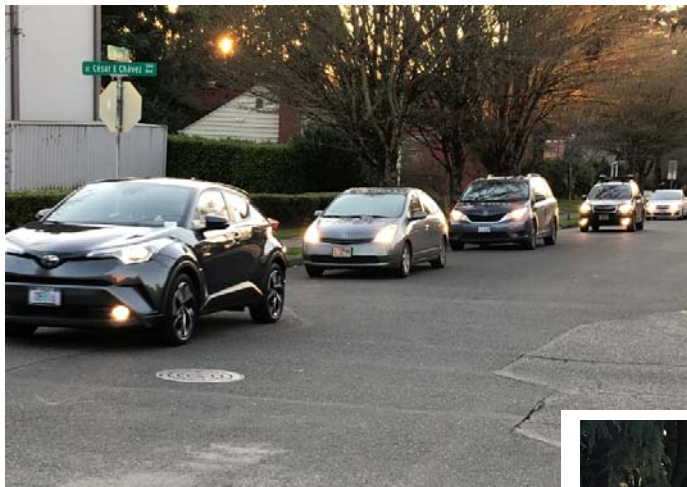


Eastmoreland Traffic Study 2020

Prepared by Russ Monson, ENA Traffic Committee

Traffic turning onto SE 27th Ave from Bybee Blvd to enter the Crystal Springs-Knapp short-cut after crossing the Bybee Overpass



Traffic queued up on SE Knapp St waiting to cross Cèsar-Chavez Blvd and continue eastward

Traffic queued up on SE 28th St at the three-way intersection with SE Woodstock Blvd



Eastmoreland Traffic Study 2020

Russ Monson

Eastmoreland Neighborhood Association (ENA) Board

Summary

This study was initiated in response to numerous complaints during the past few years concerning the high volume of traffic on east-west streets in Eastmoreland, especially during the evening rush-hour. The complaints have focused on traffic volume, excessive speed and failure to respect stop signs. Specific concerns were voiced about the safety of children, adult pedestrians and bike riders. During the summer and fall of 2019, Russ Monson, representing the ENA Transportation Committee, conducted a study to count cars and investigate patterns in traffic flow as a means to build insight concerning the 'cut-through' nature of the evening rush-hour traffic.

The study revealed that approximately 550 cars per hour use Eastmoreland streets as a cut-through path (from west-to-east) during the period between 5:00 and 6:00 PM on weeknights. Observations of car travel directions made at the entrance and exit of the cut-through paths indicated that the traffic is likely due to a combination of PBOT decisions associated with recent surrounding road renovations combined with the simultaneous growth of population in SE Portland. These factors have contributed to specific rush-hour congestion points on arterial streets in the vicinity of Eastmoreland, resulting in driver decisions to pursue cut-through paths. Observations were not made to quantify the frequencies of speed and stop sign violations, although anecdotal observations showed that a significant fraction of the cut-through commuters exceeded the posted 20 MPH speed limit and failed to respect posted stop signs. On several streets, the traffic took the form of near-continuous chains of cars.

The study revealed a significant rush-hour traffic problem in the Eastmoreland neighborhood. There is justification for a formal PBOT study of volume and speed, especially on the four main cut-through streets (Crystal Springs Blvd, Knapp St, Bybee Blvd and Tolman St) and the stretch of 27th St that feeds Crystal Springs Blvd and Knapp St, to determine the need and feasibility of a traffic calming response. The ENA Board requests to meet with PBOT representatives as soon as possible to discuss possible actions to be taken in regard to this study.

Introduction

On any given week day, approximately 1,000 cars travel east across the Bybee Bridge during the rush-hour commute between 5:00-6:00 PM. Approximately half of those cars leave arterial streets and pass through the Eastmoreland neighborhood, continuing to communities further eastward and southeastward. ***This is the so-called 'cut-through' traffic that Eastmoreland residents notice every day.*** Accompanying the high volume of traffic are frequent violations of stop signs, and speeding vehicles traveling well in excess of the posted 20 MPH speed limit.

