Exhibit A

PROJECT BUDGET

For

CTA Western Avenue Transit Signal Priority Demonstration

Applicant	Chicago Transit Authority		
RTAP Project Number	**RTAP2000-132-126-24**	**Project Budget**	**$652,743.00**
	Budget Number	**02**	**Date**

	Project Budget	Inkind	Estimated Project Funds	
			Cash	Share
RTA	**$652,743.00**	$0.00	$652,743.00	100.00%
Local	**$0.00**	$0.00	$0.00	0.00%
Other	**$0.00**	$0.00	$0.00	0.00%
Total:	**$652,743.00**	**$0.00**	**$652,743.00**	**100.00%**

Approved Project Funds

Task	Description	Budgeted
1	Conduct Baseline Service Evaluation (CTA In-kind)	$0.00
2	Select Technology, Locations, and Priority Strategies in Preparation for Procuring Equipment and Services (CTA In-kind)	$0.00
3	Procure Equipment and Installation Services (CTA In-kind)	$0.00
4	Install On-board Equipment on Vehicles	$22,500.00
5	Phase I Installation of TSP Equipment	$122,927.00
6	Testing and Activation of Phase I TSP Equipment	$0.00
7	Phase I Technical Evaluation	$396,000.00
8	Contingency	$111,316.00
	Total Approved Project Funds:	**$652,743.00**

Exhibit A

Scope of Services

CTA Western Avenue Transit Signal Priority Demonstration

Project Description:

CTA proposes to implement a signal priority program that will help improve the flow of buses along Western Avenue while having a minimal effect on cross traffic. The project will attempt to demonstrate the feasibility of Transit Signal Priority (TSP) in a busy corridor, and build a local knowledge base of bringing TSP projects to the implementation and operation stages, coordinating efforts between transit agencies and signal operators, and optimizing the benefits of the system.

The project will equip all buses operating on the X49 route with emitters that will allow traffic signals to detect oncoming buses. Selected signals along the route will be equipped with additional software and hardware to help the signal controllers process the priority requests, and with detectors to alert signal controllers to bus arrivals.

Project Location:

The project will be located at signalized intersections along Western Avenue between Berwyn Avenue (5300 N) and 95th Street (9500 S). Signal priority equipment installation will be limited to intersections maintained by the City of Chicago.

Project Tasks:

Task 1: Conduct Baseline Service Evaluation

CTA personnel will assemble data from sources such as schedules, ride checks, and automatic vehicle announcement system (AVAS) to measure baseline X49 travel times, headways, and service reliability. Consultants will use data to evaluate and identify delay locations and other street operations issues that impact travel times and reliability, and will outline the evaluation methodology to be used in Task 6.

Deliverable:

Baseline Service Evaluation Report.

Task 2: Select Technology, Locations, and Priority Strategies in Preparation for Procuring Equipment and Services

CTA personnel and consultants will review the Baseline Service Evaluation and available technologies. CTA and the signal operating agency will identify Phase I intersections for TSP, select TSP technology, confirm Phase I signal priority strategy, identify probable Phase II priority strategies, develop equipment specifications, procure equipment and installation services.

Deliverable:

PS & E (Plans, Specifications and Engineering) for equipment.

Task 3: Procure Equipment and Installation Services (CTA Inkind)

CTA staff to prepare RFP: Advertise for bids, evaluate proposals, submit best proposal for board approval, negotiate contract.

Deliverable:

Contract procured, bid awarded.

Task 4: Install On-board Equipment on Vehicles

CTA personnel will work with vendor to install TSP emitters on the 25 buses needed for the X49 service. Per the recommendations of the Wilbur Smith study, CTA expects to use infrared/optical detection equipment for this phase of the demonstration project, but will consider other technologies based on the results of Task 2.

Deliverable:

Equipment installed and tested on 25 buses.

Task 5: Phase I Installation of TSP Equipment

CTA personnel will work with the City of Chicago and a vendor to install TSP equipment at up to 20 Phase 1 signals.

Deliverable:

Equipment installed at approximately 20 signals.

Task 6: Testing and Activation of Phase I TSP Equipment

CTA personnel, City of Chicago personnel and vendors will activate and test TSP equipment at Phase 1 intersections. System will be adjusted as needed to ensure that it can be operated without excessively adverse impact on cross traffic, and can request priority.

Deliverable:

Test plan and report.

Task 7: Phase I Technical Evaluation

The Phase I system will be fully operational for 60 days prior to evaluation. During this time bus schedules will be adjusted as appropriate and operators trained. CTA personnel will work with consultants using AVL data from the Clever Devices IVN system and other data to measure improvement in X49 travel time, headway and service reliability and evaluate the impacts on non-transit traffic and signal operations. Findings will be incorporated into the implementation plan for Phase 2.

Deliverable:

Evaluation Report.

EXHIBIT B

CTA's Technical Services Agreement with the RTA, Contract No. RTAP-2000-27

[see attached]

Appendix C

Global Traffic Technologies

Global Traffic Technologies, LLC
7800 Third Street North
St. Paul, Minnesota 55128-5441

651-789-7333
651-789-7334 fax
www.gtt.com

July 28, 2008

Raymond Orozco
Executive Director
Office of Emergency Management and Communications
1411 West Madison
Chicago, IL 60607

Dear Mr. Orozco,

This letter is being sent in response to your request pertaining to the availability of the Global Traffic Technologies' Opticom™ Infrared System. Our Opticom system uses Global Traffic Technologies, LLC developed infrared technology and is manufactured solely by Global Traffic Technologies for all of our customers, globally. The combination of Global Traffic Technologies' coded infrared technology and manufacturing processes for preemption and priority control is patented and, as such, we are the sole source for this system.

Competitive systems do exist that claim to provide identical performance to Opticom Infrared system. In some cases customers have tried to integrate competitive systems into existing Opticom Infrared system installed corridors with limited success. In all cases, system functionality suffered with limited/minimal performance levels. The limited/minimal performance levels are due in part to the incompatible coding (or no coding) schemes used to supply secure low and high priority intersection accessibility.

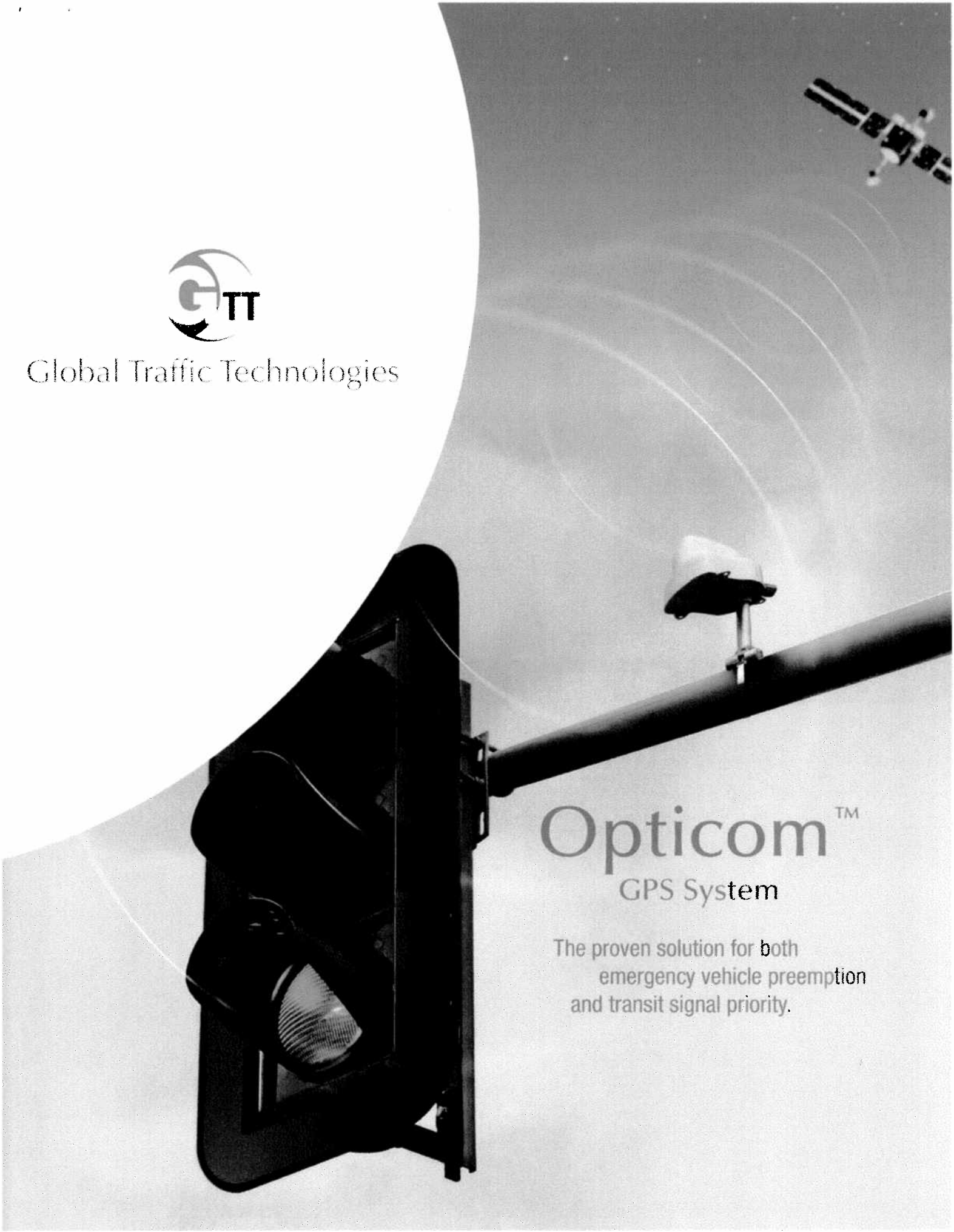
Global Traffic Technologies designed, developed and tested each Opticom Infrared component as part of a matched component system. Global Traffic Technologies makes no warranty whatsoever of Opticom Infrared system components if used with non-Opticom Infrared system products. Global Traffic Technologies shall not be responsible for any Opticom Infrared component which Global Traffic Technologies determines has been damaged in whole or in part by its use with a non-Opticom Infrared system product.

