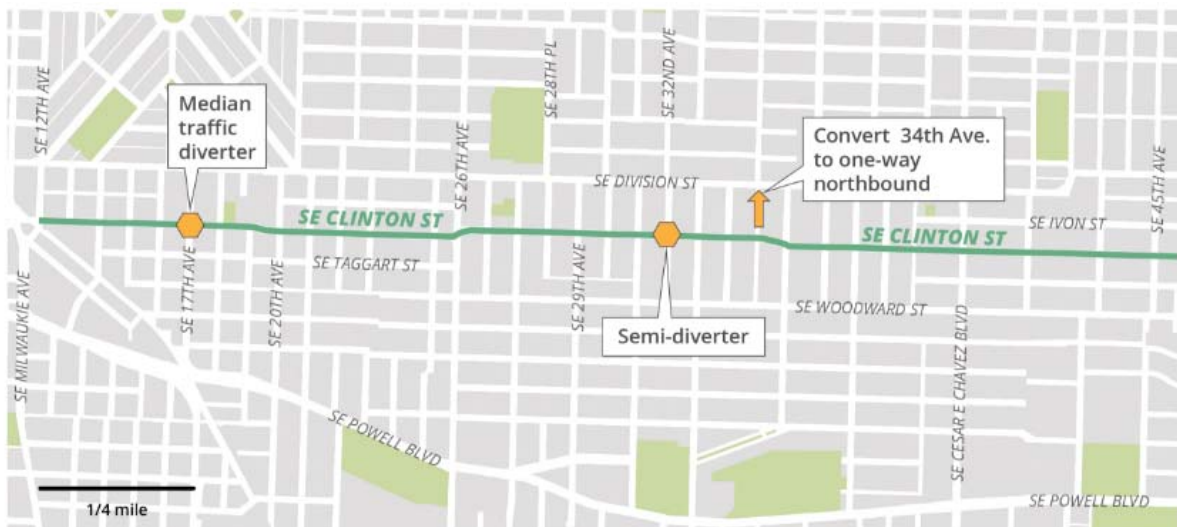


November, 2016

Clinton Neighborhood Greenway Enhancement Project FINAL REPORT



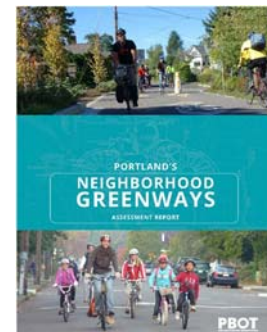
BACKGROUND

Neighborhood greenways are shared-use residential streets designed to prioritize bicycling and enhance conditions for walking. Of the roughly 78 miles within Portland’s existing greenway network, the SE Clinton greenway stands out as not only one of Portland’s oldest, but among the most heavily used, with upwards of 3,000 daily bicycle trips. The Clinton greenway is situated in an area of inner SE Portland that has seen significant growth in land use development over the past decade, particularly along SE Division St, the main commercial arterial adjacent to the greenway.



Traffic conditions on Clinton St, and how they impact the safety and comfort of those using Clinton St, have been a concern for many years, particularly the growth in auto traffic volumes west of SE Caesar Chavez Blvd. Much of this auto traffic is believed to be related to increasing amounts of non-local traffic using Clinton St as a cut-through route to avoid congestion on SE Division St and the other main arterial to the south, SE Powell Blvd. Given the importance of Clinton St within the greenway system, at the request of several advocacy groups, the City committed to test potential traffic calming improvements that would address these issues by the end of 2015.

In 2015, City Council adopted the *Neighborhood Greenways Assessment Report*, developed by the Portland Bureau of Transportation (PBOT). The report provides an assessment of how well the city’s existing greenways are working and institutes new performance guidelines for developing new and managing existing greenways. This includes thresholds for acceptable auto volumes and speeds that if exceeded trigger the need for additional traffic calming measures to bring the greenway conditions into compliance with the performance guidelines. The guidelines for auto volumes are: target volume of 1,000/ day or less, with an acceptable upper limit of 1,500/ day, and a maximum limit of 2,000/day. The performance guideline for speed is an 85th percentile speed of 20 mph or less. Related to volume, state law allows greenways to have a posted speed limit of 20 mph, provided average daily auto volumes do not exceed 2,000.





PROJECT OBJECTIVES

The new performance guidelines provide the primary context in which to assess the existing conditions on the SE Clinton greenway and form the basis of the project's main objectives. In terms of existing auto volumes, conditions west of SE Caesar Chavez Blvd range from 2,000 to 3,000 vehicles/day, well in excess of the volume guidelines and 1,000 vehicles/day or less east of SE Caesar Chavez Blvd, which are within the acceptable range. In terms of speed, 85th percentile speeds west of SE Caesar Chavez Blvd range between 20 and 24 mph, but are 23 to 27 mph east of SE Caesar Chavez Blvd (see Appendix A).

As such, the project's two core objectives are:

- SE 12th Ave to SE Chavez Blvd: reduce auto volumes to below 2,000 cars/day
- SE Caesar Chavez Blvd to SE 50th Ave: reduce the 85th percentile auto speed to 20 mph

PUBLIC PROCESS

Neighborhood and Business Associations

Project staff met with the Hosford-Abernathy Neighborhood Association, the Richmond Neighborhood Association and the Division-Clinton Business Association on several occasions during the overall process to discuss the project (see Appendix B).

