

# TRAFFIC CONTROL BOARD MINUTES

February 26, 2013

MEMBERS PRESENT: Todd Cormier, Walt Willett, Capt. RD Harper, Gene Wade, Trina White, Brent Krueger

MEMBERS ABSENT: Sondra Baker

STAFF SUPPORT: Terry Smith, Erin Claunch, Zach Heid

GUESTS: None

## BUSINESS MEETING:

**Call to order:** Todd Cormier called the meeting to order at 12:20 pm in the conference room of the Public Works Building, 2224 Montana Avenue.

**Minutes:** Motion for approval of the January minutes by Trina White, seconded by Gene Wade. Motion carried on a voice vote.

**Open Public Comment:** None

STAFF REPORTS: None

## BOARD REPORTS:

**Planning Board:** Todd Cormier mentioned the RFP for the Transportation Plan Update is out and proposals are due next week.

OLD BUSINESS: None

## NEW BUSINESS:

**Traffic Signal Change Intervals & State Law:** Terry said a recent local TV news story reported that a national magazine rated Billings drivers as the 5<sup>th</sup> most dangerous in the U.S. During that report it was mentioned a bill might be introduced in the legislature to change Montana law regarding vehicles being in the intersection when a traffic signal turns red. Terry wanted to give the Board information on how traffic signal change intervals are determined and how that relates to state law.

The total change interval is the time between green phases for conflicting traffic movements at an intersection. It is typically comprised of a yellow interval and an all red interval. The Federal *Manual on Uniform Traffic Control Devices* (MUTCD) provides the following:

### Yellow Interval:

- Sole purpose is to warn drivers of impending change in right-of-way assignment
- Duration determined by engineering practices
- Guidance
  - Minimum 3 seconds; maximum 6 seconds
  - Longer intervals with higher speeds

### All-red Interval

- Not required
- Duration based on engineering practices

The MUTCD notes “engineering practices” for determining the yellow change and the red clearance interval can be found in the ITE *Traffic Control Devices Handbook* and the ITE *Manual of Traffic Signal Design*. Both of these references provide the following basic equation for determining the overall change interval.

$$Y + AR = T_R + \frac{(1.47)(S)}{2a} + \frac{(w + 20)}{1.47(S)}$$

Where Y+AR is the duration of the yellow plus the all red change interval in seconds,  $T_R$  is driver reaction time (usually assumed as 1 second), S is the speed in mph, “a” is the deceleration rate in response to the yellow (usually assumed as 10 feet per second per second), and W is the width of the intersection in feet. The yellow interval is based on the first two terms (reaction time plus deceleration). The minimum duration of yellow time is 3 seconds and the maximum is 6 seconds. The all red clearance interval is the third term based on width of the intersection. Erin mentioned that at wide intersections with low approach speeds the calculated all red becomes long. Billings typically caps the all red at 2 or 2.5 seconds, with the time that is removed added to the yellow phase. If the all red clearance interval gets too long, people start to abuse it.

Walt Willett asked why signals have an all red phase. Todd Cormier stated that it is a safety net for those drivers who made the decision to proceed instead of stop. It provides time for a vehicle to clear the intersection before conflicting traffic gets the green.

In general there are two types of laws regarding driver behavior when a signal changes to red. The two general forms are “shall not **enter** intersection on red” and “shall not **be in** intersection on red”. In 1993 Montana Law was changed to the “shall not enter” form which allows vehicles to be in the intersection when the signal turns to red. Existing Montana law is therefore consistent with the engineering approach to determining the overall change interval which provides the all red time as a safety factor. It is still a violation under Montana law to *enter* the intersection on a red light.

Gene Wade asked if all signals were controlled by controllers at each intersection or controlled by a computer in someone’s office. Terry said that all of the intersections in Billings are controlled by a controller at the intersection. Gene asked how signals are synchronized so a person doesn’t have to stop at each light. Terry said it is determined by the timing of each signal. When signals are not interconnected (not able to communicate) sometimes the time clock at an individual controller drifts and it becomes out of synch with other signals in the corridor. Even 5 or 10 seconds of drift can make a big difference. Todd mentioned that when emergency vehicles with Opticom travel through an intersection, the traffic signal will give a green light to allow the emergency vehicle to proceed through the intersection. When this happens it can take a few signal cycles for that intersection to come back into coordination.

Todd asked Erin if Billings would ever have a traffic management center. Erin said it would be difficult due to having old signal controllers and no communications between signals. Before a traffic management center could be established, communications would have to be developed between signals with fiber optics, copper cable or radios. All of the older signal controllers would need to be replaced with new controllers that would communicate with each other and with a central location. Terry noted it would probably be a long time before Billings had staffing for a true traffic management center where traffic flow is monitored remotely via cameras and traffic signal timing can be actively managed to improve traffic flow. All of the communications would need to be routed to one location where the signals would be monitored and the signal timing could be changed. Terry mentioned that just the ability to send information to and from individual controllers from a central location has significant benefits even without a true traffic management center. Signal operation can be checked remotely when a trouble call comes in rather than having to dispatch someone to the intersection to diagnose the problem. Gene asked if Billings had any communications to any of the traffic signals. Terry said that there are communications in some areas but not with every controller City wide.

**Inquiries from Board Members.**

Hawk Signal. Gene wanted to know when the HAWK signal would be installed on 4<sup>th</sup> Ave N. Erin said the contractor has ordered the signal equipment and poles and the new HAWK signal will be in place before the building opens. Because drivers will adapt to the new signal more quickly if they see it operating frequently, it is not desired to have the signal operational for an extended period before the building opens.

Grand Avenue Speed Limit signing. Walt asked about the speed limit on Grand Ave from 32<sup>nd</sup> St W to Zimmerman Tr. Walt noted that the speed limits for eastbound and westbound are not signed at the same speed. Terry said this had recently been reported by a citizen and staff was investigating the issue.

ADJOURNMENT: Motion for adjournment of the meeting by Trina White, seconded by Gene Wade. Motion carried on a voice vote. The meeting was adjourned at 1:05 pm.