We look forward to working with you to implement Opticom Infrared system in your area. Please feel free to contact Gary Nourse, our Project Manager, if you have any questions or additional requests pertaining to this product. He can be reached at (651) 789-7312 or by e-mail at gary.nourse@gtt.com.

Sincerely,

Rick Sachse
President
Global Traffic Technologies, LLC

Global Traffic Technologies



Opticom™

GPS System

The proven solution for both
emergency vehicle preemption
and transit signal priority.

Global Traffic Technologies

Signaling a new paradigm in traffic management and safety.

More than 35 years ago, Opticom™ System Technology started a revolution in traffic management and safety. Today the world is a far busier and much more crowded place—and the need for better-managed roadways is greater than ever.

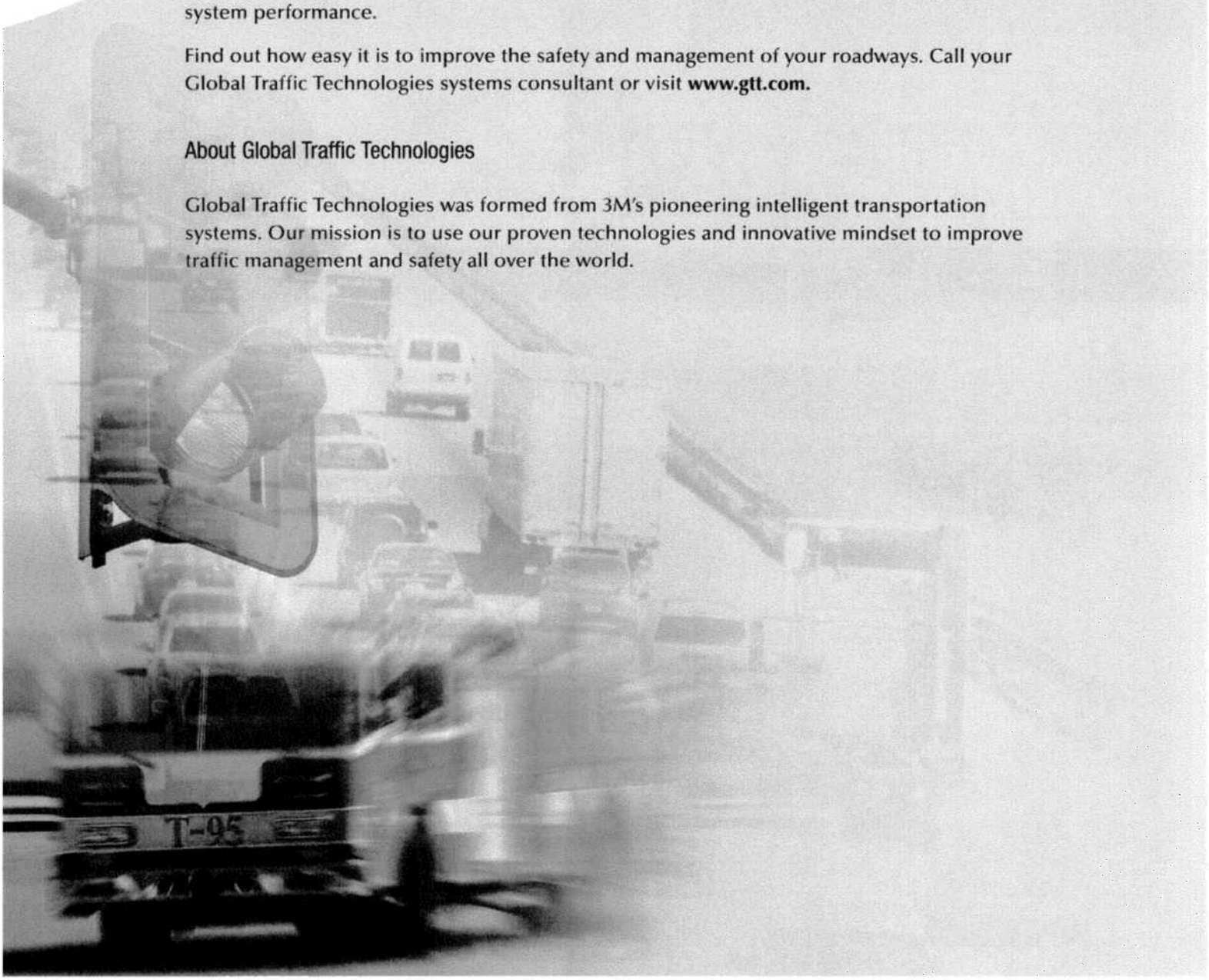
The Opticom™ GPS System addresses this need with the next generation of signal preemption and priority for intersection management.

Featuring global positioning satellite (GPS) technology, as well as highly secure radio communication, the Opticom GPS system delivers safe, efficient results for emergency service and transit vehicles everywhere. At the same time, it gives traffic engineers a new level of intersection management and control. And it's all protected with a full range of installation, training and setup services to ensure optimal, long-term system performance.

Find out how easy it is to improve the safety and management of your roadways. Call your Global Traffic Technologies systems consultant or visit **www.gtt.com.**

About Global Traffic Technologies

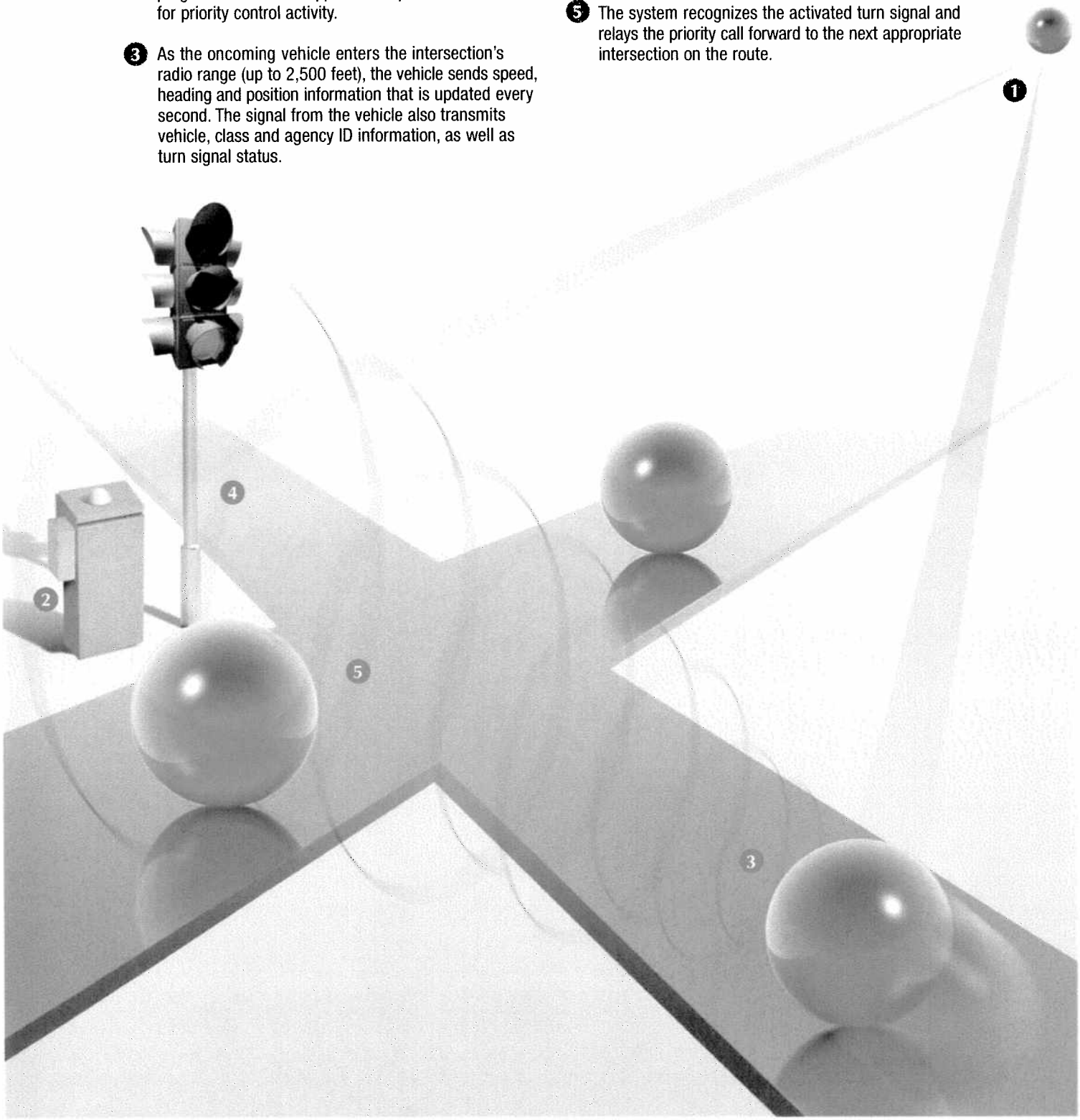
Global Traffic Technologies was formed from 3M's pioneering intelligent transportation systems. Our mission is to use our proven technologies and innovative mindset to improve traffic management and safety all over the world.



