

Slow Streets Permanent Traffic Calming Evaluation

Updated May 2024

Executive Summary

The Slow Streets program developed as a Covid-19 response to help Portlanders find places to get outside and move safely around the city. The program evolved over the course of the pandemic and includes different types of temporary traffic calming devices to reinforce safety messages and impacts on Portland’s neighborhood greenways and shared streets. This report finds:

- The Slow Streets program proved popular over the course of the pandemic.
- Community feedback highlighted the program’s positive impact helping people connect with neighbors and raising awareness of shared street users.
- PBOT data collection and evaluation showed that the program was not effective as a traffic calming tool.
- To reduce ongoing operational costs, PBOT will continue removing locations that require maintenance.
- The City should identify funding to replace installations with new or existing tools that do not require consistent maintenance.

Overview

Slow Street served as one of three main components to PBOT’s Covid-19 response. During the spring and summer of 2020, over 200 temporary traffic calming installations were installed throughout the city to slow speeds, provide important public health and traffic safety messages, and help provide more awareness around walking, biking, and rolling.

In summer 2021, PBOT began converting temporary installations to more permanent infrastructure. Since that time, 62 Slow Street locations have been converted from temporary traffic calming infrastructure to more permanent installations. The more permanent installations may include a center lane concrete planter, center lane plastic curbing and delineators, or operational changes, such as bike boxes and crosswalks. Each installation includes supporting signage depending on the infrastructure deployed (see images, page 2).



Image shows Slow Street temporary traffic calming installation. At one point, the program included over 200 installations like this.

This evaluation report is intended to document the impact of the more permanent infrastructure and make recommendations for the future.

The program evaluation is based on five main areas of performance:

1. Speed and traffic volume impacts on select corridors;
2. Assessment of standard design treatments, including impacts to local truck access, emergency vehicle access, and other design considerations like signage redundancy along corridors;
3. PBOT Maintenance Operations upkeep efforts and staff feedback about infrastructure performance;
4. Community perception of the overall Slow Streets program;
5. Overall assessment as a traffic calming tool and recommendations.

1. Speed and traffic volume impacts

Traffic data shows fewer cars and bicycles using Slow Street corridors and inconclusive speed impacts.

Slow Streets data collection benefitted tremendously from the Traffic Operations section's committed excellence to PBOT's immense traffic data needs. Even before the Covid-19 pandemic, staff across PBOT groups collaborated on multiple, wide-ranging data collection efforts that informed these efforts. The Slow Streets program benefitted from this past collaboration to help staff determine baseline conditions and traffic changes during and after the pandemic.

Traffic data was collected at eight different Slow Street locations. The eight locations were based primarily on geography and where pre-pandemic traffic data existed.

Between pre-pandemic traffic volumes and the most recent data collection, there was a 37% decrease in traffic volumes at the eight locations. At seven of the eight locations, however, traffic volumes have increased between summer 2020 and 2023. Thus, the traffic volume decrease is not attributable to Slow Streets installations. The one location (SE Clinton Street and SE 23rd Avenue) that currently has lower traffic volumes compared to summer 2020, now includes a full street closure two blocks east of the data collection location. That street closure did not exist when the 2020 traffic count occurred.

Traffic speed changes on the corridors were mixed over the data collection period. Speed changes ranged from a reduction of five miles per hour in one location to an increase of one mile per hour at five locations. There was an average and median speed reduction of one mph for all eight locations across 40 data points.

The chart on page 10 has detailed traffic volume and speed information. Overall, speed and traffic volume changes were mixed making it difficult to attribute any changes in traffic operations to the Slow Streets program.

2. Assessment of Standard Designs

Most installations operate as intended. More thorough engineering assessment and asset review would have lead to fewer maintenance calls and clearer communications.

Slow Streets more permanent installations typically followed two standard designs. Each design was based primarily on street width. PBOT deployed a wide-scale approach that aimed to install more permanent Slow Streets infrastructure at up to 100 locations in 2021 and 2022. Because of that wide-scale approach, engineering was only able to conduct preliminary site assessment at individual locations. The wide-spread approach led to some locations with unexpected operational issues that required significant maintenance to correct. In the future, each subject installation location should include engineering analysis to ensure adequate access for emergency response vehicles and other large private and commercial vehicles.

Individual engineering site assessment will help avoid potential turning movement conflicts that appear to have increased maintenance calls. Similarly, locations with high volumes of turning movements may need to be avoided. The most frequent maintenance calls for Slow Street installations take place at locations with higher turning movements than other locations. Particularly in denser neighborhoods like Nob Hill, Slow Street installations required more frequent maintenance to keep them operating as intended. In denser neighborhoods and/or locations with higher turning movements per hour, other traffic calming infrastructure is more appropriate. Individual site assessment by engineering staff will help avoid future maintenance issues.



Image shows more permanent Slow Street installations along the NE Sacramento (left) and N Bryant (right) neighborhood greenways.