Public Meetings

The project held two public meeting events in the fall of 2015. The first was an open house on September 16th at Abernathy Elementary school. Notification was accomplished via a direct mail post card to all postal addresses with the Hosford-Abernathy and Richmond neighborhoods. 157 people signed in as attending the event. The format of open house used a series of information stations about the project's purpose, existing conditions information, design options for addressing the project's objectives, and a proposal for project improvements. Attendees had the opportunity to comment on the project and proposals via a comment card. 135 comments were received at the event, with an additional 358 comments received on-line. 83% of the comments received supported or strongly supported moving forward with the project as proposed.

A second open house event was held on November 5th at the Waverly Heights Congregational Church in the Richmond neighborhood. The intent of this event was to have a more focused public discussion of the traffic diverter proposed at SE 32nd Ave, given neighborhood concerns raised about that diverter and impacts to the adjacent neighbors since the October open house. 120 people signed in as attending the event. In addition to a staff presentation and a question and answer session, opponents of the diverter from the Safer Clinton committee gave a presentation.

Education Campaign

One of the main comments coming out of the initial phase of public involvement was that the project should also incorporate a public education campaign specifically designed to raise awareness of Clinton's status as a greenway and the intent of greenways to function as low volume and slow speed bicycle streets. An education campaign was developed and implemented on Clinton St in fall of 2015, in



advance of the test, by using a series of lawn signs with 4 messages that were intended to communicate that Clinton St is a greenway and its use by non-local auto traffic is discouraged. The signs were installed at numerous locations along SE Clinton St (see Appendix C).

On-Line Surveys

Two on-line surveys were conducted over the course of the project. The first survey was conducted during the fall of 2015 to help identify issues for the project to address. The survey received 358 responses. A second on-line survey was conducted in May of 2016, near the end of the 6-month test period, to help assess public reaction to the test. Notification of the survey was sent via a direct mail postcard to all addresses within the project area. A total of over 1,200 evaluation surveys were completed (see Appendix D for a summary of results).

Evaluation Committee

To help review the test results and develop potential follow-up actions to address issues identified by the test results, a 14 member citizen's evaluation committee was established during the test period. Membership on the committee was based on representation from the two neighborhood associations, the business association, the BikeLoud advocacy group, and at-large resident members representing subareas within the overall project area. The committee met twice over the summer of 2016.

PHASE I DESIGN RECOMMENDATIONS

Based on an initial assessment of existing conditions and public comment during the fall of 2015, staff recommended a package of enhancements to the greenway to address the project's key objectives. These were considered the project's first phase of improvements, with a potential second phase of improvements or changes to follow based on the results of this first phase.

The proposed locations for the diverters were based on a traffic engineering assessment of opportunities and constraints. As a starting point, it was assumed that two diverters were needed, one near the west end to capture westbound traffic, primarily associated with the AM peak period and one at the east end to capture eastbound traffic primarily associated with the PM peak period. SE 17th Ave, was chosen for the west end because a median diverter design could capture both traffic volumes on Clinton St approaching from both the east and west, as well as westbound cut-through traffic coming off of Powell Blvd via SE 17th Ave to Clinton St to access SE 12th Ave and destinations to the north. East of 26th Ave, SE 29th Ave was originally chosen because it provided good spacing with the existing diverter at SE Caesar Chavez Blvd. However, updated traffic counts on SE 29th showed existing volumes to be close to the 1,000 cars/day threshold, so a lower volume location further to the east, SE 32nd Ave, was chosen.

During the public process in the Richmond neighborhood, it was proposed that the project also take the opportunity to implement an existing design concept under discussion to improve conditions on a portion of an intersecting greenway on SE 34th Ave, between SE Division and Clinton. At 24-feet, this is a very narrow width for accommodating both two-way automotive traffic and shared use for bicycles. The design concept, originated by a neighbor, Mark Zahner, converts the street to one-way northbound with a contra-flow bike lane. Given the support already built within the neighborhood for the change, staff agreed to include it with the overall project recommendations.

SE 17th Ave



For testing:

- A median diverter at SE 17th Ave to reduce auto volumes on SE Clinton St
- A semi-diverter at SE 32nd Ave to reduce auto volumes on SE Clinton
- Restriping of SE 34th Ave, between SE Division and Clinton, to one-way northbound with a contraflow southbound bike lane to improve safety (SE 34th Ave is also part of a designed north-south greenway)

SE 32nd Ave



Other/ (no testing):

- Speed bumps on SE Clinton between SE Caesar Chavez Blvd and 50th Ave to reduce auto speeds
- 'Bikes May Use Full Lane' signage on Clinton St
- Remove guide signage along SE Powell Blvd that directs traffic to SE 17th Ave (contingent on approval from the Oregon Department of Transportation, which manages SE Powell Blvd)
- Change the posted speed limit on Clinton St east of Chavez Blvd to 20 mph
- Upon achieving a reduction in auto volumes west of SE Chavez Blvd below 2,000 cars/day, post the speed limit at 20 mph

SE 34th Ave



PHASE I TEST

Process

All of the above noted recommendations for testing were installed during the first two weeks of January 2016, with the exception of the speed bumps east of SE Caesar Chavez Blvd (installed during the following summer construction season). It was determined by staff that the test duration should be 6 months to allow for traffic conditions to adjust to the changes before doing the evaluation.

The main criteria for evaluating the success of the test for the diverters are the performance guidelines contained within the *Neighborhood Greenways Assessment Report*. This includes both speed and volume conditions on the greenway itself, as well as potential impacts to adjacent residential side streets. Thus, for Clinton St itself, the numerical measures of success are as stated in the project objectives above.

Because traffic diversion commonly creates unintended increases in auto volumes on adjacent streets, the process needs to include post project ceilings for acceptable amounts of increased auto volumes. The *Neighborhood Greenways Assessment Report* acknowledges this potential impact by establishing a 1,000 cars/day post-project ceiling for those streets.

