



INTEGRATED CAPITAL MANAGEMENT

DATE: July 30th, 2020

TO: Project File - Staff Report

FROM: Inga Note, P.E., Integrated Capital Management

CC: Colin Quinn-Hurt; Kevin Freibott; Katherine Miller

SUBJECT: Comprehensive Plan Amendment – Z20-019COMP
Boone Avenue – Atlantic Street – Sharp Avenue bike lane addition

This memorandum summarizes the traffic impacts of the proposed amendments to TR-5 Bike Network Map. It specifically focuses on the impacts of adding a bike lane to Boone Avenue from Howard to Atlantic, and on Sharp Avenue between Atlantic and Lidgerwood. Establishment of bike lanes in these areas would require reducing the overall road section from five vehicle lanes to three vehicle lanes. The proposed bike lane would be a protected with paint buffers, flexible bollards, planters or curbs.

Figure 1. Proposed Buffered Bike Lane - Howard to Washington



Figure 2. Proposed Buffered Bike Lane – Washington to Atlantic



Figure 3. Proposed Buffered Bike Lane – Atlantic to Ruby



Daily Traffic Volumes

In 2019 this section of Boone Avenue from Howard to Washington carried an average of 11,000 vehicles per day (vpd). East of Washington the volumes drop to 8,000 vpd and continue to drop to around 6,000 vpd as the route wraps around to Sharp Avenue. These volumes are well within the range of traffic that can be accommodated with a three-lane road. Sharp Avenue already transitions to three lanes east of Lidgerwood.

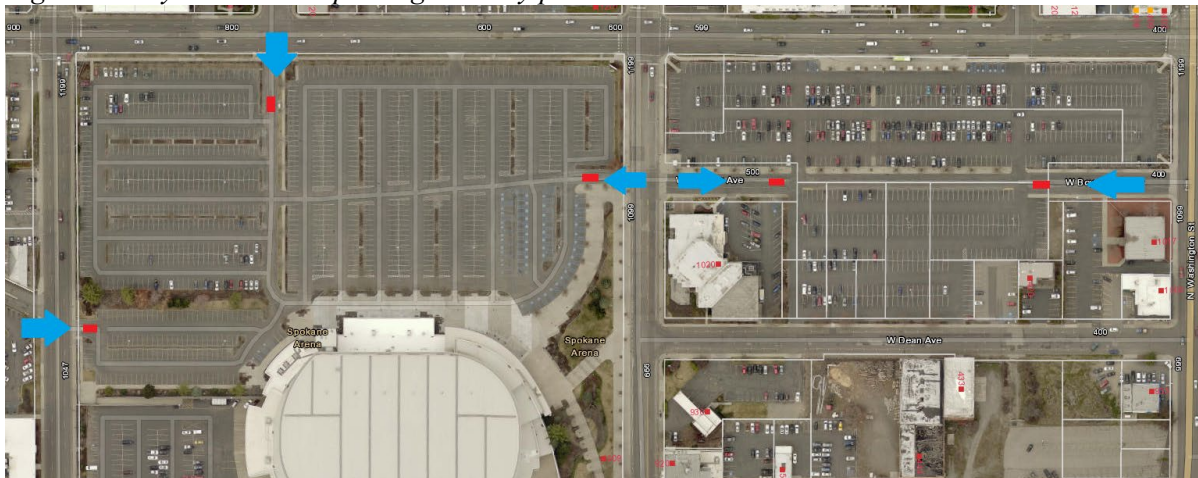
Spokane Arena Event Traffic

The bigger concern with this proposal is the impact to event traffic entering and exiting the Spokane Arena parking lots. It is well known that evening events at the arena have a large impact on local through traffic movement on Boone Avenue, Washington Street, Howard Street, Lincoln Street, Mallon Avenue and sometimes Monroe Street.

Event Traffic Arrival

During large events at the Spokane Arena people start arriving about 1.5 hours prior to the show. Attendees can enter the parking lots at several points but must stop at a pay booth. Payment is handled via cash or card. Cash transactions average 15 seconds per vehicle and credit cards take 30 seconds.

Figure 4. Pay stations and parking lot entry points



Because of the pay booths it is common for queues to form outside the entry points. These include the left turn from Boone Avenue to Howard Street (figure 2) and also the eastbound curb lane on Boone east of Lincoln Street (figure 3). The second through lane in both of these conditions allows for non-event traffic to continue to use Boone Avenue. The pay booths cannot be required to relocate unless the PFD was seeking a permit to make changes to the site. Queuing is also common for northbound Washington Street where the drivers are making

a left turn into the parking lot (Boy Scout Way). The queuing on Washington is caused more by a lack of gaps in southbound traffic than delays at the pay booth.

With removal of the second through lane, non-event traffic is likely to drive illegally in the center turn lane to bypass the queued vehicles. This will create additional conflicts with vehicles turning in and out of driveways in the block.