During three months in the summer and fall of 2019, Russell Monson, representing the ENA Transportation Committee, spent 31 afternoons and evenings watching the traffic, counting cars and ascertaining patterns and causes. This report provides the major findings of that study. The two primary questions that are addressed in the report are: (1) What are the principal paths taken by the drivers who cause the cut-through traffic? (2) What factors could be motivating so many drivers to choose paths through the Eastmoreland neighborhood, rather than choosing surrounding arterial streets? This study focused on a one-hour period in the middle of the evening rush-hour, from 5-6 PM. Thus, all traffic

patterns are reported in units of 'cars per hour'. However, it should be remembered that the period often called rush-hour actually extends longer than a one-hour period, and informal observations revealed it to extend from approximately 4:30-6:30 PM.

Specific Findings

Approximately 550 cars/hr enter the Eastmoreland neighborhood from SE Bybee St after crossing the Bybee overpass near the Eastmoreland Golf Course. As is evident from the map provided in Figure A, approximately 300 of the 550 drivers that leave Bybee choose to turn right on SE 27th Ave, immediately after crossing the overpass. Most of these cars are destined for Crystal Springs Blvd and Knapp St. This sets up the so-called 'Crystal Springs-Knapp Shortcut' (shown in Figure B). Most drivers that choose the Crystal Springs Blvd branch of this shortcut are headed for SE Johnson Creek Blvd via SE 45th Ave. In early October, I observed that over 90% of the cars reaching SE 45th Ave on Crystal Springs Blvd (out of 166 car/hr total), turned right on 45th and proceeded toward the intersection of SE Harney Dr and Johnson's Creek Blvd. These observations indicate that the motivation for the Crystal Springs shortcut is most likely to avoid traffic congestion on SE Tacoma St, around SE 32nd Ave, and continuing on SE Johnson's Creek Blvd to the intersection with SE Harney. These congested paths appear to originate from the confluence of three sets of commuters – those exiting the Sellwood Bridge (eastbound), those originating in Sellwood (eastbound), and southbound drivers on SE McLoughlin Blvd who exit at Bybee Blvd in anticipation of the Tacoma St traffic jam. ***These commuters are, in essence, 'taking the back door' around Sellwood and the Tacoma St congestion to reach SE Johnson's Creek Blvd and continue their commute toward the town of Milwaukie and Clackamas County.***

Most commuters who choose the Knapp St branch of the short-cut are headed eastward to SE 52nd Ave. Car counts were made all along Knapp – including at 27th Ave, 36th Ave, Cèsar Chavez Blvd, 45th Ave and 52nd Ave. The counts do not diminish significantly along this path – most of the traffic is indeed of a cut-through nature. The observations revealed that when this traffic reaches SE 52nd Ave, most of the Knapp-commuters turn right, travel two blocks and then turn left on Flavel St – heading eastward toward Woodstock, Lents, Happy Valley and the 205 Freeway. A smaller fraction turns left on SE Flavel Dr, a neighborhood version of Flavel, which takes them to SE Harney Dr, and most likely on to SE Johnson's Creek Blvd, joining the Crystal Springs commuters. ***The motivation to take the Knapp shortcut, once again, appears to involve avoidance of traffic congestion on both Tacoma St and Woodstock – the two nearest arterial alternatives.***

Returning to the Bybee overpass traffic, of the 550 drivers per hour that exit the overpass and choose to cut through Eastmoreland, approximately 250 per hour turn eastward into the neighborhood on SE Bybee Blvd or SE Tolman St. The traffic on Bybee Blvd provided the highest hourly traffic counts, of all the Eastmoreland cut-through streets on most weekday evenings. The Bybee-Tolman traffic appears to be motivated by traffic congestion on Woodstock Blvd. The cut-through traffic on these two streets is combined to form the so-called 'Bybee-Tolman Shortcuts' (see Figure C). The congestion on SE Woodstock Blvd, which appears to cause a large fraction of the cut-through decisions, is focused on three intersections that occur in short succession: (1) the 3-way stop at the intersection of Woodstock Blvd and 28th Ave, (2) the 3-way stop at the intersection of Woodstock Blvd and 32nd St, and (3) the traffic light at the intersection of Woodstock Blvd and Cèsar Chavez Blvd. Traffic builds up significantly behind each of these intersections between 5-6 PM on 28th St and continuing onto Woodstock Blvd.