'After' traffic counts, including both volume and speed, were collected in May and June of 2016. A total of 35 count locations within the project area, all west of SE Caesar Chavez Blvd, were used to evaluate changes in traffic patterns and conditions (see Appendix E). The locations were chosen based on the project traffic engineer's assessment of the street segment most likely to be impacted. A secondary source of evaluation information was the on-line survey noted above in the Process section.

Results Summary

SE Clinton St:

- Auto volumes on SE Clinton have been significantly reduced across the entire test area, SE 12th Ave to Caesar Chavez Blvd. Reductions in volume range from 900 to over 1,400 (-34 to -75%).
- Before the test, all six monitoring locations within the test area were either very near or well above 2,000 cars/day, the 'maximum' performance guideline for total auto volume on a neighborhood greenway. After the test, volumes at 5 of the 6 monitoring locations dropped below the 'acceptable' neighborhood greenway guideline for total auto volumes (1,500 cars/day). At the sixth location, west of SE 23rd Ave, the total volume dropped by over 1,000 to just slightly above the maximum (2,050). At three of the six monitoring locations, the volume dropped to near or below the 'target' volume guideline of 1,000 cars/day.
- Non-compliance at the 32nd Ave diverter (illegally driving around the diverters) ranges from 5 to 7% of the total entering volume of the intersection, which is considered acceptable relative to similar types of devices.
- There were no notable changes to average traffic speeds on SE Clinton. The 85th percentile speed ranged from 21 to 24 mph before the test and 19 to 24 mph after the test.

Adjacent Local Streets:

- Of the 35 monitoring locations, only one street segment exceeded the total maximum volume guideline of 1,000 cars/day (1,051 cars/day at SE Woodward St, east of 31st Ave).
- Adjacent east-west streets: total volume increases ranged from +107 (SE Brooklyn St, west of 38th Ave), to +429 (SE Woodward, east of 31st Ave).
- The average total after volume for SE Taggart St is 543, 710 for SE Woodward, and 551 for SE Brooklyn.
- Adjacent north-south streets: changes in total volume ranged from -106 (SE 20th Ave, south of Clinton) to +467 (SE 16th Ave, south of Clinton), with no one north-south street segment exceeding the 1,000 cars/day threshold.
- Volume changes near the 17th Ave diverter: volumes on SE 15th and 16th Ave south of SE Clinton increased by +261 and +467, indicating that a significant percentage of the traffic diverted off SE Clinton at 17th is moving around the diverter, primarily in the westbound direction.
- Volume changes near the 32nd Ave diverter: volumes on SE 32nd Ave north of Clinton St increased from 562 to 787 (+225), south on SE 32nd Ave south of Clinton increased from 190 to 612 (+422).



- Overall, changes in traffic speeds on all the adjacent local streets monitored are minimal, ranging from -3 mph to +3 mph for the 85th percentile speed.

SE 34th Ave:

- Auto traffic volumes after the change to one-way northbound dropped from 1,248 to 529 (-58%)
- Compliance with the new one-way regulation of the roadway is good. Only 23 of 529 total after volume (4%) were recorded traveling in the wrong direction (southbound).
- The 85th percentile speed increased from 19 mph to 21 mph.

PHASE II DESIGN RECOMMENDATIONS

Based on the traffic data guidelines established in *the Neighborhood Greenway Assessment Report*, the Phase I test results identified the following two sub areas additional traffic calming and mitigation:

- SE Clinton St, 21st to 26th Ave

This is the section of Clinton where daily auto volumes were at the highest on the corridor before the test. This section is also where peak volumes would be expected given its location between the 21st Ave and 26th Ave commercial nodes. While auto volumes here have been significantly decreased, by 1,300 (-55%), the resulting after volume, 2,005, is still just slightly above the minimum threshold for success, and requirement for lowering the speed limit to 20 mph.

Recommendation: There are unique constraints in this section of project, that are related to commercial access and circulation, and transit service that make use of more diversion difficult. Instead, re-installation of speed bumps with a tighter spacing pattern than the exiting speed bumps is anticipated to push volumes below the threshold. This work should be timed with a planned re-paving project scheduled for the spring of 2017.

- SE Woodward St, near 31st Ave

Traffic volumes at this location exceed the 1,000 cars/day maximum by 51 cars, thus triggering discussion of additional mitigation. Given its proximity to the 32nd Ave diverter, it is not surprising that some traffic that previously used Clinton is bypassing the diverter at this location.

Recommendation: Installation of speed bumps on SE Woodward between SE 26th Ave and Caesar Chavez Blvd to discourage non-local traffic use and minimize speeding. This recommendation was installed in September of 2016.

Though the volume and speed data has stayed within the guideline limits, public comment received during the evaluation process identified traffic conditions as a concern at an additional location:

- SE 32nd Ave between Clinton and Woodward

Similar to SE Woodward above, because of its proximity to the 32nd Ave diverter, it is not surprising that some traffic that previously used Clinton is bypassing the diverter at this location. While volumes have increased by over 400 cars/day, the total after volume, 612, still remains



well below the 1,000 cars/day post-project ceiling, and the average of all the adjacent north-south streets before the test (731) and after (757). After speeds are also well below the posted limit at 20 mph (northbound) and 18 mph (southbound). 'Aggressive' driving and low compliance with the stop sign at SE Woodward have been noted as issues of concern.

Recommendation: Installation of a stop bar and 'STOP' pavement marking at the intersection with SE Woodward St. Both changes were installed in September of 2016.

