Department of Public Works

City Hall
730 Washington Ave.
Racine, WI 53403
262.636.9121 - Public Works
262.636.9191 - Engineering

City of Racine, Wisconsin

07-0554

Richard M. Jones, P.E.
Commissioner of Public Works

Thomas M. Eeg, P.E.
Asst. Comm. of Public Works/Operations

John C. Rooney, P.E.
Asst. Comm. of Public Works/Engineering

April 16, 2007

To the Honorable Mayor and Common Council:

I respectfully request permission to apply for a CMAQ grant (Grant Control No. 2007-025) from the Wisconsin Department of Transportation for Signal Interconnect and System Timing Optimization for Sixth Street south to the city limits.

This should be referred to the Finance and Personnel Committee for their consideration.

Sincerely,

John C Rooney

John Rooney
Asst. Commissioner/Engineering

HMF:hf

APPLICATION FOR FUNDING
CMAQ PROGRAM FYs 2008-2010

Wisconsin Department of Transportation

Date of Application	Application Number	WisDOT Project ID Number
April 16, 2007		

Project Title	Location(s) Served by Project
Signal Interconnect and System Timing Optimization	City of Racine
Project Description - Project Limits City of Racine	**County/Counties Served by Project** Racine County
Project Description Continued South of Sixth St. to City limits	**Total Cost of Project (Including Local Match)** $550,000.00
Name and Address of Public Sponsor City of Racine 730 Washington Ave. Racine, WI 53403	**Name, Telephone & Fax Numbers of Public Sponsor Contact** John Rooney Tel: (262) 636-9191 Fax: (262) 636-9545
Other Organization(s) Involved in Project (e.g. Private Partner) Southeast Region DOT Racine County Village of Mt. Pleasant Town of Caledonia	**Name, Telephone & Fax Numbers of Private Partner** Mike Andreasen Village of Mt.Pleasant Tel: (262) 554-8750 Fax: (262) 554-6785 Michael Hayek Town of Caledonia Tel: (262) 835-6423 Fax: (262) 835-2388
Project Category/Categories ☐ Public Transportation ☐ Bicycle/Pedestrian ☐ Car and Vanpooling ☐ Park & Ride Lot ☑ Traffic Flow Improvement (e.g. System Signalization) ☐ Alternative Fuels ☐ Other (Please Describe, e.g., Diesel Retrofit):	**Sponsor's Metropolitan Planning Organization Area** ☑ Southeastern WI Regional Planning Commission (SEWRPC) ☐ Bay-Lake Regional Planning Commission (BLRPC) - only for Sheboygan Metropolitan Planning Area ☐ Non Metropolitan Planning Area

Project Description - Be Brief But Complete

1. Where is the project located? Who does it serve? How large will it be? What will it be made of? How will it be accomplished?
   Important: In addition to describing the project location below, attach a map of the project site to this application.

This project will be concentrating on the Signalized intersections from Sixth St. South to the City limits, linking them together for optimal coordination.

Altogether, the City of Racine has 81,855 residents and a shopping population of over 200,000. There are 261.64 miles of roadway with 80.26 miles of connecting Highway, Arterial or Collector streets. The City operates 79 signals plus 4 multi-jurisdictional signals. Our active interconnect system includes 27 Intersections on fiber optics, 5 on copper and 7 on radio frequency (RF) for a total of 39 of our 83 intersections connected to the (ITS) Central Computer at City Hall.

The City proposes (with both applications) to install 9.00 miles of 2" conduit and 10.79 miles of fiber optic interconnect cable, 8 (RF) antennas and related hardware. This will interconnect 64 intersections on fiber, 5 on copper and 13 on (RF) for a total of 82 intersections connected to the (ITS) at City Hall.

The City proposes to contract the purchase and installation of fiber cable in conduit and related equipment. The City intends to apply a computer-based optimization program to all 82 signalized intersections and create coordinated networks within our jurisdiction, including 4 multi-jurisdictional locations.

2. Why is the project necessary? How will it contribute to improving air quality?

A complete interconnect system and optimized signal network will achieve a significant reduction in fuel consumption. An interconnect system will provide real time communications for consistent coordination and incident management. Transyt-7F will optimize Phases and signal timings and compare measures of effectiveness including fuel consumption and delay. Improved fuel consumption and delay will have a great effect on emissions like Hydrocarbons, Carbon monoxide and Nitrogen oxides. This project will provide the City of Racine with a safe and efficient traffic signal system resulting in a considerable reduction of vehicle emissions and delay.

