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AN EVALUATION OF ONLINE PARTICIPATORY PLANNING SPACES: A CASE STUDY OF THE OAK HILL PARKWAY VIRTUAL OPEN HOUSE

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AN EVALUATION OF ONLINE PARTICIPATORY PLANNING SPACES: A CASE STUDY OF THE OAK HILL PARKWAY VIRTUAL OPEN HOUSE

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ABSTRACT

AN EVALUATION OF ONLINE PARTICIPATORY PLANNING SPACES: A CASE STUDY OF THE OAK HILL PARKWAY VIRTUAL OPEN HOUSE

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State planning and transportation agencies continually face the escalating problem of increasing needs coupled with limited financial resources to meet those needs. In this difficult fiscal environment, the importance of meaningfully involving the public in the decisions that shape the future of our cities and regions becomes even more amplified. Proactively working with the public to gain buy-in from the early stages of the planning process is one of the most effective strategies to reduce project costs. The classic process in which state planning and transportation agencies have engaged the public is no longer an effective or efficient model as public meeting attendance has consistently decreased. As technology continues to shape the way that the public communicates with each other and their government, the onus falls on state planning and transportation agencies not only to continue to provide the traditional methods of engagement, but to look for new and innovative ways to gain increased public participation in the planning process. The traditional methods of public engagement will always be an important part of the planning process, but discovering the effectiveness

of emerging technologies in order to develop new best practices for public engagement is the charge of the future.

This report will evaluate whether a) online participatory planning spaces expand participation in the planning process and b) examine how evaluative metrics gathered by using online tools can inform decision makers of the utility of virtual planning spaces. This report will then present an evaluative criteria in order to establish a baseline by which to assess the performance of public involvement processes.

This report will then present a case study of the Oak Hill Parkway Virtual Open House Pilot Project, a pilot study conducted in Austin, Texas to test the effectiveness of online participatory planning spaces in the field. This report will also share the results of interviews with Oak Hill Parkway Project representatives regarding the usefulness of virtual planning spaces. The report will conclude with a discussion of lessons learned and future research needs.

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Chapter 1: Introduction

The means by which planning and public involvement professionals communicate with members of the public in order to engage them in the planning process has dramatically changed as the very nature of communication itself has rapidly evolved in the past two decades. While the public meeting was once the only outlet for public involvement officials interested in seeking input, or simply disseminating information to the public, the contemporary planner is faced with a plethora of communicatory avenues to explore. With the advent of the internet, the predominance of social media that is now woven into the fabric of our culture, the saturation of mobile and now smart phone technology at the fingertips of 61% of American adults (Smith, 2013), communication dissemination has morphed from a relatively limited set of outlets into a rapid fire exchange of ideas that evolve and change by the second.

So what does this mean for public engagement officials that need to harness these new forms of communication in order to meaningfully engage the public in the planning process? It means that they need to ensure that public involvement processes are incorporating new forms of communication as effectively and efficiently as possible in order to maximize public participation in the planning process. The problem with incorporation of new technologies in the public involvement process is that there is not a wealth of experience available for decision makers to rely upon in order to understand the merits of using these new forms of communication. This report will evaluate one

new form of communication that is used in public involvement processes: online participatory planning spaces.

RESEARCH QUESTIONS

This report will attempt to answer the following questions: 1 – How can providing online participatory planning spaces expand participation in the planning process? and 2 - How can website analytics provide decision makers with the ability to quantitatively evaluate the usefulness of online participatory planning spaces?

RESEARCH METHODOLOGY

This report will attempt to answer these questions by establishing a review of classic, recent and current literature regarding the necessity of and best practices for public involvement in planning processes, including the contemporary movement towards deliberative participatory processes and the current research regarding the use of the internet to engage the public in the planning process. This report will then establish an evaluative framework to assess public involvement processes and tools in order to provide an overarching understanding of what elements are critical in the participatory planning process.

A case study of an example of an online participatory planning space will then be presented. In 2013, researchers at the Texas A&M Transportation Institute (TTI) developed a virtual open house, called the Oak Hill Parkway Virtual Open House Pilot

Project (Ettelman et al, 2013), in order to evaluate the effectiveness of this form of online public engagement. Researchers used Google Analytics and other website analytics in order to develop a quantitative analysis of the performance of the Oak Hill Parkway virtual open house. The Oak Hill Parkway virtual open house marked the first time that either of the project sponsors: the Texas Department of Transportation (TxDOT) and the Central Texas Regional Mobility Authority (CTRMA), employed a virtual open house with live-chat sessions online in order to provide real time, two-way communication in the planning process. The use of participatory planning spaces; where project information is disseminated to the public in a one way direction and members of the public can provide input online; are gaining traction in the planning community, but are still a relatively new tool for transportation agencies to use to engage the public in planning processes. It is important to note that the above example of online participatory planning spaces perform similarly to traditional websites, where information is disseminated and members of the public can provide input, but no deliberative, two-way communication takes place.

