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Powell-Division Transit and Development Project — Transportation Technical Memo

Introduction

Extending from downtown Portland to Troutdale and including Gresham, Oregon's fourth most populous city, the Powell-Division corridor is home to a large, diverse population and a significant employment base. The corridor includes several prominent educational institutions, major retail centers, and many other transit attractors. Most of the corridor consists of an urban environment, with some of the region's oldest neighborhoods that developed around streetcar lines in the late 19th and early 20th centuries to the west, and some of the fastest growing communities in the region to the east.

Future transit investment within the corridor will need to balance the needs of transit users with those of automobile and freight traffic, bicyclists, and pedestrians. The purpose of this report is to evaluate these existing transportation networks, and identify the various opportunities and constrains they present for high capacity transit in the corridor.

Both the bicycle and pedestrian networks are in need of improvement within the corridor, and bike lanes and sidewalks would need to be included with any transit investment that significantly alters the roadway. Division Street lacks bike lanes west of 60th Avenue, and Powell Boulevard has no bicycle facilities west of I-205. From 12th Avenue to 87th Avenue, the Clinton/Woodward Street bike boulevard provides a parallel route for both Division Street and Powell Boulevard, though bike lanes on Powell are also included within the Portland Bicycle Plan for 2030. Sidewalk coverage is relatively complete west of I-205, but in between I-205 and the Gresham city boundary there is a major sidewalk gap on Division St. between 182nd and Birdsdale, and many sidewalk gaps on Powell Boulevard and the local streets surrounding Powell and Division.

All four potential transit alternative routes between Portland and Gresham (Powell, Division, Powell transitioning to Division, and Division transitioning to Powell) have conflicts with roadway segments that are heavily congested and/or have unreliable traffic speeds during the PM peak hour. From a traffic prospective, none of these transit alternative routing choices are substantially more favorable. 52nd Avenue may provide a better crossover transit connection between Powell and Division from a traffic congestion and reliability prospective.

Section 1: Corridor Facilities

This section introduces the Powell-Division corridor's existing roadway, transit, freight, bicycle, and pedestrian networks.

Transit Network

Currently, the corridor is served by a number of bus and rail lines. Figure 1 shows the TriMet transit service in the corridor. The MAX Blue Line travels between downtown Portland and downtown Gresham via a route north of the corridor, running alongside I-84, I-205, and Burnside Street. The MAX Green line provides north-south service through the corridor parallel to I-205. The Portland to Milwaukie Light Rail Transit project (MAX Orange Line) is under construction and will operate within a small portion of the corridor, providing service to stations at OMSI/SE Water Avenue, Clinton and 12th Avenue, Rhine and 17th Avenue, and Holgate and 17th Avenue. The 4 and 9 are the primary east-west bus lines running directly through the corridor, and both currently have some of the highest ridership in the city. Other supplementary east-west lines in and around the corridor include the 20, 17, 14, and 10. Several bus lines run north-south through different parts of the corridor, including the 33, 19, 70, 75, 71, 72, 87, and 21, but there are limited north-south transit options between 122nd and 182nd Avenues.

There is one designated transit center in the corridor, located in downtown Gresham. The transit center is served by the MAX Blue Line and several bus lines, including the 4 and 9. Within the corridor there are five park and ride lots ranging in capacity from 24 to 417 vehicles, including two in Gresham, two along I-205, and one near Holgate Boulevard and Foster Road, all with a total capacity of about 1,350 vehicles.

Powell-Division - Transit System Map

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Figure 1. TriMet transit system map.

Freight Network

Within the corridor, both Powell Boulevard and Division Street are components of the regional or local freight networks. Figure 2 and 3 show the roadways and other facilities that are used for freight traffic, based on City of Portland freight designations and the Regional Transportation Plan (RTP) freight network. The Portland Bureau of Transportation is currently discussing the potential for elevating the importance of freight traffic on Powell Blvd. from the Ross Island Bridge to SE 17th Avenue. Table 1 summarizes the freight route designations for Division Street and Powell Boulevard within the corridor.

Table 1. Freight designations for Division Street and Powell Boulevard within Portland and Gresham.

