

CITY COUNCIL AGENDA ITEM
CITY OF SHORELINE, WASHINGTON

AGENDA TITLE: Traffic Signals on Aurora Avenue North
DEPARTMENT: Public Works Department
PRESENTED BY: Anne Tonella-Howe, Aurora Corridor Project Manager

PROBLEM/ISSUE STATEMENT: There are eight existing traffic signals on Aurora, at N. 145th, N. 155th, N. 160th, N. 175th, N. 185th, N. 192nd, N. 200th and N. 205th Streets. The consideration of installing four new traffic signals and four pedestrian-only signals was recommended as part of the 1999 Aurora Pre-design study. The Washington State Department of Transportation (WSDOT) must approve all new signals on Aurora. WSDOT has approved two of the four new traffic signals (at N. 152nd and N. 165th Streets) as part of the N. 145th to N. 165th Street construction, but has denied approval for the pedestrian-only signal within the scope of this project. Staff believes the final two traffic signals (at N. 182nd and N. 195th Streets) will likely be approved, but that none of the proposed pedestrian only signals are likely to satisfy WSDOT approval criteria.

ALTERNATIVES ANALYZED: Staff has analyzed the following alternative actions to the installation of pedestrian only signals on Aurora:

1. Move forward with the N. 145th to N. 165th Street project without the one pedestrian-only signal within its scope
2. Remove all pedestrian-only signals from any proposed Aurora design (Recommended)
3. Continue to seek alternatives that will allow for the installation of pedestrian-only signals as recommended during the pre-design process

FINANCIAL IMPACT: Removal of the proposed pedestrian-only signal from the N. 145th to N. 165th Street project is estimated to reduce the cost of this project by \$300,000. Removing the other three proposed pedestrian-only signals from further design and analysis will reduce the design and construction cost of future projects. Continuing to seek alternatives that would allow these signals to be installed will add cost and potential delay to the project.

RECOMMENDATION

Staff is seeking a motion supporting the removal of the proposed pedestrian-only signals from the Aurora project scope.

Approved By:

City Manager



City Attorney



INTRODUCTION

The signal system along Aurora Avenue North has generated significant interest over the past few months and several Councilmembers have inquired about the existing system and the proposed design. Staff is seeking Council input on the proposed traffic and pedestrian-only signals. Staff is also seeking Council support for staff's recommendation to remove the pedestrian-only signals from the project scope.

BACKGROUND

There are eight intersections along Aurora Avenue between N. 145th Street and N. 205th Street that are currently controlled by traffic signals. These traffic signals are for the most part spaced between ¼ mile and ½ mile apart, with the greatest separation occurring between the intersections of N. 160th and N. 175th Streets at ¾ mile (Attachment A). The current configuration of signal spacing contributes to higher speeds and long platoons of vehicles causing limited gaps in traffic. When this occurs, vehicles and pedestrians have less opportunity to safely cross the roadway, resulting in a greater number of accidents.

CATF Recommendation

Two of the 32 specific recommendations made by the Citizens Advisory Task Force (CATF) supported the consideration of signals (both traffic and pedestrian-only) in the development and implementation of the Aurora project.

- Consider new signalized intersections (*traffic signal*) at 152nd, 165th, 182nd, and 195th.
- Consider new pedestrian-only signalized crossings (*pedestrian-only signal*) in the vicinity of 149th, 170th, 180th, and 202nd.

These signals and their locations were recommended based on preliminary analysis provided during the Pre-design Study, with the understanding that additional engineering analysis regarding signal installation would be completed during the final project design.

Why Signals?

Properly placed and operated traffic signals do much more than stop traffic. Traffic signals play an important role in keeping traffic moving at an orderly, continuous rate and providing spacing in traffic for pedestrians or side-street traffic to cross.

Though it may appear to be counterintuitive, the addition of traffic signals can actually improve the flow of traffic and reduce wait times for motorists at intersections. The addition of signals on Aurora will allow for more orderly movement of traffic and will increase the traffic handling capacity of the corridor by platooning traffic and moving the platoon through the corridor at a consistent speed. If traffic is able to move through the corridor in a platoon with minimal delay, it is less likely that drivers will look for alternate routes to avoid the signals. Fewer signals spaced at greater distances allow for more variable speeds. This, in turn, lengthens platoons, causing vehicles to fall out of the travel sequence and increasing the number of vehicles being delayed at signals.

When properly located and operated signals will have one or more of the following advantages:

- They can provide for the orderly movement of traffic.
- They can increase the traffic-handling capacity of the intersection.
- They can reduce the frequency of certain types of accidents.
- They can be coordinated to provide for a continuous or nearly continuous movement of traffic at a definite speed.
- They can interrupt heavy traffic at intervals to permit other traffic, vehicular or pedestrian, to cross.

When ineffectively placed and improperly operated the following can result:

- They can cause excessive delay.
- They can encourage disobedience of the signal.
- They can encourage the use of other less desirable routes as a bypass.
- They can increase the frequency of certain types of accidents (rear-end).

With all proposed signal installations (both traffic and pedestrian-only) a careful analysis of traffic operations coupled with engineering judgement must be made prior to installation to balance the advantages and disadvantages mentioned above. Although it has been recommended that the project consider installation of four new signals, only two of these signals are recommended as part of the current project design. The remaining proposed signals would be the subject of additional engineering review during the final design process of future projects.

Current Project – N. 145th Street to N. 165th Street

The current project that spans from N. 145th Street to N. 165th Street includes two new proposed traffic signals (one located at N. 152nd Street and one located at N. 165th Street) and one new proposed pedestrian-only signal (located at N. 149th Street). Analysis regarding the proposed traffic signals indicates that they will improve the safety and the operation of these intersections for both pedestrians and vehicles, as well as improve safety and operation of the corridor between the signals. The proposed signals will also help with speed control and will result in tighter platoons in traffic, providing longer gaps in traffic and allowing vehicles and pedestrians safer opportunities to cross Aurora.

WSDOT bases its approval of traffic signals on whether or not the intersection meets one or more of the 11 "warrants" or criteria to qualify for a signal. Based on staff review, warrant analysis and consultation with WSDOT staff, the two traffic signals located at N. 152nd and at N. 165th Streets meet the criteria for installation. These have been approved by WSDOT for installation.

The pedestrian-only signal proposed for the vicinity of N. 149th Street does not meet the criteria for installation and is not approved by WSDOT for installation. The criteria that must be met is a pedestrian volume of either:

- 100 or more pedestrians for each of any four hours; or
- 190 or more pedestrians during any one hour

Staff is recommending that this pedestrian-only signal no longer be considered as a part of the project.

Future Projects

Based on staff experience and understanding of the requirements that must be met for approval by WSDOT, it is most likely that the traffic signals, proposed to be located at N. 182nd Street and N. 195th Street will be approved by WSDOT and recommended for installation.

Based upon this same understanding, staff believes that it is highly unlikely that proposed pedestrian-only signals will meet the criteria for WSDOT approval. In order to reduce costs and time associated with designing pedestrian-only signals that are unlikely to be approved, staff recommends that these be removed from the scope of future projects.

RECOMMENDATION

Staff is seeking a motion supporting the removal of the proposed pedestrian-only signals from the Aurora project scope.

ATTACHMENTS

Attachment A: Current and proposed traffic signals on Aurora Avenue

ATTACHMENT A

Existing and Proposed Traffic Signals for Aurora Ave. N.

