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Technical Memorandum

December 2, 2024

Project# 29385

To: Todd Johnson & Garrett Sabourin
City of Bend

From: Matt Kittelson, PE, Jamie Markosian, PE, Pavithran Balan, Kittelson & Associates, Inc.

RE: Bend Midtown Crossing - Greenwood Traffic Monitoring: Post-Construction September 2024

TRAFFIC MONITORING SUMMARY

As part of the Midtown Crossing Progressive Design Build effort, Kittelson & Associates, Inc. (Kittelson) is supporting a traffic data monitoring inventory for the Greenwood Avenue Quick Build. The Quick Build is a one-year pilot project to evaluate the safety and operations impact of transforming the existing roadway on Greenwood Avenue from 2nd Street to Wall Street to a three-lane cross section with buffered bike lanes. Kittelson will monitor the pre- and post-construction volume, travel speed, and travel time data to assess the project's effects on traffic operations.

The memorandum documents the findings after the first round of post-construction data collection in September 2024.

As part of the monitoring process, the following data were collected:

- Traffic Count Data
 - 48-hour travel volume, speed, and vehicle classification data for vehicles
 - 48-hour pedestrian and bicycle volumes
- Travel Time Data
 - Google API
 - INRIX

Data will be collected during the following time periods for evaluation:

- Pre-construction – May 2024 (**Complete and included in this memorandum**)
- Post-construction – September 2024 (**Complete and included in this memorandum**)
- Post-construction – January/February 2025 (Pending)
- Post-construction – May/June 2025 (Pending)

Data Collection Conditions

This section provides a summary of conditions during each data collection period. The purpose of this summary is to note conditions during the data collection period so that trends can be identified over time, as travel patterns may be influenced by ideal or adverse weather conditions.

Pre-Construction – May 14th & 15th, 2024:

Conditions during this data collection period were slightly warmer than seasonal averages for spring, with lows around 38°F and highs between 71-80°F. There was no reported precipitation and winds were calm. Air quality was reported to be good on both days.

Post-Construction – September 24th & 25th, 2024:

Conditions during this data collection period were warmer than seasonal averages for fall, with lows around 49-56°F and highs between 80-90°F. Winds ranged from calm to gusts up to 40+ mph during midday on September 25th. Air quality was moderate on the days data was collected, although the area had experienced unhealthy conditions the prior week due to late-season wildfires.

Traffic Count Data Analysis

Traffic counts and speed data were collected to understand the pre- and post-construction travel demand on Greenwood Avenue. For each round of data collection, two days (48 hours) of vehicle, pedestrian, and bicycle counts were collected at two locations:

- Greenwood Avenue between Harriman Street and Hill Street (west of Hill Street).
- Greenwood Avenue between Hill Street and 1st Street (east of Hill Street near the undercrossing).

The data were collected on the following dates:

- Pre-construction: Tuesday May 14, 2024, and Wednesday May 15, 2024
- Post-construction: Tuesday Sep 24, 2024, and Wednesday Sep 25, 2024

The volume and speed data are provided in Appendix A and Appendix B for pre- and post-construction periods, respectively.

Vehicle Volume

Kittelson analyzed the traffic volumes by averaging two days of data, as shown in Table 1. Key findings are summarized below:

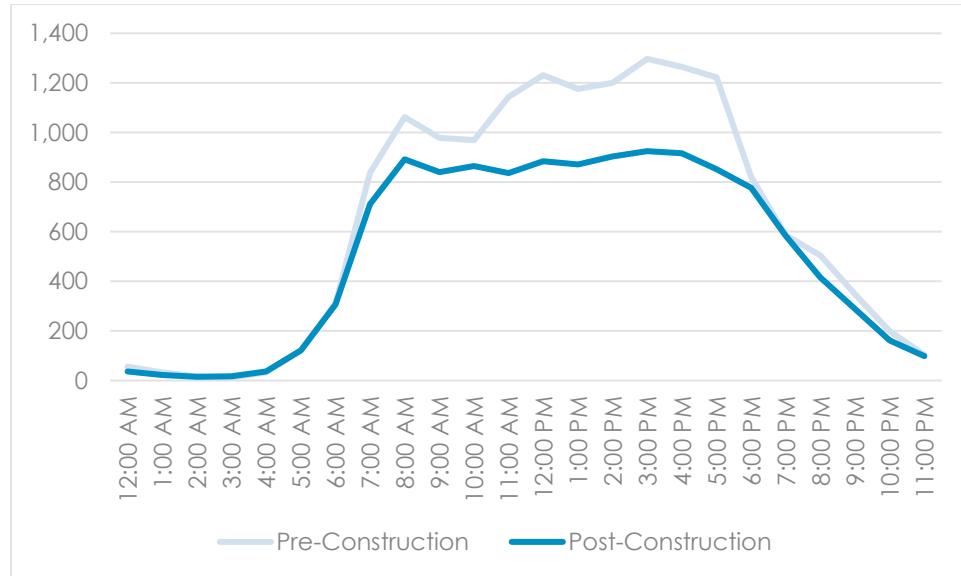
- Post-construction traffic volumes are lower than pre-construction volumes at both count locations. The combined eastbound and westbound decreases are of similar magnitude at the two count locations (18 and 20 percent).
- At both count locations, the westbound volumes dropped by a larger percentage (21 and 25 percent) compared to eastbound volume reductions (16 and 17 percent).

Table 1 Greenwood Avenue Daily Volume

Location and Direction	Pre-construction	Post-construction	
	May 2024	September 2024	
		Volume	% Difference from Pre-Construction
East of Hill Street			
Eastbound traffic	10,079	8,492	-16%
Westbound traffic	7,842	6,227	-21%
Total traffic	17,921	14,719	-18%
West of Hill Street			
Eastbound traffic	8,526	7,103	-17%
Westbound traffic	7,046	5,313	-25%
Total traffic	15,572	12,416	-20%

Figure 1 shows the hourly volume distribution on Greenwood Avenue west of Hill Street pre- and post-construction. The decrease in volumes after the pilot project is more significant between 7:00 AM to 7:00 PM, which causes the peak period to be "flatter" – hourly volumes stay relatively consistent throughout the day with a maximum of 925 vehicles per hour (pre-construction, the maximum volume per hour was 1,297 vehicles).

Figure 1 Greenwood Avenue Volume Distribution by Time of Day (Bidirectional)



Vehicle Speed Distribution

Speed data were reported in 5 mph intervals from the collected tube counts. The tubes were set at midblock locations so that the recorded speeds were not affected by traffic control at intersections. Kittelson aggregated the two days of data and identified the 85th percentile speed, as shown in

Table 2. Key findings are summarized below:

- In general, the 85th percentile speeds dropped by two to four mph at both directions and count locations.
- The 85th percentile speeds are higher at the count location east of Hill Street compared to the location west of Hill Street. And the eastbound 85th percentile speed is slightly faster than westbound. The trends are consistent pre- and post-construction.

Table 2 Greenwood Avenue 85th Percentile Speed

Location and Direction	Pre-Construction Speed (mph)	Post-Construction Speed (mph)
	May 2024	September 2024
East of Hill Street		
Eastbound	34	32
Westbound	33	29
West of Hill Street		
Eastbound	32	28
Westbound	30	26

To supplement the 85th percentile speed metric, Kittelson also analyzed the time-of-day trend of average speed by assigning an estimated speed to each vehicle based on the 5-mph interval recorded. For example, if a vehicle's speed was between 26 mph and 30 mph, its speed was assumed to be 28 mph. The following trends were found:

- Average speed is generally consistent throughout the day.
 - Pre-construction, the average speed ranged from 25 mph to 35 mph, except for westbound traffic at the west of Hill Street location, which dropped to 22 mph around noon (12 PM to 2 PM).
 - Post-construction, the average speed ranged from 20 mph to 35 mph, except for westbound traffic at the west of Hill Street location, which dropped below 20 mph (15 to 17 mph) between 11 AM and 5 PM.
- Similar to the trend found through 85th percentile speeds, the estimated average speed of eastbound traffic is slightly higher than westbound traffic.

Pedestrian and Bicycle Volume

Table 3, Table 4, and Figure 2 summarize the average daily pedestrian and bicycle volumes for pre- and post-construction periods. The following trends were found:

- Pedestrian volume.
 - Pedestrian volumes decreased by 30 percent east of Hill Street and 42 percent west of Hill Street.
 - At both count locations, pedestrian volume decreases are more significant at the sidewalk on the north side of Greenwood Avenue (volumes decreased by up to 53 percent) compared to the sidewalk on the south side (volumes decreased by up to 10 percent)
 - During both pre- and post-construction periods, pedestrian volumes are higher at the count location west of Hill Street compared to east of Hill Street.
- Bicycle volume.
 - Bicycle volumes increased by 24 percent east of Hill Street and 64 percent west of Hill Street, which aligns with the bike lane added along the corridor.
 - Bicycle volume increases are relatively balanced in both directions.

Table 3 NW Greenwood Avenue Average Daily Pedestrian Volume Summary

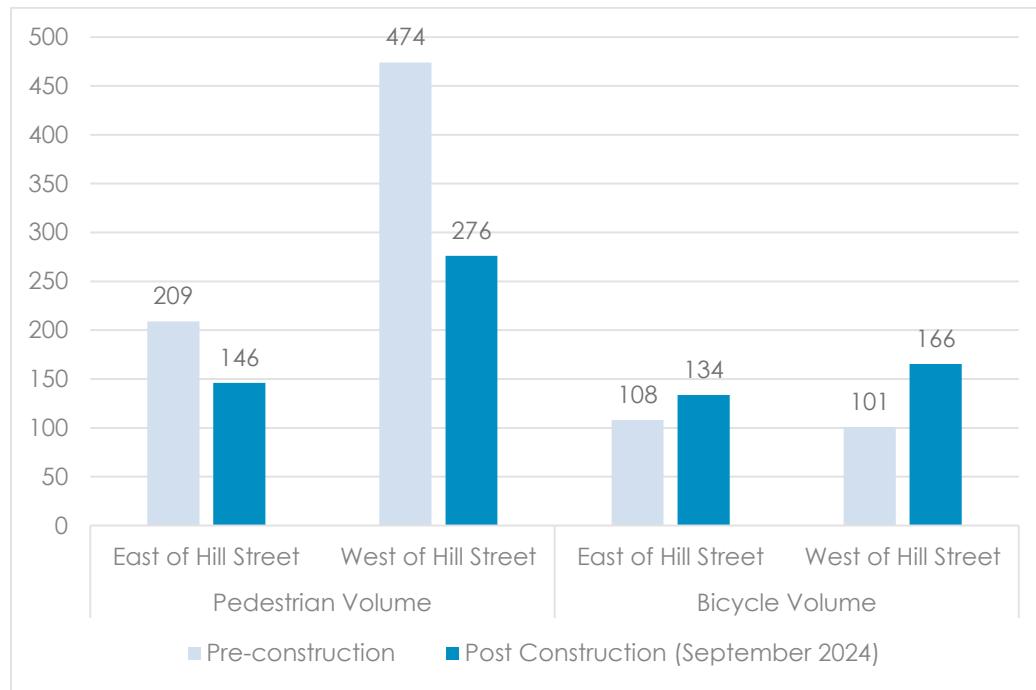
Location and Direction	Pre-construction	Post-construction	
	May 2024	September 2024	
		Volume	% Difference from Pre-Construction
East of Hill Street			
North Sidewalk	154	93	-40%
South Sidewalk	56	53	-5%
Combined Total	209	146	-30%
West of Hill Street			
North Sidewalk	349	163	-53%
South Sidewalk	126	114	-10%
Combined Total	474	276	-42%

Note: Average volumes were rounded and might not add to total volume.

Table 4 NW Greenwood Avenue Average Daily Bicycle Volume Summary

Location and Direction	Pre-construction	Post-construction	
	May 2024	September 2024	
		Volume	% Difference from Pre-Construction
East of Hill Street			
Eastbound	53	71	+33%
Westbound	55	63	+15%
Combined Total	108	134	+24%
West of Hill Street			
Eastbound	55	89	+61%
Westbound	46	77	+67%
Combined Total	101	166	+64%

Note: Average volumes were rounded and might not add to total volume.

Figure 2 Greenwood Avenue Daily Average Pedestrian and Bicycle Volume

Travel Time Analysis

This following section compares pre- and post-construction travel time findings from two data sources, INRIX and Google API. To monitor the cumulative, systemwide effect of the Quick Build project, three parallel corridors are included in this analysis, as shown in Figure 3 and described below.

■ Primary Corridor:

- Greenwood Avenue, from Wall Street to 3rd Street.

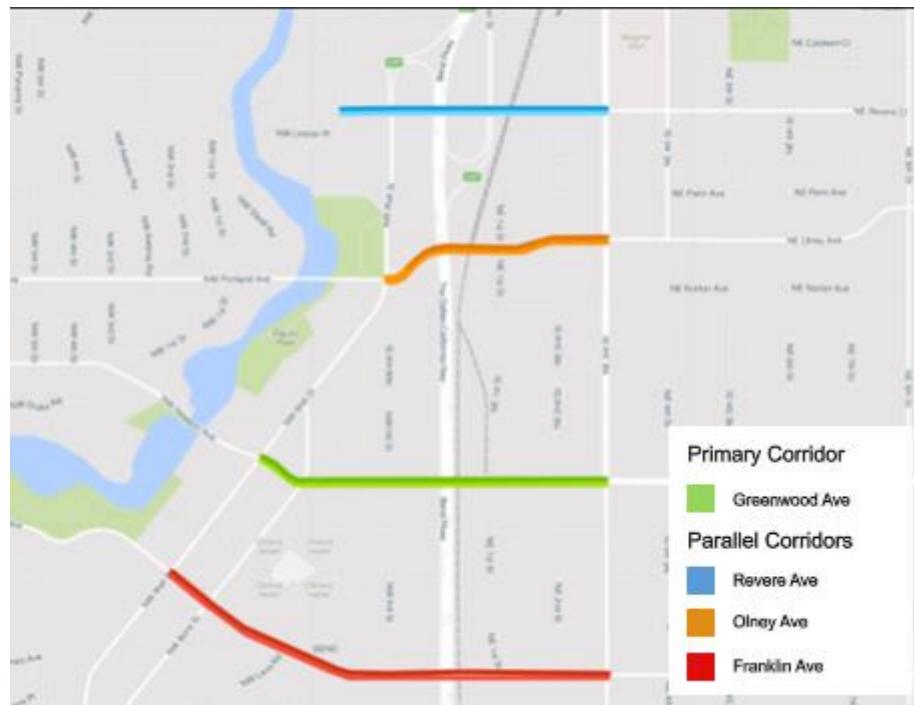
■ Parallel Corridors:

- Revere Avenue, from Harriman Street to 3rd Street.
- Olney Avenue, from Wall Street to 3rd Street.
- Franklin Avenue, from Wall Street to 3rd Street.

Travel time data were collected during the same week of volume and speed data collection (September 24 through September 26). The detailed methodology is described in Appendix C. INRIX travel time data are attached in Appendix D (pre-construction) and Appendix E (post-construction). Google API travel time data are attached in Appendix F (pre-construction) and Appendix G (post-construction).

It is important to note that the INRIX and Google API data might provide different travel time results. This discrepancy can be due to various factors, such as whether intersections at the ends of the corridors are included in the reported data and different methodology used to calculate travel times - INRIX is based on data collected from GPS-enabled devices and Google API utilizes a mix of inputs including distance, posted speed limit, historical travel time, and real-time traffic conditions. Therefore, travel times are not compared directly between the data sources. Instead, trends are observed within each data source relative to pre- and post-construction conditions. Additional observations about the data are included at the end of this section.

Figure 3 Primary and Parallel Corridors



INRIX Travel Time Data

Daily Average Travel Time

As shown in Table 5, in general, Greenwood Avenue travel times increased in both directions, which is consistent with the travel lane removal and the observed drop of 85th percentile speed as described in the Vehicle Speed Distribution section.

- Along eastbound Greenwood Avenue, the average travel times increased from 1 minute 25 seconds to 1 minute 37 seconds, representing a 14 percent increase (12 seconds).
- Along westbound Greenwood Avenue, the average travel times increased from 1 minute 26 seconds to 1 minute 40 seconds, representing a 16 percent increase (14 seconds).

Travel times along the parallel corridors increased to a lesser extent compared to Greenwood Avenue or remained essentially the same. The result is expected, as the longer travel time on Greenwood Avenue might cause some drivers to divert to a parallel route. The travel time increases on these corridors are up to three percent (five seconds), which suggests the diversion has minimal impact on the parallel corridors.

- Eastbound travel times along the parallel corridors increased by two to four percent (up to five seconds).
- The change of westbound travel times along the corridors ranges from a less than one percent decrease to a three percent increase (up to three seconds).

Table 5 Average Daily INRIX Travel Time

Corridor	Pre-construction	Post-construction	
	May 2024	September 2024	
		Travel Time (Sec)	% Difference from Pre-Construction
Primary Corridor			
EB Greenwood Avenue	85	97	+14%
WB Greenwood Avenue	86	100	+16%
Parallel Corridors			
EB Revere Avenue	96	97	+2%
WB Revere Avenue	91	90	<-1%
EB Olney Avenue	64	65	+1%
WB Olney Avenue	62	64	+3%
EB Franklin Avenue	119	124	+4%
WB Franklin Avenue	120	123	+3%

Peak Hour Travel Time

As shown in Table 6, Kittelson also analyzed peak hour travel time as it reflects the highest travel demand and therefore the most congested condition. For this analysis, peak hour is identified as the 60-minute period with the highest pre-construction volumes, which is between 3:00 and 4:00 PM at both count locations.

Compared to the daily average travel time, peak hour travel time increases are more substantial along Greenwood Avenue:

- Along eastbound Greenwood Avenue, the average travel times increased from 1 minute 33 seconds to 1 minute 52 seconds, representing a 20 percent increase (19 seconds).
- Along westbound Greenwood Avenue, the average travel times increased from 1 minute 33 seconds to 1 minute 57 seconds, representing a 26 percent increase (24 seconds).