The intelligent intersection.

When an emergency vehicle responds to a 911 call or when a transit vehicle needs to pick up time, the Opticom™ GPS System gives those vehicles an advantage at intersections.

1. Using Department of Defense satellites, your Opticom GPS system vehicle equipment calculates vehicle speed, heading, longitude and latitude information.
2. The Opticom GPS system intersection equipment is programmed with an approach map to define corridors for priority control activity.
3. As the oncoming vehicle enters the intersection's radio range (up to 2,500 feet), the vehicle sends speed, heading and position information that is updated every second. The signal from the vehicle also transmits vehicle, class and agency ID information, as well as turn signal status.
4. The Opticom™ GPS system intersection equipment sends the priority request to the Opticom™ GPS Phase Selector in the controller cabinet, which requests green-light priority through normal controller functions.
5. The system recognizes the activated turn signal and relays the priority call forward to the next appropriate intersection on the route.



For emergency services:

Faster response for a world where every second counts.

Studies show that an effective signal preemption system improves response times by an average of 20%, while simultaneously reducing crashes at controlled intersections.[1] And it's no secret that response times and risk mitigation are critical in the emergency service world. The Opticom GPS system provides unique, precise control that anticipates vehicle movement and helps responders get to their destinations as quickly and safely as possible.

Improves safety by eliminating priority conflict at the intersection

- Authorization is granted on a "first-come, first-served" basis.
- Vehicle descriptors enable streamlined coding activity.

Facilitates safe, efficient movement through turns

- Turn signal recognition and relay leads preemption in the intended direction.
- Turn signal recognition clears right-of-way around corners.

Integrates easily with industry standard communication applications

- System provides GPS data output for other onboard devices.

Provides precise activation and data reporting

- Activation is based on estimated time of arrival (ETA) and/or distance.
- Superior preemption log accuracy improves liability identification.

For traffic engineers:

Easy integration into your current intersection management system.

The Opticom GPS system helps the people who manage intersections as much as it helps those who need to get through them. The system can be easily integrated into existing intersection systems. It's designed for efficient installation and compatibility with most traffic controllers. And it supports both emergency and transit services, with separate priority levels for signal preemption and priority—eliminating redundant systems and the potential for conflict at the intersection. One system for multiple agencies.

Streamlines intersection installation and maintenance

- Single intersection radio/GPS unit receives information from all directions.
- System accommodates hills, curves and varied distances without the need for advanced detectors.

Minimizes traffic disruption

- Turn-signal-dependent mode recognizes the need for protected left turns, reducing potential traffic delays.
- Adjustable activation, based on ETA and/or distance, enhances green time efficiency.

Integrates easily into current cabinets

- Opticom™ Phase Selector plugs directly into CA/NY 170 and most NEMA hardware.
- Opticom phase selectors are compatible with most traffic controllers with internal preemption and priority.

Software enables implementation and management

- Opticom™ ITS Explorer Software facilitates configuration, monitoring and diagnosis, and produces system reports.

For mass transit operations:

Lower costs, happier riders and reduced environmental impact.

Whether you're looking to improve headway, increase schedule adherence or activate queue jumping, the Opticom GPS system will serve you well. It provides a temporary advantage to individual buses, as needed, to help them catch up to schedules and maintain progression—crucial factors for maintaining a loyal rider base and attracting newcomers. Improving route timing by 10% or more may help you reduce your fleet needs.[2]

Provides precise activation of priority requests

- Activation can be based on ETA and/or distance, reducing traffic disruption.

Enables automated operation

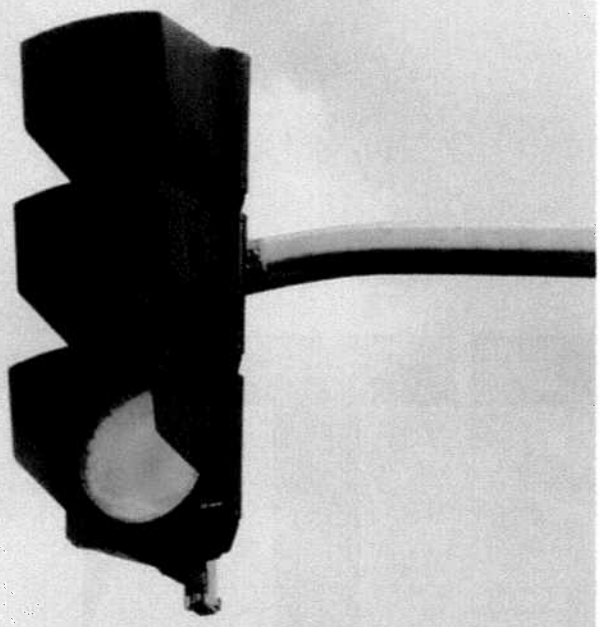
- Unit communicates with AVL for conditional priority, enabling automated operation.

Integrates easily with industry standard communication applications

- System provides GPS data output for other onboard devices.

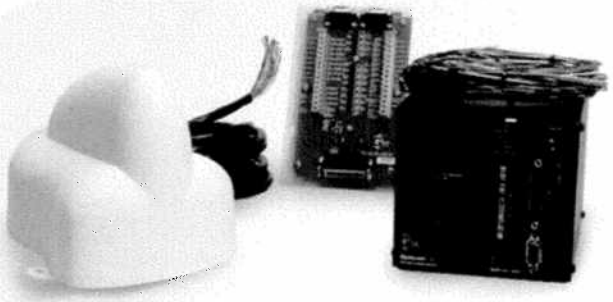
Provides per-vehicle identification data

- Detailed information eases creation of "before and after" effectiveness reports.
- Data enhances traffic signal controller reporting.



[1] *Traffic Signal Preemption for Emergency Vehicles: A Cross-Cutting Study.* January 2006: Federal Highway Administration, et al.

[2] *Transit Signal Priority (TSP): A Planning and Implementation Handbook.* May 2005: Smith, Hemily, Ivanovic for Intelligent Transportation Society of America.



Opticom™ GPS System Intersection Equipment Matched Components—Pole Mount: Opticom™ Model 1010 GPS Radio Unit, Opticom™ Model 1030 GPS Auxiliary Interface Panel, Opticom™ Model 1000 GPS Phase Selector

Opticom™ GPS System Vehicle Kit: Opticom™ Model 1020 or 1021 GPS Vehicle Control Unit, Opticom™ Model 1012 GPS Radio Unit, Opticom™ Model 1050 GPS/Radio Antenna

Opticom™ GPS System Intersection Equipment Matched Components—Cabinet Mount: Opticom™ Model 1012 GPS Radio Unit, Opticom™ Model 1050 GPS/Radio Antenna, Opticom™ Model 1030 GPS Auxiliary Interface Panel, Opticom™ Model 1000 GPS Phase Selector

Contact Global Traffic Technologies to learn more about service, maintenance and turnkey solutions in emergency vehicle preemption and transit signal priority that improve the quality of life for everyone in the community. Call **1-800-258-4610**, or visit us at **gtt.com.** The method of using the components of the Opticom™ GPS System may be covered by U.S. Patent Number 5,539,398 and Canada Patent Number 2,178,339. The use of Opticom GPS System components may be covered under one or more of the following U.S. Patent Numbers: 5,602,739; 5,926,113; 5,986,575; 6,243,026.

Global Traffic Technologies

Global Traffic Technologies, LLC
7800 Third Street North
St. Paul, Minnesota 55128-5441
1-800-258-4610
651-789-7333
www.gtt.com

Global Traffic Technologies Canada, Inc.
157 Adelaide Street West
Suite 448
Toronto, ON M5H 4E7
Canada
1-800-258-4610

75-0301-3693-3 (A)

Global Traffic Technologies

Opticom™ Infrared System

Opticom™ Models 711, 721 and 722 Detectors

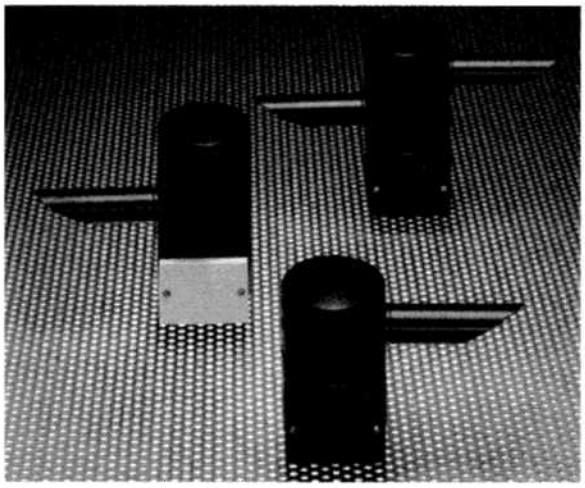
Opticom™ Infrared System Matched Component Products **October 2007**

Description

The Opticom™ 700 Series Detectors transform the optical energy detected from an approaching, vehicle-mounted Opticom™ Emitter to an electrical signal. The electrical signal is transmitted along a cable to the Opticom™ Phase Selector or Opticom™ Discriminator for processing.