		Local	RTP	ODOT	ОНР		
Division Street	Portland	'Truck access street' except 50 th to 82 nd Ave.	No designation	No designation	No designation		
Division Street	Gresham	No designation	No designation	No designation	No designation		
Powell Boulevard	Portland	'Major truck street'	'Road connector'	'ORS 366.215'*	'Truck route'		
(US 26)	Gresham	No designation	'Road connector'	No designation	No designation		
*Note: Powell Blvd. is classified as a Reduction Review Route in the Oregon Freight Plan. Under ORS 366.215 any proposed decrease in vehicle carrying on Powell Blvd. (removal of a travel lane or other reductions of the "hole-in-the-air" needed to accommodate legal loads and annual permitted over-dimensional loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission							

Powell-Division - Regional Transportation Plan Freight Network

DRAFT 9/9/14



Figure 2. Regional Transportation Plan freight network.



Figure 3. Portland Truck Map (from Portland Freight Committee: https://www.portlandoregon.gov/transportation/article/476724)

Bicycle Facilities

While the corridor offers some bicycle facilities, including bike lanes on arterials and bike boulevards on local streets, there are many gaps remaining in the network. Figure 4 shows the Active Transportation Plan (ATP) bikeways, Figure 5 illustrates the existing corridor bicycle facilities and multi-use paths, and Figure 6 shows the City of Portland recommended bike network. Currently, Powell Boulevard has bike lanes east of I-205, but lacks bike lanes between the Willamette River and I-205. Division Street includes bike lanes from 60th Avenue to the Gresham-Fairview trail just west of Birdsdale Avenue, and from Wallula Avenue to Kane Drive in Gresham. Although Division Street lacks bike lanes west of 60th Avenue, the Clinton/Woodward Street bike boulevard provides a parallel route from 12th Avenue to 87th Avenue. Several multi-use paths cross through the corridor, including the I-205 bike path, the Gresham-Fairview trail, and the Springwater Corridor trail. In the ATP, Powell is designated as a bikeway throughout the entire corridor, and Division is included as a bikeway east of 50th Avenue.



 Regional Bikeway
 corridor study area

 Community Bikeway
 ------ city boundary lines

Figure 4. Active Transportation Plan bikeways.

Powell-Division Transit and Development Project: Transportation Technical Memo DRAFT 9/15/2014

Powell-Division - Bicycle Routes



Figure 5. Existing bicycle routes.



Sidewalks

The quality of pedestrian facilities varies greatly throughout the corridor, ranging from dense areas with full sidewalk coverage to more rural stretches with limited sidewalks. Figure 7 shows the Active Transportation Plan (ATP) pedways and Figure 8 shows the existing sidewalk network in the corridor. Sidewalk coverage is relatively high west of I-205, both on Powell Boulevard and Division Street, as well as within the local street network. Between I-205 and downtown Gresham, Division Street has few major sidewalk gaps with the exception of the segment between 182nd Avenue and Birdsdale Avenue, while Powell Boulevard has only a handful of short sidewalk segments through the entire stretch from I-205 to the Gresham city boundary. In this area, many local streets surrounding Powell Boulevard and Division are included as regional pedways in the ATP from the Willamette River through downtown Gresham.



 Regional Pedway
 corridor study area

 Community Pedway
 ----- city boundary lines

Figure 7. Active Transportation Plan pedways

Powell-Division Transit and Development Project: Transportation Technical Memo DRAFT 9/15/2014

Powell-Division Sidewalk Coverage



Figure 8. Existing sidewalk coverage.

Section 2: Current Traffic Conditions

This section analyzes current traffic conditions in the corridor, highlighting roadways with slow traffic speeds, heavy congestion, and unreliable travel times. These measures are calculated based on historical traffic data from INRIX for the 1-hour weekday AM and PM peaks (7 to 8 AM and 5 to 6 PM, respectively) and a 1-hour free-flow period (2 to 3 AM) aggregated over all the weekdays in the year 2013. INRIX traffic data is collected by tracking and compiling data from wireless signatures of users' electronic devices as they travel, along with vehicle probes outfitted with appropriate hardware, and generating actual travel profiles from the resulting information.

Average Speed

Figure 9 and Table 2 show vehicle travel speeds during the weekday AM and PM peaks. Slow areas with average traffic speeds below 25 mph include:

- Division St. between 11th Ave. and Cesar Chavez Blvd. (both directions during AM and PM)
- Division St. between Cesar Chavez Blvd. and 60th Ave. (westbound AM and both directions during PM)
- Division St. between 82nd Ave. and I-205 (eastbound PM)
- Division St. between Burnside St. and 242nd Ave. (westbound PM and eastbound during AM and PM)
- Powell Blvd. between McLoughlin Blvd. and 52nd Ave. (westbound AM and eastbound PM)
- Powell Blvd. between 82nd Ave. and I-205 (both directions during PM)
- Cesar Chavez Blvd. between Division St. and Powell Blvd. (southbound PM)
- 50th Ave. between Division St. and Powell Blvd. (southbound AM and PM)
- 82nd Ave. between Division St. and Powell Blvd. (both directions during PM)

Powell-Division Average Traffic Speed - 2013



Figure 9. Average 2013 traffic speeds during weekday AM and PM peak hours.