Travel times along the parallel corridors increased to a lesser extent compared to Greenwood Avenue or decreased slightly.

- The maximum increase occurs at westbound Olney Avenue and westbound Franklin Avenue (eight percent [five seconds] and seven percent [ten seconds], respectively).
- Travel times on other corridors increased by up to four percent (six seconds).

Table 6 Average Peak Hour INRIX Travel Time

Corridor	Pre-construction	Post-construction	
	May 2024	September 2024	
		Travel Time (Sec)	% Difference from Pre-Construction
Study Corridor			
EB Greenwood Avenue	93	112	+20%
WB Greenwood Avenue	93	117	+26%
Parallel Corridors			
EB Revere Avenue	102	100	-1%
WB Revere Avenue	95	96	1%
EB Olney Avenue	70	70	<1%
WB Olney Avenue	63	68	+8%
EB Franklin Avenue	139	145	+4%
WB Franklin Avenue	127	137	+7%

Google API Travel Time

Daily Average Travel Time

As shown in Table 7, the Google API data presents a notably different picture of travel time trends before and after the Quick Build project. Along Greenwood Avenue, the data indicates improved travel times in both directions, contrasting with the INRIX findings:

- The average eastbound travel times decreased from 2 minutes 12 seconds to 2 mins 7 seconds, representing a 4 percent drop (5 seconds).
- The average westbound travel times decreased from 2 minutes 12 seconds to 2 mins 10 seconds, representing a 1 percent drop (2 seconds).

The parallel corridor analysis shows a major travel time increase on both directions of Olney Avenue:

- Eastbound travel times on Olney Avenue increased by 21 percent (20 seconds). Westbound travel times on Olney Avenue increased by 25 percent (22 seconds).
- Travel times on other parallel corridors decreased by up to four percent (seven seconds) or remained essentially the same.

Table 7 Average Daily Google API Travel Time

Corridor	Pre-construction	Post-construction	
	May 2024	September 2024	
		Travel Time (Sec)	% Difference from Pre-Construction
Study Corridor			
EB Greenwood Avenue	132	127	-4%
WB Greenwood Avenue	132	130	-1%
Parallel Corridors			
EB Revere Avenue	121	119	-2%
WB Revere Avenue	108	108	0%
EB Olney Avenue	94	114	+21%
WB Olney Avenue	91	113	+25%
EB Franklin Avenue	160	158	-1%
WB Franklin Avenue	154	147	-4%

Peak Hour Travel Time

Table 8 shows the peak hour travel time results from Google API. Similar to INRIX peak hour analysis, travel times between 3:00 and 4:00 PM were used.

Along Greenwood Avenue, similar to the average daily travel times, peak hour travel times also decreased:

- Eastbound peak hour travel times decreased from 2 minutes 35 seconds to 2 minutes 25 seconds, representing a 6 percent decrease (10 seconds).
- Westbound peak hour travel time remained the same.

Travel times along the parallel corridors decreased, except Olney Avenue, where travel times increased in both directions:

- Eastbound Olney Avenue travel time increased by 18 percent (17 seconds). Westbound Olney Avenue travel time increased by 23 percent (22 seconds).
- Travel time on other parallel corridors decreased by up to 9 percent (15 seconds).

Table 8 Average Peak Hour Google API Travel Time

Corridor	Pre-construction	Post-construction	
	May 2024	September 2024	
		Travel Time (Sec)	% Difference from Pre-Construction
Study Corridor			
EB Greenwood Avenue	155	145	-6%
WB Greenwood Avenue	151	151	<1%
Parallel Corridors			
EB Revere Avenue	137	128	-7%
WB Revere Avenue	115	114	-1%
EB Olney Avenue	99	116	+18%
WB Olney Avenue	96	118	+23%
EB Franklin Avenue	203	189	-7%
WB Franklin Avenue	172	157	-9%

Summary of Key Observations

The purpose of this memorandum is to report the initial monitoring results following the Quick Build project on Greenwood Avenue. While these results provide insight into vehicle travel times and multimodal usage, it's important to note that numerous factors such as weather, events, and crashes can influence these metrics. Therefore, definitive conclusions on the project's positive or negative effects are premature and will require ongoing monitoring. This section provides general observations based on the data collected thus far.

Traffic Count Data Analysis

The following are key observations based on the multimodal demand and speed data collection along Greenwood Avenue:

- After construction, vehicle volumes showed a notable decrease along Greenwood Avenue (18 percent east of Hill Street and 20 percent west of Hill Street).
- Vehicle speeds also dropped consistently along Greenwood Avenue, with the 85th percentile speeds decreasing from 30-34 mph to 26-32 mph.
- While pedestrian volumes declined along Greenwood Avenue (30 percent east of Hill Street and 42 percent west of Hill Street), bicycle usage increased at both locations (24 percent east and 64 percent west of Hill Street), likely due to the addition of a new bike lane, suggesting a shift in how people use the street post-construction.

Travel Time Analysis

The following are key observations based on INRIX and Google API travel time data along Greenwood Avenue and parallel corridors:

- Travel time results varied between the two data sources: INRIX travel times were generally shorter than Google API travel times. This discrepancy might be due to several factors:
 - INRIX travel time data are based on pre-determined XD segments that may not precisely align with the origins and destinations specified in Google API queries.
 - It is unclear how the two platforms handle boundary intersections at the ends of the selected corridor (i.e., whether the delays at the first and the last intersections are included in travel time results).
- INRIX average daily travel times along Greenwood Avenue increased by 14 to 16 percent, while Google API average daily travel times decreased by 1 to 4 percent. This difference is likely because Google API uses historical speed data as part of the travel time estimate and might lag in reflecting the latest trends in travel times. In contrast, INRIX data are based on GPS-enabled devices and road sensors and were filtered to only include real-time data for this analysis. Based on the methodology of the two data sources and the observed drop in 85th percentile speed on Greenwood Avenue, it is likely that the INRIX travel times better reflect the current conditions.

Next Steps

The upcoming data collection periods scheduled for January/February 2025 and May/June 2025 will be important in providing continued valuable insights into the corridor's performance post-construction. These periods will employ the same methodology for traffic counts and travel time measurements, ensuring a comprehensive understanding of seasonal trends. By closely monitoring these future data collection efforts, we can better assess the long-term effectiveness of the Greenwood Avenue Quick Build project and make informed decisions for ongoing corridor management.

Appendix A Traffic Volume Pre-Construction

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		7	15			11			11	
12:15 AM		6	10			8			8	
12:30 AM		5	8			7			7	
12:45 AM		6	1			4			4	
01:00 AM		5	10			8			8	
01:15 AM		7	5			6			6	
01:30 AM		4	4			4			4	
01:45 AM		2	5			4			4	
02:00 AM		3	2			3			3	
02:15 AM		1	2			2			2	
02:30 AM		2	3			3			3	
02:45 AM		2	4			3			3	
03:00 AM		4	2			3			3	
03:15 AM		2	2			2			2	
03:30 AM		0	1			1			1	
03:45 AM		2	3			3			3	
04:00 AM		3	2			3			3	
04:15 AM		3	6			5			5	
04:30 AM		2	7			5			5	
04:45 AM		8	7			8			8	
05:00 AM		10	7			9			9	
05:15 AM		14	14			14			14	
05:30 AM		16	15			16			16	
05:45 AM		30	29			30			30	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

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DIRECTION: EB

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	14 May 24	14 May 24	15 May 24							
06:00 AM		15	18			17			17	<div style="width: 10%;"></div>
06:15 AM		29	29			29			29	<div style="width: 15%;"></div>
06:30 AM		47	28			38			38	<div style="width: 10%;"></div>
06:45 AM		60	50			55			55	<div style="width: 12%;"></div>
07:00 AM		67	71			69			69	<div style="width: 15%;"></div>
07:15 AM		83	68			76			76	<div style="width: 13%;"></div>
07:30 AM		98	103			101			101	<div style="width: 17%;"></div>
07:45 AM		134	136			135			135	<div style="width: 20%;"></div>
08:00 AM		113	103			108			108	<div style="width: 16%;"></div>
08:15 AM		135	131			133			133	<div style="width: 20%;"></div>
08:30 AM		121	122			122			122	<div style="width: 17%;"></div>
08:45 AM		138	144			141			141	<div style="width: 21%;"></div>
09:00 AM		103	117			110			110	<div style="width: 15%;"></div>
09:15 AM		91	101			96			96	<div style="width: 14%;"></div>
09:30 AM		113	118			116			116	<div style="width: 15%;"></div>
09:45 AM		134	144			139			139	<div style="width: 20%;"></div>
10:00 AM		128	134			131			131	<div style="width: 17%;"></div>
10:15 AM		145	121			133			133	<div style="width: 16%;"></div>
10:30 AM		114	149			132			132	<div style="width: 17%;"></div>
10:45 AM		110	133			122			122	<div style="width: 15%;"></div>
11:00 AM		128	185			157			157	<div style="width: 25%;"></div>
11:15 AM		135	170			153			153	<div style="width: 23%;"></div>
11:30 AM		144	140			142			142	<div style="width: 18%;"></div>
11:45 AM		173	145			159			159	<div style="width: 22%;"></div>
Day Total										
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Comments:										

Report generated on 5/22/2024 7:53 AM

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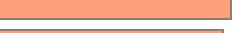
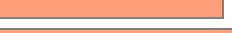
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12:15 PM		174	164			169			169	
12:30 PM		163	188			176			176	
12:45 PM		178	179			179			179	
01:00 PM		158	186			172			172	
01:15 PM		157	200			179			179	
01:30 PM		148	136			142			142	
01:45 PM		157	177			167			167	
02:00 PM		168	199			184			184	
02:15 PM		169	163			166			166	
02:30 PM		176	163			170			170	
02:45 PM		185	185			185			185	
03:00 PM		182	178			180			180	
03:15 PM		212	193			203			203	
03:30 PM		192	205			199			199	
03:45 PM		162	195			179			179	
04:00 PM		189	193			191			191	
04:15 PM		199	171			185			185	
04:30 PM		176	192			184			184	
04:45 PM		173	184			179			179	
05:00 PM		188	182			185			185	
05:15 PM		208	188			198			198	
05:30 PM		165	196			181			181	
05:45 PM		138	127			133			133	
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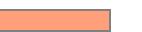
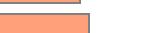
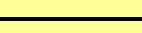
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06:30 PM		80	106			93			93	
06:45 PM		80	110			95			95	
07:00 PM		91	118			105			105	
07:15 PM		63	88			76			76	
07:30 PM		94	72			83			83	
07:45 PM		80	67			74			74	
08:00 PM		66	93			80			80	
08:15 PM		87	80			84			84	
08:30 PM		66	87			77			77	
08:45 PM		77	66			72			72	
09:00 PM		67	76			72			72	
09:15 PM		54	63			59			59	
09:30 PM		42	51			47			47	
09:45 PM		30	41			36			36	
10:00 PM		45	27			36			36	
10:15 PM		53	28			41			41	
10:30 PM		39	28			34			34	
10:45 PM		25	19			22			22	
11:00 PM		17	13			15			15	
11:15 PM		20	14			17			17	
11:30 PM		21	9			15			15	
11:45 PM		16	14			15			15	
Day Total		8334	8667			8526			8526	
% Weekday Average		97.7%	101.7%							
% Week Average		97.7%	101.7%			100%				
AM Peak 15-min Vol		11:45 AM	11:00 AM			11:45 AM			11:45 AM	
		173	185			159			159	
PM Peak 15-min Vol		3:15 PM	3:30 PM			3:15 PM			3:15 PM	
		212	205			203			203	
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		4	6			5			5	
12:15 AM		4	15			10			10	
12:30 AM		3	6			5			5	
12:45 AM		9	6			8			8	
01:00 AM		1	2			2			2	
01:15 AM		3	3			3			3	
01:30 AM		4	1			3			3	
01:45 AM		1	7			4			4	
02:00 AM		0	1			1			1	
02:15 AM		1	2			2			2	
02:30 AM		4	5			5			5	
02:45 AM		2	0			1			1	
03:00 AM		2	1			2			2	
03:15 AM		0	2			1			1	
03:30 AM		0	1			1			1	
03:45 AM		1	1			1			1	
04:00 AM		2	2			2			2	
04:15 AM		1	4			3			3	
04:30 AM		2	5			4			4	
04:45 AM		8	4			6			6	
05:00 AM		9	4			7			7	
05:15 AM		13	11			12			12	
05:30 AM		18	10			14			14	
05:45 AM		25	15			20			20	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 AM		26	17			22			22	<div style="width: 10%;">10%</div>
06:15 AM		37	36			37			37	<div style="width: 15%;">15%</div>
06:30 AM		52	44			48			48	<div style="width: 18%;">18%</div>
06:45 AM		60	74			67			67	<div style="width: 22%;">22%</div>
07:00 AM		65	66			66			66	<div style="width: 20%;">20%</div>
07:15 AM		109	78			94			94	<div style="width: 25%;">25%</div>
07:30 AM		146	116			131			131	<div style="width: 30%;">30%</div>
07:45 AM		187	149			168			168	<div style="width: 35%;">35%</div>
08:00 AM		140	124			132			132	<div style="width: 32%;">32%</div>
08:15 AM		138	167			153			153	<div style="width: 38%;">38%</div>
08:30 AM		129	121			125			125	<div style="width: 34%;">34%</div>
08:45 AM		146	152			149			149	<div style="width: 36%;">36%</div>
09:00 AM		127	136			132			132	<div style="width: 33%;">33%</div>
09:15 AM		134	131			133			133	<div style="width: 34%;">34%</div>
09:30 AM		109	119			114			114	<div style="width: 28%;">28%</div>
09:45 AM		120	161			141			141	<div style="width: 40%;">40%</div>
10:00 AM		108	107			108			108	<div style="width: 25%;">25%</div>
10:15 AM		105	120			113			113	<div style="width: 31%;">31%</div>
10:30 AM		106	119			113			113	<div style="width: 31%;">31%</div>
10:45 AM		126	113			120			120	<div style="width: 33%;">33%</div>
11:00 AM		111	153			132			132	<div style="width: 38%;">38%</div>
11:15 AM		141	137			139			139	<div style="width: 35%;">35%</div>
11:30 AM		111	137			124			124	<div style="width: 32%;">32%</div>
11:45 AM		147	130			139			139	<div style="width: 36%;">36%</div>
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

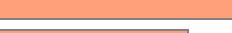
QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon 14 May 24	Tue 15 May 24	Wed 15 May 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		147	159			153			153	
12:15 PM		119	120			120			120	
12:30 PM		127	116			122			122	
12:45 PM		134	145			140			140	
01:00 PM		136	121			129			129	
01:15 PM		138	123			131			131	
01:30 PM		128	123			126			126	
01:45 PM		117	146			132			132	
02:00 PM		124	135			130			130	
02:15 PM		116	122			119			119	
02:30 PM		105	130			118			118	
02:45 PM		141	118			130			130	
03:00 PM		134	137			136			136	
03:15 PM		144	111			128			128	
03:30 PM		134	134			134			134	
03:45 PM		135	145			140			140	
04:00 PM		138	125			132			132	
04:15 PM		137	129			133			133	
04:30 PM		128	135			132			132	
04:45 PM		136	124			130			130	
05:00 PM		139	151			145			145	
05:15 PM		140	140			140			140	
05:30 PM		132	120			126			126	
05:45 PM		113	119			116			116	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

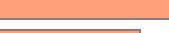
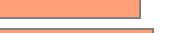
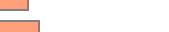
QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 PM		102	128			115			115	
06:15 PM		97	86			92			92	
06:30 PM		99	99			99			99	
06:45 PM		79	93			86			86	
07:00 PM		71	60			66			66	
07:15 PM		60	60			60			60	
07:30 PM		61	66			64			64	
07:45 PM		56	64			60			60	
08:00 PM		50	74			62			62	
08:15 PM		54	56			55			55	
08:30 PM		43	35			39			39	
08:45 PM		40	35			38			38	
09:00 PM		33	77			55			55	
09:15 PM		26	29			28			28	
09:30 PM		35	32			34			34	
09:45 PM		17	21			19			19	
10:00 PM		22	21			22			22	
10:15 PM		17	12			15			15	
10:30 PM		16	17			17			17	
10:45 PM		12	16			14			14	
11:00 PM		16	11			14			14	
11:15 PM		6	6			6			6	
11:30 PM		11	18			15			15	
11:45 PM		4	9			7			7	
Day Total	6966	7074				7046			7046	
% Weekday Average	98.9%	100.4%								
% Week Average	98.9%	100.4%				100%				
AM Peak 15-min Vol	7:45 AM	8:15 AM				7:45 AM			7:45 AM	
	187	167				168			168	
PM Peak 15-min Vol	12:00 PM	12:00 PM				12:00 PM			12:00 PM	
	147	159				153			153	
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		9	12			11			11	
12:15 AM		6	9			8			8	
12:30 AM		8	12			10			10	
12:45 AM		8	4			6			6	
01:00 AM		8	14			11			11	
01:15 AM		6	5			6			6	
01:30 AM		5	4			5			5	
01:45 AM		3	7			5			5	
02:00 AM		3	2			3			3	
02:15 AM		2	3			3			3	
02:30 AM		2	5			4			4	
02:45 AM		3	4			4			4	
03:00 AM		6	2			4			4	
03:15 AM		4	2			3			3	
03:30 AM		3	3			3			3	
03:45 AM		5	5			5			5	
04:00 AM		3	4			4			4	
04:15 AM		5	7			6			6	
04:30 AM		4	13			9			9	
04:45 AM		10	11			11			11	
05:00 AM		13	12			13			13	
05:15 AM		17	18			18			18	
05:30 AM		23	26			25			25	
05:45 AM		41	39			40			40	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 AM		26	28			27			27	
06:15 AM		45	52			49			49	
06:30 AM		63	44			54			54	
06:45 AM		92	71			82			82	
07:00 AM		91	95			93			93	
07:15 AM		101	88			95			95	
07:30 AM		121	118			120			120	
07:45 AM		150	160			155			155	
08:00 AM		137	122			130			130	
08:15 AM		167	140			154			154	
08:30 AM		148	137			143			143	
08:45 AM		173	167			170			170	
09:00 AM		123	133			128			128	
09:15 AM		117	130			124			124	
09:30 AM		144	143			144			144	
09:45 AM		160	159			160			160	
10:00 AM		144	156			150			150	
10:15 AM		163	154			159			159	
10:30 AM		136	154			145			145	
10:45 AM		125	165			145			145	
11:00 AM		147	198			173			173	
11:15 AM		161	200			181			181	
11:30 AM		171	178			175			175	
11:45 AM		207	184			196			196	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon 14 May 24	Tue 15 May 24	Wed 15 May 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		225	211			218			218	
12:15 PM		207	182			195			195	
12:30 PM		194	206			200			200	
12:45 PM		196	201			199			199	
01:00 PM		173	219			196			196	
01:15 PM		187	214			201			201	
01:30 PM		186	185			186			186	
01:45 PM		174	195			185			185	
02:00 PM		191	231			211			211	
02:15 PM		195	194			195			195	
02:30 PM		196	187			192			192	
02:45 PM		220	229			225			225	
03:00 PM		192	215			204			204	
03:15 PM		228	217			223			223	
03:30 PM		213	245			229			229	
03:45 PM		199	227			213			213	
04:00 PM		245	239			242			242	
04:15 PM		235	223			229			229	
04:30 PM		228	221			225			225	
04:45 PM		199	208			204			204	
05:00 PM		230	225			228			228	
05:15 PM		257	247			252			252	
05:30 PM		198	222			210			210	
05:45 PM		162	140			151			151	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