The real-time chat sessions used in the Oak Hill Parkway virtual open house make this case study notable as it is extremely rare for online participatory planning spaces to employ this feature for transportation planning. There are examples of literature intended to provide guidance on employing live-chat capability in a virtual setting (Peng, 2001; Li et al, 2007). In addition, there are examples of live chats being used as a tool to inform public policy decision making in Europe (Gramberger, 2001); as

well as examples of American government agencies (NASA, Department of Labor, Environmental Protection Agency, Office of Science and Technology Policy) planning to employ live chats in response to President Obama's call for American government to be more transparent, participatory and collaborative (Lukensmeyer, 2011). The Oak Hill Parkway virtual open house case study provides an example of TxDOT and CTRMA pioneering the area of online participatory planning spaces.

In addition to presenting the Oak Hill Parkway case study, interviews with Oak Hill Parkway Project representatives from CTRMA and TxDOT who were involved in the case study will be presented in order to evaluate the planning agency's lessons learned as they relate to the report research questions. Interviewees will be members of the project team who oversaw the planning of the project as a whole, as well as representatives who were responsible for overseeing the public involvement efforts of the project. Finally, this report will provide an example of how the Oak Hill Parkway virtual open house would be assessed within the evaluative framework established at the outset of the report.

Chapter 2: Literature Review

Public involvement has become a mainstay of the contemporary planning process, but this widespread acceptance has not always been present. Under the classical, rational-instrumental approach to urban planning, decision makers relied heavily on technocratic input in the decision making process, leaving the interests, values and needs of the general public largely out of the decision making process (Innes, 1998). Rittel and Webber (1975) argue that the motivation behind this methodology was less a reflection of the potentially sinister intentions of decision makers as it was a reflection of traditional American homogeneity, where communities lacked the pluralism that defines the cultural and personal variance of our modern societies.. This assumption was challenged powerfully in many communities in the 1960s (see Davidoff). The movement towards meaningfully including the public in the decision making process in urban planning is largely based on the general acceptance that value-neutral analysis is not a viable model for problem solving in a pluralistic society (Innes, 1998). While the level of engagement can vary from process to process (Arnstein, 1969; IAP2, 2007), it is generally accepted that utilizing collaborative planning processes where members of the public and decision makers partner to reach consensus in a deliberative manner is imperative to developing truly democratic processes with publically accepted outcomes (Dryzek, 2002). This chapter will discuss the pertinent literature as it relates to the difficulty with problem definition in urban planning and how that has led planning professionals to recognize the need for increased

collaboration amongst the public and decision makers in the planning process. The review will then discuss the limitations of common forms of modern public engagement tools and make the case for the increased use of 21st century technology in the planning process.

THE RATIONAL INSTRUMENTAL MODEL AND WICKED PROBLEMS

In order to legitimize plans and solve problems under the classical, rational-instrumental model, decision-makers relied heavily on quantitative analysis. Rittel and Webber (1973) deliberate on the changing nature of the decision making process in our society with a discussion concerning the changing nature of problem and solution identification in a post-modern world. Rittel and Webber (1973) elaborate that before women, immigrants and minorities were afforded widespread equality, those fully included in American society held values and interests that were far more homogenous (Rittel and Webber, 1973). The cultural uniformity viewed by decision makers at the time led to homogenous problems and homogenous technical solutions. In the post-modern era however, problem identification and solution is far more complicated due to a) the vastly pluralistic nature of our society and b) the acknowledgement that the problems that planners attempt to solve quite often have implications with great effects on society. Rittel and Weber coined the problems that planners try to solve as “wicked” problems (Rittel and Webber, 1973). More recent literature has supported the notion that the solutions to problems that planners face are inherently “wicked” by

underscoring some of the difficulties that “wicked” problems present to planners and decision makers. Problems that planners intend to find solutions for are “wicked” for a number of reasons (Rittel and Weber, 1973; Coyne, 2005):

1. The solutions to wicked problems rely on understanding the problem’s context; and a formulaic problem solving process is unlikely to take this context into account.
2. Because the solutions of wicked problems rely so heavily on having a thorough understanding of the underlying context, it is increasingly difficult to understand when a problem has been solved. In other words, there are often no defined stopping rules (or perfect answers).
3. Because evaluating the solutions of wicked problems are often laden with personal values there is rarely a solution to a wicked problem that can be considered “right” or “wrong”, rather they are judged as “good” or “bad”.
4. There is no immediate or ultimate test of a solution to a wicked problem. The full consequences of the solution of a wicked problem cannot be appraised until all of the repercussions have run their course.
5. The solutions to wicked planning problems are “one-shot operations” in that once they have been implemented, they cannot easily be undone, and the impacts are immediately felt.
6. There are no criteria which enable one to probe that all solutions to a wicked problem have been identified and considered.

