

An Analysis of Virtual Public Engagement in the Transportation Planning Process

http://www.virginiadot.org/vtrc/main/online_reports/pdf/23-r6.pdf

LANCE E. DOUGALD
Senior Research Scientist

ERIC S. WILLIAMS
Research Assistant

Final Report VTRC 23-R6

Standard Title Page - Report on Federally Funded Project

1. Report No.: FHWA/VTRC 23-R6	2. Government Accession No.:	3. Recipient's Catalog No.:	
4. Title and Subtitle: An Analysis of Virtual Public Engagement in the Transportation Planning Process		5. Report Date: October 2022	
		6. Performing Organization Code:	
7. Author(s): Lance E. Dougald and Eric S. Williams		8. Performing Organization Report No.: VTRC 23-R6	
9. Performing Organization and Address: Virginia Transportation Research Council 530 Edgemont Road Charlottesville, VA 22903		10. Work Unit No. (TRAIS):	
		11. Contract or Grant No.: 118420	
12. Sponsoring Agencies' Name and Address: Virginia Department of Transportation Federal Highway Administration 1401 E. Broad Street 400 North 8th Street, Room 750 Richmond, VA 23219 Richmond, VA 23219-4825		13. Type of Report and Period Covered: Final	
		14. Sponsoring Agency Code:	
15. Supplementary Notes: This is an SPR-B report.			
16. Abstract: <p>Public engagement is an important and required element of the transportation planning process. Since the onset of the COVID-19 pandemic, public engagement has shifted dramatically. Agencies of all sizes accelerated their transition to virtual engagement in 2020 to comply with shelter-in-place orders and social distancing guidelines. Social media and online engagement tools have become integral components of engaging the public and have effectively removed the time constraints of in-person meetings, offered opportunities for community members to engage in new and interactive ways, and brought new voices into the engagement process. In early 2020, when the pandemic effectively ceased in-person meetings, the Virginia Department of Transportation (VDOT) expanded its use of virtual platforms to engage with the public and is continually seeking to improve public involvement during the transportation planning and project development process, as traditional meetings are often not well attended, feedback is sparse, and participation can be limited to special interest groups.</p> <p>The purpose of this study was to assess the role of virtual public engagement in VDOT's business practices, examine its potential to reach a broader public, and document lessons learned for improved efficacy. The scope of the study was focused primarily on transportation planning public information meetings where on-demand public input has been frequently used as a substitute for in-person meetings, especially during the height of the pandemic. Based on the study findings, the study concluded the following: the benefits of virtual public engagement in terms of increased participation are widely acknowledged; virtual public engagement challenges exist, particularly with respect to achieving participation from underserved communities; outreach avenues exist to improve participation levels of underserved communities; and a hybrid approach of in-person and virtual events is likely to be the future of public engagement for transportation planning public information meetings.</p> <p>The study recommends the following: (1) VDOT's Transportation Mobility and Planning Division (TMPD) should update Instructional and Informational Memorandum IIM-TMPD-4.0 (Public Participation / Public Involvement in Transportation Planning Studies) to include data collection guidance specific to on-demand public input surveys; and (2) TMPD in collaboration with VDOT's Communications Division should develop guidance for district planners on conducting and managing hybrid public engagement events. TMPD and the Communications Division can use the results of this study to promote virtual engagement initiatives and to develop and share outreach strategies and guidance with VDOT districts and other VDOT divisions. The developed guidance for virtual engagement initiatives will provide a consistent approach across districts to reach and engage underserved and underrepresented communities. In addition, the guidance will provide a consistent approach to measuring the effectiveness of outreach and engagement efforts, which will help to inform and shape future outreach initiatives. The benefits of developing guidance for hybrid events will be a more streamlined and consistent process for conducting, managing, and evaluating public engagement. Since hybrid events are expected to increase, the developed guidance should result in fewer logistical problems for public engagement events.</p>			
17 Key Words: Public involvement, public engagement, virtual public engagement, public information meetings, transportation planning, underserved communities, underrepresented populations		18. Distribution Statement: No restrictions. This document is available to the public through NTIS, Springfield, VA 22161.	
19. Security Classif. (of this report): Unclassified	20. Security Classif. (of this page): Unclassified	21. No. of Pages: 96	22. Price:

FINAL REPORT

**AN ANALYSIS OF VIRTUAL PUBLIC ENGAGEMENT IN THE TRANSPORTATION
PLANNING PROCESS**

**Lance E. Dougald
Senior Research Scientist**

**Eric S. Williams
Research Assistant**

In Cooperation with the U.S. Department of Transportation
Federal Highway Administration

Virginia Transportation Research Council
(A partnership of the Virginia Department of Transportation
and the University of Virginia since 1948)

Charlottesville, Virginia

October 2022
VTRC 23-R6

DISCLAIMER

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Virginia Department of Transportation, the Commonwealth Transportation Board, or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation. Any inclusion of manufacturer names, trade names, or trademarks is for identification purposes only and is not to be considered an endorsement.

Copyright 2022 by the Commonwealth of Virginia.
All rights reserved.

ABSTRACT

Public engagement is an important and required element of the transportation planning process. Since the onset of the COVID-19 pandemic, public engagement has shifted dramatically. Agencies of all sizes accelerated their transition to virtual engagement in 2020 to comply with shelter-in-place orders and social distancing guidelines. Social media and online engagement tools have become integral components of engaging the public and have effectively removed the time constraints of in-person meetings, offered opportunities for community members to engage in new and interactive ways, and brought new voices into the engagement process. In early 2020, when the pandemic effectively ceased in-person meetings, the Virginia Department of Transportation (VDOT) expanded its use of virtual platforms to engage with the public and is continually seeking to improve public involvement during the transportation planning and project development process, as traditional meetings are often not well attended, feedback is sparse, and participation can be limited to special interest groups.

The purpose of this study was to assess the role of virtual public engagement in VDOT's business practices, examine its potential to reach a broader public, and document lessons learned for improved efficacy. The scope of the study was focused primarily on transportation planning public information meetings where on-demand public input has been frequently used as a substitute for in-person meetings, especially during the height of the pandemic. Based on the study findings, the study concluded the following: the benefits of virtual public engagement in terms of increased participation are widely acknowledged; virtual public engagement challenges exist, particularly with respect to achieving participation from underserved communities; outreach avenues exist to improve participation levels of underserved communities; and a hybrid approach of in-person and virtual events is likely to be the future of public engagement for transportation planning public information meetings.

The study recommends the following: (1) VDOT's Transportation Mobility and Planning Division (TMPD) should update *Instructional and Informational Memorandum IIM-TMPD-4.0* (Public Participation / Public Involvement in Transportation Planning Studies) to include data collection guidance specific to on-demand public input surveys; and (2) TMPD in collaboration with VDOT's Communications Division should develop guidance for district planners on conducting and managing hybrid public engagement events. TMPD and the Communications Division can use the results of this study to promote virtual engagement initiatives and to develop and share outreach strategies and guidance with VDOT districts and other VDOT divisions. The developed guidance for virtual engagement initiatives will provide a consistent approach across districts to reach and engage underserved and underrepresented communities. In addition, the guidance will provide a consistent approach to measuring the effectiveness of outreach and engagement efforts, which will help to inform and shape future outreach initiatives. The benefits of developing guidance for hybrid events will be a more streamlined and consistent process for conducting, managing, and evaluating public engagement. Since hybrid events are expected to increase, the developed guidance should result in fewer logistical problems for public engagement events.

FINAL REPORT

AN ANALYSIS OF VIRTUAL PUBLIC ENGAGEMENT IN THE TRANSPORTATION PLANNING PROCESS

Lance E. Dougald
Senior Research Scientist

Eric S. Williams
Research Assistant

INTRODUCTION

Public engagement (also known as public involvement, civic engagement, and public participation) is an important and required element of the transportation planning process. It brings diverse viewpoints and values into the decision-making process (Federal Highway Administration [FHWA], 2020a) and can be defined as “any process that directly engages the public in decision-making and gives full consideration to public input in making that decision” (Michigan State University, 2020). Public engagement goals are to *inform* by providing information on problems, situations, and solutions; *involve* by working throughout the process to understand and consider input; *collaborate* by partnering with the public in each aspect of alternatives and solutions; and *empower* by providing a platform where decisions are made by the public (MetroQuest, 2020). Other objectives include the following (Florida Department of Transportation [FDOT], 2021):

- early and continuous participation
- inclusionary practices in activities and notification
- consideration of the needs of the traditionally underserved
- collaboration with other agencies, local governments, private sector transportation entities, and non-metropolitan planning organization (MPO) officials
- convenient meeting times and locations
- reasonable access to information
- timely notice of public engagement activities, including appropriate review and comment periods
- acknowledgment and consideration of public comments.

Public engagement is needed through all phases of a transportation project, from the early planning stages to the operations and maintenance phases (FDOT, 2021), and depending on the phase of the project, different types of meetings are held to inform the public about projects and solicit input. Engagement is held in the early phases of project design and scoping through public information meetings (PIMs). The purpose of PIMs is both to inform citizens and receive their input on a developing project; the purpose and need for a proposed project; alternate courses of action; alternative project locations; major design features; effects of the alternatives (social, economic, and environmental); and project consistency with local planning goals and objectives. PIMs are usually informal in nature and use an open house format. In later project phases, public hearings are held, and although similar in purpose to PIMs, public hearings follow detailed federal regulations for notification, content, and comment opportunity and typically

occur after a draft environmental impact study or environmental assessment is circulated for public comment and before the National Environmental Policy Act process is finalized (Alabama Department of Transportation [DOT], 2015).

Although virtual components of public engagement have been available through survey or live-streaming platforms, PIMs have been historically held in person because no platform existed for attending the meeting virtually. A common theme with regard to in-person meetings is that public participation is low or inconsistent because of meeting times when segments of the population cannot attend. In addition, because of language and cultural barriers, there is a lack of diverse viewpoints among participants (FHWA, 2020). As Read (2014) noted, the public can be both disengaged and distrustful and in-person meetings are often dominated by “professional citizens” and people with narrow agendas.

Since the onset of the COVID-19 pandemic, public engagement has shifted dramatically. Agencies of all sizes accelerated their transition to virtual engagement in 2020 to comply with shelter-in-place orders and social distancing guidelines. Yet, as Goldman et al. (2021) suggested, with these new constraints has come opportunity. Social media and online engagement tools have become integral components of engaging the public and have effectively removed the time constraints of in-person meetings, offered opportunities for community members to engage in new and interactive ways, and brought new voices into the engagement process. FHWA defined virtual public engagement as “the use of digital technology to engage individuals or to visualize projects and plans” (FHWA, 2020), and transportation agencies can increase meaningful public engagement in planning and project development by integrating virtual tools into their overall approach (FHWA, 2021a). Virtual opportunities include, but are not limited to, survey tools, telephone town halls, online meetings, pop-up outreach, social meeting / meeting-in-a box kits, story maps, quick videos, crowdsourcing, real-time polling tools, social media following, visualization, and work with bloggers (Virginia Department of Transportation [VDOT], 2021a).

VDOT’s *Public Involvement Manual* is a policy manual for public participation in transportation projects. Public participation meetings are defined in three categories (VDOT, 2021a):

1. *Citizen informational meeting.* A citizen informational meeting is an opportunity for the public to review, in an informal setting, the ongoing development of project information.
2. *Citizens participation meeting/workshop.* This community-based planning session is a collaborative effort between governments and the communities and serves to identify problems and involve all elements of the community. In the session, implementation of solutions to transportation issues is sought.
3. *Public hearing.* This is a well-publicized opportunity for VDOT to present its studies and policies while receiving and documenting comments from the public on each proposal concerning engineering, social, economic, and environmental factors and effects resulting from each possible course of action.

In the context of citizen informational and participation meetings (hereinafter “PIMs”) and as part of VDOT’s CY 2018-2021 Business Plan (VDOT, 2018) to improve the project identification process, Section 3.2 of the plan addresses developing “an engagement plan that outlines the services that VDOT can offer to localities to assist in the development of their transportation plans.” In support of the business plan, VDOT’s Transportation and Mobility Planning Division (TMPD) developed an Informational and Instructional Memorandum (IIM), IIM-TMPD-4.0 (VDOT, 2019), on public participation and involvement in the transportation planning process that references virtual public engagement as “online techniques that transportation agencies can use to inform the public and receive feedback on studies, projects or issues of concern. These strategies create efficiencies in how information is disseminated and how input is collected and considered, which can potentially accelerate planning and project development processes.”

Prior to the COVID-19 pandemic, TMPD procured a subscription to MetroQuest, which is a survey-based platform for virtual public engagement and initiatives. Using this platform led to higher levels of participation than previously had been the case. In early 2020, when the pandemic effectively ceased in-person meetings, VDOT expanded its use of virtual platforms to engage with the public. At the time of this writing, 120 virtual engagement activities had been disseminated to the public via MetroQuest. Other survey platforms that have been used for planning studies include SurveyMonkey, ArcGIS Online, and Survey 123. VDOT is also exploring procurement of an “all-in-one” tool that combines crowdsourcing features, mapping, visualization, file storage and sharing, and survey instruments into one virtual engagement platform.

VDOT is continually seeking to improve public involvement during the transportation planning and project development process, as traditional PIMs are often not well attended, feedback is sparse, and participation can be limited to special interest groups. Adding virtual engagement techniques makes stakeholder participation more convenient, affordable, and even enjoyable (FHWA, 2020b), and the initial success of VDOT’s virtual public engagement initiatives during COVID-19 shows an immediate need to expand virtual opportunities. In short, virtual public engagement provides an opportunity to reach a broader, more diverse audience.

The problem, however, is that the impacts of using virtual tools in terms of market penetration rates, participation rates, ability to reach diverse populations, and agency cost savings are not known. Although national studies are forthcoming (Transportation Research Board [TRB], 2021, 2022) that may estimate these impacts in the future, the researchers are not aware of any published studies that have quantified these impacts to date, especially for a Virginia-specific context. If such impacts were known, then two VDOT divisions—TMPD and Communications—could use this information, as appropriate, to promote virtual engagement initiatives and to develop and share outreach strategies and guidance with VDOT districts and other VDOT divisions.

PURPOSE AND SCOPE

The purpose of this study was to assess the role of virtual public engagement in VDOT's business practices, quantify its potential to reach a broader public, and document lessons learned for improved efficacy. Based on the research need brought to the Virginia Transportation Research Council (VTRC) Transportation Planning Research Advisory Committee, the scope of the study was focused primarily on transportation planning PIMs where on-demand public input tools have been frequently used as a substitute for in-person PIMs, especially during the height of the pandemic. The scope did not include analyses of engagement methods for public hearings and comparisons of different survey-based online public engagement tools.

METHODS

The following tasks were performed to achieve the study objectives:

1. Conduct a review of the literature on best practices in public engagement with particular emphasis on the virtual components of engagement in the transportation planning process.
2. Conduct surveys of other state DOTs, VDOT districts, and Virginia MPOs to obtain information on virtual public engagement practices.
3. Perform an analysis of VDOT's virtual public engagement data.

Literature Review

A review of the literature on best practices in public engagement was conducted with particular emphasis on the virtual components of engagement in the transportation planning process. Based on feedback from TMPD, their specific interests were collecting demographic data and using the data to develop better outreach strategies to underserved communities. The primary topic areas of the review were (1) virtual participation barriers, (2) institutional barriers, (3) virtual engagement opportunities, and (4) the future of public engagement. With respect to virtual engagement opportunities, literature was reviewed on outreach mechanisms including using social media, collecting demographics, using census data to identify demographics, and measuring the effectiveness of public engagement strategies.

FHWA offers a number of resources pertaining to virtual public engagement (FHWA, 2020a). In addition to those resources, other literature resources obtained from other state DOTs as part of Task 2 were included in the review. Research databases were also searched with the use of key public engagement terms. These databases included TRID, Compendex, Google Scholar, NTRL, AASHTO RAC Surveys, WorldCat, Engineering Research Database, Web of Science, Dissertations and Theses Global, State DOT Search Engine, Google, and RiP.

Surveys of Other State DOTs, VDOT Districts, and Virginia MPOS

Survey of Other State DOTs

For the state DOT survey, survey questions were developed and shared with the study's technical review panel. Upon receiving feedback and revising the questions, the researchers created an initial contact list by searching DOT websites for planning staff. Job titles for the contacts were generally planning chiefs, directors, and managers. An email-based survey was then sent to each DOT (with the exception of VDOT) with an introduction specifying the purpose of the survey. The email introduction and survey questions were as follows.

Email Introduction

VDOT is currently involved in a study designed to improve virtual engagement during the transportation planning and project development process (through live meetings, open houses, online surveys, etc.). One area of needed improvement is reaching underserved communities and VDOT would like to learn from other DOTs about efforts to broaden virtual engagement outreach. We'd very much appreciate ____ DOTs feedback on just a few (5) questions below by simply replying and marking answers directly into this email.

I realize that you may not be the most appropriate person to answer the questions. If not, could you please forward this email to the appropriate planning department person(s) and copy me?

VDOT appreciates your time helping with this effort!

Form of Survey

1. Does your planning department attempt to collect demographic information from virtual participants? (If Yes to Question 1, please complete questions 1a and 1b. If No or Unknown, please refer to question 2).

Yes No Unknown

a. What are the demographic data that you typically collect? (Select all that apply.)

- Race
- Gender
- Education level
- Age
- Income
- Disability
- Other (please describe): _____

b. For what purpose(s) do you collect demographic data?

2. Do you offer second language(s) versions of virtual engagement material? (If Yes to Question 2, please complete questions 2a and 2b. If No or Unknown, please refer to questions 3-5).

Yes No Unknown

a. Do you have a procedure to determine when additional language resources are required? (If yes, please describe that procedure).

b. How do you manage translation of second language materials (for example, in-house or contract services)?

3. How does your planning department market or advertise virtual engagement initiatives?

4. Are there specific virtual engagement marketing initiatives that you have found more successful in gaining greater participation from underserved communities? (If yes, please describe those initiatives).

5. Has your planning department performed analyses of engagement statistics in-person versus virtual? (If yes, could you attach those studies and/or related materials?)

Survey of VDOT Districts

The survey for VDOT districts was developed in Google Forms and sent to district planners in all nine VDOT districts: Bristol, Culpeper, Fredericksburg, Hampton Roads, Lynchburg, Northern Virginia, Richmond, Salem, and Staunton. Questions were categorized into three topic areas: in-person public engagement (pre-pandemic), virtual public engagement (during the pandemic), and future of public engagement (post-pandemic). The survey used skip logic based on answers to the questions. The survey form is shown in Appendix A.

Survey of Virginia MPOs

For the MPO survey, which included the Metropolitan Washington Council of Governments (MWCOCG), the same procedure for the state DOT survey was followed with respect to developing a list of contacts and sending an email-based survey. The introduction and survey questions were the same as those used for the state DOT survey with two additional questions asking about the future of public engagement:

1. How does your organization envision a future of public engagement for meetings where public comment is requested for project alternatives?

Virtual engagement only

Hybrid of both virtual engagement and in-person engagement

___ In-person engagement only

___ Other: _____

2. Please provide your thoughts on logistics including both positive and negative aspects of conducting and managing a hybrid approach of virtual and in-person engagement.

A survey was sent to the following organizations:

- New River Valley MPO
- Richmond Regional Transportation Planning Organization (TPO)
- Roanoke Valley Area TPO
- Staunton-Augusta-Waynesboro MPO
- Tri-Cities MPO
- Winchester-Frederick MPO
- Danville-Pittsylvania MPO
- Bristol MPO
- Charlottesville-Albemarle MPO
- Central Virginia TPO
- Fredericksburg Area MPO
- Hampton Roads TPO
- Harrisonburg-Rockingham MPO
- MWCOG.

Analysis of VDOT’s Public Engagement Data

MetroQuest is a web-based public engagement software tool that VDOT has been using as a virtual substitute for in-person PIMs, particularly during the COVID-19 pandemic. MetroQuest can be accessed through web browsers on laptops, tablets, and smartphones and features interactive tab-based screen templates designed for public input on early transportation investment decisions and plans. VDOT staff or contractors develop the MetroQuest survey format tabs based on the purpose of the study and types of public input requested. For example, Figure 1 shows the welcome page and tabs for a Culpeper District study on the 5th Street Corridor in Charlottesville. The objectives of the study were to develop short-, mid-, and long-term community-supported transportation solutions to provide safe and comfortable travel for all uses and users of the roadway (VDOT, 2021b).



Figure 1. MetroQuest 5th Street Corridor Study Welcome Page

The MetroQuest survey was designed to obtain preference opinions on various street layout and intersection designs. The following performance metrics and scales (e.g., one dot is worst and four dots is best) were provided for all design alternatives: improve safety and comfort, manage congestion, environmental sustainability, support economic development, and impacts. For example, Figure 2 shows a no change street cross section for the portion south of I-64 and Figure 3 shows one of the alternatives that includes a 60-foot sidewalk and 12-foot multi-use path. Numerous alternatives for the street designs were provided for the roadway sections both north and south of I-64 for which survey respondents were asked to indicate a preference. Similar schematics and map overlays were provided for design alternatives at five intersections, which included widened intersections, roundabouts, left-turn restrictions, restricted crossing U-turns, and diverging diamond interchanges.

One of the key elements of the survey was the “Wrap Up” page at the end of the survey. This page provided an opportunity to obtain information about respondents. Different types of information could be collected on this page. For example, for a Fredericksburg District Route 1 Corridor Study (VDOT, 2020) in Spotsylvania County, participant information on age, ethnicity, income, and primary language was sought. For a Northern Virginia District Route 50 study (VDOT, 2022) in Fairfax County, information was sought about living and working near the corridor and how respondents had heard about the survey. For a Central Virginia TPO 2045 long-range transportation plan (LRTP) study (Central Virginia TPO, 2022), which covered planning projects spanning a number of counties, information was sought about where respondents lived.

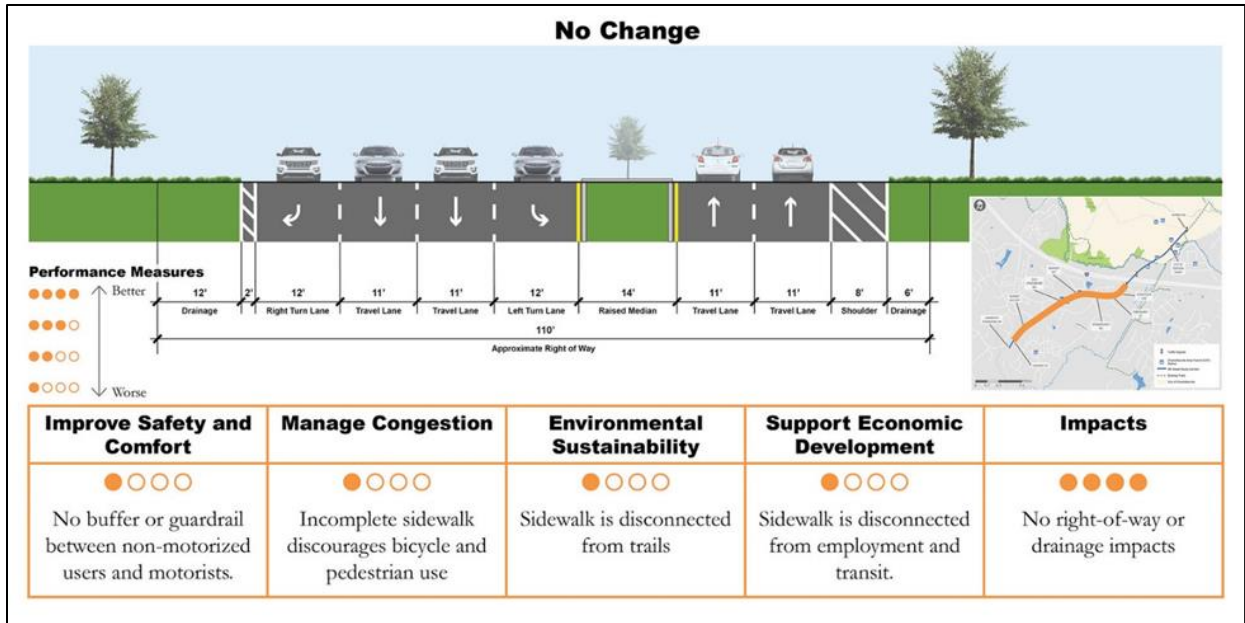


Figure 2. No Change Option Street Cross Section

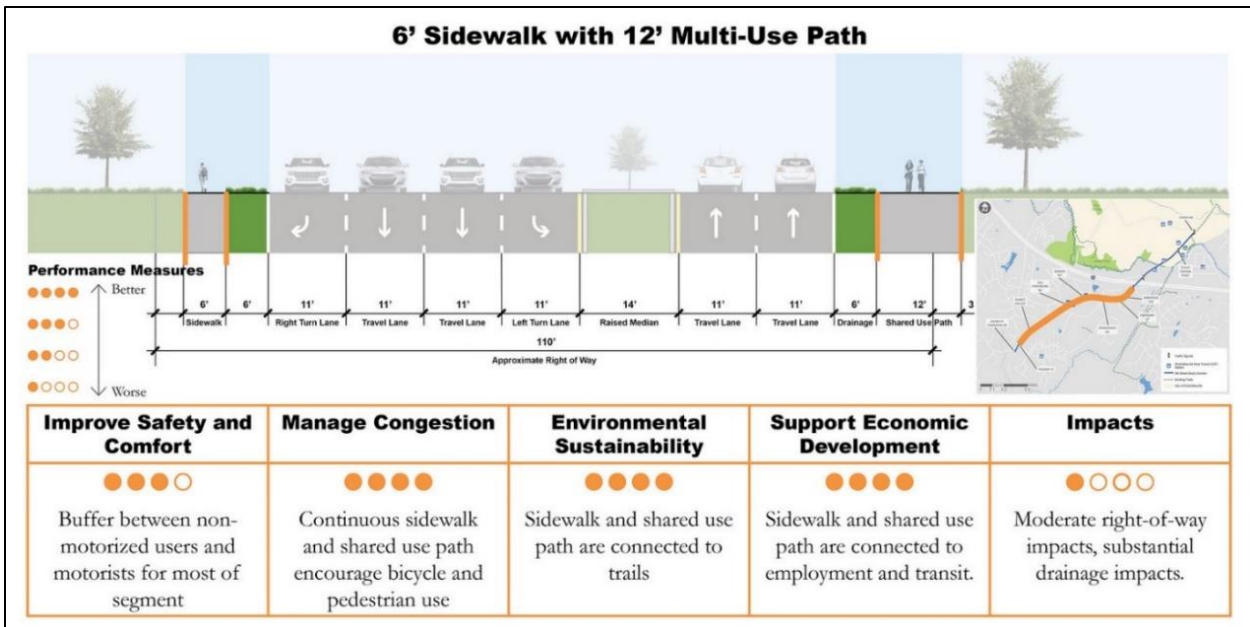


Figure 3. Sidewalk and Multi-Use Path Option

MetroQuest Survey Tracking Tool

TMPD maintains a MetroQuest survey tracking tool that is a complete database of all VDOT-hosted MetroQuest public engagement initiatives held to date in Virginia. This tracking tool was accessed to perform a broad analysis of MetroQuest public participation based on the data captured. From November 1, 2019, to March 26, 2022, there were 120 project-specific studies that used MetroQuest surveys for public comment. Of these, 114 were categorized as discrete district studies, 2 were categorized as multiple district studies, and 4 were categorized as

Central Office studies. The consistent types of data collected from the MetroQuest surveys in the tracking tool database include the following:

- Survey Name (English and non-English versions)
- VDOT District
- End Date (when the survey period closed)
- Survey Type (such as arterial management, commuter, corridor, intersection, etc.)
- Visitors (the number of people that clicked on the website to access the survey)
- Participants (the number of people that completed the survey)
- Participation—Mobile Device (the number of people that completed the survey using a mobile device)
- Participation—Web (the number of people that completed the survey using a non-mobile device)
- Text Comments (the number of comments received from participants).

Data on the tracking tool that are not consistently tabulated include the following:

- Regular Web URL Participants
- Regular URL Visits
- Facebook URL Participants
- Facebook URL Visits
- Twitter URL Participants
- Twitter URL Visits
- Peer to Peer URL Participants
- Peer to Peer URL Visits
- Wrap Up—How did you learn about the survey
- Participant %
- Visitors %
- Print Media Advertising
- Social Media Advertising.

Analysis of the public participation involved processing the survey data that were consistently collected. The first step was to categorize the surveys by survey type, district, and language (surveys that were developed in a language other than English). Based on each of these categories, the second step was to partition the data based on visitors and participation statistics, device access (mobile vs. non-mobile) statistics, and text comment statistics.

Analysis of a Subset of MetroQuest Data

A subset of data from the MetroQuest survey tracking tool was extracted for more in-depth analyses. From November 1, 2019, to July 7, 2021, 70 studies were extracted and individually analyzed. In particular, analyses were performed on participation over the survey time frame (survey open period to end period), data collected from participants (i.e., demographic and other questions asked in the Wrap Up page on the MetroQuest surveys), and components of outreach and marketing initiatives.