Figure 5. Existing traffic pattern during event arrival

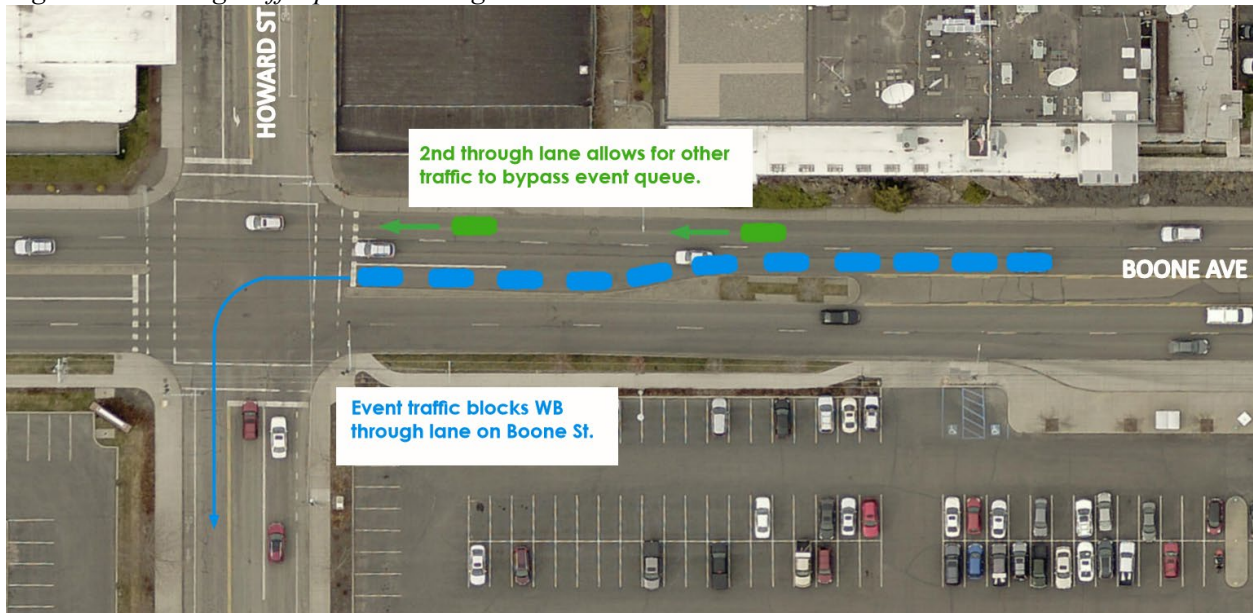
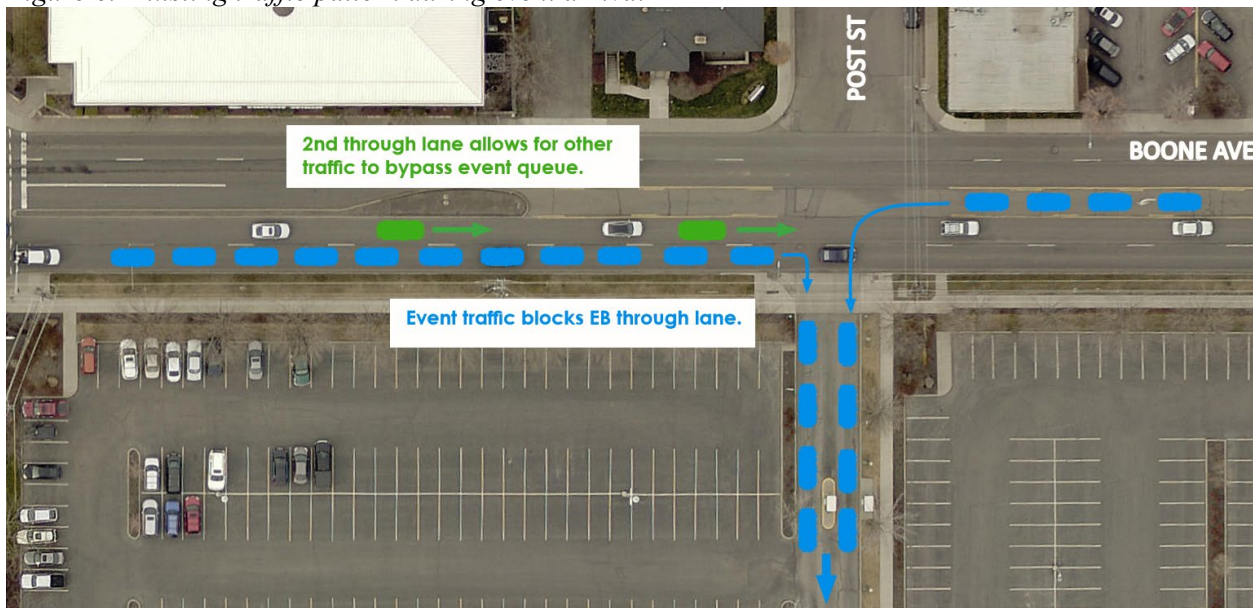