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LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 PM		140	149			145			145	
06:15 PM		113	147			130			130	
06:30 PM		97	135			116			116	
06:45 PM		103	123			113			113	
07:00 PM		107	135			121			121	
07:15 PM		80	100			90			90	
07:30 PM		107	88			98			98	
07:45 PM		97	84			91			91	
08:00 PM		76	100			88			88	
08:15 PM		93	81			87			87	
08:30 PM		69	83			76			76	
08:45 PM		78	91			85			85	
09:00 PM		72	90			81			81	
09:15 PM		66	73			70			70	
09:30 PM		47	56			52			52	
09:45 PM		33	44			39			39	
10:00 PM		44	30			37			37	
10:15 PM		55	32			44			44	
10:30 PM		33	33			33			33	
10:45 PM		29	23			26			26	
11:00 PM		19	19			19			19	
11:15 PM		24	17			21			21	
11:30 PM		22	12			17			17	
11:45 PM		20	16			18			18	
Day Total	9863	10243				10079			10079	
% Weekday Average	97.9%	101.6%								
% Week Average	97.9%	101.6%				100%				
AM Peak 15-min Vol	11:45 AM	11:15 AM				11:45 AM			11:45 AM	
	207	200				196			196	
PM Peak 15-min Vol	5:15 PM	5:15 PM				5:15 PM			5:15 PM	
	257	247				252			252	
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		4	6			5			5	
12:15 AM		2	16			9			9	
12:30 AM		4	9			7			7	
12:45 AM		10	4			7			7	
01:00 AM		2	2			2			2	
01:15 AM		1	1			1			1	
01:30 AM		5	2			4			4	
01:45 AM		1	5			3			3	
02:00 AM		0	2			1			1	
02:15 AM		2	3			3			3	
02:30 AM		4	5			5			5	
02:45 AM		2	1			2			2	
03:00 AM		3	1			2			2	
03:15 AM		0	1			1			1	
03:30 AM		0	2			1			1	
03:45 AM		2	1			2			2	
04:00 AM		2	3			3			3	
04:15 AM		1	3			2			2	
04:30 AM		3	6			5			5	
04:45 AM		6	6			6			6	
05:00 AM		10	5			8			8	
05:15 AM		17	14			16			16	
05:30 AM		21	12			17			17	
05:45 AM		33	17			25			25	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

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LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 AM		31	23			27			27	
06:15 AM		43	45			44			44	
06:30 AM		61	52			57			57	
06:45 AM		69	89			79			79	
07:00 AM		77	80			79			79	
07:15 AM		125	90			108			108	
07:30 AM		178	150			164			164	
07:45 AM		199	178			189			189	
08:00 AM		164	147			156			156	
08:15 AM		155	172			164			164	
08:30 AM		144	137			141			141	
08:45 AM		165	151			158			158	
09:00 AM		144	163			154			154	
09:15 AM		136	146			141			141	
09:30 AM		128	121			125			125	
09:45 AM		124	154			139			139	
10:00 AM		129	125			127			127	
10:15 AM		118	139			129			129	
10:30 AM		122	130			126			126	
10:45 AM		142	123			133			133	
11:00 AM		128	174			151			151	
11:15 AM		133	149			141			141	
11:30 AM		135	157			146			146	
11:45 AM		141	147			144			144	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

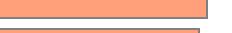
QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon 14 May 24	Tue 15 May 24	Wed 15 May 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		171	165			168			168	
12:15 PM		138	156			147			147	
12:30 PM		131	153			142			142	
12:45 PM		169	169			169			169	
01:00 PM		139	149			144			144	
01:15 PM		148	145			147			147	
01:30 PM		138	144			141			141	
01:45 PM		140	167			154			154	
02:00 PM		139	142			141			141	
02:15 PM		114	131			123			123	
02:30 PM		122	150			136			136	
02:45 PM		153	117			135			135	
03:00 PM		143	157			150			150	
03:15 PM		139	131			135			135	
03:30 PM		145	141			143			143	
03:45 PM		145	157			151			151	
04:00 PM		154	140			147			147	
04:15 PM		150	143			147			147	
04:30 PM		145	149			147			147	
04:45 PM		143	139			141			141	
05:00 PM		148	166			157			157	
05:15 PM		155	149			152			152	
05:30 PM		143	138			141			141	
05:45 PM		122	125			124			124	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

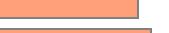
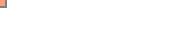
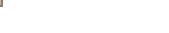
QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 PM		124	136			130			130	
06:15 PM		104	102			103			103	
06:30 PM		110	111			111			111	
06:45 PM		88	109			99			99	
07:00 PM		81	75			78			78	
07:15 PM		71	72			72			72	
07:30 PM		65	78			72			72	
07:45 PM		64	64			64			64	
08:00 PM		56	80			68			68	
08:15 PM		54	51			53			53	
08:30 PM		51	39			45			45	
08:45 PM		44	41			43			43	
09:00 PM		42	67			55			55	
09:15 PM		35	36			36			36	
09:30 PM		36	29			33			33	
09:45 PM		17	24			21			21	
10:00 PM		28	28			28			28	
10:15 PM		20	18			19			19	
10:30 PM		18	15			17			17	
10:45 PM		15	11			13			13	
11:00 PM		15	14			15			15	
11:15 PM		6	8			7			7	
11:30 PM		10	14			12			12	
11:45 PM		6	7			7			7	
Day Total	7720	7921				7842			7842	
% Weekday Average	98.4%	101%								
% Week Average	98.4%	101%				100%				
AM Peak 15-min Vol	7:45 AM	7:45 AM				7:45 AM			7:45 AM	
	199	178				189			189	
PM Peak 15-min Vol	12:00 PM	12:45 PM				12:45 PM			12:45 PM	
	171	169				169			169	
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Appendix B Traffic Volume Post-Construction (September 2024)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon 24 Sep 24	Tue 24 Sep 24	Wed 25 Sep 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM		7	5			6			6	
12:15 AM		5	7			6			6	
12:30 AM		5	6			6			6	
12:45 AM		5	3			4			4	
01:00 AM		4	6			5			5	
01:15 AM		3	2			3			3	
01:30 AM		0	7			4			4	
01:45 AM		0	3			2			2	
02:00 AM		3	3			3			3	
02:15 AM		1	1			1			1	
02:30 AM		3	1			2			2	
02:45 AM		0	4			2			2	
03:00 AM		1	1			1			1	
03:15 AM		0	1			1			1	
03:30 AM		3	4			4			4	
03:45 AM		3	4			4			4	
04:00 AM		3	5			4			4	
04:15 AM		6	3			5			5	
04:30 AM		2	4			3			3	
04:45 AM		9	13			11			11	
05:00 AM		4	4			4			4	
05:15 AM		16	17			17			17	
05:30 AM		23	22			23			23	
05:45 AM		27	30			29			29	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	25 Sep 24								
06:00 AM		21	20			21			21	
06:15 AM		29	37			33			33	
06:30 AM		49	34			42			42	
06:45 AM		63	55			59			59	
07:00 AM		58	65			62			62	
07:15 AM		70	71			71			71	
07:30 AM		101	85			93			93	
07:45 AM		153	130			142			142	
08:00 AM		104	105			105			105	
08:15 AM		115	117			116			116	
08:30 AM		117	117			117			117	
08:45 AM		138	124			131			131	
09:00 AM		105	103			104			104	
09:15 AM		114	103			109			109	
09:30 AM		110	104			107			107	
09:45 AM		122	134			128			128	
10:00 AM		125	110			118			118	
10:15 AM		129	129			129			129	
10:30 AM		129	127			128			128	
10:45 AM		138	105			122			122	
11:00 AM		129	130			130			130	
11:15 AM		134	120			127			127	
11:30 AM		128	111			120			120	
11:45 AM		150	70			110			110	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	25 Sep 24								
12:00 PM		146	160			153			153	
12:15 PM		129	122			126			126	
12:30 PM		126	118			122			122	
12:45 PM		123	98			111			111	
01:00 PM		141	155			148			148	
01:15 PM		139	65			102			102	
01:30 PM		128	138			133			133	
01:45 PM		125	122			124			124	
02:00 PM		148	132			140			140	
02:15 PM		163	139			151			151	
02:30 PM		66	146			106			106	
02:45 PM		111	143			127			127	
03:00 PM		164	115			140			140	
03:15 PM		133	183			158			158	
03:30 PM		161	146			154			154	
03:45 PM		101	73			87			87	
04:00 PM		153	70			112			112	
04:15 PM		152	128			140			140	
04:30 PM		141	147			144			144	
04:45 PM		127	158			143			143	
05:00 PM		141	93			117			117	
05:15 PM		96	140			118			118	
05:30 PM		123	126			125			125	
05:45 PM		127	102			115			115	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	25 Sep 24								
06:00 PM		123	138			131			131	
06:15 PM		117	127			122			122	
06:30 PM		95	115			105			105	
06:45 PM		101	107			104			104	
07:00 PM		89	84			87			87	
07:15 PM		101	72			87			87	
07:30 PM		90	82			86			86	
07:45 PM		68	89			79			79	
08:00 PM		71	77			74			74	
08:15 PM		85	65			75			75	
08:30 PM		68	74			71			71	
08:45 PM		54	47			51			51	
09:00 PM		47	47			47			47	
09:15 PM		32	45			39			39	
09:30 PM		51	37			44			44	
09:45 PM		66	38			52			52	
10:00 PM		39	37			38			38	
10:15 PM		33	28			31			31	
10:30 PM		22	31			27			27	
10:45 PM		23	15			19			19	
11:00 PM		16	23			20			20	
11:15 PM		18	14			16			16	
11:30 PM		20	9			15			15	
11:45 PM		14	11			13			13	
Day Total	7271	6893				7103			7103	
% Weekday Average	102.4%	97%								
% Week Average	102.4%	97%				100%				
AM Peak 15-min Vol	7:45 AM	9:45 AM				7:45 AM			7:45 AM	
	153	134				142			142	
PM Peak 15-min Vol	3:00 PM	3:15 PM				3:15 PM			3:15 PM	
	164	183				158			158	
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	24 Sep 24	25 Sep 24							
12:00 AM		4	6			5			5	
12:15 AM		1	6			4			4	
12:30 AM		1	7			4			4	
12:45 AM		3	2			3			3	
01:00 AM		3	3			3			3	
01:15 AM		4	2			3			3	
01:30 AM		1	2			2			2	
01:45 AM		2	2			2			2	
02:00 AM		0	2			1			1	
02:15 AM		3	4			4			4	
02:30 AM		2	1			2			2	
02:45 AM		1	0			1			1	
03:00 AM		3	3			3			3	
03:15 AM		0	3			2			2	
03:30 AM		4	0			2			2	
03:45 AM		2	1			2			2	
04:00 AM		2	3			3			3	
04:15 AM		2	2			2			2	
04:30 AM		1	7			4			4	
04:45 AM		5	5			5			5	
05:00 AM		5	6			6			6	
05:15 AM		13	10			12			12	
05:30 AM		16	9			13			13	
05:45 AM		17	24			21			21	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	24 Sep 24	25 Sep 24							
06:00 AM		28	24			26			26	<div style="width: 26%;"></div>
06:15 AM		28	20			24			24	<div style="width: 24%;"></div>
06:30 AM		40	38			39			39	<div style="width: 39%;"></div>
06:45 AM		67	58			63			63	<div style="width: 63%;"></div>
07:00 AM		53	57			55			55	<div style="width: 55%;"></div>
07:15 AM		81	79			80			80	<div style="width: 80%;"></div>
07:30 AM		88	121			105			105	<div style="width: 105%;"></div>
07:45 AM		117	93			105			105	<div style="width: 105%;"></div>
08:00 AM		118	116			117			117	<div style="width: 117%;"></div>
08:15 AM		94	113			104			104	<div style="width: 104%;"></div>
08:30 AM		103	85			94			94	<div style="width: 94%;"></div>
08:45 AM		106	111			109			109	<div style="width: 109%;"></div>
09:00 AM		90	91			91			91	<div style="width: 91%;"></div>
09:15 AM		93	94			94			94	<div style="width: 94%;"></div>
09:30 AM		105	109			107			107	<div style="width: 107%;"></div>
09:45 AM		80	122			101			101	<div style="width: 101%;"></div>
10:00 AM		103	95			99			99	<div style="width: 99%;"></div>
10:15 AM		102	71			87			87	<div style="width: 87%;"></div>
10:30 AM		92	80			86			86	<div style="width: 86%;"></div>
10:45 AM		89	106			98			98	<div style="width: 98%;"></div>
11:00 AM		85	90			88			88	<div style="width: 88%;"></div>
11:15 AM		73	87			80			80	<div style="width: 80%;"></div>
11:30 AM		97	91			94			94	<div style="width: 94%;"></div>
11:45 AM		98	79			89			89	<div style="width: 89%;"></div>
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	25 Sep 24								
12:00 PM		100	108			104			104	
12:15 PM		91	105			98			98	
12:30 PM		87	86			87			87	
12:45 PM		81	88			85			85	
01:00 PM		123	88			106			106	
01:15 PM		78	61			70			70	
01:30 PM		109	92			101			101	
01:45 PM		90	89			90			90	
02:00 PM		88	86			87			87	
02:15 PM		101	92			97			97	
02:30 PM		69	121			95			95	
02:45 PM		89	113			101			101	
03:00 PM		99	96			98			98	
03:15 PM		106	131			119			119	
03:30 PM		88	90			89			89	
03:45 PM		95	69			82			82	
04:00 PM		114	64			89			89	
04:15 PM		97	83			90			90	
04:30 PM		100	91			96			96	
04:45 PM		109	97			103			103	
05:00 PM		122	95			109			109	
05:15 PM		91	96			94			94	
05:30 PM		90	88			89			89	
05:45 PM		80	94			87			87	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16734701

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	25 Sep 24								
06:00 PM		92	100			96			96	
06:15 PM		94	72			83			83	
06:30 PM		70	66			68			68	
06:45 PM		71	66			69			69	
07:00 PM		76	64			70			70	
07:15 PM		62	74			68			68	
07:30 PM		60	51			56			56	
07:45 PM		48	57			53			53	
08:00 PM		44	48			46			46	
08:15 PM		45	30			38			38	
08:30 PM		30	32			31			31	
08:45 PM		27	35			31			31	
09:00 PM		36	45			41			41	
09:15 PM		26	22			24			24	
09:30 PM		30	16			23			23	
09:45 PM		14	24			19			19	
10:00 PM		19	26			23			23	
10:15 PM		10	12			11			11	
10:30 PM		11	5			8			8	
10:45 PM		3	10			7			7	
11:00 PM		9	11			10			10	
11:15 PM		14	9			12			12	
11:30 PM		8	7			8			8	
11:45 PM		7	8			8			8	
Day Total	5328	5253				5313			5313	
% Weekday Average	100.3%	98.9%								
% Week Average	100.3%	98.9%				100%				
AM Peak 15-min Vol	8:00 AM 118	9:45 AM 122				8:00 AM 117			8:00 AM 117	
PM Peak 15-min Vol	1:00 PM 123	3:15 PM 131				3:15 PM 119			3:15 PM 119	
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16734702

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon 24 Sep 24	Tue 24 Sep 24	Wed 25 Sep 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM		7	6			7			7	
12:15 AM		5	7			6			6	
12:30 AM		4	9			7			7	
12:45 AM		8	4			6			6	
01:00 AM		8	7			8			8	
01:15 AM		5	3			4			4	
01:30 AM		1	6			4			4	
01:45 AM		1	6			4			4	
02:00 AM		3	2			3			3	
02:15 AM		1	1			1			1	
02:30 AM		2	1			2			2	
02:45 AM		0	4			2			2	
03:00 AM		0	1			1			1	
03:15 AM		4	1			3			3	
03:30 AM		5	9			7			7	
03:45 AM		4	9			7			7	
04:00 AM		4	6			5			5	
04:15 AM		9	4			7			7	
04:30 AM		4	6			5			5	
04:45 AM		12	17			15			15	
05:00 AM		7	7			7			7	
05:15 AM		13	20			17			17	
05:30 AM		35	29			32			32	
05:45 AM		37	46			42			42	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16734702

