



## Traffic Engineering Division

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### SUMMARY OF STAFF RECOMMENDATIONS To PBMVC

March 27, 2012

1. High Point and Starr Grass: Recommend maintaining current stop sign control.
2. Fairchild & Main: Recommend installing traffic signal control during this year's Outer Loop reconstruction project.
3. Nakoma, Seminole and Yuma: Recommend installing traffic signal control as part of the Verona Road reconstruction project.
4. American Parkway and Buttonwood: Recommend maintaining current stop sign control.
5. University Avenue & University Row: Recommend installing traffic signal control during this year's University Avenue reconstruction project.
6. Livingston & East Washington: Recommend installation of a half-traffic signal control as part of the development project..

## **2012 TRAFFIC SIGNAL PRIORITY LIST SPECIAL STUDIES FOR PBMVC SELECT INTERSECTIONS**

### **Actions completed to date**

**1. High Point & Starr Grass**

Collected 24 hour automatic machine counts.

Manual study completed – reviewed delay from Starr Grass

**2. Fairchild & Main**

Reviewed Capitol Loop Traffic Need Study and proposed contra flow bike lane designs for Main Street.

**3. Nakoma, Seminole and Yuma**

Reviewed past traffic signal studies.

Reviewed Verona Road reconstruction studies completed for the State DOT which recommended installation of a traffic signal.

**4. American Parkway and Buttonwood**

Reviewed counts.

Need to review traffic impact potential of proposed UW Hospital.

**5. University Avenue and University Row**

Reviewed Traffic Impact Study of proposed University Crossing development, including computer traffic signal modeling.

**6. Livingston and East Washington**

Modeled traffic impacts of full and half signal to facilitate proposed development..

# TRAFFIC SIGNAL PRIORITY LIST COMMENTARY

## **High Point Road & Starr Grass Drive**

The High Point – Starr Grass intersection is located on High Point Road approximately 4,900 feet south of the signalized intersection at Watt Road, and approximately 2,500 feet north of the All-Way stop controlled T-intersection at Mid Town Road.

Recent machine and manual counts show that this intersection falls 18% short of meeting the adopted minimum numerical volume warrants for traffic signals.

A delay study performed during the peak a.m. traffic period showed that the delay to motorists on Starr Grass Road Drive (approaching from the west) is 59% short of meeting the minimum delay criteria for traffic signals. The highest 15-minute delay period was found to be from 7:45-8:00 a.m. during which time the average delay to motorist on this approach was found to be 35 seconds per vehicle. Installation of a traffic signal would be expected to increase delay for most motorists approaching on Starr Grass throughout the day. At these low volumes, a signal will worsen operation for motorists entering from the side street. Pedestrian crossing opportunities are available on High Point Road.

### **Crash History**

- The crash history for the past five years, 2006 thru 2010, shows there has been about one crash every two years (of crash types considered correctable by traffic signals). A traffic signal is not expected to improve upon this number of crashes.

### **Application of Traffic Signal Criteria**

- Recent manual and machine counts show that this intersection is 18% short of meeting the adopted minimum numerical volume for traffic signals. Although the traffic volumes do meet the minimum criteria for both the Four-Hour and Peak Hour Delay warrants, the results of the manual delay study are far below meeting the minimum delay criteria.

Staff recommends maintaining the current stop sign control.

## **Fairchild Street & West Main Street**

The Fairchild-Main intersection is located on the outer loop between the signalized intersections at Fairchild-West Washington and at Fairchild-Doty-South Hamilton

The Capitol Loop Traffic Needs Study completed in 2005 studied this intersection along with the all the other non-signalized intersections on the Outer Capitol Loop (Fairchild-Doty-Webster-Dayton). The report recommended maintaining the existing traffic control at the time of the study but noted heavy pedestrian crossing of Fairchild at Main Street.

A new signal at this intersection will facilitate both pedestrian crossing of Fairchild as well as a proposed contra-flow bike lane being planned for the 100 block of West Main Street. It also provides access to the new bike boulevard planned on West Main to Proudfit Street.

Staff recommends installing traffic signal control during this year's Outer Loop Reconstruction Project.

## **Nakoma Road, Seminole Hwy & Yuma Drive**

The Nakoma-Seminole-Yuma intersection is located approximately 2,700 feet northeast of the signalized intersection at Midvale, Nakoma and Hammersley Road, and approximately 4,150 feet southwest of the signalized intersection at Glenway Street and Monroe Street. The distance from this intersection to Midvale Drive is approximately 2200 feet along Yuma Drive. It is also an important school crossing location.

