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March 29, 2022

To: Hillsdale Neighborhood Association
Hillsdale Business & Professional Association

From: Nick Falbo, Sr. Transportation Planner

**Subject: SW Capitol Highway Rose Lane Project
- Response to Community Questions**

Thank you for your interest in the SW Capitol Highway Rose Lane Project. The following memo responds to the letter titled *Questions for the Rose City Bus Project*, received from the Hilldale Neighborhood Association and Hillsdale Business & Professional Association. We are happy to supply the data you request to the degree it is available, and even happier to discuss specific key concerns or worries you may have so that we can address them directly with tangible solutions.

The Portland Bureau of Transportation is a community partner in shaping a livable city. We plan, build, manage, and maintain an effective and safe transportation system that provides people and businesses access and mobility.

Planning for the SW Capitol Highway Rose Lane Project started before COVID-19 hit our planet, and it's advancing a year later than originally anticipated; in 2022 instead of 2021. In the context of traffic, COVID-19 has resulted in less travel by all modes, and traffic volumes are measured at 50-70% of pre-COVID levels. We are actively collecting more data in 2022 to inform our ongoing understanding of the dynamic traffic conditions we find ourselves working with.

While this lower-level demand may reduce the perceived need for the project – both in terms of transit ridership and traffic delay – there is no doubt that travel activity will come back over time as the economy recovers. Our choices today inform how it returns. Projects like this will help set a new normal for the future, to minimize impacts as travel activity increases again in our communities.

In addition to the technical data and response provided in this memo, we are excited to share more with you at upcoming meetings of the Hillsdale Neighborhood Association meeting and Hillsdale Business Association, and we hope to build an ongoing relationship with your organizations and community as this project advances.



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Overview

We appreciate Hillsdale's focus on your community and commitment to building a safe, sustainable, equitable future. Toward the overall points of concern raised in your letter, we'd offer the following general response.

Livability for Hillsdale residents: PBOT cares about local streets and agrees that these places should prioritize residential access as well as comfort and safety for people to walk, bike and roll. Based on the outcomes of our traffic route modeling and given the limited local service connectivity in the area, traffic diversion is not expected to increase traffic on local service streets. Furthermore, an attractive transit option is one of the best deterrents against increasing traffic in neighborhoods. PBOT is committed to monitoring impacts to local service streets as part of the project and mitigating them as needed.

Greenhouse gas emissions impact: In the long term, there is evidence that reconfigurations such as this do not result in a net increase in greenhouse gas (GHG) emissions¹. Any increases in delay are met with adjustments in travel patterns and behavior as people self-select their best transportation mode and route, resulting in some instances in a net decrease in GHG emissions. Prioritizing the flow of transit vehicles to improve the speed and reliability for transit riders is one of the City's main strategies for long-term emissions reductions as it encourages new riders at the expense of new drivers

Safety of people walking and biking: PBOT continues to invest in walking and biking in Southwest Portland. Recent projects include wider bike lanes on SW Terwilliger Blvd, left turn traffic calming at SW Sunset Blvd, and improved walk/bikeways on Beaverton-Hillsdale Hwy. The proposed Rose Lane makes no negative changes to walking and biking facilities and conditions on SW Capitol Hwy and are expected to improve comfort for people bicycling next to the Rose Lane. PBOT does not anticipate any major impact to conditions on other walking/biking routes, but we want to hear more from you. PBOT is committed to monitoring and mitigating potential impacts.

Economic impact on businesses: Hilldale Town Center is an important hub of commercial and community activity, and City policy in the Comprehensive Plan only aspires to increase its role and importance in our city. Regardless of the future uncertainty around traffic, we see transit playing an even bigger role in the future of how your community gets around and how Hillsdale grows into an even more walkable and prosperous commercial district.

Impacts to vulnerable seniors: We welcome you to tell us more about how seniors might be impacted or benefit from this project. One-third of Portlanders don't drive: they can't afford to, aren't physically able to, aren't legally allowed to, or don't want to. Seniors are an important part of the non-driving population of Portlanders. This project aims to give more freedom to more people through transit enhancement.

¹ National research on this has been conducted in Portland, see *Bigazzi, A; Figliozzi, M. [Do Mobility-Based Performance Measures Reflect Emissions Trends?](#) Portland State University, 2012.*

Overall, projects like this that prioritize transit and decrease auto-capacity are shown to reduce auto-dependency, improve safety for all, reduce GHG and pollution and offer more and better options for people to get where they want to go.

Request for Traffic Data

The Hilldale community organizations' list of issues asks us for specific data, including traffic volume and speed counts on SW Capitol Hwy and other streets, split between peak hour and daily traffic, split by direction, both pre-pandemic and under current conditions.

We do not have specific data for every intersection and street requested in your list. Additional data will be collected as part of implementation monitoring if deemed appropriate by our traffic engineers. In this letter, we've simplified our response to organize the data we do have. If a specific request is unanswered, the data doesn't exist or is not readily available.

Most of the data we have is for pre-pandemic traffic conditions. These conditions form the basis of our traffic model, our ridership counts, and benefit calculations.

PBOT has not performed comprehensive data collection related to current traffic volumes. The conditions on the ground have changed over the course of the pandemic and will continue to change in response to the economic and public health context we find ourselves in. PBOT conducted counts in 2021 to inform our understanding of how recent changes would influence our past analysis. This information is shared and provided below.

We welcome identification of specific issues or concerns you may have about impacts related to this project.

Pre-COVID Travel Conditions

The Hillsdale community organizations' questions ask about pre-COVID traffic and transit conditions on SW Capitol Hwy, including peak and daily traffic, speed conditions, by direction. Pre-COVID data was collected in 2019 or prior, and served as the basis of our traffic model, our ridership counts, and benefit calculations.

Pre-COVID Daily Traffic Volume on SW Capitol Hwy

- Capitol Highway had a daily traffic count of 20-24,000 vehicles per day in the project area. In general, daily volumes are split evenly by direction.
- To provide an area context for traffic flow, we've mapped pre-COVID transit ridership and traffic volumes for Capitol Hwy and the area's network of major streets. Please see **Figure 1. Network Map of Pre-COVID Motor Vehicle Volume**

Pre-COVID Peak Hour Traffic Volume on SW Capitol Hwy

- In the peak hour, there was a clear directional flow on SW Capitol Hwy, with a little over 1,200 vehicles per hour eastbound in the morning, and a little under 1,200 vehicles per hour in the westbound direction in the evening.

- Outside of the peak hours, the traffic was generally half of the peak, fluctuating between 600 and 800 vehicles per hour. Please see **Figure 2. 2014 Pre-COVID Hourly Traffic Volume** to see how traffic was distributed in each direction across the course of a day.

Pre-COVID Traffic Speed on SW Capitol Hwy

We do not do speed monitoring to the same level of detail as traffic volume and do not have answers to your speed-related questions on SW Capitol Hwy. Transit travel time delay was measured using real-time transit data, described in more detail later in this memo.

Pre-COVID Conditions on Collector Streets

The Hillsdale community organizations' questions asked about pre-covid traffic conditions on connecting collector streets, such as SW Bertha Blvd and SW Terwilliger Blvd.

- SW Bertha Blvd carried 10-14,000 vehicles per day, between SW Capitol Hwy and SW Barbur Blvd.
- SW Terwilliger Blvd carried 6- 7,000 vehicles per day near SW Capitol Hwy.
- In the PM peak hour in 2019, around 220 vehicles turned right from Terwilliger on to westbound Capitol Hwy.
- Please see **Figure 3. 2019 Turning Movement Count for SW Terwilliger and SW Capitol Hwy.**

Pre-COVID Conditions on Local Streets

The Hillsdale community organizations' questions asked about traffic conditions on local streets, such as SW Westwood Dr, SW Cheltenham, SW Burlingame Ave.

- We have collected pre-COVID traffic counts for SW Cheltenham St (2017) and SW Burlingame Ave (2014). We do not have pre-covid data for SW Westwood Dr.
- The 2017 24 hr. traffic count for SW Cheltenham shows a total of 938 vehicles per day. See **Figure 4. 2017 Traffic Count SW Cheltenham St S of Pendleton St** for detail.
- The 2014 24 hr. traffic count for SW Burlingame shows a total of 663 vehicles per day. See **Figure 5. 2014 Traffic Count SW Burlingame St E of SW Capitol Hwy** for detail.
- Intersection turning movement counts at Burlingame Ave & Capitol Hwy from 2019 show 8 northbound left turns onto SW Capitol HW in the AM peak and 7 northbound left turns in the PM peak. See **Figure 6. 2019 PM Peak Turning Movement Count at SW Burlingame Ave & SW Capitol Hwy** for detailed turning movement counts.
- Local street traffic conditions are important to PBOT, particularly those streets that are a part of our Neighborhood Greenway walking and biking network.
- While we don't anticipate significant impacts to local streets, particular local streets of concern will receive traffic speed and volume counts as a part of the monitoring and mitigation process. More information on projected impacts and the project monitoring and mitigation approach are provided later in this memo.

Pre-COVID Transit Conditions

The Hillsdale community organizations' questions asked about pre-COVID transit ridership volumes, delay, and benefit calculations. Details related to transit delay calculations and projected travel time benefits are provided later in this memo.

PBOT uses TriMet ridership data from their regular passenger census and ridership reports, generally from the fall of each year. The data collection is based on Automated Passenger Counters (APC) equipped on all TriMet buses. These reports are also available to the public via the TriMet Ridership and Performance Statistics website: <https://trimet.org/about/performance.htm>

Pre-COVID Transit Ridership

- Average weekday daily ridership counts were compiled across the 9 transit lines that used this corridor (Bus lines 39, 44, 45, 54, 55, 56, 61, 64 and 92). More than 28 buses traveled through this corridor per hour in peak times.
- PBOT's [Rose Lane ridership analysis](#) shows that SW Capitol Hwy carried 8,000-11,000 riders per day across all buses traveling in the project area. This is the total average daily passenger loads traveling in the segment of SW Capitol Hwy through Hillsdale in 2019. This includes the average number of people on all the buses traveling through Hillsdale for all the bus lines serving SW Capitol Hwy.
- To provide an area context, we've mapped pre-COVID transit ridership for Capitol Hwy and the area's network of major streets. Please see ***Figure 7. 2019 Network map of Pre-COVID Daily Transit Ridership Volume.***
- The total route-level average daily ridership was 11,730 in 2019 for all the bus lines combined serving SW Capitol Hwy through Hillsdale. Please see ***Figure 11. 2018-2021 Daily Transit Ridership Boardings by Line on SW Capitol Hwy*** for line-by-line passenger counts across the past four years.
- Our consultant provided us an analysis of 2018 transit ridership by time of day. Please see ***Figure 8. 2018 Bus Trips and Ridership Passenger Loads by Time of Day, Direction and Bus Line along SW Capitol Hwy through Hillsdale.***

Current Travel Conditions (2021/2022)

The Hillsdale community organizations' questions asked about PBOT's understanding of and data related to current traffic conditions, recognizing that travel activity has changed as a response to the COVID-19 pandemic and that traffic volumes may be different than previously assumed.

As you will see in the data, we do have from 2021, travel activity is significantly diminished from pre-COVID levels for driving and for transit. We do expect travel activity to increase closer to pre pandemic levels eventually, but the specifics about the return of activity are unclear. PBOT is conducting traffic counts in 2022 to understand more about the changing conditions.

Current Traffic Conditions on SW Capitol Hwy (2021)

PBOT performed counts in 2021 to understand the scale of the traffic change on SW Capitol Hwy itself because of covid.

- Traffic volume counts were down by approximately 50%, to 10,500 vehicles per day.
- The eastbound AM rush hour peak has reduced to 400 vehicles per hour. More eastbound vehicles now travel in the PM peak hours than in the AM peak hours.
- The westbound PM rush hour peak is significantly diminished, down to 500 vehicles per hour.
- Please see **Figure 9. 2021 SW Capitol Hwy Hourly Traffic Volume**
- Current Traffic Conditions at the Intersection of SW Terwilliger & Capitol Hwy
 - In the peak hour in 2021, around 150 vehicles turned right from Terwilliger onto westbound Capitol Hwy. This is 70% of the pre covid count.
 - Please see **Figure 10. 2021 Turning Movement Count for SW Terwilliger and SW Capitol Hwy** for detailed turning movement counts from 2021.

Current Traffic Conditions on nearby Collector Streets

- We do not have current traffic counts for all nearby collector streets, although data from selected locations indicate around a 30% decrease in volume from pre-COVID conditions².
- Collector streets of concern will receive traffic speed and volume counts as a part of the monitoring and mitigation process. In general, PBOT policy supports adjustments to travel routes onto other collector and arterial streets.