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	25 Sep 24								
06:00 AM		30	27			29			29	
06:15 AM		49	55			52			52	
06:30 AM		58	62			60			60	
06:45 AM		96	86			91			91	
07:00 AM		71	77			74			74	
07:15 AM		78	76			77			77	
07:30 AM		123	119			121			121	
07:45 AM		146	148			147			147	
08:00 AM		128	135			132			132	
08:15 AM		124	135			130			130	
08:30 AM		138	150			144			144	
08:45 AM		161	138			150			150	
09:00 AM		145	123			134			134	
09:15 AM		135	124			130			130	
09:30 AM		128	108			118			118	
09:45 AM		124	126			125			125	
10:00 AM		160	140			150			150	
10:15 AM		164	165			165			165	
10:30 AM		148	147			148			148	
10:45 AM		160	144			152			152	
11:00 AM		153	156			155			155	
11:15 AM		166	142			154			154	
11:30 AM		160	140			150			150	
11:45 AM		185	44			115			115	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

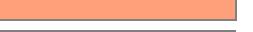
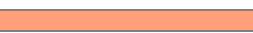
QC JOB #: 16734702

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon 24 Sep 24	Tue 25 Sep 24	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		199	156			178			178	
12:15 PM		120	158			139			139	
12:30 PM		170	94			132			132	
12:45 PM		138	143			141			141	
01:00 PM		148	172			160			160	
01:15 PM		179	134			157			157	
01:30 PM		135	149			142			142	
01:45 PM		168	145			157			157	
02:00 PM		156	183			170			170	
02:15 PM		185	190			188			188	
02:30 PM		177	161			169			169	
02:45 PM		160	175			168			168	
03:00 PM		188	161			175			175	
03:15 PM		173	164			169			169	
03:30 PM		195	165			180			180	
03:45 PM		180	89			135			135	
04:00 PM		174	99			137			137	
04:15 PM		186	153			170			170	
04:30 PM		172	161			167			167	
04:45 PM		184	172			178			178	
05:00 PM		175	134			155			155	
05:15 PM		130	97			114			114	
05:30 PM		168	156			162			162	
05:45 PM		183	156			170			170	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16734702

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	24 Sep 24	25 Sep 24							
06:00 PM		134	158			146			146	<div style="width: 100%; background-color: #ff9966; height: 10px;"></div>
06:15 PM		140	150			145			145	<div style="width: 95%; background-color: #ff9966; height: 10px;"></div>
06:30 PM		113	151			132			132	<div style="width: 85%; background-color: #ff9966; height: 10px;"></div>
06:45 PM		125	116			121			121	<div style="width: 75%; background-color: #ff9966; height: 10px;"></div>
07:00 PM		91	90			91			91	<div style="width: 65%; background-color: #ff9966; height: 10px;"></div>
07:15 PM		107	81			94			94	<div style="width: 55%; background-color: #ff9966; height: 10px;"></div>
07:30 PM		98	89			94			94	<div style="width: 45%; background-color: #ff9966; height: 10px;"></div>
07:45 PM		77	90			84			84	<div style="width: 35%; background-color: #ff9966; height: 10px;"></div>
08:00 PM		77	82			80			80	<div style="width: 25%; background-color: #ff9966; height: 10px;"></div>
08:15 PM		88	67			78			78	<div style="width: 15%; background-color: #ff9966; height: 10px;"></div>
08:30 PM		69	83			76			76	<div style="width: 5%; background-color: #ff9966; height: 10px;"></div>
08:45 PM		42	50			46			46	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
09:00 PM		54	57			56			56	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
09:15 PM		34	50			42			42	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
09:30 PM		55	39			47			47	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
09:45 PM		56	43			50			50	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
10:00 PM		40	39			40			40	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
10:15 PM		26	38			32			32	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
10:30 PM		24	31			28			28	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
10:45 PM		22	14			18			18	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
11:00 PM		16	27			22			22	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
11:15 PM		19	18			19			19	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
11:30 PM		26	9			18			18	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
11:45 PM		16	13			15			15	<div style="width: 0%; background-color: #ff9966; height: 10px;"></div>
Day Total	8801	8130				8492			8492	
% Weekday Average	103.6%	95.7%								
% Week Average	103.6%	95.7%				100%				
AM Peak 15-min Vol	11:45 AM	10:15 AM				10:15 AM			10:15 AM	
	185	165				165			165	
PM Peak 15-min Vol	12:00 PM	2:15 PM				2:15 PM			2:15 PM	
	199	190				188			188	
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16734702

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	24 Sep 24	25 Sep 24							
12:00 AM		3	9			6			6	
12:15 AM		2	8			5			5	
12:30 AM		3	7			5			5	
12:45 AM		4	4			4			4	
01:00 AM		3	2			3			3	
01:15 AM		4	2			3			3	
01:30 AM		1	3			2			2	
01:45 AM		3	2			3			3	
02:00 AM		0	3			2			2	
02:15 AM		4	4			4			4	
02:30 AM		2	2			2			2	
02:45 AM		2	0			1			1	
03:00 AM		3	3			3			3	
03:15 AM		0	4			2			2	
03:30 AM		5	0			3			3	
03:45 AM		2	1			2			2	
04:00 AM		2	3			3			3	
04:15 AM		3	2			3			3	
04:30 AM		3	9			6			6	
04:45 AM		6	6			6			6	
05:00 AM		9	7			8			8	
05:15 AM		12	12			12			12	
05:30 AM		18	11			15			15	
05:45 AM		19	31			25			25	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

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DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	25 Sep 24								
06:00 AM		34	29			32			32	<div style="width: 32px; height: 10px; background-color: #f08080;"></div>
06:15 AM		36	37			37			37	<div style="width: 37px; height: 10px; background-color: #f08080;"></div>
06:30 AM		45	51			48			48	<div style="width: 48px; height: 10px; background-color: #f08080;"></div>
06:45 AM		75	76			76			76	<div style="width: 76px; height: 10px; background-color: #f08080;"></div>
07:00 AM		71	69			70			70	<div style="width: 70px; height: 10px; background-color: #f08080;"></div>
07:15 AM		106	111			109			109	<div style="width: 109px; height: 10px; background-color: #f08080;"></div>
07:30 AM		127	147			137			137	<div style="width: 137px; height: 10px; background-color: #f08080;"></div>
07:45 AM		110	121			116			116	<div style="width: 116px; height: 10px; background-color: #f08080;"></div>
08:00 AM		164	153			159			159	<div style="width: 159px; height: 10px; background-color: #f08080;"></div>
08:15 AM		120	138			129			129	<div style="width: 129px; height: 10px; background-color: #f08080;"></div>
08:30 AM		120	123			122			122	<div style="width: 122px; height: 10px; background-color: #f08080;"></div>
08:45 AM		117	120			119			119	<div style="width: 119px; height: 10px; background-color: #f08080;"></div>
09:00 AM		137	108			123			123	<div style="width: 123px; height: 10px; background-color: #f08080;"></div>
09:15 AM		117	98			108			108	<div style="width: 108px; height: 10px; background-color: #f08080;"></div>
09:30 AM		115	104			110			110	<div style="width: 110px; height: 10px; background-color: #f08080;"></div>
09:45 AM		92	124			108			108	<div style="width: 108px; height: 10px; background-color: #f08080;"></div>
10:00 AM		113	114			114			114	<div style="width: 114px; height: 10px; background-color: #f08080;"></div>
10:15 AM		126	104			115			115	<div style="width: 115px; height: 10px; background-color: #f08080;"></div>
10:30 AM		117	114			116			116	<div style="width: 116px; height: 10px; background-color: #f08080;"></div>
10:45 AM		127	113			120			120	<div style="width: 120px; height: 10px; background-color: #f08080;"></div>
11:00 AM		99	114			107			107	<div style="width: 107px; height: 10px; background-color: #f08080;"></div>
11:15 AM		87	116			102			102	<div style="width: 102px; height: 10px; background-color: #f08080;"></div>
11:30 AM		111	114			113			113	<div style="width: 113px; height: 10px; background-color: #f08080;"></div>
11:45 AM		129	45			87			87	<div style="width: 87px; height: 10px; background-color: #f08080;"></div>
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16734702

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	24 Sep 24	25 Sep 24							
12:00 PM		132	82			107			107	
12:15 PM		89	151			120			120	
12:30 PM		113	63			88			88	
12:45 PM		112	125			119			119	
01:00 PM		132	124			128			128	
01:15 PM		111	113			112			112	
01:30 PM		130	108			119			119	
01:45 PM		127	97			112			112	
02:00 PM		109	110			110			110	
02:15 PM		111	129			120			120	
02:30 PM		142	142			142			142	
02:45 PM		109	120			115			115	
03:00 PM		121	109			115			115	
03:15 PM		126	98			112			112	
03:30 PM		84	99			92			92	
03:45 PM		117	73			95			95	
04:00 PM		104	78			91			91	
04:15 PM		103	93			98			98	
04:30 PM		107	95			101			101	
04:45 PM		117	89			103			103	
05:00 PM		98	95			97			97	
05:15 PM		73	56			65			65	
05:30 PM		99	117			108			108	
05:45 PM		112	106			109			109	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

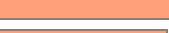
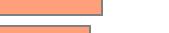
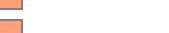
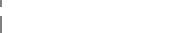
QC JOB #: 16734702

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: Sep 24 2024 - Sep 25 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	24 Sep 24	24 Sep 24	25 Sep 24							
06:00 PM		103	116			110			110	
06:15 PM		108	96			102			102	
06:30 PM		79	79			79			79	
06:45 PM		78	66			72			72	
07:00 PM		86	77			82			82	
07:15 PM		70	78			74			74	
07:30 PM		71	61			66			66	
07:45 PM		51	68			60			60	
08:00 PM		63	53			58			58	
08:15 PM		51	35			43			43	
08:30 PM		43	41			42			42	
08:45 PM		30	34			32			32	
09:00 PM		41	54			48			48	
09:15 PM		30	27			29			29	
09:30 PM		35	16			26			26	
09:45 PM		18	27			23			23	
10:00 PM		18	28			23			23	
10:15 PM		13	14			14			14	
10:30 PM		13	8			11			11	
10:45 PM		4	17			11			11	
11:00 PM		11	13			12			12	
11:15 PM		12	11			12			12	
11:30 PM		9	6			8			8	
11:45 PM		6	8			7			7	
Day Total	6329	6083				6227			6227	
% Weekday Average	101.6%	97.7%								
% Week Average	101.6%	97.7%				100%				
AM Peak 15-min Vol	8:00 AM	8:00 AM				8:00 AM			8:00 AM	
	164	153				159			159	
PM Peak 15-min Vol	2:30 PM	12:15 PM				2:30 PM			2:30 PM	
	142	151				142			142	
Comments:										

Report generated on 10/1/2024 10:27 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Appendix C Methodology Memorandum



1001 SW Emkay Drive, Suite 140
Bend, OR 97702
P 541.312.8300

Technical Memorandum

November 5, 2024

Project# 29385

To: Todd Johnson & Garrett Sabourin
City of Bend

From: Matt Kittelson, PE, Jacki Smith, PE, Doreen Gui, Kittelson & Associates, Inc.
RE: Bend Midtown Crossing - Greenwood Traffic Monitoring: Preconstruction

TRAFFIC MONITORING SUMMARY

As part of the Midtown Crossing Progressive Design Build effort, Kittelson & Associates, Inc. (Kittelson) is supporting a traffic data monitoring inventory for the Greenwood Avenue Quick Build. The Quick Build is a one-year pilot project to evaluate the safety, operations, and impact of transforming the existing roadway on Greenwood Avenue from 2nd Street to Wall Street to a three-lane cross section with buffered bike lanes. As part of the evaluation, **traffic data will be monitored both pre-and post-construction to document trends in congestion, travel speeds, and traffic volumes**. This memorandum documents the monitoring methodology and presents the initial preconstruction data for future comparison when the quick build is implemented.

As part of the monitoring process, three data collection methods will be collected. These methods include:

- Traffic Count Data
 - 48-hour travel volume, speed, and vehicle classification data for vehicles
 - 48-hour pedestrian and bicycle volumes
- Travel Time Data
 - Google API
 - INRIX

Data will be collected during the following time periods for evaluation:

- Preconstruction – May 2024
 - Construction Anticipated July/August 2024
- Postconstruction – September 2024
- Postconstruction – January/February 2024
- Postconstruction – May/June 2024

Traffic Count Data

Traffic counts were collected to understand the existing travel demand on Greenwood Avenue. Two days (48 hours) of vehicle, pedestrian, and bicycle counts were collected at two locations on Tuesday May 14, 2024 and Wednesday May 15, 2024:

- Greenwood Avenue between Harriman Street and Hill Street (west of Hill Street).
- Greenwood Avenue between Hill Street and 1st Street (east of Hill Street near the undercrossing).

Raw traffic volume data is provided in Appendix C-1.

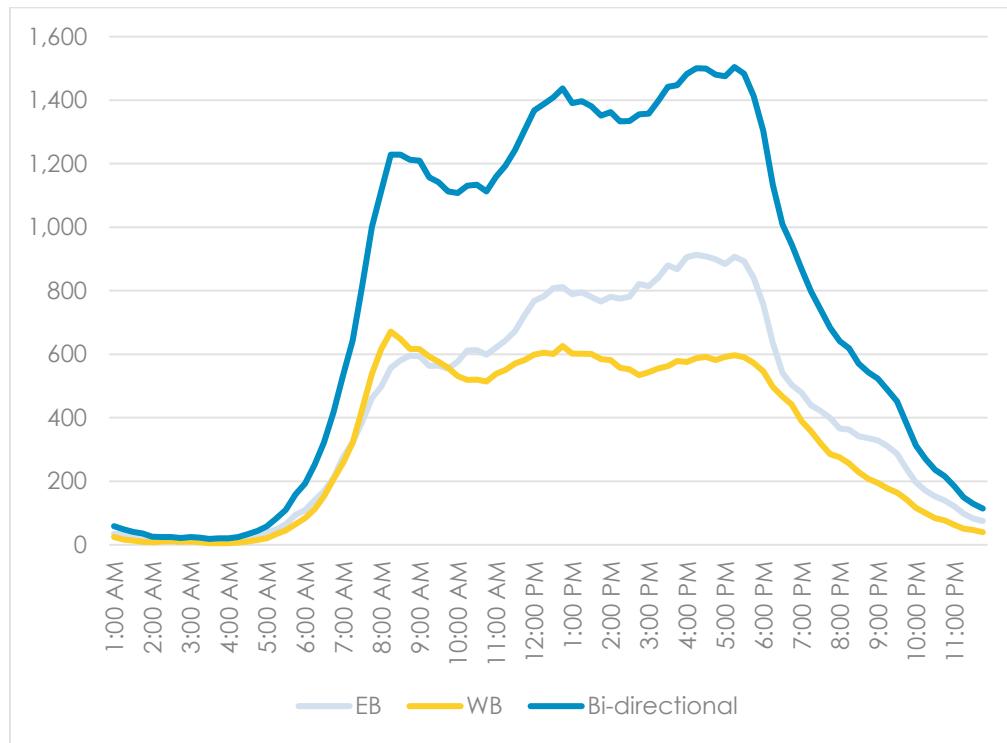
Vehicle Volume

Kittelson analyzed the time-of-day distribution of vehicle volume by averaging two days of data. Similar trends were found at both count locations. Volumes were slightly higher west of Hill Street, with an average daily volume of 17,874 vehicles (2,353 or 15 percent higher than east of Hill Street).

Figure 1 shows the hourly volume distribution on Greenwood Avenue west of Hill Street. The following trends were found:

- The AM peak hour occurs at 7:30 AM to 8:30 AM, with 1,229 total vehicles.
- The PM peak hour occurs at 4:30 PM to 5:30 PM, with 1,505 total vehicles.
- The AM peak is more prominent for westbound traffic and the PM peak is more prominent for eastbound traffic. This is consistent with expected traffic patterns into and out of the downtown area.
- Traffic volumes remain fairly consistent throughout the day with a minor peak during midday (12:00pm-1:00pm).

Figure 1 NW Greenwood Avenue Vehicle Volume Distribution by Time of Day



Vehicle Speed Distribution

Speed data were reported in 5 mph intervals from the collected tube counts. The tubes were set at midblock locations so that the recorded speed was not affected by traffic control at intersections. Kittelson aggregated the two days of data and identified the 85th percentile speed:

- At both count locations, the 85th percentile speeds for both directions are between 31 mph (miles per hour) to 35 mph.
 - The posted speed on Greenwood Avenue is 20mph west of Hill Street and 25mph east of Hill Street.

- The 85th percentile speeds are generally consistent throughout the day.

To supplement the 85th percentile speed metric, Kittelson also analyzed the time-of-day trend of average speed by assigning an estimated speed to each vehicle based on the 5-mph interval recorded. For example, if a vehicle's speed was between 26 mph and 30 mph, its speed was assumed to be 28 mph. The following trends were found:

- Similar to 85th percentile speed, average speed is generally consistent throughout the day. It ranges from 25 mph to 35 mph, except for westbound traffic at the west of Hill Street location, which drops to 22 mph around noon (12 PM to 2 PM).
- At both count locations, the estimated average speed of eastbound traffic is slightly higher than westbound traffic, except in early AM (12 AM to 5 AM).

Pedestrian and Bicycle Volume

Table 1 and Table 2 summarize the daily and peak hour pedestrian and bicycle volumes using the average of two days of data. As the peak demand of pedestrian and bicycle activity often does not overlap with peak vehicle demand, the 60-min intervals with highest pedestrian or bicycle count were also listed. The following trends were found:

- Pedestrian volume.
 - At both locations, more than 70% of pedestrians use the sidewalk on the north side of Greenwood Avenue.
 - Pedestrian volumes are higher at the count location west of Hill Street. Less people use the undercrossing sidewalks than the sidewalk facilities near downtown.
- Bicycle volume.
 - Bicycle volumes are relatively balanced between the two count locations and the two directions.