To extract project-specific data, VDOT’s MetroQuest account was accessed. In the MetroQuest Studio splash page, two site options are provided: (1) “VDOT,” and (2) “VDOT 2020.” The VDOT site consists of MetroQuest surveys developed prior to a MetroQuest software update in 2020. The VDOT 2020 site consists of surveys developed after the software update. An example of the VDOT MetroQuest Studio site is shown in Figure 4 with the following phases: order, design, build, pre-launch, engage, and analyze. The same phases are in the VDOT 2020 site except that “order” is now “create.” Those surveys shown in the build, engage, and analyze phases of Figure 4 were those being developed, open for engagement, and completed (ready for analysis), respectively.

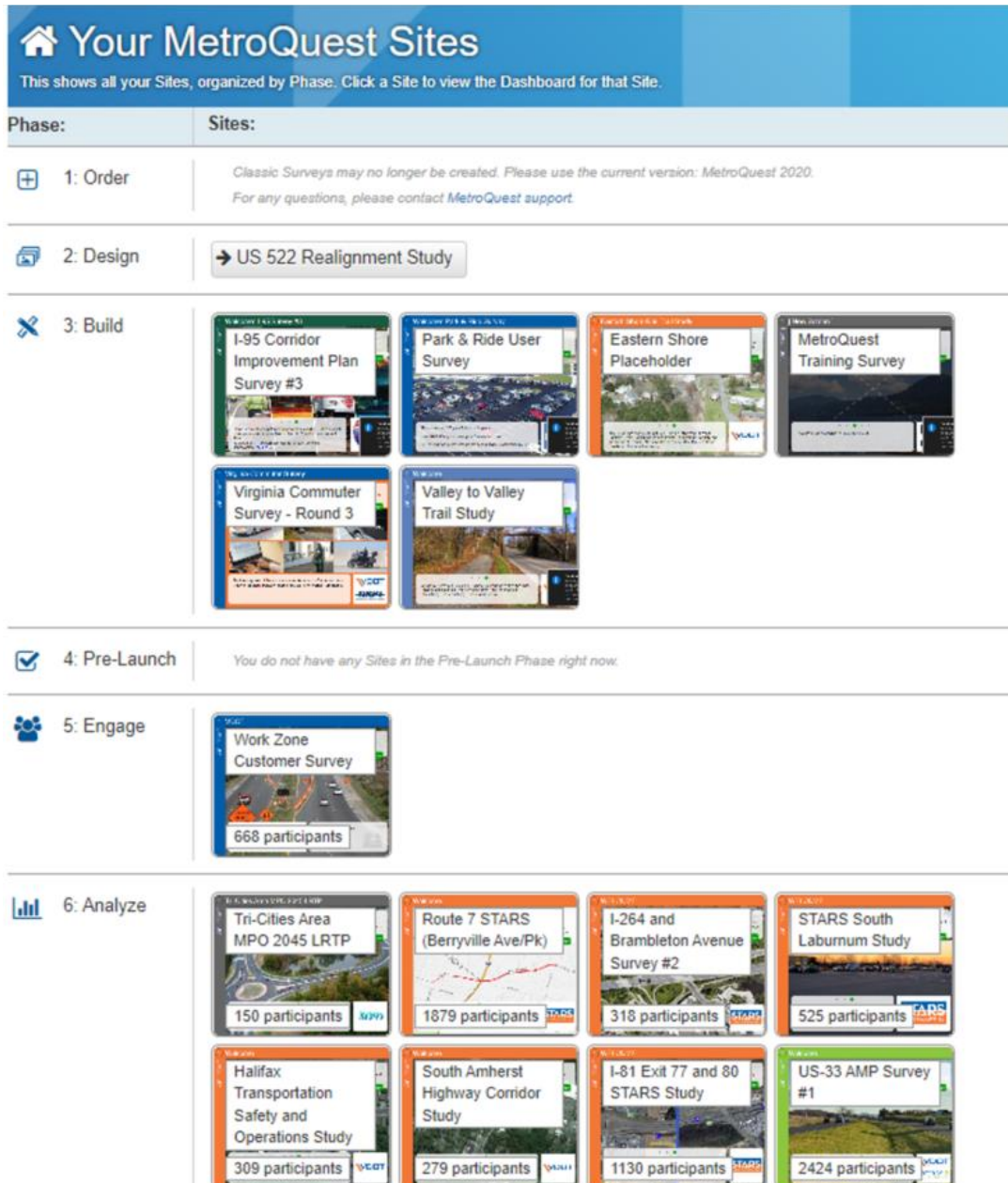


Figure 4. Example of VDOT’s MetroQuest Studio Site

To analyze project-specific data, each unique survey in the “analyze” phase was accessed and the data were downloaded into an Excel spreadsheet. Because of formatting issues concerning the Excel spreadsheet, a conversion had to be performed for each survey where the Excel file was converted to a comma-delimited (CSV) file and then re-converted back to an Excel file. This conversion process allowed for the filtering and sorting of the data.

Once the file conversions for each survey were completed, the first step of analyzing the data obtained from the participants (information from the Wrap Up page of the surveys) was to sift manually through the various fields of each survey. Each survey was crafted differently to meet the needs of the project for which it was commissioned, and the analysis of the shared data was therefore a relatively manual one. Although some fields are held in common, many appear in very few surveys. A list of frequently used fields was created to guide the analysis of the dataset. The second step was to extract the raw column data from each of the files. The data were pulled by the column from their various positions in each response sheet and placed in labeled columns on landing sheets. Since participant data obtained in the MetroQuest Wrap Up tab are input by hand and optional, answers may be out of specification. Through sorting and manual review of common fields, the readability of the data was improved.

RESULTS

Literature Review

Public engagement helps built trust between agencies and communities. Holley (2016) suggested that with increased levels of engagement, residents realize their potential to change circumstances on a larger regional stage. In addition, the public is more likely to support and take ownership of a plan or project when given time and the opportunity to review information, share ideas and concerns, and observe results based on input (FDOT, 2021a). However, inclusive public engagement has always been a challenge for DOTs and other agencies, specifically, challenges relating to equitable outreach from the organizations conducting engagement activities and participation from traditionally underserved communities. Grover and Robbins (2020) defined traditionally underserved communities as minority and low-income groups who have historically experienced barriers to participation; those who may experience barriers because of cultural, linguistic, social, and/or economic differences; individuals whose needs are typically not fully met by the existing transportation system; and groups or individuals who may not be fully engaged in the decision-making process.

With respect to in-person meetings, Zimmerman (2019) cited common reasons hindering community participation in the public engagement process, which included the following:

- lack of knowledge of the political system
- previous negative community engagement experience
- economic barriers; needing to focus on basic needs of self and family
- not seeing one’s own culture or identity reflected in meeting format or content
- fear of being judged, and feeling emotionally unsafe or unwelcome
- transportation barriers
- childcare needs

- spiritual beliefs and practices
- immigration status
- meeting time or date does not consider work schedules, religious holidays, mealtimes, or other family needs
- historical patterns of municipal decisions do not reflect community input, broken promises made by political candidates, or both, resulting in reinforced distrust of government and institutions.

Holley (2016) noted that diverse populations are not typically represented in the public engagement process and only the “usual suspects” attended meetings. In some instances, board appointees and elected officials often appoint community members to engagement activities who have their own particular agenda. In addition, planning initiatives are often found to be too technical for residents to understand, leaving people unclear about how to engage in community decision-making.

To help with addressing public engagement challenges, DOTs are required to have public engagement plans that outline federal and state laws and regulations on public involvement and guidance for engagement strategies to support the laws and regulations. As an example, chapter titles and content summaries of each chapter of FDOT’s *Public Involvement Handbook* are shown in Table 1 (FDOT, 2021).

As with most DOT public involvement or engagement plans and manuals, virtual guidance was largely ancillary and primarily focused on promotional and outreach marketing mechanisms for traditional in-person meetings. Since the COVID-19 pandemic temporarily halted traditional in-person public engagement, it brought opportunities to explore full-scale virtual engagement alternatives (not just promotional activities), and the benefits have been well documented.

Table 1. Chapter Titles and Content Summaries of Each Chapter of FDOT’s *Public Involvement Handbook*

Chapter Title	Summary of Chapter Contents
Introduction	Guiding principles and values of public involvement
Requirements for Public Involvement	Federal and state laws on public involvement
Public Involvement During the Decision-Making Process	Guidelines for projects, from planning to maintenance
Identifying the Public	Identifying the audience and being inclusive
Public Involvement Tools and Techniques	Public involvement strategies for engaging people and working with the media
Public Meetings	Minimum standards and recommendations for public meetings
Public Hearings	Minimum standards and recommendations for public hearings
Documentation of Public Involvement Activities	Requirements and recommended practices for recording outreach efforts
Evaluating the Effectiveness of Public Involvement Programs	Ways to determine if you are reaching the right audience and achieving your goals
Maximizing Equity in Transportation	Equity (nondiscrimination) and methods to achieve equitable outcomes for transportation improvements

FDOT = Florida Department of Transportation.

FHWA (2022) suggested that virtual tools and platforms can be made accessible to communities at a substantially lower cost, thus increasing engagement opportunities and promoting higher levels of community communication and collaboration. Read (2014) elaborated:

Social media and online engagement tools provide new opportunities for planners to collect and share information with the community and engage in conversations with community members. Increasingly, these tools and platforms—which can include information gathering with voting tools and surveys, collecting responses on Twitter and Facebook, and hosting interactive Twitter Town Halls and Google Hangouts—are becoming a part of local public engagement strategies, as they offer new forms of interaction with community members, create opportunities to expand the reach of traditional engagement activities, and produce additional data to support planning activities.

Virtual public engagement is not without the same challenges, and DOTs are increasingly attempting to leverage the benefits of virtual platforms to reach and solicit input from traditionally underserved communities. The literature reviewed provided a context for the challenges of virtual engagement, specifically with respect to participation barriers with underserved communities. In addition, the literature provided a context for the institutional challenges that agencies are struggling with and potential solutions.

Virtual Participation Barriers

Equitable community engagement is even more critical now because of the COVID 19 pandemic disproportionately affecting underserved communities. Shifting to a new form of technology for communication and engagement requires organizations to ensure their audience has compatible devices to use to be able to participate (Strong, Prosperous, and Resilient Communities Challenge [SPARCC], 2021). However, access to virtual public meetings and events may be harder for some and impossible for others based on one or more of the following characteristics (FDOT, 2020):

- internet availability
- internet quality
- interest in the internet
- technical proficiency
- income (e.g., internet affordability)
- culture (e.g., technology restrictions)
- physical abilities
- English proficiency
- literacy level.

Although virtual platforms have made it easier to participate in engagement activities, not everyone is able to log in to the meetings in real time or participate in surveys because of the lack of broadband, affordability issues, or the lack of familiarity with technology (Wrabel, 2021). The U.S. Census Bureau's American Community Survey (ACS) (U.S Census Bureau, 2020) reports household internet access by the following categories (FDOT, 2020): households with broadband, households with dial-up, households with cellular data, households with satellite data, and households with no internet access. Based on the data, 1 in 7 households have no internet access and 1 in 3 households with an income below \$20,000 have no internet access.

Vogels (2021) corroborated this finding that Americans with lower incomes have lower levels of technology adoption by comparing income levels with possession of smartphones, desktop or laptop computers, home broadband, tablet computers, or all of the above. The findings are shown in Table 2 and indicate a broad gap in technology adoption between those making less and those making more than \$30,000 per year. In addition, McClain (2021) found that roughly one-third of broadband users and smartphone owners in households with lower incomes have had trouble paying for the services during the pandemic.

A popular term to describe technological barriers is “the digital divide.” The term refers to a population’s limited access to communications tools, such as computers and smartphones, connectivity to the internet, and the capacity to access and navigate virtual services and technologies comfortably. For example, Goldman et al. (2021) stated that “some population groups, such as older adults or low-income communities, have less experience with and access to communication technology tools than younger, more affluent populations. Not only is it more challenging for this group to participate in virtual activities, but they also have less experience using these tools, making virtual engagement unfamiliar and possibly uncomfortable.”

Table 2. Income Level and Percentage of Adults Who Have Acquired Each Technology

Technology	Less Than \$30K	\$30K-\$99,999K	\$100K or More
Smartphone	76%	87%	97%
Desktop/laptop computer	59%	84%	92%
Home broadband	57%	83%	93%
Tablet computer	41%	53%	68%
All of the above	23%	42%	63%

Institutional Barriers

It is not only the public that may face virtual engagement challenges but also the organizations that host virtual activities whether they are meetings or surveys through public involvement platforms or social media that seek public input on transportation projects. Kramer and Tremblay (2019) suggested that social media remains a “murky” field of communication because of the need for responsiveness and the need for clear usage policies and staff training. Salerno et al. (2019) elaborated that constant vigilance is needed whereby someone from the organization needs to be available to provide immediate responses to messages. The authors reported that of the 43 DOT respondents to a survey, 32 (74%) had formal social media policies in place and 11 (26%) were currently without a social media policy or procedure.

The Texas DOT (2020) recently completed a survey to district and division staff attempting to gauge the challenges and success of their virtual public engagement efforts. Most survey participants thought that the lack of in-person interaction was the main challenge to the virtual process. They cited the inability of participants to receive quick answers to their questions, lack of back-and-forth conversations, and lack of face-to-face interactions with the community. Other concerns included the following:

- technology challenges such as network issues
- exclusion of underserved communities, specifically limited English proficiency (LEP) and environmental justice (EJ) communities
- restrictive virtual formats underscoring a need for more creative virtual technology and designs
- staff knowledge and comfort with technology
- improvement in outreach.

Goldman et al. (2021) added that the challenges of virtual public engagement may also include software acquisition and management, public access to internet and technology, ensuring of accessibility, and securing of needed staffing or other required resources. Salerno et al. (2019) suggested that staff inexperience and budget constraints limit virtual engagement implementations. Wrabel (2021) reported from an interview with an Albemarle County [Virginia] official that there is an indirect cost associated with hosting virtual meetings and events where there is a diversion of staff to handle virtual engagement activities that was not needed before the pandemic.

Depending on whether or not an agency uses contract services, staff diversion can involve creating virtual engagement materials, handling of technology for virtual live meetings, responding to social media comments and messages, analyzing and configuring outreach mechanisms based on demographic analyses, and translating materials. For translation of materials, the Minnesota DOT's Language Assistance Plan (Minnesota DOT, 2021) recommends that offices and districts offer language assistance with bilingual staff. The factors used to determine whether or not bilingual staff are sufficiently qualified included the following:

- “Ability to communicate information accurately in English and the requested language, and identify and employ the appropriate interpretation mode (e.g., consecutive, simultaneous, summarization, or sight translation).”
- “Knowledge in both languages of any specialized terms or concepts related to the office’s or district’s work.”
- “General comfort level with the role of providing interpretation or translation services. Supervisors should ensure bilingual staff is willing and able to provide language assistance prior to referring any requests for assistance. Supervisors should not mandate that bilingual staff provide language assistance if they are not comfortable performing that role. In any instance where communication with an LEP individual involves information critical to accessing program benefits, services, or rights, offices and districts should make every effort to use a certified interpreter or translator via the Office of Equity and Diversity rather than bilingual staff. Bilingual staff should not translate vital documents and should only provide written translation

services in a customer service capacity (i.e. emails and other informal written communication).”

Engagement and Outreach Opportunities

Even with the various public participation and institutional barriers that exist with virtual engagement, opportunities also exist specifically in the area of outreach including using demographic data and measuring virtual engagement effectiveness.

Using Social Media

Social media has played an integral role in virtual public engagement through advertising upcoming community meetings or events; providing timely information and resources about transportation plans and projects; and for transportation agencies, soliciting input, monitoring impact, and collecting reactions about upcoming or existing transportation plans and projects (AASHTO, 2018). The Alaska Department of Transportation and Public Facilities found that using social media is often the most effective way to reach the public, and they use a combination of social media platforms, including Facebook, Twitter, YouTube, Vimeo, and Instagram. Within social media platforms, they found using video to be particularly effective; any social media post that includes a video receives many more views (FHWA, 2021b). Similarly, the North Central Texas Council of Governments had a 25% higher engagement rate when using social media with a “human tone,” i.e., more personable and conversational and with fun, light-hearted content (AASHTO, 2018). In terms of making social media more accessible, Goldman et al. (2021) suggested the following for Twitter, Facebook, and Instagram:

- Add captions to photos to ensure that individuals understand what is occurring in the pictures.
- When including acronyms, always spell out the first instance of the acronym and add the acronym in parentheses after.
- Videos uploaded directly to Facebook should include closed captioning. For Twitter, there are several tips that users can employ when looking to make their account more accessible. Users can enable the setting on Twitter to use the “image description” feature. This will allow users to include a descriptive caption to any photo that is directly included within a tweet. Additionally, ensure that linked content is accessible, such as a tagged photo, captioned video, or audio with a written transcript. Currently, Instagram does not include settings that enable alternative text, so users should provide a detailed caption to describe the posted image. Similarly, Instagram does not currently include the ability to add closed captioning to videos, so users should provide a detailed caption that describes what is happening in the video or add closed captioning within the video file before it is uploaded to Instagram.
- Create Accessible PDF and Word Documents. Accessibility standards require electronic document accessibility for everyone, including individuals with disabilities. Users should assign the appropriate styles and formatting. For example, the documents title should be formatted as “Title” and the primary header for that page should be “Header 1.” This ensures that page readers are able to read through the document accurately. It is recommended that users employ an accessibility check to ensure that there are no web accessibility problems. Both Word and Adobe Acrobat enable users to run accessibility checks on documents within the platform.

The North Central Texas Council of Governments invested in paid advertising on Facebook that linked to a transportation planning survey (Mobility 2045) that targeted EJ communities, specifically African-Americans and Latinos, and included ads in Spanish that targeted persons of Hispanic origin. Based on analytic data, Facebook ads in Spanish that targeted the Hispanic community had a higher response rate than other social media platforms where for those that responded to the survey in Spanish, 90% were directed from Facebook advertising, showing that the advertising did help push a higher response (AASHTO, 2018). Alluri et al. (2018) suggested using innovative technology-based tools and strategies to involve low literacy and LEP populations by using “morphs” to show how corridors changes appear, educational videos, and easily accessible websites—all of which can be promoted through social media.

To complete the feedback loop, if comments are solicited on Facebook and Twitter, outcomes should be shared on Facebook and Twitter. Read (2014) noted: “This helps ensure that you are building a quality presence on the outreach platforms that you are using and helps to ensure that community members who participated are able to see the results of their engagement with the process, which is important to building continued engagement.”

Denker and Kanter (2021) emphasized that even though public engagement practices have become more robust over the years, with more focus on reaching socioeconomically and racially marginalized group, the Covid-19 pandemic forced planners to reevaluate and reimagine public engagement. Improvement in outreach efforts by the Texas DOT (2020) have included more efficient and widespread use of social media. Alluri et al. (2018) concluded that there are many communication tools that could be used to communicate effectively and efficiently. However, the main concern was not the availability of the communication technologies, but their unfamiliarity. In addition, there was not a single communication medium, or set of media, that was suited to all underrepresented population groups. Different types of communication technologies were found to be suitable to assist different underrepresented population groups.

To this end, means to access social media applications is important when outreach initiatives are considered. Perrin (2021) reported that as of 2021, there was less of a gap with smartphone ownership than broadband adoption across all categories of race, age, education, and income. Denker and Kanter (2021) suggested that smartphones have become a critical tool for public engagement, especially in neighborhoods where home internet access is scarce. The authors referred to a 2019 survey of Westchester Bee Line bus passengers, which found that more than 80% of riders owned a smartphone, including those with lower incomes (45% of riders made less than \$25,000 per year).

Text Messaging

Not only can social media applications and engagement websites or platforms be accessed by smartphones, smartphones offer the ability to increase outreach through text messaging. FHWA (2022b) concluded that text messaging is an effective virtual engagement technique while also providing more options for community members that may not have internet access at home or who are more comfortable with a text messaging format. The North Carolina

and Georgia DOTs have reported success using texts as part of their outreach initiatives to communities with low broadband access.

Outreach Targeting Underserved Groups

Outreach efforts to underserved populations require extra effort. Three overarching themes to successful efforts include (1) know your community by working with local officials, religious leaders, and community organizers; (2) advertise early; and (3) use multiple methods to get the word out, including “snail mail,” email, social media, project websites, portable message signs, and flyers posted at frequently visited locations (grocery stores, gas stations, libraries, etc.) (FHWA, 2021c). Public participation plans typically provide guidance for outreach to underrepresented or underserved communities, and there are many methods used by transportation planners to increase engagement opportunities for these groups. For example, the Memphis MPO strives to lighten engagement obstacles by making public engagement involvement as accessible as possible. Some examples of techniques and efforts in their public participation plan include the following (Memphis MPO, 2020):

- outreach to historically disenfranchised communities by sending documents to area libraries for public review
- informational posters placed in libraries, community centers, or public buildings
- media releases (radio and newspaper)
- public notices in *La Prensa Latina* (Spanish language newspaper) and *The New Tri-State Defender* (Black / African American newspaper)
- regular information updates on social media: Facebook (@MemphisMPO), Twitter (@MemphisMPO), and YouTube (/memphismpo)
- flyers and posters for public meetings printed in Spanish
- distribution of flyers and posters for public meetings to senior centers, including several with high minority populations
- plans and documents provided online and in accessible formats when requested and executive summaries for major documents provided in Spanish online
- web translation service provided for the Memphis MPO website
- telephone translation services provided by the City of Memphis and the Shelby County Government
- invitations to representatives of organizations that represent communities of color, people with disabilities, and seniors to attend meetings and appropriate workshops
- provision of foreign language and American Sign Language translators at public meetings when appropriate
- interactive polling at public meetings
- paper and online surveys, made available in English and Spanish
- informational videos, made available in English and Spanish
- narrated versions of public presentations published on YouTube
- presentations from local, state, and national conferences shared online on the MPO’s media center webpage
- online and paper mapping exercises.

Acknowledging that outreach efforts relying completely on technology do not serve everyone, the Oklahoma DOT (FHWA, 2021d) used a multi-pronged approach in their efforts to engage underrepresented populations. Multi-page pamphlets were developed to be sent via the U.S. Postal Service’s Every Door Direct Mail to postal routes within affected project communities before virtual events went live. Traditionally, the Every Door Direct Mail tool is

used to send postcards, menus, and flyers, allowing outreach targeting using U.S. Census data to filter by age, income, household size, etc. The motivation for sending pamphlets instead of postcards is to ensure that more detailed project information is being shared with affected communities; postcards provided only meeting information. Included in the pamphlets are self-addressed stamped envelopes, telephone numbers, and email addresses, allowing the recipients to provide feedback, leave comments, or ask questions. This effort has led to a significant increase in public responses not only with the virtual open house websites but also with telephone calls, emails, and letters.

Read (2014) concluded that social media platforms and online engagement tools provide the most benefit when they are combined with traditional outreach strategies. Online engagement tools and social media platforms, combined with traditional outreach, can broaden outreach and engage community members in new ways.

Using Census Data to Identify Underserved Groups

According to Aimen and Morris (2012), there are key differences within communities and social groups that must be understood and for which a “one-size-fits-all” mentality will be ineffective. Agency practitioners need to gain a better understanding of the communities they are trying to engage before committing resources to public involvement approaches and a public involvement plan. One of the main steps in involving traditionally underserved populations is to identify and locate those populations. This includes determining the characteristics of the affected area, such as neighborhood boundaries, locations of residences and businesses, demographic information, economic data, social history of communities, and land use plans (Grant et al., 2018). The documentation of community characteristics is supported by the information collected from a variety of data sources, including the U.S. Census Bureau.

When identifying populations for analyses using U.S. Census Bureau data, Twaddell and Zgoba (2020) suggested using the ACS for more current data, which include data on limited English-speaking households, household income, and racial and ethnic populations. FDOT (2021) emphasized that if data from the U.S. Census Bureau are used, whether from the decennial census or the ACS, the most useful geography to use is the block group level, as most of the demographic and socioeconomic information is available at this level. VDOT (2015) suggested that data based on census tracts should be used for larger project areas (e.g., corridor level projects). For smaller project areas (such as intersection improvements), data based on smaller census blocks are more appropriate.

Developing a study area profile is an important step with respect to targeted outreach efforts, and Brown et al. (2019) recommended that district level community profiles be created to help identify communities affected by transportation projects. The Memphis MPO (2020) recently expanded its sociodemographic analysis of the region to provide staff with an improved ability to target outreach to specific communities and ensure that all members of the public are included in the transportation planning process. In an effort to identify the location and concentration of communities protected under Title VI of the Civil Rights Act of 1964 (hereinafter “Title VI”) and other nondiscriminatory regulations, the maps shown in Figure 5 were created to display census block groups/tracts that exceeded the regional average of the

following groups: racial and ethnic minorities, LEP, aged 65 and older (seniors), poverty / low-income households, persons with disabilities, persons without vehicle access, and persons without internet access. Based on their analysis of the metropolitan planning area, the Memphis MPO found the following:

- The minority population accounts for approximately 58.0% of the total population.
- Approximately 8.6% of the population are considered LEP individuals.
- Approximately 12.3% of the population is at least 65 years old or older.
- Approximately 16.7% of the households have a household income that is below the poverty line.
- Approximately 12.4% of the total civilian non-institutionalized population have at least one of the disabilities included in the U.S. Department of Health and Human Services definition of people with disabilities.
- Approximately 7.9% of the households do not have access to a personal vehicle.
- Approximately 22.8% of the households within the metropolitan planning area do not have internet access.



Figure 5. Memphis MPO Census Block Groups/Tracts That Exceed the Regional Average of the Following Groups: (a) racial and ethnic minorities; (b) limited English proficiency; (c) aged 65 and older; (d) poverty / low-income households; (e) persons with disabilities; (f) persons without vehicle access; (g) persons without internet access. Reprinted with permission from Memphis MPO.

Measuring Effectiveness

As Read (2014) suggested, collecting information (data) from public engagement activities is only part of the process. What one does with the data is a critical component of measuring the effectiveness of the engagement process. Read stated: “The use of social media and online engagement platforms has the potential to produce a lot of data, whether in the forms of votes on community preferences, survey results, Facebook comments, or exchanges on Twitter, among others, so it is important to have a strategy and staff capacity in place to manage and analyze this information to ensure that it is used in a meaningful way.” Brown et al. (2019) postulated that a successful engagement evaluation would measure the following:

- quantity or total number of participants
- range of diverse communities that participated

- quality of how input was collected and whether a variety of methods were used (online, public meetings, surveys, focus groups, etc.)
- quality of information collected and used in making public decisions
- extent to which public input influenced decisions and implementation.

Twaddell and Zgoba (2020) indicated two specific data collection categories to measure the effectiveness of outreach and engagement efforts: (1) *outreach*, i.e., number and distribution diversity of emails, social media posts, and snail-mail postcards or newsletters; number and diversity of media releases; and number and location of posted flyers; and (2) *engagement*, i.e., number and diversity of participants engaged (home and work zip codes, household demographics, etc.) compared to regional demographic characteristics; participant evaluations of workshops, surveys, or focus groups; and number and diversity of persons engaging in multiple ways.

Denker et al. (2021) suggested that measuring the impact of community engagement be built directly into a project. Though this assessment is likely to happen a year or more after the project is over, it would strengthen projects and their impact by looping participants back in after the conclusion of the engagement process. Rather than impact being measured later, community engagement targets could be set during the project itself, such as achieving adequate representation (a target proportion) from different subgeographies or demographic groups. An example of this in practice is the North Dakota DOT’s public engagement summary (North Dakota DOT, 2021) where the distribution of survey responses is regularly monitored by age, ethnicity, and geographic location to ensure responses are representative of all groups. The DOT adjusted their survey distribution processes to fill gaps in the network of respondents, including the development and distribution of a Spanish-language survey and the use of targeted or boosted social media posts in specific area codes that have lower response rates.

Collecting demographic information is essential to measuring the impact of public engagement, specifically with respect to outreach to underrepresented populations. Title VI requires each federal agency to ensure that “no person on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” Collecting demographic information is necessary to ensure Title VI compliance at public hearings; however, providing this information is voluntary. For PIMs or other public engagement events where DOTs are in the early phases of project decision-making, collecting demographic information is not required, although many DOTs do attempt to collect some demographic information from participants. In conjunction with identifying study area demographics, Grant et al. (2018) suggested that the types of data agencies should collect include the following:

- ethnicity
- race
- age
- gender
- income
- education
- employment
- disability
- Indian tribal governments, as appropriate.

FDOT (2021) suggested including questions about home ownership and occupancy, primary language spoken at home, and vehicle availability. The Iowa DOT (2021) includes questions about military service (i.e., veteran) and receipt of public assistance. The Ohio DOT studies (Annarino, 2022) included questions about translation (e.g., whether project information was translated into other languages appropriately), age ranges of those living in the household, and education level of members of the household.

Brown et al. (2019) developed an online survey for use by transportation agencies to evaluate and measure their effectiveness with public engagement activities. Included in the survey were the following six indicators of effective public involvement:

1. *Influence and impact.* The objective of this indicator is to measure the extent to which public feedback has an impact on the project decisions and ensure that agencies are not just eliciting feedback from the public as part of a “checklist.”
2. *Transparency and clarity.* The objective of this indicator is to measure whether trust of government agencies has increased or improved as a result of the public involvement processes and whether agencies were appropriately transparent about the project.
3. *Timing.* The objective of this indicator is to evaluate whether public involvement started early enough and was of sufficient length and frequency to be valuable.
4. *Inclusion.* The objective of this indicator is to measure the extent to which the public involvement was inclusive and representative of all targeted and affected populations.
5. *Targeted engagement.* The objective of this indicator is to measure the extent to which the public involvement included locations relevant to the targeted and affected population questions.
6. *Accessibility.* The objective of this indicator is to measure the extent to which the public involvement activities used multiple methods for participation.