A recently installed 48 count fiber optic backbone feeds 18 of the 38 signalized intersections in the southwest quadrant of Racine. This project will provide communication to connect all 38 intersections in that quadrant to the Central Computer at City Hall. In addition, a recently installed 48 count fiber backbone feeds the signalized intersections in the downtown business district.

3. Realistically, how much use will this facility or service get?

The vehicle traffic within the City of Racine will benefit from a more efficient signalized system on a daily basis. This service will be able to give attention to the peak volumes in the morning and afternoon to better control oversaturated intersections. The signalized network carries between 2,600 to 23,000 vehicles daily. The average daily traffic throughout the entire signalized network is about 11,600, with the top 85% of the network miles having an ADT of 12,500.

4. What is the project timeline? How will the sponsor ensure that the project is implemented in a timely manner?

The design work for will begin in the year 2008. The City will gather all field data investigations necessary for putting a contract together in order that construction to begin in the year of 2009. The awarded contractor will then enter into an agreement through the City which will bind them to the time frame specified in the contract documents, and if the work is not completed with in that time the contractor will suffer liquidated damages.

5. What obstacles or problems must be overcome to implement this project?

Agreements would need to be entered into with adjacent municipalities for the multi-jurisdictional applications for implementation of project required infrastructure.
Train staff in the use of Traffic Engineering Application Package (TEAPAC)

6. What will make this project a success?

The installation of a fiber optic interconnect system with direct distributive network control using the existing ITS at City Hall.
The installation of a radio frequency interconnect system to isolated intersections will provide communications to the existing ITS at City Hall.
The installation of optimized signal timing plans and consistent real time coordination will achieve a significant reduction in fuel consumption and delay for the motorist.

Project Cost Estimate & Timetable[1]			
Item	**Year 1**	**Year 2**	**Year 3**
Engineering & Design[2]	$ 62,000	$	$
State Design Review[3]	$	$	$
Real Estate & Easements	$	$	$
Utility Relocation	$	$	$
Construction	$	$ 415,000	$
Bridges & Buildings	$	$	$
Landscaping	$	$	$
Railroad Signals/Crossings	$	$	$
Traffic Control Devices	$	$	$
Operation & Maintenance	$	$	$
Marketing & Promotion	$	$	$
Other: e.g. transit operating	$	$	$
Other: e.g. transit capital	$	$	$
Other:	$	$	$
Subtotal	$ 62,000	$ 415,000	$
Contingencies & Constr Mgt[4]	$ 9,300	$ 62,250	$
Total	$ 71,300	$ 477,250	$
Local Share[5]	$ 14,260	$ 95,450	$
Federal Share[6]	$ 57,040	$ 381,800	$

[1] Typically design is done in Year 1, real estate acquisition in Year 2, and construction in Year 3.
[2] Engineering/Design cost is typically 15% to 20% of the construction cost.
[3] State design review is typically 3% of construction cost, minimum $5,000. This covers plan review, bid advertisement, and printing/mailing of plan sets to potential bidders. *This cost applies only to projects that will be let and administered by WisDOT.*
[4] Contingencies and construction management are typically budgeted at 15% of the Subtotal.
[5] Local share for this program is normally 20%.
[6] Federal share for this program is normally 80%.

Please affirm your understanding of the following project conditions by initialing in the spaces provided:

JCR A. Private organizations proposing projects generally must have a public sponsor (a local government unit or transit operator).

JCR B. The project sponsor or private partner must provide matching dollar funding of at least 20% of project costs.

JCR C. This is a reimbursement program. The applicant organization must finance the project until Federal reimbursement funds are available.

JCR D. The applicant must fund project costs in excess of the amounts indicated in the above Project Cost Estimate (i.e. cost overruns) at no expense to State/Federal funding sources.

JCR E. Projects must be designed and constructed in accordance with all applicable federal and state requirements, including but not limited to those on page 13 of the application.

If the public sponsor is submitting more than one application, prioritize this project here (e.g., 1 of 5):

3 of 3

I hereby certify that the above statements are true and complete to the best of the applicant's knowledge and understanding.