An Adult School Crossing Guard is stationed at this intersection during school crossing hours. A median island in the southwest leg of Nakoma and a zebra striped crosswalks on both legs of Nakoma were placed October 2006 to improve pedestrian crossings.

Numerous complaints regarding speeding and use of Yuma Drive as a cut-through route between Nakoma and Midvale have been logged as far back as Traffic Engineering has kept records. In 1999, a temporary traffic circle was placed at Waban Hill and Yuma Drive. In 2000, speed humps on Yuma Drive

were installed. A traffic signal would be expected to increase access to Yuma Drive and some additional traffic may use Yuma as a result.

Numerous requests for a traffic signal at this intersection have also been received by the Traffic Engineering Division dating back to 1994.

The State of Wisconsin has requested that this intersection be signalized as part of the Verona Road/Beltline Project. If traffic signals are installed as part of this State project, the entire cost will be funded by the project.

#### **Crash History**

- During the five-year period 2006-2010, there have been a total of eight crashes reported which were types considered to be correctable by traffic signals. Five of these six crashes were reported in 2008, two in 2009, and the other one was reported in 2007.
- 0 crashes reported in both 2006 and 2010.

#### **Application of Traffic Signal Criteria**

- Recent counts show that this intersection is 25% short of meeting the adopted minimum numerical volume for traffic signals.
- Traffic counts do meet the minimum criteria for both the 4 hour and the Peak Hour warrants.

Installation of a traffic signal at this intersection would require removal of the island in the southwest leg of Nakoma to facilitate a necessary short left-turn lane.

Alternatives treatments for this intersection other than traffic signals which have been considered include the Pedestrian Hybrid Beacon, Rectangular Rapid Flashing Beacons (RRFB), and All-Way Stop control.

Due to high volume of right-turns from northbound Seminole Highway onto inbound Nakoma Road, the Pedestrian Hybrid Beacon and RRFB would not be recommended treatments.

Our computer modeling of All-Way Stop control at this intersection indicated that All-Way Stop control would be a viable alternative but would be expected to have significant queuing of inbound Nakoma traffic during the a.m. peak period.

#### **American Parkway & Buttonwood Drive**

This intersection is located on American Parkway approximately 960 feet to the north of the signalized intersection at Eastpark Boulevard and approximately 6,100 feet to the south of an all-way stop controlled intersection at Hoepker Road.

#### **Crash History**

- During the five-year period 2006-2010, there have been a total of 4 crashes reported which were types considered to be correctable by traffic signals. No crashes were reported in 2009 or 2010.

#### **Application of Traffic Signal Criteria**

- Recent counts show that this intersection is 93% short of meeting the adopted minimum numerical volume for traffic signals.

A future UW Hospital is being proposed to be built on the northwest corner of Eastpark Blvd. and Portage Road. This development could result in future increased traffic volumes at the Buttonwood intersection.

Staff recommends maintaining the current stop sign control at this time.

#### **University Avenue & University Row**

University Row is planned to be a new street approximately 400 feet west of the existing signalized intersection at on University Avenue at Whitney Way. The new street is planned to be constructed to facilitate the proposed University Crossing Development on the southwest corner of University Avenue and Whitney Way.

A traffic signal has been requested for this intersection to facilitate the proposed development. The new

intersection layout and signal timing will closely resemble the geometry and signal timing at the Braxton-Park intersection. This type of configuration allows the new intersection and the existing signalized intersection at Whitney Way to operate together.

Staff recommends approval for installing the proposed traffic signal at University Avenue and University Row.

### **Livingston Street & East Washington Avenue**

The Livingston-East Washington intersection is located approximately 1,300 feet east of the signalized intersection at Blair Street, and approximately 600 feet to the west of the signalized intersection at Paterson Street. East Washington is one of the most heavily used arterial streets in the state of Wisconsin, serving 55,000 – 60,000 vehicles per day.

A traffic signal has been requested for this intersection to facilitate the proposed “Constellation” development on the northwest corner of this intersection. Due to the location between the existing traffic signals along the East Washington Corridor, computer traffic modeling shows that a full traffic signal would not be recommended due to the severe disruption to two-way traffic flow progression and upstream intersection blockage this would cause.

Installing a directional signal, like the recently installed traffic signal at the Marshall-Ridge-University intersection would provide lefts-in off of East Washington and would also provide signalized operation for an improved pedestrian and bike crossing of East Washington. At the same time, this will cause less disruption to East Washington traffic flow than would a full traffic signal installation.

Staff recommends approval for installation of a half traffic signal at Livingston-East Washington as part of the proposed development project.