- SE 32nd Ave Diverter Design
Public comment identified safety concerns with drivers who did not comply with the diverter (by driving around the diverter in either direction on Clinton St) and in those situations, poor sight lines for bicyclists with on-coming traffic because of the height of the temporary barriers.

Recommendation: The non-compliance rate for traffic was measured at approximately 7% for vehicles entering the intersection, which is considered normal for this and similar types of traffic control devices. The issue with sight distance will be significantly improved with the installation of the permanent diverter design because the barriers will be curb high islands instead of 4 ft tall barrels (see Appendix F).

CONCLUSIONS

The test results support, both in relation to the adopted traffic data guidelines and the overall public comments received, that the test be considered successful, and therefore PBOT should proceed toward making the project test elements permanent.

The main project objectives have been substantially achieved. Traffic volumes on Clinton St west of Caesar Chavez Blvd are down significantly and, with one exception the impacts to the adjacent local street network have been kept within adopted guidelines. Speed bumps on SE Woodward, between 26th Ave and Caesar Chavez Blvd have been installed to mitigate conditions at the one exception location. Regarding the other main project objective, reducing speeds east of SE Caesar Chavez Blvd, the project has installed speed bumps, the most effective traffic calming tool for speeding.

Because most Clinton street segments now comply with state volume guidelines, they have been posted at 20 mph. The one street segment that does still exceed the 2,000 ADT volume threshold, between SE 21st and 26th Ave, is identified for speed bumps as part of an upcoming paving project. To assess whether this section can also be signed for 20 mph Follow-up counts will be taken after installation.

Safety conditions on SE 34th Ave have improved significantly. Auto volumes have been decreased by over 50% while shared-use conditions have been improved by limiting auto traffic flow to just northbound, while providing a bike lane for southbound travel. Speeds have increased slightly, but they are still well below the posted limit of 25 mph.

While public comment overall has been found to be generally supportive of the project, concerns have been raised in a number of sub areas, primarily related to increased traffic volumes and speeds on the east-west streets parallel to Clinton St, such as sections of SE Woodward, Brooklyn, Tibbets and 32nd Ave.



Given the significant amount of neighborhood change in the project area, primarily through new development and increased density, it is also recommended that a future comprehensive, neighborhood wide traffic calming project be considered, that also addresses issues associated with parking.

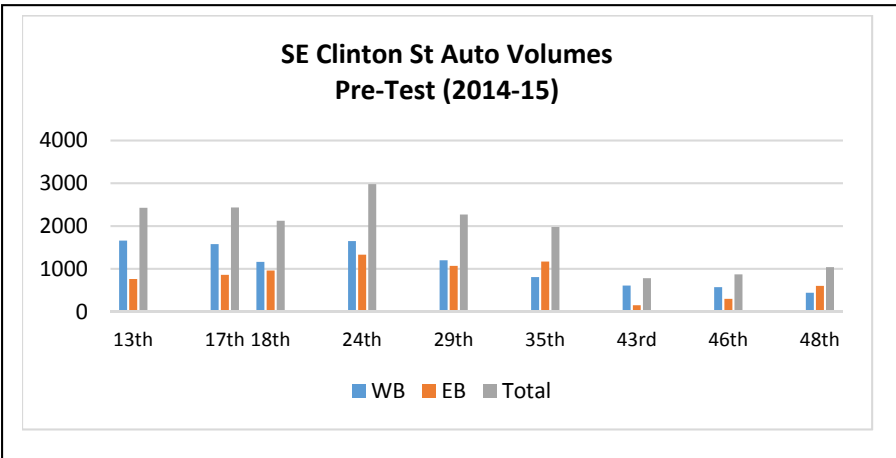
There are also several additional ideas to improve conditions on the greenway that fell outside of the project's core objectives that PBOT should consider as part of a future enhancement project. These include:

- Improving the crossing at SE 50th Ave to enhance safety and reduce delay for bicyclists and pedestrians
- Better regulation of parking at intersecting side streets with the greenway to improve sight distances for drivers who are entering on to, or crossing Clinton St
- Improving the crossing at SE 26th Ave, by taking advantage of excess right-of-way to enhance safety for bicyclists and pedestrians

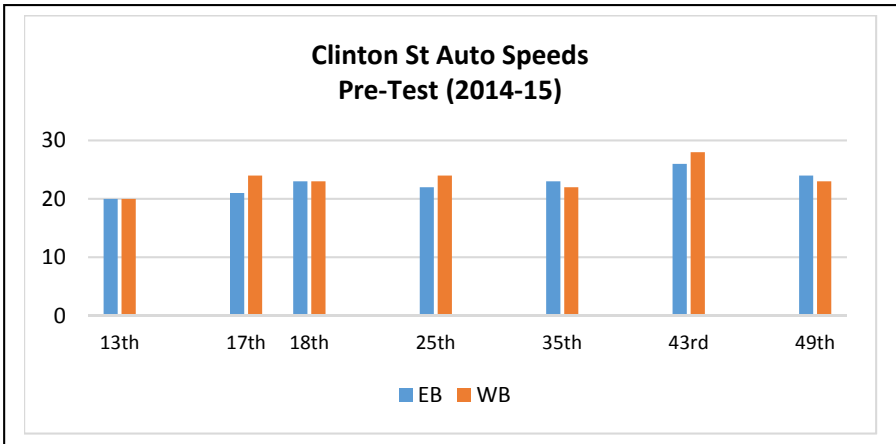
APPENDICES

- **A: Existing Conditions Summary**
- **B: Public Meeting Log**
- **C: Education campaign**
- **D: On-Line Evaluation Survey**
- **E: Phase I Test Results**
- **F: 32nd Ave Permanent Diverter Design**

APPENDIX A: EXISTING CONDITIONS SUMMARY



Traffic volumes on SE Clinton before the test show all locations west of SE Chavez exceeding the 2,000 ADT maximum threshold, and at or below the 1,000 ADT target east of SE Chavez.