Future of Public Engagement

Denker and Kanter (2021) noted that the pandemic has necessitated responsive, flexible, and innovative approaches of engaging with communities. The accommodating aspects of online tools, especially for those with physical or mobility limitations, ensure that virtual components of public engagement are here to stay. However, the authors noted that “there is a richness and depth that occurs when people are in the same physical space. It yields insights, clarifications, and connections in a way that cannot be achieved virtually.” Further, “the character of online meetings, Zoom fatigue, and the digital divide are what cause many planners and public engagement staff to yearn for a return to in-person gatherings.”

Although several communication tools, including social media, virtual meetings, email, and mass text messaging applications, are considered to increase public participation (Alluri et al., 2018), they are not intended to replace in-person public involvement opportunities completely, which remain an important part of a balanced public involvement approach (FHWA, 2020). As such, Alluri et al. (2018) suggested that the most effective engagement strategy moving forward is a multi-pronged approach involving both digital engagement and traditional in-person meetings.

The term “hybrid” is consistently noted by agencies and organizations as the future of public engagement (Denker and Kanter, 2021), and intentions are to pursue hybrid meetings as a tool to offer greater flexibility for potential participants (Goldman et al., 2021). However, there may be additional costs associated with hybrid events since they will require more resources including additional hardware and staff to manage meetings appropriately. In the case of survey-based online public engagement (such as that offered by MetroQuest, PublicInput.com, Bang the Table, etc.), the staff time and costs required to advertise, develop, and conduct the surveys and analyze the results will essentially be added on top of staff and costs to hold in-person PIMs. As Denker et al. (2021) noted, there is a balance because using only virtual engagement techniques comes at the cost of losing the benefits of in-person engagement such as networking, human connection, and the flexibility of one-on-one conversations. As such, the authors recommended hosting parallel tracts of meetings or events, virtual and in-person, and offering call-in options. For outreach and communication mechanisms to spread the word about the engagement events, the authors recommended sustaining traditional communication tools such as telephone calls, mail, flyers, etc., to bridge the digital divide.

Forthcoming Literature Resources

Two National Cooperative Highway Research Program (NCHRP) projects are forthcoming. One project, NCHRP 08-142 (TRB, 2021), is considered “active” and is titled *A Manual for Effective, Equitable, and Efficient Practices for Transportation Agencies*. The stated goals of the research are (1) to evaluate the recent experience of transportation agencies in using virtual public involvement with a particular focus on equity; and (2) to develop a manual for selecting, creating, and using virtual public involvement tools and techniques for each phase of the transportation decision-making process. In addition, the manual will describe how to do the following:

- Identify and address needs and preferences of specific population groups to reduce potential disparities and promote equitable engagement.
- Select, create, and use virtual public involvement tools and techniques.
- Integrate virtual and in-person public involvement.
- Identify and address staffing and other resource needs for adopting and implementing virtual public involvement tools and techniques.
- Obtain quality input from virtual public involvement.
- Integrate input from virtual public involvement into decision-making.

NCHRP Project 08-161 (TRB, 2022) is considered “pending”; if it is selected for funding, a manual will be developed to assist practitioners with identifying emerging approaches for public engagement to involve minorities, low-income, and other vulnerable populations. In addition, the manual will address institutional and practical barriers and include appropriate instruction on the design and execution of public engagement processes and methods that will lead to meaningful public engagement in transportation decision-making.

Surveys of Other State DOTs, VDOT Districts, and Virginia MPOs

Survey of Other State DOTs

Surveys were sent to 49 state DOTs (VDOT excluded), and Table 3 shows the 23 DOTs that responded to the questions, for a response rate of 46%. Although a response was received from the Louisiana DOT, the respondent did not answer the questions asked but did provide an overview of their advertising and comment process for their Highway Priority Program legislative public hearings. In addition, the respondent discussed their use of virtual engagement (live meetings, open houses, online surveys, website to make comments, etc.) in the development of their statewide long-range plan. Of note is that representatives from their planning and environmental sections are going to participate in an upcoming peer exchange on using virtual public involvement as part of communication, outreach, and consultation for tribal governments. After that peer exchange, Louisiana DOT staff expect to have a better understanding of using virtual engagement during the transportation planning and project development process.

The state DOT survey results are organized into the following topic areas: (1) collecting demographic information; (2) offering second languages of virtual engagement material; (3) advertising virtual engagement initiatives; (4) conducting outreach initiatives for underserved communities; and (5) performing analyses of virtual engagement data. Also included are additional thoughts from DOTs providing perspectives on experiences with virtual engagement and participation from underserved communities.

Table 3. State DOTs Participating in the Survey

Alabama
Florida
Iowa
Kansas
Louisiana
Maine
Maryland
Massachusetts
Minnesota
Montana
Nevada
New Hampshire
North Dakota
Ohio
Oregon
Rhode Island
South Carolina
South Dakota
Texas
Utah
Vermont
West Virginia
Wisconsin

Collecting Demographic Information

As Figure 6 shows, about one-half of the respondents collect demographic information. Three DOTs indicated that although they do not yet collect demographic information, they plan to do so in the future. The Texas DOT responded that they sometimes collect demographic information, depending on the project, and that when they do online engagement in particular, “sometimes we ask high-level demographic questions, but we do make it optional.” The Kansas DOT indicated that they occasionally gather information about geography, professional background of participants, and age range of participants and that “this information is often used at the summary level to draw general conclusions about the audience during a virtual event.”

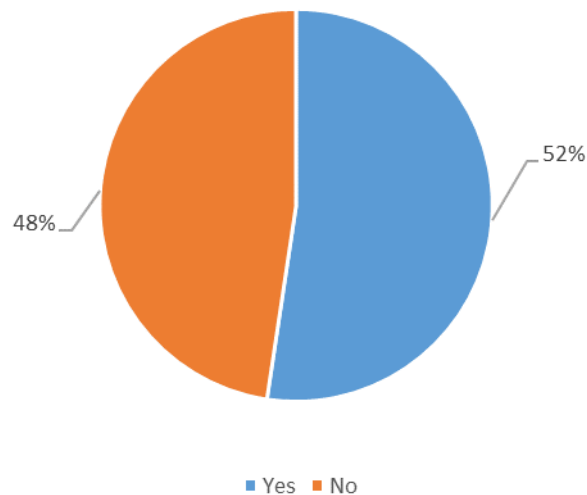


Figure 6. Percentage of DOT Survey Respondents That Indicated Collecting Demographic Information

Types of Demographic Information Collected. Figure 7 shows the demographic information that is typically collected through virtual engagement activities. The demographics of age, race, and gender are the most commonly collected. Responses for the “other” category included the following:

- primary language
- other people living in household
- zip code
- residency status (full or part time)
- public assistance recipient
- professional background (i.e., transportation professional, elected official, multimodal advocate)
- age of children in household.

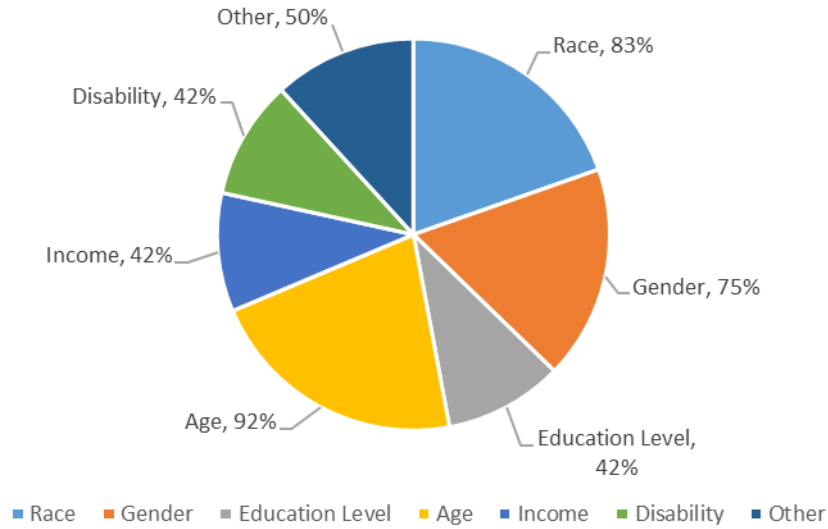


Figure 7. Types of Demographic Information Collected as Indicated by DOT Survey Respondents

The Maine DOT indicated that they currently do not collect demographic data but offered a couple of demographic areas of additional interest for when they do collect these data: location of birth and stakeholder type (i.e., if a property owner, business owner, elected official, etc.). A few respondents provided other questions that were not specific to demographics but they included them with their demographic questions, specifically, how to improve the inclusiveness of public outreach efforts and how the participant heard about the virtual engagement event. Some DOTs have asked for telephone numbers and email addresses for the purpose of closing the feedback loop and sharing the engagement results with the participants.

The New Hampshire DOT indicated conducting several hybrid meetings (virtual and in-person engagement) over the last couple of years. For the in-person meetings, they do not collect data but rather assess the composition of the attendees by general categories of gender, range in age, and if any apparent disabilities. The DOT acknowledged that this is very subjective. For virtual meetings, they also assess the composition of attendees by race, gender, and age, which was also acknowledged as being subjective. A recent MetroQuest survey that the DOT administered included demographic questions, and these are included in the results shown in Figure 7.

Purpose of Collecting Demographic Data. The key takeaway from respondents was that the purpose of collecting demographic data was to ensure outreach efforts are appropriate, ensure fairness and equity, have the ability to analyze which groups are underrepresented, and ensure the public engagement activity is meeting the needs of all persons without discrimination. One DOT indicated that a top goal is citizen involvement and that timely and accurate data collection allow for better decision-making by the agency. Another DOT added that evaluating ethnicity helps to determine if there is a need to provide additional translation services or materials. Some DOTs cited Title VI reporting requirements related to the assessment of community participation.

Offering Second Languages of Virtual Engagement Material

As Figure 8 shows, approximately three-fourths of the respondents offered second language versions of their virtual engagement material. Some DOTs provided second language material only upon request and when translation of vital documents was required, whereas others provided second language material depending on the demographics. For example, the Texas DOT always provides Spanish versions of engagement material for El Paso and other districts that border Mexico.

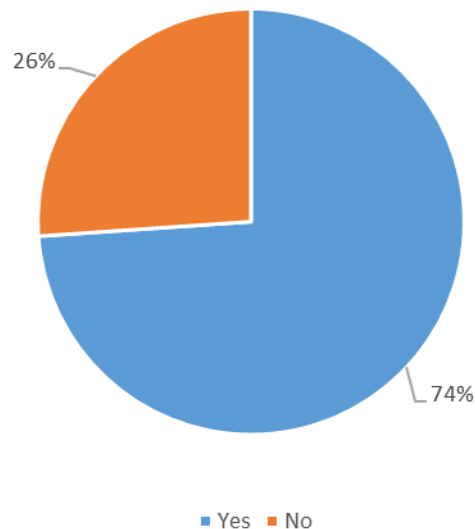


Figure 8. Percentage of DOT Survey Respondents That Offer Second Language Versions of Virtual Public Engagement Material

Procedures for Determining Additional Language Resources. The majority of the DOT respondents indicated using U.S. Census Bureau demographic tools prior to engagement to assist with identifying language resource needs, whereas other DOTs are in the process of developing GIS tools to identify LEP populations. The Maryland DOT provided detailed procedures where project team representatives from the Project Management Division, the Environmental Planning Division, and the Public Involvement Section evaluate the need for LEP outreach early in a project or study. As described by the respondent:

The team begins by defining the study area and researching census data using the U.S. Census, American Fact Finder, and EJ (Environmental Justice) Screen to show what languages are spoken within a given boundary by percentage. Once a general knowledge of languages within the study area is obtained, then the data is broken down to a more detailed level (census block or census block group) to pinpoint any areas where the percentage of a language spoken is significantly higher than that of the general study area. LEP research cannot only be quantitative and must include qualitative research as well in order to get a true description of a study area.

In some cases, a small concentration of LEP persons within a study area may provide a more accurate indicator of the need for outreach, while in others, representatives of an LEP community may be based in a distinct location, with the rest of the group dispersed throughout the state. Both cases may warrant further study and outreach depending on the nature of the project and study area. Census data can help identify socioeconomic characteristics, but it is important to talk to

people within a community to truly understand it. Other more qualitative or subjective ways of identifying LEP populations within a study area are:

- Attach a postcard survey to a project initiation newsletter and/or include an online survey link with questions asking about other languages spoken.
- Interview key stakeholders (community leaders, city and county planners, small business owners, residents and district and local government representatives).
- Identify local minority newspapers within the area.
- Identify community facilities (e.g., churches, hospitals) where other languages are spoken.
- Identify a recognized leader in the community; establish a relationship and build credibility within that area. The identified leader may help to assist with future LEP efforts and activities.
- Where intensive outreach is expected, extra help may be sought from the leaders in the community. Attend community meetings and speak with the citizens in the area, build relationships with the people.
- Use internet research to gain familiarity about the area (community websites, etc.).
- Contact schools and research school's websites to learn about what other languages are spoken by their students. Regarding contacting schools, with the Riverdale project referenced later in this survey, we used the school Community Resource Advocate, who distributed our translated fliers to the families, including the Hispanic parents, concerning the project. Many schools have these resources to help get the word out.
- Familiarize team members with the project by visiting the study area and talking to people.
- Have an email available for people to contact for translated materials.
- Have a phone number available for people to call for interpreter assistance at meetings.

Table 4, which shows other DOT responses, as received, supports several findings from the literature review. For instance, Grant et al. (2018) emphasized the importance of identifying the geographic locations of underserved populations—a practice espoused by the Texas DOT, as indicated by their use of both U.S. Census data and EPA's Environmental Justice mapping tool. Table 4 also illustrates the contrasting views for determining the needs for additional language resources where the Oregon DOT always provides these if a threshold is met (in this case, 5% of the population) whereas the Wisconsin DOT will provide these only upon request.

Managing Translation of Materials. Figure 9 shows that the majority of DOT respondents use contract services to help with translation of public engagement materials; 12% (three respondents) use in-house staff for translation; and 23% (five respondents) use a combination of in-house and contract services. Three respondents provided more detailed responses:

1. *Florida DOT.* "FDOT has a very diverse workforce, so many of our translation and interpretation services are done in-house. Each District keeps a list of languages spoken by employees."
2. *Wisconsin DOT.* The Wisconsin DOT offered the following:

For the Connect 2050 planning process, WisDOT utilized a combination of statewide translation services contracts and contracted consultant staff to translate materials into Spanish and Hmong, and provide an American Sign Language translator for a webinar.

Table 4. DOT Responses on Procedures for Determining Additional Language Resource Needs

DOT	Response
Florida	In areas of high LEP populations, we notify those populations about projects and opportunity to comment by translating meeting notices, using media specific to those populations.
South Dakota	Census block group information for the area containing the project indicates greater than 50% LEP population.
Ohio	Project team partners with existing networks and local leaders to determine the best outreach methods for a community.
North Dakota	Specify that if you need material in another language or accommodations at meetings, to contact our NDDOT Civil Rights Office.
Iowa	Our Public Involvement Management Application (PIMA) allows people to choose which language they wish to view information in. Developed a GIS based web map that includes a layer with Census data regarding languages other than English in each census tract across the state. Our public engagement staff are trained to reference this information to determine whether there are significant LEP populations in the area targeted by a public outreach campaign. For languages that exceed the safe-harbor threshold, our project managers are instructed to provide meeting materials in these additional languages. Our meeting notices include instructions for members of the public to request language services and we strive to fulfill reasonable requests when they are received.
Wisconsin	The Coordination Document commits that “WisDOT will provide translators, and translate materials into other languages, upon request.”
Oregon	If census data shows us that there is 5% population of people that speak a different language we automatically translate.
Texas	We research the demographics using a variety of tools: U.S. Census American Community Survey <ul style="list-style-type: none"> • https://data.census.gov/cedsci/ • https://www.census.gov/acs/www/data/data-tables-and-tools/narrative-profiles/ • census.gov/quickfacts/ • https://demographics.texas.gov/ • https://ejsscreen.epa.gov/mapper/
Nevada	It’s standard for NDOT to provide a virtual meeting website in both English and Spanish. Demographics provided by our consultants will help determine if we need to simultaneously offer the presentation in Spanish.
Minnesota	We have found some tools (like VideoAsk) that make it easier to have information available in several languages. Our language assistance plan explains the four-factor analysis. That is the federally-prescribed process for making language assistance decisions. The Title VI Coordinator also acts as a resource for helping make these determinations.

Responses are provided as received. LEP = limited English proficiency; NDDOT = North Dakota Department of Transportation; WisDOT = Wisconsin Department of Transportation; NDOT = Nevada Department of Transportation.

We can also rely on translation and interpretation services offered by a department at our state university system. Also, districts/divisions work with their own project consultants who can provide translations as well. We incorporate other strategies to communicate:

- Act it out. Things like car crashes, crossing a bridge, getting on an airplane, potholes, road closures, and ramps can be acted out using your arms and hands. It seems silly but if you have a good attitude about it, it can lead to some great moments of fun and laughter while achieving the goal of the interaction! Though this can effectively get the message across, keep in mind that people have differing levels of comfort. Do your best to gauge the person’s level of comfort, and for the most part, try not to make a scene especially if there are others around. Also, body language is a major form of communication so if you can use it to reinforce what you mean, go for it.

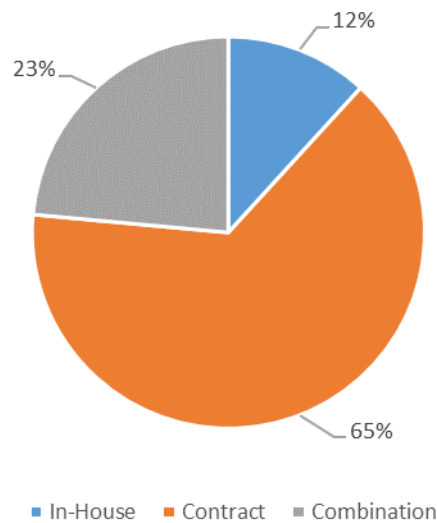


Figure 9. Percentage of DOT Survey Respondents Using In-House and Contract Translation Services

- Write it down. It might be the case that the person can't understand what you're saying but can read the words!
 - Use a translation tool. Hello google translate! While google translate does make mistakes, it can often be enough to get the point across. To improve your chances of accuracy, use simple sentences and questions. If you're communicating with someone over the phone you can click the volume button under the translation and it Google will say it out loud. Use it to translate what you're trying to communicate using simple sentences. If you think there has been miscommunication, you can check the translation by translating the translation back into English.
3. *Minnesota DOT*. "Our office of Equity and Diversity (OED) provides translation services through contracts that are already secured with agencies that provide translation services. There is no cost for MnDOT employees to access these services. Occasionally, employees will hire an external consultant (not through OED office) because they want services faster or through an existing consulting contract they are working on for engagement services."

Advertising Virtual Engagement Initiatives

With regard to advertising virtual engagement initiatives, the most common responses from DOTs included radio, newspapers, social media, department websites, email, and mailed notifications. Some DOTs referred specifically to public hearing advertisements, which must comply with specific laws governing advertising mechanisms including newspaper ads, legal ads, and postcards to businesses, with notices being duplicated on Facebook and Twitter feeds. Similarities do exist with advertising initiatives for public hearings and early engagement PIMs or online public engagement surveys. Since the focus of this study was early project timeline engagement efforts, responses were processed relating to those advertising initiatives. For example, in addition to the common advertising initiatives described here, the Massachusetts DOT shared details of upcoming engagement opportunities with partners such as MPOs and regional planning associations, stakeholders, local advocates, municipal officials, and local

legislators. To help with outreach to minority populations, the Nevada DOT found using social media most helpful; however, they also advertise beyond social media by using geo-targeted ads; posting project materials at local libraries, churches, and recreation centers; setting up booths at local events; conducting community working groups; talking one on one with community leaders; and offering presentations to town advisory boards.

The Maryland and Texas DOTs provided comprehensive responses about advertising virtual engagement activities, and both were similar. The Texas DOT provided the following (the list contains specific tools in a toolbox, and advertising methods are handled differently for different projects and engagement efforts):

- news releases and social media including Facebook, Twitter, and NextDoor
- postcards and letters
- fliers (emailed or provided at key stakeholder locations)
- email blasts (leveraging GovDelivery; people can subscribe to email updates)
- YouTube videos
- display ads
- door hangars
- fact sheets
- billboards
- water bills
- DOT websites
- “piggyback” communications provided by other stakeholders, i.e., county / city / elected official communications
- changeable message boards
- radio public service announcements (targeting specific communities, groups, or stakeholders)
- cable channel ads/messaging
- creative displays (i.e., poster boards with tear-off informational sheets placed in strategic public locations)
- QR codes to key websites / online engagement sites placed on materials for the public to scan.

Conducting Outreach Initiatives for Underserved Communities

Outreach initiatives for underserved communities is something with which all DOTs and transportation planning agencies struggle. As the literature suggests, it is challenging to identify underserved communities, develop and translate material, and develop and execute targeted marketing initiatives. All DOTs have public engagement plans, which provide guidance on outreach mechanisms to underserved populations including those with disabilities and LEP populations. Often, representation from these groups, whether at in-person or online public engagement events, is lacking and typically not representative of the population of the affected project area (Holley, 2016).

Planners and public engagement officials are continually pursuing opportunities to broaden outreach, and the key takeaways from the survey responses are that each of the following is important: (1) a thorough knowledge of the demographics in the project areas (FDOT); (2) use of geo-targeted social media posts (Ohio and Utah DOTs); (3) following of DOT guidance for engaging LEP populations (Massachusetts DOT); (5) partnering with local officials and advocates to assist with outreach (New Hampshire DOT); and (6) grassroots marketing at places of gathering such as schools, community centers, churches, civic centers,

homeowners associations, property managers, hospitals, large employers, grocery stores, etc. (Maryland DOT). The Wisconsin, Texas, Nevada, and Minnesota DOTs provided detailed responses that are included in Table 5. Responses are provided as received.

Performing Analyses of Virtual Public Engagement Data

Responses from most DOTs underscored the need for this study: published studies quantifying the impacts of virtual public engagement are not available, with the possible exception of a white paper emailed to the research team by the Texas DOT (Howard, 2022). However, the collection of anecdotes from DOTs and data provided by several states showed the promise of virtual engagement. Data trends that project managers have shared with FDOT planners have shown that twice as many people attend virtual engagement activities than in-person activities. The South Dakota DOT tracks “hit” numbers for virtual meetings and events, and they are much greater than typical in-person meeting attendance numbers. At a recent statewide transportation improvement plan virtual presentation, the Wyoming DOT saw an increase in attendance of more than 80% compared to previous in-person presentations. The Maine DOT indicated that anecdotally they are finding much more virtual participation and that their “on-demand” virtual meetings will continue to be the primary type of public meeting even after the COVID-19 pandemic is over. The Nevada DOT found that virtual engagement attendance numbers far outweighed in-person attendance numbers but with the caveat that attendance was still low with the LEP community. Table 6 provides more elaborate responses from the North Dakota, Wisconsin, Texas, and Maryland DOTs. Responses are provided as received.

Additional Thoughts or Advice

The last question on the survey provided respondents the opportunity to offer any additional thoughts or advice not previously covered in their answers. Table 7 shows the responses as they were received.

Survey of VDOT Districts

Survey responses were received from each of the nine VDOT districts, and respondents included district planners and public relations managers. A total of 15 survey responses were received because in some cases multiple responses were received from a single district. Table 8 lists the responding districts and the number of responses received from each.

The survey was categorized into three specific topic areas: (1) pre-pandemic in-person engagement, (2) virtual engagement since January 2020, and (3) future of public engagement. In cases where districts had multiple responses, the responses were compared and, if similar, were combined into one response; otherwise, discrepancies in responses were noted.

Table 5. DOT Responses on Outreach Initiatives to Underserved Communities

DOT	Response
Wisconsin	<p>The Connect 2050 planning process found that using social media based targeted ads to expand reach of communications in certain geographic areas, ensuring that community organization and advocates that represent traditionally underserved areas of the state were on our distribution list, and leveraging existing relationships with entities such as Wisconsin’s MPOs and RPCs to disseminate information provided in an online stakeholder toolkit to their constituents and interested parties, were all effective ways of increasing participation from traditionally underserved communities.</p>
Texas	<p>This is a tough one and an issue we are addressing currently through an initiative called “Best Practices for Intentional and Inclusive Public Engagement (BPIIPE)”—a project we just kicked off last month. What we have learned is that finding a trusted community leader is key for reaching these populations—City administrators and elected officials know who makes up their constituency, and in many cases a community will have an elected official who directly represents an underrepresented population. From there, we also talk to community centers, local churches and local schools for assistance in identifying populations and with outreach efforts. Pastors, principals and community center directors know their populations and can assist you in identifying underserved.</p> <p>Two other important sources are your local WIC^a clinics and tribal leaders. Also provide multiple ways to comment beyond just promoting virtual engagement as that is most important; for example, we use a service that provides either a toll-free or local phone number for the public to provide their recorded voicemail comments, which is then transcribed automatically and emailed to us. We’re also finding where you communicate is equally—if not more important—than the how/marketing piece; for example, taking a traditional flier and hanging near bus stops, local markets (i.e. Spanish groceries/churches) or working with social service organizations to spread the news.</p>
Nevada	<p>We have found through analytics and survey data that most people get their news from social media. We rely heavily on geotargeted ads, accompanied by project specific pages, and one-minute videos online that make the project easy to understand. We have found that virtual is not always the best option for underserved communities who may not speak English or perhaps have general distrust of government. NDOT has a massive project coming up that requires the total replacement of freeway through Las Vegas’ downtown. Several streets are proposed to be closed as a result. We got barely any responses in our first round of engagement online. We started a new campaign to raise awareness. First, we set up huge signs on those streets advertising the closures. Then we temporarily closed the streets a week later for a few days. We had representatives at each closure (all Spanish speaking) to explain that their street was proposed to be closed and could take comment then and there. We also had pamphlets explaining the process. As a result, we captured 400 comments and changed our design so that important streets to the community could stay open.</p>
Minnesota	<p>Partner with community-based organizations. By nature of them being community based, they are able to help bridge relationships between the DOT and community members. Also, make engagement fun. We get more responses with fill-in-the-blank activities than traditional surveys. Yet, we receive all the same information.</p> <p>We know that Stairstep Foundation facilitated sessions between MnDOT and HIS Works United to create a collaborative effort to enhance engagement and communication with historically unrepresented and communities of colors. I think all of this work happened online, but some of the meetings may have been hybrid. The sessions helped MnDOT to better understand the role the Black Church plays in serving communities and for the Black Church to understand (in plain language) the policy and guidelines MnDOT is following to deliver the HWY 252/I-94 EIS project. The ultimate goal was to empower communities to have a meaningful voice in transportation decisions. The role of Stairstep Foundation (a trusted community partner that MnDOT compensated) was/is to facilitate an environment where all concerns and issues can be discussed for mutual understanding.</p>

Responses are provided as received. MPO = metropolitan planning organization; RPC = regional planning commission; NDOT = Nevada Department of Transportation; MnDOT = Minnesota Department of Transportation.
^a The Special Supplemental Nutrition Program for Women, Infants, and Children is a federal assistance program of the Food and Nutrition Service of the United States Department of Agriculture for healthcare and nutrition of low-income pregnant women, breastfeeding women, and children under the age of 5.

Table 6. DOT Responses on Virtual Public Engagement Trends

DOT	Response
North Dakota	Our prior LRTP in 2012 only had about 250 weigh in on the plan. For our 2021 Plan, we had close to 1700 people comment even during a pandemic! Although in-person events are not going to disappear, people are living in a virtual environment now and hosting prior meetings online and allowing for comment 24-7 is the way of the future. We used a mix of live and recorded meetings, surveys, animations, interactive slide decks, etc. to engage with our population.
Wisconsin	No specific analyses has been conducted, but the Connect 2050 planning process resulted in over 2,600 comments from all counties of the state, where the previous long-range plan update process conducted in 2009 that relied on traditional public involvement techniques and public meetings resulted in 1,200 comments.
Texas	A few months after Covid hit and we went entirely virtual, we had a consultant prepare the attached white paper [Howard, 2022]. ^a We’ve had about a 30% increase in overall participation by going virtual. Our executive director has provided guidance that we are to consider virtual first, and then in-person if/when needed. We have now moved to at least a hybrid approach (in-person + virtual) with most meetings/hearings moving forward.
Maryland	Yes. We track analytics including page views, unique views, average time on page, entrances, bounce rate and percent exit as well as attendees and comments received. We view public meetings in post-COVID times as both the project website and the actual live event. For virtual meetings that include videos in lieu of or in addition to a presentation we also track views. We create Excel documents and manually track this; we add the numbers of in-person attendance, pre-recorded video presentation views (sometimes unique, sometimes just total views), virtual room views, page views. We also track number of comments for our meetings/hearings. But it’s a manual effort. For some projects consultants manage the virtual participation tools and for others our communications division handles the management of the tools. We use Google Analytics, Vimeo and social media platforms built in analytic tools.