Current Traffic Conditions on nearby Local Streets

- PBOT traffic counts on SW Burlingame Ave show a traffic reduction of 27% in both directions, compared to pre-covid volumes. The 85th percentile travel speed in the eastbound direction remained constant, and westbound decreased from 25 mph to 21 mph.
- Local streets of concern will receive traffic speed and volume counts as a part of the monitoring and mitigation process.

Current Transit Conditions on SW Capitol Hwy

- Ridership volume on the 9 bus lines that serve SW Capitol Hwy is down significantly from pre-COVID levels. In 2020, total ridership across all lines was 2,785 riders per day, in 2021, this increased to 3,950 riders per day. 2021 ridership is 40-50% of pre-covid levels.
- This is in line with TriMet reported COVID-19 Ridership Data³ which indicates a system wide ridership decrease of 50% compared to pre COVID ridership levels.
- Please see **Figure 11. 2018-2021 Daily Transit Ridership Boardings by Line on SW Capitol Hwy** for line-by-line passenger counts across the past four years.
- We anticipate transit ridership to increase and recover in the coming years, particularly as more people return to the workplace, either in hybrid arrangements or full time, and we approach a new normal. This new normal may very well bring new travel patterns, including where and

² Traffic volume on SW Vermont St near Capitol Hwy was measured as 5,688 vehicles per day, a decrease of 32% compared to pre-covid volumes of 8,377 vehicles per day.

³ <https://trimet.org/about/performance.htm#ridership>

what times of the day and the week people take transit. We will work closely with TriMet to understand emerging patterns and how to best support and serve transit riders.

- Rose Lane projects and other improves to make transit better are important strategies for benefiting people who have relied on transit throughout the pandemic and continue to do so, particularly frontline workers and people for whom transit is their primary or only mode of travel. These improvements will also help welcome back riders and attract new ones.

Current Transit Delay and Benefit Calculations

- We have not measured transit delay under current conditions and have no estimate for transit benefits under current conditions.
- With low traffic volumes measured in 2021, we assume that transit delay under current conditions is very low. Accordingly, we would expect to see minimal travel time benefits from the rose lane under current traffic conditions. However, we remain in dynamic times. We anticipate increases to travel activity and we are preparing transit to be more resilient as changes occur.
- The Rose Lane Project is also a down payment on the future envisioned in the City's Comprehensive Plan. It is part of our commitment to keep our most important transit lines running smoothly as traffic returns and demand grows. The Rose Lane Project will help prevent a return to the transit delay experienced in 2018 and 2019.

Transit Delay and Travel Time Savings

The Hillsdale community organizations' questions asked about measurements and calculations related to transit travel delay and transit travel time savings. These measurements and calculations were developed by our consultant team analyzing TriMet data and are provided below. They are displayed and explained in more detail in ***Figure 12. 2019 Transit Delay Measurements and Travel Time Benefit***.

The measurements, figures and maps developed by our consultant team are based on analysis of TriMet Bus CAD/AVL data. CAD/AVL (Computer-Aided Dispatch / Automatic Vehicle Location) collects real-time location data from buses. Like many transit agencies throughout the United States, TriMet has implemented AVL equipment to automatically determine and transmit the geographic location of a transit vehicle. AVL is beneficial to the agency in fleet management and asset management scenarios and allows the agency to collect detailed transit performance and passenger census information.

TriMet's AVL data formed the basis for the transit performance research conducted as part of the adopted Enhanced Transit Corridors (ETC) Plan and Rose Lane Project.

The Transit Delay measure reported below was calculated using TriMet AVL data to calculate the time it takes buses to travel a segment and speed. These calculations are used to identify segments along bus routes where the transit travel times varied greatly between more free flow traffic conditions and more congested/delayed times of day. This measure is calculated based on many trips over multiple days, weeks, and months. It is not something that can be observed from one trip.

"Transit Delay" is the additional travel time passengers experience during slower/congested conditions relative to faster/free-flow conditions based on TriMet Bus CAD/AVL data.

“Passenger Delay” is a separate metric that weights the delay by the passenger load or ridership of a route. It is the cumulative delay experienced by all passengers.

Our consultant measured “Delay” to be the difference between 80th percentile (congested) and 20th percentile (free flow) transit travel times for small segments throughout the bus network. This measure is conservative. It does not capture the total delay experienced by buses and bus riders during the most congested conditions. Nor do these measures fully capture the increased reliability from providing transit priority improvements.

PBOT also has a series of citywide maps on the Rose Lane Project website that display the 2018 Bus Delay by Segment, Average Daily Passenger Loads, Passenger Delay, and Peak Bus Hour Frequency. They were also prepared by our consultant analyzing TriMet data. These maps were previously shared at public meetings and included in the 2019-adopted Rose Lane Project Report. View maps online here: <https://www.portland.gov/sites/default/files/2020-06/maps-of-bus-peak-delay-frequency-passenger-delay.pdf>

Please see **Figure 12. 2019 Transit Delay Measurements and Travel Time Benefit** for measured free flow travel time, congested travel time, and projected travel time savings. These data are provided for the AM and PM times and by Eastbound and Westbound directions.

Transit Delay Measurements

- Our consultant measured 5 minutes of delay for buses and transit riders travelling in the peak hours. PBOT has stated that “During the most congested times, traffic could add up to 5 minutes to your bus trip through this section”. The data shows that:
 - for the eastbound trip in the AM peak, free flowing travel times for transit was 65 seconds, and congested travel time was 110 seconds, an overall delay of 44 seconds.
 - For the matching westbound direction PM peak, free flowing travel time for transit was 428 seconds, and congested travel time was measured as 676 seconds, an overall transit delay of 248 seconds.
 - Together, this represents an overall trip delay of 292 seconds about 4.9 minutes. For buses in both directions travelling in the peak hour, total measured delay is 562 seconds, around 9.4 minutes.
- PBOT does not currently have estimates of how many individual passengers would have benefitted from the changes during peak hour versus off-peak – although like driving, the peak hour traditionally carries a significant portion of daily transit ridership and is when congestion most delays transit.

Why is Transit Delay important?

From a transit rider perspective, the most delayed transit trips are the worst and most problematic. This is usually when the bus is very late to pick up passengers, continues to be slow and results in people missing transfers to other transit lines and arriving late to their destinations. This makes transit unreliable, less useful, and less attractive.

High transit delay in one segment of the transit network has a ripple effect that negatively impacts service and riders further down the transit line. High transit delay during the peak hour may lead to people starting their trip even earlier to account for the delays if they cannot be late; thus, making their whole trip even longer than it needed to be. Or some people who have the luxury of such choices, may

shift their trip to another time just for a faster more reliable ride. Or avoid transit all together and instead travel by another mode.

Faster, more reliable transit means people can save more time and have more choices for when and how they get around. The benefit also ripples down the line to provide more reliable service to riders in other segments. This makes transit more useful and attracts more riders. To learn more, see **Figure 13. Impact of Transit Delay and Unreliability and Benefit of Transit Priority Improvements.**

Transit Travel Time Savings Estimates

The travel time savings estimates were calculated by our consultant with proprietary tools that estimate transit delay reduction for specific transit enhancement features based on times savings measured from similar improvements and contexts in cities around the country. For example, enhancements at transit stops will yield different time savings than enhancements at intersections, or enhancements along corridors. The time-savings from an exclusive Transit Only Lane, such as provided across the Burnside Bridge provide greater, more consistent transit time savings than a Bus and Transit (BAT) lane, as is proposed on SW Capitol Hwy in Hillsdale. While BAT lanes prioritize transit, they also allow other motor vehicles use of the lane to make turns at intersections, driveways, and parking to access local destinations. This activity means transit may still experience some slower speeds and delay when behind turning vehicle. BAT lanes balance the multiple needs and priorities in a corridor.

You will notice that projections do not presume to eliminate all delay in a corridor. For example, the eastbound PM peak was projected to reduce travel times by 114 seconds, a reduction in delay of 46% of total travel delay.

- PBOT has stated that “During the PM peak, this project could save riders through this segment between 1 and 2 minutes” The data shows that:
 - for the eastbound trip in the AM peak, time savings is projected at 34 seconds. For the matching westbound direction PM peak, time savings is estimated at 114 seconds.
 - Together, this represents an overall projected time savings of 148 seconds, around 2.5 minutes.

Due to changes in traffic patterns the above data and calculations related to delay and benefits are no longer accurate, although not completely irrelevant. As travel increases and traffic returns, we expect transit to continue to be delayed if no enhancements are made.

Traffic analysis results related to the Proposed Project

The Hillsdale community organizations’ questions asked about anticipated impacts to other arterial, collector and local streets as a result of the project. Using Pre-covid traffic data, PBOT conducted a traffic modeling analysis to understand how the project may influence other driving routes across Southwest Portland. This data is used to inform the community around potential impacts and to inform the draft monitoring and mitigation plan.

PBOT’s Regional Transportation Plan model is calibrated to local traffic demand conditions to anticipate how operational changes on one arterial may impact route diversion and congestion on other arterials.

This model includes major streets like US26 and Barbur Boulevard, collector streets such as SW Bertha Boulevard and SW Marquam Hill Rd, and some local streets that function as collectors, such as SW Vermont St. Most local service streets are not included in the model, but arterial diversion data can inform an understanding of what local streets may be at risk for impacts.

Traffic route changes projected by the model being realized in the future depend on a lot of different factors (working from home, new jobs for some, new choice/necessity of transportation mode, etc.). Given the dramatic drop in travel activity for all modes as a result of COVID, we hesitate to state that the traffic modeling results are what we expect from implementation of the project. However, we think they can be used as a type of “upper bound” of impact. If travel activity increased to pre-COVID levels, they offer a defensible understanding of potential impacts.

Adjusted Travel Time for Peak Hour Trips on SW Capitol Hwy

- If traffic volumes and traffic patterns adjust back to pre-COVID conditions, traffic modeling anticipates some increase in delay during the peak hours.
 - Modeling and analysis show an increase of travel time in the westbound direction of 1-3 minutes. Fewer impacts are anticipated in the eastbound direction.
- Outside of peak hours, motor vehicle traffic flows on SW Capitol Hwy and SW Barbur Blvd are anticipated to remain unchanged.

Adjusted routing onto Major routes as a result of the project

- If traffic volumes and traffic patterns adjust back to pre-COVID conditions, Traffic modeling results show a drop in traffic on SW Capitol Hwy of 320 vehicles in the peak hour. This represents about 5-6 fewer cars per minute. The shifted traffic self-selects to redistribute on other roadways that are more useful given the origin and destination of the trip.
- Primary diversion routes identified by the diversion modeling are US26, SW Barbur Blvd & SW Vermont St.
 - 20% of diverted volume is headed farther west, and use US 26
 - 25% of diverted volume are headed farther south, and use SW Barbur Blvd
 - 25% of diverted volume is projected on SW Vermont St. This route is classified as a local street and is a high priority for monitoring.
 - 30% of diverted volume is expected to redistribute to other collector streets between US26 and Capitol HWY, the majority of these with destinations in the Southwest Hills or Homestead neighborhoods and some with destinations in the Bridlemile neighborhood.

Adjusted routing onto SW Barbur Blvd as a result of the project

- If traffic volumes and traffic patterns adjust back to pre-COVID conditions, our traffic model calculates an added 75 vehicles onto SW Barbur Blvd during the peak hour. This represents 1-2 cars per minute.
- Outside of peak hours, motor vehicle traffic flows on SW Capitol Hwy and SW Barbur Blvd are anticipated to remain unchanged.

Impacts to travel on SW Terwilliger Blvd for Traffic and Transit

- Impacts to SW Terwilliger is dependent on the level of volume reduction on SW Capitol Hwy.
- If traffic volumes remain close to 2021 levels, minimal increase in corridor-wide delay on SW Terwilliger is expected for traffic or transit. North of SW Capitol Hwy, no increase in traffic volume on SW Terwilliger Blvd is expected as a result of the project. South of SW Capitol Hwy, traffic modeling anticipated a minor increase to southbound traffic volumes on SW Terwilliger Blvd.
- Emergency vehicles will be able to use the Rose Lane to bypass congested traffic.
- Operational issues at the intersection of SW Terwilliger Blvd & SW Capitol Hwy may be possible but cannot be fully anticipated. Thank you for identifying the specific concern about diminished operations and anticipated poor driver behavior at the intersection. This is exactly the kind of specific issue that can be included in a monitoring and mitigation plan.