Type A – Standard Plan Set for Tuff Curb Slow Streets installations typically deployed on streets 28 feet or less with no parking

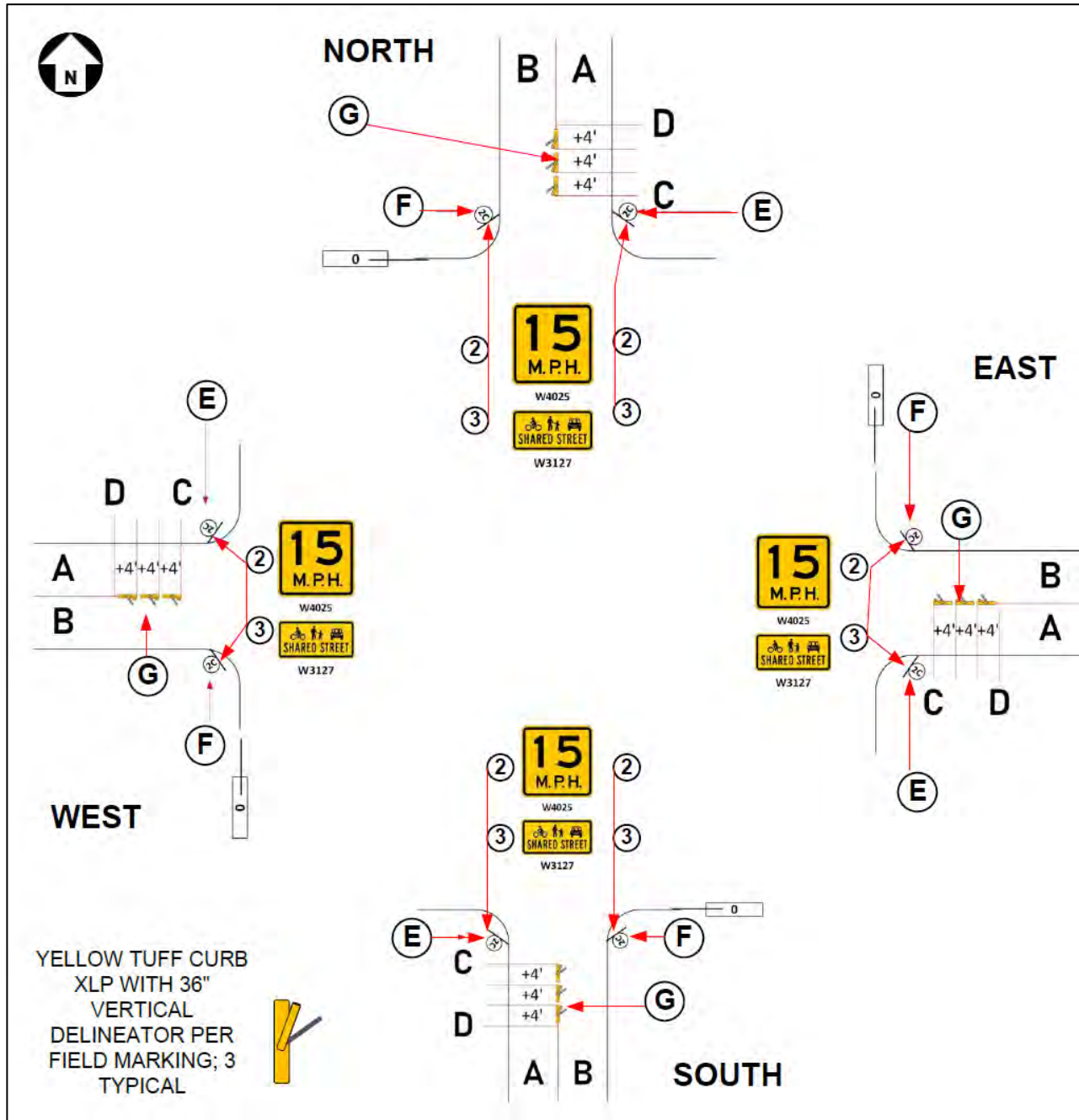
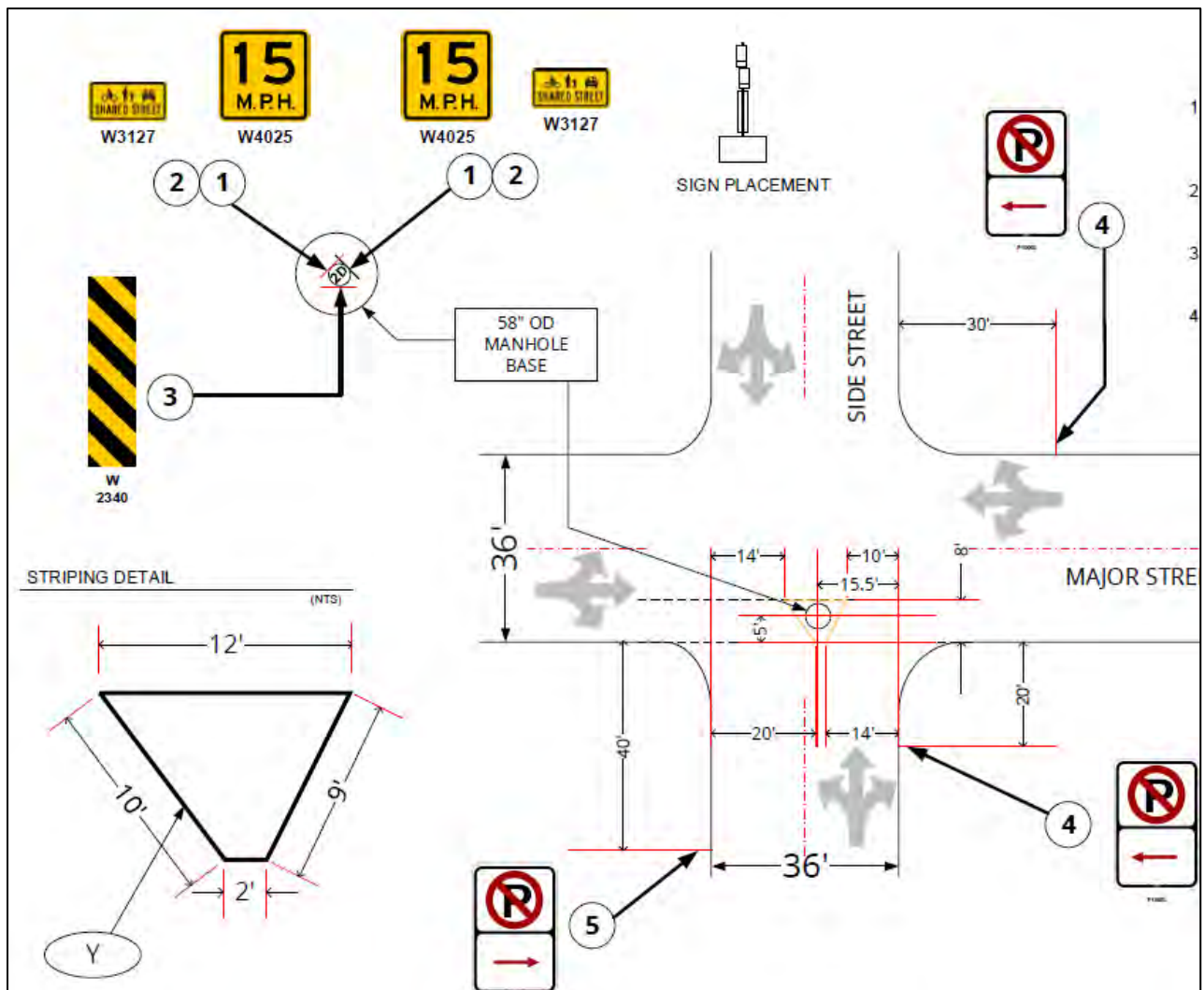