Table 1 NW Greenwood Avenue Pedestrian Volume Summary

Time Period	North Sidewalk	South Sidewalk	Total
West of Hill Street			
Daily	349	126	474
AM Peak Hour (7:30 AM to 8:30 AM)	9	4	13
PM Peak Hour (4:30 PM to 5:30 PM)	14	12	26
Pedestrian Peak Hour (6:55 PM to 7:55 PM)	34	9	43
East of Hill Street (Near Undercrossing)			
Daily	154	56	209
AM Peak Hour (7:30 AM to 8:30 AM)	2	2	4
PM Peak Hour (4:30 PM to 5:30 PM)	12	3	15
Pedestrian Peak Hour (3:25 PM to 4:25 PM)	21	6	27

Note: Average volumes were rounded and might not add to total.

Table 2 NW Greenwood Avenue Bicycle Volume Summary

Time Period	Eastbound	Westbound	Total
West of Hill Street			
Daily	55	46	101
AM Peak Hour (7:30 AM to 8:30 AM)	4	2	6
PM Peak Hour (4:30 PM to 5:30 PM)	5	5	10
Pedestrian Peak Hour (2:25 PM to 3:25 PM)	8	4	12
East of Hill Street (Near Undercrossing)			
Daily	53	55	108
AM Peak Hour (7:30 AM to 8:30 AM)	3	1	3
PM Peak Hour (4:30 PM to 5:30 PM)	5	9	13
Pedestrian Peak Hour (5:15 PM to 6:15 PM)	7	10	16

Note: Average volumes were rounded and might not add up.

Traffic Count Data Comparison

Once the quick build is constructed, three additional data collection periods will be evaluated to compare the “before and after” trends along the Greenwood Avenue corridor. These comparisons will be communicated in a graphical format to observe the trends and changes over time for both volume and speed data.

Travel Time Data

Travel time data from two data sources, INRIX and Google API, are used to monitor the change of travel time preconstruction and postconstruction. The following section presents the methodology used to analyze the data. Detailed preconstruction and postconstruction travel time comparison will be presented after postconstruction data are collected.

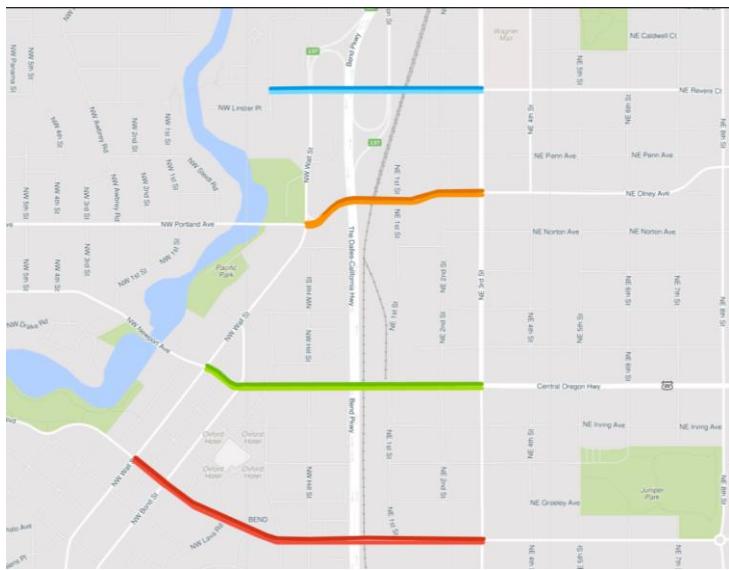
Monitoring Period and Corridors

For the preconstruction period, travel time data from INRIX and Google API were downloaded or queried between 6 AM and 9 PM on weekdays (Tuesday, Wednesday, Thursday) for two weeks between May 21 and May 30. To provide consistency between the data sets, traffic count and travel time data will be collected within a 2-3 week period of each other for the remaining data collection periods.

To monitor the cumulative, systemwide effect of the quick-build project, three parallel corridors were also included in this analysis, as shown in Figure 2:

- Revere Avenue, from Harriman Street to 3rd Street.
- Olney Avenue, from Wall Street to 3rd Street.
- Greenwood Avenue, from Wall Street to 3rd Street.
- Franklin Avenue, from Wall Street to 3rd Street.

Figure 2 Monitoring Corridors



INRIX Data

INRIX provides vehicle travel time and speed data based on aggregated traffic data from GPS-enabled devices and road sensors. The data is available in Regional Integrated Transportation Information System (RITIS), a data sharing and visualization platform. Kittelson accessed INRIX data from RITIS, under Oregon Department of Transportation (ODOT)'s agreement with the platform.

INRIX Methodology

Data was downloaded using the "Massive Data Downloader" tool in RITIS following the steps below for the preconstruction period. A similar process will be applied to the postconstruction data sets:

1. Select INRIX segments.
 - a. INRIX reports travel time data on pre-determined XD segments. Select the segments that most closely match the extent of the monitoring corridors.
2. Specify date and time.
 - a. Select days to be weekdays between May 21 and May 30.
 - b. Select time of day to be between 6 AM to 9 PM.
3. Select 15-minute granularity.
 - a. For each XD segment, INRIX calculates the average speed by computing the harmonic mean of all relevant speed values within the 15-minute window. The harmonic mean is defined as the number of values divided by the sum of the reciprocals of the values:
 - i.
$$XD \ segment \ speed = \frac{n}{\left(\frac{1}{speed_1} + \frac{1}{speed_2} + \dots + \frac{1}{speed_n} \right)}$$
 - b. The travel time metric is calculated as segment length divided by segment speed.
4. Filter for confidence score of 30.
 - a. INRIX uses the confidence score to differentiate real time data with speed inferred from historical average. A confidence score of 30 means only real time data is used.

As each monitoring corridor consists of multiple INRIX XD segments, segment travel times need to be aggregated into corridor travel time:

1. Identify the corridor (e.g., eastbound NW Greenwood Avenue) corresponding to each XD segment.
2. Filter INRIX records with a "C-Value" lower than 85.
 - a. "C-Value" is a metric used by INRIX to indicate the probability the current value represents the actual roadway conditions based on recent and historical trends. The value ranges from 0 to 100, with 100 indicating high probability.
 - b. Filtering out records with low "C-Value" helps exclude non-recurring congestion, such as incidents and special events.
3. Calculate corridor travel time of each 15-minute window by summing up travel times of the corresponding XD segments.
 - a. If the travel time of any XD segment is missing for a 15-minute window (due to lack of real time data or low "C-Value"), the corridor travel time will not be reported at that timestamp, as the data are incomplete.
4. The average corridor travel time can be calculated by averaging data over the two-week period.

INRIX Data Summary

Below lists the initial results from the preconstruction period:

- Eastbound and westbound travel times on Greenwood Avenue from Wall Street to 3rd Street are similar and generally range from 70 to 105 seconds between 6 AM to 9 PM.
- Consistent with the trend identified from tube counts, eastbound travel times increase during PM peak hour, while the effect is less prominent for westbound travel time.

INRIX output sheets are provided in Appendix C-2.

Google API

Another source of travel time data is Google Directions API. It uses an algorithm to incorporate distance, speed limit, historical speed data, and real-time traffic conditions collected from GPS devices.

Google API Methodology

Travel times were queried and aggregated using the following steps. A similar process will be applied to the postconstruction data sets:

1. Set up corridors.
 - a. Specify the longitude and latitude of the origins and destinations of the monitoring corridors.
 - b. As API searches for the fastest path, add intermediate waypoints along the monitoring corridor to fix the path.
2. Select mode to be driving.
3. Call the API every 15 minutes.
 - a. A python script was developed to query travel time every 15 minutes between 6 AM to 9 PM on weekdays and record the data.
4. The average corridor travel time can be calculated by averaging data over the two-week period between May 21 and May 30.

Google API Data Summary

Below lists the initial results from the preconstruction period:

- Eastbound and westbound travel times on NW Greenwood Avenue are similar and generally range from 95 to 175 seconds between 6 AM to 9 PM.
 - Note the Google API travel time results can vary from INRIX result as the INRIX XD segments might not coincide exactly with the origins and destinations specified in Google API. In addition, as the monitoring corridors start and end at intersections, INRIX and Google API might have different ways to handle the starting and ending intersections.
 - It is recommended that quantitative results of preconstruction and postconstruction travel time should be compared using the same data source, and that trends from INRIX and Google API should be compared qualitatively.
- Similar with trends identified from tube counts and INRIX data, eastbound travel times increase during PM peak hour, while the effect is less prominent for westbound travel time.

Google API output sheets are provided in Appendix C-3.

Travel Time Data Comparison

Similar to traffic count data, once the quick build is constructed, three additional data collection periods will be evaluated to compare the “before and after” trends along the Greenwood Avenue corridor and along the parallel routes identified above. These comparisons will be communicated in a graphical format to observe the trends and changes over time.

Appendix C - 1 Traffic Volume Data

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		7	15			11			11	
12:15 AM		6	10			8			8	
12:30 AM		5	8			7			7	
12:45 AM		6	1			4			4	
01:00 AM		5	10			8			8	
01:15 AM		7	5			6			6	
01:30 AM		4	4			4			4	
01:45 AM		2	5			4			4	
02:00 AM		3	2			3			3	
02:15 AM		1	2			2			2	
02:30 AM		2	3			3			3	
02:45 AM		2	4			3			3	
03:00 AM		4	2			3			3	
03:15 AM		2	2			2			2	
03:30 AM		0	1			1			1	
03:45 AM		2	3			3			3	
04:00 AM		3	2			3			3	
04:15 AM		3	6			5			5	
04:30 AM		2	7			5			5	
04:45 AM		8	7			8			8	
05:00 AM		10	7			9			9	
05:15 AM		14	14			14			14	
05:30 AM		16	15			16			16	
05:45 AM		30	29			30			30	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 AM		15	18			17			17	<div style="width: 10%;"></div>
06:15 AM		29	29			29			29	<div style="width: 15%;"></div>
06:30 AM		47	28			38			38	<div style="width: 10%;"></div>
06:45 AM		60	50			55			55	<div style="width: 12%;"></div>
07:00 AM		67	71			69			69	<div style="width: 15%;"></div>
07:15 AM		83	68			76			76	<div style="width: 13%;"></div>
07:30 AM		98	103			101			101	<div style="width: 16%;"></div>
07:45 AM		134	136			135			135	<div style="width: 20%;"></div>
08:00 AM		113	103			108			108	<div style="width: 15%;"></div>
08:15 AM		135	131			133			133	<div style="width: 20%;"></div>
08:30 AM		121	122			122			122	<div style="width: 15%;"></div>
08:45 AM		138	144			141			141	<div style="width: 20%;"></div>
09:00 AM		103	117			110			110	<div style="width: 15%;"></div>
09:15 AM		91	101			96			96	<div style="width: 10%;"></div>
09:30 AM		113	118			116			116	<div style="width: 15%;"></div>
09:45 AM		134	144			139			139	<div style="width: 20%;"></div>
10:00 AM		128	134			131			131	<div style="width: 15%;"></div>
10:15 AM		145	121			133			133	<div style="width: 10%;"></div>
10:30 AM		114	149			132			132	<div style="width: 15%;"></div>
10:45 AM		110	133			122			122	<div style="width: 10%;"></div>
11:00 AM		128	185			157			157	<div style="width: 30%;"></div>
11:15 AM		135	170			153			153	<div style="width: 25%;"></div>
11:30 AM		144	140			142			142	<div style="width: 15%;"></div>
11:45 AM		173	145			159			159	<div style="width: 25%;"></div>
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

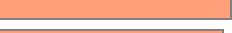
QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	15 May 24								
12:00 PM		175	173			174			174	
12:15 PM		174	164			169			169	
12:30 PM		163	188			176			176	
12:45 PM		178	179			179			179	
01:00 PM		158	186			172			172	
01:15 PM		157	200			179			179	
01:30 PM		148	136			142			142	
01:45 PM		157	177			167			167	
02:00 PM		168	199			184			184	
02:15 PM		169	163			166			166	
02:30 PM		176	163			170			170	
02:45 PM		185	185			185			185	
03:00 PM		182	178			180			180	
03:15 PM		212	193			203			203	
03:30 PM		192	205			199			199	
03:45 PM		162	195			179			179	
04:00 PM		189	193			191			191	
04:15 PM		199	171			185			185	
04:30 PM		176	192			184			184	
04:45 PM		173	184			179			179	
05:00 PM		188	182			185			185	
05:15 PM		208	188			198			198	
05:30 PM		165	196			181			181	
05:45 PM		138	127			133			133	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

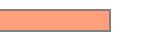
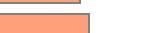
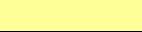
QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 PM		126	129			128			128	
06:15 PM		101	127			114			114	
06:30 PM		80	106			93			93	
06:45 PM		80	110			95			95	
07:00 PM		91	118			105			105	
07:15 PM		63	88			76			76	
07:30 PM		94	72			83			83	
07:45 PM		80	67			74			74	
08:00 PM		66	93			80			80	
08:15 PM		87	80			84			84	
08:30 PM		66	87			77			77	
08:45 PM		77	66			72			72	
09:00 PM		67	76			72			72	
09:15 PM		54	63			59			59	
09:30 PM		42	51			47			47	
09:45 PM		30	41			36			36	
10:00 PM		45	27			36			36	
10:15 PM		53	28			41			41	
10:30 PM		39	28			34			34	
10:45 PM		25	19			22			22	
11:00 PM		17	13			15			15	
11:15 PM		20	14			17			17	
11:30 PM		21	9			15			15	
11:45 PM		16	14			15			15	
Day Total		8334	8667			8526			8526	
% Weekday Average		97.7%	101.7%							
% Week Average		97.7%	101.7%			100%				
AM Peak 15-min Vol		11:45 AM	11:00 AM			11:45 AM			11:45 AM	
		173	185			159			159	
PM Peak 15-min Vol		3:15 PM	3:30 PM			3:15 PM			3:15 PM	
		212	205			203			203	
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		4	6			5			5	
12:15 AM		4	15			10			10	
12:30 AM		3	6			5			5	
12:45 AM		9	6			8			8	
01:00 AM		1	2			2			2	
01:15 AM		3	3			3			3	
01:30 AM		4	1			3			3	
01:45 AM		1	7			4			4	
02:00 AM		0	1			1			1	
02:15 AM		1	2			2			2	
02:30 AM		4	5			5			5	
02:45 AM		2	0			1			1	
03:00 AM		2	1			2			2	
03:15 AM		0	2			1			1	
03:30 AM		0	1			1			1	
03:45 AM		1	1			1			1	
04:00 AM		2	2			2			2	
04:15 AM		1	4			3			3	
04:30 AM		2	5			4			4	
04:45 AM		8	4			6			6	
05:00 AM		9	4			7			7	
05:15 AM		13	11			12			12	
05:30 AM		18	10			14			14	
05:45 AM		25	15			20			20	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 AM		26	17			22			22	<div style="width: 10%;">10%</div>
06:15 AM		37	36			37			37	<div style="width: 15%;">15%</div>
06:30 AM		52	44			48			48	<div style="width: 18%;">18%</div>
06:45 AM		60	74			67			67	<div style="width: 22%;">22%</div>
07:00 AM		65	66			66			66	<div style="width: 20%;">20%</div>
07:15 AM		109	78			94			94	<div style="width: 25%;">25%</div>
07:30 AM		146	116			131			131	<div style="width: 30%;">30%</div>
07:45 AM		187	149			168			168	<div style="width: 35%;">35%</div>
08:00 AM		140	124			132			132	<div style="width: 32%;">32%</div>
08:15 AM		138	167			153			153	<div style="width: 38%;">38%</div>
08:30 AM		129	121			125			125	<div style="width: 34%;">34%</div>
08:45 AM		146	152			149			149	<div style="width: 36%;">36%</div>
09:00 AM		127	136			132			132	<div style="width: 33%;">33%</div>
09:15 AM		134	131			133			133	<div style="width: 34%;">34%</div>
09:30 AM		109	119			114			114	<div style="width: 28%;">28%</div>
09:45 AM		120	161			141			141	<div style="width: 40%;">40%</div>
10:00 AM		108	107			108			108	<div style="width: 25%;">25%</div>
10:15 AM		105	120			113			113	<div style="width: 31%;">31%</div>
10:30 AM		106	119			113			113	<div style="width: 31%;">31%</div>
10:45 AM		126	113			120			120	<div style="width: 33%;">33%</div>
11:00 AM		111	153			132			132	<div style="width: 38%;">38%</div>
11:15 AM		141	137			139			139	<div style="width: 35%;">35%</div>
11:30 AM		111	137			124			124	<div style="width: 32%;">32%</div>
11:45 AM		147	130			139			139	<div style="width: 36%;">36%</div>
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

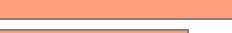
QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon 14 May 24	Tue 15 May 24	Wed 15 May 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		147	159			153			153	
12:15 PM		119	120			120			120	
12:30 PM		127	116			122			122	
12:45 PM		134	145			140			140	
01:00 PM		136	121			129			129	
01:15 PM		138	123			131			131	
01:30 PM		128	123			126			126	
01:45 PM		117	146			132			132	
02:00 PM		124	135			130			130	
02:15 PM		116	122			119			119	
02:30 PM		105	130			118			118	
02:45 PM		141	118			130			130	
03:00 PM		134	137			136			136	
03:15 PM		144	111			128			128	
03:30 PM		134	134			134			134	
03:45 PM		135	145			140			140	
04:00 PM		138	125			132			132	
04:15 PM		137	129			133			133	
04:30 PM		128	135			132			132	
04:45 PM		136	124			130			130	
05:00 PM		139	151			145			145	
05:15 PM		140	140			140			140	
05:30 PM		132	120			126			126	
05:45 PM		113	119			116			116	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Harriman and Hill