7. Every wicked problem is unique: despite numerous similarities between current and previous problems, there are always distinguishing factors that make each new wicked problem unique.

The inherent difficulty in defining problems and solutions in a vacuum, without including members of the public in the definition process is well established above. Participatory planning does not preclude the necessity of technical expertise in the planning process; it pairs context and community-value with technical expertise so that the solutions that are agreed or decided upon more closely mirror the needs of the community for which they are planned, and thus are more likely to be publically accepted. Public participation does not tame wicked problems; it evolves the accepted decision making model from the classic rational-instrumental model to the rational-collaborative model (Innes and Booher, 2010).

THE COLLABORATIVE-RATIONALITY MODEL

As discussed above, the inherent wickedness of the problems that planners attempt to solve are laden with social implications and are often too complex to define using positivistic analysis alone. Contemporary problem definition requires the acknowledgement of complex social implications, such as connecting people with diverse perspectives and developing information through the generation of social capital that is necessary for a planner to accurately define a problem, and so create appropriate and effective solutions (Innes and Booher, 2010). This theoretic framework for collaborative-communicative planning is coined collaborative rationality by Judith

Innes and David Booher (2010). Innes and Booher (2010) explain that because there are differing ways of knowing and understanding a) what knowledge is, b) how that knowledge is derived, and c) how that derived knowledge should be applied, it is impossible to expect that there is one right answer or solution to a problem (Innes and Booher, 2010). In fact, to assume that one source of knowledge can provide enough insight and understanding to define and solve a complex societal problem is in itself *irrational.* To counteract this difficult paradox, the rational discourse necessary for effective contemporary problem identification and solution can only be generated through engaging members of a community to collaboratively define a planning problem, and thus collaboratively develop potential solutions. This creates scenarios that provide joint learning amongst stakeholders and provide an opportunity to gain social knowledge that would not be gained through the instrumental-rational approach alone (Innes and Booher, 2010). The collaborative rationality model's reliance on public involvement generates a framework where planning officials will more effectively define and plan for the wicked problems that they encounter. In turn, planning processes that utilize this model will more likely generate outcomes that more accurately reflect the needs and values of the public for which they plan, and will have a larger likelihood of gaining broad public acceptance.

THE ROLE OF COMMUNICATION IN COLLABORATIVE PLANNING

As collaborative planning has become the standard in contemporary planning processes, the focus on the effectiveness of varying forms of communication has moved

to the forefront of literature examining the effectiveness of public involvement methods (Rowe and Frewer, 2004; Rowe and Frewer, 2000; Abelson et al, 2003; Innes and Booher, 2010). Traditional planning processes have often been characterized by a one way flow of information. This one way flow of communication is exemplified by the classic decide-announce-defend (DAD) model, where decision makers make a decision without any input from the public; announce said decision to members of the public; and defend their position from the inevitable public backlash (Walesh, 1999). The contemporary planning professional however, focuses on providing as many opportunities for pertinent information to be distributed amongst decision makers and the public in order to transcend what Arnstein (1969) labelled "token" public involvement, where decision makers only placate members of the public by providing them with the illusion that they are involved in the process, even though a decision has already been made and public input will have no bearing on the outcome of the decision making process (Rowe and Frewer, 2004; Arnstein, 1969). The ultimate objective for the contemporary public engagement official is to assist and facilitate in the development of strong partnerships between the public and decision makers. These partnerships create more accessible and inclusive processes that lead to the public having more ownership in the decisions that are made. The effective and efficient flow of information amongst decision makers and the public is a key characteristic of processes that lead to successful consensus building, decision making and project implementation. Public involvement processes that are characterized by two way communication, access and inclusion lead to processes where the public is meaningfully involved in the decision making process

and the vast majority of literature supports that meaningful, deliberative public involvement increases public support for the final decisions that are made (Potapchuk, 1996; O'Connor et al, 2000; Weber and Christopherson, 2002; Abelson et al, 2003; Rowe and Frewer, 2004). Given the established importance of deliberative public involvement processes that are characterized by two-way communication; this review will examine what past and present research has said regarding the traditional methods of engaging the public in the planning process, namely the public meeting.