Responses are provided as received. LRTP = long-range transportation plan.

^a Howard, S. Email to L.E. Dougald, March 4, 2022.

Pre-Pandemic In-Person Engagement

Average Number of Meetings per Year. The average number of pre-pandemic in-person engagement activities per year is shown in Figure 10. The majority of the districts (five) typically held fewer than 5 in-person meetings. Three districts held on average between 6 and 10, and one district (Northern Virginia) held more than 10 in-person engagement meetings per year.

Average Number of People Attending In-Person Meetings. Each district was asked to provide an average number of attendees for in-person pre-pandemic meetings or if a range was more appropriate to indicate the range of the average number of attendees. Figure 11 shows the range for each district. All districts provided an average low to high range, and across all districts, the low averaged 10 attendees and the high averaged 40 attendees. The Fredericksburg District indicated that the range can vary widely depending on a project (i.e., a handful for a turn lane / smaller project to dozens for a larger more impactful project).

Table 7. DOT Additional Thoughts or Advice Pertaining to Virtual Public Engagement

DOT	Response
West Virginia	We have had discussions on this subject and realize we too need to do a better job reaching underserved communities. Since April 2020, almost all our public participation has been virtual meetings. We anticipate moving forwards that our public participation will be a mix of virtual and live meetings.
South Dakota	I’ve been told by others to make sure that it is mobile device friendly, most of the underserved [population’s] internet access is via their phone and they don’t have access to a desk or laptop computer with monitor.
Ohio	Some tips for ensuring underserved communities can participate in virtual public involvement include: <ul style="list-style-type: none"> • Select an engagement platform that makes it easy for them to participate (no registration required, no need to create a special account or download an app, ensure they can participate anonymously, provide a call in option) • Use multiple methods to get the word out (post flyers at grocery stores, gas stations, etc.) • Work with local officials, religious leaders, etc. • Materials should be reader friendly and concise • Use a project website that translates information into other languages (if possible) • Use multiple methods for collecting comments (website, voicemail, phone, email, letter, etc.)
Maine	We have greatly increased our engagement through the use of On-Demand Virtual Meetings and are in the process of working on how we can better serve our underserved populations.
Texas	NCHRP Project 08-161 [Pending] will focus on identifying emerging approaches for public engagement to meaningfully involve minorities, low-income, and other vulnerable populations.
Utah	NCHRP 08-142 is currently underway to look at Best Practices for Online Public Involvement. We are all working to better understand how to use virtual tools effectively and are very much on the front end of learning/experimenting. Florida DOT has published some virtual public meeting guidelines, but I am not aware of other DOTs that have already defined standards and/or assessment tools. Please share what you learn, I’d love to be aware of more examples in our industry!
Minnesota	MnDOT is currently piloting the online engagement platform, Bang the Table (renamed to “Let’s Talk Transportation.”) We will analyze participation data through that site since we provide an option for people to register with the site and ask them to provide demographic information (optional). We hope that people choose to provide this demographic information so we can better track who is participating virtually on our project, plans and studies. The site for Let’s Talk Transportation can be found here: talk.dot.state.mn.us
Vermont	Last summer the New England states held a Peer Exchange which had some really interesting content relevant to the Vermont scale and New England context. It was oriented towards DOTs and Regional Planning Commissions / MPOs. Unfortunately it looks like the event recording still is not posted on the FHWA website—otherwise I’d direct you to parts of that! For example, there was a really interesting conversation at one point about how you get word out about events and opportunities—and it was really interesting to hear the broad range of ways people have become creative to get the word out. The one that really sticks in my mind is the idea of advertising some things at the local Waste Transfer Station (where people take their trash and recycling)—for some of the small rural communities they don’t have trash pick up at home so everyone goes there every week or two—so it’s a great opportunity to reach a lot of community members! Another resource I found valuable in the last year was the MassDOT Moving Together Conference. They had a series of sessions on how to engage the public—both virtually and in person. Really interesting and applicable, with good inspiration. Sometimes it was the simple thing like developing relationships with existing local “leaders” in the neighborhood—so if they are involved in developing the project, they can also help bring in more locals in the broader outreach (including virtual)—so the project builds trust with a person who already has trust in the community.
Maryland	Always provide a call-in number for live events and it is always helpful to provide meeting materials virtually beyond the date of the event, or a recording of the meeting.

Responses are provided as received. NCHRP = National Cooperative Highway Research Program; MnDOT = Minnesota Department of Transportation; MPO = metropolitan planning organization; MassDOT = Massachusetts Department of Transportation.

Table 8. Number of Responses Received per District

VDOT District	Number of Responses
Bristol	2
Culpeper	1
Fredericksburg	1
Hampton Roads	3
Lynchburg	3
Northern Virginia	1
Richmond	2
Salem	1
Staunton	1
Total	15

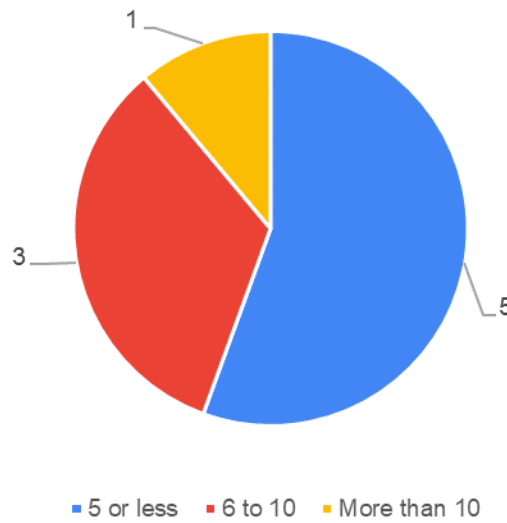


Figure 10. Average Number of Pre-Pandemic In-Person Meetings per Year

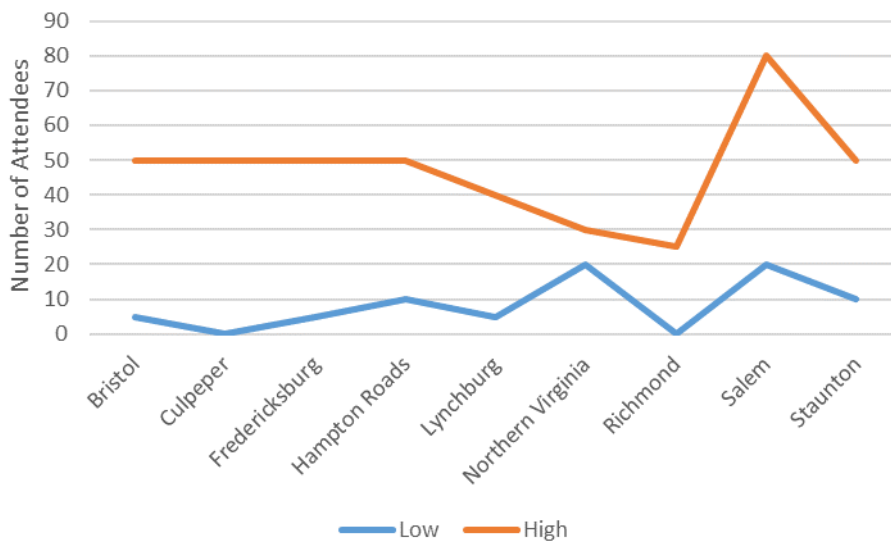


Figure 11. Average Number of Attendees of In-Person Meetings Pre-Pandemic. Orange line = average high number; blue line = average low number.

Demographics. With regard to whether demographic information was collected at in-person public engagement meetings, Figure 12 shows that six districts collected this information, two districts did not, and one district responded “unknown.” Race, gender, and age were the demographics collected most often, and some districts asked for information related to income, disability, education level, zip code, and how participants had heard about the meeting. All districts that collected demographic information cited Title VI and civil rights requirements, and more specifically, the Fredericksburg and Bristol districts indicated that the demographics collected were based on the VDOT Title VI Demographics Survey Form (shown in Appendix B). All districts kept records of in-person meetings including data on attendance, contact information, and comments.

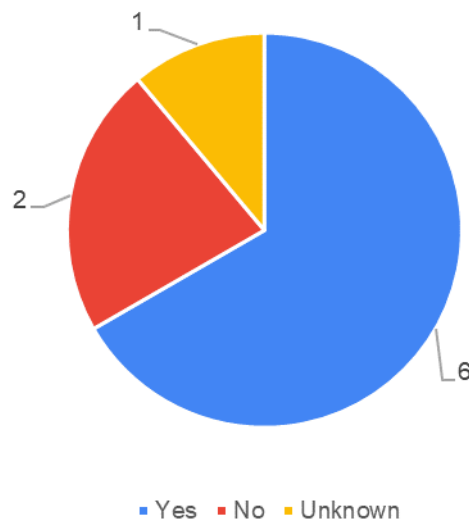


Figure 12. Number of Districts That Collected In-Person Demographic Information Pre-Pandemic

Cost of Conducting In-Person Meeting. With regard to the average cost of conducting an in-person public engagement meeting (including labor, materials, and marketing), Figure 13 shows the range for those districts that provided a range of costs. Across all districts, the low range averaged \$1,250 and the high range averaged \$3,750. The Hampton Roads and Richmond districts indicated approximately \$1,000 and \$1,500, respectively. The Salem District indicated “unknown.” The Fredericksburg and Hampton Roads districts indicated that there is a typically a huge range in costs depending on newspaper advertising. For example, the Fredericksburg District indicated that advertising costs for the *Washington Post* alone could run \$4,000 to \$5,000 whereas ads in other newspapers were more affordable. Other advertising tools included social media, project websites, flyers, television ads, roadside signs, and dynamic message boards.

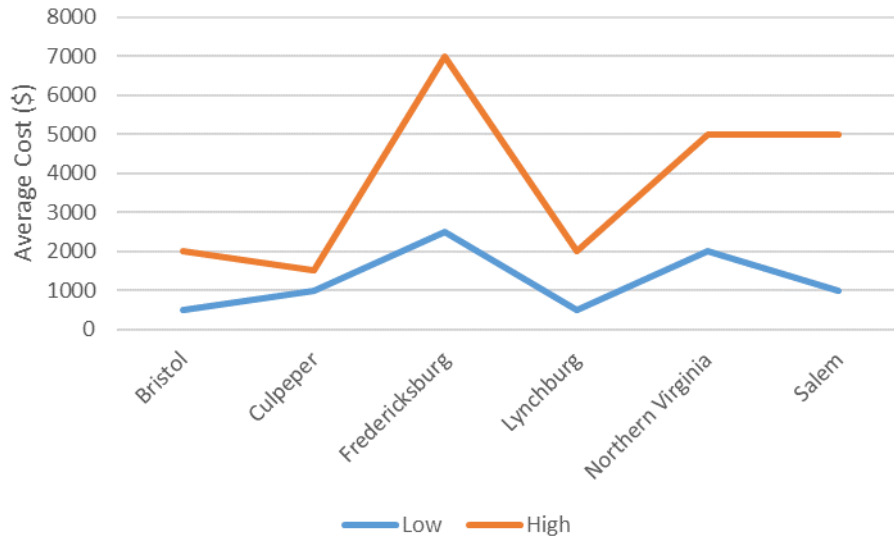


Figure 13. Range of In-Person Public Engagement Costs. Orange line = high cost; blue line = low cost.

Satisfaction Rating. Each district provided their satisfaction rating with in-person meetings with a rating of 1 = highly unsatisfied and a rating of 5 = highly satisfied. The responses are shown in Figure 14. The average satisfaction rating across all districts was 2.86, signifying more dissatisfaction compared to satisfaction. For districts with multiple responses, the average rating from the responses was used for the calculation. Each district was asked to provide reasons for their rating, and the most common theme for dissatisfaction was low attendance. Specific responses as received are provided in Table 9.

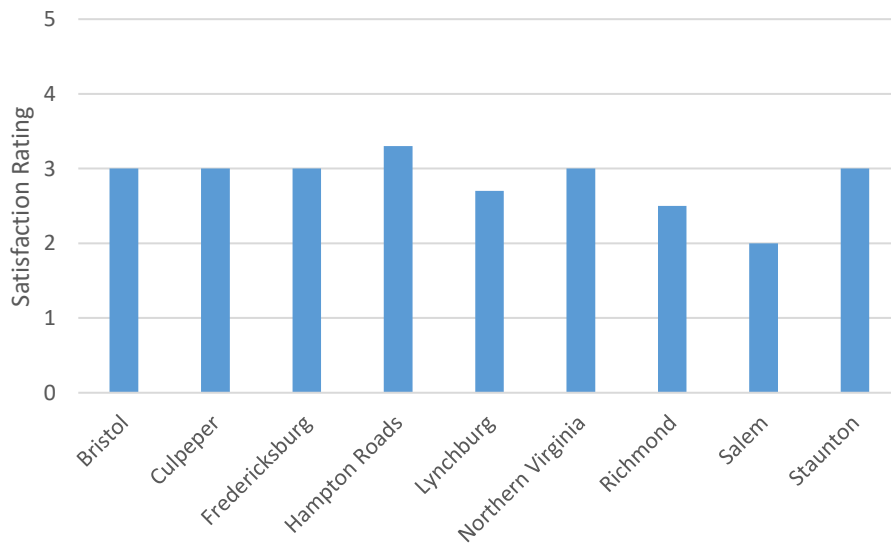


Figure 14. VDOT District Satisfaction Ratings for In-Person Public Engagement Meetings

Table 9. District Responses for In-Person Meeting Satisfaction Ratings

District	Rating	Response
Bristol	Respondent 1 = 3	We get more public participation in virtual public meetings.
	Respondent 2 = 3	I feel the meetings are promoted well but if there were more opportunity for paid advertising on social media responses would increase. However, coordinating paid advertising is time-consuming and could require more Communications staff if public engagement greatly increased.
Culpeper	3	The In-person engagement is not suited for everyone where virtual media (both meeting and online surveys) seem to get more responses as it is more convenient way for people to participate.
Fredericksburg	3	I think if we did wider direct mailings, and used more on-the-road signs near the facility, paired with more paid social media advertising that targets the affected zip codes, we might get more participation. But we invest so much in newspaper advertising that just isn't being seen. You have to interrupt people's daily pattern to get the date and time in front of them.
Hampton Roads	Respondent 1 = 3	Usually small attendance numbers for planning activities, however the numbers increase for project activities.
	Respondent 2 = 4	Attendance may be low but it did provide an opportunity to answer questions.
	Respondent 3 = 3	It's great being able to connect with people one-on-one, however, there is not a great turn out for most in-person meetings. Most of the attendants tend to be older property owners concerned about ROW.
Lynchburg	Respondent 1 = 2	Cost to benefit was low considering effort.
	Respondent 2 = 3	I have attended many public hearings where there are more VDOT staff than the attendees so I am not certain that after all the effort that we are capturing public consensus.
	Respondent 3 = 3	Some meetings had very low attendance and some had robust attendance based on how well the project was advertised and time of day. For many meetings it was a challenge getting younger individuals (under 40) to attend the meetings.
Northern Virginia	3	We still have an in-person demographic that likes to attend meetings in-person occasionally.
Richmond	Respondent 1 = 3	Often off topic.
	Respondent 2 = 2	Low attendance, not a lot of flexibility for citizens (time, travel, leave from work, etc.).
Salem	2	Very few attend. Sometimes get the same people repeatedly attending meetings.
Staunton	3	Limited attendance as compared to participation received from online surveys (Such as MetroQuest).

Responses are provided as received. ROW = right of way.

Virtual Engagement Since January 2020

When the COVID-19 pandemic began to halt in-person activities, VDOT increased its virtual presence in public engagement. This section of the survey pertained to feedback from each VDOT district regarding virtual engagement from January 2020 through April 1, 2022 (when the last survey response was received).

Number of Virtual Engagement Initiatives. Figure 15 shows that since January 2020, the majority of districts held at least 5 virtual engagement initiatives (Fredericksburg, Bristol, Richmond, Hampton Roads, and Salem); the Staunton District conducted between 11 and 15 virtual events, and the Lynchburg and Northern Virginia districts held more than 20 virtual events.

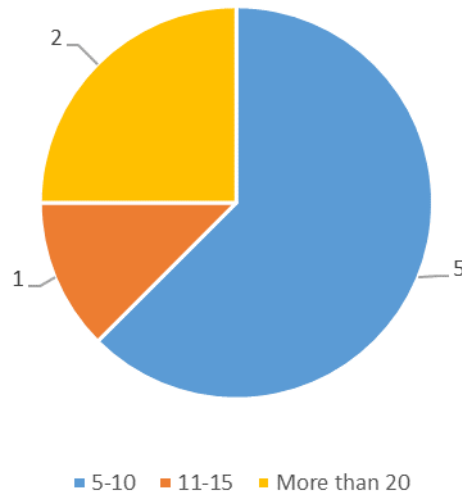


Figure 15. Number of Virtual Engagement Initiatives During the Pandemic by Number of Districts

Methods to Conduct Virtual Public Engagement. Figure 16 shows that all nine districts have conducted online surveys as part of their virtual public engagement. Seven districts have held live meetings, four have held open houses, and two have held some other type of virtual engagement activity. The other categories included pre-recorded presentations placed on websites and solicitation of feedback through email inquiries.

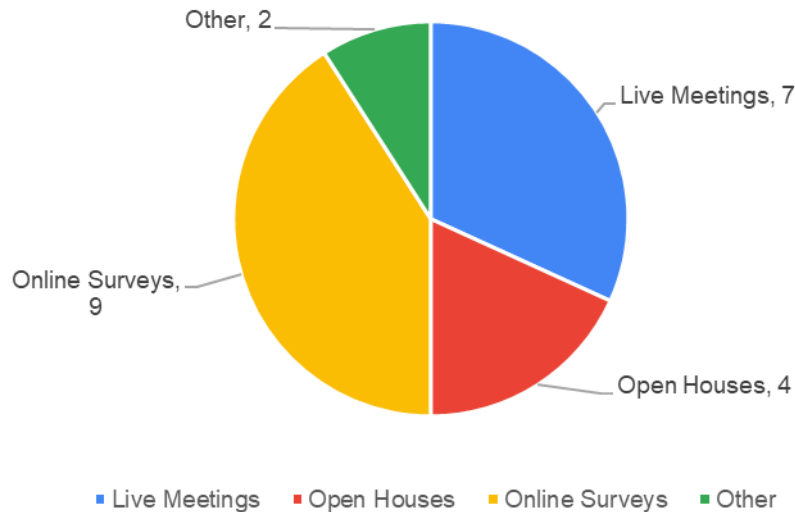


Figure 16. Methods of Conducting Virtual Engagement During the Pandemic by Number of Districts

Virtual Platforms. With regard to the primary methods used to conduct virtual public engagement, Figure 17 shows that MetroQuest was the most commonly cited platform, with eight districts indicating this as a primary method. WebEx, GoToMeeting, Zoom, and Survey123 were the other primary virtual platforms cited.

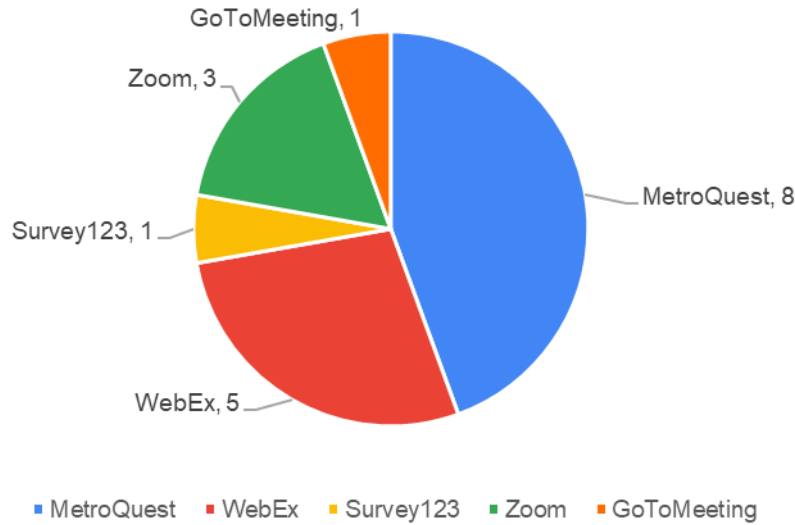


Figure 17. Primary Methods of Conducting Virtual Engagement During the Pandemic by Number of Districts

Satisfaction Rating of MetroQuest. Since VDOT had procured MetroQuest as a virtual engagement platform, districts were asked about their satisfaction with the platform on a scale of 1 to 5 with 1 = very unsatisfied and 5 = very satisfied; responses are shown in Figure 18. The average satisfaction rating across all districts was 4.42, signifying high to very high satisfaction. For districts with multiple responses, the average rating from the responses was used for the calculation. Each district was asked to provide reasons for their rating; specific responses as received are provided in Table 10.

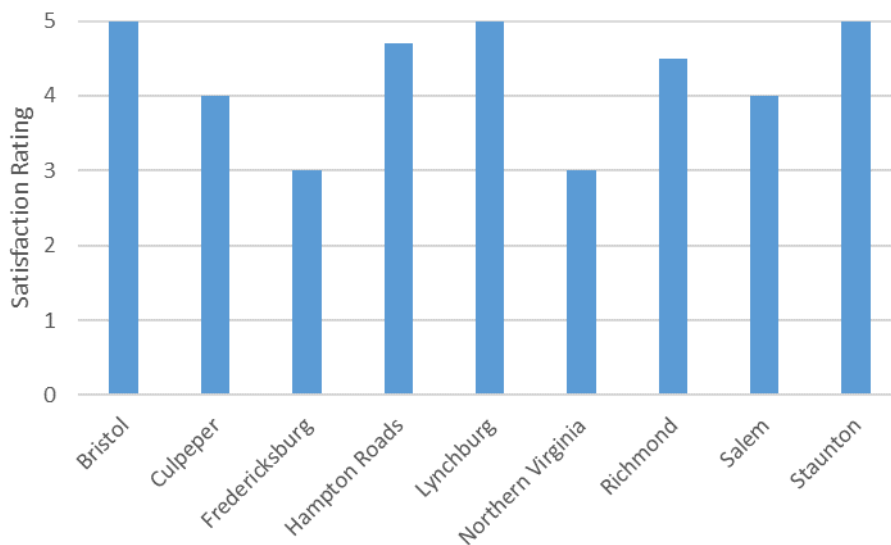


Figure 18. Satisfaction With the MetroQuest Public Engagement Platform

Table 10. District Responses for MetroQuest Satisfaction Ratings

District	Rating	Response
Bristol	Respondent 1 = 5	No issues from my perspective.
	Respondent 2 = 5	MetroQuest is a fantastic tool for a virtual platform that is not live.
Culpeper	4	It has worked well, but for some groups like the elderly and low minority groups they are not high represented in the survey responses. Also many localities still want to have the in-person meeting.
Fredericksburg	3	It does a good job of stepping people through the questions and showcasing maps.
Hampton Roads	Respondent 1 = 5	The input number is much higher than In person.
	Respondent 2 = 4	it did provide a large cross section of participant however it did generate questions that may require numerous responses.
	Respondent 3 = 5	MetroQuest surveys have reached more people than the traditional in-house meeting.
Lynchburg	Respondent 1 = 5	Easy public engagement, lower cost, streamlined process.
	Respondent 2 = 5	MetroQuest is an outstanding and dynamic survey tool that allows us to advertise targeted zip codes on social media and has resulted in 5-10 times as much public engagement as traditional in-person public meetings pre-pandemic. The results have provide better guidance from the public on how we prioritize project recommendations on studies and long range plans.
Northern Virginia	3	It is limited in the type of information you can put on the slides/list, etc.
Richmond	Respondent 1 = 5	Well suited to display planning concepts.
	Respondent 2 = 4	easy to set up, easy for citizens to access and follow, obtained significantly more feedback than previous in-person meetings.
Salem	4	Seems to work well now that we have a better understanding of its strengths and limitations. It can be less effective for efforts that include many locations.
Staunton	5	Obtain much more public engagement, Ease of use, Ability to have multiple survey managers, Professional appearance.

Responses are provided as received.

Demographics. When asked if demographic information was collected at virtual public engagement events, all districts indicated collecting demographic data with the exception of the Salem and Richmond districts, which indicated “unknown.” As with in-person meetings, race, gender, and age were the most commonly collected demographics. Other questions asked included education level, income, and disability. The Culpeper District indicated that “user type” (resident/commuter) and “preferred mode” (vehicle, bike, walk, and transit) have been asked of participants. Six of the districts that collected demographic information cited Title VI requirements and the VDOT Civil Rights Division’s request that demographic data be included for virtual public engagement. The Culpeper District responded: “to see how well we are reaching the various groups in the study area.”

Additional Language Resources. Six districts indicated having a procedure to determine when additional language resources are needed. Conflicting responses were provided by the Lynchburg District (“yes” and “no”) and the Hampton Roads District (“yes,” “no,” and

“unknown”). For those that do have a procedure, participants were asked to describe the procedure:

- *Culpeper District*: “We review the demographic of the study area to determine if there is a need for additional outreach (second language material or special meeting).”
- *Hampton Roads*: “That option is available if needed. I don’t believe we have developed MetroQuest in second language.”
- *Lynchburg District*: “Only if requested.”
- *Northern Virginia District*: “As required/requested by Civil Rights.”
- *Richmond District*: “Yes, we look at the demographic data in the study area; we almost always do English and Spanish.”
- *Staunton District*: “Yes, based on the needs of the locality, we work with staff to determine if a second language is appropriate based on the demographics in the study area.”

With respect to managing translation of second language materials, most districts indicated not being aware of a process or procedure in place. The Richmond District indicated having their study consultant staff available to translate. The Culpeper District indicated using contract services and in-house staff for translation. The Salem District indicated having a contract through their district civil rights department.

Advertising Virtual Engagement Initiatives. Many districts use the same advertising and marketing strategies for virtual public engagement that they use for in-person meetings. However, based on responses about sources used to advertise virtual initiatives, social media was the most prevalent response (whereas with pre-pandemic traditional in-person meetings, advertising in local papers was the most prevalent response). Specific district virtual engagement advertising initiatives are shown in Table 11. Responses are provided as received.

VDOT districts were also asked about specific marketing initiatives found to be more successful in gaining greater participation from underserved communities. Social media “blasts” specifically on Facebook were cited by the majority of districts as having the most reach in terms of overall quantity of participants. Coordinating with localities and regional groups to get the word out through their email lists (Salem and Richmond districts), advertising in other languages (Northern Virginia District), and direct outreach with communities (Culpeper and Lynchburg districts) were other methods cited as being successful. For direct outreach, the Lynchburg District cited the following examples:

- Identifying events such as local festivals (such as Get Downtown! in Lynchburg) where large numbers of people attend and having a booth or presence has helped in gaining survey input from individuals who may not otherwise take an online survey.
- Dialogue with local churches and schools in a study area to reach out to people in their church or school about surveys and public involvement.
- Having a presence at local transit hubs such as the Kemper Transfer Station in Lynchburg to capture transit riders.

Table 11. District Responses on Virtual Engagement Advertising Initiatives

District	Response
Bristol	Daily newspapers, weekly newspaper, news release sent to media, social media advertising coordinated with CO Social Media Team.
Culpeper	Social Media pushes through FB, Twitter and Instagram. We also work with the localities and regional bodies to push through there media outlets.
Fredericksburg	News release, required newspaper advertising (for a CIM or public hearing), VDOT free social media channels, and then for planning studies, paid social media advertising.
Hampton Roads	VDOT Website and Social Media.
Lynchburg	Facebook, Instagram, Twitter (VDOT Twitter site and PDC Twitter sites if applicable), VDOT Lynchburg District Facebook site, news channels, city/county websites, and PDC/MPO websites.
Northern Virginia	print publications, social media, flyers, mailers, and/or coordination with elected officials.
Richmond	Facebook, Twitter, Instagram VDOT website.
Salem	Press release, social media, and coordination with localities and regional groups to get the word out. Also, we use the News Paper for public hearings.
Staunton	Media release, Facebook advertisement, cross-pollination with locality social media.

Responses are provided as received. CO = VDOT Central Office; FB = Facebook; CIM = citizen information meeting; PDC = planning district commission; MPO = metropolitan planning organization.

Cost of Conducting Virtual Engagement Initiatives. With regard to the average cost of conducting virtual public engagement initiatives (including labor, materials, and marketing), responses varied depending on the nature of the initiative (e.g., PIMs, public hearings, or on-demand surveys). In some situations, costs were similar to those of in-person meetings if newspaper advertising was used. The Fredericksburg District indicated that there was probably more staff time devoted to creating the materials for virtual engagement and that the costs to advertise on social media sometimes offset the costs for printing in-person materials. The Bristol, Hampton Roads, Lynchburg, and Staunton districts specifically indicated between \$100 and \$300 to promote MetroQuest surveys via social media.

On a per-person participation basis, regarding costs to advertise and promote in-person PIMs versus using on-demand online surveys (such as MetroQuest), there was a distinct difference. For example, for in-person meetings across all districts, if the low value of average costs (\$1,250) and the average high attendance number (40) are used, the cost per participant is \$31.25. Using the Lynchburg District’s example of 5 to 10 times more participation for virtual engagement (discussed in Table 10) and applying these numbers to the average high in-person attendance number (40) at an average advertising cost of \$200, the cost per participant would range between \$0.50 and \$1.00.