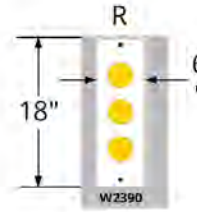
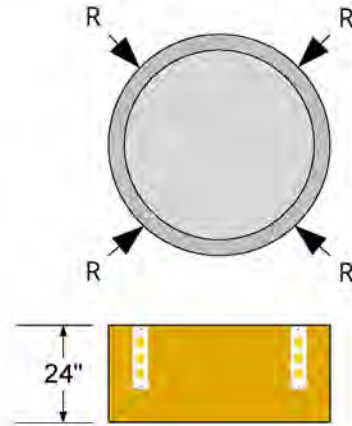
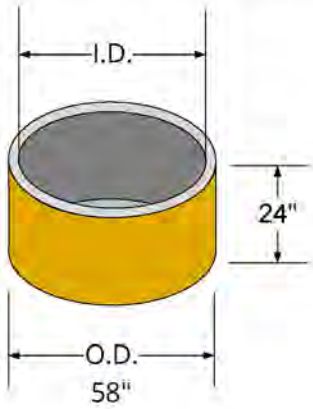
Image shows standard plan for Slow Streets tuff curb installations.

Type B – Standard Plan Set for Concrete Planter Slow Streets installations typically deployed on streets 36 feet wide with parking



Type B - Options and Standard for Concrete Planters

MANHOLE BASE PLANTERS FOR TEMPORARY CURB EXTENSIONS, MEDIANS AND DIVERTERS



O.D	I.D.	WEIGHT
38.5	?	?
?	48	~1,375
58	?	~3,250
72	?	~5,130

FILL OPTIONS



DRAIN ROCK



SOIL/ROCK



EMPTY



NOV 2021 STD

In some locations, Slow Streets signage may create confusing messages for road users. Multiple, duplicative, or conflicting warning signs, including the added Slow Streets advisory speed and shared use signs, can be found at certain locations. PBOT aimed to transform as many as 100 locations from temporary to more permanent installations in 2021 and 2022. The volume of new installations made thorough engineering review of existing and new signage challenging. In the future, more thorough inventory review of existing assets should take place as part of the design process.



Image shows multiple signs installed along NE 53rd Ave.

3. Maintenance Operations Upkeep Efforts

Overall maintenance requests were low and steady with several problematic locations requiring frequent visits.