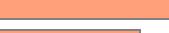
QC JOB #: 16414404

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 PM		102	128			115			115	
06:15 PM		97	86			92			92	
06:30 PM		99	99			99			99	
06:45 PM		79	93			86			86	
07:00 PM		71	60			66			66	
07:15 PM		60	60			60			60	
07:30 PM		61	66			64			64	
07:45 PM		56	64			60			60	
08:00 PM		50	74			62			62	
08:15 PM		54	56			55			55	
08:30 PM		43	35			39			39	
08:45 PM		40	35			38			38	
09:00 PM		33	77			55			55	
09:15 PM		26	29			28			28	
09:30 PM		35	32			34			34	
09:45 PM		17	21			19			19	
10:00 PM		22	21			22			22	
10:15 PM		17	12			15			15	
10:30 PM		16	17			17			17	
10:45 PM		12	16			14			14	
11:00 PM		16	11			14			14	
11:15 PM		6	6			6			6	
11:30 PM		11	18			15			15	
11:45 PM		4	9			7			7	
Day Total	6966	7074				7046			7046	
% Weekday Average	98.9%	100.4%								
% Week Average	98.9%	100.4%				100%				
AM Peak 15-min Vol	7:45 AM	8:15 AM				7:45 AM			7:45 AM	
	187	167				168			168	
PM Peak 15-min Vol	12:00 PM	12:00 PM				12:00 PM			12:00 PM	
	147	159				153			153	
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		9	12			11			11	
12:15 AM		6	9			8			8	
12:30 AM		8	12			10			10	
12:45 AM		8	4			6			6	
01:00 AM		8	14			11			11	
01:15 AM		6	5			6			6	
01:30 AM		5	4			5			5	
01:45 AM		3	7			5			5	
02:00 AM		3	2			3			3	
02:15 AM		2	3			3			3	
02:30 AM		2	5			4			4	
02:45 AM		3	4			4			4	
03:00 AM		6	2			4			4	
03:15 AM		4	2			3			3	
03:30 AM		3	3			3			3	
03:45 AM		5	5			5			5	
04:00 AM		3	4			4			4	
04:15 AM		5	7			6			6	
04:30 AM		4	13			9			9	
04:45 AM		10	11			11			11	
05:00 AM		13	12			13			13	
05:15 AM		17	18			18			18	
05:30 AM		23	26			25			25	
05:45 AM		41	39			40			40	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 AM		26	28			27			27	
06:15 AM		45	52			49			49	
06:30 AM		63	44			54			54	
06:45 AM		92	71			82			82	
07:00 AM		91	95			93			93	
07:15 AM		101	88			95			95	
07:30 AM		121	118			120			120	
07:45 AM		150	160			155			155	
08:00 AM		137	122			130			130	
08:15 AM		167	140			154			154	
08:30 AM		148	137			143			143	
08:45 AM		173	167			170			170	
09:00 AM		123	133			128			128	
09:15 AM		117	130			124			124	
09:30 AM		144	143			144			144	
09:45 AM		160	159			160			160	
10:00 AM		144	156			150			150	
10:15 AM		163	154			159			159	
10:30 AM		136	154			145			145	
10:45 AM		125	165			145			145	
11:00 AM		147	198			173			173	
11:15 AM		161	200			181			181	
11:30 AM		171	178			175			175	
11:45 AM		207	184			196			196	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

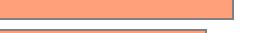
QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon 14 May 24	Tue 15 May 24	Wed 15 May 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		225	211			218			218	
12:15 PM		207	182			195			195	
12:30 PM		194	206			200			200	
12:45 PM		196	201			199			199	
01:00 PM		173	219			196			196	
01:15 PM		187	214			201			201	
01:30 PM		186	185			186			186	
01:45 PM		174	195			185			185	
02:00 PM		191	231			211			211	
02:15 PM		195	194			195			195	
02:30 PM		196	187			192			192	
02:45 PM		220	229			225			225	
03:00 PM		192	215			204			204	
03:15 PM		228	217			223			223	
03:30 PM		213	245			229			229	
03:45 PM		199	227			213			213	
04:00 PM		245	239			242			242	
04:15 PM		235	223			229			229	
04:30 PM		228	221			225			225	
04:45 PM		199	208			204			204	
05:00 PM		230	225			228			228	
05:15 PM		257	247			252			252	
05:30 PM		198	222			210			210	
05:45 PM		162	140			151			151	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: EB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 PM		140	149			145			145	
06:15 PM		113	147			130			130	
06:30 PM		97	135			116			116	
06:45 PM		103	123			113			113	
07:00 PM		107	135			121			121	
07:15 PM		80	100			90			90	
07:30 PM		107	88			98			98	
07:45 PM		97	84			91			91	
08:00 PM		76	100			88			88	
08:15 PM		93	81			87			87	
08:30 PM		69	83			76			76	
08:45 PM		78	91			85			85	
09:00 PM		72	90			81			81	
09:15 PM		66	73			70			70	
09:30 PM		47	56			52			52	
09:45 PM		33	44			39			39	
10:00 PM		44	30			37			37	
10:15 PM		55	32			44			44	
10:30 PM		33	33			33			33	
10:45 PM		29	23			26			26	
11:00 PM		19	19			19			19	
11:15 PM		24	17			21			21	
11:30 PM		22	12			17			17	
11:45 PM		20	16			18			18	
Day Total	9863	10243				10079			10079	
% Weekday Average	97.9%	101.6%								
% Week Average	97.9%	101.6%				100%				
AM Peak 15-min Vol	11:45 AM	11:15 AM				11:45 AM			11:45 AM	
	207	200				196			196	
PM Peak 15-min Vol	5:15 PM	5:15 PM				5:15 PM			5:15 PM	
	257	247				252			252	
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
12:00 AM		4	6			5			5	
12:15 AM		2	16			9			9	
12:30 AM		4	9			7			7	
12:45 AM		10	4			7			7	
01:00 AM		2	2			2			2	
01:15 AM		1	1			1			1	
01:30 AM		5	2			4			4	
01:45 AM		1	5			3			3	
02:00 AM		0	2			1			1	
02:15 AM		2	3			3			3	
02:30 AM		4	5			5			5	
02:45 AM		2	1			2			2	
03:00 AM		3	1			2			2	
03:15 AM		0	1			1			1	
03:30 AM		0	2			1			1	
03:45 AM		2	1			2			2	
04:00 AM		2	3			3			3	
04:15 AM		1	3			2			2	
04:30 AM		3	6			5			5	
04:45 AM		6	6			6			6	
05:00 AM		10	5			8			8	
05:15 AM		17	14			16			16	
05:30 AM		21	12			17			17	
05:45 AM		33	17			25			25	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 AM		31	23			27			27	
06:15 AM		43	45			44			44	
06:30 AM		61	52			57			57	
06:45 AM		69	89			79			79	
07:00 AM		77	80			79			79	
07:15 AM		125	90			108			108	
07:30 AM		178	150			164			164	
07:45 AM		199	178			189			189	
08:00 AM		164	147			156			156	
08:15 AM		155	172			164			164	
08:30 AM		144	137			141			141	
08:45 AM		165	151			158			158	
09:00 AM		144	163			154			154	
09:15 AM		136	146			141			141	
09:30 AM		128	121			125			125	
09:45 AM		124	154			139			139	
10:00 AM		129	125			127			127	
10:15 AM		118	139			129			129	
10:30 AM		122	130			126			126	
10:45 AM		142	123			133			133	
11:00 AM		128	174			151			151	
11:15 AM		133	149			141			141	
11:30 AM		135	157			146			146	
11:45 AM		141	147			144			144	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

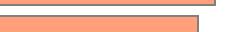
QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

Start Time	Mon 14 May 24	Tue 15 May 24	Wed 15 May 24	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM		171	165			168			168	
12:15 PM		138	156			147			147	
12:30 PM		131	153			142			142	
12:45 PM		169	169			169			169	
01:00 PM		139	149			144			144	
01:15 PM		148	145			147			147	
01:30 PM		138	144			141			141	
01:45 PM		140	167			154			154	
02:00 PM		139	142			141			141	
02:15 PM		114	131			123			123	
02:30 PM		122	150			136			136	
02:45 PM		153	117			135			135	
03:00 PM		143	157			150			150	
03:15 PM		139	131			135			135	
03:30 PM		145	141			143			143	
03:45 PM		145	157			151			151	
04:00 PM		154	140			147			147	
04:15 PM		150	143			147			147	
04:30 PM		145	149			147			147	
04:45 PM		143	139			141			141	
05:00 PM		148	166			157			157	
05:15 PM		155	149			152			152	
05:30 PM		143	138			141			141	
05:45 PM		122	125			124			124	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 5/22/2024 7:53 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Type of report: Tube Count - Volume Data

LOCATION: NW Greenwood Ave btwn Hill and 1rst

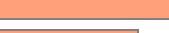
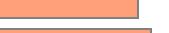
QC JOB #: 16414405

SPECIFIC LOCATION:

DIRECTION: WB

CITY/STATE: Bend, OR

DATE: May 14 2024 - May 15 2024

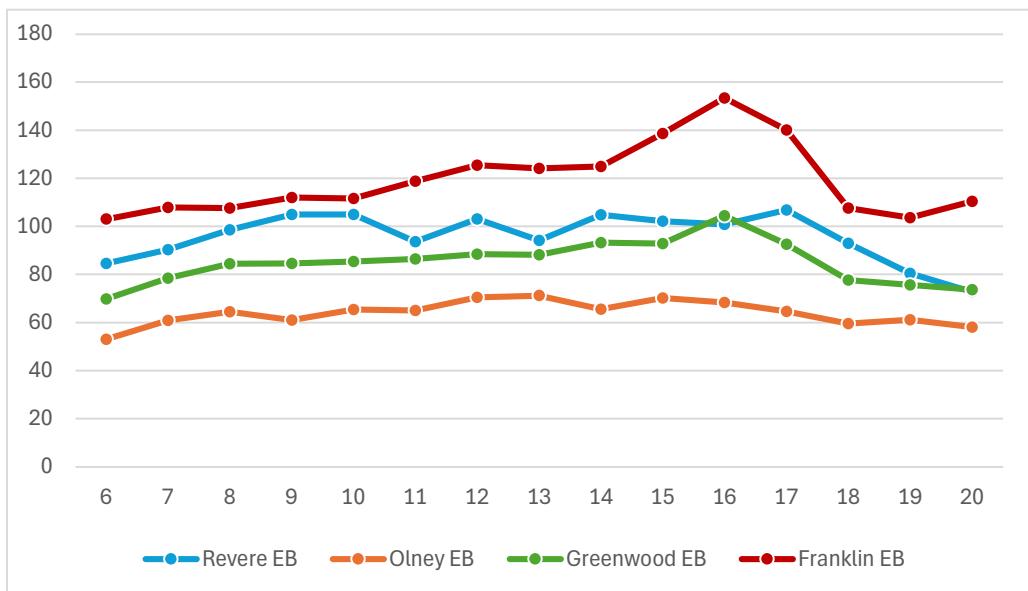
Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday 15-min Traffic	Sat	Sun	Average Week 15-min Traffic	Average Week Profile
	14 May 24	14 May 24	15 May 24							
06:00 PM		124	136			130			130	
06:15 PM		104	102			103			103	
06:30 PM		110	111			111			111	
06:45 PM		88	109			99			99	
07:00 PM		81	75			78			78	
07:15 PM		71	72			72			72	
07:30 PM		65	78			72			72	
07:45 PM		64	64			64			64	
08:00 PM		56	80			68			68	
08:15 PM		54	51			53			53	
08:30 PM		51	39			45			45	
08:45 PM		44	41			43			43	
09:00 PM		42	67			55			55	
09:15 PM		35	36			36			36	
09:30 PM		36	29			33			33	
09:45 PM		17	24			21			21	
10:00 PM		28	28			28			28	
10:15 PM		20	18			19			19	
10:30 PM		18	15			17			17	
10:45 PM		15	11			13			13	
11:00 PM		15	14			15			15	
11:15 PM		6	8			7			7	
11:30 PM		10	14			12			12	
11:45 PM		6	7			7			7	
Day Total	7720	7921				7842			7842	
% Weekday Average	98.4%	101%								
% Week Average	98.4%	101%				100%				
AM Peak 15-min Vol	7:45 AM	7:45 AM				7:45 AM			7:45 AM	
	199	178				189			189	
PM Peak 15-min Vol	12:00 PM	12:45 PM				12:45 PM			12:45 PM	
	171	169				169			169	
Comments:										

Report generated on 5/22/2024 7:53 AM

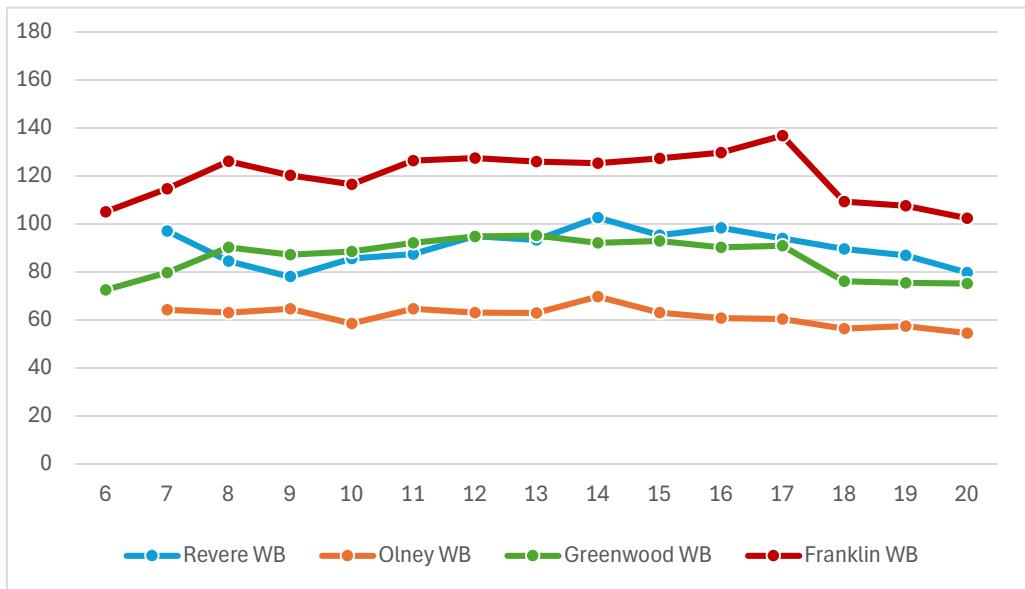
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

Appendix C - 2 INRIX Travel Time Data

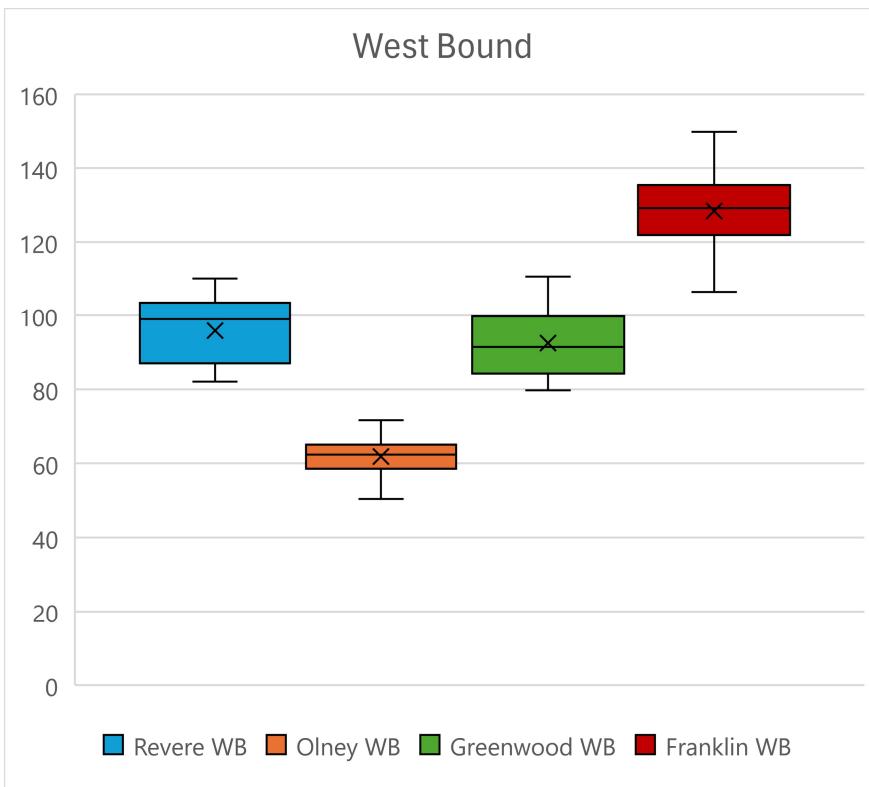
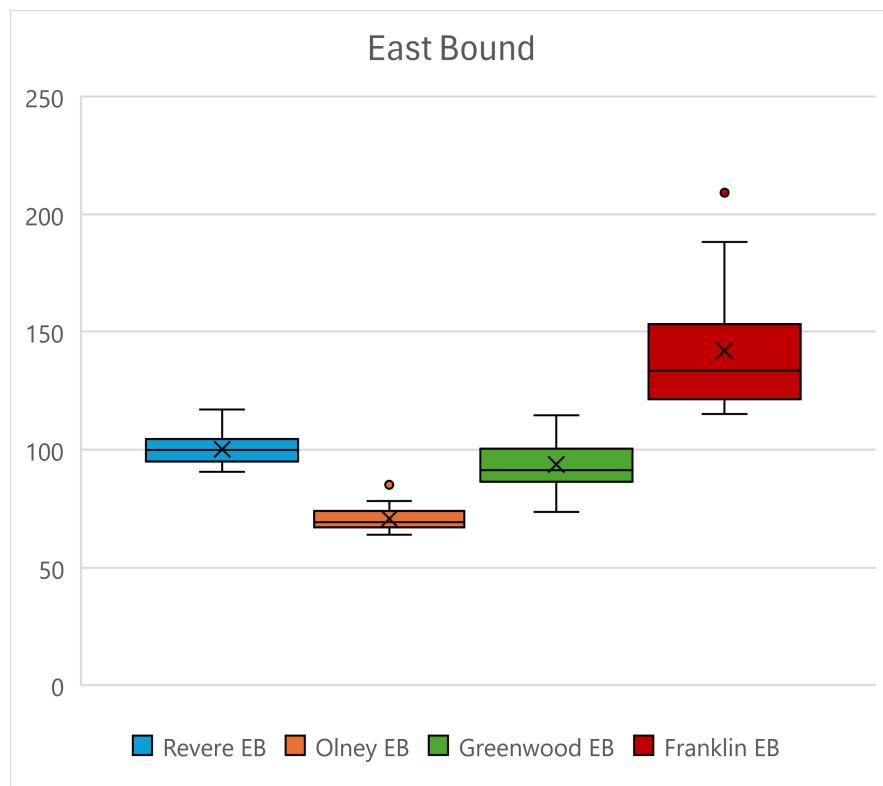
Average Travel Time EB				
Hour	Revere EB	Olney EB	Greenwood EB	Franklin EB
6	84.59	53.04	69.86	103.05
7	90.26	60.88	78.43	107.93
8	98.53	64.45	84.47	107.57
9	104.94	61.08	84.58	112.05
10	104.96	65.38	85.38	111.55
11	93.63	65.07	86.49	118.80
12	103.09	70.46	88.41	125.50
13	94.19	71.22	88.16	124.06
14	104.78	65.49	93.20	124.91
15	102.12	70.27	92.89	138.59
16	100.88	68.30	104.47	153.40
17	106.86	64.61	92.62	140.14
18	93.02	59.58	77.70	107.56
19	80.43	61.13	75.71	103.59
20	72.82	58.15	73.73	110.44