Future of Public Engagement

With regard to the future of public engagement for PIMs where public comment is requested for project alternatives, of the 15 responses, 12 respondents indicated envisioning a hybrid of virtual and in-person engagement. Three respondents (one each from the Hampton Roads, Bristol, and Lynchburg districts) indicated a virtual only future for PIMs. Regarding logistics, the survey asked for thoughts regarding both positive and negative aspects of conducting and managing a hybrid approach to virtual and in-person engagement. Table 12 provides the responses as received.

Table 12. District Responses on the Future of Public Engagement

District	Response
Bristol	You will receive more participants with a hybrid approach, however the technical difficulties can impact the meeting.
Culpeper	The in-person can be formal or informal. I prefer informal but some localities want a more formal meeting and requires more staff to run. A virtual meeting can be more controlled and participants can either ask questions or type them in to the chat box and they do not have to be present to participate. A combination of in person and virtual is not as easy and would require even more staff to run.
Fredericksburg	It will require more staff time, which leads to greater investment. Especially for the communications team and project managers. It is more time for design, writing, posting, and planning. But, if it yields more involvement, and more understanding, it will be worth it. But there needs to be a recognition that we may need more dedicated communications/project staff just to the public involvement effort. My colleagues and I are getting this done around the state, but it feels like we're barely able to keep up. A lot of burnout. The consultant support has been outstanding in my district, truly, but I have a constant feeling of panic that I'm forgetting some crucial, legally-required steps, since the stakes are so high. I'd love to see recognition that this process, and doing it well, and truly getting diverse audience outreach, requires focus.
Lynchburg	Putting together a public hearing whether virtual or in-person is a lot of effort from preparing the displays, comment sheets, and brochures, etc. Then you add on finding a venue. The venue could have a rental fee that impacts a project budget vs. a virtual hearing eliminates that cost but the tradeoff to a virtual is that you could be paying for licensure to hosting platforms.
Northern Virginia	The project teams will need to schedule/plan for more time to accommodate both in-person and virtual engagement options for feedback from various publics.
Richmond	Hybrid allows for a phased approach, but can also cause confusion in organization and public turnout; hybrid does not mean the 2 have to occur at the same time. Hybrid meetings where there are in-person and virtual attendees is sometimes problematic due to sound and visual quality. If not 100% virtual, my choice would be to start the online survey period before the in-person meeting (maybe a week before), host the in-person meeting w/a streaming and typed Q/A capabilities, and then leave the online survey open for another week or so after the in-person meeting.
Salem	Virtual seems to work best for most planning activities, but for some initiatives it could be beneficial to include an in-person component. For public hearings, virtual seems to work, but there may be an expectation to offer in-person opportunities and larger profile projects.
Staunton	It depends on the audience and the phase of the study. Generally much easier and less staff time to perform an online survey versus in person meetings.

Responses are provided as received. Q/A = question and answer.

Each district was provided the opportunity to add any final thoughts about the past, present, and future of public engagement. Thoughts shared included the following:

- *Bristol District.* “Because public engagement is very early on in the life of a project, I think virtual only should be considered. There are instances where a project may need face-to-face interaction but we’ve seen growth in combining social media advertising with MetroQuest surveys.”
- *Culpeper District.* “As society evolve the virtual format will become the preferred presentation method. As with any new thing there is a learning curve. We just need to make sure we are not limiting the outreach effort and evaluate the affect areas to ensure we are reaching a good representative group of the community.”
- *Fredericksburg District.* “I’m excited for the future of our public involvement process! Publicinput.com, WebEx, MetroQuest have given us so many options. I feel we’re moving in the right direction.”
- *Lynchburg District.* “Virtual platforms have proven successful and has reduced travel demands greatly.”
- *Northern Virginia District.* “If there could be an update to the policy/manual and overall expectation for virtual and in-person engagement supporting various programs, projects, and special initiatives that would be helpful.”
- *Salem District.* “Our partners . . . localities and regional groups like virtual surveys in particular, but the localities sometimes also desire in-person opportunities.”
- *Staunton District.* “We have been very pleased with the additional input received through virtual engagement as compared to in person engagement. It allows us to collect more data and analyze a much larger demographic of the population served by the project.”

Survey of Virginia MPOs

Of the 14 surveys distributed to Virginia MPOs and MWCOG, responses were received from 6, for a response rate of 43%. The respondents included the following:

- Winchester-Frederick MPO
- Danville-Pittsylvania MPO
- Roanoke Valley Area TPO
- Harrisonburg-Rockingham MPO
- New River Valley MPO
- MWCOG.

Collecting Demographic Information

Three MPOs indicated that they collect demographic information from their virtual public engagement participants: Winchester-Frederick MPO, Roanoke Valley Area TPO, and MWCOG. The three common demographics collected from these three organizations were race, age, and income. The Winchester-Frederick MPO also collects gender; the Roanoke Valley Area TPO also collects zip codes; and MWCOG also collects demographic information on education level and disability. The purpose of collecting demographic information (for each of the organizations that collect the data) included the following:

- *Winchester-Frederick MPO.* “To evaluate the effectiveness of our outreach activities in generating inclusive public involvement.”
- *Roanoke Valley Area TPO.* “We monitor the information during the survey period and adjust our advertising to under-represented zip codes. For the other demographic categories, we review data from the previous survey and adjust outreach efforts to target under-represented categories. Then we track our progress in subsequent surveys of whether we are hearing from those categories.”
- *MWCOG.* “For a variety of reasons, including: 1) analysis of the data received so we can understand how the opinions and needs of various groups compare with those of the population at large; 2) to be sure we are getting input from underserved communities; 3) to know who is participating in our outreach.”

Offering Second Languages of Virtual Engagement Material

All responding MPOs, with the exception of the Roanoke Valley Area TPO, indicated that they offer second language versions of virtual engagement material. For procedures to determine when additional language resources are required, three MPOs (Danville-Pittsylvania MPO, Harrisonburg-Rockingham MPO, and New River Valley MPO) indicated that upon request, translation material is made available. The Winchester-Frederick MPO refers to data from the American Community Survey—Language Spoken at Home to identify LEP populations, and MWCOG uses procedures in their Language Assistance Plan, which is included in its Title VI Plan. The procedure is based on a “four-factor” analysis, developed by the federal government, which is used to determine how to ensure reasonable and meaningful access to MWCOG activities. MWCOG added: “because the Transportation Planning Board (TPB) is not involved in project-level planning, the analysis has not typically required materials to be translated. Nonetheless, on an ad-hoc basis, we have gotten basic materials translated into Spanish so that materials might available if requests are made. Such translations go above and beyond federal requirements. Spanish is (by far) the most predominant second language in our region.” All five MPOs that offer second language material use contract services for translation.

Advertising Virtual Engagement Initiatives

MPO responses varied about how their organization advertises virtual engagement initiatives. Most indicated through social media and locality, planning district commission

(PDC), and MPO websites. For example, the Winchester-Frederick MPO has a Facebook page in both English and Spanish. The Roanoke Valley Area TPO advertises on their website blog post; uses emails to bicycle and pedestrian lists and “Survey Takers” lists; and has booths at an event or location. MWCOG indicated using postcards and emails and for a campaign last summer putting up posters with QR codes throughout the region. Other advertising and marketing initiatives included newspapers, newsletters, LinkedIn, press releases, and legal ads. The New River Valley MPO includes marketing on an MPO “Interested Parties” list and an MPO “Governmental Regulatory” list.

For specific virtual engagement marketing initiatives found to be more successful in gaining greater participation from underserved communities, both the Harrisonburg-Rockingham MPO and the New River Valley MPO indicated that no initiatives had been found to be more successful. The Harrisonburg-Rockingham MPO indicated that their virtual engagement still skews very much toward racial majorities but that they have tried to geo-fence Facebook ads to specific zip codes. Other MPO responses are shown in Table 13. Responses are provided as received.

Table 13. MPO/MWCOG Responses on Virtual Engagement Advertising Initiatives

Organization	Response
Winchester-Frederick MPO	Facebook ads in Spanish seem to have been effective in generating responses to a MetroQuest survey in Spanish. The survey asked respondents to offer comment on Metropolitan Transportation Plan vision, goals, objectives and strategies, and to map deficiencies.
Danville-Pittsylvania MPO	We have found that direct emails to potential attendees work the best, such as emails from staff and/or our weekly newsletter.
Roanoke Valley Area TPO	<p>With the paid Facebook ads to under-responding zip codes, we have participation from zip codes that is proportional to the population of the region residing in each zip code.</p> <p>The Survey Takers email list has over 400 email addresses on it. There are 3 ways to get on this list: Provide your email in one of our surveys, sign up on our website, or meet me in something we are both involved in (even during the pandemic, I was involved in virtual things & managed to meet new people) and show some in transportation, which prompts me to ask you if I can add you to this list. Because I seek out things to participate in that are likely to draw Black participants, our surveys have gone from one person who identified as Black the first time we asked that question on a survey to 11 people, which was 8% of that survey (our population is 14% Black).</p> <p>The live Facebook event was a series of Transportation Equity Chats and we used paid advertising to promote the event. It was a valuable exercise for many reasons although it did not increase minority participation in the survey it was intended to promote.</p> <p>Attending events or holding a pop-up booth at a library or residential facility has been more successful in increasing minority participation. The downside of this approach is that we are encountering people who just happen to be there and the input isn't the quality we get from people who are interested in and knowledgeable about transportation. Our hope was that people would end up on the email list and as they take our surveys become more informed and interested. With the pandemic we haven't been able to fully realize that.</p>
MWCOG	To recruit people from underserved communities for virtual focus groups, we used paid advertisements through Craigslist and Facebook.

Responses are provided as received. MPO = metropolitan planning organization; TPO = transportation planning organization; MWCOG = Metropolitan Washington Council of Governments.

Performing Analyses of Virtual Public Engagement Data

When asked if analyses have been performed on in-person versus virtual public engagement statistics, all organizations indicated that evaluations have not been performed. The Roanoke Valley Area TPO indicated that they do collect data by using unique collector links so they can track the number of responses coming from the various outreach methods used. The New River Valley MPO indicated that, anecdotally, they have greater participation at MPO technical advisory meetings by members, especially those that work farther from the regular meeting place. MWCOG indicated that their virtual and in-person events differ and are not comparable and that they have made a conscious decision not to try to replicate in-person-style outreach activities through virtual means.

Future of Virtual Public Engagement

For meetings where public comment is requested for project alternatives, all MPOs indicated envisioning a hybrid approach to future public engagement by conducting both virtual and in-person engagement events (with the exception of MWCOG because they are not involved in planning). The Danville-Pittsylvania MPO suggested that virtual and in-person events be held separately. Table 14 provides specific responses regarding the logistics (both positive and negative) of conducting and managing a hybrid approach of virtual and in-person engagement. Responses are provided as received.

Analysis of VDOT’s Virtual Engagement Data

VDOT MetroQuest Survey Tracking Tool

TMPD’s MetroQuest tracking tool was accessed to perform a broad analysis of MetroQuest public participation based on the data captured. From November 1, 2019, to March 26, 2022, there were 120 project-specific studies that used MetroQuest surveys for public comment. Of these surveys, 114 were categorized as discrete district studies, 2 were categorized as “multiple” district studies, and 4 were categorized as Central Office studies. Figure 19 shows a breakdown of survey studies by district. The Northern Virginia District had the most surveys at 19, and the Salem District had the least at 6. Not included in the figure were the multiple district studies (I-95 Corridor Improvement Plan and I-64/I-664 Corridor Improvement Plan) and the Central Office studies (Virginia Employer, Virginia Commuter, Statewide Commuter, and Virginia Safe Routes to School).

Since there were 120 project-specific studies, 120 English language versions were created. There were an additional 17 surveys distributed in different languages. Figure 20 shows the distribution of the 17 non-English surveys based on the district that developed the survey. As shown in the figure, the Northern Virginia District created the most with 12. Based on LEP data (U.S. Department of Justice, 2015) the Northern Virginia District has the highest number of people 5 years and older who speak a language other than English at home and speak English “less than very well” (U.S. Department of Justice, 2020).

Table 14. MPO/MWCOG Responses on the Future of Public Engagement

Organization	Response
Winchester-Frederick MPO	Our engagement strategy for the [Metropolitan Transportation Plan] included a mix of in-person and virtual meetings, but no hybrid meetings to date. The logistics of conducting off-site hybrid meetings presents technical risk.
Danville-Pittsylvania MPO	The biggest concern for us related to hybrid public meetings is location. Some of our localities don't have space suitable for in-person meetings with technology needed for virtual attendees. But, I do see a positive benefit for overall attendance with hybrid opportunities.
Roanoke Valley Area TPO	<p>I can't think of any negatives. In fact I think hybrid engagement is essential. Anyone who was still doing all in-person engagement before the pandemic was already sadly behind the times. In-person is extremely valuable, attending events is a way to reach people who aren't already engaged, and a way to reach people immediately. They are already there and it's easy to fill out a quick survey. One interesting way to reach people is at youth sports events. Parents who are normally too busy to reach are stuck there waiting for their kid to compete. However, in-person is resource-intensive and we aren't able to put that into every public participation opportunity that we have. (I'm not really counting the required public hearing, which is in-person, as part of our public participation since no one ever attends. Those are like the newspaper ads, required but completely ineffectual.)</p> <p>Virtual public engagement is how you reach a large quantity of people. It's an equity consideration for people who can't engage in person. People with disabilities and people who can't be around crowds for any reason can engage virtually.</p>
Harrisonburg-Rockingham MPO	We have really learned that we can reach a much, much larger group of people with virtual engagement, but that there is also a lot of value in being willing to have in-person conversations, even though planning and advertising in-person events requires a lot of advance planning and logistics. In-person for targeted, hard-to-reach demographic groups is the way to go, even though it's very time-intensive.
New River Valley MPO	<p>The single largest problem with a hybrid meeting approach is that sometimes the organizer does not really take seriously what is needed for this to be a success. What works fairly well is that the visual component being via the normal log in (e.g., with Zoom) and then a 2nd connection made via a conference telephone; HOWEVER, that phone MUST have a series of connected, external microphones (or wireless microphones that are used by in-person participants), and in-person participants MUST use them and have them close enough for them to be effective. A good hybrid meeting would also need a facilitator or logistics person to test the sound system ahead of time, ensure the video is in a reasonable position, and make sure the meeting starts on time. Someone also has to handle chat questions, and ensure there is enough time for questions from the virtual participants.</p> <p>Almost every group public input Zoom meeting, they seem to start late, and the organizer spends the first several minutes trying to get everyone connected, get slides to work properly, etc.</p> <p>These problems could all be avoided by setting up and conducting a "test meeting" on an earlier date with the meeting speakers/organizers as a dry run, and ensuring those same participants log in 15 minutes early for the actual meeting/event so these logistics can be taken care of.</p>
MWCOG	We understand that there will be a continuing demand for hybrid meetings. But we also understand that hybrid meetings can be inherently inequitable. People who are physically in the room will almost invariably have more opportunity to be heard and to get involved. It will be a challenge to overcome this imbalance.

Responses are provided as received. MPO = metropolitan planning organization; TPO = transportation planning organization; MWCOG = Metropolitan Washington Council of Governments.

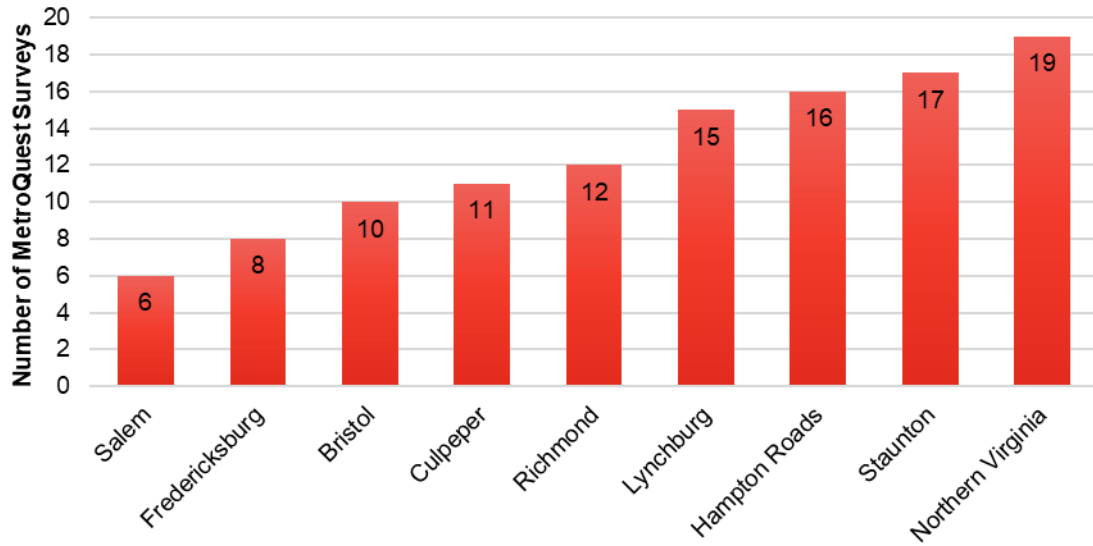


Figure 19. MetroQuest Studies by District

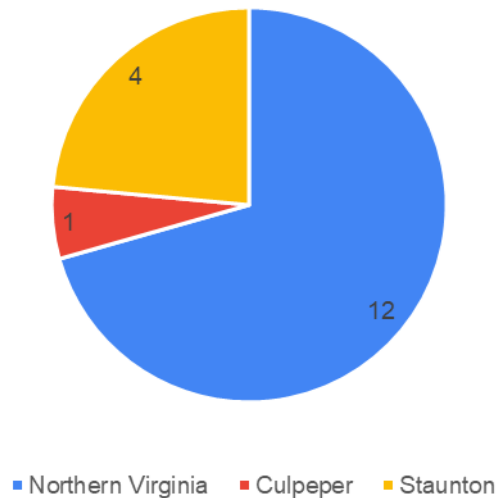


Figure 20. Number of Non-English MetroQuest Surveys Administered

The public engagement studies in the tracking tool are classified based on the following types:

- Arterial Management
- Bike/Ped/Trail
- Commuter
- Corridor
- Intersection
- Interstate
- LRTP
- Multimodal

- Operations Studies
- Project Pipeline
- Region
- Small Area
- Strategically Targeted Affordable Roadway Solutions (STARS)
- Statewide.

Figure 21 shows the distribution of the most prolific types of public engagement studies. These included Project Pipeline studies (33 surveys), followed by STARS studies (30 surveys) and corridor studies (26 surveys). The types of studies not shown in the figure had fewer than five public engagement opportunities.

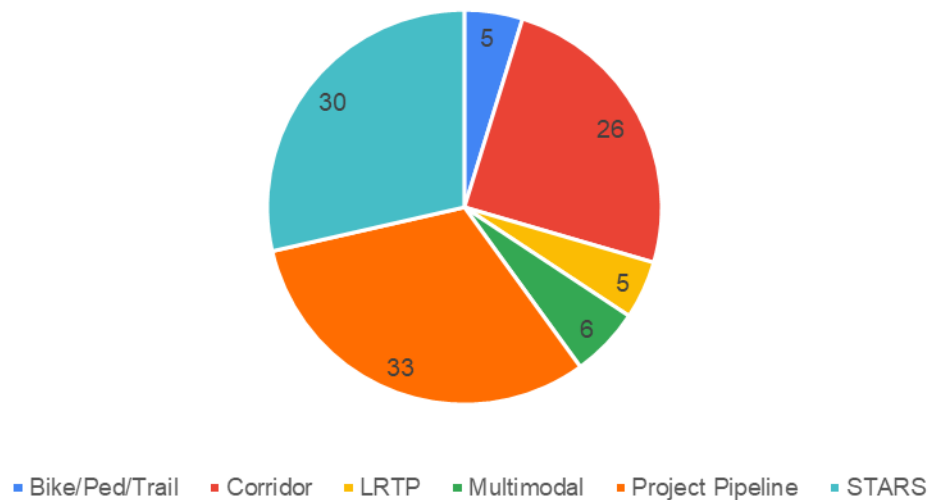


Figure 21. Most Prolific Study Types. L RTP = long-range transportation plan; STARS = Strategically Targeted Affordable Roadway Solutions.

Participation

Data from the MetroQuest survey tracking tool were filtered by participation based on study type, district, and language (i.e., participation in languages other than English).

Study Type. For the six most prolific survey types, Figure 22 shows the average number of visitors to the MetroQuest survey (defined as those that clicked on the MetroQuest survey link), shown in the blue bars, and the average number of survey participants (defined as those that completed the survey), shown with the red line. More than doubling the other survey types with respect to both visitors and participants were the Bike/Ped/Trail surveys. Corridor surveys and STARS surveys ranked second and third.

When the survey completion rate (or the ratio of participants to visitors) was considered, Figure 23 shows that for the most prolific survey types, the average completion rate across surveys (red line) was 0.49 (or 49%). The highest completion rate was for Bike/Ped/Trail studies at 61% followed by multimodal studies at 58%. The lowest completion rate was for Project Pipeline studies at 32%.

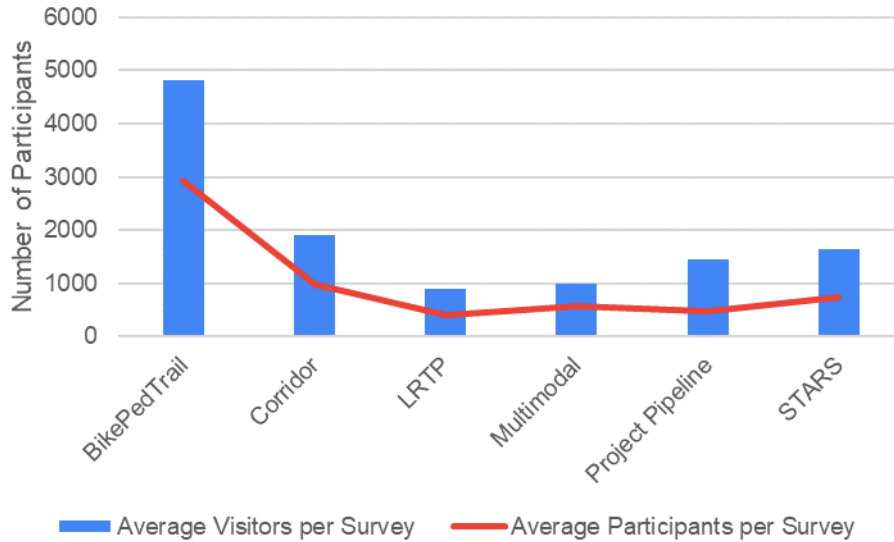


Figure 22. Average Number of Visitors (blue bars) vs. Average Number of Participants (red line) for the Most Prolific Study Types. LRTP = long-range transportation plan; STARS = Strategically Targeted Affordable Roadway Solutions.

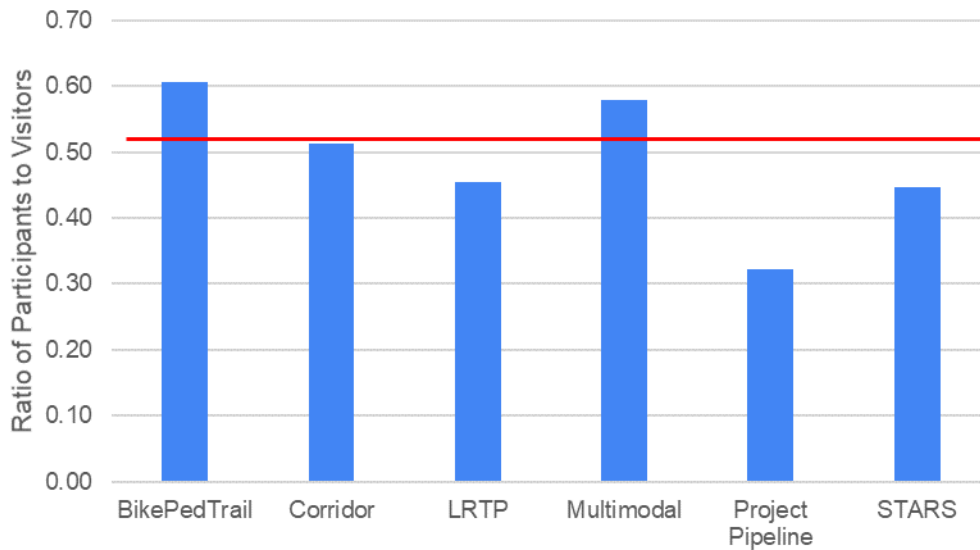


Figure 23. Ratio of Participants to Visitors for the Most Prolific Survey Types. Red line = average across study types. LRTP = long-range transportation plan; STARS = Strategically Targeted Affordable Roadway Solutions.

Districts. Figure 24 shows the participation by district including those studies that spanned multiple districts (I-95 Corridor Improvement Plan and I-64/I-664 Corridor Improvement Plan) and the Central Office studies (Virginia Employer, Virginia Commuter, Statewide Commuter, and Virginia Safe Routes to School). When visitors were compared by district, the Hampton Roads District had the highest average number of visitors for their studies (2,679) followed closely by the Staunton District (2,515). The studies that spanned multiple districts and the Central Office studies averaged a much higher visitor count at 4,312 and 4,762, respectively, owing to the broader distribution of the surveys.

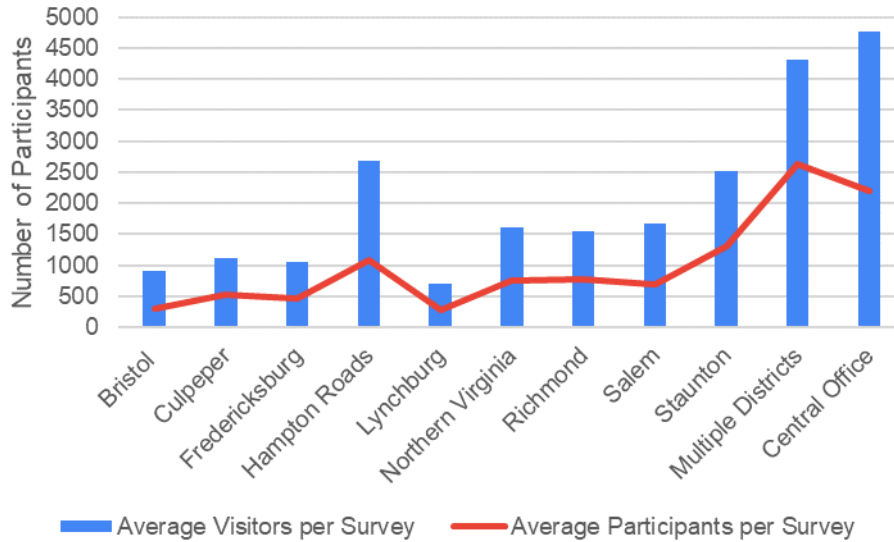


Figure 24. Number of Visitors (blue bars) vs. Number of Participants (red line) by District

For the average number of participants of the studies (red line) by district, the Staunton District had the highest (1,309) followed by the Hampton Roads District (1,077). Overall, the studies spanning multiple districts had the highest average number of participants at 2,632.

When survey completion rate by district was considered, Figure 25 shows that the Staunton District had the highest completion rate at 52% followed closely by the Richmond District, Northern Virginia District, and Culpeper District at 50%, 47%, and 47%, respectively. Overall, the multiple district surveys had the highest completion rate at 61%. The average completion rate across all districts including multiple district and Central Office studies (red line) was 45%.

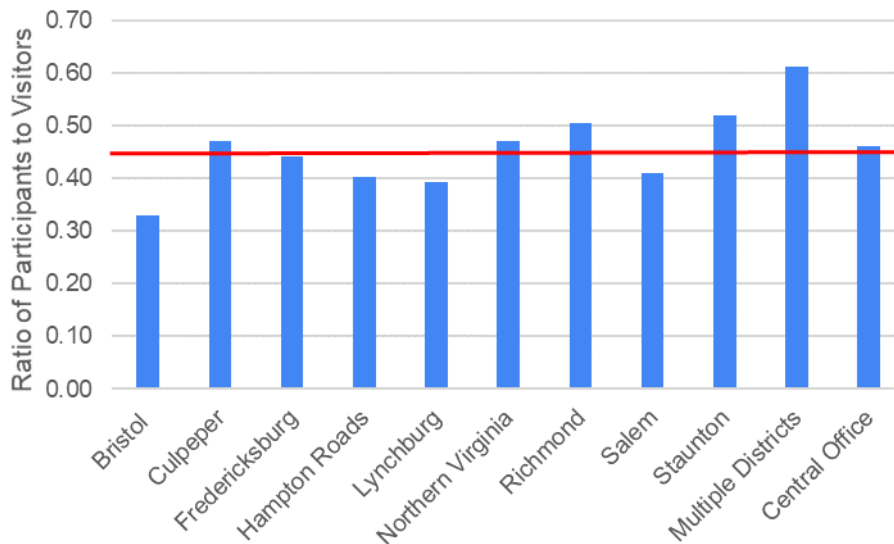


Figure 25. Ratio of Participants to Visitors by District. Red line = average across districts.