Name of Applicant Organization: *City of Racine*	
Name of Signer (Printed Clearly): *John Rooney*	Title: *Asst. Commissioner of Public Works - Engineering*
Signature: *John Rooney*	Date

Information Below to Be Completed by the WisDOT Region Office

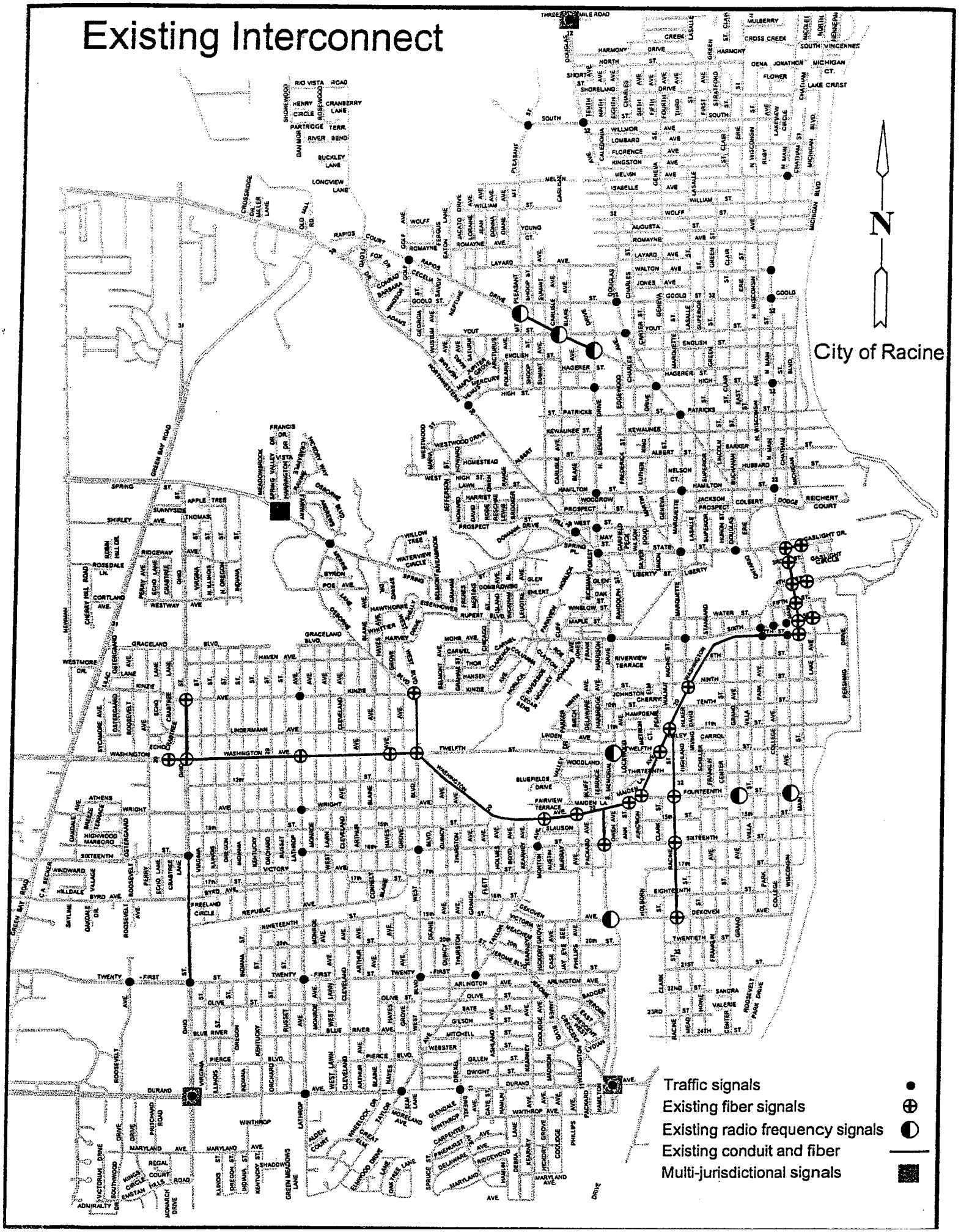
Environmental Document Type	Improvement Type	Program Year
Primary ID / Related ID's		Program: *CMAQ*
Responsible Projects Group	Project Supervisor	