Impacts to Greenhouse Gas Emissions

The Hillsdale community organizations' questions asked about anticipated impacts to Greenhouse Gas (GHG) emissions as a result of the project. Questions were related to the potential for longer trips as a result of re-routing, slower trips as a result of delay, compounded by concerns of uphill travel and idling.

- We are in a climate crisis. The transportation sector contributes more than 40% of greenhouse gas emissions in the Portland region. Reducing transportation emissions will take a three-pronged approach⁴
 - Reducing driving by making other options safer and more attractive.
 - Shifting the trips that remain on the road to zero-emission vehicles (including cars, buses, and freight).
 - Planning and building connected, inclusive, and complete neighborhoods to reduce the need for long trips.
- Given the low traffic volumes of current conditions measured in 2021, we don't anticipate traffic pattern changes that could result in GHG emissions considerations. If traffic volumes and patterns adjust back to pre- COVID levels, only minor delay increases, or traffic diversion is expected for people driving on SW Capitol Hwy.
- In the long-run, changes to traffic patterns from vehicle capacity reduction do not increase GHG emissions. These changes help cap the potential growth of driving, encourage grouping trips together for more efficient use of our roadway system, and prioritize the use of other modes of transportation.
- National research on the relationship between congestions, idling and greenhouse gas emissions has been conducted in Portland, see *Bigazzi, A; Figliozzi, M. [Do Mobility-Based Performance Measures Reflect Emissions Trends?](#). Portland State University, 2012.* For an easy-to-read primer on this, refer to the 2017 article, [Urban Myth Busting: Congestion, Idling, and Carbon Emissions](#).

⁴ PBOT. Pricing Options for Equitable Mobility. 2021.

Impacts to Local Streets

The Hillsdale community organizations' questions asked about potential impacts to local streets. Traffic modeling tools cannot directly predict impacts to local streets, although our engineers have identified the local streets with potential for impacts. The PBOT team has also heard from folks in prior rounds of public involvement about other streets of concern which have been documented and will be included for consideration in a monitoring and mitigation plan.

- Based on outcomes of diversion modeling, operational modeling, and local service connectivity, we don't anticipate diversion onto local neighborhood streets.
- Where our traffic model identifies potential re-routing onto local streets, it appears to be neighbors themselves heading home, rather than long-distance cut through traffic.
- We welcome additional feedback related to particular streets of concern for consideration in the draft Monitoring and Mitigation Plan.

Intersection Operations at SW Burlingame Ave.

The Hillsdale community organizations' questions expressed concern about northbound left turns from SW Burlingame Ave to SW Capitol Hwy during the peak hour.

- This is a low volume turn movement. Intersection counts at Burlingame Ave & Capitol Hwy from 2019 show 8 northbound left turns onto SW Capitol HW in the AM peak and 7 northbound left turns in the PM peak.
- Pre-covid traffic conditions did result in a queue length long enough to interfere with turning movements at times during the PM peak hours. This movement does not have a significant crash history. Between 2010-2019, one (1) northbound left turn crash was reported at this intersection at 7AM on a Sunday. This was not a serious injury crash.
- If traffic volumes and traffic patterns adjust back to pre-COVID conditions, traffic modeling does predict a longer westbound queue at the intersection of SW Sunset Blvd in the PM peak hour, which may interfere with available gaps for left turners from Burlingame Ave to Capitol Hwy during peak hours. This may result in traffic selecting an alternate route, mode, or travel time to reach their destination.

Impacts to Hillsdale Town Center Traffic

The Hillsdale community organizations' questions asked about potential impacts to Hillsdale Town Center. Hillsdale Town Center is an important hub of commercial and community activity and City policy in the Comprehensive Plan only aspires to increase its role and importance in our city.

- Given the low traffic volumes of current conditions measured in 2021, we don't anticipate any reduction in motor vehicle traffic volume through the Hillsdale Town Center today.
- If traffic volumes and traffic patterns adjust back to pre-COVID conditions, traffic modeling calculated a decrease of up to 320 vehicles in the peak hour. This represents about 5-6 fewer cars per minute. Many of these vehicles are long-distance commuters that are projected to use US26 or SW Barbur Blvd on their way to their non-local destination. Some diverted traffic is expected to use Vermont St, which is identified as a top location for monitoring.

- Outside of the peak hour, there is no anticipated change in traffic volume through the Hillsdale Town Center under any scenario.
- Despite changes to traffic that may or may not happen, PBOT sees transit playing a bigger role than ever in the future of how your community gets around and how Hillsdale grows into an even more walkable and prosperous commercial district. Projects such as this can support this less auto-dependent and more multimodal future.

Monitoring and Mitigation Plan Approach

The SW Capitol Hwy Rose Lane project will be implemented with an iterative approach, where design elements can be deployed, tested, and revised. Ultimately, the changes can be made permanent with final design adjustments incorporated.

The iterative approach is a demonstration of climate action in practice, where we can be both transformative in addressing urgent needs, while also staying responsive to community context. A key component of this is a Monitoring and Mitigation Plan for the project. The plan will:

- Identify specific locations for monitoring.
- Define thresholds for a mitigation response.
- Provide a menu of potentially appropriate mitigation options.
- Clarify a timeline for monitoring and mitigation.

Through the questions you've supplied and past public involvement, combined with technical analysis from our traffic engineers, we've begun to identify key streets and locations for potential monitoring and mitigation.

As described earlier in this memo, the project is not expected to increase traffic on local streets. However, PBOT takes community concerns seriously, and we are committed to monitoring and mitigating from unwanted impacts as a result of the project. PBOT traffic engineers have proposed monitoring at key locations.

- SW Barbur Blvd
- SW Capitol Hwy
- SW Terwilliger
- SW Bertha Blvd
- SW Burlingame St
- SW Cheltenham St
- SW Chestnut Dr
- SW Vermont Dr
- SW Nebraska St

We welcome additional feedback on specific streets or intersections to include in the monitoring and mitigation plan. We will share a draft Monitoring and Mitigation plan with you for feedback in early summer.

Conclusion

We appreciate how important SW Capitol Hwy is to the Hillsdale Neighborhood Association and Hillsdale Business & Professional Association. This street is your main street and your primary connection into downtown Portland. It is a critical link for people traveling by all modes, which is why it's essential to use the space as effectively as possible to move Portlanders in a sustainable and equitable fashion.

Transit remains one of the most efficient, sustainable, and equitable ways to move people around our growing city. Making transit better and, long-term, getting more people to choose the bus or train over driving alone is critical for achieving our climate and transportation justice goals.

This project is an opportunity for Hillsdale and Southwest Portland to lead the city with climate action in practice. The iterative approach to the project deployment responds to the urgency of the moment, in a way that is sensitive to community concerns about unintended impacts.

We hope that the responses to your questions and data provided help clarify statements related to past and current transportation context for the street. While these dynamic traffic conditions are not anything we could have predicted, the reduced traffic volume we see today make projects like this even more feasible, and more poised for success in the future. Travel activity will increase as our community and economy recovers from the pandemic. We have an opportunity to make transit a faster, more reliable travel option than driving for people headed to Hillsdale, to downtown, and other destinations. Our choices today are an opportunity to help set a new normal, to minimize impacts as travel activity increases across the city and in your neighborhood.

Attachments

The figures below include charts, tables, and other data reference above.

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Figure 1. Network Map of Pre-COVID Motor Vehicle Volume

This map shows pre-COVID traffic volume flow generated from with traffic counts collected between 2010 and 2019. Traffic during the pandemic is significantly reduced from these measurements.

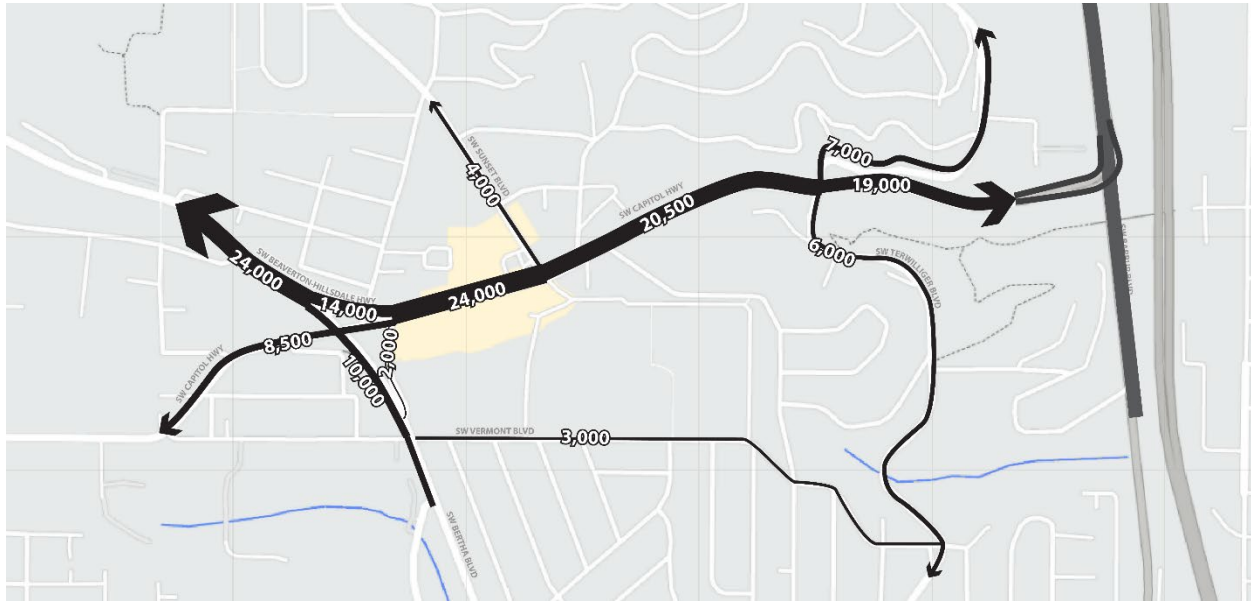


Figure 2. 2014 Pre-COVID Hourly Traffic Volume

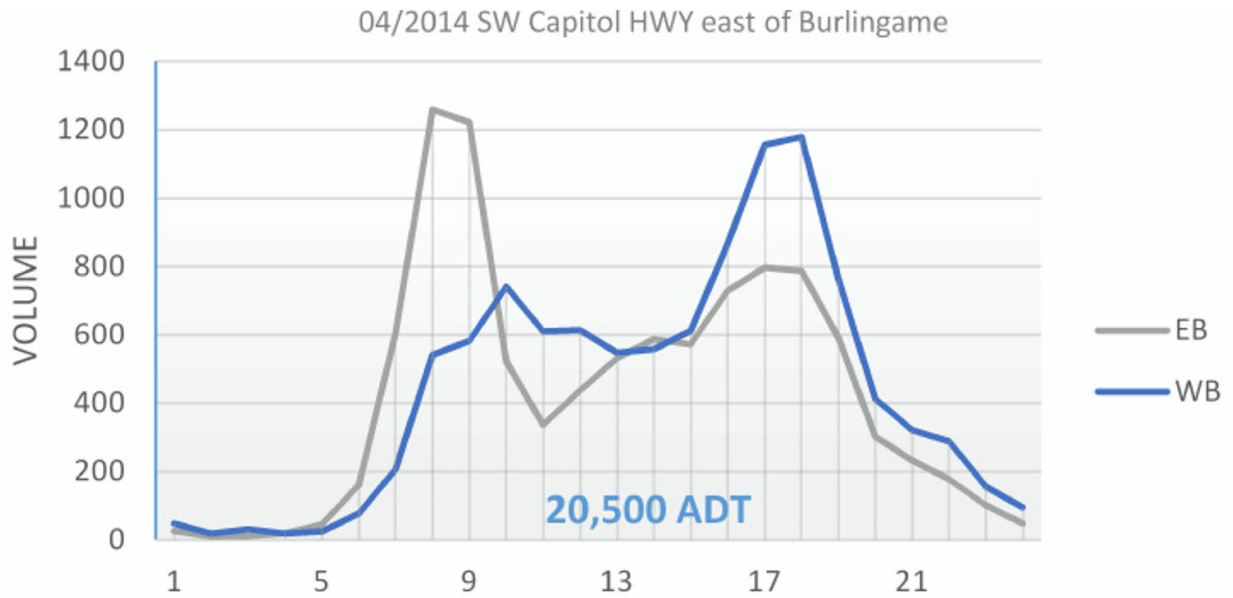
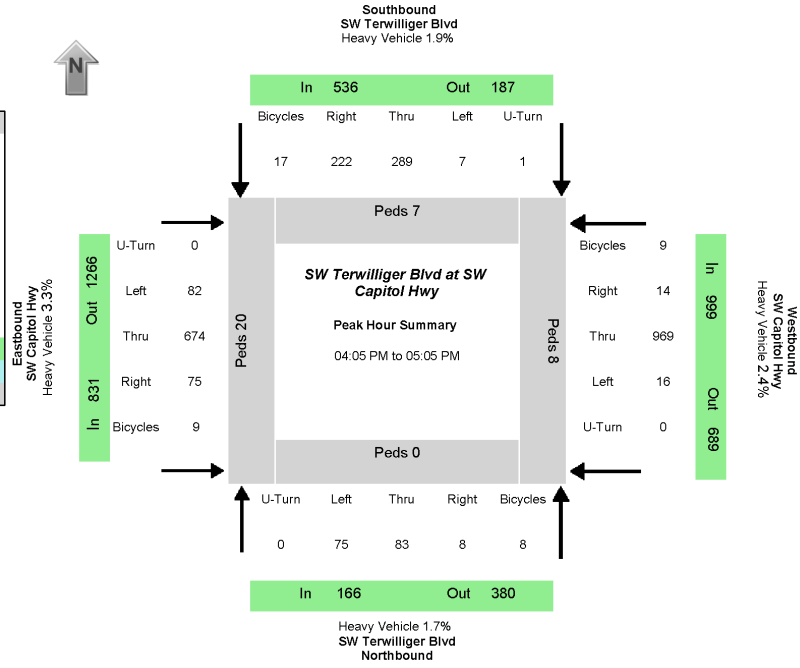