SHORTCOMINGS OF THE TRADITIONAL PUBLIC MEETING

A review of literature regarding best practices for public involvement provides insight into potential shortcomings of traditional methods of engaging the public. This review will focus on the public meeting, as it is one of the most prominent forms of public engagement, and will continue to be utilized in current and future planning processes (Fiorino, 1990). Under the classical, rational-instrumental model, public meetings have been used as a method to disseminate information to the public, embodying the previously discussed one way flow of information. They were considered fast, inexpensive and easily administered means of satisfying the requirements that decision making bodies are legally required to meet, with the assumption being that involvement is the end itself, rather than a means to an end (Wiedemann and Femers, 1993; Smith, 1993; Rowe and Frewer, 2000). While contemporary public meetings are often more interactive than their classical counterparts, a significant amount of research suggests that they continue to be an inefficient and ineffective method to meaningfully

engage the public in the planning process. While most, if not all contemporary public meetings provide the opportunity for the public to interact with decision makers, there is seldom any real opportunity for citizens to discuss or debate issues (Innes and Booher, 2004). Some researchers suggest that over-reliance on public meetings alone can overweight the voices of activists and skew public input to reflect opinions and positions that are not truly reflective of the community as a whole (O'Connor et al, 2000). In some instances the public hearing format, which is federally mandated during many environmental planning processes, allows citizens to voice their concerns only one by one, with little or no feedback from decision makers at all, and with no place for any public debate or deliberation (Klein, 2000).

In addition to concerns regarding the flow of information, public meetings often lack accessibility, a well-established best practice (Wagner, 2013; Rowe and Frewer, 2000; O'Connor et al, 2000). They are often held in the evenings, a time that works for some members of the public but not all (often minorities and the low-income segment of the population) and are often held in government buildings, which some researchers deem "formidable" locations for members of the public (Rowe and Frewer, 2000). The general lack of accessibility is a major contributor to public meeting's failure to represent a broad spectrum of the public (Innes and Booher, 2004). Oftentimes this inaccessibility leads to a very small portion of the general public being represented at public meetings, causing only a very small portion of the public to get the opportunity to voice their needs (Klein, 2000). As evidenced above, the lack of deliberative, two-way

communication and representation of a broad spectrum of the population due to inaccessibility underscore the ineffectiveness and inefficiency of public meetings. Given the changing nature of communication due to 21st century technology, planning professionals must think about how to harness new technology in order to expand participation in the planning process.

THE POTENTIAL FOR INTERNET-BASED VIRTUAL PLANNING SPACES

Public meetings have and will continue to be a part of the planner's public engagement toolbox, but the issues discussed above, as well as the changing manner in which the public communicates with each other and their government has led public involvement professionals to look for additional methods to augment the public engagement processes. Advances in technology over the past two decades have significantly expanded the opportunities for government agencies to communicate with its citizenry. When used by government agencies to engage members of the public, these new tools, ranging from online participatory planning spaces, to social media to mobile and smart phone platforms fall under the description of e-government. The advances in the accessibility and capability of e-government tools has the potential to greatly expand participation, and potentially revolutionize the way in which government agencies engage their citizens in processes like transportation planning.

Using internet-based virtual planning spaces to engage the public in planning processes is a method that is being used increasingly by the contemporary public

involvement professional. With the Pew Research Center's Internet & American Life Project stating that as of 2014, 85% of all adults use the internet, and as of 2013, 67% of internet users routinely access some form of social media (Internet User Demographics, 2014; Duggan and Brenner, 2013); it has become an established best practice for public engagement professionals to use the internet and social media in order to increase participation from a broader range of the population.

Using Online Participatory Tools for Public Policy Issues

As noted in Chapter 2, public involvement professionals and researchers have explored the effectiveness of using online participatory planning spaces to engage the public in public policy issues. Lowry (2008) presents a successful example of this type of engagement by examining a case-study where a large (100+) number of citizens engaged in a deliberative online participatory process regarding a refinancing strategy for tax revenue. The deliberative online participatory process took place over a 31 day period where users posted and rated (statements of agreement or disagreement) the posted comments regarding the financing strategy. The case-study illustrated that participants provided a range of input, from story-telling to support personal values to short conversations to support facts to sharing personal experiences in order to provide personal "evidence". Lowry reported that the majority of the participants expressed optimism for online deliberation and that most said that the experience helped them understand the decision better and gain an appreciation for different perspectives. Lowry found that based on this case study, online deliberation is possible for large

groups, and is an effective method of public engagement (Lowry et al, 2008; Lowry 2010).

Using Social Media as a Participatory Planning Tool

In addition to using online participatory planning spaces to seek input on policy issues, Evans-Cowley also found that using the internet is an effective form of public engagement by examining a case study in Austin, TX where citizens organized online in a Facebook group to oppose the development of a new Wal-Mart. Evans-Cowley found that the increasing availability of high-speed internet and social media meant that forms of online engagement can "truly change the way that planning works". Evans-Cowley stated that the Austin case-study illustrated the need for citizens to connect with each other regarding issues such as development in the public realm and that "planners need to embrace these technologies and learn to be effective in using them" (Evans-Cowley and Hollander, 2010).