Traffic speed counts on SE Clinton before the test show the highest speeds east of SE Chavez, where there were no speed bumps, and lower to the west where there are existing speed bumps.

POLICY

The Transportation System Plan includes the following functional classifications for SE Clinton St between 12th and 50th Ave:

Traffic: Local Service Street; Transit: Transit Access Street (21st to 26th Ave); Bicycle: City Bikeway

STREET CHARACTERISTICS

Curb-to-curb width: 36 feet / Posted Speed Limit: 25 mph

Intersections with traffic control:

Traffic signals: SE 12th and Chavez Blvd / 2 way stop controlled: SE 50th Ave / 4 way stop controlled: SE 21st, 26th and 34th Ave.

Traffic calming:

SE 12th to Chavez Blvd: speed bumps / Traffic circles: SE 23rd, 31st, 36th, 45th and 47th Ave / Traffic diverters: SE Chavez Blvd (semi-diverter) / Bike Box: SE Chavez Blvd.

Transit:

The #14 bus uses a short section of Clinton between SE 21st and 26th Ave.

APPENDIX B: PUBLIC MEETING LOG

- Aug 10, '15 Richmond Neighborhood Association general membership meeting
- Aug 26, 15 Hosford-Abernathy Neighborhood Association, board meeting
- Sept 16, '15 Project Open House
- Sept 27, '15 Safer Clinton group meeting
- Oct 20, '15 Hosford Abernathy Neighborhood Association general membership meeting
- Oct 27, '15 Division-Clinton Business Association general membership meeting
- Nov 5, '15 Project Public Meeting/ 32nd Ave diverter proposal
- Nov 12, '15 26th Ave/Clinton business meeting
- May 9, '16 Richmond Neighborhood Association general membership meeting
- April 19, '16 Division-Clinton Business Association general membership meeting
- April 19, '16 Hosford Abernathy Neighborhood Association general membership mtg
- June 29, '16 Project Evaluation Committee, meeting #1
- Aug 3, '16 Project Evaluation Committee, meeting #2

APPENDIX C: EDUCATION CAMPAIGN



Four lawn sign messages were developed to raise awareness of Clinton St's classification as a neighborhood greenway, and the how greenways are supposed function. The fourth message says "We built this to encourage walking and biking". The signs were installed in December of 2015.



APPENDIX D: ON-LINE EVALUATION SURVEY SUMMARY

Responses received: 1,217
Survey duration: May2 – June 7, 2016

Live in the Hosford-Abernathy or Richmond neighborhood:	625	(52%)
Live in inner SE Portland:	283	(23%)
Live outside inner SE Portland:	298	(25%)

Male:	59%
Female:	50%

Impression of auto traffic volumes on Clinton since the test:
80% of responses reported either 'a lot less' or 'a bit less'. 3% reported 'a lot' or 'a bit more'.

Impression of auto traffic speeds on Clinton since the test:
57% of responses reported either 'a lot less' or 'a bit less'. 1% reported 'a lot more'.

17th Ave diverter- 67% of respondents want to retain and make it permanent. 21% want the diverter removed.