Language. With respect to participation by non-English speaking persons, the comparison of the numbers of visitors and participants to those of English-speaking visitors and participants was highly skewed because there were much fewer studies performed using non-English survey formats (i.e., 17, as shown in Figure 20) compared to 120 English version formats. For example, when all 120 studies were considered, the numbers of visitors and participants for English version surveys were 211,064 and 97,698, respectively. The numbers of visitors and participants for non-English version surveys were 1,508 and 134, respectively. To normalize the data, the completion rate (i.e., ratio of visitors to participants) was considered and is shown in Figure 26. As the figure shows, the completion rate for English version surveys (46%) was much higher than for non-English version surveys (9%).

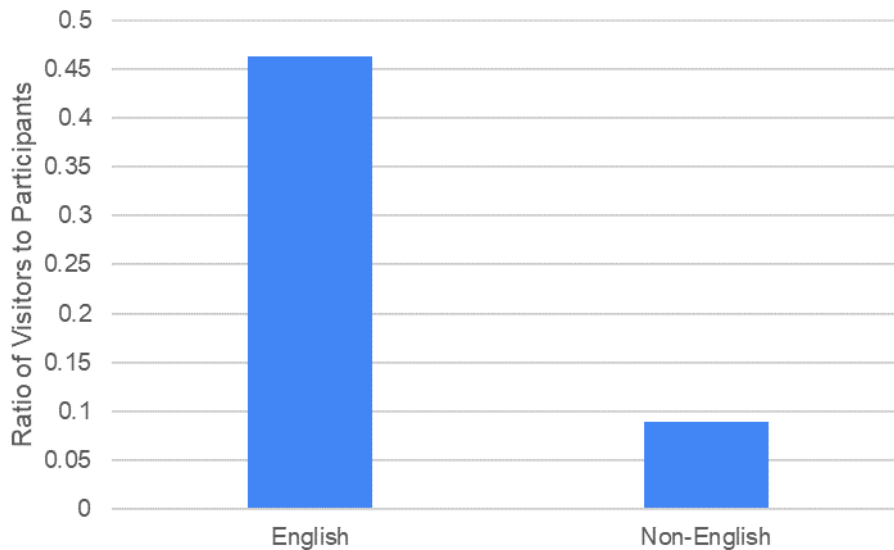


Figure 26. Ratio of Visitors to Participants for English Language Surveys vs. Non-English Language Surveys

Device Access

Study Type. The MetroQuest survey tracking tool captures the medium used by participants (those that completed the surveys) based on mobile device (i.e., smartphone) and non-mobile device (i.e., desktop or tablet) access. For the most prolific study types, the percentage of mobile device access compared to non-mobile device access is shown in Figure 27. With the exception of Project Pipeline studies, mobile device access was higher across all study types. The largest difference was for STARS studies (68% for mobile vs. 32% for non-mobile) followed by corridor studies (64% for mobile vs. 32% for non-mobile). Device access for Project Pipeline studies was an anomaly compared to other study types where the percentage of non-mobile access was greater than for mobile access at 57% and 43%, respectively. The average percentages of mobile access and non-mobile access across all study types was 56% and 44%, respectively.

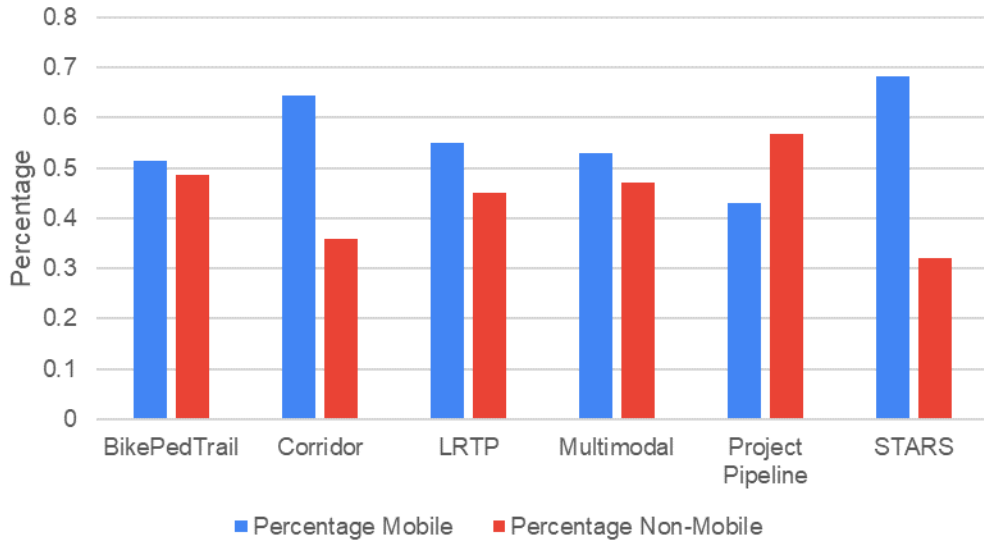


Figure 27. Percentage of Mobile Access vs. Non-Mobile Access by Study Type. LRTP = long-range transportation plan; STARS = Strategically Targeted Affordable Roadway Solutions.

District. Mobile vs. non-mobile access for participants across districts (including multiple district and Central Office studies) is shown in Figure 28. With the exception of the Culpeper and Salem districts, all districts had a higher percentage of mobile access vs. non-mobile access. The Richmond District had the highest percentage difference between mobile and non-mobile access at 42%; other districts averaged a difference between roughly 10% and 20%. The percentage of non-mobile access was higher than mobile access at a difference of 6% and 9% for the Culpeper and Salem districts, respectively. The average percentage of mobile and non-mobile access across all districts, including multiple district studies and Central Office studies, was 58% and 42%, respectively (a 16% average difference).

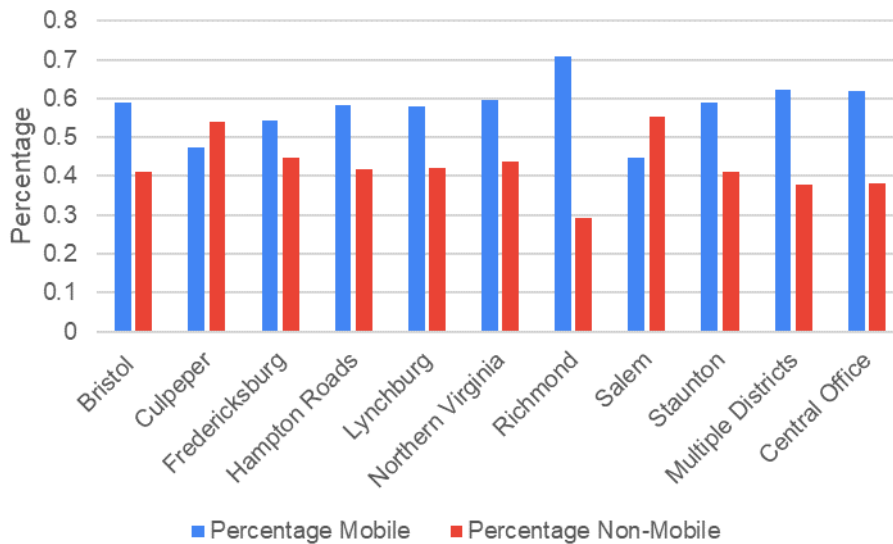


Figure 28. Percentage of Mobile Access vs. Non-Mobile Access by District

Language. Based on a sample size of 120 English version surveys and 17 non-English surveys, Figure 29 shows the percentages of participants completing the English and non-English versions of surveys by device access. For the English surveys, mobile access was higher than non-mobile access by 18%. For non-English surveys, the opposite was true where non-mobile access was higher than mobile access by 15%.

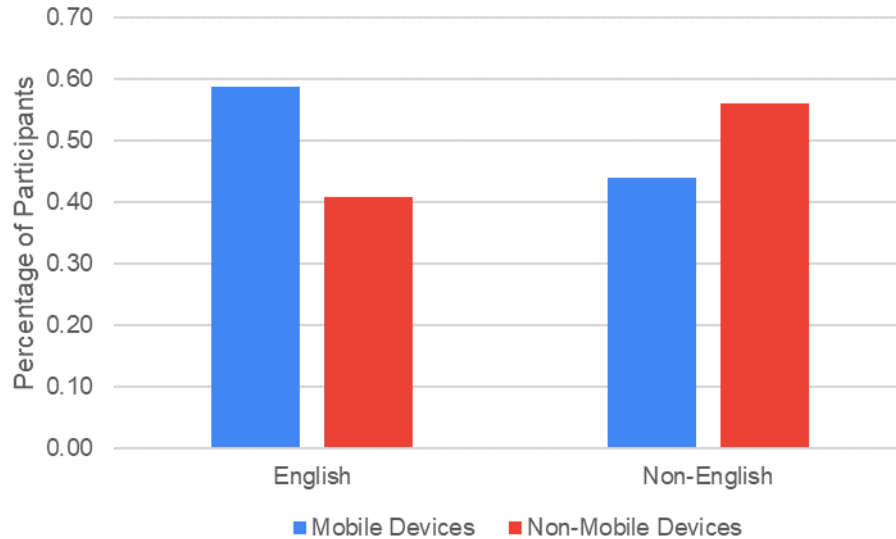


Figure 29. Percentage of English and Non-English Participants Accessing MetroQuest via Mobile and Non-Mobile Devices

Number of Comments

The MetroQuest survey tracking tool includes data on the number of comments received on each survey. Depending on the nature of each survey, there can be multiple opportunities to comment on various transportation plan options. The result of dividing the total number of comments received by number of participants (those who completed the surveys) is the average number of comments per participant. A low average number of comments per participant can signify that (1) opportunities to comment were not made available throughout the survey, or (2) opportunities existed but participants did not comment.

One example of how comment data can be used is shown in Figure 30 where the Central Virginia TPO’s 2045 LRTP collected comments on safety concerns in the greater Lynchburg area. Based on comments received, Lynchburg District staff developed a map of safety concerns, or “hotspots,” based on the number of comments given specifically for a particular area or intersection.

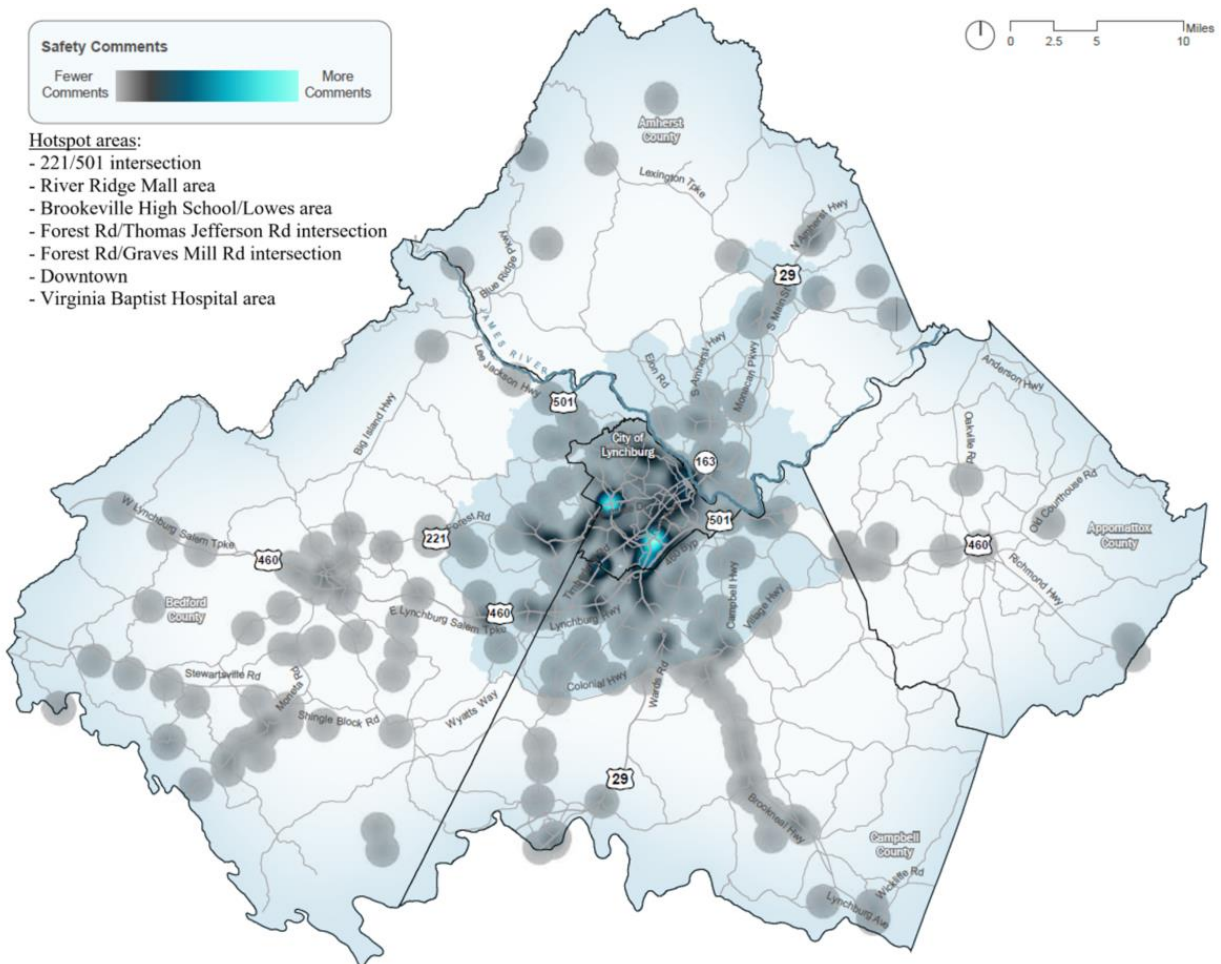


Figure 30. Safety Concern Hotspots in the Greater Lynchburg Area

Study Type. For the most prolific study types, Figure 31 shows that the highest average number of comments per participant was for LRTPs at roughly 2.3. The Bike/Ped/Trail studies had roughly 1.5. Project Pipeline studies had the lowest number at less than 0.5. The average number across all study types (red line) was 1.2.

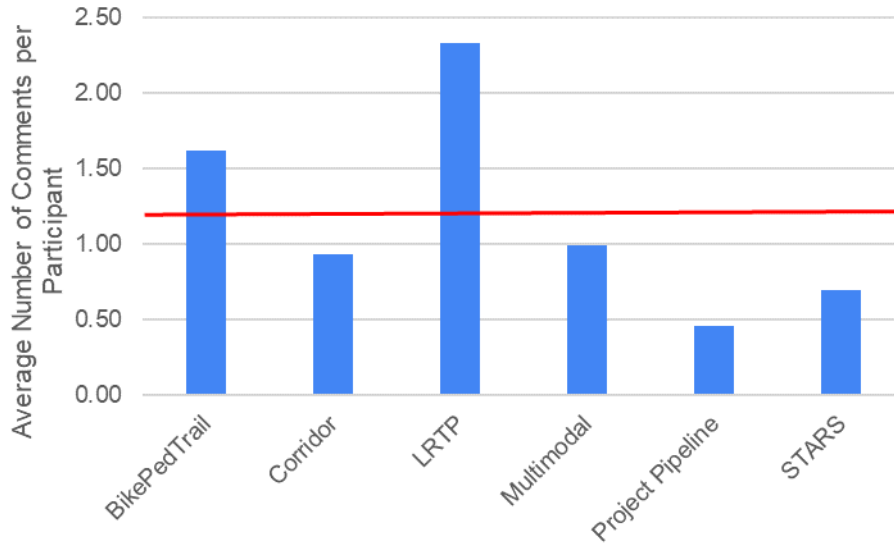


Figure 31. Average Number of Comments per Participant by Study Type. LRTP = long-range transportation plan; STARS = Strategically Targeted Affordable Roadway Solutions.

District. When comments were analyzed by district (including multiple district studies and Central Office studies), Figure 32 shows that the Culpeper, Lynchburg, and Staunton districts had the highest average number of comments per participant at roughly 1.2. Across all districts, the Hampton Roads District had the lowest at roughly 0.3. The Central Office studies had only 0.1 comment per participant. Again, this could be due to the fact that opportunities to comment were not provided in the surveys. The average number of comments per participant across all district studies, including multiple district and Central Office studies, was 0.75 (red line).

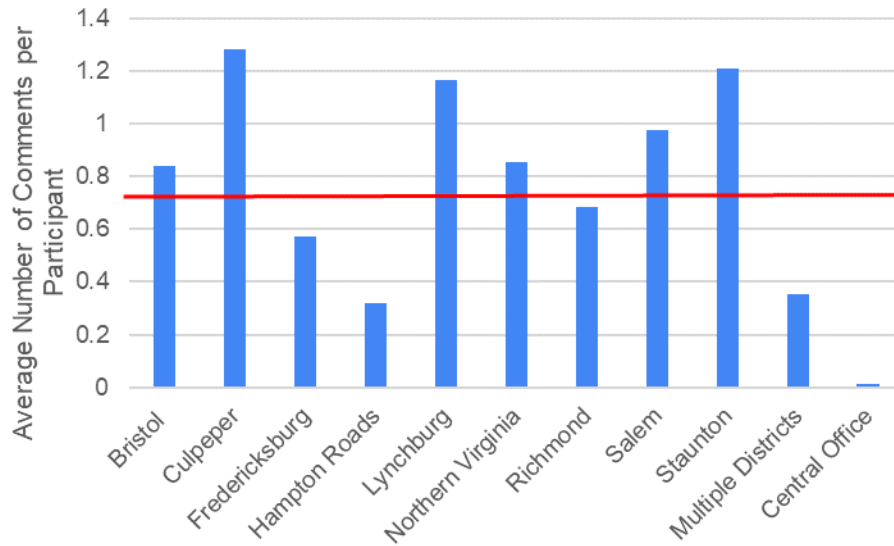


Figure 32. Average Number of Comments per Participant by District

Language. Based on a sample size of 120 English version surveys and 17 non-English surveys, a comparison of the average number of comments per participant for English and non-English survey versions is shown with the blue bars in Figure 33; the average numbers of comments per participant for English and non-English versions of the surveys were 0.84 and 0.46, respectively. For an “apples-to-apples” comparison, for the same studies for which English and non-English versions of the survey were made available (14 studies total, with 17 non-English versions), the discrepancy in average number of comments per participant increased, as shown with the stacked red bar. For the same studies, the average number of comments per participant for English survey versions increased to 1.23.

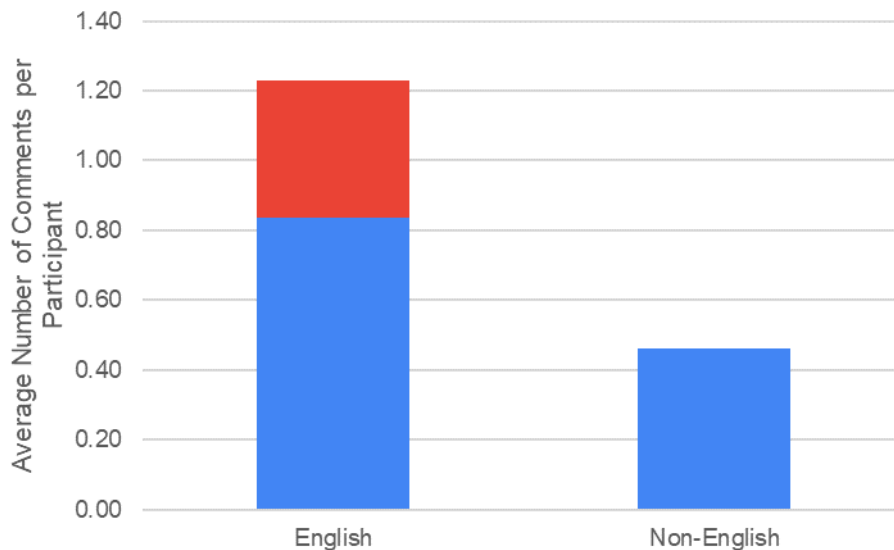


Figure 33. Average Number of Comments per Participant for English and Non-English Language Survey Versions

Analyses of a Subset of Data

A subset of data from the MetroQuest survey tracking tool was extracted for more in-depth analyses. For November 1, 2019, to July 7, 2021, 70 studies were extracted and individually analyzed to examine participation based on the time frame of the survey (survey open and close dates), demographic information collected, and capture methods (i.e., how participants heard about the survey). In addition, zip code distributions were developed based on the entire dataset, and example cumulative distribution profiles of participation were extracted and analyzed in relation to marketing campaigns.

For the 70 studies analyzed, 52 were from districts, 12 were from MPOs or PDCs, 2 were from multiple districts, and 4 were from the Central Office. One key difference between this subset of data and the data from the MetroQuest survey tracking tool was how the studies were categorized. By examination of the specific project study websites and data, it was found that 12 studies were conducted through MPOs and PDCs. The studies encompassing multiple districts (I-95 Corridor Improvement Plan and I-64/I-664 Corridor Improvement Plan) and the Central Office (Virginia Employer, Virginia Commuter, Statewide Commuter, and Virginia Safe Routes

to School) were the same shown in the MetroQuest survey tracking tool analyses and included in this evaluation.

Survey Time Frame and Number of Participants

When the survey time frame (i.e., survey open date to end date) and number of participants for district surveys (excluding the Central Office studies and those studies spanning multiple districts) were analyzed, Figure 34 shows that the average number of days the surveys were open (yellow vertical line) was 30, and the average number of participants (red horizontal line) was 1,315. Included in the data used for the figure were the data for the Shenandoah Rail Trail study where the survey was open for 44 days and had 9,282 participants (including 17 Spanish language surveys); however, to provide a larger graphical scale, these data were not included in the figure. For the MPO and PDC surveys, Figure 35 shows that the average number of days the surveys were open (yellow vertical line) was 47 and the average number of participants (red horizontal line) was 307.

Participant Data Collected

The types of participant-specific data collected by districts including multiple districts and Central Office surveys are shown in Figure 36 where traditional demographic data are shown with green bars and other types of data are shown with blue bars. The figure shows the types of data collected compared to the percentage of total surveys conducted. Browser-type (e.g., Internet Explorer, Mozilla, Safari, etc.) and platform-type (mobile vs. non-mobile) data were collected for all studies. Home and destination zip codes were collected for 92% and 75%, respectively, of the surveys. Travel characteristics (i.e., questions about traveling on the study corridor) were asked in 52% of the surveys. Questions about how the participant heard about the survey (shown as “advertising” in the figure) were asked in 65% of the surveys. Demographic-specific questions were asked in 20% or less of the surveys, with age (20%), race (18%), and gender (12%) representing the most frequently asked demographic questions.

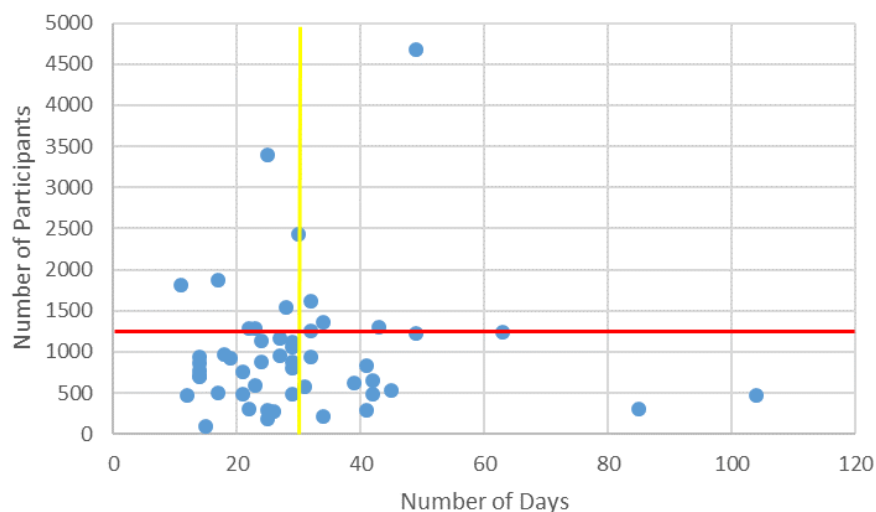


Figure 34. Number of Participants by Number of Survey Period Days for District Surveys. Red line = average number of participants; yellow line = average number of days.

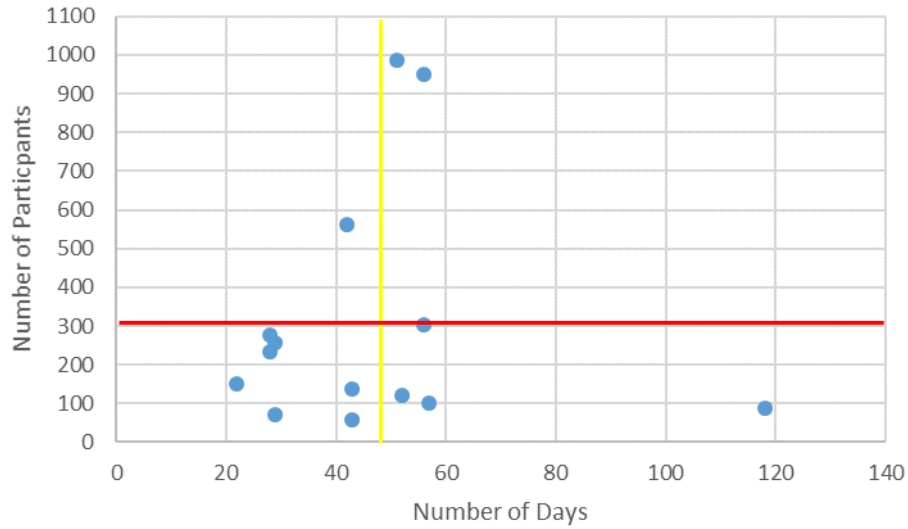


Figure 35. Number of Participants by Number of Survey Period Days for MPO/PDC Surveys. Red line = average number of participants; yellow line = average number of days. MPO = metropolitan planning organization; PDC = planning district commission.

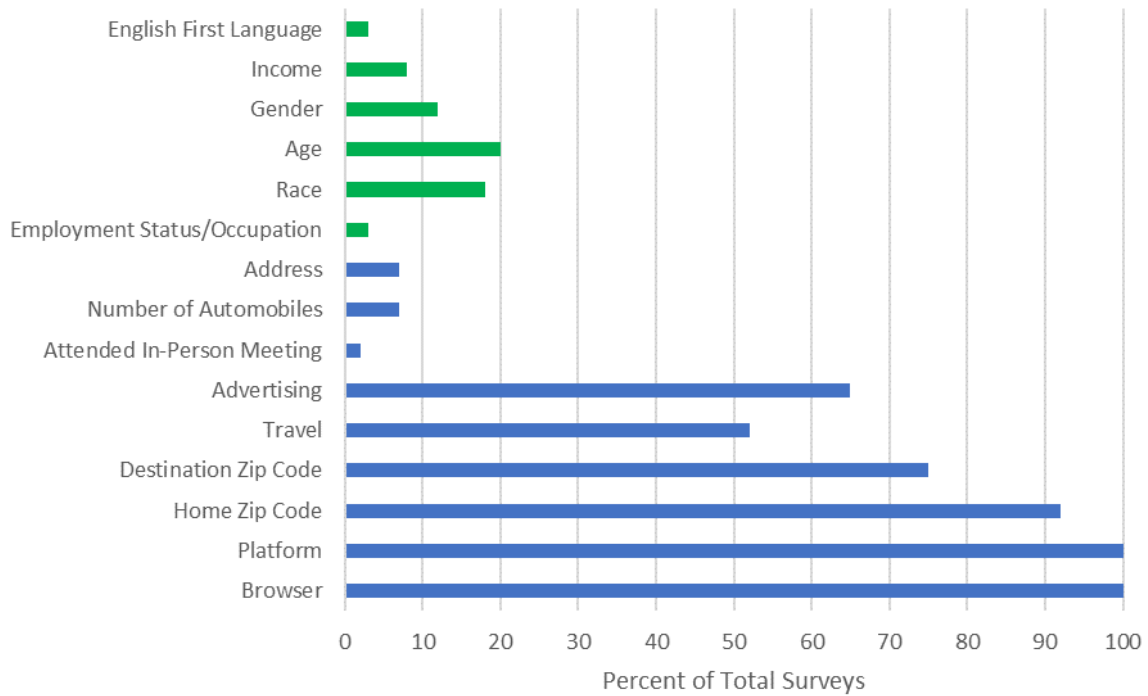


Figure 36. Participant Data Collected From District Surveys. Green bars = demographic data; blue bars = non-demographic data.

Figure 37 shows the types of participant information collected from the MPO and PDC surveys where browser type, platform type, and home zip code were collected in 100% of the studies. For demographic-specific data (green bars), information on race (64% of studies), age (43% of studies), gender (14% of studies), and employment status/occupation (7% of studies) was collected.