The success of the case studies examined by Lowry (2010) and Evans-Cowley (2010) illustrate the usefulness of online participatory planning spaces in the planning process and represent cases where there was increased participation from more diverse spectrums of the population. Evans-Cowley noted that the Facebook groups that were created included high-school and college students, as well as a large group of adults that represented a number of neighborhood organizations. In addition to the larger spectrum of the population represented the increased availability of two-way communication in both case studies led to positive outcomes (Evans-Cowley and

Hollander, 2010). In Lowry's case, interviewees stated positive feelings with the outcome of the online deliberation process and in Evans-Cowley's case the proposed Wal-Mart went through a series of re-designed site plans, with Evans-Cowley concluding that the online involvement had a significant impact on the planning process (Lowry et al, 2008; Evans-Cowley and Hollander, 2010).

In addition to the previous examples, there is literature that explores the merit of using social media to engage the public in the environmental process of NEPA. The authors find that social media tools available, such Facebook, Twitter, LinkedIn and YouTube help practitioners transform the process of public communication by increasing access to information and opportunities for participation in the NEPA process (Camay et al, 2012). The authors present three case studies of practitioners using social media in the NEPA process: a rail project in Honolulu, Hawaii; a subway extension project in Los Angeles, California; and a highway upgrade in San Antonio, Texas. The case studies utilize a variety of social media tools in order to disseminate information to the public regarding the planning and environmental review process. The use of social media in the case studies was largely one-directional, as opposed to two-way, deliberative interaction. The authors conclude that while the social media efforts provided project officials with the ability to quantitatively measure the expansion of participation in the planning process, more research needs to be undertaken in order for practitioners to understand the utility of social media usage in the NEPA process. The authors specifically touch on the need for an established procedure for officials to

analyze the content of the social media input (content analysis) and mechanisms to ensure that the tools communicate unbiased positions from project officials regarding project outcomes (Camay et al, 2012). The extreme rigidity of the federal requirements for the public outreach of NEPA processes introduces numerous challenges to practitioners in using online participatory planning tools; but the authors do make the case that these tools have the potential to increase accessibility to the planning process and expand participation.

Cowley and Griffin (2012) further examine the effectiveness of social media in the planning process by evaluating more than 49,000 posts on Twitter and other social networking sites to determine public engagement in the Austin Strategic Mobility Plan. The authors examined numerous posts to determine sentiment, extent of engagement and impact on the decision making process. While the analysis focused strongly on the actual approaches to evaluating the content and outcome of the participation, the authors found that the use of Twitter to engage member of the public in transportation planning initiatives can be successful and meaning can be aggregated from microparticipation (Cowley and Griffin's term for Facebook and Twitter participation), but just as Camay (2012) surmised, more research much be conducted in order to understand how social media plays a role in decision making (Cowley and Griffin, 2012).

Utility of Using Web 2.0 in Public Involvement Processes

In addition to the close attention that has been paid to social media in the planning process, researchers have provided insight into the usefulness of Web 2.0 tools

in the public involvement process. Web 2.0 is a description of the modern internet as a platform for two-way interaction as compared to just a static website that disseminates information (O'Reilly, 2007). Public involvement processes have not been early adapters to using Web 2.0 technology to engage members of the public in the planning process. given this slow incorporation, there are few examples of these tools being used for public involvement in planning processes.

Stoltfuz (2013) evaluates the SpeakUpAustin! Website that the city of Austin, Texas uses to engage its citizens in two-way deliberative communication regarding a multitude of issues, including planning projects within the city. Stoltfuz finds that the SpeakUpAustin! website provides a convenient and accessible way to engage with the city in planning initiatives, but explains that the website does not expand participation beyond those not already participating with the city. The author explains that this online participatory planning space has the potential to expand participation but in this case the tool is not utilized in a manner to maximize the potential utility (Stoltfuz, 2013).

Additional research has emphasized the potential of Web 2.0 tools to increase public participation in planning processes, but concluded that the implementation level of truly two-way, deliberative processes is low (Twitchen and Adams, 2011; Williamson and Parolin, 2013). Williamson and Parolin (2013) underscore the importance of online participatory planning spaces ability to provide two-way dialogue as way to create a truly deliberative consensus building process. The researchers emphasize that the implementation level of Web 2.0 tools that provide this level of discourse is low as

compared to monologue communication, where the government disseminates information in a static manner (Williamson and Parolin, 2013). Twitchen and Adams (2011) explain that Web 2.0 technologies have the potential to increase participation in the engagement processes, especially with hard to reach populations. In addition, they state the potential for Web 2.0 tools to provide capacity building opportunities amongst participants, but question whether there is evidence of members of the public who are not intrinsically motivated to participate in public involvement processes to be more willing to participate using these new technologies (Twitchen and Adams, 2011). The need for additional research as to whether or not these tools expand participation and meet the criteria of soliciting meaningful participation in the public engagement process (Twitchen and Adams, 2011; Williamson and Parolin, 2013).

Chapter 3: Evaluative Framework to Assess Public Involvement Processes

Examining the literature regarding the best practices and principles in public involvement processes provides insight into numerous evaluation frameworks previously researched and developed. In order to understand if a tool or technique expands participation in the public engagement process, it is helpful to have an overarching evaluative framework to critique it by. This chapter will provide an overview of some of the most pertinent research regarding the evaluative frameworks for public involvement processes and will conclude by synthesizing the lessons learned, and carrying forward a framework of the most relevant criteria to evaluate public involvement processes by.

