

**AGREEMENT BETWEEN**  
**THE WISCONSIN DEPARTMENT OF TRANSPORTATION**  
**AND**  
**THE CITY OF MILWAUKEE DEPARTMENT OF PUBLIC WORKS**

State Project I.D. 1060-05-99  
CONTRACT NO. 1  
2005 Traffic Mitigation  
Marquette Interchange Reconstruction

This agreement is a one-time grant made and entered into by and between the Wisconsin Department of Transportation (DEPARTMENT) and the City of Milwaukee Department of Public Works (CITY), and provides for services as described herein.

The DEPARTMENT advises implementation of a comprehensive and cost effective traffic mitigation program that will help ensure the safety, accessibility, and mobility for users of the Marquette interchange while minimizing unsafe conditions. To mitigate traffic impacts caused by the reconstruction of the Marquette Interchange, the DEPARTMENT will provide funding to the CITY for the implementation of a hybrid communication system interconnecting downtown traffic signals to the ICOP network server as specified in Attachment A: City of Milwaukee Department of Public Works – Cost Estimate. The services described herein will be completed by February 1, 2006..

**TRAFFIC SIGNAL COMMUNICATIONS IMPROVEMENTS**

At present, the CITY's downtown traffic signals are hardwire interconnected with straight-laid cable. The signals are interconnected for the purposes of selecting timings patterns that have been manually entered into the controllers' memory and for resetting each controller's internal clock to a common time reference. Modifications to timing plans parameters currently require manual adjustments to controllers individually.

The CITY will procure, install, test and complete the installation of traffic signal communications improvements at 110 signalized intersections within the project limits as identified in Attachment B. The CITY shall provide communication enhancements between traffic signals and the ICOP network server in order to allow monitoring and adjusting of traffic signal timings from a central location on a real-time basis. The CITY's existing pilot synch cable will be utilized to communicate data from the traffic signals to the master controllers. Communications from the master controllers to the CITY buildings will be via wireless radio. The CITY will collect and trunk data and send it out on its existing fiber optic network. Equipment to be installed may include modems, modem splitters, radios, antennas, terminal servers, and converters. The communication improvements will allow the CITY to upload adjusted timing plans real-time to traffic signal controllers in the downtown area and will reduce

the need for manual adjustments. This agreement does not provide resources for upgrading the network server or for making software modifications.

Attachment C identifies the anticipated schedule in which the system will be implemented.

These communication enhancements will save the CITY time and increase the efficiency in which timing plans can be uploaded to traffic signal controllers. The adjusted timing plans will improve local street operations, reduce commuter delays, reduce fuel consumption, lower pollution and increase safety.

### **Basis of Payment**

The CITY shall charge actual costs incurred and attributable to the work described above under this agreement to the DEPARTMENT. Total reimbursement to the CITY for Traffic Signal Communications Improvements under this agreement will not exceed \$322,134 detailed in Attachment A; City of Milwaukee Department of Public Works – Cost Estimate. All Billings shall be directed to the attention of Amy Rivers, Wisconsin Department of Transportation, District 2, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798, phone 262-548-8708, and will include a statement of expenses supported by a description of items and services provided.

### **Notifications**

Other correspondence and notifications required under this contract shall be given as follows:

**Notice to the City -DPW:** Chris Fornal  
Planning Developments and ITS Engineer  
City of Milwaukee Department of Public Works  
841 N. Broadway, Room 909  
Milwaukee, WI 53202  
(414) 286-2452  
[cfora@mpw.net](mailto:cfora@mpw.net)

**Notice to the Department:** Manojoy Nag  
Marquette Interchange Traffic Engineer  
Wisconsin Department of Transportation, District 2  
141 NW Barstow  
Waukesha, WI 53187-0798  
(262) 548-6423  
[manojoy.nag@dot.state.wi.us](mailto:manojoy.nag@dot.state.wi.us)

APPROVED \_\_\_\_\_  
For the City of Milwaukee Department of Public Works Date

APPROVED \_\_\_\_\_  
For the Wisconsin Department of Transportation Date

APPROVED \_\_\_\_\_  
Governor, State of Wisconsin Date

**Attachment A:  
City of Milwaukee Department of Public Works  
Cost Estimate**

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**TRAFFIC SIGNAL COMMUNICATIONS IMPROVEMENTS**

Item Description	Unit	Estimated Quantity	Estimated Materials Cost	Estimated Installation Cost	Estimated Cost	Comments
Black Box Master Modem	Each	20	\$695	\$695	\$27,800	
Black Box Slave Modem	Each	90	\$685	\$685	\$123,300	
Black Box Modem Splitter	Each	20	\$85	\$85	\$3,400	
Utilinet Integrated WanGate Radio	Each	5	\$1,200	\$1,200	\$12,000	At Fiber Access Points
Utilinet WanGate Radio	Each	20	\$900	\$900	\$36,000	At Master Traffic Signal Controllers
Utilinet Antenna	Each	20	\$60	\$60	\$2,400	
Yagi Antenna	Each	5	\$259	\$259	\$2,590	
Terminal Server	Each	20	\$780	\$780	\$31,200	
EIA-232 to EIA-422 Converter (Use as splitter)	Each	20	\$199	\$199	\$7,960	
2" Conduit (trench)	L.F.	750		\$6.40	\$4,800	
2" Conduit (bore)	L.F.	750		\$5.98	\$4,485	
Antenna Cable (7/8" Coax)	L.F.	1500		\$6.21	\$9,315	
Synch Cable (9 #14)	L.F.	1500		\$2.13	\$3,195	
<b>Sub-Total</b>					<b>\$268,445</b>	
Spare Parts					\$26,845	
City of Milwaukee Staff Engineering					\$26,845	
<b>Total</b>					<b>\$322,134</b>	

**Total Estimated Cost: \$322,134**

Attachment B:  
City of Milwaukee Department of Public Works  
Project Area

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