The motivation for the Tolman St branch of the shortcuts is clear. Approximately 85% of the cars entering Tolman at 28th Ave travel to Cèsar Chàvez. Of those, approximately 32% turn southbound on

Cèsar Chàvez, approximately 44% proceed eastward to 42nd Ave, where they turn north and meet up with Woodstock, and the remaining 15% turn north on Cèsar Chàvez and proceed to the intersection of Woodstock and Cèsar Chàvez. ***In all cases, the drivers appear to be using Tolman to avoid the congestion on 28th St and Woodstock Blvd between the Bybee Overpass and Cèsar Chàvez Blvd.***

In the case of the Bybee Blvd branch of the shortcut, most cars travel through Eastmoreland to Cèsar Chàvez Blvd. Approximately 46% of those cars turn south and 29% turn north on Cèsar Chàvez, and approximately 25% cross Cèsar Chàvez and continue eastward. ***Similar to the case for Tolman St, drivers who choose SE Bybee Blvd as a commuter route, appear to make that decision in order to avoid congestion on Woodstock Blvd between the Bybee Overpass and Cèsar Chavez Blvd.***

Projections into the Future

Portland continues to develop rapidly, especially in the Southeastern suburban communities. ***With urban and suburban densification as a core aim in the 2035 Comprehensive Plan, and due to components of the City of Portland's Residential Infill Project, we expect greater residential development in the communities bordering and surrounding Eastmoreland and a greater number of residents traveling on commuter routes each day.*** Proposals for densification, especially those on major transportation routes, are often complemented by assumptions that new residents will take advantage of mass transit options. There will no doubt be movement in that direction. However, to date, there is no evidence that the new residents, combined with existing residents, will shift their behaviors in large enough numbers to ameliorate the pressures of traffic congestion, both within the neighborhood and along SE Tacoma St and Woodstock Blvd, which are two-lane roads. ***The most reasonable expectation is that traffic congestion will continue to increase along the major arterial routes that surround Eastmoreland well into the next few decades.***

The Sellwood-Moreland-Brooklyn area developed 4x faster (in terms of total residential units) than projected (see Portland 2035 Comprehensive Plan Analysis) between 2010-2017. This fast pace of development continues. Currently, an apartment complex with 232 planned residential units is under development by NBP Capital LLC at 7119 SE Milwaukie St in Sellwood. The Sellwood Center apartment complex was recently completed at 1724 SE Tenino St with 110 residential apartments and homes. These developments, along with those occurring in Milwaukie and Clackamas County will ensure continued traffic pressures on the congested areas along SE Tacoma St. On SE Woodstock Blvd, two multi-unit apartment complexes have been completed in the past two years, and two more even larger complexes are in early construction and/or planning stages. The Mill Creek Woodstock complex at 4804 SE Woodstock Blvd (at the former site of the Joinery) is scheduled to begin demolition work during spring 2020. This project will add approximately 180 residential apartments and several new storefront spaces. At 5105 SE Woodstock Blvd 28 studio apartment units are under development with site work planned to begin in March 2020. At 4937 SE Woodstock Blvd (at the former Chinese Presbyterian Church site) property sale is scheduled to finalized in March 2020, with a plan to develop a complex at the same scale as the Mill Creek project, with approximately 150 residential apartment units. Together, we can expect between 600-700 new residents accessing Woodstock Blvd, as well as new commercial traffic, both of which are expected to significantly exacerbate congestion between the Bybee Overpass and downtown Woodstock.

Possible Steps to Address the Eastmoreland Cut-Through Problem

The principal strategies to address the Eastmoreland cut-through problem should aim to enhance driver choices to take arterial routes during their evening commute, and avoid the temptation to choose a neighborhood cut-through path. The factors that drive these choices are complex. While the causes of the Eastmoreland cut-through traffic clearly include a desire to avoid congestion on surrounding arterial streets, it is not clear why the drivers who choose the cut-through routes are more willing to tolerate the narrow passages of the Eastmoreland streets, especially east of 36th Ave, than face traffic congestion on the arterials. At several times during the tenure of this study observations were made of frequent 'dart and weave' maneuvers, as well as near collisions, as drivers negotiated traffic along Eastmoreland streets and at major crossings such as at Cèsar Chàvez, 45th Ave and 52nd Ave. No measures exist to completely eradicate cut-through behavior, short of designating one-way traffic flows on specific street sections or prohibiting entrance to the neighborhood at certain points. However, it is clear that one factor facilitating cut-through decisions is the ease with which drivers can leave SE 28th Ave and travel at relatively fast speeds along the smooth street surfaces of the Eastmoreland neighborhood. The lack of significant cross-traffic at most 4-way intersections also allows drivers the opportunity to negotiate stop signs on east-west routes without coming to full stop. The most promising path toward remedying the safety concerns along cut-through streets, as well as convincing at least some drivers to stick to the arterial paths, would be to 'harden' the neighborhood cut-through routes such that they favor slower speeds and interrupted flow.