ELEMENTS OF AN EVALUATIVE FRAMEWORK

Rowe and Frewer (2000) provide a thorough analysis of elements, mechanisms and characteristics that serve as benchmarks against which public involvement processes can be assessed (Rowe and Frewer, 2000). As this paper aims to evaluate the effectiveness of online public engagement portals, this chapter will focus on evaluative criteria for public engagement tools and processes using Rowe and Frewer's (2000) elements as a baseline with significant academic support from additional researchers in the field of public involvement. In addition to Rowe and Frewer's (2000) baseline, this report will identify additional elements that are critical in evaluating contemporary

public involvement processes. The following elements shall be considered the baseline framework for evaluating the effectiveness of public involvement processes.

Representativeness and Inclusiveness

While it is imperative to seek input from members of a community that are most directly affected by a planning process, a public involvement process should be comprised of a broadly representative sample of the public, including decision makers and all interested stakeholders in order to avoid overweighting of individual interests (O'Connor et al, 2000). A successful public engagement process must have participation from members of the public who are representative of the broader public, as compared to comprised only of citizens who are directly affected by a potential outcome or are invested in a specific special interest or are a community's decision makers (Rowe and Frewer, 2000; O'Connor et al, 2000; Bickerstaff and Walker, 2001; Abelson et al, 2003; Reed, 2008; Webler et al, 2001).

Independent and Unbiased

A public involvement process should be conducted in an independent and unbiased manner. A successful public engagement process must not only be free from pre-determined outcomes and decisions, but it should have the appearance of being an unbiased process in order to develop trust amongst the public and the sponsoring agency (Rowe and Frewer, 2000, Tippet et al, 2007).

Early Involvement

The public should be involved in the planning process as soon as value judgments become salient. This is a criteria with a level of subjectivity involved, it is generally accepted that public participation should occur as soon as is reasonably practical (Rowe and Frewer, 2000). Using a process where public involvement is started early in the planning process produces public trust and is more likely to produce outcomes that are publically accepted (Rowe and Frewer, 2000; O'Connor et al, 2000).

Influence

The output of the public involvement process should have a genuine impact on the outcome of the planning process. This, as above, can include various levels of subjectivity as differing values will indicate what *genuine impact* is truly defined as. Influencing the outcome of a planning process can range from, as Arnstein elaborates, token involvement (disingenuous impact) to citizen control (decision is completely in the hands of the citizens) (Arnstein, 1969). For some members of the public, *genuine impact* would be defined as no less involvement than citizen control, which is an abnormal and unreasonable level of citizen empowerment in the planning process (Arnstein, 1969). Arnstein states that partnership, where decision making is shared amongst citizens and power-holders, is the realistically ideal level of participation in the public involvement process (clarifying that while delegated power and citizen control are theoretically preferable, no model city can meet the criteria of citizen control since final approval power and accountability rest solely with city council) (Arnstein, 1969). Meeting the

criteria of task definition (explained below) is a good strategy for ensuring that all parties are aware of the level of influence that they will have on the outcome of the process, but it is imperative that there be evidence in the outcome of the process that participation has impacted the overall shape of the plan (Rowe and Frewer, 2000; Bickerstaff and Walker, 2001: Tippet et al, 2007).

Transparency

The public should be completely apprised of all aspects of the planning process, from planning to decision making. An explanation of all decisions should be available to all members of the community so that the public feels confident in the final outcome. A transparent planning process will more likely lead to public acceptance of project outcomes (Rowe and Frewer, 2000; Bickerstaff and Walker, 2001).

Resource accessibility

Participants in public involvement processes require access to appropriate and relevant information. This includes access to information regarding projects and processes, as well as access to human resources (access to representatives with specific project expertise), material resources (access to physical materials that communicate project specific information) and time resources (participants must have reasonable access to free time to engage with the previous three avenues of information) (Rowe and Frewer, 2000; Bickerstaff and Walker, 2001, Richards et al, 2004).

Task Definition

*P*articipants in public involvement processes should have a clear understanding of their role in the process, the expected outcome of the process and how their input in the process will be used to influence the final project outcomes (Rowe and Frewer, 2000; O'Connor et al, 2000).

Cost Effective

A successful public involvement process must be cost-effective. This, as discussed with previous criterion, has levels of subjectivity involved in the judgment of this benchmark. Cost is an important aspect of public involvement processes, as not all processes are appropriate for all projects. The evaluation of these criteria must be examined with other criterion in order to understand whether a process is cost effective or not. For example, if a project is lacking in participation from a broad spectrum of the population and a certain, more expensive engagement process has been proven to increase participation, using this tool may be considered more cost effective, as the outcome of the added expense may be increased representation of the public. Conversely, using the same tool for a process that already has strong participation, or targets a segment of the population that doesn't use that tool would be cost-ineffective (Rowe and Frewer, 2000; Abelson et al, 2003).