Figure 3. 2019 Turning Movement Count for SW Terwilliger and SW Capitol Hwy



Data Provided by K-D-N.com 503-594-4224

| | |
|-------------------|------------------------|
| N/S street | SW Terwilliger Blvd |
| E/W street | SW Capitol Hwy |
| City, State | Portland OR |
| Site Notes | |
| Location | 45.480194 -122.687019 |
| Start Date | Tuesday, June 04, 2019 |
| Start Time | 04:00:00 PM |
| Weather | |
| Study ID # | |
| Peak Hour Start | 04:05:00 PM |
| Peak 15 Min Start | 04:10:00 PM |
| PHF (15-Min Int) | 0.95 |



| Peak-Hour Volumes (PHV) | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|------|-------|-------|------------|------|-------|-------|-----------|------|-------|-------|-----------|------|-------|-------|----------|------|------|------|---------|------|------|------|
| Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Entering | | | | Leaving | | | |
| Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | NB | SB | EB | WB | NB | SB | EB | WB |
| 75 | 83 | 8 | 0 | 7 | 289 | 222 | 1 | 82 | 674 | 75 | 0 | 16 | 969 | 14 | 0 | 166 | 519 | 831 | 999 | 380 | 180 | 1266 | 689 |
| Percent Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0% | 3.6% | 0.0% | 0.0% | 0.0% | 1.4% | 2.7% | 0.0% | 6.1% | 3.0% | 4.0% | 0.0% | 0.0% | 2.1% | 28.6% | 0.0% | 1.8% | 1.9% | 3.4% | 2.4% | 1.8% | 6.7% | 2.1% | 2.9% |

| PHV - Bicycles | | | | | | | | | | | | | | | | PHV - Pedestrians | | | | | |
|----------------|------|-------|-------|------------|------|-------|-------|-----------|------|-------|-------|-----------|------|-------|-------|-------------------|----|----|----|----|-----|
| Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | in Crosswalk | | | | | |
| Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Sum | NB | SB | EB | WB | Sum |
| 0 | 7 | 1 | 0 | 0 | 2 | 15 | 0 | 0 | 9 | 0 | 0 | 0 | 9 | 0 | 0 | 43 | 0 | 7 | 20 | 8 | 35 |

| Time | All Vehicle Volumes | | | | | | | | | | | | | | | | | | | | 15 Min Sum | 1 HR Sum |
|-------------|--------------------------------|------|-------|-------|--------------------------------|------|-------|-------|--------------------------|------|-------|-------|--------------------------|------|-------|-------|-----|------|--|--|------------|----------|
| | Northbound SW Terwilliger Blvd | | | | Southbound SW Terwilliger Blvd | | | | Eastbound SW Capitol Hwy | | | | Westbound SW Capitol Hwy | | | | | | | | | |
| | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | | | | | | |
| 04:00:00 PM | 3 | 4 | 0 | 0 | 2 | 9 | 10 | 0 | 6 | 48 | 8 | 0 | 0 | 60 | 2 | 0 | | | | | | |
| 04:05:00 PM | 6 | 8 | 2 | 0 | 0 | 21 | 21 | 0 | 11 | 50 | 7 | 0 | 3 | 76 | 1 | 0 | | | | | | |
| 04:10:00 PM | 5 | 9 | 1 | 0 | 0 | 30 | 13 | 0 | 3 | 58 | 14 | 0 | 1 | 85 | 5 | 0 | 582 | | | | | |
| 04:15:00 PM | 3 | 3 | 1 | 0 | 1 | 22 | 19 | 0 | 8 | 63 | 9 | 0 | 2 | 88 | 1 | 0 | 650 | | | | | |
| 04:20:00 PM | 15 | 9 | 0 | 0 | 1 | 23 | 20 | 0 | 6 | 55 | 8 | 0 | 1 | 79 | 0 | 0 | 661 | | | | | |
| 04:25:00 PM | 6 | 10 | 1 | 0 | 0 | 21 | 19 | 0 | 6 | 58 | 6 | 0 | 1 | 71 | 1 | 0 | 637 | | | | | |
| 04:30:00 PM | 6 | 4 | 0 | 0 | 1 | 10 | 13 | 0 | 7 | 80 | 5 | 0 | 0 | 82 | 2 | 0 | 627 | | | | | |
| 04:35:00 PM | 5 | 1 | 1 | 0 | 0 | 25 | 17 | 0 | 9 | 60 | 2 | 0 | 1 | 97 | 1 | 0 | 629 | | | | | |
| 04:40:00 PM | 5 | 9 | 1 | 0 | 0 | 35 | 26 | 0 | 9 | 50 | 4 | 0 | 0 | 86 | 1 | 0 | 655 | | | | | |
| 04:45:00 PM | 4 | 4 | 0 | 0 | 1 | 27 | 21 | 1 | 4 | 60 | 6 | 0 | 2 | 84 | 1 | 0 | 660 | | | | | |
| 04:50:00 PM | 6 | 9 | 1 | 0 | 0 | 25 | 18 | 0 | 4 | 45 | 3 | 0 | 3 | 80 | 0 | 0 | 635 | | | | | |
| 04:55:00 PM | 6 | 6 | 0 | 0 | 2 | 29 | 22 | 0 | 9 | 52 | 5 | 0 | 0 | 83 | 1 | 0 | 624 | 2498 | | | | |
| 05:00:00 PM | 8 | 11 | 0 | 0 | 1 | 21 | 13 | 0 | 6 | 43 | 6 | 0 | 2 | 58 | 0 | 0 | 578 | 2515 | | | | |
| 05:05:00 PM | 3 | 2 | 0 | 0 | 1 | 21 | 16 | 0 | 2 | 41 | 5 | 0 | 1 | 91 | 1 | 0 | 568 | 2493 | | | | |
| 05:10:00 PM | 4 | 6 | 1 | 0 | 2 | 7 | 13 | 0 | 9 | 55 | 10 | 0 | 2 | 92 | 0 | 0 | 554 | 2470 | | | | |
| 05:15:00 PM | 9 | 5 | 4 | 0 | 1 | 18 | 17 | 0 | 8 | 58 | 3 | 0 | 0 | 79 | 1 | 0 | 588 | 2453 | | | | |
| 05:20:00 PM | 8 | 6 | 0 | 0 | 0 | 25 | 28 | 0 | 2 | 52 | 5 | 0 | 0 | 73 | 2 | 0 | 605 | 2437 | | | | |
| 05:25:00 PM | 4 | 4 | 1 | 0 | 0 | 21 | 18 | 0 | 7 | 61 | 4 | 0 | 3 | 93 | 2 | 0 | 622 | 2455 | | | | |
| 05:30:00 PM | 9 | 5 | 0 | 0 | 0 | 14 | 11 | 0 | 6 | 50 | 5 | 0 | 1 | 87 | 2 | 0 | 609 | 2435 | | | | |
| 05:35:00 PM | 9 | 2 | 0 | 0 | 1 | 22 | 23 | 0 | 3 | 44 | 5 | 0 | 0 | 65 | 0 | 0 | 582 | 2390 | | | | |
| 05:40:00 PM | 5 | 8 | 2 | 0 | 0 | 15 | 18 | 0 | 6 | 65 | 7 | 0 | 1 | 88 | 0 | 0 | 579 | 2379 | | | | |
| 05:45:00 PM | 4 | 7 | 1 | 0 | 0 | 12 | 12 | 0 | 8 | 68 | 7 | 0 | 0 | 100 | 1 | 0 | 609 | 2384 | | | | |
| 05:50:00 PM | 10 | 7 | 0 | 0 | 0 | 22 | 18 | 0 | 7 | 57 | 10 | 0 | 0 | 80 | 1 | 0 | 647 | 2402 | | | | |
| 05:55:00 PM | 7 | 6 | 2 | 0 | 0 | 15 | 18 | 0 | 6 | 51 | 7 | 0 | 1 | 60 | 0 | 0 | 605 | 2360 | | | | |

Figure 4. 2017 Traffic Count SW Cheltenham St S of Pendleton St

The 24 hr. traffic count for SW Cheltenham shows a total of 938 vehicles per day. The tables below are split by direction and display counts as 15 minutes intervals.

Location SW CHELTENHAM ST S of CHELTENHAM DR / PENDLETON ST
 From 4/6/2017 2:00:00 PM (THU) to 4/7/2017 2:45:00 PM (FRI)
Date:
Channels: 2
CountID: 17040682.VL2
 Excpt Type: Normal Weekday
 Conditions:
 Comment: WITH BIKES

Notes Count Loc: SW CHELTENHAM ST S of SE PENDELTON ST

| Channel 1 (n Bound) | <u>AM</u> | <u>PM</u> | <u>Daily</u> |
|----------------------------|-----------|-----------|--------------|
| Total Volume: | 155 | 351 | 506 |
| Peak Hour Volume: | 35 | 58 | 58 |
| Peak Hour Start: | 10:45 | 5:30 | 5:30 |
| Peak Hour Factor: | 0.795 | 0.806 | |

Channel 1 Interval Data

| Hour | 0:00 | 0:15 | 0:30 | 0:45 | Total |
|-------|------|------|------|------|-------|
| 0:00 | 1 | 1 | 1 | 0 | 3 |
| 1:00 | 0 | 1 | 1 | 0 | 2 |
| 2:00 | 0 | 1 | 0 | 1 | 2 |
| 3:00 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 1 | 0 | 0 | 1 |
| 5:00 | 1 | 0 | 1 | 0 | 2 |
| 6:00 | 1 | 2 | 2 | 3 | 8 |
| 7:00 | 1 | 8 | 2 | 10 | 21 |
| 8:00 | 7 | 9 | 7 | 2 | 25 |
| 9:00 | 12 | 8 | 5 | 6 | 31 |
| 10:00 | 5 | 9 | 7 | 7 | 28 |
| 11:00 | 8 | 11 | 9 | 4 | 32 |
| 12:00 | 8 | 13 | 5 | 6 | 32 |
| 13:00 | 4 | 8 | 11 | 7 | 30 |
| 14:00 | 7 | 9 | 8 | 6 | 30 |
| 15:00 | 8 | 11 | 12 | 10 | 41 |
| 16:00 | 11 | 15 | 10 | 6 | 42 |
| 17:00 | 7 | 10 | 15 | 18 | 50 |
| 18:00 | 13 | 12 | 14 | 8 | 47 |
| 19:00 | 13 | 7 | 6 | 5 | 31 |
| 20:00 | 5 | 6 | 5 | 8 | 24 |
| 21:00 | 3 | 5 | 8 | 1 | 17 |
| 22:00 | 1 | 1 | 1 | 2 | 5 |
| 23:00 | 0 | 1 | 0 | 1 | 2 |

Traffic Count SW Cheltenham St S of Pendleton St (continued)