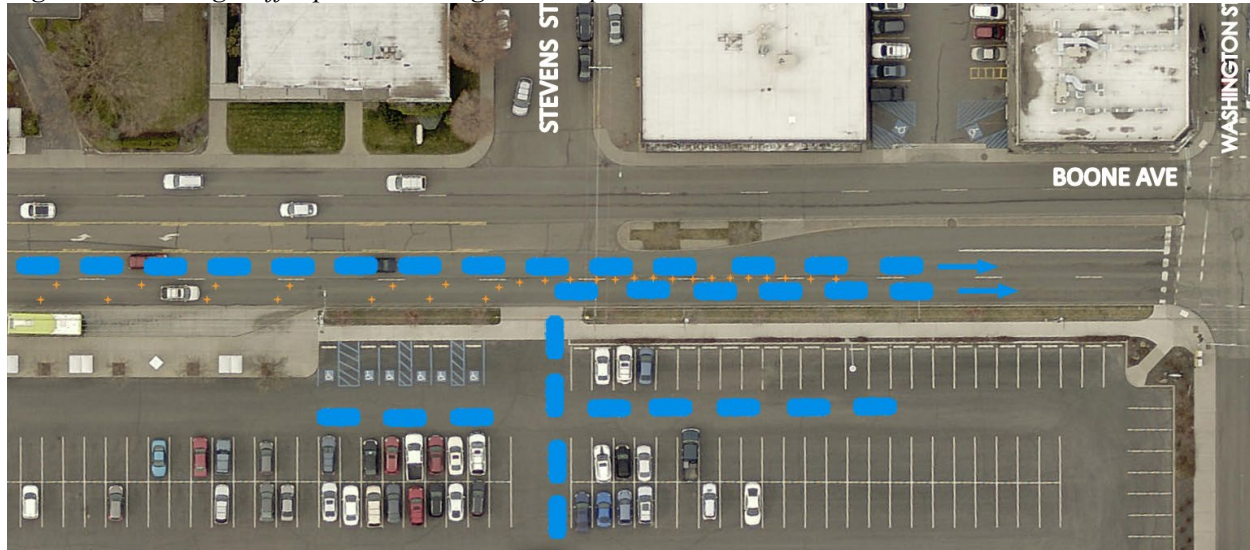
Figure 6. Existing traffic pattern during event arrival



Event Traffic Departure

Clearing out the parking lots after an event takes about 30-45 minutes. Traffic may exit from multiple locations and the dual lanes on Boone are used to accommodate this. Traffic control is handled by a combination of Spokane Arena staff and the police department.

Figure 7. Existing traffic pattern during event departure



Loss of the second travel lane on Boone will slow down the egress rate from the Spokane Arena parking lots. Event attendees will need to plan for a longer departure travel time or park in a different location. The impact on local traffic will be more limited since these events often end in the late evening when volumes are down.

Signal Impacts

If the comprehensive plan amendment is approved, an analysis of the signalized intersections will be required during the design phase. Depending on the turn volumes it may be beneficial to keep right-turn pockets and share that space with the bikes. Other options at the intersections could include widening or using space behind the curb for the bike lane. Queue lengths and available storage should be evaluated between Division and Browne to ensure the change will not result in queues exceeding the distance between the intersections. This can sometimes be addressed through signal timing adjustments, but not always without adding delay to the through traffic on Browne and Division.

Multiple Events

Consideration should also be given to the close proximity of venues and potential for multiple events at the same time. The Spokane Arena, Civic Theater, Riverfront Park, and Sportsplex all utilize the same access roads and parking lots. It is common for events at the Arena and the Theater to overlap. The northeast parking lot is also used as a park and ride for downtown commuters. So there is potential for arriving event-goers to conflict with commuters departing from the lot between 4:30 and 6:00 pm on weekdays.

Emergency Response

Traffic prior to and following an event creates challenges for emergency response. Current practice is to re-route around the area during times of congestion. However the loss of the additional traffic lane on Boone would create challenges for response to the adjacent businesses, Spokane Arena, Civic Theater or the Sportsplex.

Pathway Option from Howard to Washington

The biggest area of concern for repurposing vehicular travel lanes to bike lanes is on Boone between Howard and Washington. One alternative would be to maintain the lanes to Washington and provide a shared-use pathway between the existing sidewalk and parked vehicles in the lot. This would require the PFD to reconfigure the parking lot and may result in a loss of parking spaces. Implementation of this concept would require further discussion and cooperation with the PFD as the city cannot require this change.

Figure 8. Shared-use Pathway Option



Requirements for Implementation

There are several treatments that should be considered if the Boone Avenue comprehensive plan amendment is approved and the protected bike lane project moves forward. These treatments are focused on the street right-of-way.

- Lengthen the westbound left turn pocket at Boone/Howard so that more entering vehicles can queue in the center lane. This will require removal of the concrete island and two trees.
- Conduct further evaluation of signalized intersections to determine if keeping a right-turn lane as a shared facility with bikes is needed, or using space beyond the curb for the bike lane. Also evaluate the signal timing plans at Division/Sharp and Ruby/Sharp using the reduced street section.
- Addition of north-south protected left turn phasing at Boone/Washington would help to alleviate the queuing on Washington prior to an event.
- Further explore the Howard to Washington parking lot pathway concept with the PFD.