Average Travel Time WB				
Hour	Revere WB	Olney WB	Greenwood WB	Franklin WB
6			72.53	105.09
7	97.06	64.21	79.76	114.59
8	84.45	63.01	90.18	126.16
9	78.05	64.62	87.17	120.22
10	85.63	58.47	88.50	116.49
11	87.50	64.69	92.13	126.41
12	94.95	63.04	94.73	127.47
13	93.24	62.95	95.21	125.91
14	102.70	69.76	92.15	125.25
15	95.27	63.09	92.87	127.25
16	98.38	60.83	90.24	129.70
17	93.92	60.32	90.83	136.80
18	89.56	56.36	76.15	109.35
19	86.96	57.43	75.45	107.52
20	79.74	54.53	75.12	102.37

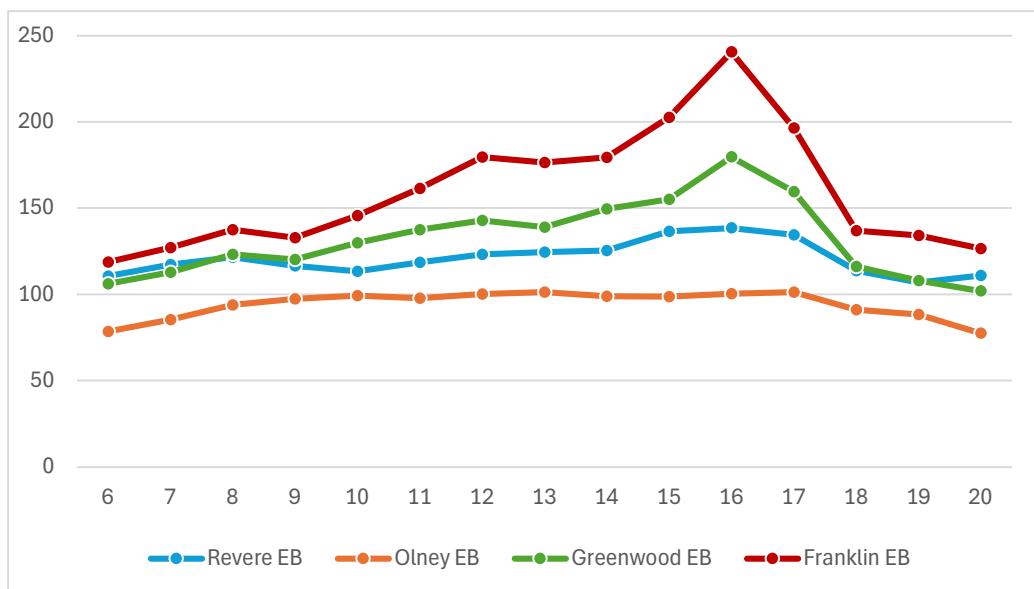


Variance in Travel Time during the Peak Hour

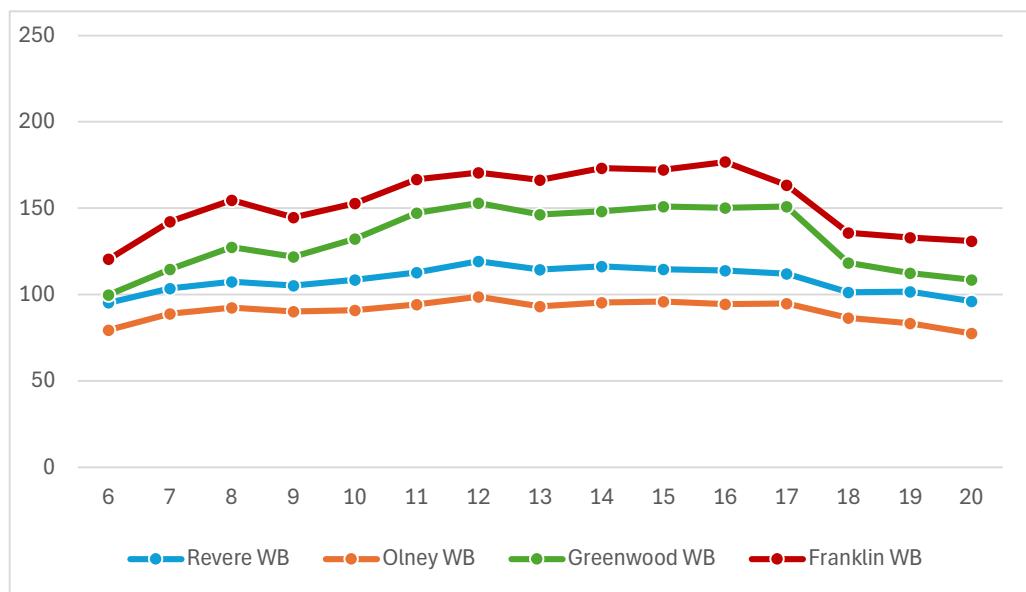


Appendix C - 3 Google API Travel Time Data

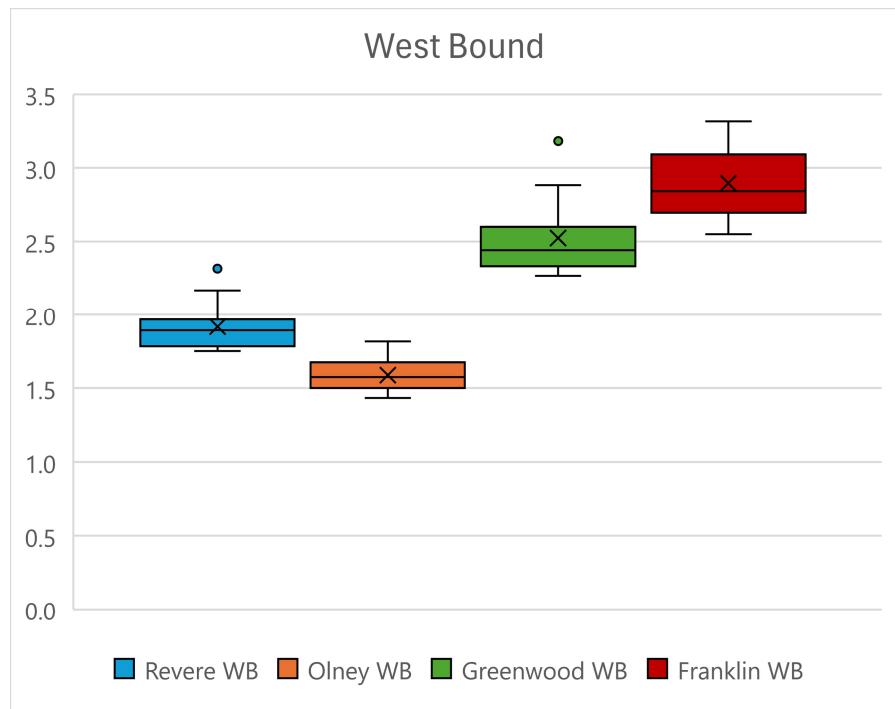
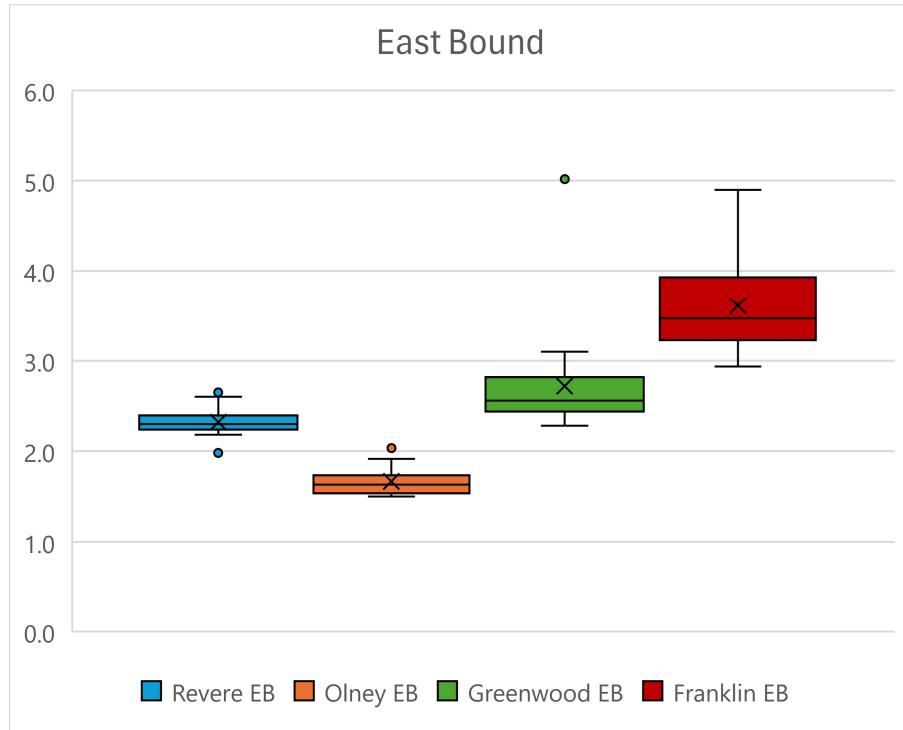
Average Travel Time EB				
Hour	Revere EB	Olney EB	Greenwood EB	Franklin EB
6	110.63	78.42	106.04	118.79
7	117.17	85.25	112.75	127.13
8	121.54	93.83	123.25	137.38
9	116.50	97.33	120.25	132.75
10	113.25	99.17	129.92	145.63
11	118.46	97.75	137.38	161.42
12	123.25	100.13	142.88	179.58
13	124.42	101.25	138.92	176.42
14	125.46	98.87	149.42	179.38
15	136.58	98.75	155.04	202.50
16	138.54	100.42	179.67	240.54
17	134.54	101.33	159.58	196.38
18	113.71	91.04	116.13	136.96
19	107.00	88.33	107.96	134.17
20	110.83	77.46	102.00	126.50



Average Travel Time WB				
Hour	Revere WB	Olney WB	Greenwood WB	Franklin WB
6	95.33	79.33	99.79	120.46
7	103.50	88.79	114.54	142.21
8	107.38	92.42	127.46	154.63
9	105.13	90.21	121.88	144.58
10	108.42	90.87	132.17	152.79
11	112.79	94.29	147.17	166.79
12	119.33	98.75	153.04	170.67
13	114.38	93.04	146.29	166.38
14	116.21	95.42	148.17	173.17
15	114.67	95.83	150.92	172.21
16	113.83	94.33	150.17	176.83
17	112.04	94.83	150.88	163.33
18	101.21	86.42	118.38	135.75
19	101.58	83.33	112.38	132.96
20	96.04	77.50	108.46	130.88

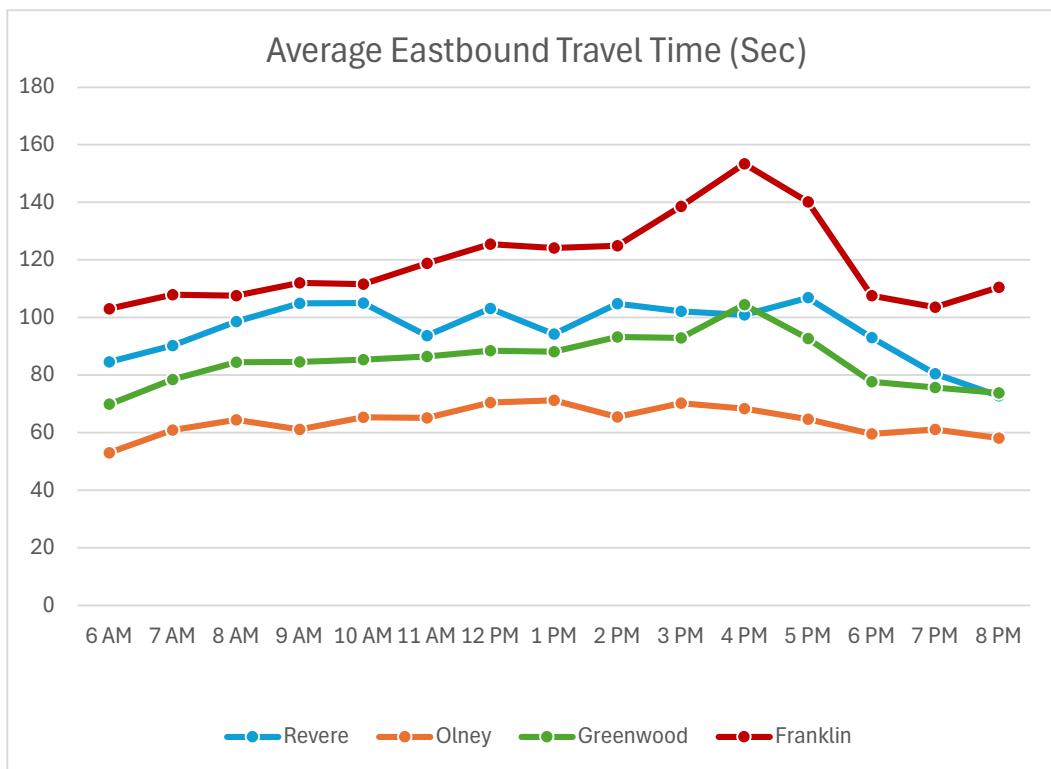


Varience in Travel Time During the Peak Hour



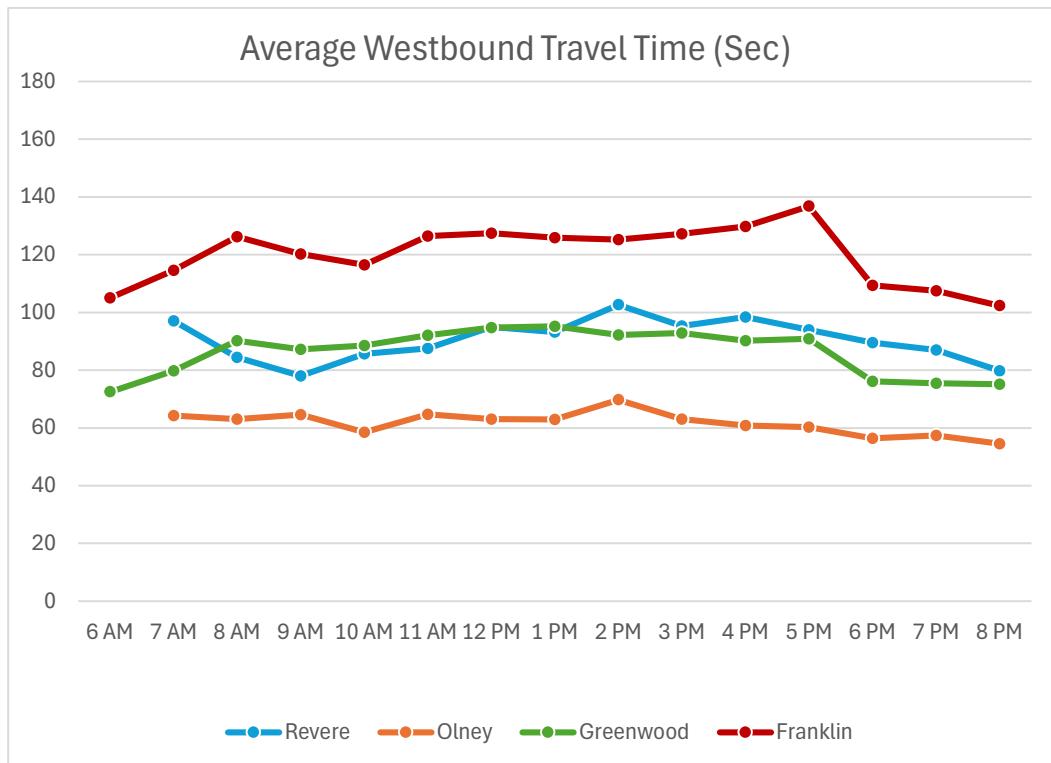
Appendix D INRIX Travel Time Pre-Construction

