

# 1. SUPPLEMENTAL SIGNAL WARRANT ANALYSIS

## 1.1. INTRODUCTION

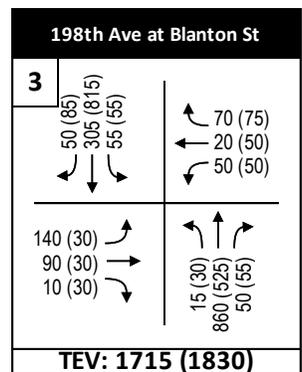
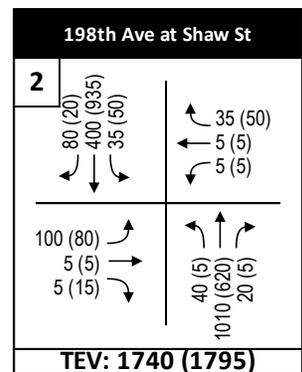
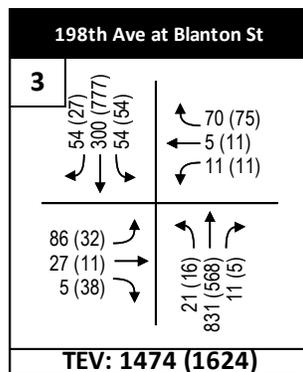
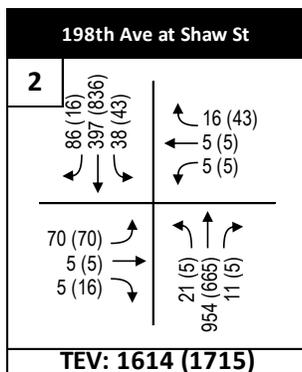
A signal warrant analysis for opening year (2022) and future year (2039) volumes was completed for the 198<sup>th</sup> Avenue Traffic Analysis Report. To supplement the previous signal warrant analysis, an additional analysis was completed to evaluate the volumes at Blanton Street assuming an increase in traffic volumes due to a proposed access restriction at the intersection with Shaw Street. The results of this additional analysis are summarized below.

## 1.2. ASSUMPTIONS

For the purpose of this analysis it is assumed that the signalized intersection with Shaw Street, north of Blanton Street, will be changed to a two-way stop-controlled intersection with right-in-right-out access only to the Intel campus on the west side of 198<sup>th</sup> Avenue. This change in access would reroute a portion of traffic entering and exiting at Shaw Street down to the realigned intersection with Blanton Street, thus increasing traffic volumes at the intersection. The projected 2022 and 2039 traffic volumes with and without restricted access at Shaw Street are shown below.

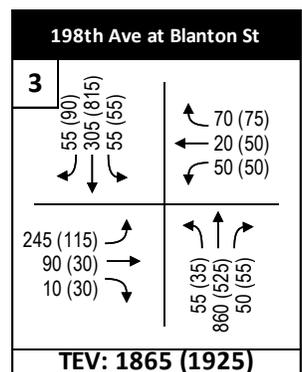
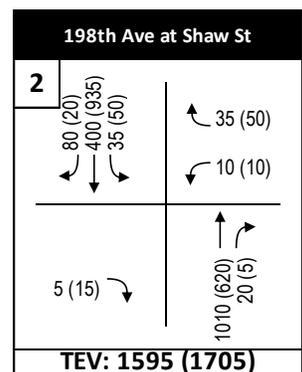
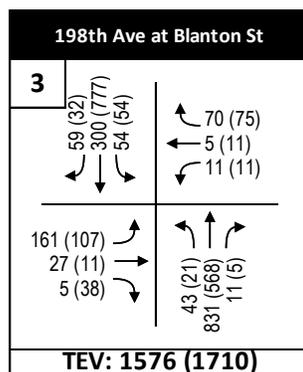
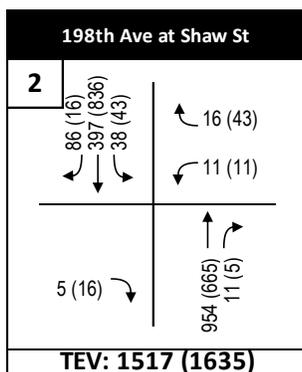
2022 Volumes (Existing Config. at Shaw St)

