.37	2,936.37	3,964.10
1	NVR1000	JVC - Network Video Recorder - 2TB of Storage	570.00	7,795.00	8,613.48	9,183.48	12,397.69
1	LOT	JVC - Client Workstation Software (included)	-	-	-	-	-
6	SDI-77XL2-D	Protech - Outdoor Motion Detector, Long Range	1,140.00	500.00	3,315.00	4,455.00	6,014.25
1	SUA2200RM2U	APC - Uninterruptable Power Supply	380.00	1,050.00	1,160.25	1,540.25	2,079.34
6	3600-2400	FireTide - Transmitter	1,140.00	2,295.00	15,215.85	16,355.85	22,080.40
2	3600-2400	FireTide - Receiver	380.00	2,295.00	5,071.95	5,451.95	7,360.13
1	WS-C2950-12-E1	Cisco Systems - Switch	190.00	2,295.00	2,535.98	2,725.98	3,680.07
1	ACRL-191B	Atlasoundolier - AC Distribution Unit	95.00	119.00	131.50	226.50	305.77
2	Monopole	Western Towers - 30 Foot Camera Pole	3,040.00	5,600.00	11,200.00	14,240.00	14,240.00
			16,055.00	25,196.00	68,771.61	84,826.61	**109,531.92**
		Excavation Contractor - Plateform, IP					
1	LOT	Trenching, Pole Foundations, Conduit - Backhoe				25,000.00	**25,000.00**
							134,531.92

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