One goal of the more permanent Slow Streets infrastructure was to decrease the amount of required maintenance. The original temporary traffic control devices required weekly (and often more frequent) site visits by PBOT contractors as well as regular replacement or relocation to meet approved traffic control plans.

The more permanent traffic calming infrastructure was meant to reduce the amount of required maintenance. To determine maintenance efforts staff looked at all TrackIT tickets for Traffic Signs and Markings or Structures within 50 feet of Slow Street intersections. Those categories of TrackIT tickets cover the Tuff Curb installed Slow Street traffic calming and the concrete planters, respectively.

According to the TrackIT tickets, Maintenance Operations had 75 requests for upkeep at the 55 Slow Street locations between July 2021 and April 2023. 60 of those request were for Structures group to relocate the



Image shows more permanent Slow Street traffic calming installation moved out of place.

planters (see image, pg 7). Of those 60 requests, 43 came from two locations. In those two locations the planters were removed due to the high number of maintenance calls. Since the initial evaluation was completed in spring of 2023, seven additional installations have been removed for excessive maintenance calls. Each maintenance call typically requires a team of two Maintenance Operations staff and either a winch-equipped vehicle or a small construction forklift to move the 2,500 pound planters back in place.

Overall, locations that required more maintenance as temporary installations also required higher levels of maintenance with more permanent infrastructure. PBOT's contractor is helping staff evaluate existing temporary locations maintenance efforts. With additional information around maintenance efforts at locations with temporary traffic control, staff should be better able to plan for the right type of permanent traffic calming as temporary locations are removed.

4. Community Perception of Slow Streets program

Multiple feedback opportunities, including questions about personal as well as traffic safety, showed widespread community support.

In a first for PBOT, Slow Streets temporary installation are located directly in the street (as opposed to signs in the planting strip) and the signs clearly invite community feedback about the installation. The public responded, providing over 1,000 comments about the program - the majority of which were overwhelmingly positive. See page X for detailed evaluation results.

Not content with just one feedback mechanism, staff also developed multiple avenues for public feedback, including a text message-based survey that received 985 responses. The text-based survey was one of the first times PBOT asked about feelings of harassment and violence in the streets. We now have a baseline to measure against with future surveys.

Staff also presented to over 50 neighborhood associations and other community organizations between 2020 and 2022 to gather feedback and gain first-hand accounts of Slow Streets impact.

Regardless of the feedback mechanism, staff consistently heard that Slow Streets had a positive impact on Portland streets and communities.

5. Overall Assessment as Traffic Calming Tool and Recommendations

Slow Streets served mainly as a distinct gateway treatment for priority bicycle and pedestrian streets; its impacts on traffic speeds and volumes is inconclusive.

Slow Streets was well-received by the public and can play a key role in wayfinding and raising awareness of advisory speeds and priority users on neighborhood greenways. Slow Streets



Image of Slow Streets initial signage in Spanish.

infrastructure's impact on traffic volumes and speeds is inconclusive. Compared to more traditional traffic calming, such as traffic diversion and speed bumps with demonstrated records of success, Slow Streets infrastructure is not impactful.

Recommendations for Slow Streets program:

- **Identify funding for replacing Slow Streets installations** with different existing infrastructure or new infrastructure tools that requires little or no maintenance.

Existing funding must be re-allocated or new funding identified to maintain, replace, and/or install new traffic calming installations to replace existing Slow Streets infrastructure.

- **Continue regularly removing temporary traffic control installations** (orange barrels) that require maintenance.

Some Slow Streets temporary traffic control installations have been in place more than four years. The materials could be repurposed for other efforts, such as School Streets.



Pavement markings used in San Francisco's Slow Streets program.

- **Stop replacing installations** in accordance with the [City Traffic Engineer's directive](#) related to temporary materials in the right of way.

When installations are removed Maintenance Operations should alert Traffic Operations to evaluate the intersection for other traffic calming improvements.

- **Incorporate the Slow Streets concept as a wayfinding and awareness** tool under neighborhood greenway program management.

Conspicuous infrastructure where neighborhood greenways intersect with arterial streets reinforces route choices for people walking, rolling, and driving. Materials and infrastructure should require little to no maintenance and provide clear messaging about expected users and street operations.

- **Develop a plan for removing or replacing Slow Street infrastructure** that requires little to no maintenance and reinforces permanent traffic operational priorities.

Compared to Slow Streets infrastructure, permanent concrete islands that restrict auto traffic from neighborhood greenways will more effectively create conditions that prioritize bicycle and pedestrian use compared to Slow Street infrastructure.