WisDOT Region Approvals

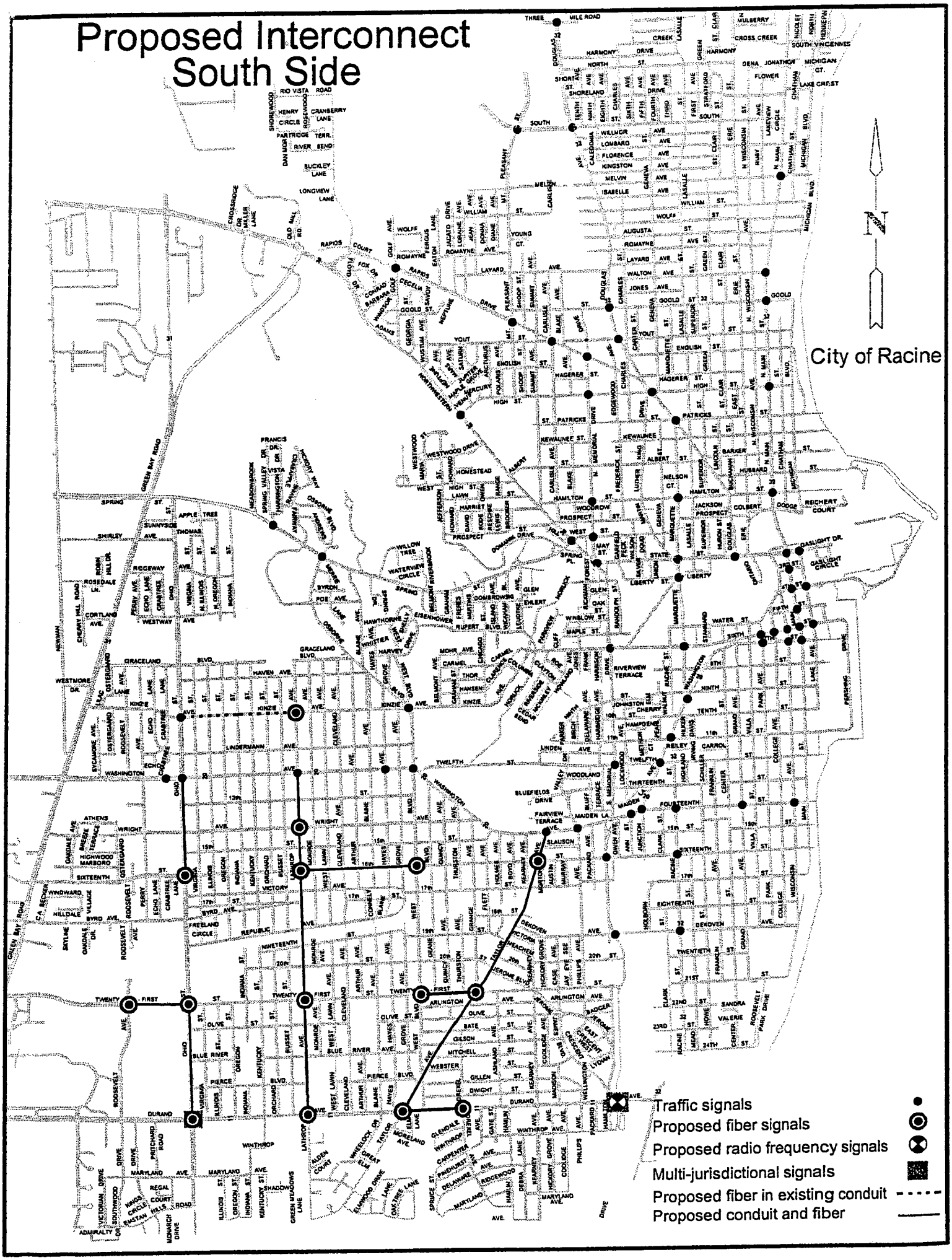
Team Leader Approval	Date	Group Manager Concurrence	Date
Programming Team Approval	Date	Systems Planning Manager Concurrence	Date

PLEASE ATTACH A SITE MAP, PHOTOGRAPHS, OR ANY OTHER GRAPHICS THAT WILL ASSIST THE SELECTION COMMITTEE IN UNDERSTANDING THE LOCATION AND NATURE OF THE PROPOSED PROJECT.