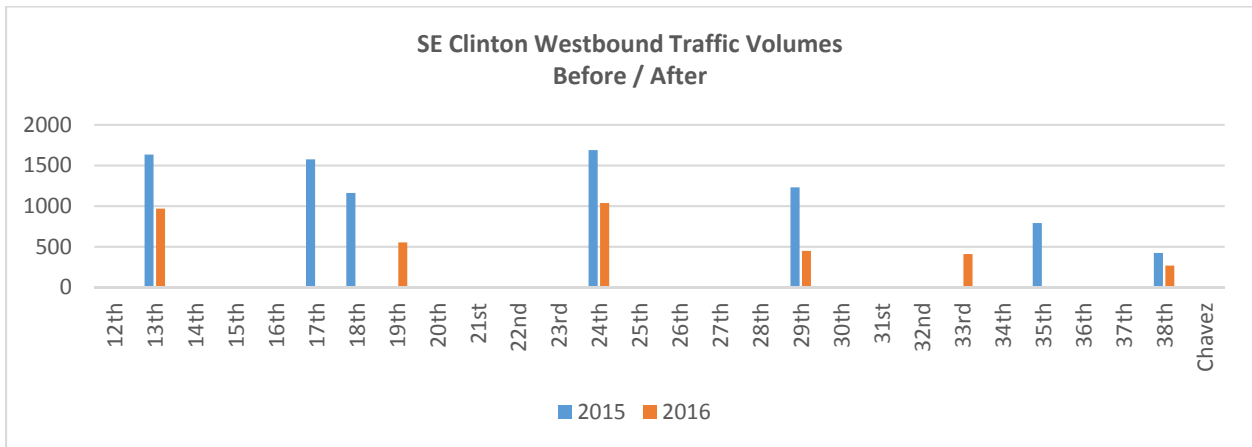
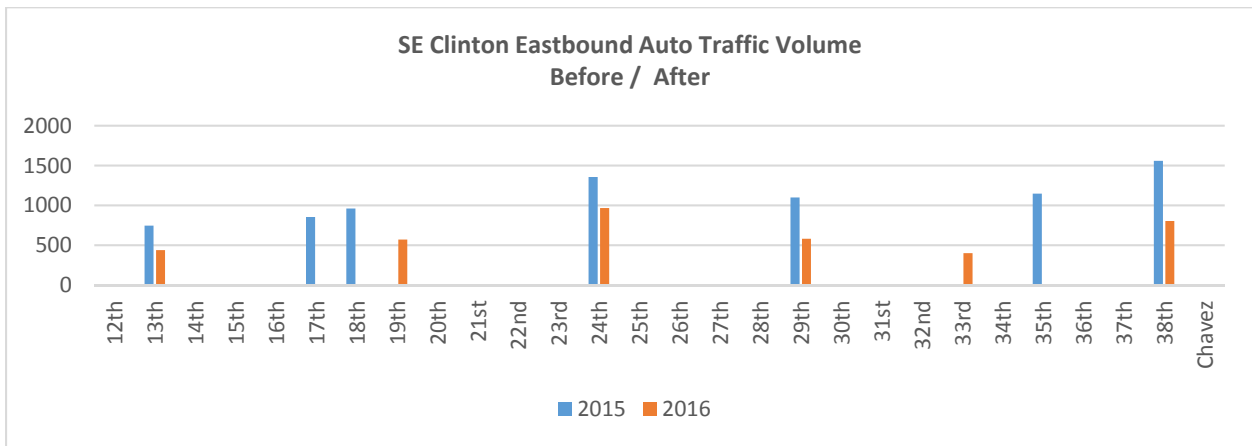
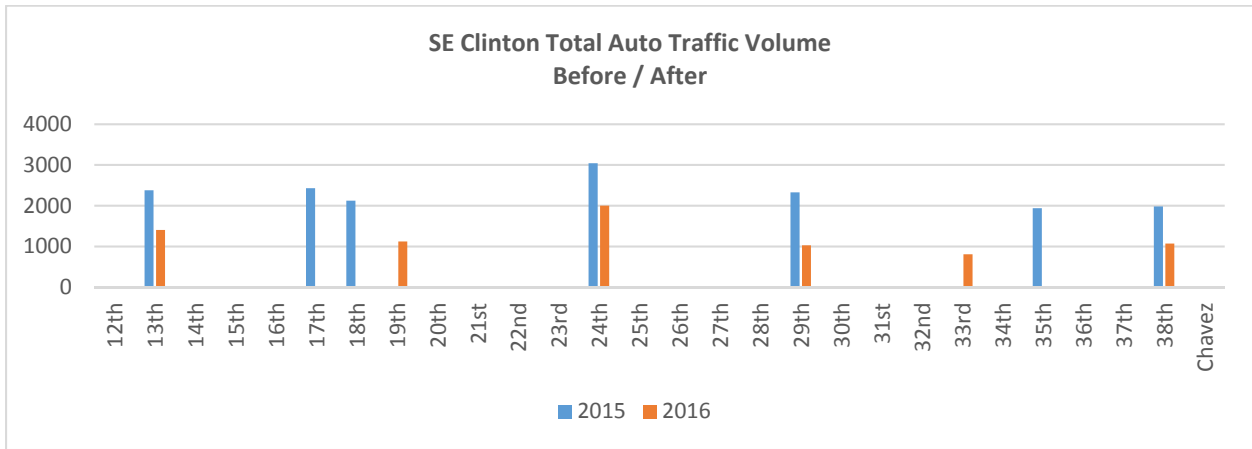
32nd Ave diverter- 56% of respondents want to retain it and make it permanent. 23.4% want it removed.

34th Ave changes- 73% of respondents want to retain it and make it permanent. 13% want it removed.

Impression of impacts to adjacent local streets:
50% of respondents noticed impacts of the test on other streets besides SE Clinton St.



APPENDIX E: PHASE I TEST RESULTS





**Clinton Neighborhood Greenway Enhancement Project
 AUTO TRAFFIC VOLUME AND SPEED DATA, BEFORE (2014-15) AND AFTER (2016)**

SE CLINTON

	VOLUME									
	BEFORE			AFTER			DIFFERENCE			
	TOTAL VOLUME			TOTAL VOLUME			EB	WB	TOTAL	%
	EB	WB	TOTAL	EB	WB	TOTAL	EB	WB	TOTAL	%
W of 13th Ave	746	1634	2,380	438	970	1,408	-308	-664	-972	40.8%
W of 17th Ave	855	1,565	2,420							
E of 17th Ave	958	1,160	2,118							
W of 20th Ave				572	554	1,126				
E of 23rd Ave	1,356	1,689	3,045	966	1,039	2,005	-390	-650	-1,040	34.2%
E of 29th Ave	1,099	1,231	2,330	581	449	1,030	-518	-782	-1,300	55.8%
W of 32nd Ave				400	81	481				
E of 32nd Ave				62	411	473				
W of 35th Ave	1,148	793	1,941							
W of 38th Ave	1,558	425	1,983	804	269	1,073	-754	-156	-910	45.9%



Clinton Neighborhood Greenway Enhancement Project

AUTO TRAFFIC VOLUME AND SPEED DATA, BEFORE (2015) AND AFTER (2016)