Opticom 700 series detectors are mounted at or near the intersection that permits a direct, unobstructed line-of-sight to vehicle approaches. Opticom detectors may be mounted on span wire, mast arm or other appropriate structures.

Opticom™ Models 711, 721 and 722 Detectors offer significant advances and flexibility for specific intersection applications. The Opticom detectors are designed for common applications in three configurations: one direction—the single channel Opticom model 711; the single channel, dual detection Opticom model 721; and two direction, two output detection—the dual channel Opticom model 722. All Opticom 700 series detectors greatly reduce installation and life cycle costs through their modular design, adjustable tubes, and compatibility with existing Opticom™ Infrared System intersection and vehicle equipment.

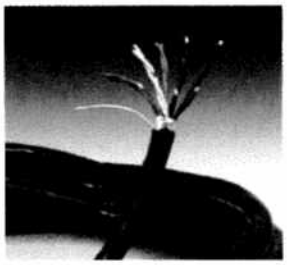


Opticom™ Models 722, 721 (back) and 711 Detectors

Features

- Advanced electrical transient immunity
- Modular design
- Adjustable turret configuration: accommodates skewed approaches
- Lightweight, durable, high-impact polycarbonate enclosure
- Simplified installation: span wire or mast arm
- Gray door identification of Opticom model 722

Opticom™ Span Wire Clamp



Opticom™ Model 138 Detector Cable

Accessories

- Opticom™ Span Wire Clamp
- Opticom™ Model 138 Detector Cable

Operating Parameters

- **Reception Range:** 200 ft. (60 m) adjustable up to 2,500 ft. (760 m)
- **Electrical:** 24 to 28 VDC, 50 MA minimum
- **Temperature Range:** -30° F (-34° C) to 165° F (74° C)
- **Humidity:** 5% to 95% relative

Physical Dimensions

Opticom™ Model 711 Detector

Length: 12.0 in. (30.5 cm)

Width: 4.75 in. (12.1 cm)

Height: 5.63 in. (14.3 cm)

Weight: 0.88 lbs. (400 g)

Opticom™ Models 721 and 722 Detectors

Length: 12.0 in. (30.5 cm)

Width: 4.75 in. (12.1 cm)

Height: 7.13 in. (18.1 cm)

Weight: 1.12 lbs. (508 g)

Important Notice to Purchaser:
EXCEPT FOR THE LIMITED WARRANTIES SET FORTH IN THIS DOCUMENT, GLOBAL TRAFFIC TECHNOLOGIES (GTT) MAKES NO OTHER WARRANTIES AND EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE.

GTT will, at its sole option, repair, replace or refund any amounts paid for any Opticom™ Infrared System component found to be defective in materials or manufacture within five (5) years from the date of shipment from GTT. See "Warranty and Extended Coverage" for details and limitations of the coverage plan. GTT will provide a functioning replacement component at a standard charge per unit for an additional five (5) years.

GTT warrants future system operability coverage as described herein. The warranties set forth in this document shall not apply to (A) incandescent lamps (confirmation lights) or (B) any Opticom infrared system components which have been (1) repaired or modified by persons not authorized by GTT; (2) subjected to incorrect installation, misuse, neglect or accident; (3) damaged by extreme atmospheric or weather-related conditions; or (4) subjected to events or use outside the normal or anticipated course.

IN NO EVENT SHALL GTT BE LIABLE FOR ANY INJURY (INCLUDING, WITHOUT LIMITATION, PERSONAL INJURY), DEATH, LOSS, OR DAMAGE (INCLUDING, WITHOUT LIMITATION, PROPERTY DAMAGE), WHETHER DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR OTHERWISE, ARISING OUT OF THE USE OR INABILITY TO USE, REPAIR OR FAILURE TO REPAIR, ANY GTT PRODUCT, REGARDLESS OF THE LEGAL THEORY ASSERTED. THE REMEDIES SET FORTH IN THIS DOCUMENT ARE EXCLUSIVE.

Sale and use of the Opticom infrared system is expressly restricted to authorized agencies of government customers, within their specific jurisdictions. However, because the infrared signal generated by the Opticom infrared system is not exclusive, GTT does not warrant exclusive activation by purchaser. Authorized users who desire to use or coordinate use of the Opticom infrared system with that of other jurisdictions must first obtain the prior written approval of each authorized user in the jurisdiction where use is sought.

Global Traffic Technologies

Global Traffic Technologies, LLC
7800 Third Street North
St. Paul, Minnesota 55128-5441
1-800-258-4610
651-789-7333
www.gtt.com

Global Traffic Technologies Canada, Inc.
157 Adelaide Street West
Suite 448
Toronto, ON M5H 4E7
Canada
1-800-258-4610

75-0500-1682-5 (A)

Global Traffic Technologies

Opticom™ Infrared System

Opticom™ Model 760 Card Rack

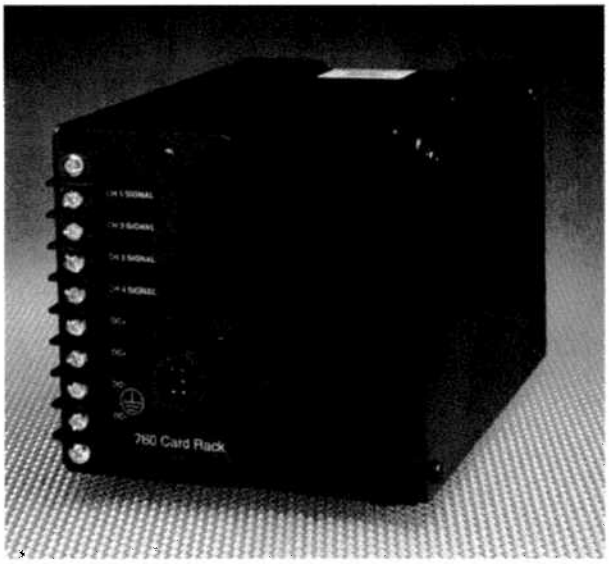
An Opticom™ Infrared System Matched Component Product **October 2007**

Description

The Opticom™ Model 760 Card Rack facilitates easy Opticom™ Infrared System Phase Selector and Discriminator installation. It can be used in traffic control cabinets without card slots for Opticom™ Infrared System components.

The Opticom model 760 consists of a metal enclosure with a dedicated card slot for one Opticom phase selector or discriminator. Either two- or four-channel units may be used.

The front panel of the Opticom model 760 includes a terminal strip for connecting the optical detectors, as well as a 9-pin circular connector and harness to connect the Opticom infrared system phase selector's or discriminator's outputs and 120 VAC to power the phase selector or discriminator.



Opticom™ Model 760 Card Rack

Features

- Conveniently located connections and harnessing (in the front)
- Rugged construction
- Stable "on-shelf" mounting
- Easy-to-read terminal designations
- Easy installation

TB1 Terminal Block Connections

The terminal block on the front of the Opticom™ Model 760 Card Rack, TB1, is intended for primary optical detector connections for channels A, B, C and D. It is located on the left side of the Opticom model 760.

Pin	Function
1	Channel A (1) primary detector signal input
2	Channel B (2) primary detector signal input
3	Channel C (3) primary detector signal input
4	Channel D (4) primary detector signal input
5	Detector power
6	Detector power
7	Detector ground
8	Detector ground

J1 Connector

The J1 connector is intended to provide all the signals needed to connect Opticom™ Phase Selectors directly to a NEMA controller. It is located next to TB1.