Congestion

For the purposes of this memo, congestion is measured by dividing average peak hour travel speed by average free-flow speed. Figure 10 and Table 2 show the average congestion rates across the corridor. The most heavily congested road segments, with peak hour speeds less than 80 percent of free-flow speeds include:

- Division St. between 11th Ave. and Cesar Chavez Blvd. (eastbound PM)
- Division St. between Cesar Chavez Blvd. and 60th Ave. (both directions during PM)
- Division St. between 82nd Avenue and 112nd Avenue (eastbound PM)
- Division St. between 242nd Ave. and Troutdale Rd. (eastbound AM)
- Powell Blvd. between McLoughlin Blvd. and 52nd Ave. (westbound AM and eastbound PM)
- Powell Blvd. between 82nd Ave. and I-205 (eastbound PM)
- Cesar Chavez Blvd. between Division St. and Powell Blvd. (southbound PM)
- 82nd Ave. between Division St. and Powell Blvd. (both directions during PM)
- 122nd Ave. between Division St. and Powell Blvd. (southbound PM)
- 242nd Ave. between Division St. and Powell Blvd. (northbound PM)

Many other facilities have peak hour travel times between 80 and 90% of free-flow speed in the PM peak, including most of the remaining segments of Powell Blvd. and Division St. from east of the Willamette River to downtown Gresham. Although the congestion measure represents average conditions in the weekday peak hours over the course of one year, travel conditions can vary from day to day.

Powell-Division Traffic Congestion - 2013



Figure 10. Average 2013 traffic congestion during weekday AM and PM peak hours, calculated as average peak speed divided by average free flow speed (2 to 3 am).

Reliability

While some locations experience regular, predictable congestion, travel times on other roadways vary greatly from day to day. Travel time reliability measures the extent of the variance from the typical peak travel time. This is important to many travelers because a consistent travel time from point to point facilitates adequate planning for the trip. Unexpected congestion can pose a particularly frustrating problem to travelers since the delay encountered cannot easily be planned for whether driving or taking transit. The *buffer index* measures reliability by comparing the average peak hour travel time to the 95th percentile peak hour travel time for each roadway segment, calculating the extra time ("buffer") a traveler should allow (expressed as a percentage of the link's average peak hour travel time) to arrive on time for 95% of all trips. For example, a buffer index of 50% for a 10-minute trip would mean that a driver would need to plan for 15 minutes of travel time in order to arrive on time 19 out of 20 workdays in a month.

Figure 11 and Table 2 show the buffer index across the corridor. The road segments with the least reliable peak travel times include:

- Division St. between 11th Ave. and Cesar Chavez Blvd. (eastbound PM)
- Division St. between 242nd Ave. and Troutdale Rd. (eastbound AM)
- Powell Blvd. between McLoughlin Blvd. and 52nd Ave. (westbound during AM and both directions during PM)
- Powell Blvd. between 82nd Ave. and I-205 (eastbound PM)
- Cesar Chavez Blvd. between Division St. and Powell Blvd. (both directions during PM)
- 82nd Ave. between Division St. and Powell Blvd. (southbound PM)
- 122nd Ave. between Division St. and Powell Blvd. (southbound PM)

Powell-Division Traffic Reliability - 2013



Figure 11. Average travel time reliability in 2013. The buffer index represents the additional travel time that should be planned for in order to arrive on schedule 95% of the time, represented as a percentage of the average peak travel time.