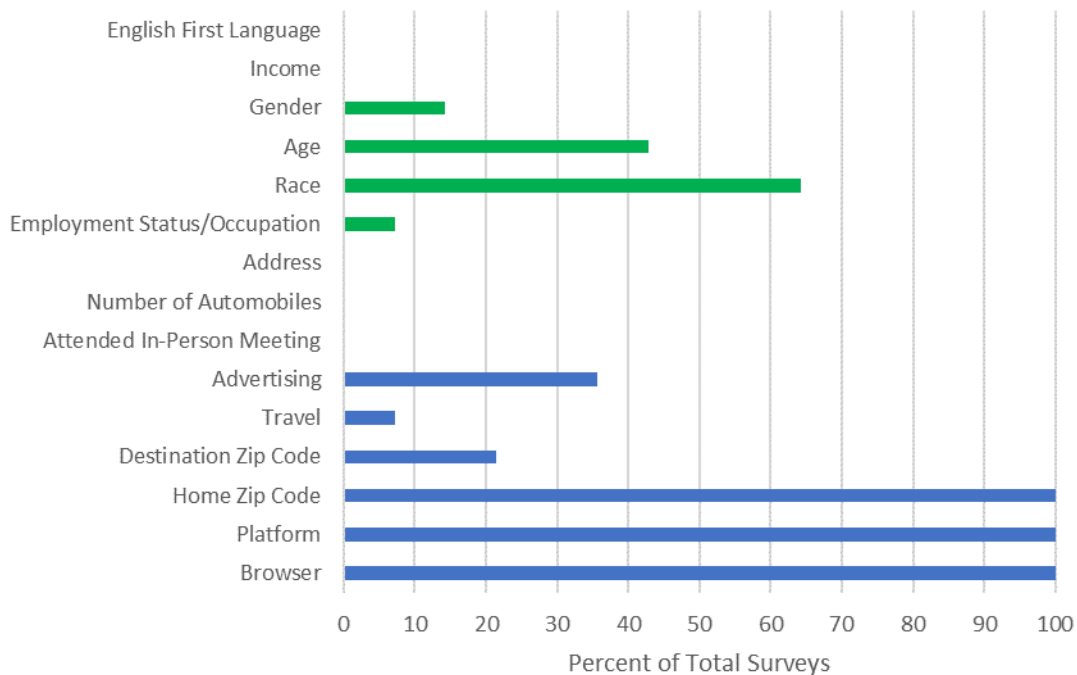


Figure 37. Participant Data Collected From MPO/PDC Surveys. MPO = metropolitan planning organization; PDC = planning district commission; green bars = demographic data; blue bars = non-demographic data.

Home zip code data can be used to understand the general area in which participants live. This information can be helpful in understanding the success of outreach and marketing campaigns, especially with respect to reaching underserved communities. However, Forrest (2019) cautioned that zip code data do not represent an actual area on a map but rather a collection of routes that help postal workers effectively deliver mail. Therefore, zip code data are not designed to measure sociodemographic trends. Based on participant zip code data throughout Virginia and neighboring states from all MetroQuest surveys administered from November 1, 2019, to July 7, 2021, Figure 38a shows all zip codes represented by all participants and Figure 38b shows a heat map of the concentration of participation, where red zones have the highest concentration of participation (typically in the more urbanized areas of the state).

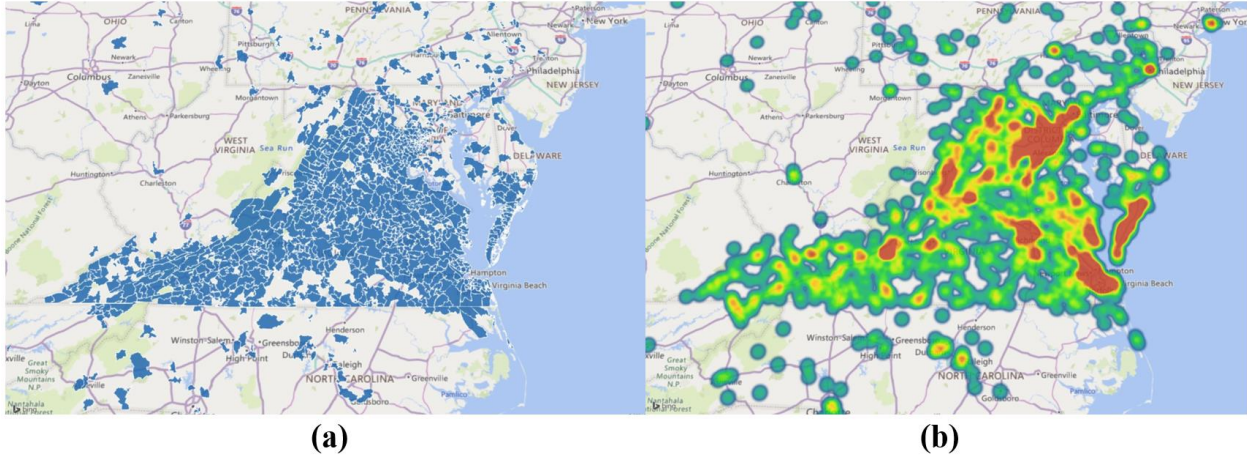


Figure 38. Participant Zip Code Data: (a) zip codes represented by all participants; (b) heat map of highest concentration of participants.

Outreach and Marketing

Understanding how participants heard about the MetroQuest surveys is an important component of gaining insight into outreach and marketing strategies. For all of the surveys conducted from November 1, 2010, to July 7, 2022, Figure 39 shows how participants heard about the survey. Facebook was the predominant medium participants cited (60% of all participants). The “Other” category (data were not collected on what “other” media were) was cited as the next closest medium at 18%. When these data were filtered by districts and MPOs/PDCs, similar trends were observed. Specific data from each district and the MPO/PDC studies are shown in Appendix C.

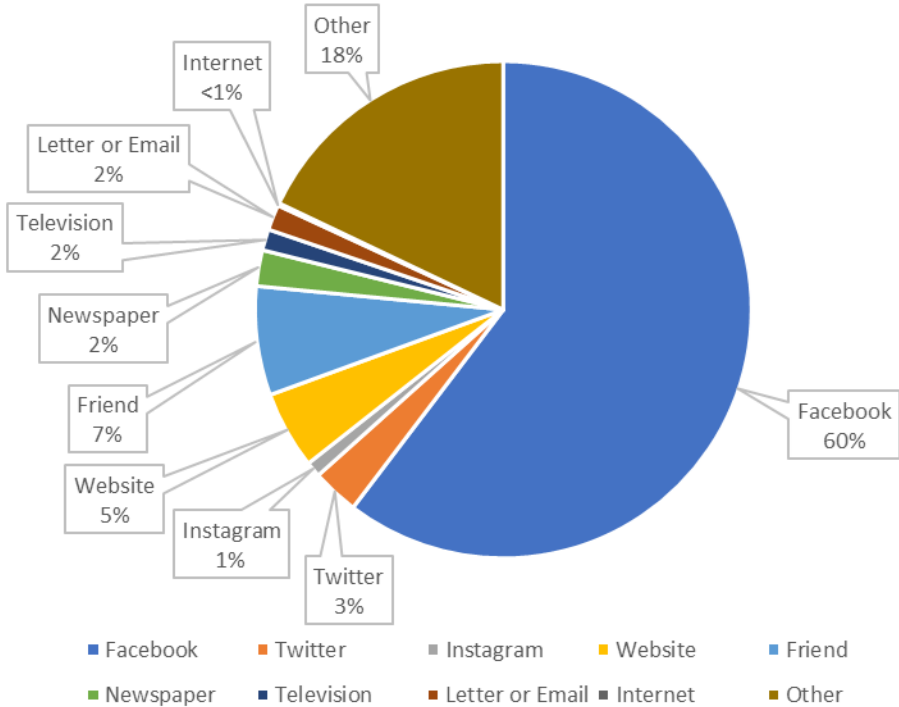


Figure 39. How Participants Heard About the Survey Across All Studies

When cumulative distributions of participant traffic were examined over time (open to end dates of surveys) for all of the studies, three trends were typically observed: (1) linear, (2) polynomial, and (3) logarithmic cumulative distributions. By studying these distributions in relation to marketing initiatives, the effect outreach strategies have on participation can be better understood. As an example, Figure 40 shows the cumulative participation of three studies: (1) the Northern Virginia District STARS Route 123 at Old Bridge Road intersection study (linear distribution); (2) the Fredericksburg District study on the US 17/360 corridor (polynomial distribution); and (3) the Danville MPO study on the Piney Forest Road corridor (logarithmic distribution).

When outreach and marketing promotions are considered, linear-type cumulative distributions may signify consistent promotions throughout the span of the survey period (potential example shown in Figure 40a); cumulative distributions may signify an initial period of promotion activity that begins to trail off at some point during the survey period (potential example shown in Figure 40b); and logarithmic distributions may signify a robust early promotion activity followed by another robust promotion activity at some point during the survey period (potential example shown in Figure 40c).

Further examination of outreach initiatives for the Piney Forest Road corridor study (Figure 40c) showed that from April 20, 2020 (open date of survey), to May 23, 2020, there were 139 participants (an average of roughly 4 participants per day). From May 23, 2020, to the survey close date of June 1, 2020, there were 423 additional participants (an average of roughly 47 participants per day). Figure 41a shows the platform distributions of the before period (April 20, 2020, to May 23, 2020), and Figure 42b shows the after period (May 23, 2020, to June 1, 2020) where accessing the survey through mobile devices sharply increased. Similarly, Figure 42 shows Facebook (the primary social media platform where participants found out about the survey) activity increasing sharply from the before period (Figure 41a) to the after period (Figure 42b). This project-specific analysis indicated a pronounced social media outreach campaign where Facebook marketing had a big impact and mobile devices were the primary means to access Facebook.

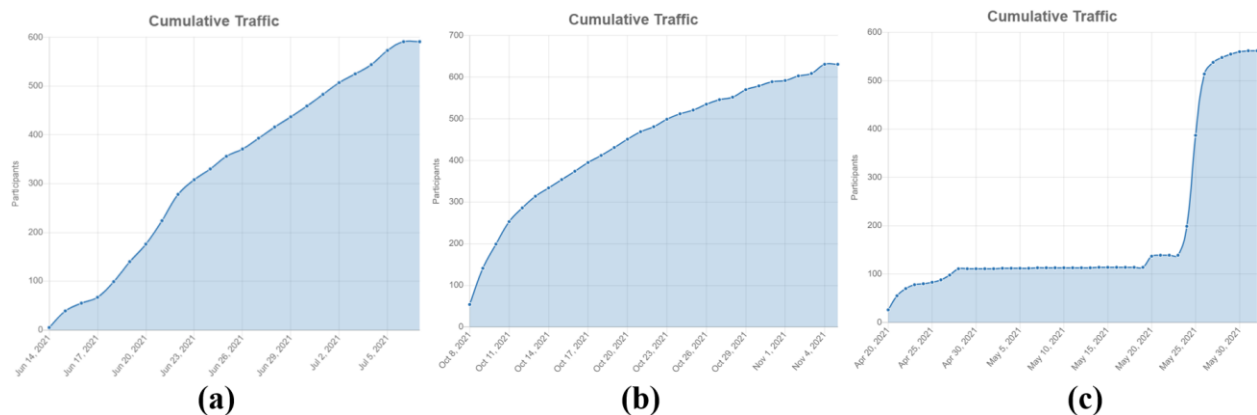


Figure 40. Cumulative Participation Over the Survey Period for Three Studies: (a) Northern Virginia District STARS Route 123 at Old Bridge Road intersection study (linear distribution); (b) Fredericksburg District study on the US 17/360 corridor (polynomial distribution); (c) Danville MPO study on the Piney Forest Road corridor (logarithmic distribution). STARS = Strategically Targeted Affordable Roadway Solutions; MPO = metropolitan planning organization.

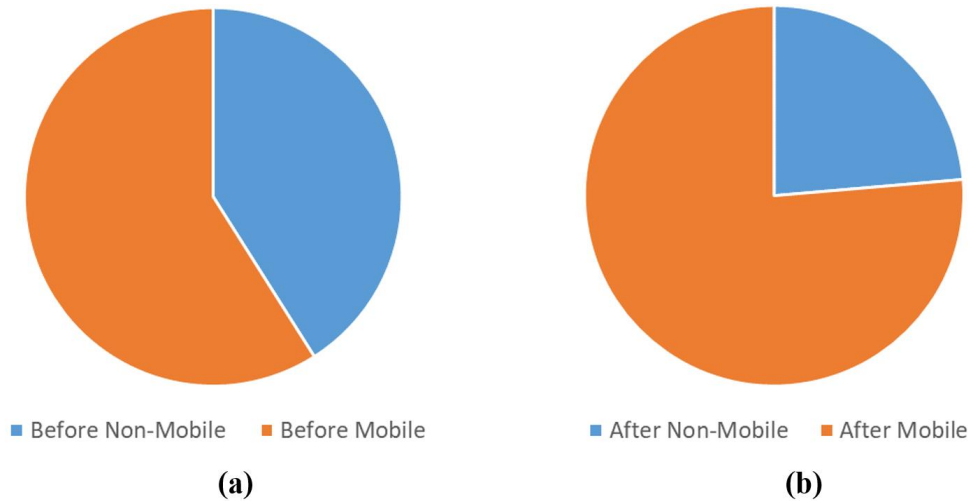


Figure 41. Mobile vs. Non-Mobile Platform Access: (a) before period; (b) after period.

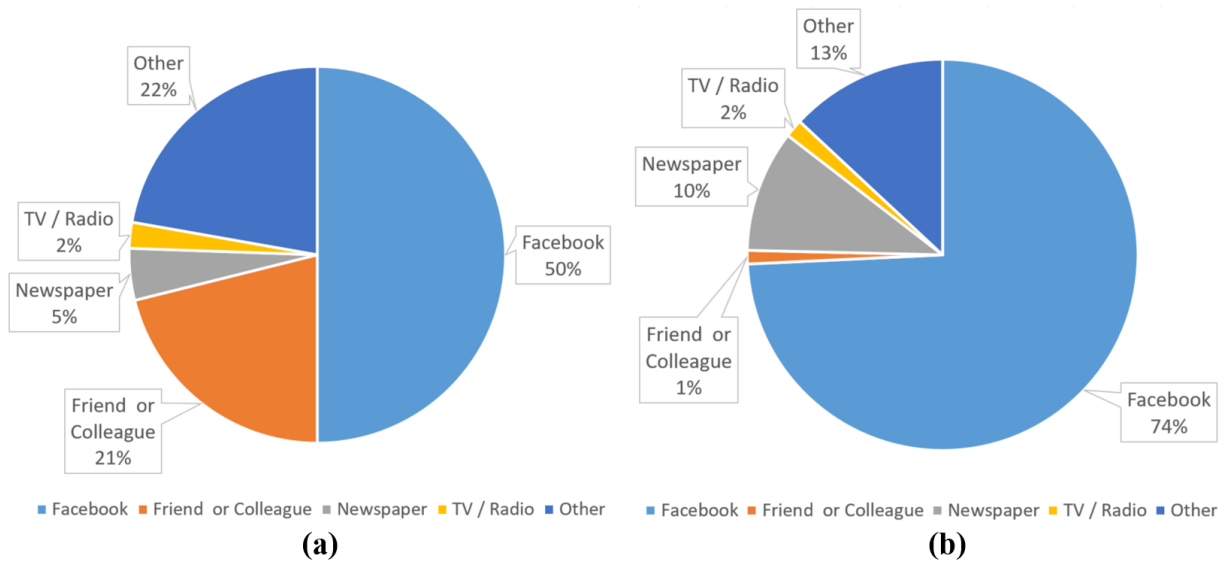


Figure 42. How Participant Heard About the Survey: (a) before period; (b) after period.

CONCLUSIONS

- The benefits of virtual public engagement in terms of increased participation are widely acknowledged.* Based on findings from the literature review; the surveys of other state DOTs, VDOT districts, and Virginia MPOs; and data collected from VDOT’s public engagement initiatives, virtual participation far exceeds that of in-person participation. There are a number of factors that contribute to higher levels of virtual participation including flexibility to engage at times and locations more convenient for the public, ease of participation through on-demand online surveys or meeting recordings, and higher comfort levels where virtual participants do not feel the pressure and insecurities of providing in-person input on projects and plans. With the proliferation of social media use, one of the most influential outreach mechanisms for marketing public engagement events has been through using social media, in particular Facebook. Social media platforms offer agencies a

lower-cost means to promote virtual engagement events, thereby helping to increase market penetration. In addition, higher levels of virtual participation have been influenced by the more prolific use of mobile devices combined with the development of virtual engagement platforms that can be accessed through mobile devices.

- *Virtual public engagement challenges exist, particularly with respect to achieving participation from underserved communities.* Even with a general increase in public participation for virtual events, underserved communities continue to be underrepresented. The literature underscores this with regard to the digital divide that still persists across socioeconomic factors, as do survey respondent perspectives on participation, whether from qualitative or quantitative data. Normalized quantitative data from VDOT show that the level of participation from non-English language participants is well below that of English language participants. Institutionally, targeting underserved communities, including developing, marketing, and translating engagement material, requires effort, and staffing limitations can hinder efforts.
- *There are outreach avenues that exist to improve participation levels from underserved communities.* Through pre-engagement analyses of study area demographics, targeted outreach methods can be used to include both geo-fenced social media campaigns and traditional non-virtual marketing campaigns such as distributing flyers, mailing project pamphlets, visiting with local leaders and community centers, etc. A particularly important aspect of identifying the performance of outreach initiatives is demographic data. Collecting demographic data on a consistent basis during engagement is crucial to better understand the breadth of outreach. Post-engagement evaluations close the hypothetical engagement loop, which allows for an iterative analytical process to measure the effectiveness of outreach initiatives to underserved communities. Feedback obtained from the surveys and VDOT public engagement data underscore the need for a more consistent process to identify underserved populations pre-engagement, collect demographic data during engagement, and measure effectiveness post-engagement.
- *A hybrid approach of in-person and virtual events will be the future of public engagement for transportation planning PIMs.* Survey respondents thought that a hybrid of virtual and in-person public engagement will be course of the future. How to manage this hybrid approach is something DOTs are grappling with, from staffing and technology requirements to the collection and evaluation of data. Guidance for hybrid public engagement is needed.

RECOMMENDATIONS

1. *VDOT's TMPD should update IIM-TMPD-4.0 (Public Participation / Public Involvement in Transportation Planning Studies) to include data collection guidance specific to on-demand public input surveys.* This guidance should include methods for identifying underrepresented communities within project influence areas; outreach strategies via social media (e.g., geo-fenced Facebook advertising) and traditional approaches; collection of consistent demographic data; and measurement of the effectiveness of outreach initiatives post-engagement.

2. *VDOT's TMPD in collaboration with VDOT's Communications Division should develop guidance for district planners on conducting and managing hybrid public engagement events.* This guidance should include staffing and technology strategies for live meetings where engagement involves in-person and virtual (live video streaming) participation; strategies for collecting consistent demographic data for hybrid live meetings; strategies for collecting data and managing a hybrid approach to project-specific in-person open houses (or PIMs); and strategies for using on-demand virtual public input tools.

IMPLEMENTATION AND BENEFITS

Researchers and the technical review panel (listed in the Acknowledgments) for the project collaborate to craft a plan to implement the study recommendations and to determine the benefits of doing so. This is to ensure that the implementation plan is developed and approved with the participation and support of those involved with VDOT operations. The implementation plan and the accompanying benefits are provided here.

Implementation

With regard to Recommendation 1, VTRC staff will develop a public engagement data collection form and share it with the TMPD's Multimodal Programs Manager for review. Upon review and subsequent revision of the form, TMPD's Multimodal Programs Manager will share the form with the Director of VDOT's Communications Division for vetting with internal stakeholders. By summer 2023, VTRC staff will meet in person with TMPD's Multimodal Programs Manager to finalize the form for processing into a revised IIM-TMPD-4.0.

With regard to Recommendation 2, TMPD staff will monitor the progress of national initiatives with a specific focus on NCHRP 08-142 (expected completion date is March 20, 2024), which will provide guidance on integrating virtual and in-person public involvement. The guidance provided in this document and other future research will help provide a framework with which TMPD and the Communications Division can develop guidance and ultimately share it with VDOT districts as either a revision of IIM-TMPD-4.0 or a newly established IIM. If TMPD thinks that that additional research is necessary, a problem statement will be developed and presented as a research need at the spring or fall 2024 meeting of the VTRC Transportation Planning Research Advisory Committee.

Benefits

With regard to implementing Recommendation 1, the developed data collection guidance will provide a consistent approach across VDOT districts to reach and engage underserved and underrepresented communities. In addition, the guidance will provide a consistent approach to measuring the effectiveness of outreach and engagement efforts, which will help to inform and shape future outreach initiatives.

With regard to implementing Recommendation 2, the development of guidance for hybrid events will lead to a more streamlined and consistent process for conducting, managing, and evaluating public engagement. Since hybrid events are the course of the future, the developed guidance will result in fewer logistical problems for public engagement events.

ACKNOWLEDGMENTS

The authors thank the following individuals who served on the technical review panel for this study: Shane Sawyer (Project Champion and Multimodal Planning Programs Manager, VDOT TMPD), Hyun Cho (Research Scientist, VTRC), David Cook (Transportation Planner, Lynchburg District), Ben Mannell (Assistant Director of Planning, VDOT TMPD), Shannon Marshall (Communications Director, VDOT Communications Division), Carol Moneymaker (Planning Specialist, Salem District), Terry Short (Special Funding Program Supervisor, VDOT Local Assistance Division), and John Simkins (Planning, Environment, Realty, and Freight Team Leader, FHWA–Virginia Division). The authors also thank the following individuals for their assistance: Blake Ailor, Michelle Earl, Michael Gray, Kelly Hannon, Jacob Herrman, Kathleen Leonard, Jeff Lineberry, Liz McAdory, Jerry Pauley, Charles Proctor, Riana Rosado, Eric Stringfield, Keisha Wilkins, and Rick Youngblood, from VDOT; Michael Armbrister from the Danville-Pittsylvania MPO; Ann Cundy from the Harrisonburg-Rockingham MPO; John Madera from the Winchester-Frederick MPO; Erik Olsen from the New River Valley MPO; Rachel Ruhlen from the Roanoke Valley Area TPO; John Swanson from MWCOG; all of the survey respondents; and Amy O’Leary, Ramkumar Venkatanayarana, and Linda Evans from VTRC.

REFERENCES

- AASHTO. *Using Social Media to Reach Environmental Justice Communities*. Center for Environmental Excellence, Washington, DC, 2018.
- Aimen, D., and Morris, A. *NCHRP Report 710: Practical Approaches for Involving Traditionally Underserved Populations in Transportation Decisionmaking*. Transportation Research Board, Washington, DC, 2012.
- Alabama Department of Transportation. *Public Involvement Plan for the Environmental Process*. Montgomery, 2015.
- Alluri, P., Nafis, S., Soto, F., Gonzalez, M., and Gan, A. *Use of Communication Technologies to Enhance Public Involvement in Transportation Projects*. Lehman Center for Transportation Research, Florida International University, Miami, 2018.
- Annarino, M. Email to L.E. Dougald, July 25, 2022.
- Brown, B., Gunby, K., Strausz-Clark, J., Fruge, A., Glaze, S., Findlay, M., Tuia, J., and Hajnosz, I. *NCHRP Research Report 905: Measuring the Effectiveness of Public Involvement in*

Transportation Planning and Project Development. Transportation Research Board, Washington, DC, 2019.

Central Virginia Transportation Planning Organization. Connect Central Virginia 2045 LRTP. 2022. <https://www.cvtpo.org/connect-central/long-range-transportation-plan-2045.html#:~:text=The%20Long%20Range%20Transportation%20Plan,biking%2C%20walking%2C%20and%20more>. Accessed August 1, 2022.

Denker, M., and Kanter, A.Z. Lessons From Transportation Planners' Pivot to Virtual Engagement. American Planning Association, 2021. <https://www.planning.org/planning/2021/fall/lessons-from-transportation-planners'-pivot-to-virtual-engagement/>. Accessed August 1, 2022.

Denker, M., Flynn, M., Donovan, S., Carr, T., and Zazula, A. It's Time for Public Participation to Evolve With Transportation Planning. Planetizen, 2021. <https://www.planetizen.com/features/115279-its-time-public-participation-evolve-transportation-planning>. Accessed August 1, 2022.

Federal Highway Administration, Office of Planning, Environment, and Realty. Public Involvement. 2020a. https://www.fhwa.dot.gov/planning/public_involvement/vpi/. Accessed August 5, 2020.

Federal Highway Administration. Public Involvement for a 21st Century Audience. *Innovator*, Vol. 13, Issue 77, March/April, 2020b. https://www.fhwa.dot.gov/innovation/innovator/issue77/page_01.html. Accessed August 5, 2020.

Federal Highway Administration. Virtual Public Involvement. Center for Accelerating Innovation, Every Day Counts, 2021a. https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/virtual_public_involvement.cfm. Accessed August 1, 2021.

Federal Highway Administration. Innovation of the Month: Virtual Public Involvement. Center for Accelerating Innovation, Every Day Counts, 2021b. <https://www.fhwa.dot.gov/innovation/everydaycounts/edcnews/20210610.cfm>. Accessed August 1, 2022.

Federal Highway Administration. The Evolution of Virtual Public Involvement (VPI) During the Pandemic: State Transportation Agency Practices and Lessons Learned [Video], 2021c. https://www.fhwa.dot.gov/planning/public_involvement/vpi/. Accessed October 19, 2022.

Federal Highway Administration. STICs Deploy Homegrown Innovations. *Innovator*, Vol. 14, Issue 84, May/June, 2021d. <https://www.fhwa.dot.gov/innovation/innovator/issue84/issue84.cfm#a4>. Accessed May 4, 2021.

- Federal Highway Administration. Virtual Public Involvement. Center for Accelerating Innovation, Every Day Counts, 2022a.
https://www.fhwa.dot.gov/innovation/everydaycounts/edc_6/virtual_public_involvement.cfm. Accessed August 1, 2022.
- Federal Highway Administration. Innovation of the Month: Virtual Public Involvement. Center for Accelerating Innovation, Every Day Counts, 2022b.
<https://www.fhwa.dot.gov/innovation/everydaycounts/edcnews/20220331.cfm>. Accessed August 1, 2022.
- Florida Department of Transportation. *Addressing Accessibility Challenges for Reaching People Virtually*. Office of Planning, Tallahassee, 2020.
- Florida Department of Transportation. *Public Involvement Handbook*. Tallahassee, 2021.
- Forrest, M. Stop Using Zip Codes for Geospatial Analysis. CARTO, 2019.
<https://carto.com/blog/zip-codes-spatial-analysis/>. Accessed August 2, 2022.
- Goldman, J., Green, R., Ramsey, S., and Walcott, K. *Virtual Engagement Guidebook*. National Center for Applied Transportation Technology, Washington, DC, 2021.
- Grant, M., Morris, A., Strum-Gilliam, T., and Brown, L. *Community Impact Assessment (CIA) Update and Related Examples*. FHWA-HEP-18-055. ICF International, Fairfax, VA, 2018.
- Grover, J., and Robbins, J. Using VPI When Engaging Traditionally Underserved Communities [Video]. 2020.
https://www.fhwa.dot.gov/planning/public_involvement/vpi/peer_exchanges/. Accessed August 1, 2022.
- Holley, K. *The Principles for Equitable and Inclusive Civic Engagement*. Kirwan Institute, Ohio State University, Columbus, 2016.
- Howard, S. Email to L.E. Dougald, March 4, 2022.
- Iowa Department of Transportation. Iowa DOT Title VI Public Participation Survey. Civil Rights Bureau, Ames, 2021.
- Kramer, J., and Tremblay, N. *2018 Assessment of the Practice of Public Involvement in Florida*. FDOT BDV25-977-46. University of South Florida Center for Urban Transportation Research, Tampa, 2019.
- McClain, C. 34% of Lower-Income Home Broadband Users Have Had Trouble Paying for Their Service Amid COVID-19. Pew Research Center, 2021.
<https://www.pewresearch.org/fact-tank/2021/06/03/34-of-lower-income-home->

- broadband-users-have-had-trouble-paying-for-their-service-amid-covid-19/. Accessed August 1, 2022.
- Memphis Metropolitan Planning Organization. 2020 Public Participation Plan (PPP). Memphis, TN, 2020.
- MetroQuest [Producer]. Essential Online Public Engagement Toolbox for Planning [Video]. 2020. <https://metroquest.com/webinars/webinar-essential-online-public-engagement-toolbox-for-planning/>. Accessed October 19, 2022.
- Michigan State University [Producer]. Why Do Public Participation? The Importance of Actively Engaging the Public [Video]. 2020. <https://www.canr.msu.edu/nci/webinars/power-of-participation-webinar-series>. Accessed October 19, 2022.
- Minnesota Department of Transportation. *Language Assistance Plan—Ensuring Meaningful Access for Limited English Proficient Individuals*. Saint Paul, 2021.
- North Dakota Department of Transportation. *Appendix 2: Transportation Connection Public Engagement Summary*. Bismarck, 2021.
- Perrin, A. Mobile Technology and Home Broadband. Pew Research Center, 2021. <https://www.pewresearch.org/internet/2021/06/03/mobile-technology-and-home-broadband-2021/>. Accessed August 1, 2022.
- Read, A. Planning Fundamentals for Public Officials and Engaged Citizens. *PAS QuickNotes, No. 51*. American Planning Association, Chicago, 2014.
- Salerno, M., Sanchez, T., Tomasello, S., and Metz, D. *NCHRP Synthesis 538: Practices for Online Public Involvement*. Transportation Research Board, Washington, DC, 2019.
- Strong, Prosperous, and Resilient Communities Challenge (SPARCC). Engaging for Equity in a World of COVID-19. 2021. <http://www.sparcchub.org/2020/05/20/engaging-for-equity-in-a-world-of-covid-19/>. Accessed August 1, 2022.
- Texas Department of Transportation. *Virtual Public Involvement Summary—March 15, 2020 to June 11, 2020*. Public Involvement Section, Transportation Planning and Programming, Austin, 2020.
- Transportation Research Board. NCHRP 08-142 [Active], Virtual Public Involvement: A Manual for Effective, Equitable, and Efficient Practices for Transportation Agencies. 2021. <https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4953>. Accessed August 2, 2022.
- Transportation Research Board. NCHRP 08-161 [Pending], Cultivating Accountability Through Meaningful Public Engagement. 2022.