Location SW CHELTENHAM ST S of CHELTENHAM DR / PENDLETON ST
 From 4/6/2017 2:00:00 PM (THU) to 4/7/2017 2:45:00 PM (FRI)
Date:
Channels: 2
CountID: 17040682.VL2
 Excpt Type: Normal Weekday
 Conditions:
 Comment: WITH BIKES

Notes Count Loc: SW CHELTENHAM ST S of SE PENDELTON ST

Channel 2 (s Bound)

| | <u>AM</u> | <u>PM</u> | <u>Daily</u> |
|-------------------|-----------|-----------|--------------|
| Total Volume: | 182 | 250 | 432 |
| Peak Hour Volume: | 54 | 45 | 54 |
| Peak Hour Start: | 7:15 | 5:00 | 5:00 |
| Peak Hour Factor: | 0.75 | 0.703 | |

Channel 2 Interval Data

| Hour | 0:00 | 0:15 | 0:30 | 0:45 | Total |
|-------|------|------|------|------|-------|
| 0:00 | 0 | 0 | 1 | 0 | 1 |
| 1:00 | 0 | 0 | 0 | 0 | 0 |
| 2:00 | 0 | 0 | 1 | 0 | 1 |
| 3:00 | 0 | 2 | 0 | 0 | 2 |
| 4:00 | 0 | 1 | 2 | 0 | 3 |
| 5:00 | 1 | 2 | 2 | 3 | 8 |
| 6:00 | 1 | 1 | 3 | 5 | 10 |
| 7:00 | 7 | 10 | 13 | 18 | 48 |
| 8:00 | 13 | 8 | 9 | 2 | 32 |
| 9:00 | 8 | 6 | 11 | 5 | 30 |
| 10:00 | 4 | 9 | 5 | 8 | 26 |
| 11:00 | 5 | 9 | 3 | 4 | 21 |
| 12:00 | 9 | 11 | 6 | 5 | 31 |
| 13:00 | 6 | 6 | 8 | 12 | 32 |
| 14:00 | 5 | 7 | 7 | 6 | 25 |
| 15:00 | 5 | 9 | 6 | 10 | 30 |
| 16:00 | 8 | 12 | 3 | 5 | 28 |
| 17:00 | 12 | 16 | 9 | 8 | 45 |
| 18:00 | 7 | 4 | 8 | 2 | 21 |
| 19:00 | 6 | 6 | 3 | 3 | 18 |
| 20:00 | 1 | 3 | 3 | 3 | 10 |
| 21:00 | 3 | 0 | 0 | 1 | 4 |
| 22:00 | 2 | 0 | 0 | 1 | 3 |
| 23:00 | 1 | 0 | 2 | 0 | 3 |

Figure 5. 2014 Traffic Count SW Burlingame St E of SW Capitol Hwy

The 24 hr. traffic count for SW Burlingame Ave shows a total of 663 vehicles per day. The tables below are split by direction and display counts as 15 minutes intervals.

Location
Location: SW BURLINGAME AVE E of CAPITOL HWY
Date: From 8/25/2014 12:30:00 PM (MON) to 8/27/2014 12:00:00 PM (WED)
Channels: 2
CountID: 14082505.VL2
Excpt Type: Normal Weekday
Conditions:
Comment: @ 6258
Notes
Count Loc: SW BURLINGAME AVE E of SW CAPITOL HWY

Channel 1 (E Bound)

| | <u>AM</u> | <u>PM</u> | <u>Daily</u> |
|-------------------|-----------|-----------|--------------|
| Total Volume: | 128 | 172 | 300 |
| Peak Hour Volume: | 27 | 25 | 27 |
| Peak Hour Start: | 10:30 | 12:30 | 12:30 |
| Peak Hour Factor: | 0.964 | 0.781 | |

Channel 1 Interval Data

| Hour | 0:00 | 0:15 | 0:30 | 0:45 | Total |
|-------|------|------|------|------|-------|
| 0:00 | 1 | 0 | 0 | 0 | 1 |
| 1:00 | 0 | 0 | 1 | 1 | 2 |
| 2:00 | 0 | 0 | 0 | 1 | 1 |
| 3:00 | 0 | 1 | 0 | 0 | 1 |
| 4:00 | 0 | 0 | 0 | 0 | 0 |
| 5:00 | 1 | 0 | 0 | 1 | 2 |
| 6:00 | 1 | 1 | 2 | 5 | 9 |
| 7:00 | 6 | 2 | 5 | 5 | 18 |
| 8:00 | 8 | 6 | 7 | 5 | 26 |
| 9:00 | 7 | 7 | 3 | 4 | 21 |
| 10:00 | 4 | 5 | 7 | 7 | 23 |
| 11:00 | 7 | 6 | 5 | 6 | 24 |
| 12:00 | 5 | 4 | 8 | 4 | 21 |
| 13:00 | 8 | 5 | 6 | 5 | 24 |
| 14:00 | 5 | 6 | 7 | 7 | 25 |
| 15:00 | 4 | 4 | 6 | 3 | 17 |
| 16:00 | 4 | 5 | 2 | 3 | 14 |
| 17:00 | 5 | 5 | 5 | 4 | 19 |
| 18:00 | 3 | 3 | 4 | 6 | 16 |
| 19:00 | 5 | 4 | 4 | 3 | 16 |
| 20:00 | 3 | 1 | 2 | 2 | 8 |
| 21:00 | 1 | 2 | 3 | 1 | 7 |
| 22:00 | 1 | 0 | 1 | 0 | 2 |
| 23:00 | 0 | 1 | 1 | 1 | 3 |

2014 Traffic Count SW Burlingame St E of SW Capitol Hwy (Continued)

Location: SW BURLINGAME AVE E of CAPITOL HWY
Date: From 8/25/2014 12:30:00 PM (MON) to 8/27/2014 12:00:00 PM (WED)
Channels: 2
CountID: 14082505.VL2
Excpt Type: Normal Weekday
Conditions:
Comment: @ 6258
Notes: SW BURLINGAME AVE E of SW CAPITOL
Count Loc: HWY

| Channel 2 (W Bound) | AM | PM | Daily |
|------------------------|-------|-------|-------|
| Total Volume: | 111 | 252 | 363 |
| Peak Hour Volume: | 26 | 39 | 39 |
| Peak Hour Start: | 10:30 | 5:00 | 5:00 |
| Peak Hour Factor: | 0.812 | 0.886 | |

Channel 2 Interval Data

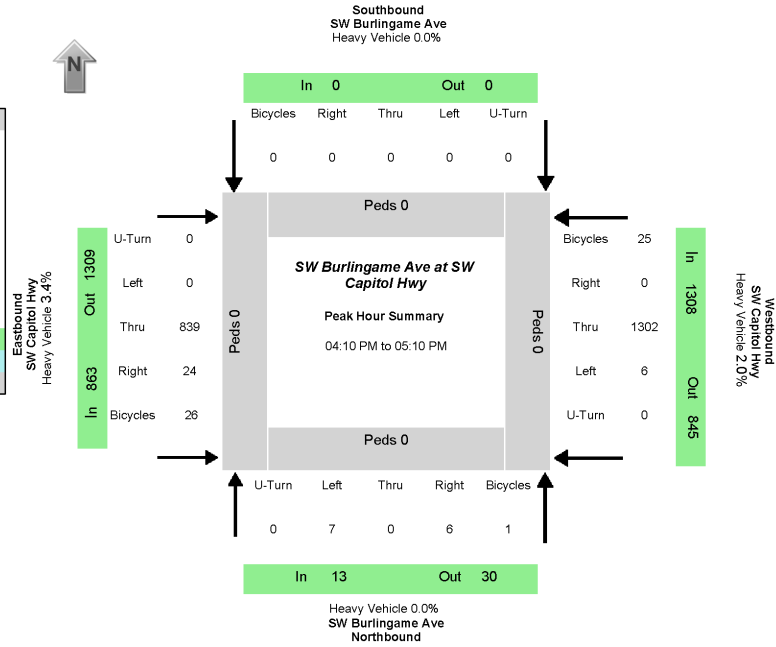
| Hour | 0:00 | 0:15 | 0:30 | 0:45 | Total |
|-------|------|------|------|------|-------|
| 0:00 | 0 | 1 | 0 | 0 | 1 |
| 1:00 | 0 | 0 | 0 | 1 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 |
| 3:00 | 1 | 1 | 0 | 0 | 2 |
| 4:00 | 0 | 0 | 0 | 0 | 0 |
| 5:00 | 0 | 1 | 1 | 0 | 2 |
| 6:00 | 1 | 1 | 2 | 3 | 7 |
| 7:00 | 0 | 4 | 4 | 3 | 11 |
| 8:00 | 7 | 5 | 3 | 4 | 19 |
| 9:00 | 5 | 5 | 7 | 4 | 21 |
| 10:00 | 4 | 5 | 8 | 5 | 22 |
| 11:00 | 5 | 8 | 4 | 8 | 25 |
| 12:00 | 5 | 8 | 8 | 7 | 28 |
| 13:00 | 7 | 5 | 6 | 5 | 23 |
| 14:00 | 7 | 5 | 6 | 5 | 23 |
| 15:00 | 8 | 7 | 5 | 7 | 27 |
| 16:00 | 9 | 9 | 11 | 7 | 36 |
| 17:00 | 10 | 10 | 8 | 11 | 39 |
| 18:00 | 9 | 8 | 7 | 3 | 27 |
| 19:00 | 7 | 5 | 4 | 5 | 21 |
| 20:00 | 3 | 2 | 3 | 3 | 11 |
| 21:00 | 3 | 3 | 3 | 1 | 10 |
| 22:00 | 1 | 1 | 3 | 1 | 6 |
| 23:00 | 0 | 1 | 0 | 0 | 1 |

Figure 6. 2019 PM Peak Turning Movement Count at SW Burlingame Ave & SW Capitol Hwy



Data Provided by K-D-N.com 503-594-4224

| | |
|-------------------|------------------------|
| N/S street | SW Burlingame Ave |
| E/W street | SW Capitol Hwy |
| City, State | Portland OR |
| Site Notes | |
| Location | 45.479238 -122.692003 |
| Start Date | Tuesday, June 04, 2019 |
| Start Time | 04:00:00 PM |
| Weather | |
| Study ID # | |
| Peak Hour Start | 04:10:00 PM |
| Peak 15 Min Start | 04:10:00 PM |
| PHF (15-Min Int) | 0.92 |



| Peak-Hour Volumes (PHV) | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|------|-------|-------|------------|------|-------|-------|-----------|------|-------|-------|-----------|------|-------|-------|----------|------|------|------|---------|------|------|------|
| Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Entering | | | | Leaving | | | |
| Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | NB | SB | EB | WB | NB | SB | EB | WB |
| 7 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 839 | 24 | 0 | 6 | 1302 | 0 | 0 | 13 | 0 | 863 | 1308 | 30 | 0 | 1309 | 845 |
| Percent Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 3.6% | 0.0% | 0.0% | 0.0% | 2.1% | 0.0% | 0.0% | 0.0% | 0.0% | 3.5% | 2.1% | 0.0% | 0.0% | 2.1% | 3.6% |

| PHV - Bicycles | | | | | | | | | | | | PHV - Pedestrians | | | | | | | | | |
|----------------|------|-------|-------|------------|------|-------|-------|-----------|------|-------|-------|-------------------|------|-------|-------|--------------|----|----|----|----|-----|
| Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | in Crosswalk | | | | | |
| Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Sum | NB | SB | EB | WB | Sum |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 25 | 0 | 0 | 52 | 0 | 0 | 0 | 0 | 0 |

| Time | Northbound SW Burlingame Ave | | | | Southbound SW Burlingame Ave | | | | Eastbound SW Capitol Hwy | | | | Westbound SW Capitol Hwy | | | | 15 Min Sum | 1 HR Sum |
|-------------|---------------------------------|------|-------|-------|---------------------------------|------|-------|-------|-----------------------------|------|-------|-------|-----------------------------|------|-------|-------|------------------|-------------|
| | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | Left | Thru | Right | Uturn | | |
| 04:00:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 0 | 0 | 1 | 68 | 0 | 0 | | |
| 04:05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 105 | 0 | 0 | | |
| 04:10:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 2 | 0 | 0 | 94 | 0 | 0 | 485 | |
| 04:15:00 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 1 | 0 | 1 | 110 | 0 | 0 | 554 | |
| 04:20:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 5 | 0 | 1 | 129 | 0 | 0 | 591 | |
| 04:25:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 0 | 90 | 0 | 0 | 564 | |
| 04:30:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 6 | 0 | 0 | 93 | 0 | 0 | 554 | |
| 04:35:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 1 | 0 | 0 | 121 | 0 | 0 | 528 | |
| 04:40:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 2 | 0 | 1 | 126 | 0 | 0 | 581 | |
| 04:45:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 1 | 0 | 0 | 132 | 0 | 0 | 590 | |
| 04:50:00 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 1 | 0 | 0 | 98 | 0 | 0 | 554 | |
| 04:55:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 3 | 0 | 0 | 97 | 0 | 0 | 513 | 2143 |
| 05:00:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 2 | 101 | 0 | 0 | 478 | 2176 |
| 05:05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 2 | 0 | 1 | 111 | 0 | 0 | 511 | 2184 |
| 05:10:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 3 | 0 | 0 | 107 | 0 | 0 | 522 | 2180 |
| 05:15:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 1 | 0 | 0 | 105 | 0 | 0 | 540 | 2162 |
| 05:20:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 2 | 0 | 0 | 95 | 0 | 0 | 507 | 2100 |
| 05:25:00 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 2 | 0 | 1 | 128 | 0 | 0 | 533 | 2149 |
| 05:30:00 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 3 | 0 | 0 | 104 | 0 | 0 | 525 | 2133 |
| 05:35:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 0 | 0 | 0 | 127 | 0 | 0 | 560 | 2132 |
| 05:40:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 2 | 0 | 0 | 100 | 0 | 0 | 545 | 2113 |
| 05:45:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 2 | 0 | 1 | 121 | 0 | 0 | 579 | 2122 |
| 05:50:00 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 2 | 0 | 1 | 103 | 0 | 0 | 577 | 2155 |
| 05:55:00 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 2 | 0 | 1 | 110 | 0 | 0 | 569 | 2169 |