Average Eastbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM	85	53	70	103
7:00 AM	90	61	78	108
8:00 AM	99	64	84	108
9:00 AM	105	61	85	112
10:00 AM	105	65	85	112
11:00 AM	94	65	86	119
12:00 PM	103	70	88	125
1:00 PM	94	71	88	124
2:00 PM	105	65	93	125
3:00 PM	102	70	93	139
4:00 PM	101	68	104	153
5:00 PM	107	65	93	140
6:00 PM	93	60	78	108
7:00 PM	80	61	76	104
8:00 PM	73	58	74	110



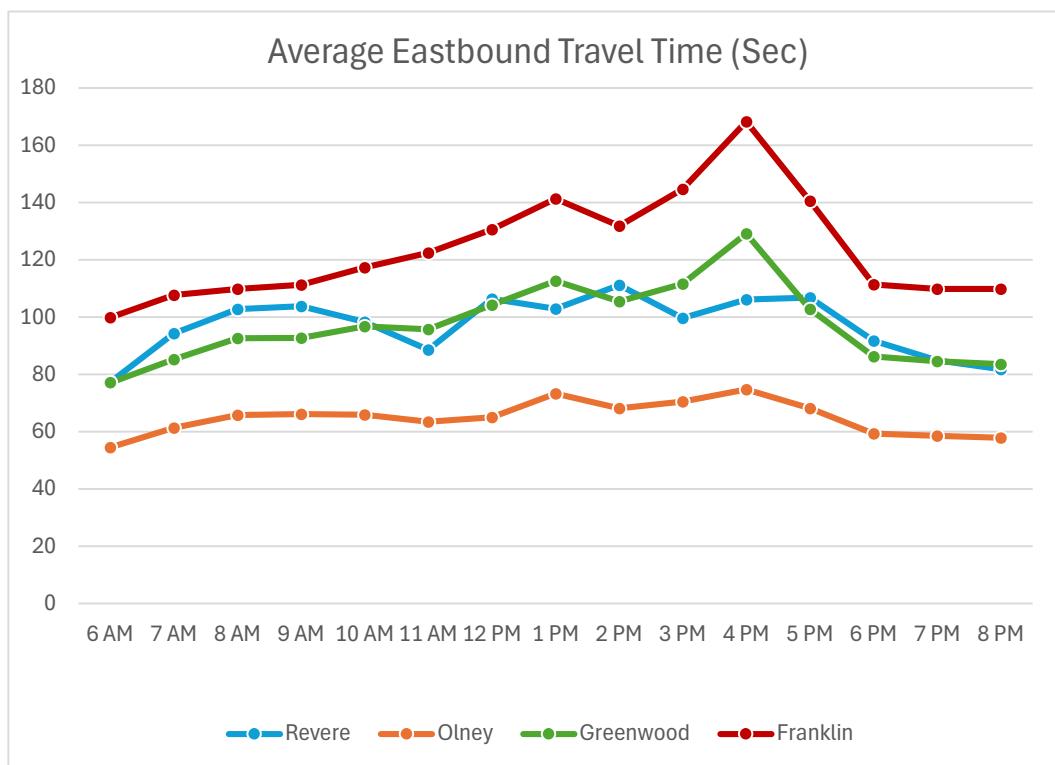
Average Westbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM			73	105
7:00 AM	97	64	80	115
8:00 AM	84	63	90	126
9:00 AM	78	65	87	120
10:00 AM	86	58	89	116
11:00 AM	87	65	92	126
12:00 PM	95	63	95	127
1:00 PM	93	63	95	126
2:00 PM	103	70	92	125
3:00 PM	95	63	93	127
4:00 PM	98	61	90	130
5:00 PM	94	60	91	137
6:00 PM	90	56	76	109
7:00 PM	87	57	75	108
8:00 PM	80	55	75	102

*Empty cell denotes no data of good quality is available



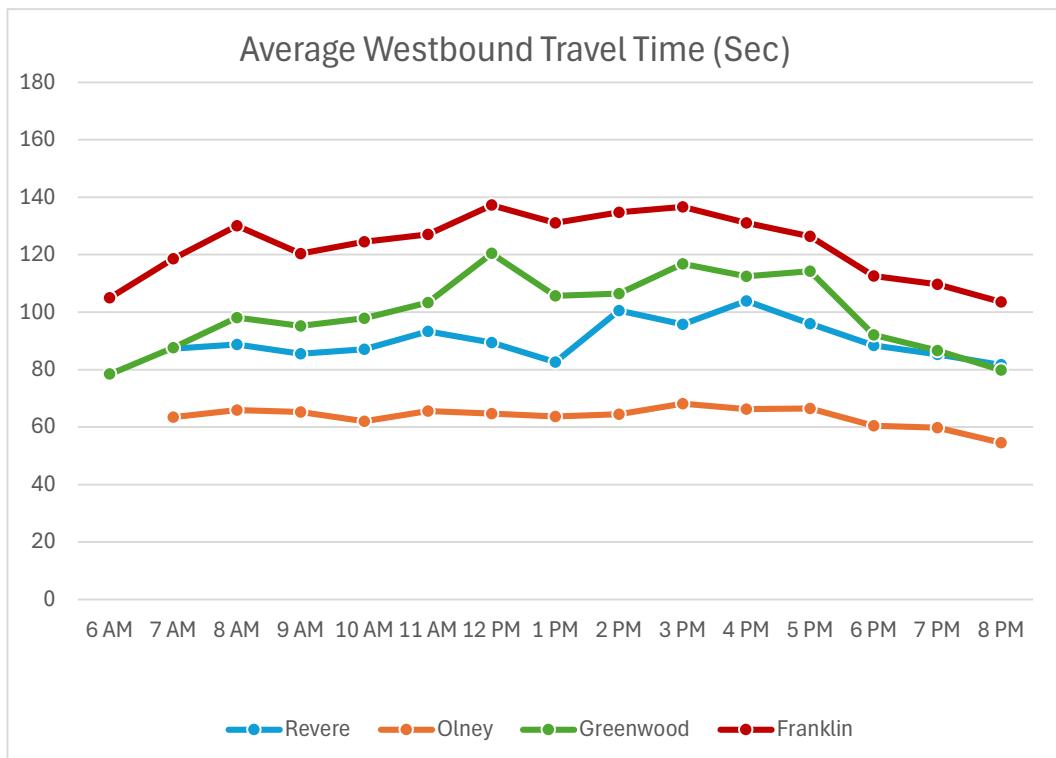
Appendix E INRIX Travel Time Post-Construction (September 2024)

Average Eastbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM	77	55	77	100
7:00 AM	94	61	85	108
8:00 AM	103	66	93	110
9:00 AM	104	66	93	111
10:00 AM	98	66	97	117
11:00 AM	89	63	96	122
12:00 PM	106	65	104	131
1:00 PM	103	73	113	141
2:00 PM	111	68	105	132
3:00 PM	100	70	112	145
4:00 PM	106	75	129	168
5:00 PM	107	68	103	140
6:00 PM	92	59	86	111
7:00 PM	85	58	85	110
8:00 PM	82	58	83	110



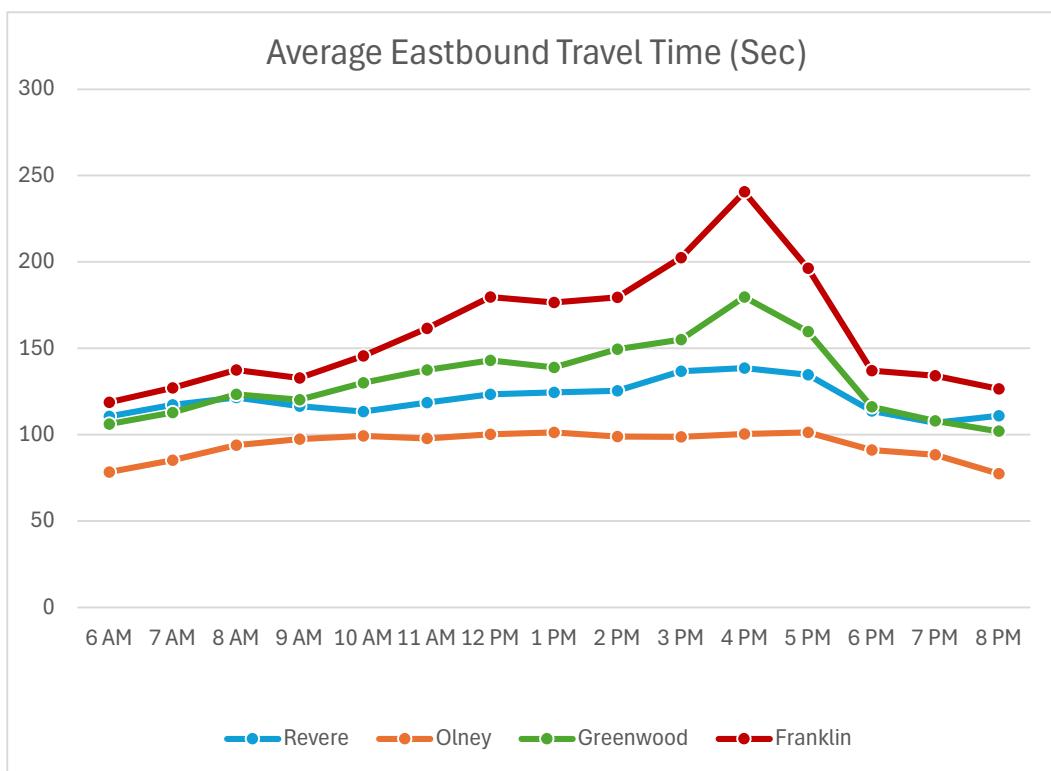
Average Westbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM			78	105
7:00 AM	87	63	88	119
8:00 AM	89	66	98	130
9:00 AM	86	65	95	120
10:00 AM	87	62	98	124
11:00 AM	93	66	103	127
12:00 PM	89	65	120	137
1:00 PM	83	64	106	131
2:00 PM	101	64	106	135
3:00 PM	96	68	117	137
4:00 PM	104	66	112	131
5:00 PM	96	67	114	126
6:00 PM	88	60	92	113
7:00 PM	85	60	87	110
8:00 PM	82	55	80	104

*Empty cell denotes no data of good quality is available

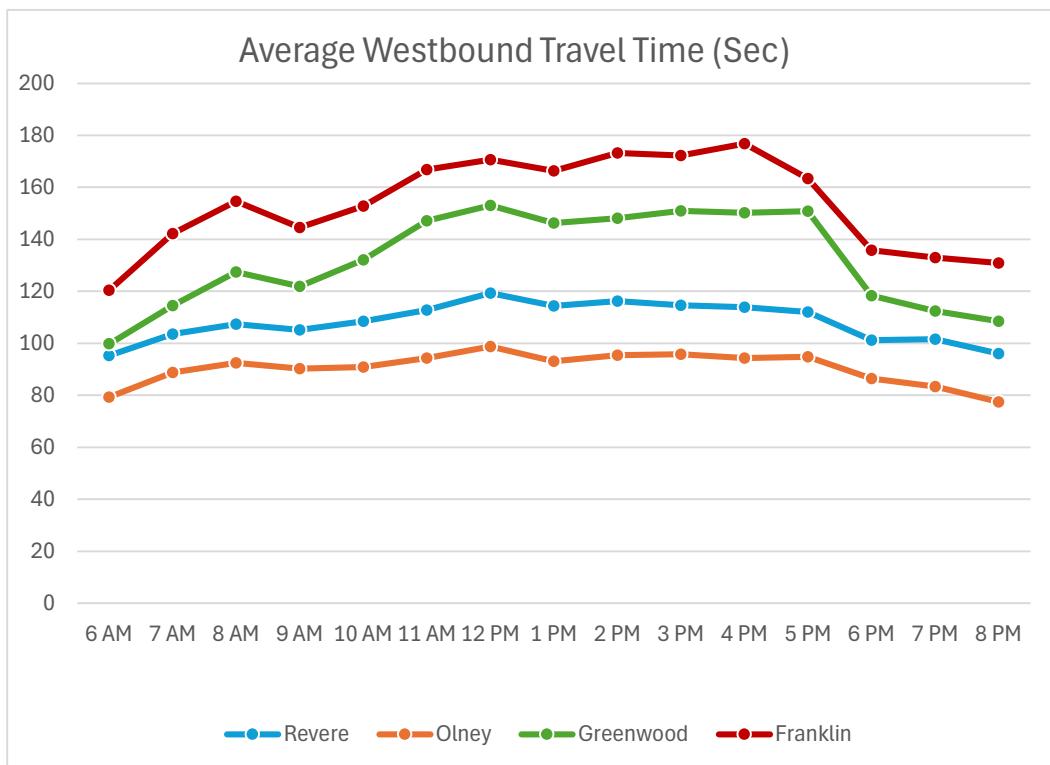


Appendix F Google API Travel Time Pre-Construction

Average Eastbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM	111	78	106	119
7:00 AM	117	85	113	127
8:00 AM	122	94	123	137
9:00 AM	117	97	120	133
10:00 AM	113	99	130	146
11:00 AM	118	98	137	161
12:00 PM	123	100	143	180
1:00 PM	124	101	139	176
2:00 PM	125	99	149	179
3:00 PM	137	99	155	203
4:00 PM	139	100	180	241
5:00 PM	135	101	160	196
6:00 PM	114	91	116	137
7:00 PM	107	88	108	134
8:00 PM	111	77	102	127

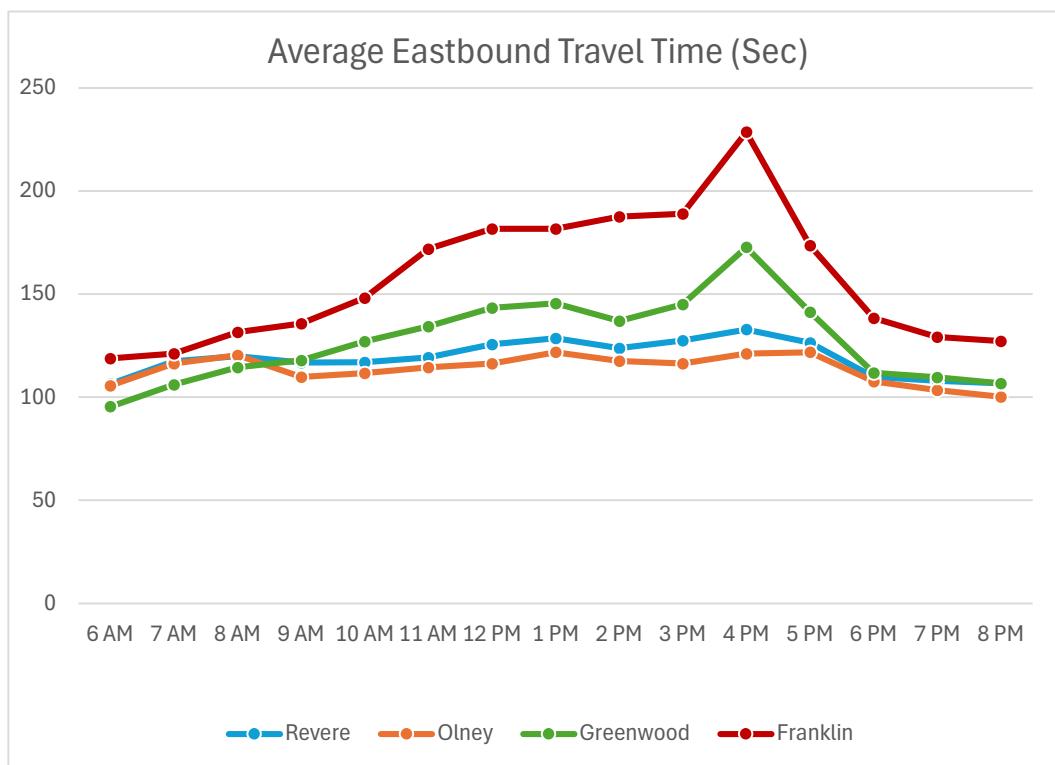


Average Westbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM	95	79	100	120
7:00 AM	104	89	115	142
8:00 AM	107	92	127	155
9:00 AM	105	90	122	145
10:00 AM	108	91	132	153
11:00 AM	113	94	147	167
12:00 PM	119	99	153	171
1:00 PM	114	93	146	166
2:00 PM	116	95	148	173
3:00 PM	115	96	151	172
4:00 PM	114	94	150	177
5:00 PM	112	95	151	163
6:00 PM	101	86	118	136
7:00 PM	102	83	112	133
8:00 PM	96	77	108	131



Appendix G Google API Travel Time Post-Construction (September 2024)

Average Eastbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM	107	106	95	119
7:00 AM	117	116	106	121
8:00 AM	120	120	115	132
9:00 AM	117	110	118	136
10:00 AM	117	112	127	148
11:00 AM	119	115	134	172
12:00 PM	126	116	143	182
1:00 PM	129	122	146	182
2:00 PM	124	118	137	188
3:00 PM	128	116	145	189
4:00 PM	133	121	173	229
5:00 PM	126	122	141	174
6:00 PM	110	108	112	138
7:00 PM	108	104	110	129
8:00 PM	107	100	107	127



Average Westbound Travel Time (Sec)				
Hour	Revere	Olney	Greenwood	Franklin
6:00 AM	96	105	91	119
7:00 AM	106	116	103	130
8:00 AM	105	117	117	137
9:00 AM	103	109	119	141
10:00 AM	109	114	138	152
11:00 AM	113	118	146	171
12:00 PM	113	119	166	185
1:00 PM	113	114	149	167
2:00 PM	111	118	144	160
3:00 PM	114	118	151	157
4:00 PM	115	118	153	158
5:00 PM	110	115	148	150
6:00 PM	105	106	120	132
7:00 PM	99	100	107	130
8:00 PM	100	100	102	122