			Average Speed			Congestion		Reliability (Buffer Index)	
Street	Segment	Dir	Free Flow	AM	PM	AM	PM	AM	PM
Daviall	Malawahila ta 50ad	WB	33.39	23.93	27.03	72%	81%	Reliability (Bu AM 120% 14% 14% 10% 31% 28% 14% 7% 14% 7% 14% 15% 14% 29% 14% 9%	55%
Powell	Nicloughlin to 52nd	EB	32.60	29.67	23.11	91%	71%	14%	89%
Dowoll	F2nd to 92nd	WB	32.99	31.41	30.06	95%	91%	Reliability (B) AM 120% 14% 14% 10% 31% 28% 14% 10% 31% 28% 14% 5% 14% 9% 24% 8% 7% 17% 28% 36% 13% 21% 42% 15% 17% 28% 36% 13% 21% 42% 15% 17% 28% 36% 13% 21% 42% 15% 17% 15% 17% 15% 19% 22%	18%
Powell	52nd to 82nd	EB	33.00	31.88	27.86	97%	84%		32%
Devuell	02md to 1 205	WB	29.85	26.75	24.73	90%	83%	AM 120% 14% 14% 10% 31% 28% 14% 7% 17% 6% 14% 9% 24% 8% 7% 14% 15% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 36% 13% 21% 42% 15% 17% 15% 19% 23%	36%
Powell	82nd to 1-205	EB	29.85	26.86	22.60	90%	76%		62%
David	1 205 to 122 d	WB	32.00	30.15	28.19	94%	88%	AM 120% 14% 14% 10% 31% 28% 14% 7% 17% 6% 14% 9% 24% 8% 7% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 9% 21% 42% 15% 9% 15% 9% 19% 23%	23%
Powell	1-205 to 122nd	EB	32.00	31.45	27.04	Congestion Reliability AM PM AM 72% 81% 120% 91% 71% 14% 95% 91% 14% 97% 84% 10% 90% 83% 31% 90% 76% 28% 94% 88% 14% 98% 85% 7% 93% 87% 17% 99% 89% 6% 95% 90% 14% 92% 89% 15% 95% 90% 14% 91% 89% 29% 94% 85% 14% 96% 75% 9% 92% 80% 24% 96% 75% 9% 92% 84% 17% 92% 84% 17% 92% 84% 17% 92% 84% 11% 92% 87% 36% <t< td=""><td>7%</td><td>28%</td></t<>	7%	28%	
Damall	122	WB	34.00	31.45	29.70	93%	87%	AM 120% 14% 14% 10% 31% 28% 14% 10% 31% 28% 14% 28% 14% 28% 14% 28% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 9% 13% 21% 15% 15% 9% 19% 23%	26%
Powell	122nd to 162nd	EB	34.00	33.54	30.09	99%	PM AM 81% 120% 71% 14% 91% 14% 91% 14% 83% 10% 83% 31% 88% 14% 88% 14% 88% 14% 88% 14% 88% 14% 88% 14% 88% 14% 89% 6% 90% 14% 89% 15% 88% 14% 89% 29% 88% 14% 89% 29% 88% 14% 89% 29% 88% 7% 88% 7% 88% 7% 88% 7% 88% 17% 88% 13% 92% 42% 88% 15% 92% 42% 88% 15% 92%	17%	
Damall		WB	35.59	33.69	32.04	95%	90%	14%	16%
Powell	162nd to Eastman	EB	34.96	32.30	31.12	92%	89%	AM AM 6 120% 5 6 14% 8 6 14% 1 6 14% 1 6 14% 1 6 10% 3 6 28% 6 6 14% 2 6 14% 2 6 14% 2 6 14% 2 6 14% 2 6 6% 1 6 14% 2 6 14% 2 6 29% 1 6 29% 1 6 29% 1 6 29% 1 6 29% 1 6 24% 2 % 7% 2 % 36% 2 % 13% 2 % 13% 2 %	20%
D	F	WB	31.99	30.25	26.97	95%	84%	Reliability (But AM 120% 14% 14% 10% 31% 28% 14% 7% 14% 15% 14% 9% 28% 14% 7% 17% 6% 14% 9% 24% 8% 7% 14% 29% 14% 29% 14% 29% 14% 9% 24% 8% 7% 17% 13% 21% 42% 15% 9% 19% 23%	39%
Powell	Eastman to Hogan	EB	31.00	28.17	27.59	91%	89%		19%
		WB	24.00	22.58	20.38	94%	85%	14%	20%
Division	11th to Cesar Chavez	EB	25.00	24.05	18.86	96%	75%	120% 14% 14% 1% 10% 3% 31% 3% 31% 3% 31% 3% 31% 3% 14% 3% 14% 3% 14% 3% 14% 3% 14% 3% 14% 3% 14% 3% 14% 3% 14% 3% 14% 3% <t< td=""><td>56%</td></t<>	56%
		WB	26.00	23.90	20.72	92%	80%	24%	44%
Division	Cesar Chavez to 60th	EB	27.00	25.45	21.54	94%	80%	8%	42%
		WB	32.00	30.72	28.03	96%	88%	AM 120% 14% 14% 14% 10% 31% 28% 14% 7% 17% 6% 14% 9% 24% 8% 7% 17% 28% 36% 13% 21% 42% 15% 17% 8% 7% 15% 9% 24% 8% 7% 15% 13% 21% 42% 15% 9% 19% 23%	23%
Division	60th to 82nd	EB	31.00	30.22	27.74	97%	89%	7%	15%
	00 I. I. 007	WB	30.35	28.01	25.44	92%	84%	17%	37%
Division	82nd to I-205	EB	32.00	27.33	24.71	85%	77%	Reliability (f AM 120% 14% 14% 10% 31% 28% 14% 28% 14% 28% 14% 28% 14% 28% 14% 28% 14% 9% 14% 9% 24% 8% 7% 14% 9% 24% 8% 7% 17% 28% 36% 13% 21% 42% 15% 9% 19% 23%	50%
5		WB	34.00	31.14	29.43	92%	87%	AM 120% 14% 14% 10% 31% 28% 14% 7% 17% 6% 14% 15% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 29% 14% 15% 17% 28% 36% 13% 21% 42% 15% 15% 15% 15% 15% 15% 15% 15	26%
Division	I-205 to 122nd	EB	33.98	32.19	26.77	95%	79%	13%	42%
5		WB	34.00	32.41	28.68	95%	84%	21%	26%
Division	122nd to 148th	EB	33.85	29.04	30.99	86%	92%	28% 50 36% 26 13% 42 21% 26 42% 16 15% 19	16%
5		WB	37.98	35.74	33.55	94%	88%	15%	% 19%
DIVISION	148th to 182nd	EB	34.00	31.91	30.12	94%	89%	17%	17%
5	402 11 202 1	WB	38.00	35.78	33.61	94%	88%	15%	19%
Division	182nd to 202nd	EB	37.00	34.79	33.98	94%	92%	9%	16%
5		WB	32.00	28.68	26.07	90%	81%	19%	39%
Division	202nd to Burnside	EB	31.85	28.44	26.76	89%	84%	23%	28%