Appendix A: Collected traffic data

Location	Date	Average Daily Auto Traffic	Change in Daily Auto Traffic	85th Percentile Speeds (MPH)	Change in 85th Percentile Speed (MPH)	Average Daily Bike Traffic	Change in Daily Bike Traffic
SE Clinton & 23rd	Sept, 2019	1589		20; 19		1860	
SE Clinton & 23rd	April, 2020	883	-706	21; 19	+1; 0	449	-1411
SE Clinton & 23rd	April, 2023	567	-1022	21; 19	+1; 0	1236	-624
SE Salmon & 12th	Feb, 2020	1429		18; 17		238	
SE Salmon & 12th	April, 2020	559	-870	19; 18	+1; +1	105	-133
SE Salmon & 12th	April, 2023	801	-628	19; 16	+1; -1	236	-2
SE Lincoln & 52nd	Oct, 2019	1779		22; 23		639	
SE Lincoln & 52nd	April, 2020	905	-874	21; 21	-1; -2	392	-247
SE Lincoln & 52nd	Dec, 2020	1127	-652	22; 21	0; -2	235	-404
SE Lincoln & 52nd	April, 2023	1463	-316	21; 22	-1; -1	444	-195
NW 24th & Northrup*	Aug, 2017	3588		20; 20		Not Available	
NW 24th & Northrup	July, 2020	1425	-2163	17; 18	-2; -3	172	
NW 24th & Northrup	Nov, 2020	1325	-2263	18; 19	-2; -1	75	
NW 24th & Lovejoy^	Sept, 2022	1536	-2052	20; 18	0; -2	545	
SE Crystal Springs & SE Cesar E Chavez*	Oct, 2018	1770		24; 23		Not Available	
SE Crystal Springs & SE Cesar E Chavez*	July, 2020	1059	-711	22; 21	-2; -2	60	
SE Crystal Springs & SE Cesar E Chavez*	Sept, 2021	1522	-248	22; 23	-2; 0	Not Available	
NE Alameda & NE 43rd	May, 2019	2321		25; 25		273	
NE Alameda & NE 43rd	July, 2020	1294	-1027	25; 24	-1; 0	404	131
NE Alameda & NE 43rd	Nov, 2020	1200	-1121	24; 24	-1; -1	283	10
NE Alameda & NE 43rd^	April, 2023	1570	-751	22; 23	-3; -2	298	25
SE Bush & SE 148th*	Oct, 2000	606		28; 25		Not Available	
SE Bush & SE 148th*	July, 2020	523	-83	25; 24	-3; -1	20	
SE Bush & SE 148th*	April, 2023	620	14	23; 23	-5; -2	N/A	
N Central & N Charleston	Aug, 2017	1729		24; 24		154	
N Central & N Charleston	July, 2020	749	-980	22; 22	-2; -2	174	20
N Central & N Charleston	Nov, 2020	628	-1101	22; 21	-2; -3	65	-89
N Central & N Charleston	April, 2023	1242	-487	23; 21	-1; -3	76	-78

Pre-Covid ADT

Covid ADT (pre-Slow Streets)

Covid ADT (During Slow Streets)

*Count includes cars and bicycles

^Speed bumps installed during Covid-19

Appendix B: Survey Information from Safe Streets Report (2021)

OVERVIEW OF EVALUATION WORK

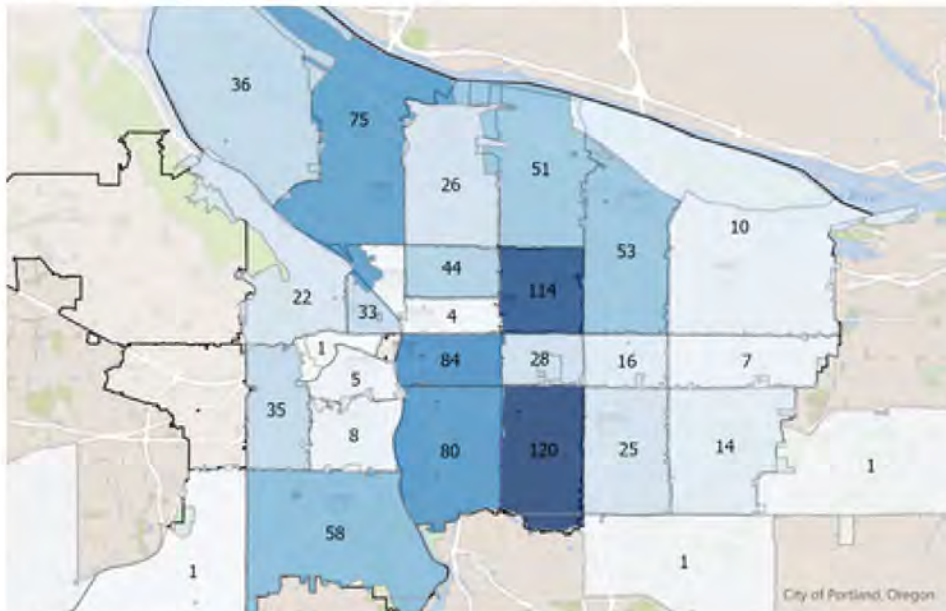
The main tool for evaluating the Slow Streets program was a public survey. The public survey went live in September and was advertised to the public using lawn signs placed throughout the neighborhood greenway network that instructed people to take a survey. The survey was also advertised on PBOT social media. The survey was open for approximately six weeks and received 985 responses and 250 additional comments. Feedback was also gathered through the 823-SAFE line. Other tools used in the evaluation were online mapping analysis, before and after bike and vehicular counts, and before and after vehicular speeds.