In this section, possible steps are proposed that could lead to effective traffic calming and reductions in the volume of rush-hour traffic.

1. Evaluation of traffic flow patterns along surrounding arterials and neighborhood streets. It is recommended that specific options be explored, and potentially developed, to ease traffic flows along SE Woodstock Blvd and SE Tacoma St. Traffic flow along SE Woodstock Blvd is clearly impeded by required three-way stops for all vehicles at the intersection of 28th Ave and Woodstock (at the west end of the Reed College campus) and 32nd St and Woodstock (at the mid-point of the Reed College campus). Traffic is also channeled to narrow lanes at the intersection of Cèsar Chavez and Woodstock, causing relatively long traffic waits for right-hand and left-hand turns. These flow impediments contribute to the motivations of drivers to seek alternative routes through Eastmoreland, especially along the Bybee-Tolman Shortcut. Along SE Tacoma St, in Sellwood-Moreland, traffic flow is clearly impeded between McLoughlin Blvd and Johnson Creek Blvd, especially at the traffic signals located at the intersection of 32nd St and Tacoma St and at Johnson Creek Blvd and SE Harney Dr. These flow impediments contribute to the motivations of drivers who choose the Crystal Springs-Knapp Shortcuts.

2. Evaluation of traffic calming measures on streets within Eastmoreland. In addition to addressing flow impediments along the surrounding arterial streets, it is recommended that traffic calming measures be taken to control speed, and potentially reduce volume, along selected neighborhood streets. Traditional measures, such as speed bumps and additional stop signs and street-painted stop bars, are often used to address cut-through situations, and should be studied here, as well. Some studies have shown that the most effective means of reducing cut-through traffic and controlling speed is through traffic path diversions. The addition of traffic circles is one possible measure that should be considered. However, other measures such as the use of 'bioswales' or vegetated neck-downs at specific intersections, imposition of one-way flow restrictions on specified blocks, or diverting flow through the use of barriers or designated emergency vehicle lanes should be considered. It is worth noting that speed cushions have already been installed on SE Crystal Springs Blvd and traffic circles have been