Table 2: Summary Table of 2013 Traffic Conditions in Powell-Division Corridor. Colors correspond to maps in Figures 6-8.

			Average Speed		Congestion		Reliability (Buffer Index)		
Street	Segment	Dir	Free Flow	AM	PM	AM	РМ	AM	PM
Division	Purnsido to Hogan	WB	28.55	27.35	24.79	96%	87%	27%	24%
DIVISION	Burnside to Hogan	EB	23.37	21.00	20.63	90%	88%	AM 27% 32% 3% 65% 25% 25% 25% 25% 25% 21% 17% 20% 12% 15% 4% 18% 14% 15% 33% 18% 12% 33% 18% 19% 12% 13%	35%
Division	Llogon to Troutdolo	WB	32.00	31.87	29.65	100%	93%	3%	14%
DIVISION	Hogan to Troutdale	EB	33.00	25.57	31.26	77%	95%	65%	
Chaver	Dowell to Division	NB	30.00	28.33	25.71	94%	86%	25%	87%
Chavez	Powell to Division	SB	30.00	26.87	21.10	90%	70%	25%	76%
F0th	Dowell to Division	NB	28.95	25.46	25.40	88%	88%	AM 27% 3 32% 3 32% 3 65% 2 25% 3 25% 3 25% 3 21% 3 17% 3 20% 3 12% 3 15% 3 15% 3 14% 3 15% 3 12% 3 12% 3 12% 3 12% 3 12% 1 12% 3 13% 3 12% 3 13% 3 12% 3 13% 3 13% 3 13% 3 13% 3 13% 3 13% 3 13% 3 13% 3 13% 3 13% 3 13% 3 <t< td=""><td>16%</td></t<>	16%
50111	Powell to Division	SB	27.06	23.57	21.85	87%	81%		35%
0 0 md	Dowell to Division	NB	30.96	29.83	24.49	96%	79%	25% 25% 21% 17% 20% 12% 15% 4% 18% 14% 14% 15% 13% 24% 12%	35%
82110	Powell to Division	SB	28.99	27.67	20.66	95%	71%	12%	81%
02md	Dowell to Division	NB	30.95	28.44	29.97	92%	97%	15%	15%
92110	Powell to Division	SB	29.98	29.06	27.11	97%	90%	12% 15% 4% 18% 14% 15%	36%
122nd	Dowell to Division	NB	33.00	31.07	29.14	94%	88%	0% 4% 3 8% 18% 2 6% 14% 5	22%
12200	Powell to Division	SB	33.01	31.77	25.08	96%	76%	14%	57%
Factman	Dowell to Division	NB	31.00	30.64	29.01	99%	94%	AM 27% 32% 3% 65% 25% 25% 21% 17% 20% 12% 15% 4% 15% 13% 24% 12% 33% 18% 19% 12% 13% 24% 12% 33% 18% 19% 12% 13% 23% 18%	19%
Edstilldli	Powell to Division	SB	34.00	32.17	30.70	95%	90%	13%	26%
222rd	Division to Stark	NB	34.38	31.92	30.42	93%	88%	AM 27% 32% 32% 3% 65% 25% 25% 21% 17% 20% 12% 15% 4% 18% 14% 15% 13% 24% 12% 13% 24% 12% 12% 12% 12% 12% 12% 12% 12	24%
22510	DIVISION to Stark	SB	34.12	31.63	31.07	93%	91%	12%	23%
llagan	Dowell to Division	NB	32.32	28.71	25.78	89%	80%	33%	44%
подан	Powell to Division	SB	31.11	29.08	26.03	93%	84%	18%	40%
llesen	Division to Starly	NB	36.98	34.78	32.28	94%	87%	19%	23%
Hogan	Division to Stark	SB	37.00	34.67	31.41	94%	85%	12%	37%
Stark 22	222 rd to Lla son	WB	37.00	35.02	34.86	95%	94%	12%	12%
	ZZSIO TO HOGAN	EB	35.00	32.90	31.74	94%	91%	13%	17%
Stark Hogan to T	Llogon to Troutdele	WB	31.98	28.85	28.39	90%	89%	23%	19%
	nogali to froutuale	EB	33.00	29.16	29.63	88%	90%	18%	18%