Opportunity for Two-way Interaction

In addition to the above established criteria for evaluating public engagement processes, there has been considerable research that underlines the importance of a

successful public engagement process providing deliberative, two-way interaction. Resource accessibility (above) enumerates the importance of education and communication of information pertinent to the planning process, but more and more contemporary research extols the importance of providing processes where communication flows both to and from members of the public.

Defining the separate typologies of communication will be helpful in distinguishing amongst the styles of communication common in public involvement processes. The classic style of communication in public involvement processes, where decision makers present information to members of the public (this style of communication is classified as "informing" the public on the IAP2 spectrum of decision making (2007) or manipulation of the public on Arnstein's ladder of participation (1969)) constitutes simple *communication*. Conversely, gathering information from participants constitutes *consultation.* When information is exchanged in a two-way, deliberative manner, *participation* occurs in its purest form (Rowe and Frewer, 2000; Reed, 2008). The criterion of two-way communication expands the expectation of public engagement processes beyond simply providing resources in an accessible manner, to providing a thoroughly communicative process where both the public and decision makers are providing information and learning from each other. This deliberative model of public participation has become more and more accepted in literature examining the effectiveness of public participation processes and should be included as criteria to evaluate public engagement processes, as above (Rowe and Frewer, 2000; Reed, 2008;

Chase et al, 2004, Wagner, 2013; O'Connor et al, 2000; Abelson et al, 2003; Weber and Christopherson, 2002).

An Evaluative Framework

Given the extensive academic support for the criteria listed above, the following criteria can be used as an evaluative framework to assess public involvement processes:

- Representativeness and inclusiveness
- Independent and unbiased
- Early involvement
- Influence
- Transparency
- Resource Accessibility
- Task Definition
- Cost-effectiveness
- Opportunity for two-way interaction

While the above criterion provides public engagement professionals with a framework to evaluate their public involvement processes, it is noteworthy to acknowledge that there are challenges in using a specific set of criteria to evaluate public involvement processes. The most notable detractors of using evaluative frameworks for public involvement processes outlined in the literature discuss the inherent difficulty in evaluating a process that is a) inherently complex and value laden and b) lacking a universally accepted definition of what "successful" means. Is a successful process one that moved a project forward? Is a successful process one that stopped a project or concept from being considered? The enormous variety of values,

interests and positions that citizens have in our pluralistic society preclude a process from avoiding these challenges. While there are plenty of examples of processes where a large portion of the community has reached consensus relating to an issue there are always detractors who may feel differently than others regarding the outcome of a project (Rowe et al, 2005).

Acknowledging these challenges, it remains important for practitioners and decision makers to assess public involvement tools and processes in order to evaluate whether the current tools and processes are effectively engaging the public in planning processes. In addition to ensuring effective engagement it is helpful to assess what tools are most appropriate given the unique set of circumstances that make up each and every public involvement process. Finally, using an evaluative framework can provide valuable input into how decision makers can improve their public involvement processes (Rowe et al, 2004; Forss, 2005).

Chapter 4: Oak Hill Parkway Virtual Open House Case Study

This chapter will present a case study of a virtual open house (VOH) that researchers at the Texas A&M Transportation Institute (TTI) conducted in May-June 2013 in order to evaluate the potential of online participatory planning spaces to expand participation in the planning process. In fiscal year 2013 (September 2012 – August 2013), TTI was instructed to serve as a facilitator and coordinator of studies conducted by regional entities to assure that the best congestion and travel demand management principles are applied to the 50 most congested roadway segments in the state by Rider 42, which was a legislative directive of the 82nd Texas Legislature. A major provision of the work was to ensure open and transparent public participation as part of the process in determining solutions. The Oak Hill Parkway project was on the list of the Top 50 corridors. The Texas Department of Transportation (TxDOT) and the Central Texas Regional Mobility Authority were currently engaged in the planning process for the Oak Hill Parkway when TxDOT, CTRMA and TTI determined that this project would benefit from an innovative involvement effort such as the virtual open house. The three agencies jointly conducted the Oak Hill Parkway Virtual Open House Pilot Project with the motivation of understanding the potential benefit of this new technology, and specifically whether it would expand participation in the planning process. For reference, Figure 1 below provides a timeline of the Oak Hill Parkway Project, with the dates that the traditional open house (TOH) and virtual open house (VOH) were held. Detailed descriptions of the VOH and TOH are in the sections below.