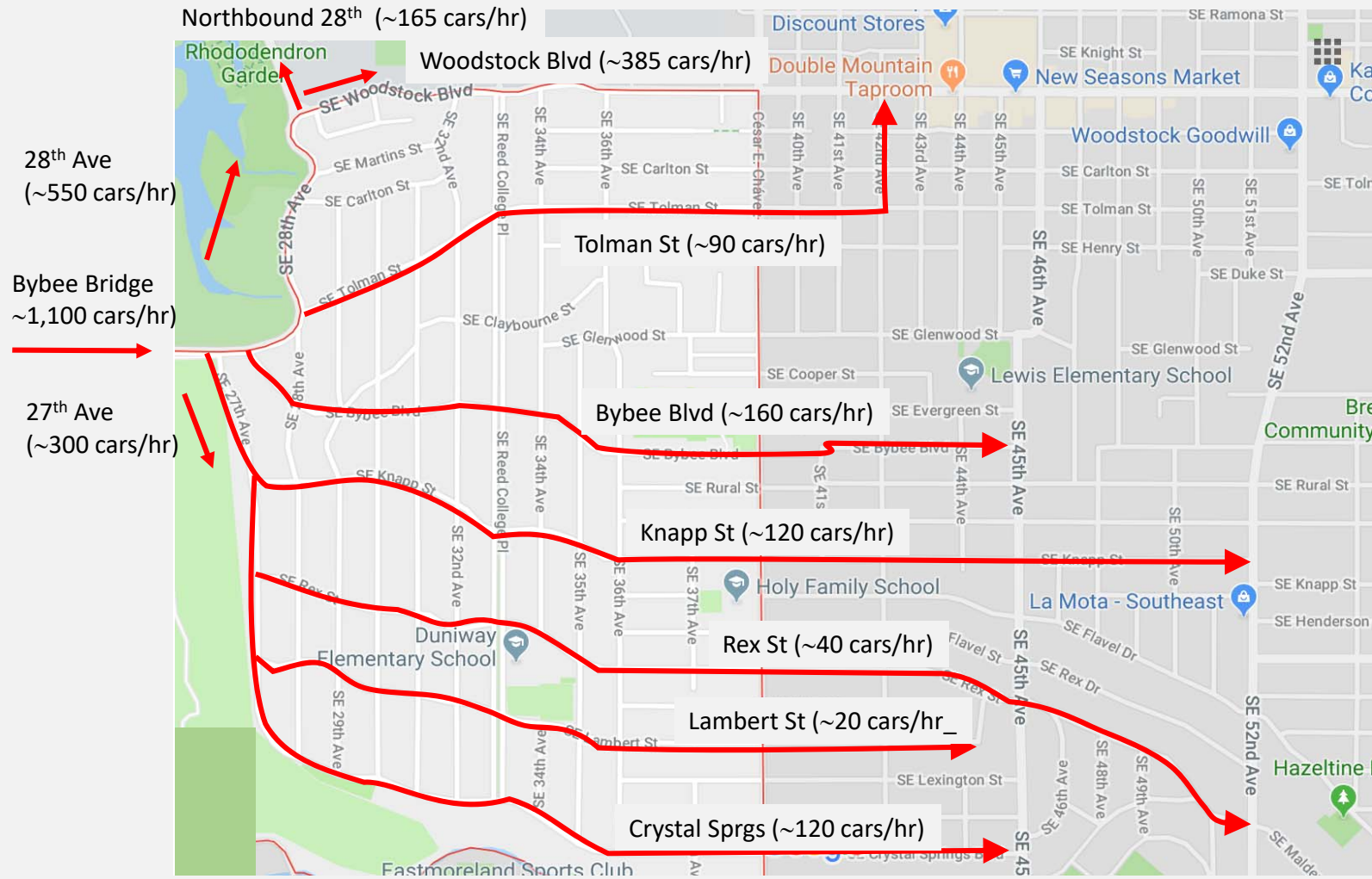
installed on SE Bybee Blvd. Residents on both streets have reported that these measures have been effective in reducing some of the speeding violations, though there is also a noted tendency for cars to speed up immediately after passing these impediments, causing secondary, unintended traffic concerns.

Request for Meetings with PBOT Representatives

It is recommended that a meeting be scheduled between representatives of PBOT and the Eastmoreland Neighborhood Association Board to formally discuss the City's response to the problem and explore options for remedies. This initial meeting should only be held for the purposes of information exchange. No final decisions should occur prior to a full public (neighborhood) discussion. Following the ENA Board meeting, an open neighborhood meeting should be convened, organized by the ENA and with PBOT representatives present, to discuss public perceptions of cut-through patterns and preferred means of addressing the problem.

A

Typical *eastbound* 'rush hour traffic' pattern (5-6 PM) in and around Eastmoreland.
(All values are approximations from observational data presented in Appendix 1)