Section 3: Summary and opportunities

The existing roadway, freight, bicycle, and pedestrian networks provide some opportunities and challenges in planning future high capacity transit investments in the Powell-Division corridor. Both the bicycle and pedestrian networks are in need of improvement within the corridor, and bike lanes and sidewalks would need to be included with any transit investment that significantly alters the roadway. Division Street lacks bike lanes west of 60th Avenue, and Powell Boulevard has no bicycle facilities west of I-205. From 12th Avenue to 87th Avenue, the Clinton/Woodward Street bike boulevard provides a parallel route for both Division Street and Powell Boulevard, though bike lanes on Powell are also included within the Portland Bicycle Plan for 2030. Sidewalk coverage is relatively complete west of I-205, but in between I-205 and the Gresham city boundary there is a major sidewalk gap on Division St. between 182nd and Birdsdale, and many sidewalk gaps on Powell Boulevard and the local streets surrounding Powell and Division.

The existing traffic conditions pose a different set of opportunities and constraints for planning future transit. Parts of both Powell Boulevard and Division Street feature heavy congestion and unreliable traffic speeds during the evening peak hour (5-6 PM), particularly west of 52nd Avenue, which results in long travel times and poor on-time performance for buses (see Transit Technical Memo). During the morning peak hour (7-8 AM), Powell Blvd. west of 52nd Avenue is heavily congested and has unreliable traffic speeds in the westbound direction; with the rest of the routes in the corridor experiencing much less traffic congestion and reliability issues. Of the streets running north-south through the corridor, Cesar Chavez Boulevard and 82nd Avenue are the most congested and least reliable during the PM peak hour. 52nd Avenue may provide a better crossover transit connection between Powell and Division from a traffic congestion and reliability prospective. All four potential transit alternative routes between Portland and Gresham (Powell, Division, Powell transitioning to Division, and Division transitioning to Powell) have conflicts with roadway segments that are heavily congested and/or have unreliable traffic speeds during the PM peak hour. From a traffic prospective, none of these transit alternative routing choices are substantially more favorable.

While exclusive transit lanes on segments with slow traffic would provide significant travel time savings over the existing local bus service, there is also a need to maintain the current automobile capacity in heavily congested areas. Road segments that reliably flow close to free-flow speeds at the peak hour, in contrast, present opportunities to either convert automobile travel lanes to exclusive transit lanes or run high capacity transit in mixed traffic.

The benefits of running HCT in exclusive lanes must be balanced with the potential impacts to neighboring properties in areas where traffic issues would prohibit converting auto lanes. Because Powell and Division both run through already developed communities, there are many areas with severe physical right-of-way constraints, including parks and schools located adjacent to the roadways.