Figure 7. 2019 Network map of Pre-COVID Daily Transit Ridership Volume

Data comes from the [2019 Rose Lane transit ridership analysis](#). This map shows pre-COVID transit ridership. This is the total average daily passenger loads traveling in the segment of SW Capitol Hwy through Hillsdale in 2019. This includes the average number of people on all the buses traveling through Hillsdale for all the bus lines serving SW Capitol Hwy.

Traffic during the pandemic is significantly reduced from these measurements.

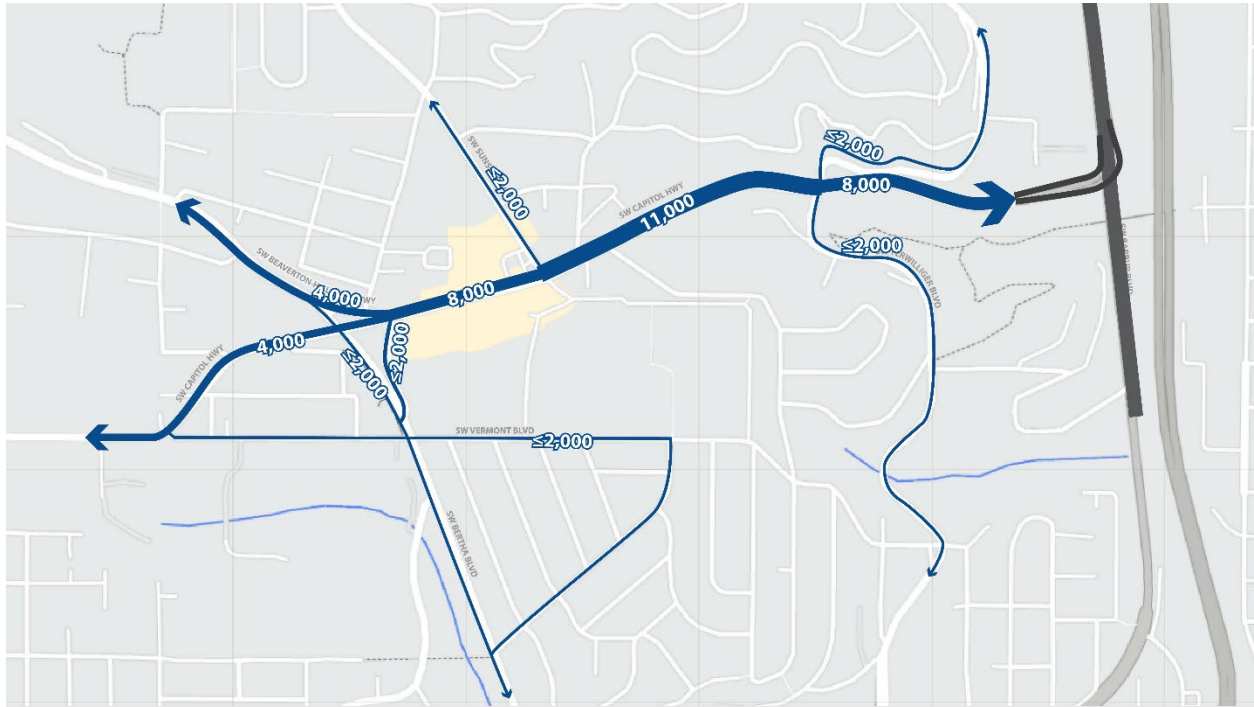
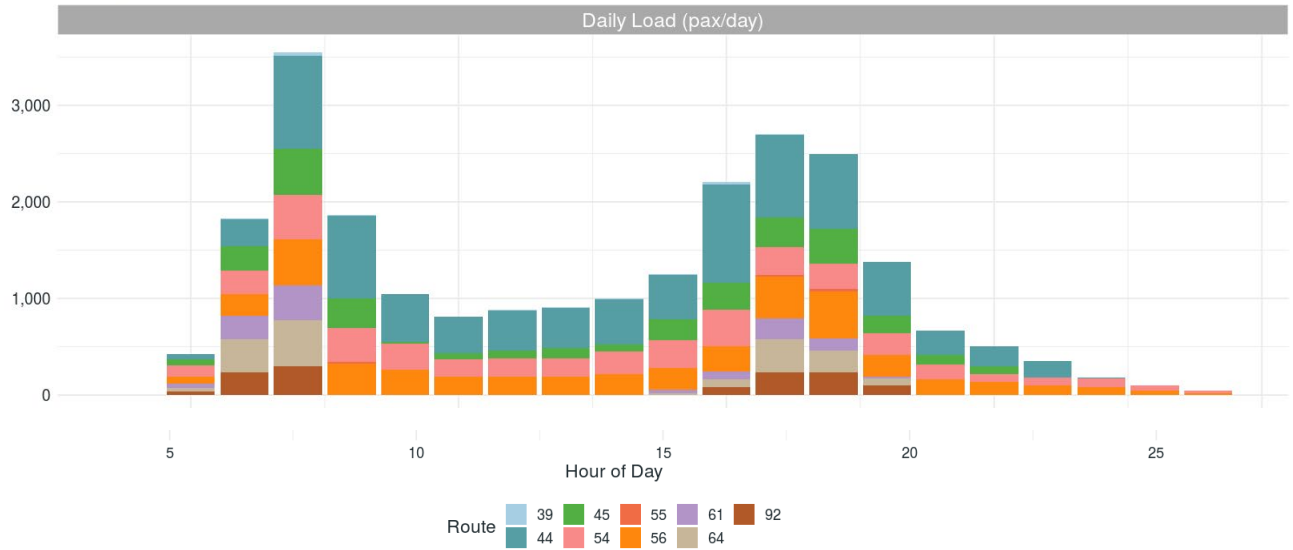


Figure 8. 2018 Bus Trips and Ridership Passenger Loads by Time of Day, Direction and Bus Line along SW Capitol Hwy through Hillsdale

The following charts display 2018 hourly ridership load along SW Capitol Hwy busses throughout the day. These charts display the combined load from multiple trip segments, spanning from SW Barbur Blvd to SW Vermont St. The key element of these figures is the shape of the graphs, showing peak transit loads in the AM and PM peak travel time.