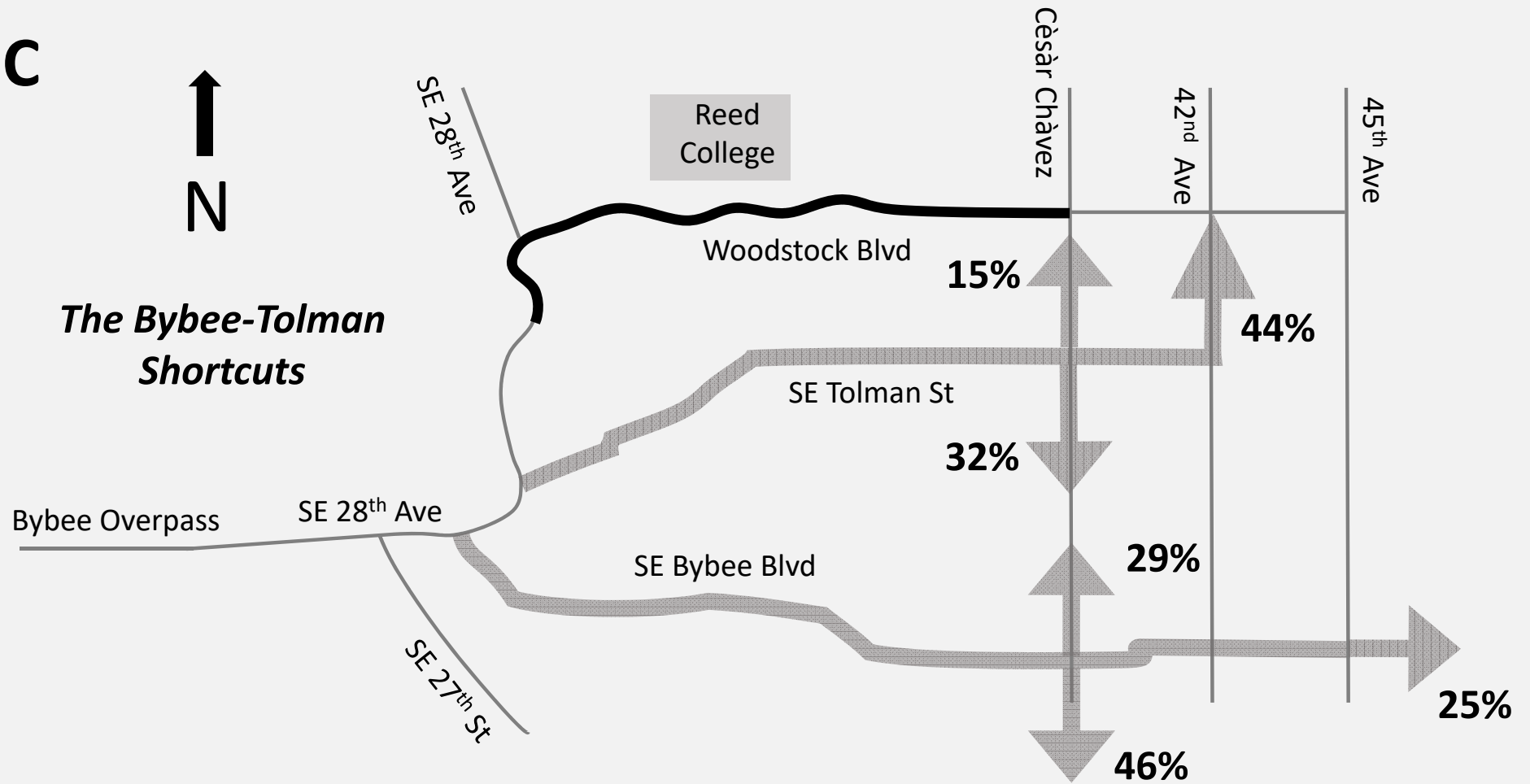


B



Drivers use specific cut-throughs for different purposes, but they appear to be avoiding the same regional congestion points

C



Similar motivation, but in response to a different congestion point

Appendix 1

SE Tolman St (1 hour census, 5-6 PM)

Eastbound at 28th St

August 27 (total 70 cars)

September 24 (total 92 cars)

Oct 9 (total = 102 cars; this is 16% of the total eastbound cars on 28th St)

Westbound at 28th St

Sept 24 (25 cars)

Aug 27 (13 cars)

Eastbound at Cesar-Chavez Blvd

Sept 11 (total = 73 cars)

Continuing eastbound = 30 cars (41%)

Turning southbound into neighborhood = 6 cars

Turning northbound back to Woodstock = 24 cars

Turning northbound back to Woodstock = 11 cars (15%)

Turning southbound onto Cesar-Chavez = 32 cars (44%)

Sept 30 (total = 72 cars)

Continuing eastbound = 32 cars (44%)

Turning southbound into neighborhood = 9 cars

Turning northbound back to Woodstock = 23 cars

Turning northbound back to Woodstock = 17 cars (24%)

Turning southbound onto Cesar-Chavez = 23 cars (32%)