Survey responses were received from all over Portland, with the most responses coming from southeast and northeast Portland zip codes. Ten percent of survey respondents identified as BIPOC, 78% did not identify as BIPOC and 12% preferred not to say.



Lawn sign advertising the Slow Streets public survey.

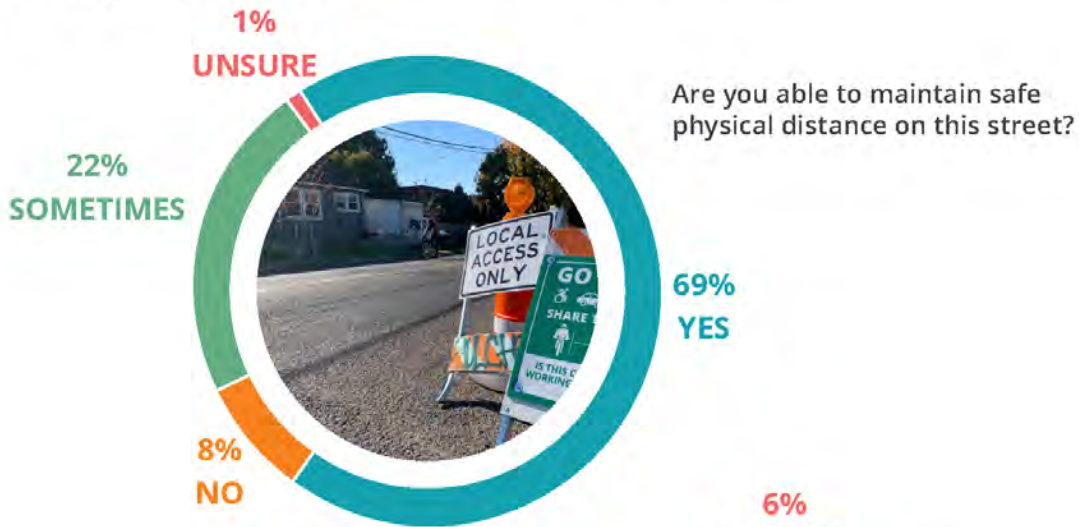
Number of Survey Responses by Zip Code



EVALUATION FINDINGS

Overall, the majority of survey respondents (69%) felt that they were able to maintain safe physical distancing on the slow street. Only 8% of respondents did not feel that they could maintain safe physical distancing and 22% answered that they sometimes could keep a safe distance.

When asked about feeling safe from harassment or violence on the slow street, 65% of survey respondents answered that they did feel safe from harassment or violence, while 14% answered that they did not feel safe and 13% answered sometimes.



Responses by Race

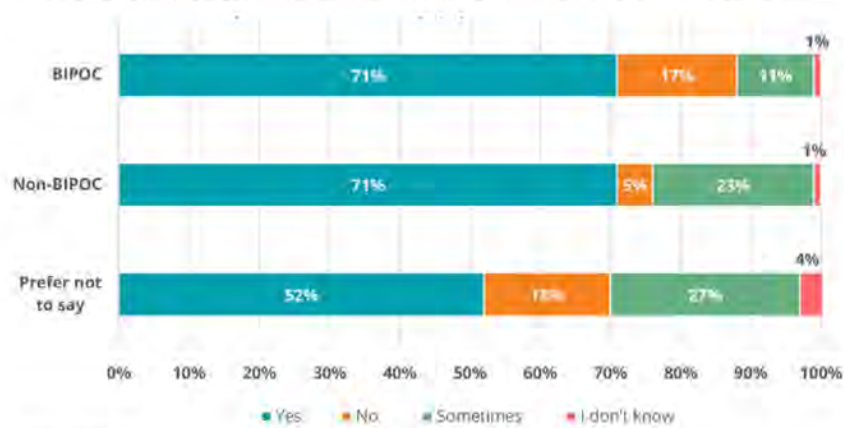
Only about 10% of respondents identified as BIPOC and 12% preferred not to say. Those as identifying as either BIPOC or not BIPOC responded similarly to questions about their ability to maintain safe physical distancing. Those respondents who preferred not to say whether they were BIPOC or not had the lowest level of positive responses to this question.

Those identifying as BIPOC were less likely to feel safe from harassment or violence, with 60% reporting feeling safe, compared to 74% of Non-BIPOC.

Those respondents who preferred not to say whether they were BIPOC or not had the lowest level of positive responses to this question.

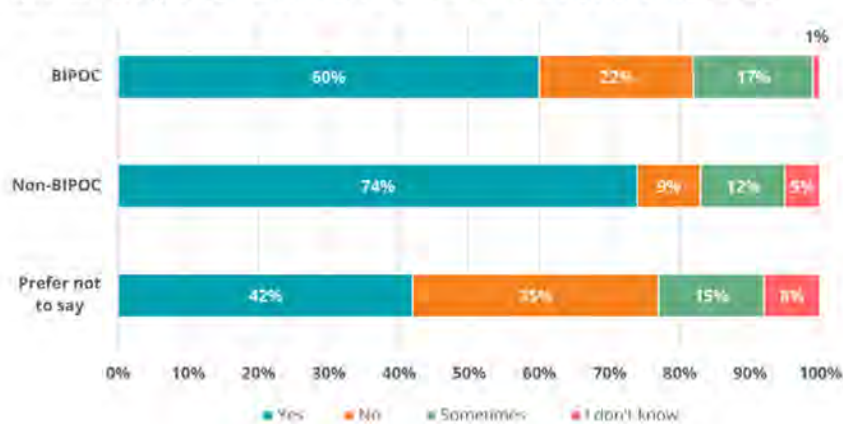
Slow Streets

Question: Are you able to maintain safe physical distance on this street?