Pin	Function
1	115 VAC (AC+)
2	AC return (AC-)
3	Chassis ground
4	Not used
5	Channel A priority control output
6	Channel B priority control output
7	Channel C priority control output
8	Channel D priority control output
9	Logic ground

Physical Dimensions

Opticom™ Model 760 Card Rack

Length: 8.5 in. (21.6 cm)

Width: 5.25 in. (13.3 cm)

Height: 5.25 in. (13.3 cm)

Weight: 1.37 lbs. (620 g)

Global Traffic Technologies

Global Traffic Technologies, LLC
7800 Third Street North
St. Paul, Minnesota 55128-5441
1-800-258-4610
651-789-7333
www.gtt.com

Global Traffic Technologies Canada, Inc.
157 Adelaide Street West
Suite 448
Toronto, ON M5H 4E7
Canada
1-800-258-4610

75-0500-2252-6 (A)

Global Traffic Technologies

Opticom™ Infrared System

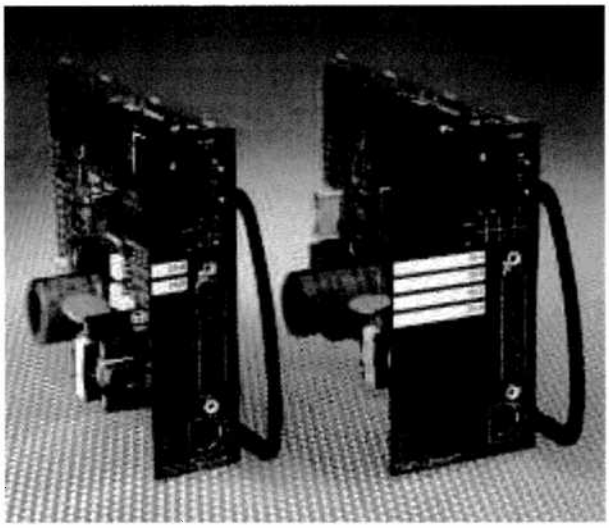
Opticom™ Models 752N and 754N Phase Selectors

Opticom™ Infrared System Matched Component Products **October 2007**

Description

The Opticom™ Model 752N Phase Selector is a plug-in, *two-channel*, dual-priority, encoded signal device designed for use with Opticom™ Infrared System Emitters and Detectors. The Opticom™ Model 754N Phase Selector is a plug-in, *four-channel*, dual-priority, encoded signal device designed for use with Opticom infrared system emitters and detectors. Both have additional outputs for use with NEMA traffic controllers that do not have internal preemption capabilities as well as controllers that do not recognize pulsing low-priority (TSP) outputs. In addition, the Opticom models 752N and 754N can operate like the standard Opticom models 752 and 754. Opticom™ Phase Selectors are powered by AC mains and contain their own internal power supply to support Opticom infrared system detectors. The Opticom™ Model 760 Card Rack is required.

Opticom models 752N and 754N recognize and discriminate among three distinct Opticom emitter frequency rates via Opticom detectors: high priority, low priority and probe frequency. Within each of these three frequency rates, the phase selectors further discriminate among 10 classes of vehicle identification codes, with 1,000 individual vehicle codes per class—10,000 total per frequency rate.



Opticom™ Model 752N Phase Selector (left) and Opticom™ Model 754N Phase Selector (right)

Opticom models 752N and 754N internally record each activation of the system. Each entry contains the:

- Intersection name
- Date and time of the activity
- Vehicle class code of the activating vehicle
- Activating vehicle's ID number
- Channel called
- Priority of the activity
- Final green signal indications displayed at the end of the call
- Time spent in the final greens
- Duration of the activation
- Nearest intersection location information

Opticom™ Models 752N and 754N Phase Selectors

Opticom™ Models 752N and 754N Phase Selectors also include RS232 interface capability to communicate with computers or controllers. Optional interface software is available for system setup and maintenance.

The primary Opticom™ Infrared System Detector inputs and power outputs are on the card edge connector. Two additional auxiliary detector inputs are available for each channel through a front panel connector. The connector also contains signal indication sensing inputs.

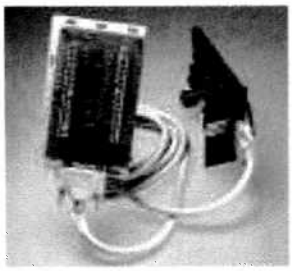
Each channel delivers a constant output for high-priority activation and a pulsed output for low-priority activation. A high-priority signal received on any channel will override any low-priority activation.

The probe frequency does not place a call request to the signal controller, but does log vehicles by ID number when they are in range.

Features

- Four channels of detection with Opticom model 754N
- Two channels of detection with Opticom model 752N
- Direct interface with NEMA controllers without internal preemption capabilities
- Direct interface with controllers that do not recognize pulsing TSP outputs
- Two auxiliary detectors per channel
- Green sensing
- Compatibility with encoded signal and non-encoded signal Opticom™ Infrared System Emitters
- High and low priority as well as probe frequency discrimination
- "First-come, first-served" priority within each priority level
- Priority-by-class setting via the interface software
- Direct installation into CA/NY Type 170 input files
- Automatic range setting using an encoded emitter
- User-adjustable range setting from 200 to 2,500 feet of operation
- Easy installation
- Compatibility with most traffic controllers
- Computer-based interface
  - —RS232 communications front port and backplane
  - —User-selected communications baud rate of 1,200 to 9,600 bits per second
  - —Customizable range setting
  - —Customizable ID code validation
  - —Flexible programming options for priority control parameters
  - —Detailed current Opticom™ Infrared System parameter information
  - —History log of most recent Opticom infrared system activities (1,000 entries)
- 30,000 frequency/class/vehicle code ID combinations
- Front panel switches and diagnostic indicators for testing
- Erasable write-on pads for phase or movement labeling
- Possible configuration for operating without computer
- Crystal controlled circuitry
  - —Accurate infrared signal recognition circuitry
  - —Precise output pulse
  - —Definitive call verification
- Regulated detector power supply
- Optically isolated outputs
- Multi-function test switch
  - —High- and low-priority test calls
  - —Reset to default parameters
  - —Range setting
  - —Diagnostic test
- Advanced built-in diagnostics and testing
- Opticom™ Model 755 Four-Channel Adapter Card (optional)

Accessories



Opticom™ Model 758 Auxiliary Interface Panel

- ITS Link Interface software package
- Opticom™ Model 832 Communications Daughter Board

Pin Index

- Card edge – 44-pin STD on the main PCB

Pins	Function
A	Ground
D	Channel A primary detector input
E	Detector 24 VDC power output
F	Channel A output, collector (+)
H	Channel A output, emitter (-)
J	Channel B primary detector input
K	Detector ground
L	Earth ground
M	AC - (in)
N	AC + (in)
P	Channel C primary detector input (not used model 752N)
R	Detector 24 VDC power output
S	Channel C output collector (+) (not used model 752N)
T	Channel C output emitter (-) (not used model 752N)
U	Channel D primary input (not used model 752N)
V	Detector ground
W	Channel B output collector (+)
19	TxD (output)
X	Channel B output emitter (-)
Y	Channel D output collector (+) (not used model 752N)
21	RxD (input)
Z	Channel D output emitter (-) (not used model 752N)

- Din connector – mini 6-pin female (front panel)

Pins	Function
1	RxD (data in)
2	Ground
3	TxD (data out)
4	RTS
5	CTS
6	Shield

- D-shell connector – 44-pin male (front panel)

Pins	Function
1	Phase 1 green input
2	Phase 2 green input
3	Phase 3 green input
4	Optoisolator return
5	Optoisolator return
6	Not used
7	Phase 2 (low priority output 2)
8	Phase 8 (low priority output 8)
9	Phase 6 (low priority output 6)
10	Confirmation light 1
11	Confirmation light 2
12	Preemption inhibit
13	Channel A auxiliary detector 2 input
14	Channel B auxiliary detector 2 input
15	Channel B auxiliary detector 1 input
16	Phase 4 green input
17	Phase 5 green input
18	Phase 6 green input
19	24 VDC power output
20	24 VDC power output
21	Phase 4 (low priority output 4)
22	Phase 3 (low priority output 3)
23	Phase 1 (low priority output 1)
24	Phase 7 (low priority output 7)
25	Phase 5 (low priority output 5)
26	Confirmation light 3
27	Confirmation light 4
28	Channel A auxiliary detector 1 input
29	Channel C auxiliary detector 2 input (not used model 752N)
30	Channel C auxiliary detector 1 input (not used model 752N)
31	Phase 7 green input
32	Phase 8 green input
33	Common green input
34	Detector ground
35	Detector ground
36	Not used
37	Not used
38	24 VDC input
39	NEMA manual enable control
40	NEMA interval advance
41	NEMA coordination isolation
42	NEMA free
43	Channel D auxiliary detector 2 input (not used model 752N)
44	Channel D auxiliary detector 1 input (not used model 752N)

Opticom™ Infrared System Matched Component Products

Operating Parameters

- Four dual-priority, and probe frequency, channels (model 754N)
- Two dual-priority, and probe frequency, channels (model 752N)
- "First-come, first-served" for vehicles with the same priority level (high or low)
- Priority override: always higher over lower
- Direct interface with NEMA controllers* lacking internal preemption capabilities
- Direct interface with NEMA controllers that do not recognize pulsing low-priority outputs*
- Opticom™ Infrared System Detector input(s): one per channel on the card edge connector and two auxiliary per channel through the auxiliary function harness
- Optional interface software for flexible programming options and call history

*Use of an Opticom™ Model 758 Auxiliary Interface Panel is required.

- LED indicators
  - —Power on
  - —High signal/call per channel
  - —Low signal/call per channel
- Multi-function test switch to enable diagnostics and test calls to each channel
- **Voltage:** 89 to 135 VAC, 60 Hz
- **Temperature:** -37° C to +74° C (-34.6° F to +165.2° F)
- **Humidity:** 5% to 95% relative

Physical Dimensions

Length: 7.0 in. (17.8 cm)
8.2 in. (20.8 cm) including handle

Width: (Model 752N) 1.1 in. (2.8 cm)
(Model 754N) 2.3 in. (5.8 cm)

Height: 4.5 in. (11.4 cm)

Weight: (Model 752N) 0.53 lbs. (240 g)
(Model 754N) 0.57 lbs. (260 g)

Important Notice to Purchaser:
EXCEPT FOR THE LIMITED WARRANTIES SET FORTH IN THIS DOCUMENT, GLOBAL TRAFFIC TECHNOLOGIES (GTT) MAKES NO OTHER WARRANTIES AND EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE.