Dec 5 (total = 60 cars)

Continuing eastbound = 23 cars (39%)

Turning southbound into neighborhood = 4 cars

Turning northbound back to Woodstock = 19 cars

Turning northbound back to Woodstock = 23 cars (38%)

Turning southbound onto Cesar-Chavez = 14 cars (23%)

Westbound at Cesar-Chavez Blvd

Sept 11 (total = 16 cars)

Continuing westbound from neighborhood = 4 cars

Turning from northbound Cesar-Chavez = 5 cars

Turning from southbound Cesar-Chavez = 7 cars

Sept 30 (total = 19 cars)

Continuing westbound from neighborhood = 0 cars

Turning from northbound Cesar-Chavez = 3 cars

Turning from southbound Cesar-Chavez = 16 cars

Dec 5 (total = 18 cars)

Continuing westbound from neighborhood = 5 cars

Turning from northbound Cesar-Chavez = 6 cars

Turning from southbound Cesar-Chavez = 7 cars

Summary

Of the ~90 cars per hour that enter Tolman St (eastbound), ~80% appear to cut-through the neighborhood to Cesar-Chavez. (This is likely a slight overestimate, as some cars will leave Tolman or enter Tolman due to local resident traffic. My estimate is that this is a 10-12% error based on observations of 10-12 cars per hour due to local traffic on N-S Eastmoreland streets during rush hour).

On August 27, I conducted a one-time count of eastbound cars that turn northward, back toward Woodstock; thus, taking a short-cut around the two 3-way stops between the Bybee Bridge and Cesar-Chavez. It showed that 16% of the cars take this option.

Most of the ~90 cars per hour that enter Tolman St (eastbound) turn back to Woodstock at either Reed College Place or Cesar-Chavez. My estimate is that **80-90% of the drivers that steer onto Tolman St from 28th St are looking for alternatives to continuing eastbound on Woodstock or reaching Cesar-Chavez where they turn southbound. They choose to take alternative options from 28th St that bring them to eastbound Woodstock or southbound Cesar-Chavez, while avoiding the travel challenges on Woodstock or at the intersection of Woodstock and Cesar-Chavez.**

SE Bybee St (1 hour census, 5-6 PM)

Eastbound at 28th St

August 22 (total 158 cars)

August 30 (total 163 cars; this is 17% of the total eastbound cars on 28th St)

September 23 (total 225 cars)

Westbound at 28th St

Sept 23 (46 cars)

Aug 22 (60 cars)

Eastbound at Cesar-Chavez Blvd

Sept 3 (total = 139 cars)

Continuing eastbound = 36 cars (26%)

Turning northbound back to Woodstock = 31 cars (22%)

Turning southbound onto Cesar-Chavez = 72 cars (52%)

Oct 1 (total = 107 cars)

Continuing eastbound = 27 cars (25%)

Turning northbound back to Woodstock = 35 cars (33%)

Turning southbound onto Cesar-Chavez = 45 cars (42%)

Westbound at Cesar-Chavez Blvd

Sept 3 (total = 45 cars)

Continuing on Bybee after crossing Cesar-Chavez = 6 cars

Turning onto Bybee from northbound Cesar-Chavez = 14 cars

Turning onto Bybee from southbound Cesar-Chavez = 25 cars

Oct 1 (total = 41 cars)

Continuing on Bybee after crossing Cesar-Chavez = 5 cars

Turning onto Bybee from northbound Cesar-Chavez = 17 cars

Turning onto Bybee from southbound Cesar-Chavez = 19 cars

Summary

Of the ~180 cars per hour that enter Bybee St (eastbound) from 28th St, ~70% appear to cut-through the neighborhood to Cesar-Chavez. (This is likely a slight overestimate, as some cars will leave Bybee or enter Bybee due to local resident traffic. My estimate is that this is a 10-12% error based on observations of local traffic on N-S Eastmoreland streets during rush hour).

Most eastbound cars that reach Cesar-Chavez turn southbound or northbound (>70%), indicating a decision to avoid taking 28th St and Woodstock Blvd, the intended arterial paths, to reach Cesar-Chavez. A significant fraction also continues further east, after crossing Bybee. Bybee may be slightly favored as a cut-through street because traffic is regulated at the intersection of Bybee and Cesar-Chavez by a four-way stop.