Distribution of Load and Trips by Time of Day and Route



Distribution of Load and Trips by Time of Day and Cardinal Direction

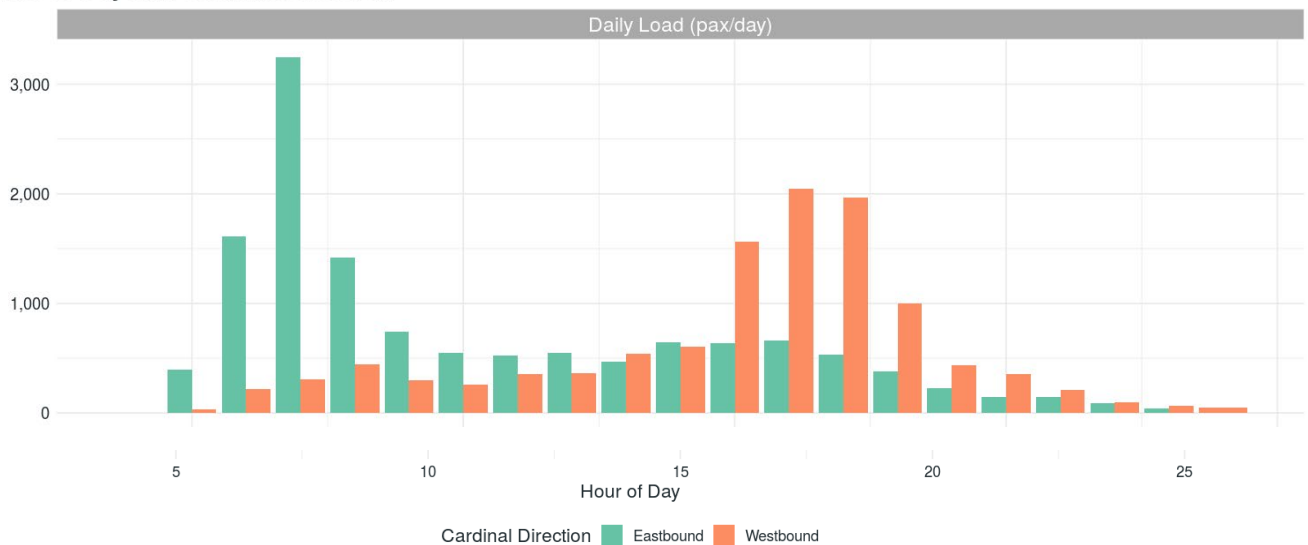


Figure 9. 2021 SW Capitol Hwy Hourly Traffic Volume

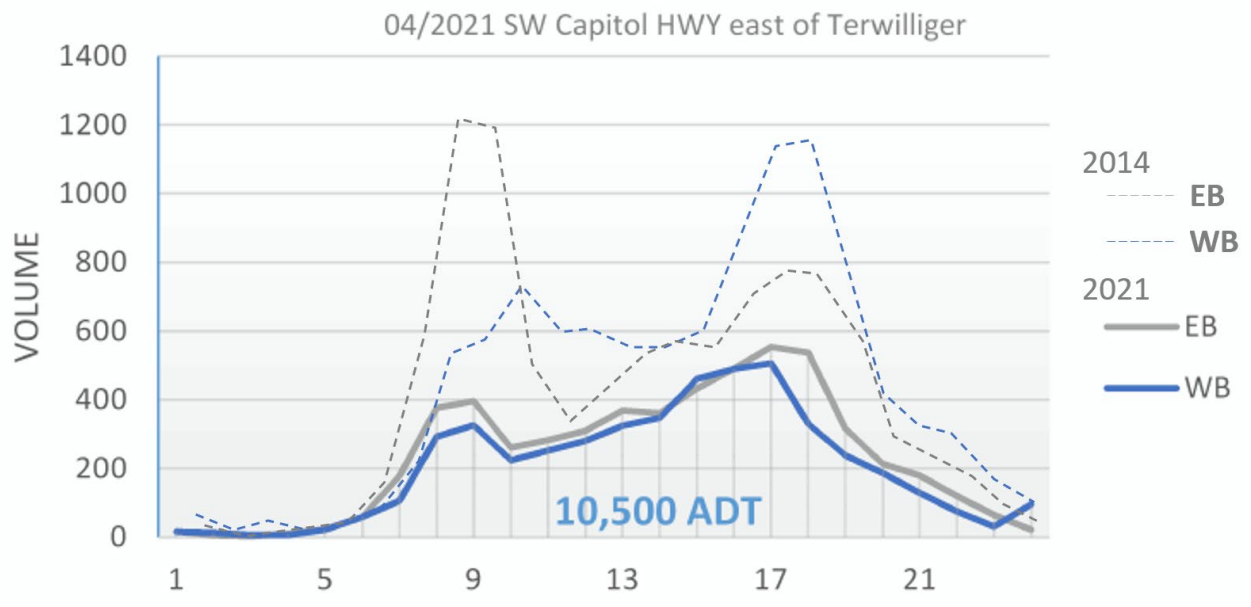
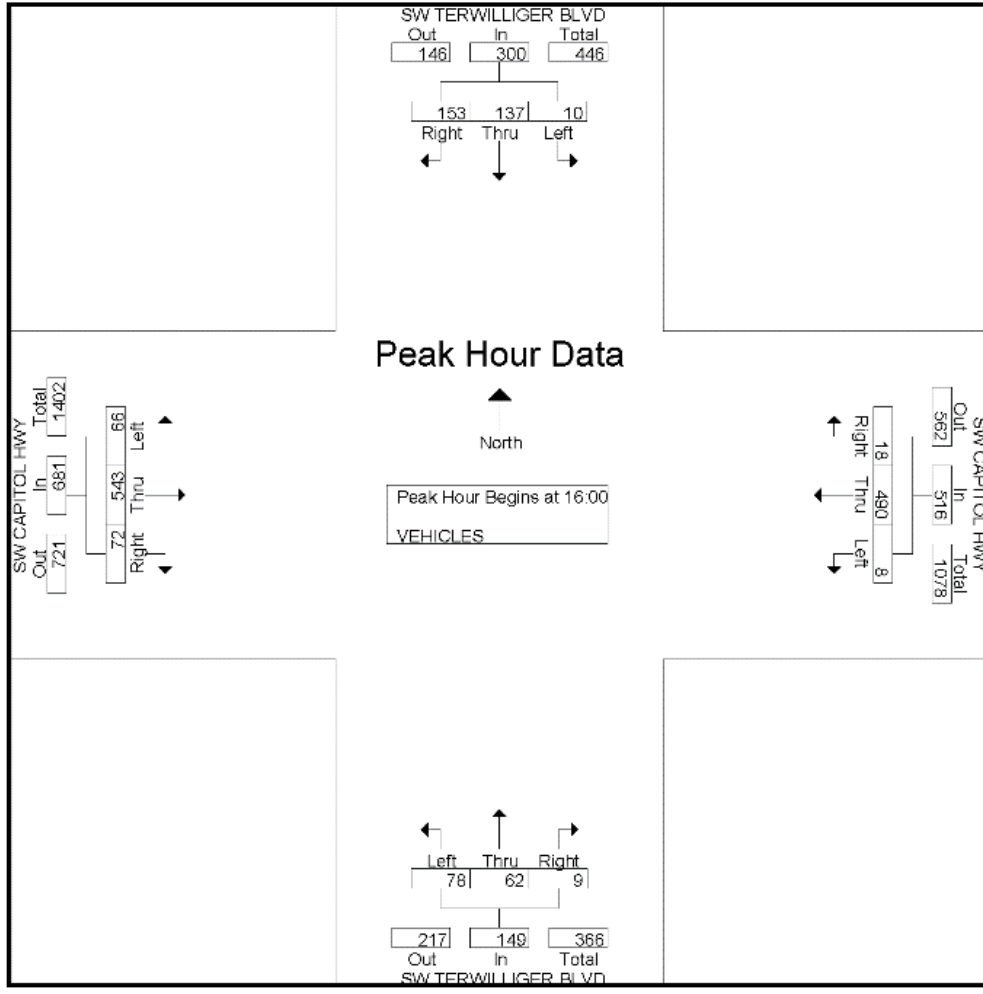


Figure 10. 2021 Turning Movement Count for SW Terwilliger and SW Capitol Hwy



CITY OF PORTLAND
 OFFICE OF TRANSPORTATION
 1120 SW 5TH AVE SUITE 1331
 PORTLAND OREGON 97204

File Name : 210421TPM
 Site Code : 00000000
 Start Date : 4/21/2021
 Page No : 3

| Start Time | SW TERWILLIGER BLVD Southbound | | | | SW CAPITOL HWY Westbound | | | | SW TERWILLIGER BLVD Northbound | | | | SW CAPITOL HWY Eastbound | | | | Int. Total |
|--|--------------------------------|------|------|------------|--------------------------|------|------|------------|--------------------------------|------|------|------------|--------------------------|------|------|------------|------------|
| | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | |
| Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:00 | | | | | | | | | | | | | | | | | |
| 16:00 | 42 | 36 | 2 | 80 | 8 | 128 | 2 | 136 | 3 | 12 | 19 | 34 | 20 | 139 | 14 | 173 | 423 |
| 16:15 | 33 | 37 | 2 | 72 | 3 | 110 | 2 | 115 | 1 | 19 | 20 | 40 | 15 | 145 | 20 | 180 | 407 |
| 16:30 | 37 | 36 | 5 | 78 | 4 | 130 | 2 | 136 | 2 | 11 | 18 | 31 | 14 | 138 | 12 | 164 | 409 |
| 16:45 | 41 | 28 | 1 | 70 | 3 | 124 | 2 | 129 | 3 | 20 | 21 | 44 | 23 | 121 | 20 | 164 | 407 |
| Total Volume | 153 | 137 | 10 | 300 | 18 | 490 | 8 | 516 | 9 | 62 | 78 | 149 | 72 | 543 | 66 | 681 | 1646 |
| % App. Total | 51 | 45.7 | 3.3 | | 3.5 | 95 | 1.6 | | 6 | 41.6 | 52.3 | | 10.6 | 79.7 | 9.7 | | |
| PHF | .911 | .926 | .500 | .938 | .563 | .942 | 1.00 | .949 | .750 | .775 | .929 | .847 | .783 | .936 | .825 | .946 | .973 |

Figure 11. 2018-2021 Daily Transit Ridership Boardings by Line on SW Capitol Hwy

| Bus Line | Fall 2018 | Fall 2019 | Fall 2020 | Fall 2021 | 2021/2019 comparison |
|-----------------|------------------|------------------|------------------|------------------|-----------------------------|
| 39 | 170 | 200 | 30 | 60 | 30% |
| 44 | 4720 | 4940 | 730 | 1210 | 24% |
| 45 | 1100 | 1080 | 240 | 320 | 30% |
| 54 | 2400 | 2320 | 980 | 1200 | 52% |
| 55 | 80 | 60 | 5 | 10 | 17% |
| 56 | 1820 | 1790 | 620 | 860 | 48% |
| 61 | 550 | 570 | 90 | 130 | 23% |
| 64 | 430 | 440 | 70 | 120 | 27% |
| 92 | 340 | 330 | 20 | 40 | 12% |
| | 11610 | 11730 | 2785 | 3950 | 34% |

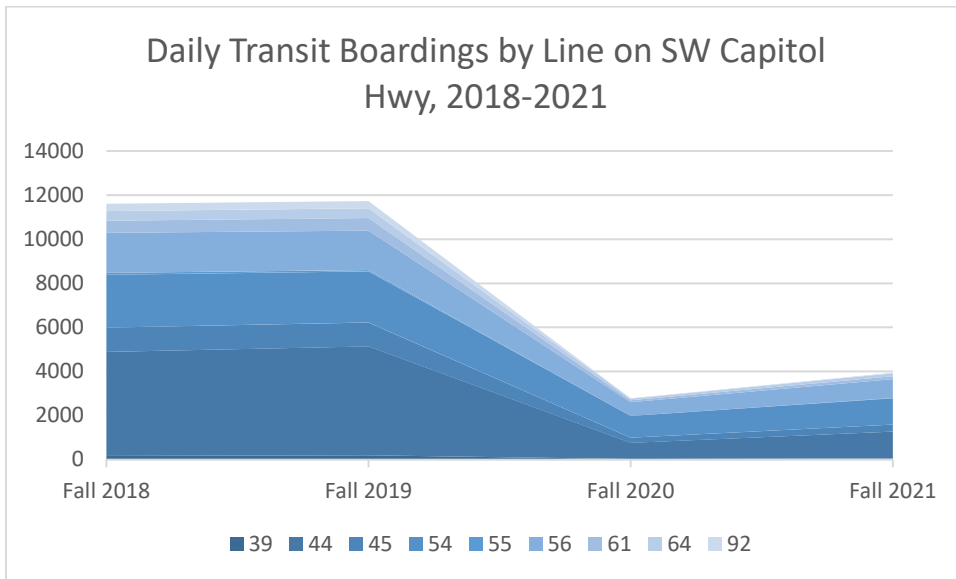


Figure 12. 2019 Transit Delay Measurements and Travel Time Benefit Estimates

Transit Delay figures are measured from TriMet Automatic Vehicle Location (AVL) Data that uses GPS technology to automatically track and determine the geographic location and time of a transit vehicle. This measure is calculated based on many trips over multiple days, weeks, and months. It is not something that can be observed from one trip. TriMet’s AVL data formed the basis for the transit performance research conducted as part of the Enhance Transit Corridors Plan and the Rose Lane Project.

For the Rose Lane Project transit analysis conducted by our consultant, they measured “Transit Delay” to be the difference between 80th percentile (congested) and 20th percentile (free flow) transit travel times for small segments throughout the bus network. This is a more conservative measure of transit delay than we have used in other instances where we have measured “Delay” to be the difference between 90th and 10th percentile travel times. This would capture even slower/more congested travel times. Both measures exclude the top percentile slowest travel times when transit is most delayed. Thus, these transit Delay calculations are more conservative and do not capture for the total delay experienced by buses and bus riders. Nor do these measures fully capture the increased reliability from transit priority improvements.

Travel time savings estimates were calculated by our consultant with proprietary tools that match delay reduction with transit enhancement tools. For example, enhancements at transit stops will yield different time savings than enhancements at intersections, or enhancements along corridors. You will notice that projections do not presume to eliminate all delay in a corridor. See the 2017 [Enhanced Transit Corridors Plan: Capital/Operational Toolbox Toolkit](#)⁵ for more information on individual transit enhancement tools.

In the following table, the 20th percentile field represents “free flow” travel times, and the 80th percentile field represents congested travel times. Delay is calculated as the difference between free flow and congested conditions.

SW Capitol Hwy – AM Peak Travel Time, Delay and Benefit

| | 20 th Pctle | 80 th Pctle | Delay | Time Savings with Project | % Reduction in Delay |
|---|------------------------|------------------------|---------|---------------------------|----------------------|
| Eastbound Bertha Ct to Sunset | 65 sec | 110 sec | 44 sec | 34 sec | 77% |
| Westbound E of Terwilliger to Sunset | 347 sec | 560 sec | 213 sec | 79 sec | 37% |

⁵ <https://www.portland.gov/sites/default/files/2020-03/capital-operational-toolbox.pdf>

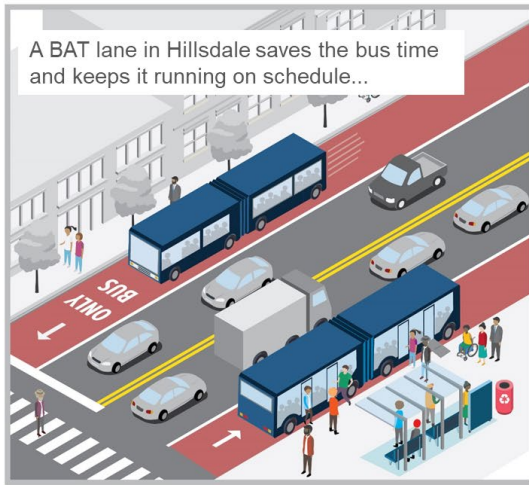
SW Capitol Hwy – PM Peak Travel Time, Delay and Benefit

| | 20th Pctle | 80th Pctle | Delay | Time Savings with Project | % Reduction in Delay |
|---|------------------------------|------------------------------|--------------|----------------------------------|-----------------------------|
| Eastbound Bertha Ct to Sunset | 68 sec | 125 sec | 57 sec | 40 sec | 70% |
| Westbound E of Terwilliger to Sunset | 428 sec | 676 sec | 248 sec | 114 sec | 46% |

Figure 13. Impact of Transit Delay and Unreliability and Benefit of Transit Priority Improvements

WHO BENEFITS FROM TRANSIT PRIORITY IMPROVEMENTS?

Transit priority projects benefit the entire transportation system and everyone who travels through it.



...which means the bus saves time along the entire route. People outside of Hillsdale benefit from an on-time departure, too.



As transit travel times become more competitive with driving, more people take the bus, relieving traffic congestion all over the city.

1. RELIABILITY



Telling the story: the issue with unreliability

A bus trip can take different amounts of time from day to day.

TUESDAY **22 MIN**

THURSDAY **42 MIN**

FRIDAY **36 MIN**

Schedules are conservative on purpose.

People would rather arrive **early** at their destination than **late**.