GTT will, at its sole option, repair, replace or refund any amounts paid for any Opticom™ Infrared System component found to be defective in materials or manufacture within five (5) years from the date of shipment from GTT. See "Warranty and Extended Coverage" for details and limitations of the coverage plan. GTT will provide a functioning replacement component at a standard charge per unit for an additional five (5) years.

GTT warrants future system operability coverage as described herein. The warranties set forth in this document shall not apply to (A) incandescent lamps (confirmation lights) or (B) any Opticom infrared system components which have been (1) repaired or modified by persons not authorized by GTT; (2) subjected to incorrect installation, misuse, neglect or accident; (3) damaged by extreme atmospheric or weather-related conditions; or (4) subjected to events or use outside the normal or anticipated course.

IN NO EVENT SHALL GTT BE LIABLE FOR ANY INJURY (INCLUDING, WITHOUT LIMITATION, PERSONAL INJURY), DEATH, LOSS, OR DAMAGE (INCLUDING, WITHOUT LIMITATION, PROPERTY DAMAGE), WHETHER DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR OTHERWISE, ARISING OUT OF THE USE OR INABILITY TO USE, REPAIR OR FAILURE TO REPAIR, ANY GTT PRODUCT, REGARDLESS OF THE LEGAL THEORY ASSERTED. THE REMEDIES SET FORTH IN THIS DOCUMENT ARE EXCLUSIVE.

Sale and use of the Opticom infrared system is expressly restricted to authorized agencies of government customers, within their specific jurisdictions. However, because the infrared signal generated by the Opticom infrared system is not exclusive, GTT does not warrant exclusive activation by purchaser. Authorized users who desire to use or coordinate use of the Opticom infrared system with that of other jurisdictions must first obtain the prior written approval of each authorized user in the jurisdiction where use is sought.

Global Traffic Technologies

Global Traffic Technologies, LLC
7800 Third Street North
St. Paul, Minnesota 55128-5441
1-800-258-4610
651-789-7333
www.gtt.com

Global Traffic Technologies Canada, Inc.
157 Adelaide Street West
Suite 448
Toronto, ON M5H 4E7
Canada
1-800-258-4610

75-0500-2249-2 (A)

Appendix D

Global Traffic Technologies

Global Traffic Technologies, LLC
7800 Third Street North
St. Paul, Minnesota 55128-5441

651-789-7333
651-789-7334 fax
www.gtt.com

July 28, 2008

Raymond Orozco
Executive Director
Office of Emergency Management and Communications
1411 West Madison
Chicago, IL 60607

Subject: MBE/WBE Waiver Request on Transit Signal Pilot Project Agreement

Dear Mr. Orozco,

This letter is being sent in response to the request to submit specific MBE/WBE forms – Schedule D-1 (Affidavit of MBE/WBE Goal Implementation Plan and C-1 (Letter of Intent form MBE/WBE to Perform as Subcontractor, Supplier and/or Consultant). At present, there are no projects that have been identified by the City of Chicago that require services and/or supplies other than those normally supplied internally by Global Traffic Technologies – GTT product, training, and project management. I am, however, including the notarized Schedule D-1 which species the MBE/WBE implementation plan that would be used in the event that Subcontractor services are needed for future projects or system implementations within the City of Chicago.

I am formally requesting that Global Traffic Technologies be granted a waiver for MBE/WBE requirements on the two TSP Test Corridors that we are currently discussing with City of Chicago representatives.

I look forward to working with you on projects and/or system implementations within the City of Chicago. Please feel free to contact me if you have any questions or additional requests. I can be reached at (651) 789-7312 or by e-mail at gary.nourse@gtt.com.

Sincerely,

Gary Nourse
Project Manager
Global Traffic Technologies, LLC

CITY OF CHICAGO
PURCHASE REQUISITION

Copy (Department)

DELIVER TO:	REQUISITION: 39855
058- OEC1411 1411 W. MADISON Chicago, IL 60607	PAGE: 1 DEPARTMENT: 58 - OFFICE OF EMERGENCY COMMUNICA PREPARER: Leslie R Cain NEEDED: APPROVED: 8/26/2008

REQUISITION DESCRIPTION

GLOBAL TRAFFIC TECHNOLOGIES SOLE SOURCE OEMC TRANSIT SIGNAL PRIORITY PILOT
SPECIFICATION NUMBER: 68415

COMMODITY INFORMATION

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
1	5508852100	25.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - MAST ARM HANGERS (INSTALLATION HARDWARE)

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
2	5508852030	54.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - CONFIRMATION LIGHT BULBS

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
3	5508852032	2,000.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - CONFIRMATION LIGHT CABLE

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
4	5508852150	27.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - PHASE SELECTOR (4 CHANNEL, NEMA W/O INTERNAL PREEMPT, OPTICOM MODEL 754N

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

CITY OF CHICAGO
PURCHASE REQUISITION

Copy (Department)

DELIVER TO:	REQUISITION: 39855
058- OEC1411 1411 W. MADISON Chicago, IL 60607	PAGE: 2 DEPARTMENT: 58 - OFFICE OF EMERGENCY COMMUNICA PREPARER: Leslie R Cain NEEDED: APPROVED: 8/26/2008

REQUISITION DESCRIPTION
GLOBAL TRAFFIC TECHNOLOGIES SOLE SOURCE OEMC TRANSIT SIGNAL PRIORITY PILOT
SPECIFICATION NUMBER: 68415

COMMODITY INFORMATION

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
5	5508852020	27.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - CARD RACK WITH P1 HARNESS ASSEMBLY, OPTICOM MODEL 760

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
6	5508852010	27.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - AUXILLARY DETECTOR / GREEN SENSES HARNESS (NOTE 1), OPTICOM 757

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
7	5508852120	27.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - OPTICAL DETECTOR, TWO CHANNEL, TWO DIRECTIONS, OPTICOM MODEL 722

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
8	5508852034	27.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - CONFIRMATION LIGHT KIT, OPTICOM MODEL 575

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

CITY OF CHICAGO
PURCHASE REQUISITION

Copy (Department)

DELIVER TO:	REQUISITION: 39855
058- OEC1411 1411 W. MADISON Chicago, IL 60607	PAGE: 3 DEPARTMENT: 58 - OFFICE OF EMERGENCY COMMUNICA PREPARER: Leslie R Cain NEEDED: APPROVED: 8/26/2008

REQUISITION DESCRIPTION

GLOBAL TRAFFIC TECHNOLOGIES SOLE SOURCE OEMC TRANSIT SIGNAL PRIORITY PILOT
SPECIFICATION NUMBER: 68415

COMMODITY INFORMATION

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
9	5508852042	2,000.00	Foot	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - DETECTOR CABLE (1000 FT. ROLL @ $.039 PER FT.), OPTICOM MODEL 138

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
10	5508852072	2.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - INTERSECTION CONFIGURATION SOFTWARE WITH CABLE, OPTICOM 750CS

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
11	5508852900	2.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - INSTALLATION / MAINTENANCE TRAINING

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
12	5508852050	92.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - EMITTER (LOW PRIORITY VISIBLE LIGHT FILTER), OPTICOM MODEL 792T

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

CITY OF CHICAGO
PURCHASE REQUISITION

Copy (Department)

DELIVER TO:	REQUISITION: 39855
058- OEC1411 1411 W. MADISON Chicago, IL 60607	PAGE: 4 DEPARTMENT: 58 - OFFICE OF EMERGENCY COMMUNICA PREPARER: Leslie R Cain NEEDED: APPROVED: 8/26/2008

REQUISITION DESCRIPTION

GLOBAL TRAFFIC TECHNOLOGIES SOLE SOURCE OEMC TRANSIT SIGNAL PRIORITY PILOT
SPECIFICATION NUMBER: 68415

COMMODITY INFORMATION

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
13	5508852052	92.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - EMITTER CABLE ASSEMBLY, OPTICOM

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
14	5508852056	3.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - EMITTER SWITCH (RANGE CONTROL BOX), OPTICOM MODEL 793R

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST
15	5508852054	3.00	Each	0.00	**0.00**

OPTICOM INFRARED SYSTEM INCL. PARTS AND INSTALLATION - EMITTER CONFIGURATION SOFTWARE WITH CABLE, OPTICOM 790CS

SUGGESTED VENDOR: **REQUESTED BY:** Leslie R Cain

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0100	0584140	0140	220140	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: 0.00

REQUISITION TOTAL: 0.00

City of Chicago
Richard M. Daley, Mayor

Office of Emergency Management and Communications

Raymond Orozco
Executive Director

120 North Racine Avenue
2nd Floor
Chicago, Illinois 60607-2010

http://www.cityofchicago.org

Memorandum

TO: Benjamin Ho
Deputy Procurement Officer
Department of Procurement Services

FROM: Leslie Cain
Grants Management Specialist
Office of Emergency Management & Communications

CC: David Zavattero,
Deputy Director Traffic Management Authority
Office of Emergency Management & Communications

James LaMantia
Project Manager
Office of Emergency Management & Communications

Frank Lindbloom
Deputy Director of Finance
Office of Emergency Management & Communications

DATE: September 3, 2008

RE: Addendum: Global Traffic Technologies, LLC. OEMC Transit Signal Priority Pilot Project

To receive full approval on our sole source request, we respectfully submit the requested addendum to our original Justification for Non-Competitive Procurement document that more completely addresses the uniqueness of GTT technology in meeting our project needs, expected project outcomes, and the important technical aspects of the equipment manufactured by GTT.