SE Knapp St (1 hour census, 5-6 PM)

Eastbound at 27th Ave

September 25 (149 cars)
October 18 (137 cars)

Westbound at 27th Ave

September 25 (11 cars)
October 18 (15 cars)

Eastbound at Cesar-Chavez Blvd

Aug 28 (total = 156 cars)
Sept 4 (total = 170 cars)
Continuing eastbound on Knapp = 130 cars (76%)
Turning northbound back to Woodstock = 19 cars (11%)
Turning southbound onto Cesar-Chavez = 21 cars (13%)

Sept 28 (total = 147 cars)
Continuing eastbound on Knapp = 104 cars (71%)
Turning northbound back to Woodstock = 18 cars (12%)
Turning southbound onto Cesar-Chavez = 25 cars (17%)

Westbound at Cesar-Chavez Blvd

Aug 28 (total = 44 cars)
Sept 4 (total = 23 cars)
Continuing on Knapp after crossing Cesar-Chavez = 5 cars
Turning onto Knapp from northbound Cesar-Chavez = 10 cars
Turning onto Knapp from southbound Cesar-Chavez = 8 cars

Sept 28 (total = 32 cars)
Continuing on Knapp after crossing Cesar-Chavez = 5 cars
Turning onto Knapp from northbound Cesar-Chavez = 10 cars
Turning onto Knapp from southbound Cesar-Chavez = 17 cars

Eastbound on Knapp at 45th Ave.

September 9 (total = 157 cars)
Continuing eastbound on Knapp = 112 cars (71%)
Turning northbound back to Woodstock = 4 cars (3%)
Turning southbound on 45th St = 40 cars (26%)

Eastbound on Knapp at 52nd Ave.

September 9 (total = 137 cars)

Turning northbound on 52nd toward Woodstock Blvd = 13 cars (9%)
Turning southbound on 52nd toward Flavel St = 124 cars (91%)

October 7 (total = 107 cars)

Continuing straight across 52nd on Knapp = 8 cars (7%)
Turning northbound on 52nd toward Woodstock Blvd = 21 cars (20%)
Turning southbound on 52nd toward Flavel St = 78 cars (73%)

Summary

Of the cars that cut all the way through to 52nd Ave, and turn right, >90% travel for two blocks and turn left on Flavel St.

Thus, most eastbound cars on Knapp are destined for 52nd Ave, and then onto Flavel St. to continue eastward. This decision is made to avoid the traffic congestion on Woodstock Blvd. and SE Tacoma St.

SE Crystal Springs Blvd (1 hour census, 5-6 PM)

Eastbound at 27th

September 12 (122 cars)
September 25 (171 cars)
October 2 (126 cars)
October 18 (130 cars)

Westbound at 27th

September 12 (40 cars)
October 2 (25 cars)
October 18 (44 cars)

Eastbound on Crystal Springs at Cesar-Chavez

Sept 5 (total = 103 cars)
Continuing eastbound on Crystal Springs = 85 cars (83%)
Turning northbound onto Cesar Chavez = 18 cars (17%)
Turning southbound onto Cesar-Chavez = 0 cars (0%)

Eastbound on Crystal Springs at 45th Ave

Oct 3 (total = 166 cars)
Turning southbound onto 45th toward SE Harney St = 153 cars (92%)
Turning northbound onto 45th toward Woodstock = 13 cars (8%)

Southbound on 45th Ave at SE Harney St

Oct 4 (total = 350 cars)
Turning left onto SE Johnson Creek Blvd = 181 cars (52%)
Going straight on SE Harney toward Tacoma St southbound = 125 cars (36%)
Turning left from 45th St onto SE Harney St = 44 cars (12%)

Summary

Of the cars that cut all the way through on Crystal Springs Blvd to Cesar-Chavez, 83% continue on toward 45th Ave. At 45th Ave, the majority of cars turn southward toward SE Harney St, at which point they mostly choose to turn left on SE Johnson Creek Blvd.

Thus, most eastbound cars on Crystal Springs are destined for 45th Ave, and then onto SE Johnson Creek Blvd to continue southeastward. This decision is made to avoid the traffic congestion on SE Tacoma St.