	VOLUME									
	BEFORE			AFTER			DIFFERENCE			
	TOTAL VOLUME			TOTAL VOLUME			EB	WB	TOTAL	%
	EB	WB	TOTAL	EB	WB	TOTAL				
SE TAGGERT										
W of 17th Ave	80	94	174	207	339	546	127	245	372	213.8%
E of 17th Ave	78	66	144	333	207	540	255	141	396	275.0%
SE WOODWARD										
W of 17th Ave	102	81	183	133	379	512	31	298	329	179.8%
E of 17th Ave	145	86	231	201	170	371	56	84	140	60.6%
E of 26th Ave	248	338	586	304	544	848	56	206	262	44.7%
E of 31st Ave	274	348	622	387	664	1051	113	316	429	69.0%
W of 34th Ave	345	347	692	478	354	832	133	7	140	20.2%
W of 38th Ave	220	264	484	313	333	646	93	69	162	33.5%
SE BROOKLYN										
W of 17th Ave	40	50	90	58	152	210	18	102	120	133.3%
E of 17th Ave	150	137	287	206	244	450	56	107	163	56.8%
E of 26th Ave	174	156	330	248	401	649	74	245	319	96.7%
E of 29th Ave	221	281	502	255	442	697	34	161	195	38.8%
E of 33rd Ave	206	312	518	258	398	656	52	86	138	26.6%
W of 38th Ave	196	341	537	244	400	644	48	59	107	19.9%



NORTH-SOUTH STREETS NORTH OF SE CLINTON ST

	VOLUME									
	BEFORE			AFTER			DIFFERENCE			
	TOTAL VOLUME			TOTAL VOLUME			NB	SB	TOTAL	%
	NB	SB	TOTAL	NB	SB	TOTAL				
15th Ave	235	237	472	201	208	409	-34	-29	-63	-13.3%
16th Ave	192	267	459	188	226	414	-4	-41	-45	-9.8%
17th Ave	789	477	1,266	1,320	316	1,636	531	-161	370	29.2%
21st Ave	2062	2,378	4,440	2,278	2,540	4,818	216	162	378	8.5%
	2006 count									
26th Ave	2,927	2,561	5,488	3,591	3,395	6,986	664	834	1,498	27.3%
	2006 count									
31st Ave	406	401	807	412	480	892	6	79	85	10.5%
32nd Ave	252	310	562	516	271	787	264	-39	225	40.0%
33rd Ave	431	446	877	437	494	931	6	48	54	6.2%
34th Ave	598	649	1,247	506	64	570	-92	-585	-677	-54.3%

NORTH-SOUTH STREETS SOUTH OF SE CLINTON ST

15th Ave	165	189	354	422	193	615	257	4	261	73.7%
16th Ave	136	163	299	538	228	766	402	65	467	156.2%
17th Ave	984	346	1,330	854	537	1,391	-130	191	61	4.6%
18th Ave	157	133	290	222	259	481	65	126	191	65.9%
19th Ave	139	101	240	142	90	232	3	-11	-8	-3.3%
20th Ave	423	699	1,122	364	652	1,016	-59	-47	-106	-9.4%
21st Ave	2,248	2,632	4,880	2,506	2,671	5,177	258	39	297	6.1%
	2006 count									
26th Ave	3,916	3,739	7,655	4,051	3,928	7,979	135	189	324	4.2%
	S of Brooklyn			S of Taggart						
31st Ave	316	252	568	376	338	714	60	86	146	25.7%
32nd Ave	64	126	190	94	518	612	30	392	422	222.1%
33rd Ave	584	284	868	506	293	799	-78	9	-69	-7.9%
17th N of Tibbets	732	106	838	976	140	1,116	244	34	278	33.2%



SE CLINTON

	SPEED											
	BEFORE				AFTER				DIFFERENCE			
	85th % mph		% over 25 mph		85th % mph		% over 25 mph		85th % mph		% over 25 mph	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
W of 13th Ave	21	21	1.5	1.6	19	22	0.9	4.6	-2	1	-0.6	3
W of 17th Ave												
E of 17th Ave	23	23	5.6	4.4								
W of 20th Ave					21	23	4.1	5.4				
E of 23rd Ave	23	24	4.8	10.5	24	24	6.6	10.7	1	0	1.8	0.2
E of 29th Ave	24	24	10.1	7.9	23	22	6	3.9	-1	-2	-4.1	-4
W of 32nd Ave					14	15	0.4	0				
E of 32nd Ave					14	14	0.6	0				
W of 35th Ave	21	21	1	1.2								
W of 38th Ave	23	21	5.1	1.2	23	21	5.2	1.3	0	0	0.1	0.1