We are also submitting a revised justification document that corrects a typing error in the number of Western Avenue signalized intersections from "twenty (20)" to "ten (10)". Refer to page 3.

Per your suggestion, we've asked GTT, LLC to complete a new Economic Disclosure Statement (EDS) for GTT, Inc.

Please feel free to contact me directly at 743-7367 with any questions or additional requests.

Thank you.

ADDENDUM - WESTERN AVE. TSP PILOT PROJECT
SOLE SOURCE JUSTIFICATION FOR GTT OPTICOM EQUIPMENT
SEPTEMBER 3, 2008

This addendum provides additional information requested by the Sole Source Board at its meeting on September 2, 2008 to support approval to procure equipment needed to implement Transit Signal Priority (TSP) at ten signalized intersections for CTA X49 Western Ave. Express Bus as a pilot project and fifteen intersections on Chicago Ave. to test TSP technology and operations.

TSP is expected to provide benefits to transit customers, the CTA, traffic operations, and the general public including: reduced bus dwell times at intersections, faster travel times, lower bus operating costs, reduced fuel consumption, and lower pollutant emissions. There are nearly 3,000 signalized intersections in the City including the 25 intersections selected for this TSP project.

Research conducted by OEMC and prior research by RTA, CTA, and BOE identified two manufacturers of TSP equipment. OEMC and BOE investigated the two current suppliers of Transit Signal Priority (TSP) equipment.

a) 3M Opticom- now Global Traffic Technologies (GTT), and
b) Tomar

TSP equipment must work jointly with the existing traffic signal and bus equipment and software. GTT was determined to be the only manufacturer that can provide the required TSP equipment based on a comparison of the TSP requirements developed by OEMC and CTA with the equipment technical specifications, and on the compatibility of the equipment with the signal controllers used by the City.

Sole source procurement of TSP equipment including emitters, receivers, and TSP signal control processors is justified for the following reasons:

1) The TSP strategy to be deployed by the City and the CTA requires TSP processors to grant priority to buses at signalized intersections based on specified traffic and bus conditions.
2) The GTT Opticom is the sole product with the necessary capabilities to operate with the traffic signal controllers used by the City. The GTT Opticom equipment and software including the phase selector card and the Fast Interval Advance (Chicago Mode) software has the unique capability to operate with the interval-based Peek LMD-40 controller. Tomar equipment requires a phase-based controller and is not compatible with the interval-based LMD-40.
3) The RTA evaluated TSP technologies in an August 2005 study. Several factors were considered including technical capability and compatibility with the Peek LMD-40 controllers used by the City. The RTA study concluded that the Opticom TSP equipment was the only equipment that fully met City requirements and was compatible with LMD-40 controllers. RTA is providing the funding for the Western Ave. TSP pilot.

4) The GTT Opticom product has been bench-tested by BOE engineers. The bench tests confirmed that the GTT Opticom equipment could physically be installed in Chicago traffic signal control cabinets. The testing also confirmed that the GTT Opticom emitter, receiver, and signal control processor equipment were compatible with the LMD-40 controllers.
5) Analysis by CTA indicated that Opticom met their TSP requirements and is compatible with the CTA Clever Device Automated Vehicle Location (AVL) systems that will be programmed to assign conditional priority to buses. In addition CTA found that Opticom equipment was physically compatible for on-bus installation.
6) The Opticom is the sole software product that provides the unique capabilities required by OEMC, BOE, and CTA for TSP operation including:
    a) Fast Interval Advance (Chicago Mode). Chicago Mode operation is to be implemented at the request of CTA. Chicago Mode enables manual control for low priority and standard preemption for high priority. The Opticom software provides phase omits to accommodate the LMD-40 controller that does not have internal phase omit inputs.
    b) Since there are no phase omits in the LMD-40 controller it is necessary for the TSP software to continually increment the interval advance until the desired greens are displayed. Previous firmware pulsed the interval advance four times resulting in a minimum green time/interval advance rate of two seconds. This produces a long delay to display a green signal that is incompatible with TSP. The Opticom phase selector card and software corrects this deficiency.
    c) The GTT Opticom firmware allows for the minimum green time/interval advance rate to be set as low as 200mSec and the interval advance will continue to pulse until the desired greens are displayed. No other TSP equipment has this capability.
7) The GTT Opticom emitter equipment has the unique capability to transmit bus ID and direction to the receiver and controller via the phase selector card input to facilitate the conditional priority TSP strategy to be implemented by OEMC and the CTA.

The unique processing capability and the demonstrated and tested compatibility of the Opticom hardware and software justify the sole source procurement of the required TSP equipment from GTT. GTT has confirmed that the necessary Opticom equipment can be delivered in a timely manner to assure project deployment as scheduled. OEMC recommends GTT as the sole source provider for the Western Ave. TSP pilot and the chicago Ave. TSP projects.

JUSTIFICATION FOR NON-COMPETITIVE PROCUREMENT
OEMC Sole Source Justification
Global Traffic Technologies, LLC

REQUEST SUMMARY

The Office of Emergency Management and Communications (OEMC) is requesting a 5-year term agreement with Global Traffic Technologies (GTT) to procure equipment, training and maintenance support for the Transit Signal Priority Project (TSP).

Under the executed Intergovernmental Agreement, the TSP will be implemented and tested along two separate transit routes -Western Avenue and Chicago Avenue. The project is supported using CTA grant funds received from the Regional Transit Authority (RTA). The OEMC will front all costs for the project and be reimbursed by the CTA.

Global Traffic Technologies is the only manufacturer of the patented Opticom technology. This integrated technology has a proven record of minimizing traffic disruptions, accelerating response times and improving service reliability. Because the Chicago Transit Authority and Bureau of Electricity are responsible to install all equipment on buses and at traffic intersections, there is no opportunity for GTT to meet MBE/WBE requirements. Additionally, GTT offices are located in Minnesota. Therefore, they are requesting a full waiver.

PROJECT BACKGROUND

The Chicago Transit Authority provides bus service 24 hours per day, 7 days per week to and from Chicago to the surrounding suburbs and to/from core areas of downtown to other City of Chicago communities. Approximately one million average weekday customers are carried on local and express bus service daily using 2,193 buses on 152 bus routes, over 2,273 route miles. All CTA buses combined travel approximately 190,000 miles each day.

Using grant support from the Regional Transit Authority (RTA), the OEMC in partnership with the Chicago Transit Authority (CTA) and the Bureau of Electricity will implement and test a Transit Signal Priority (TSP) system that will enable buses to travel more efficiently through intersections with traffic signals. The system is designed to reduce the number of traffic signal stops or shorten the duration of the wait. This technology is expected to improve travel times by nearly 8%.

The City's Bureau of Electricity (BOE) will be responsible for detailed design activities including traffic signal plan preparation and installation of the TSP equipment at each traffic signal. The CTA will be responsible for installing necessary TSP emitters on the CTA buses.

URS Corporation will provide project management across the Transit Signal Priority (TSP) initiative. OEMC executed a project notice to begin consultation with URS (refer to Appendix A). URS activities will include assistance to the City in overseeing the design, deployment and evaluation of a TSP system demonstration along the testing corridors and the development of high-level guidelines for future citywide TSP deployment. In carrying out the work, URS will utilize industry "best practices" and consider all current and past city and regional TSP studies. URS Corporation's work activities shall consist of five major tasks including:

- **Task 1 – Stakeholder Program and Program Management:** This task will provide program management support to the city for the TSP initiative and also involves a

citywide departmental stakeholder program for the CTA service area selected for the TSP Pilot project.

- **Task 2 – Western Avenue TSP Demonstration Design and Deployment Support:** This task includes confirming TSP sites already selected, providing input into the TSP design activities and supporting deployment oversight for a TSP system along Western Avenue in Chicago, IL.
- **Task 3 – Traffic Signal Timing Optimization:** This task will include the development of optimized signal timing plans along the Western Avenue Corridor. Vehicle turning movement counts will be required as part of this task.
- **Task 4 – Conduct Evaluation of Western Avenue TSP Demonstration:** This task includes conducting a before and after study to measure the impact of TSP along the Western Avenue Corridor. This task will also include VISSIM modeling of the demonstration corridor to allow for presentation of TSP impacts to the corridor.
- **Task 5 – Guidelines for Future City-Wide TSP Deployment:** This task will include a TSP technology review, documenting appropriate TSP system architecture and describing the characteristics of a potential corridor best suited for TSP in the City.

The GTT Opticom Infrared System (equipment and software) is a major component needed to successfully implement this project.

Expected benefits of a TSP system to the transit system, its customers and the general public include:

Faster bus travel: Waiting at traffic signals is the source of as much as half of total delay time for bus service. Assigning priority to approaching buses in the traffic signal cycle is an effective way to address delays resulting from traffic signals and slow traffic. In Los Angeles, California where a TSP is in-place, the measured difference in running time along an arterial with the signal priority system turned on and off, revealed an 8% reduction in travel time.