Slow Streets

Question: Do you feel safe from harassment or violence with this street?

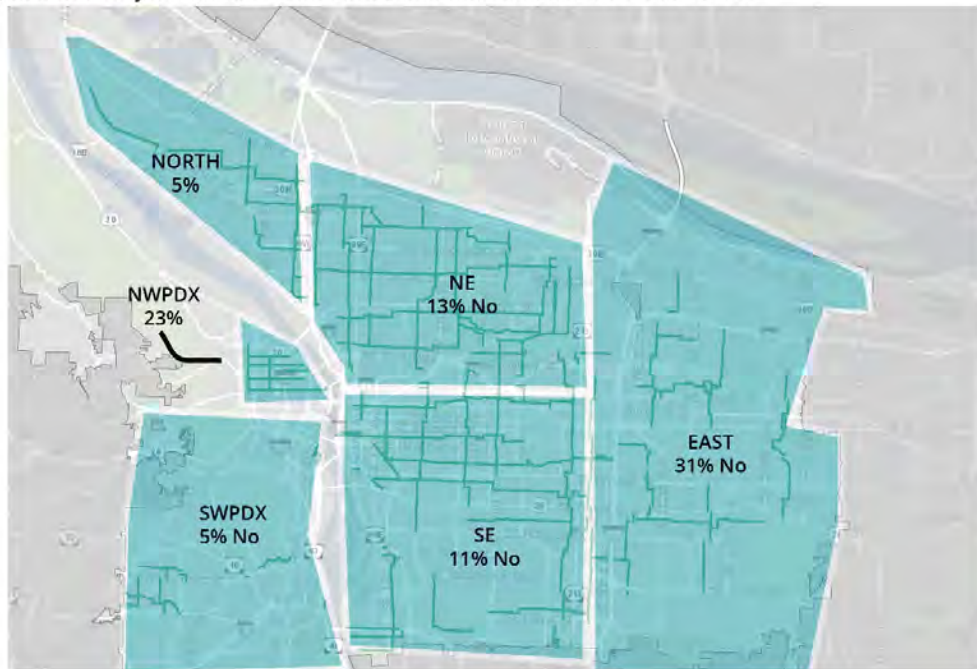


Responses by Geography

Survey responses to feelings of safety from harassment or violence differ by geography, with 31% of respondents in east Portland and 23% in northwest Portland answering that they do not feel safe on the slow street from violence or harassment. This is compared to only 5% of respondents in both north and southwest Portland who answered no to this question. Thirteen percent of respondents in northeast and 11% in southeast Portland responded that they did not feel safe from harassment or violence.

Slow Streets: Survey Responses of "No" by Geography

Question: Do you feel safe from harassment or violence with this street?



Make them permanent please! And close them off more to traffic by implementing more traffic calming or actual physical barriers where practical and appropriate.

Sense of Community

PBOT was interested in knowing if the Slow Streets installations had any impact on the public's sense of community. Sixty five percent of survey respondents answered that they felt a stronger sense of community along the Slow Streets, compared to 28% who answered that they did not feel a stronger sense of community and 7% who were unsure.

Do you feel a stronger sense of community along these Slow Streets?

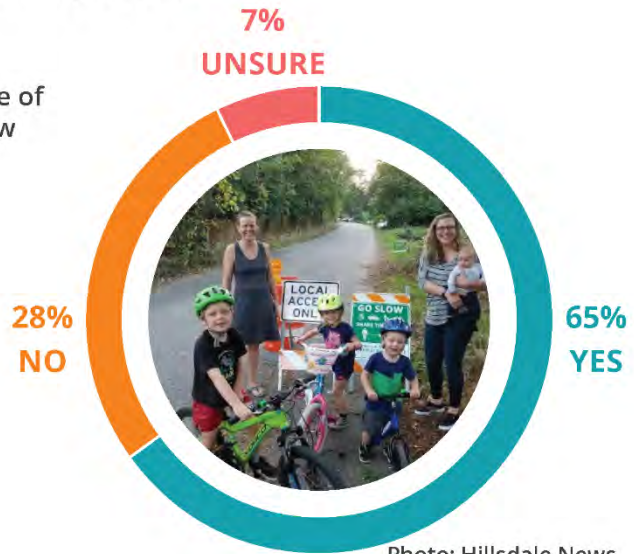
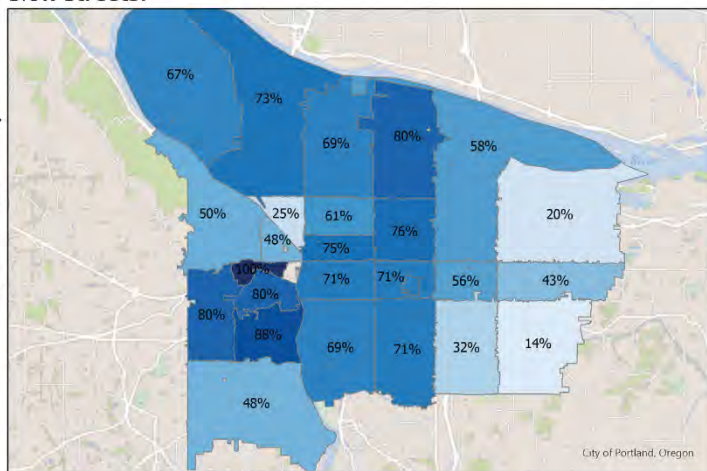