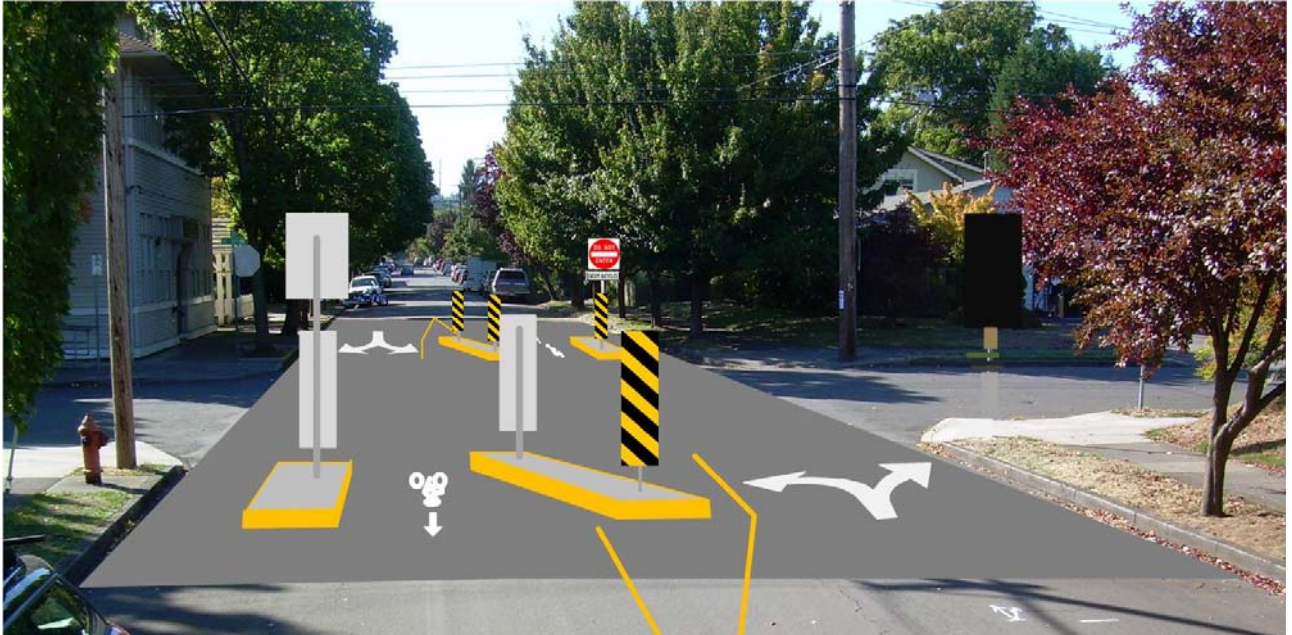


	SPEED											
	BEFORE				AFTER				DIFFERENCE			
	85th % mph		% over 25 mph		85th % mph		% over 25 mph		85th % mph		% over 25 mph	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
SE TAGGERT												
W of 17th Ave	20	19	0	0	19	22	0.5	2	-1	3	0.5	2
E of 17th Ave	20	22	0.6	4.5	22	21	2.9	0.6	2	-1	2.3	-3.9
SE WOODWARD												
W of 17th Ave	21	21	1	1.2	21	23	1.9	4.5	0	2	0.9	3.3
E of 17th Ave	21	20	0.3	1.7	22	20	1.9	0.6	1	0	1.6	-1.1
E of 26th Ave	23	24	4.8	12.3	24	26	7.4	19.2	1	2	2.6	6.9
E of 31st Ave	23	22	6.9	3.9	23	23	6.3	5.3	0	1	-0.6	1.4
W of 34th Ave	22	22	3.8	3.7	24	24	8.9	7.6	2	2	5.1	3.9
W of 38th Ave	24	23	11.1	5.7	24	23	9.3	8.3	0	0	-1.8	2.6
SE BROOKLYN												
W of 17th Ave	19	19	0	0	18	19	0	0	-1	0	0	0
E of 17th Ave	22	23	2	4.4	23	23	0.1	0	1	0	-1.9	-4.4
E of 26th Ave	27	27	6.1	25.6	24	28	9.4	35.4	-3	1	3.3	9.8
E of 29th Ave	24	25	11.3	11.9	25	25	16.6	12.5	1	0	5.3	0.6
E of 33rd Ave	24	25	8.5	13.7	25	25	12.4	12.4	1	0	3.9	-1.3
W of 38th Ave	28	27	0.4	0.4	27	28	0.4	0.7	-1	1	0	0.3



	SPEED											
	BEFORE				AFTER				DIFFERENCE			
	85th % mph		% over 25 mph		85th % mph		% over 25 mph		85th % mph		% over 25 mph	
	NB	SB	NB	SB	NB	SB	NB	SB	EB	WB	EB	WB
NORTH-SOUTH STREETS NORTH OF SE CLINTON ST												
15th Ave	21	21	3	7.9	22	23	3.8	5.3	1	2	0.8	-2.6
16th Ave	22	22	4	3.8	24	22	8.3	2.8	2	0	4.3	-1
17th Ave	26	25	19.8	16.6	26	24	18.2	6.8	0	-1	-1.6	-9.8
21st Ave	23	21	4.1	1.4	21	22	1.8	3.7	-2	1	-2.3	2.3
26th Ave					24	20	5.4	0.4				
31st Ave	20	19	0.9	0.3	19	19	0.6	0.7	-1	0	-0.3	0.4
32nd Ave	19	19	2.8	1.3	20	18	0.8	0	1	-1	-2	-1.3
33rd Ave	23	21	2.7	1.4	21	21	2.3	2.4	-2	0	-0.4	1
34th Ave	19	19	1.3	1.3	21	18	0.9	2.1	2	-1	-0.4	0.8
NORTH-SOUTH STREETS SOUTH OF SE CLINTON ST												
15th Ave	22	23	4.3	4.6	23	22	7.1	3.4	1	-1	2.8	-1.2
16th Ave	22	22	2.9	1.8	24	21	7.2	1.9	2	-1	4.3	0.1
17th Ave	26	26	23.8	17.9	25	24	11.6	7.2	-1	-2	-12.2	-10.7
18th Ave	22	22	3.9	4.6	21	22	1.1	3.1	-1	0	-2.8	-1.5
19th Ave	21	19	3.3	0	20	19	1.4	0.7	-1	0	-1.9	0.7
20th Ave	21	22	0.9	1.7	21	23	1.5	5	0	1	0.6	3.3
21st Ave	25	24	16.4	10.4	23	25	5.7	11.2	-2	1	-10.7	0.8
26th Ave	32	32	77.8	76.1	30	30	64.3	60.8	-2	-2	-13.5	-15.3
31st Ave	23	22	5.2	3.2	22	22	2.3	4	-1	0	-2.9	0.8
32nd Ave	21	21	1.6	1.6	20	18	0.8	0	-1	-3	-0.8	-1.6
33rd Ave	22	23	3	4	19	22	0.1	2.3	-3	-1	-2.9	-1.7
17th N of Tibbets	26	24	18.4	5.7	27	25	27.1	13.3	1	1	8.7	7.6

APPENDIX F: PERMANENT DESIGN FOR 32ND AVE DIVERTER



SE Clinton St at 34th Ave, looking west.