Lower operating costs: While faster bus travel time directly benefits bus customers, it also lowers service costs for CTA. Pace is one of several transit agencies that have employed TSP and have found that such systems allow them to deliver better service with lower operating costs. TSP will free up operating resources for CTA that can then be allocated elsewhere in the CTA's system.

Better bus service: The ability to move buses quickly through intersections will help CTA better maintain scheduled services during times of unusually heavy traffic flow, potentially reducing the occurrence of bus bunching. Signal priority allows buses the opportunity to regain time lost due to unforeseeable delays caused by weather or traffic. This will help maintain on-time service, even headway spacing, and reduce the occurrences of bus bunching along a route.

Better, safer traffic flow for all users: TSP in conjunction with CTA's ongoing efforts to relocate many of its bus stops to the far sides of intersections, will significantly improve the flow of buses through intersections. As mentioned, more efficient movement of buses through intersections will help improve schedule adherence and reduce the incidence of bus bunching. Better bus flow

means that buses are less likely to impede the flow of other vehicles. This will result in less weaving among traffic users and fewer delays for drivers in the right lane, resulting in fewer vehicles turning right in front of stopped buses and safe traffic conditions for all road users, and for pedestrians as well.

Emergency Management: The GTT Opticom System installed under the TSP project will enhance emergency management efforts and response times. An outcome of the TSP, will be to tie the technology into the OEMC Traffic Management Center. The Traffic Management Center will be a manned seven day twenty-four hour operation. All City traffic and other cameras will be available for the TMC operator to view.

The on board bus AVL system working in collaboration with the CTA control center will determine if a bus is eligible to request TSP. The TSP system working in collaboration with Traffic Signal controller will determine if a request for TSP should be granted or not. The system at the traffic signal control unit is parameter driven and rule changes can be made to accommodate a change in requirements.

INTERGOVERNMENTAL AGREEMENT (IGA)

A mutual agreement between the City OEMC and Chicago Transit Authority was passed by City Council on July 30th, 2008. The 5-year agreement allows the OEMC/TMA and CTA to implement the Transit Signal Priority project including purchase of equipment and consultant services this project along the Western Avenue. The IGA also calls for an expansion of the project along other transit corridors as agreed upon by both the City and CTA. The IGA will expire on July 31st 2013 (refer to Appendix B).

PROJECT SCOPE

TSP Buses & Routes

Global Traffic Technologies, LLC will provide the Opticom TSP equipment and provide necessary training to City and CTA staff. As stated, the TSP will be implemented along both the Western Avenue corridor and the Chicago Avenue corridors for testing.

Along the Western Avenue corridor between Diversey and 65th street, the Opticom Infrared System will be installed in 30 buses and at ten (10) signalized intersections will be re-timed for Optimum system operation. Along the Chicago Avenue corridor, 15 signalized intersections will be re-timed with 60 buses being outfitted with the Opticom Infrared System equipment.

The on board bus AVL system working in collaboration with the CTA control center will determine if a bus is eligible to request TSP. The Opticom Transit Signal Priority system will grant bus drivers that request transit signal priority passage through intersections based on two pre-selected criteria 1) if a bus is late to its scheduled stop and 2) if the bus is at or exceeds its passenger capacity. TSP system will only granted one request in any five to ten minute period. The system at the traffic signal control unit is parameter driven and rule changes can be made to accommodate a change in program requirements.

Training
Included in the sale of the GTT equipment, GTT will provide three days of intensive on sight training to BOE and CTA. Monthly progress meetings will be held with the City of Chicago and project consultants to manage projects. Workers will be trained on the proper methods to successfully install and calibrate all components of the GTT Opticom system. BOE will be trained on field equipment and software and the CTA personnel will be trained on the equipment and software that will reside on the buses.

Data Collection & System Evaluation
The Bureau of Electricity (BOE) will download signal data bi-weekly from each Opticom signal controllers. BOE will make this data available to OEMC and CTA to evaluate the efficiency of the pilot program. These data will illustrate the aggregate number of buses that request "priority traversing" or passage through an intersection and the number of traversing requests that are granted by the Opticom system.

The field portion of the pilot program is targeted to start on or about January 1, 2009 and is currently scheduled to run for six months. The CTA has selected all intersections and a combination of CTA, GTT, URS and OEMC have reviewed and concurred on the selections. URS Consulting will provide before during and after studies of TSP, The locations, the technology and the benefits.

Installation
The Bureau of Electricity is responsible to install Opticom equipment at each intersection and the Chicago Transit Authority is responsible to install equipment on each bus.

Project Timeline
GTT Opticom technology training will be completed by late September or early October 2008. URS has been issued a task order to conduct preliminary baseline evaluations to confirm the exact intersections. We anticipate equipment being installed on buses and at intersections by the December 31st, 2008. Joint evaluation of the system will be conducted within 60 days of the complete equipment installation.

PROCUREMENT HISTORY

GTT has never held a City of Chicago contract. The Bureau of Electricity investigated two current suppliers of Transit Signal Priority (TSP) equipment:

a) 3M Opticom- now Global Traffic Technologies (GTT), and
b) Tomar

GTT equipment was determined to be the only manufacturer that can provide the required TSP equipment based on a comparison of the TSP requirements developed by OEMC and CTA with the equipment technical specifications, and the compatibility of the equipment with the signal controllers used by the City.

GTT supplied this equipment free of charge to the City for testing purposes.

JUSTIFICATION FOR NON-COMPETITIVE PROCUREMENT
OEMC Sole Source Justification
Global Traffic Technologies, LLC

ESTIMATED COST

The estimated cost of $215,480.00 covers the equipment, hardware, software, equipment calibration training, and 5-year maintenance warranty for parts for both the Western Avenue and Chicago Avenue corridors. GTT is offering a 5-year warranty that covers the cost of repairs to and replacement of system component parts. Refer to the attached "*Chicago Transit Pricing*", the GTT Warranty and Extended Coverage and the Certificate of Insurance documents. The maintenance does not include installation or removal of failed components.

During the six-month field test BOE will be paid for the installation and maintenance of the TSP system components. CTA will provide the same support for hardware and software installed on the buses. The OEMC will front all costs related to the project and submit invoices to the CTA for reimbursement from the RTA grant source within 60 days of invoicing.

SCHEDULE REQUIREMENTS

We are requesting a 5-year term agreement to test the pilot project and implement the successfully tested TSP project into other Chicago regions. This term allows the City to take advantage of the 5-year Basic Warranty offered by GTT. This 5-year contract request is in line with the expiration date of the Intergovernmental Agreement (Appendix B).

EXCLUSIVE OR UNIQUE CAPABILITIES

Global Traffic Technology is the world leader in traffic management and safety (Appendix C). GTT's mission is to improve traffic management, emergency vehicle preemption and transit signal priority everywhere in the world. Their proven, integrated solutions help reduce emergency response times, improve intersection safety, keep transit buses running on time and streamline traffic management. GTT designed, developed and tested Opticom infrared system components. To assure system integrity, the emitters, detectors, detector cables, phase selectors/discriminators, system software and replacement parts must be GTT components. Therefore, maintenance of these systems must be connected to GTT products and services.

The Opticom Infrared System uses coded infrared emitters mounted on emergency and/or transit vehicles to communicate with the intersection traffic controller to provide a temporary right-of-way for vehicles. Proven effective at thousands of intersections throughout the world, the Opticom infrared system can dramatically improve safety at intersections while minimizing traffic disruptions, accelerating response times and improving service reliability. The *Traffic Signal Preemption for Emergency Vehicles: A Cross-Cutting Study*. January 2006, Federal Highway Administration, et al., provides in detail the positive outcomes of this technology.

The major goals of this project and technology solution are to increase CTA ridership by improving the accuracy of time schedules and enhance emergency management response efforts. The *transit signal priority* or green light advantage provided by the Opticom™ GPS and Infrared Systems can give buses the advantage they need to stay on schedule. In addition to these advantages, the system helps optimize bus route efficiency, freeing up resources and lowering operating costs while reducing environmental impact. Opticom GPS and Infrared Systems can help you:

- Improve on-time arrival and maximize route efficiency by giving busses a natural, non-disruptive green light advantage
- Reduce vehicle maintenance and improve vehicle utilization by minimizing the wear and tear of stop-and-go driving
- Lessen environmental impact and lower fuel costs by boosting fuel efficiency
- Enable automated operation by interfacing seamlessly with your AVL system
- Facilitate emergency response efforts

MBE/WBE WAIVER REQUEST

GTT is responsible for the manufacture, installation of the Opticom solution, and provide training to OEMC/TMA and the CTA on critical aspects of the system. The City of Chicago's Bureau of Electricity is responsible for installing Opticom equipment at each intersection and the Chicago Transit Authority is responsible for installing equipment on each bus. Because each partner department is responsible for a component of the installation, GTT does not have an opportunity to sub-contract any aspect of their scope of work to a certified City of Chicago MBE/WBE/DBE vendor. Additionally, GTT offices are located in Minnesota. Given these factors, GTT is requesting a full waiver from the City of Chicago MBE/WBE compliance program. Refer to Appendix D.