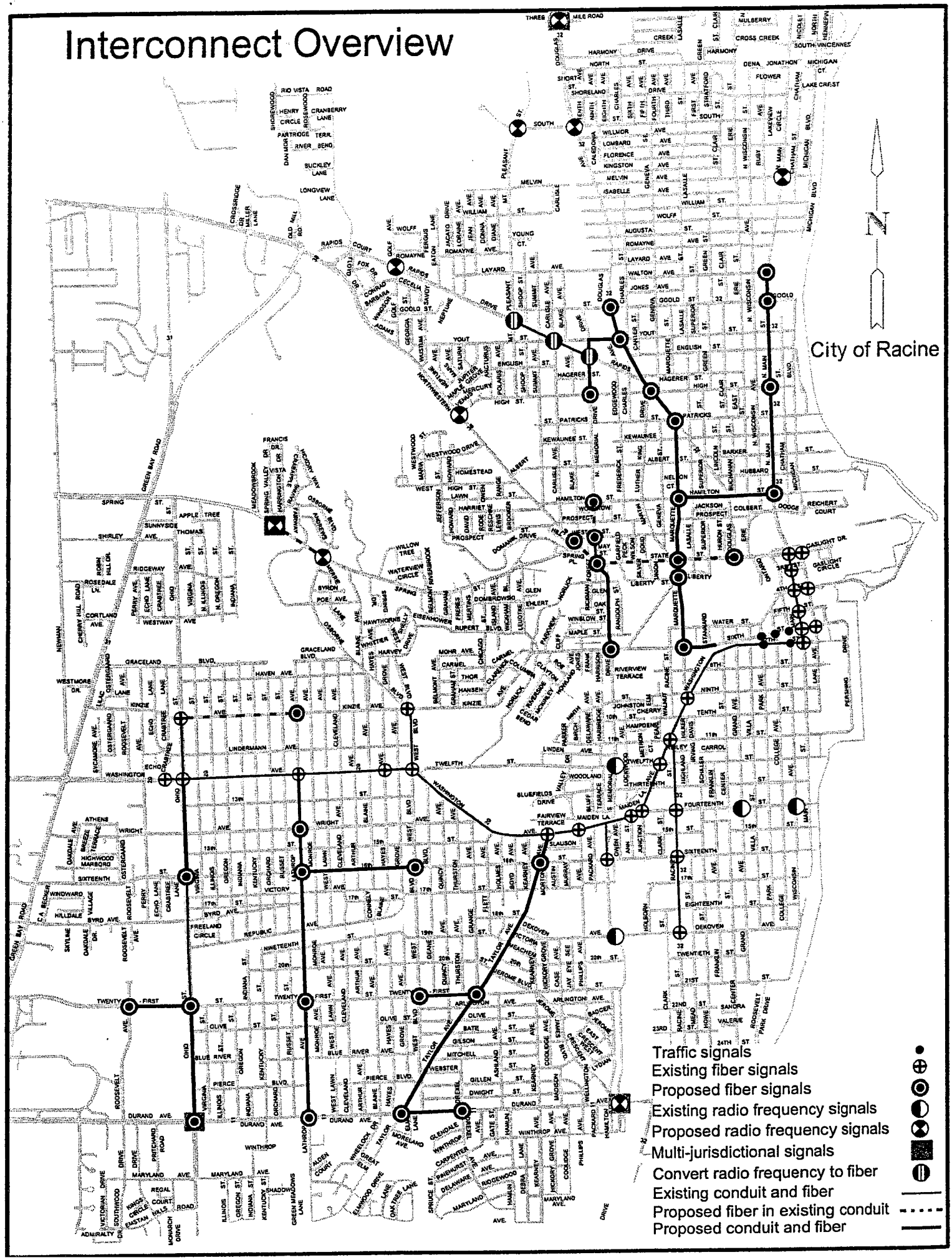
Existing Interconnect



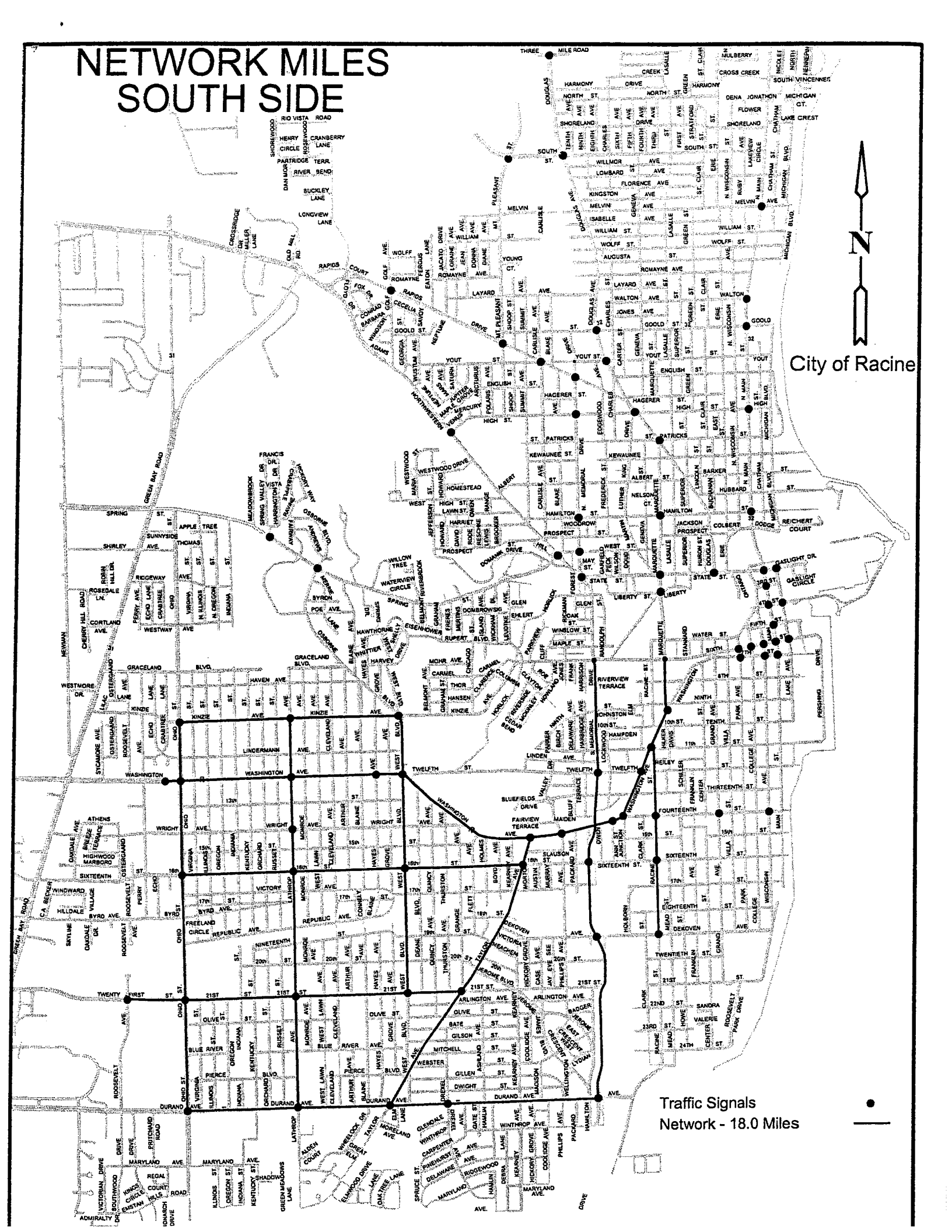
Proposed Interconnect South Side



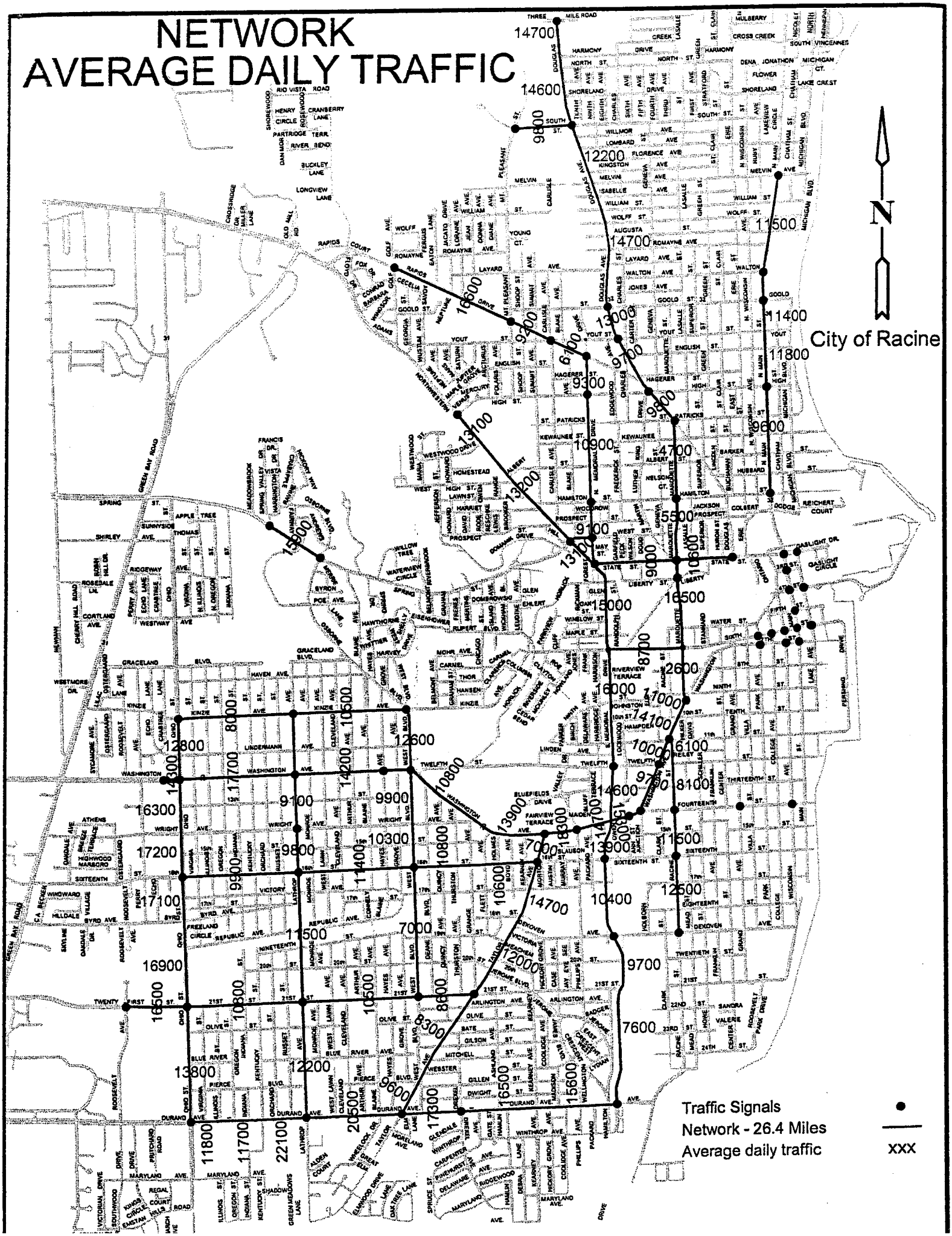
Interconnect Overview



NETWORK MILES SOUTH SIDE



NETWORK
AVERAGE DAILY TRAFFIC



Side	Network Segments	Feet	Miles	% of Entire City Network	ADT	VMT
South	Kinzie - West Blvd to Ohio	5,332.27	1.01	3.8%	9,250	9,341.6
South	Marquette - 6th to Washington & Racine St.	6,796.20	1.29	4.9%	9,414	12,117.7
South	West Blvd - Kinzie to 21st	6,708.51	1.27	4.8%	9,950	12,642.0
South	Taylor - Washington to Durand	7,269.55	1.38	5.2%	10,320	14,208.7
South	16th - Taylor to Ohio	8,160.30	1.55	5.8%	10,675	16,498.3
South	21st - Taylor to Roosevelt	8,012.54	1.52	5.7%	11,600	17,603.3
South	Lathrop - Kinzie to Durand	9,376.06	1.78	6.7%	10,650	18,911.9
South	S. Memorial - 6th St. to Durand Ave.	10,752.20	2.04	7.7%	12,033	24,504.7
South	Ohio - Kinzie to Durand	9,352.55	1.77	6.7%	15,683	27,780.1
South	Durand - Ohio to S. Memorial	9,800.90	1.86	7.0%	16,500	30,627.8
South	Washington -Racine to Westgate Mall	13,435.39	2.54	9.6%	13,890	35,344.2
Total			**17.99**	**68.1%**	**11,815**	
				Entire City Signalized ADT	**11,447**	