Buses are usually on time . . .

. . . but people don't want to be late even some of the time.

1. RELIABILITY



Telling the story: how unreliability affects passengers

1. I plan for extra time traveling.

I take an earlier bus to make sure I arrive on time

15 minutes of extra travel time x 5 days a week = 75 minutes of extra time a week

Time that could be better spent on something else

2. It can cost me money.

I'm late for work and could lose my job

I get a late pickup fee at childcare

I'm charged a no-show fee at the doctor

3. It adds stress to my day.

The bus arrives so crowded that I have to wait for the next one

I miss my transfer

1. RELIABILITY

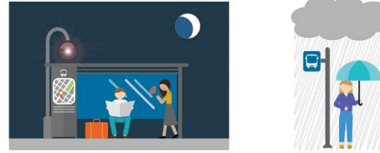


Telling the story: the benefits of reliability

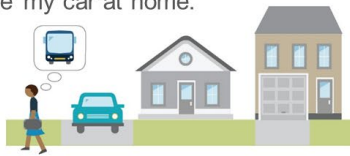
1. I spend more time at home with loved ones.



2. I spend less time waiting for the bus.



3. When the bus is reliable, I'm more likely to leave my car at home.



4. Emergency vehicles are able to respond to emergencies without delay.



1. RELIABILITY

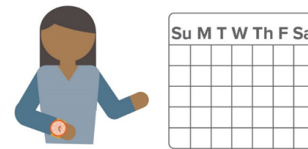


Telling the story: reliability improvements affect bus schedules

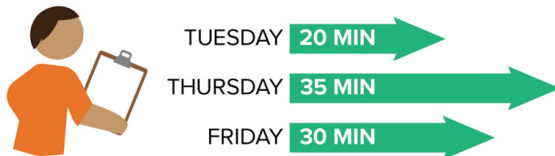
1. Adding transit priority means a faster trip and less crowding on buses.



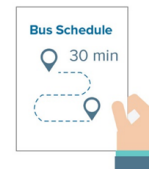
2. People need realistic information so they can plan ahead and not be late.



3. Agencies monitor the bus at several different times to set the schedule.



4. Once travel times are consistently faster, the schedule can be changed.

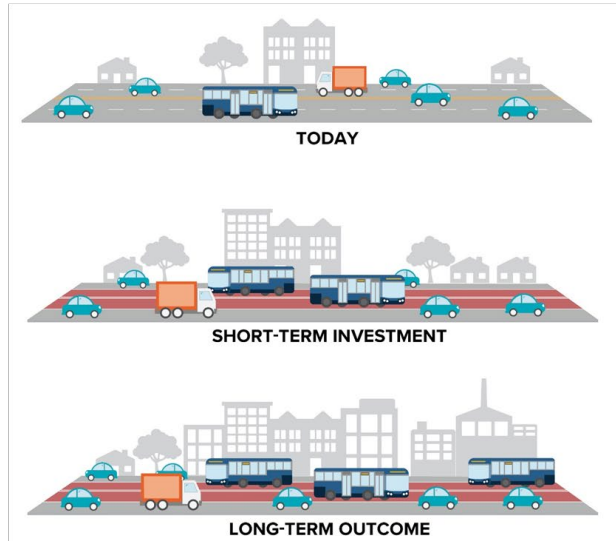


3. TRAVEL TIME SAVINGS & DELAY REDUCTION



Telling the story: small savings today can ensure larger savings long-term

- Use priority treatments now to get ahead of future congestion and protect existing transit run times.
- Even small savings that don't have significant immediate impacts on frequency and operating cost can postpone when additional vehicles/operators may be needed to maintain current frequency.



3. TRAVEL TIME SAVINGS & DELAY REDUCTION



Telling the story: preserve roadway space to guard against future delay and make transit a more attractive travel option

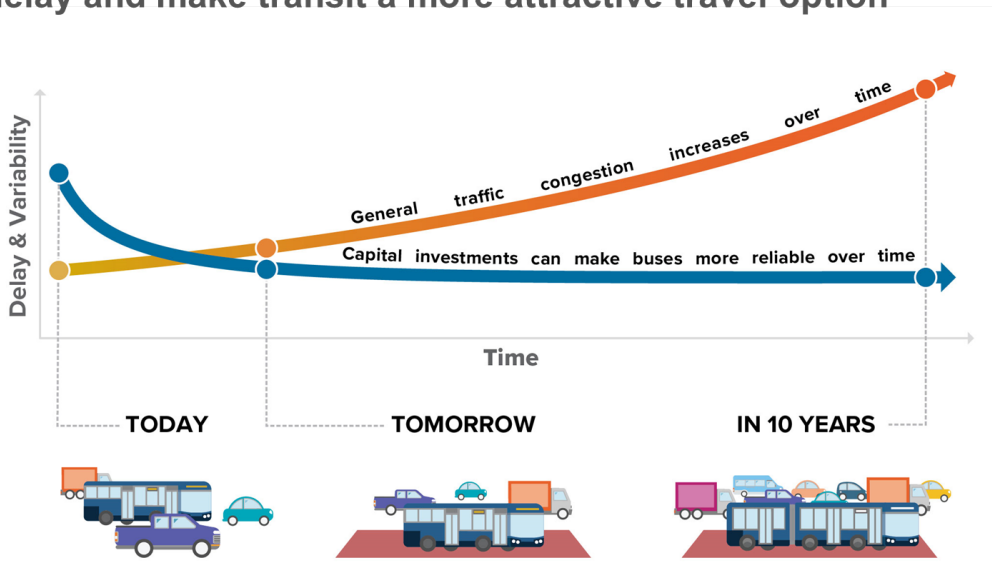


Figure 14. Questions for the Rose City Bus Project from Hillsdale Community Organizations

Hillsdale Business & Professional Association. *Questions for the Rose City Bus Project*. 2022. - Page 1/4

**HILLSDALE BUSINESS & PROFESSIONAL ASSOCIATION
Questions for the Rose City Bus Project**

Effective use of the Capitol Highway Corridor between SW Barbur and SW Cheltenham

We are pleased PBOT seeks to discuss the Rose Bus Project on Capitol Highway with the Hillsdale Communities of HBPA and Hillsdale Neighborhood Association. We have discussed it at length among ourselves and have come up with several questions to which we would like to have written answers before we schedule our respective meetings to discuss it further with you.

Our main concerns are on the westbound route. There are few questions on the eastbound changes which will actually increase safety by eliminating racers passing on left to the signal at Sunset and then racing out when the signal changes to beat the vehicle in the center lane to the merge point, the same area where the east bound busses are reentering traffic after on/off loading passengers at Sunset.

On the westbound part of the plan we are very interested in the details and how the implementation of Rose Lane in Capitol Hwy will affect livability for our residents, the greenhouse gas impact, the safety of our pedestrians, and bicycle users on the affected streets the economic impact on our struggling businesses and especially our growing percentage of vulnerable seniors.

Issues that we seek answers to under PRE- PANDEMIC (PP) traffic and Bus conditions:

1. What were the PP daily vehicle speeds and count of traffic East Bound, EB, and West Bound, WB, on Capitol Hwy west of Terwilliger. We know there were counts done pre pandemic but cannot find them in the PBOT traffic count on-line data. Same question during evening rush hour.
2. What were the westbound PP TriMet passenger counts that would have been affected during evening rush hour? Please provide the details of how the transit rider time saving was calculated. We would appreciate receiving all the data used to calculate the time savings for each line including differences in travel time and passenger counts for the rush hours being considered.
3. What was the average PP time delay of TriMet busses due to the bus que at Sunset awaiting a berth to unload?

4. What were the PP vehicle speeds and counts on SW Westwood Drive, SW Cheltenham and Burlingame Avenue?
5. What was the PP status of the traffic seeking to turn left from Burlingame Avenue on to westbound Capitol Highway during evening rush hour?
6. What was the PP status (Travel speed and counts) of SW Bertha between SW 13th and SW Barbur?
7. What was the PP vehicle speed and counts on Terwilliger north and south of Capitol Hwy? What was the average delay for evening rush hour traffic?
8. How many vehicles PP turned right onto westbound Capitol Hwy from Terwilliger during rush hour?

We seek the same data as above for the same questions using current data (CD) for traffic and Bus conditions:

9. What were the CD daily vehicle speeds and count of traffic East Bound, EB, and West Bound, WB, on Capitol Hwy west of Terwilliger.
10. What were the westbound CD TriMet passenger counts that would have been affected during evening rush hour? We would appreciate receiving all the data used to calculate the time savings for each line including differences in travel time and passenger counts for the rush hours being considered using CD.
11. What was the average CD time delay of TriMet busses due to the bus que at Sunset awaiting a bus to unload?
12. What are the CD vehicle speeds and counts on SW Westwood Drive, SW Cheltenham and Burlingame Avenue?
13. What will be the CD status of the traffic seeking to turn left from Burlingame Avenue onto westbound Capitol Highway during evening rush hour? Do the PBOT traffic engineers believe it will be safe to make a left turn from Burlingame Ave during evening rush hour?
14. What was the CD status of SW Bertha status? Travel speed and counts? between SW 13th and SW Barbur?
15. What was the CD vehicle speed and counts on Terwilliger north and south of Capitol Hwy? What was the average delay for evening rush hour traffic?

Additional Questions to which we seek answers:

- A. The anticipated time delay on the numerous Express Buses carrying transit riders to and from OHSU/VA via Terwilliger? With only one lane available for non bus vehicles, We anticipate frequent cases of vehicles stopping part way through the Terwilliger/Capitol Hwy intersection like presently is a frequent occurrence at Sheridan & Barbur/4th Ave.
- B. The time delay ambulances traveling on Terwilliger will incur due to increased congestion at Capitol Highway. Terwilliger is an important ambulance route.
- C. How much delay does PBOT anticipate will occur on Terwilliger under the assumed conditions. How does PBOT anticipate the Terwilliger vehicle traffic turning movement onto Capitol Hwy Westbound. Do you anticipate they will turn into the Bus lane? How much bus delay might this cause?
- D. How many vehicles coming southbound on Barbur will be diverted during rush hour traffic due to a lack of capacity on Capitol Hwy for both PP and CD conditions? How many extra miles will they have to travel due to the diversion and what is the quantity of greenhouse gas pollution they will generate due to traveling the extra miles?
- E. Under PRE- PANDEMIC traffic, what will the expected increase in travel time and associated green house gas generation for the vehicles in the single lane going uphill toward Hillsdale.
- F. For the vehicles in the single lane, under PP conditions, what is the quantity of additional greenhouse gas pollution they will generate due to stopping and going on a steep grade?
- G. Under PP traffic conditions, how many additional vehicles will choose Westwood or Cheltenham as alternative routes to avoid time delays and congestion at Terwilliger/Capitol Hwy. How much additional traffic would we see on Westwood Dr, Cheltenham Ct, Pendleton and 18th Drive as vehicles attempt to find alternative routes. What mitigation is proposed to reduce traffic speeds and congestion on these narrow streets with no sidewalks that are used by many walkers and bicyclists?

H. Using PBOT's traffic projections under PRE- PANDEMIC traffic conditions how many fewer vehicles will pass through Hillsdale commercial area on Capitol Hwy during evening rush hour? The Hillsdale Business Community is very concerned the reduced traffic will seriously affect their businesses.

I. Data used to calculate the time savings. We would appreciate receiving all the data used to calculate the bus rider time savings for each line including differences in travel time and passenger counts in each direction for the rush hours being considered.

How do we make the most effective use of Capitol Highway from SW Barbur to SW Cheltenham?

Our initial current investigations suggest the passenger time savings being claimed for this improvement are seriously overstated. For example, driving at speed limit takes 1 minute, driving during current rush hour 1:20. That is a 20 second savings, not 1-2 minutes. Doing the math, a 2 minute delay means the bus would be averaging 10 miles per hour. That has not been the case! This historic route of old Slavin Road, now Capitol Highway, has been developed without the creation of a network of supporting streets allowing for community circulation by car, bike, or walking.

Now let's talk about what the commercial and residential communities of Hillsdale need: safe sidewalks or pedestrian walking space between SW Cheltenham and Terwilliger. The need for this connection between the town center and major park, exercise, and recreational areas which SW Terwilliger and George Himes Park provide was highlighted in the long-ago approved (1999) Capitol Highway Plan and 1999 Hillsdale Town Center Plan. Portland has identified Pedestrians as the most important part of our transportation system. Devoting resources to create this much needed pedestrian connection is the most effective safety improvement Portland can make to this congested corridor.