- <https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5139>. Accessed August 2, 2022.
- Twaddell, H., and Zgoda, B. *Equity Analysis in Regional Transportation Planning Processes*. Transportation Research Board, Transit Cooperative Research Program, Washington, DC, 2020.
- U.S. Census Bureau. American Community Survey, Types of Computers and Internet Subscriptions. 2020.
<https://data.census.gov/cedsci/table?q=internet%20&tid=ACST5Y2020.S2801>. Accessed August 3, 2022.
- U.S. Department of Justice. 2015 Language Map App. Civil Rights Division, 2015.
<https://www.lep.gov/maps/lma2015/Final>. Accessed August 2, 2022.
- U.S. Department of Justice. Limited English Proficiency. Civil Rights Division, 2020.
<https://www.lep.gov/source-and-methodology>. Accessed August 2, 2022.
- Virginia Department of Transportation. *Environmental Justice Guidelines*. Civil Rights Division, Richmond, 2015.
- Virginia Department of Transportation. *CY 2018-2021 Business Plan*. Richmond, 2018.
- Virginia Department of Transportation. Public Participation / Public Involvement in Transportation Planning Studies. *Instructional and Informational Memorandum IIM-TMPD-4.0*. Transportation Planning and Mobility Division, Richmond, 2019.
https://www.virginiadot.org/business/resources/IIM/TMPD-4.0_Public_Participation-_Planning_Studies-8-15-19.pdf. Accessed September 23, 2022.
- Virginia Department of Transportation. Studies: Route 1 Corridor Study, Spotsylvania County. 2020. <https://www.virginiadot.org/projects/fredericksburg/route-1-corridor-study,-spotsylvania-county.asp>. Accessed August 1, 2022.
- Virginia Department of Transportation. *Public Involvement Manual—Policy Manual for Public Participation in Transportation Projects*. Richmond, 2021a.
- Virginia Department of Transportation. Studies: Route 631 (5th Street/Old Lynchburg Road) Corridor, Charlottesville & Albemarle. 2021b.
<https://www.virginiadot.org/projects/culpeper/5th-st-corridor-study.asp>. Accessed August 1, 2022.
- Virginia Department of Transportation. Studies: Route 50 STARS Safety and Operational Improvements Study—Falls Church. 2022.
<https://www.virginiadot.org/projects/northernvirginia/route50fallschurchstudy.asp>. Accessed August 1, 2022.

Vogels, E.A. Digital Divide Persists Even as American With Lower Incomes Make Gain in Tech Adoption. Pew Research Center, 2021. <https://www.pewresearch.org/fact-tank/2021/06/22/digital-divide-persists-even-as-americans-with-lower-incomes-make-gains-in-tech-adoption/>. Accessed August 1, 2022.

Wrabel, A. As Local Government Meetings Moved Online, Public Participation Jumped. *The Daily Progress*, 2021. https://dailyprogress.com/news/local/govt-and-politics/as-local-government-meetings-moved-online-public-participation-jumped/article_f7e98970-86b0-11eb-b1b9-c36c20bb6b3c.html. Accessed August 1, 2022.

Zimmerman, M. Inclusive Investment Starts With Equitable Community Engagement. SPARCC, 2019. <https://www.sparcchub.org/2019/09/23/report-inclusive-investment-starts-with-equitable-engagement/>. Accessed October 19, 2022.

APPENDIX A

VDOT DISTRICT SURVEY

VDOT Virtual Public Engagement Survey

This survey to VDOT district planners is designed to obtain opinions on public engagement in the early phases of the transportation planning process (such as public information meetings). The questions cover three topic areas: in-person public engagement (pre-pandemic); virtual public engagement (during the pandemic); and the future of public engagement. Your answers will help inform a VTRC project. Thank you for your assistance!

* Required

1. Email *

2. Your Name: *

3. VDOT District: *

In-Person Public Engagement (pre-pandemic)

4. Pre-pandemic (from 2015 to 2019), on average, approximately how many in-person public engagement initiatives did you conduct per year? *

Mark only one oval.

- 5 or less
 6 to 10
 More than 10

5. On average, how many people typically attend an in-person public engagement event in your district? (If a range is * more appropriate, please indicate a range).

6. For the in-person public engagement events, did you collect demographic information from participants? *

Mark only one oval.

- Yes
- No Skip to question 10
- Unknown Skip to question 10

7. What types of demographic information did you collect? (select all that apply) *

Check all that apply.

- Race
- Gender
- Education level
- Age
- Income
- Disability
- Other: _____

8. For what purpose did you collect demographic information? *

9. What additional information did you typically collect from in-person public engagement participants? (Select all that apply)

Check all that apply.

- Attendance
- Contact information
- Comments
- Other: _____

Skip to question 11

10. What information did you typically collect from in-person public engagement participants? (Select all that apply) *

Check all that apply.

- Attendance
- Contact information
- Comments
- Other: _____

11. Did you keep records of the information you collected from in-person participants? *

Mark only one oval.

- Yes
- No
- Unknown

12. What is the average cost including labor, materials, and advertising for conducting an in-person public engagement meeting? *

13. What sources were used to advertise in-person public engagement initiatives? *

14. On a scale of 1-5, how would you rate your satisfaction with in-person public engagement meetings? (With 1 being highly unsatisfied and 5 being highly satisfied.) *

Mark only one oval.

1 2 3 4 5

Highly unsatisfied Highly satisfied

15. Please provide the reason(s) for your satisfaction rating of in-person public engagement meetings. *

Virtual Public Engagement (during the pandemic)

This section asks questions about virtual public engagement (live meetings, open houses, online surveys) during the pandemic (from January 2020 to present).

16. Since January 2020, approximately how many virtual public engagement initiatives has your district conducted? *

17. What methods have you have used to conduct virtual public engagement? (select all that apply) *

Check all that apply.

- Live meetings
- Open houses
- Online surveys
- Other: _____

18. What is the primary method you have used for virtual public engagement? *

Mark only one oval.

- Live meetings
- Open houses
- Online surveys
- Other: _____

19. When thinking about the primary method you have used for virtual public engagement, what is the most often used virtual platform (i.e, Zoom, MetroQuest, SurveyMonkey, etc.)? *

20. Considering that VDOT has procured MetroQuest as a virtual platform for public information meetings, on a scale of 1-5 (with 1 being very unsatisfied and 5 being very satisfied), how satisfied are you with MetroQuest? *

Mark only one oval.

	1	2	3	4	5	
Very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very satisfied

21. Please provide the reason(s) for your satisfaction rating of MetroQuest. *

22. Does your district attempt to collect demographic information from virtual participants? *

Mark only one oval.

Yes

No *Skip to question 25*

Unknown *Skip to question 25*

23. What are the demographic data that you typically collect? (Select all that apply.) *

Check all that apply.

Race

Gender

Education level

Age

Income

Disability

Other: _____

24. For what purposes do you collect demographic data? *

25. Do you offer second language(s) versions of virtual engagement material? *

Mark only one oval.

- Yes
- No *Skip to question 28*
- Unknown *Skip to question 28*

26. Do you have a procedure to determine when additional language resources are required? (If yes, please describe that procedure). *

27. How do you manage translation of second language materials (for example, in-house, contract services, etc.)? *

28. What sources do you use to advertise virtual engagement initiatives? *

29. What is the average cost for advertising a virtual engagement initiative? *

30. Are there specific virtual engagement marketing initiatives that you have found more successful in gaining greater participation from underserved communities? (If yes, please describe those initiatives).

Future of Public Engagement (post pandemic)

31. How do you envision the future of public engagement for planning information meetings where public comment is requested for project alternatives?

Mark only one oval.


- Virtual engagement only *Skip to question 33*
- Hybrid of both virtual engagement and in-person engagement *Skip to question 32*
- In-person engagement only *Skip to question 33*
- Other: _____

32. Please provide your thoughts on logistics including both positive and negative aspects of conducting and managing a hybrid approach of virtual and in-person engagement. *

33. If you have additional input on the past, present, and future of public engagement, please share your thoughts!

APPENDIX B

VDOT TITLE VI DEMOGRAPHICS SURVEY FORM



Demographic Survey

Pursuant to Title VI of the Civil Rights Act of 1964 and related nondiscrimination authorities, the Virginia Department of Transportation collects responses to the questions below in order for us to evaluate access to public meetings for ALL persons in the community. Disclosure of this information is strictly voluntary and anonymous.

1. Please check the block for the racial group and the ethnicity with which you identify:

White

German Irish English
 Italian Polish French

Print for example: Scottish, Norwegian, etc.

Black / African American

African American Jamaican Haitian
 Nigerian Ethiopian Somali

Print for example: Gambian, South African etc.

Hispanic / Latino or Spanish

Mexican or Mexican American Puerto Rican
 Cuban Dominican Salvadoran

Print for example: Guatemalan, Spaniard etc.

Middle Eastern or North African

Lebanese Iranian Egyptian
 Syrian Moroccan Algerian

Print for example: Israeli, Iraqi, etc.

American Indian / Alaskan Native

Asian

Chinese Filipino Asian Indian
 Vietnamese Korean Japanese

Print for example: Pakistani, Cambodian, etc.

Native Hawaiian or other Pacific Islander

Native Hawaiian Samoan Fijian
 Chamorro Tongan Marshallese

Print for example: Palauan, Tahitian etc.

Some other Race or Ethnicity _____

2. Please indicate your age group:

18-25 26-39 40-65 Over 65

3. Please indicate how you found out about this public meeting:

Internet Newspaper
 Flyer Other _____

4. Were special accommodations to access the meeting facility requested?

Yes No

If yes, were the accommodations received?

Yes No

5. Do you speak a language other than English?

Spanish French Korean
 Arabic Tagalog
 Other _____

6. Were special accommodations such as language translation, sign language, Braille or large print documents, etc. requested for participation in this public forum?

Yes No

If yes, were the accommodations received?

Yes No

For Office Use Only

Project Name	
State Project Number	
Federal Project Number	
Project Location	
Type of Meeting	
Date of Meeting	
Title VI Impact	<input type="checkbox"/> No <input type="checkbox"/> Yes, explain
Recommendation	

If you have any questions or need assistance, please contact VDOT's Civil Rights Division at 804-786-2730.
7511 Burbage Drive, Suffolk, VA 23435

APPENDIX C

HOW PARTICIPANTS HEARD ABOUT THE SURVEY

The following provides the means by which participants heard about the surveys based on the subset of data extracted from MetroQuest during the period November 1, 2019, to July 7, 2021. It should be noted that not all surveys collected this information. Figures C1 through C9 correspond to the studies listed in Table C1. The study names are as given in the MetroQuest database.

Table C1. District and MPO/PDC Studies Used in the Analysis of How Participants Heard About the Survey

District/MPO/PDC	Study	Corresponding Figure
Bristol	I-81 Exit 77 and 80 -STARS-Study	C1
	STARS Route 460 and College Ave Corridor Improvements – Town of Bluefield	
Fredericksburg	US 17/360 Corridor Study	C2
Hampton Roads	Godwin Boulevard Corridor Study	C3
	I-264 and Brambleton Ave	
	Route-17 Isle of Wight	
	STARS Route 143 Jefferson Avenue Corridor Study	
	US 17 Arterial Management Plan	
	Route 17 Isle of Wight(2)	
Lynchburg	Route 60 Corridor Study	C4
	South Amherst Highway Corridor Study	
	South Amherst Highway Corridor Study Old	
Northern Virginia	Prince William-Parkway at Old Bridge-Road STARS Safety and Operational Improvements Study	C5
	Route 28 Centreville Road Survey	
	Route 50 Chantilly STARS Study	
	Route 50 STARS Safety and Operational Improvements – Falls Church	
	Route 50 STARS Safety and Operational Improvements Study – Falls Church(2)	
	Route 50 STARS Safety and Operational Improvement Study - Arlington	
	Rte 50 Arlington	
	Russell Road STARS Study	
	Route 123 at Old Bridge Road Intersection STARS Study	
	STARS I 95 and Route 123 (2)	
	STARS Route 123 at Route 1	
Richmond	I-9564 at Belvidere Street Interchange Study – 28	C6
	Route-250 West Broad Street Corridor Improvement STARS Study	
	Route 288 US Route 1 to I 95 Corridor-Study	
	STARS South Laburnum Study	
	US 360 Arterial Management Plan	
	US 360 Arterial Management Plan Survey	
	VDOT STARS Route 36	
West Broad Street STARS Study		
Salem	Route 460 Operational Improvements Study	C7
Staunton	Pleasant Valley Road Improvement Study	C8
	STARS US 11 – Harrisonburg	
	US 33 AMP Survey	
	Route 7 STARS Berryville Ave Pk	
CVPDC	CVPDC Rustburg Village Highway RTE 24 Corridor Study	C9
CVTPO	Rustburg Village Highway Study	
WinFred MPO	Winchester Bikeshare	
Danville MPO	Piney Forest Road Corridor Study	
RRTPO	Budget Allocations (2)	

The study names are as given in the MetroQuest database. CVPDC = Central Virginia Planning District Commission; CVTPO = Central Virginia Transportation Planning Organization; WinFred MPO = Winchester-Fredericksburg Metropolitan Planning Organization; RRTPO = Richmond Regional Transportation Planning Organization.

Bristol District

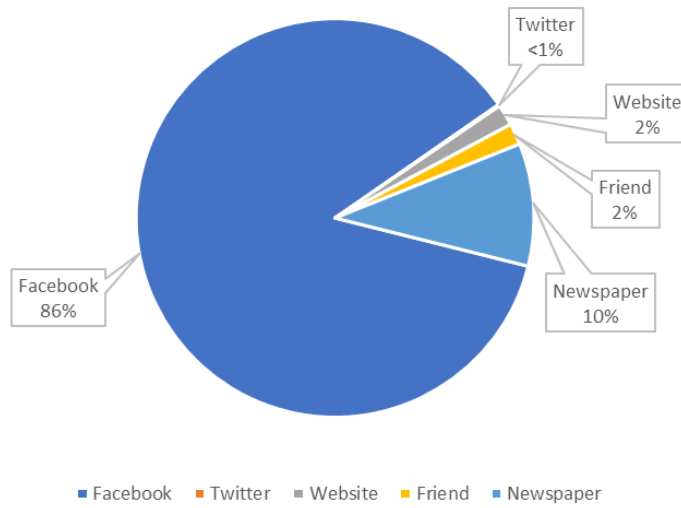


Figure C1. How Participants Heard About the Survey in the Bristol District

Fredericksburg District

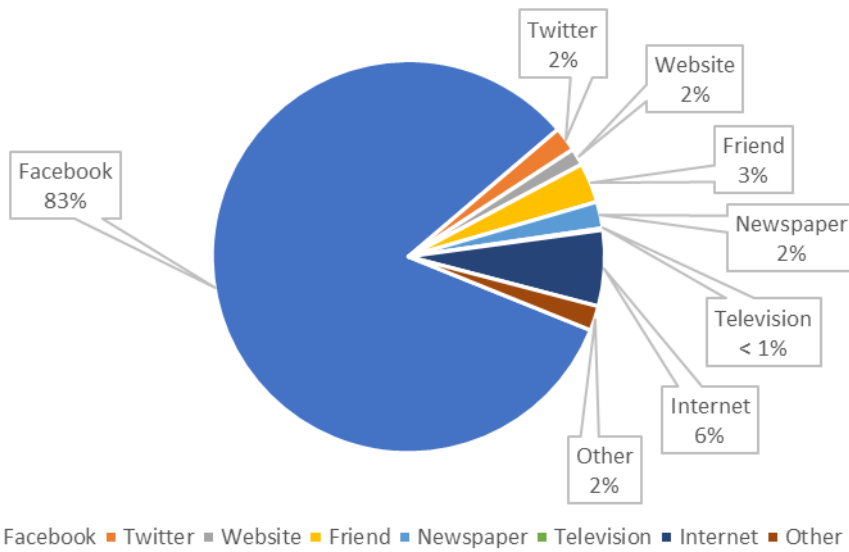


Figure C2. How Participants Heard About the Survey in the Fredericksburg District

Hampton Roads District

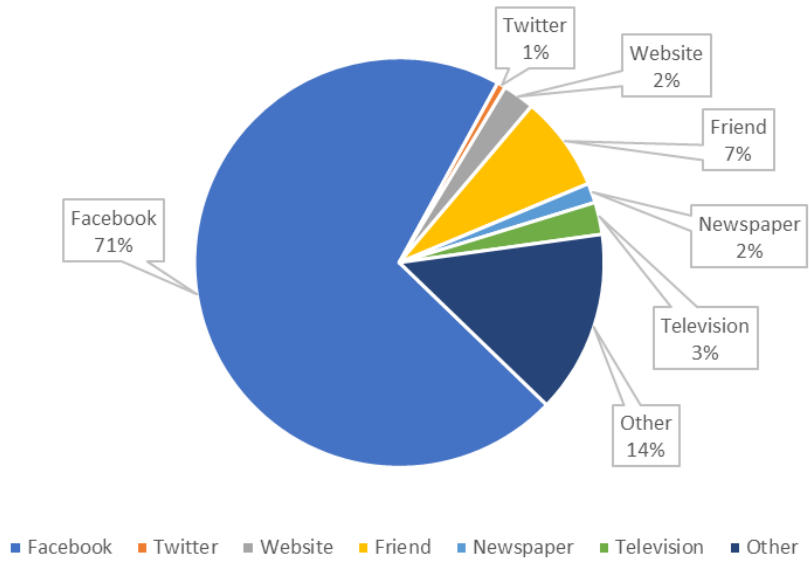


Figure C3. How Participants Heard About the Survey in the Hampton Roads District

Lynchburg District

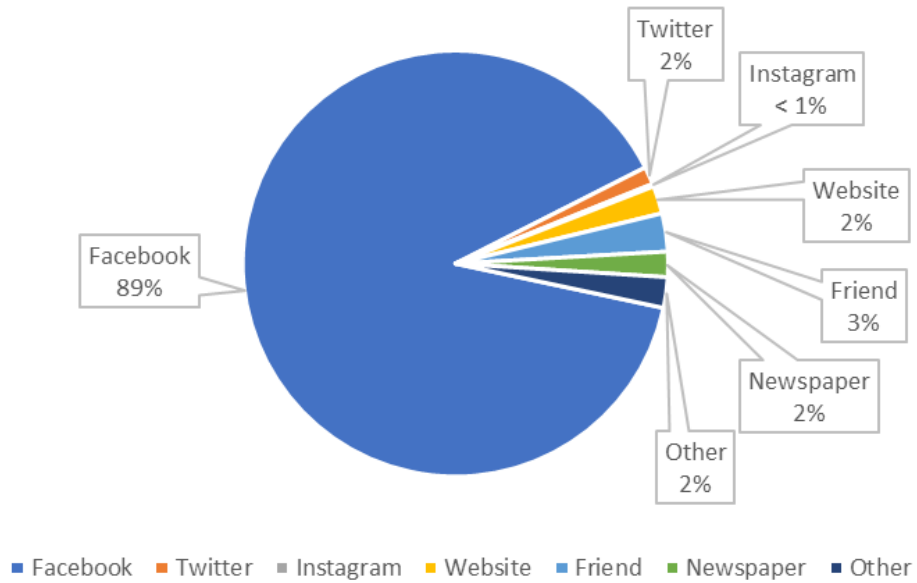


Figure C4. How Participants Heard About the Survey in the Lynchburg District

Northern Virginia District

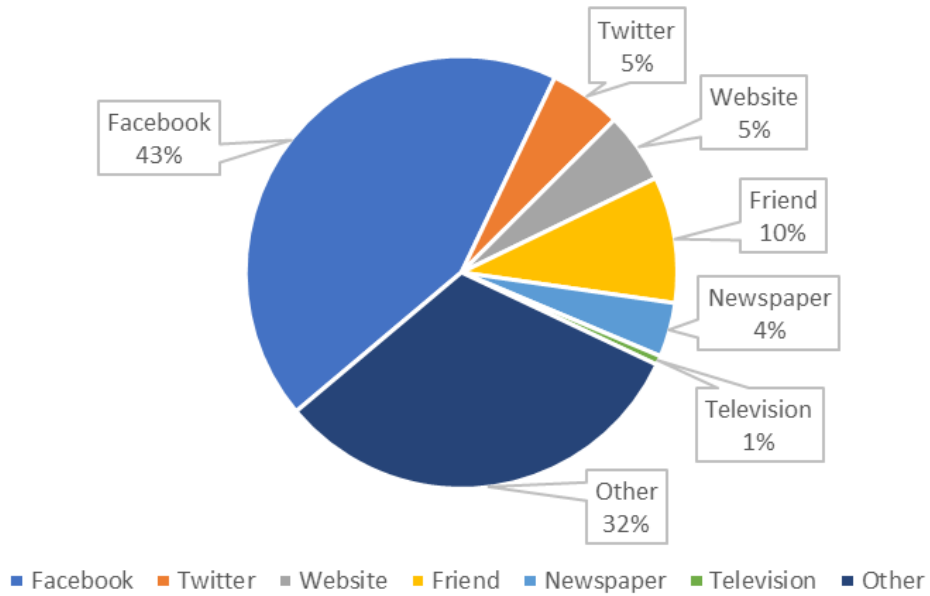


Figure C5. How Participants Heard About the Survey in the Northern Virginia District

Richmond District

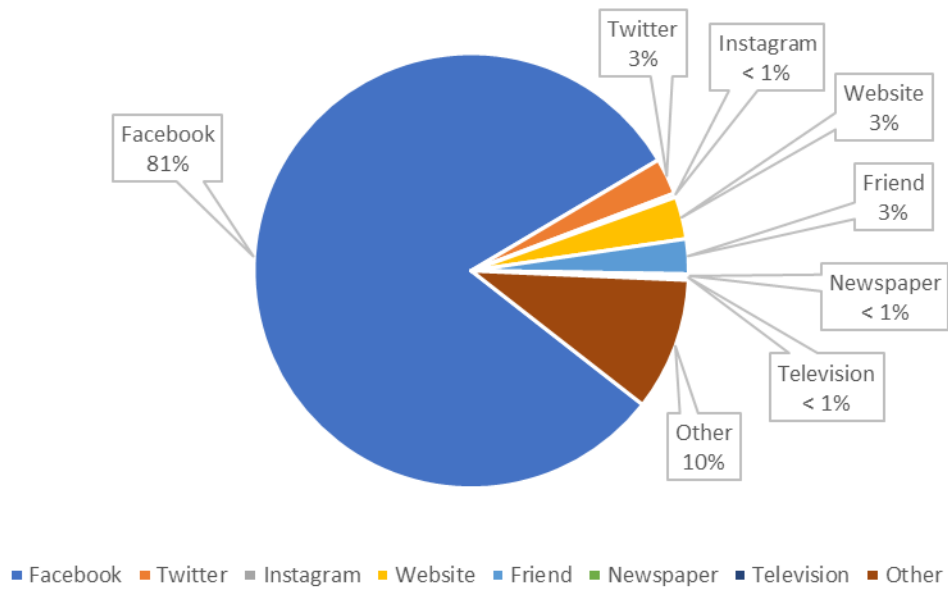


Figure C6. How Participants Heard About the Survey in the Richmond District

Salem District

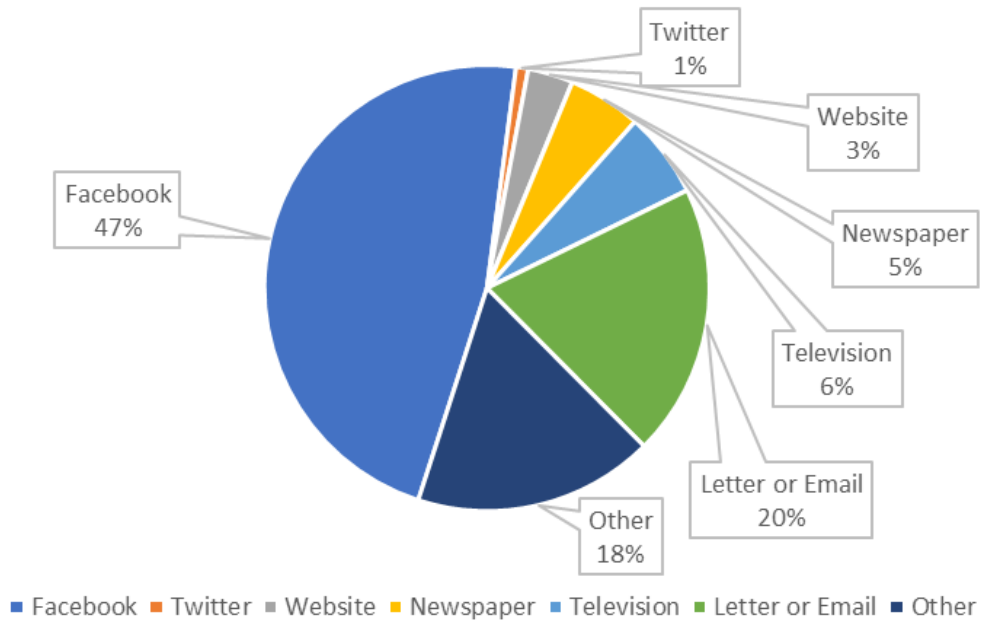


Figure C7. How Participants Heard About the Survey in the Salem District

Staunton District

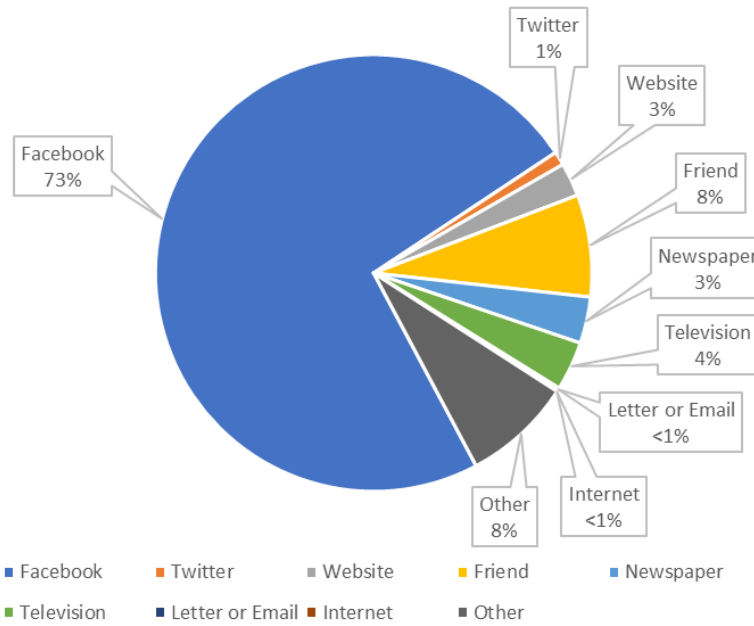


Figure C8. How Participants Heard About the Survey in the Staunton District

MPOs and PDCs

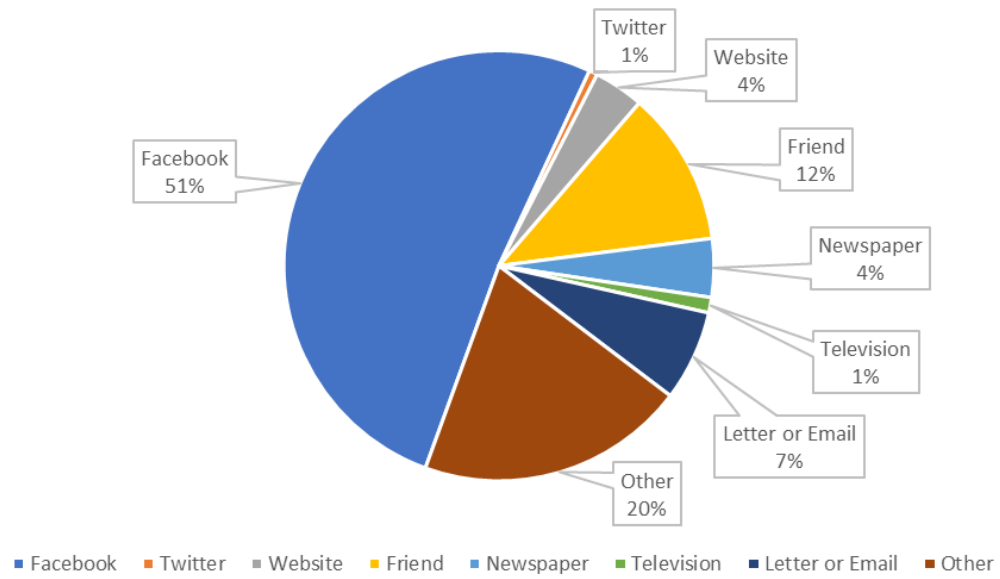


Figure C9. How Participants Heard About the Survey in the MPO/PDC Studies