2039 Volumes (Existing Config. at Shaw St)



2022 Volumes (Restricted Config. at Shaw St)

2039 Volumes (Restricted Config. at Shaw St)



AM (PM) Turning Movement Volumes



### 1.3. SIGNAL WARRANTS

There are eight signal warrants in Section 4-C of the *2009 Manual of Uniform Traffic Control Devices* (MUTCD) that are used to evaluate the need for a traffic signal at a given intersection. Three of these warrants are based solely on traffic volumes:

- Warrant 1 – 8-hour Traffic Volumes
- Warrant 2 – 4-hour Traffic Volumes
- Warrant 3 – Peak Hour Traffic Volumes

Washington County will not typically install a traffic signal unless either the four- or eight-hour warrant is met along with the peak hour warrant. Also, right-turn volumes must be excluded from the calculations if a right-turn lane can be provided and if left-turn queues do not interfere with the intersection's operations.

#### 1.3.1. SIGNAL WARRANTS WITH EXISTING CONFIGURATION

The results of the signal warrant analysis assuming the existing configuration at Shaw Street (signalized, full access) are summarized below in Table 1. Signal warrants are met for both Blanton Street and Kinnaman Road in the future year (2039); however, neither of the intersections satisfy county requirements for installation of a traffic signal in 2022.

**Table 1. Summary of Signal Warrants (Existing Config. at Shaw St)**

| Year | Intersection       | Warrant 1:<br>8-hour<br>Volume | Warrant 2:<br>4-hour<br>Volume | Warrant 3:<br>Peak Hour<br>Volumes | County<br>Warrants<br>Met? |
|------|--------------------|--------------------------------|--------------------------------|------------------------------------|----------------------------|
| 2022 | <i>Blanton St</i>  |                                |                                | <i>Met</i>                         | NO                         |
|      | <i>Kinnaman Rd</i> |                                |                                | <i>Met</i>                         | NO                         |
| 2039 | <i>Blanton St</i>  |                                | <i>Met</i>                     | <i>Met</i>                         | YES                        |
|      | <i>Kinnaman Rd</i> |                                | <i>Met</i>                     | <i>Met</i>                         | YES                        |

#### 1.3.2. SIGNAL WARRANTS WITH RESTRICTED CONFIGURATION

The results of the signal warrant analysis assuming restricted access at Shaw Street are summarized in Table 2 below. Under this configuration, the additional volumes rerouted to the intersection at Blanton Street satisfy county requirements for installing a signal at Blanton Street in the opening year (2022). Volumes at Kinnaman Road are not expected to increase due to this proposed change at Shaw Street, therefore, signal warrants are still not met for 2022 at Kinnaman Road.

**Table 2. Summary of Signal Warrants (Restricted Config. at Shaw St)**

| Year | Intersection       | Warrant 1:<br>8-hour<br>Volume | Warrant 2:<br>4-hour<br>Volume | Warrant 3:<br>Peak Hour<br>Volumes | County<br>Warrants<br>Met? |
|------|--------------------|--------------------------------|--------------------------------|------------------------------------|----------------------------|
| 2022 | <i>Blanton St</i>  |                                | <i>Met</i>                     | <i>Met</i>                         | YES                        |
|      | <i>Kinnaman Rd</i> |                                |                                | <i>Met</i>                         | NO                         |
| 2039 | <i>Blanton St</i>  |                                | <i>Met</i>                     | <i>Met</i>                         | YES                        |
|      | <i>Kinnaman Rd</i> |                                | <i>Met</i>                     | <i>Met</i>                         | YES                        |