Photo: Hillsdale News

The responses to “Do you feel a stronger sense of community along these Slow Streets” were consistent between overall, BIPOC and non BIPOC survey respondents. However, they did vary greatly by geography. Those in inner southeast and northeast Portland, as well as north and southwest Portland felt there was a stronger sense of community along the Slow Streets, compared to respondents in east Portland and the inner most area of northeast Portland.

Slow Streets: Survey Responses of “Yes” by Zip Code
Question: Do you feel a stronger sense of community along these Slow Streets?



Comments

The public survey also offered the option to leave a comment and 222 comments were received through that process. Another 956 comments were received from the City's 823-SAFE phone and email line, as well as emails sent from the public directly to staff.

The comments were categorized into three buckets:

- 66% of the comments were supportive of the program, saying they liked the program, they would like to see the program expanded, or they would like the program to become permanent.
- 21% of the comments were not supportive, saying they disliked the program and/or they wanted advisory signage removed.
- 13% of the comments were neutral.


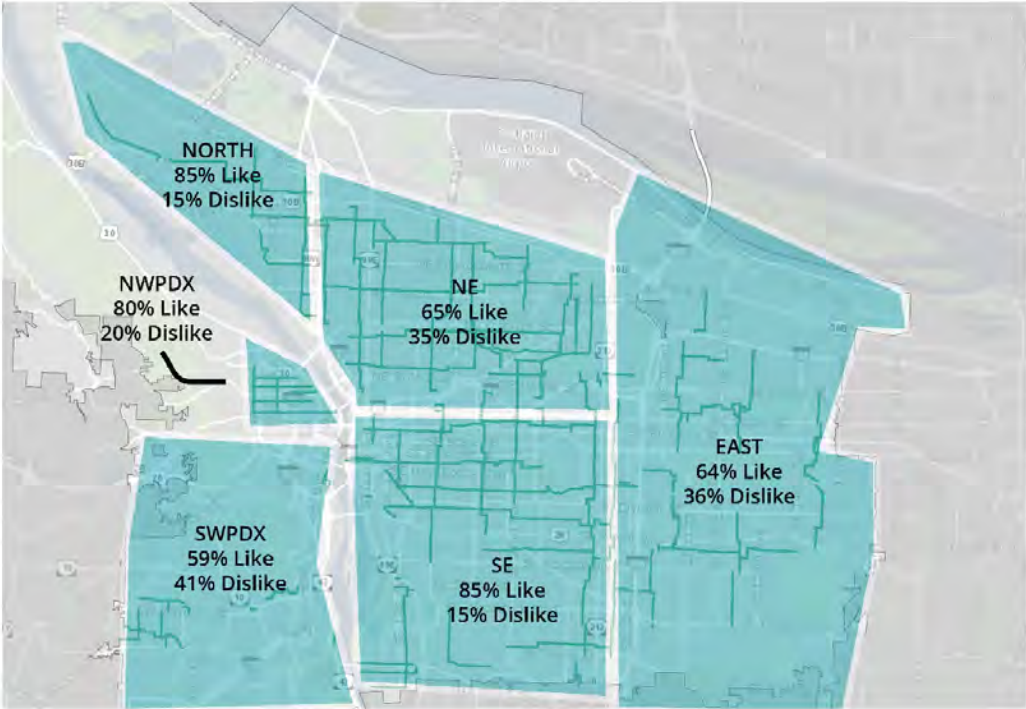


More slow streets please! I'd love permanent infrastructure- I always have to re-setup the barriers because they are moved or knocked down.

Photo: Bike Portland

Looking at the comments by location (only applicable to the comments received in the survey and not the 823-SAFE comments), the highest percentage of positive comments were received in north and southeast Portland, with 85% of the comments received categorized as liking the program. The lowest percentage of supportive comments were received in southwest Portland, with only 59% of comments received categorized as liking the program.

Slow Streets: Comments Categorization by Geography



I support the slow streets initiative! Thank you for making our neighborhoods safer and more focused on community! We live close to the one on Knapp and SE 60th. Would love to see more of these instituted in the Brentwood Darlington neighborhood!