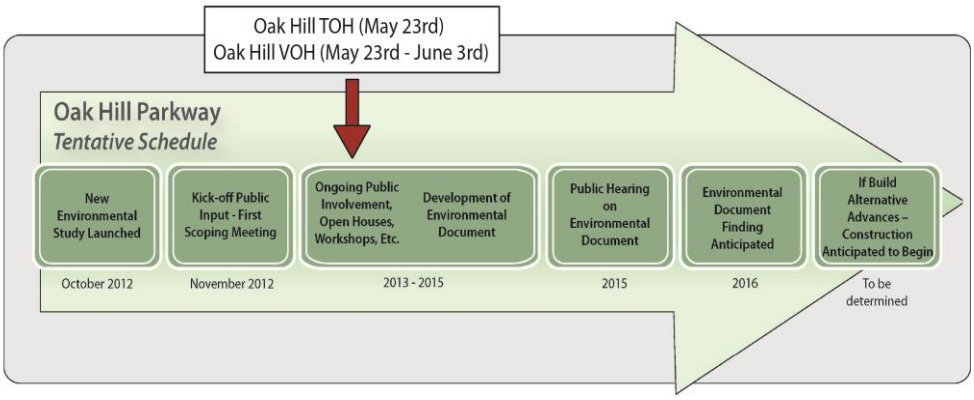

Figure 1. Oak Hill Parkway Project Schedule with Dates of the VOH and TOH

This chapter will provide background on the study area, an explanation of the VOH that researchers at TTI developed and an overview of some of the evaluative metrics that researchers gathered using website analytics. Finally, this chapter will assess whether the Oak Hill Parkway VOH expanded participation within the Oak Hill Parkway planning process and evaluate the Oak Hill Parkway VOH within the evaluative framework established in chapter 3 of this report.

OAK HILL PARKWAY PROJECT BACKGROUND

The Oak Hill Parkway project site is located in southwest Travis County, approximately 8 miles southwest of downtown Austin. The project area includes a segment of US 290 from MoPac to RM 1826 and the segment of SH 71 from US 290 to Silvermine Drive. The project site is located in a suburban area with single-family homes, shopping malls and strip commercial centers. The project corridor funnels traffic from the Hill Country and surrounding communities such as Dripping Springs and Bee Cave to

and from the City of Austin, and there are few alternative routes available for commuters.

The Oak Hill Parkway project is an environmental study that began in October 2012 and is expected to be completed by 2016. The Oak Hill Parkway project is a combined effort amongst the Central Texas Regional Mobility Authority (CTRMA), Texas Department of Transportation (TxDOT), Capital Metropolitan Transportation Authority (Capital Metro) and city of Austin to address traffic congestion in the Oak Hill corridor through the Oak Hill community.

The Oak Hill corridor has long been identified as a heavily congested corridor within the Austin region, with a major bottleneck at the Y intersection (US 290 and SH71). As explained above, the corridor acts as a gateway to the Texas Hill Country and serves as a key route to and from the core of Austin for the residents of Oak Hill, Lakeway, Bee Cave, Dripping Springs and other developing communities. The wide array of users who live near and travel on the Oak Hill Parkway create the need for project representatives to gather a wide range of input from members of the public in order to understand the needs of both local and regional users. The environmental study is considering the needs of drivers making local trips as well as drivers traveling across the state. The project objectives are "to work with neighbors and drivers to identify a long-term solution to mobility needs along US 290/SH 71 West" that:

- Respects the environment, improves mobility, and adds value to the Oak Hill community and surrounding area.
- Is consistent with and supports community goals for enhancement of Oak Hill.
- Moves more people safely and reliably, not just more vehicles.

Oak Hill Parkway Project Scope

The Oak Hill Parkway project team is using a context-sensitive solutions (CSS) process to implement a number of innovative concepts as part of the environmental study. The context sensitive solutions process in transportation planning is a guiding principle that transportation systems must operate within the context of the communities that they serve. This planning principle informs the need for robust public involvement in the planning process as it requires decision makers to take into account the aesthetic, social, environmental and economic implications, in addition to just the functionality of transportation systems that are built within communities. The Oak Hill Parkway Project team's commitment to the CSS process is a large motivator for public involvement being a central focus to the study. Major project design components will be conceptualized with input from the public, including bridges, retaining walls and possible sound walls, along with landscape treatments, hardscapes and possibly signature design elements to unify the look and feel of the corridor. The general public is being provided numerous opportunities and outlets to share their opinions regarding the design of the project during the environmental study process.

Key Issues and Challenges for the Oak Hill Parkway Project

This project is part of CAMPO's long-range transportation plan for 25 years. There are several challenges for this project, including both technical issues, such as right-of-way or environmental challenges, as well as social challenges. The primary issues for the project include sensitivity to environmental concerns and limited funding sources. Another challenge is that the topography of the area spatially constrains the corridor, resulting in limited options for improving the Y intersection. These challenges necessitate a robust public involvement process in order to ensure that any concepts that move forward meet the above challenges and reflect the needs and values of the Oak Hill Community and beyond.

Public Involvement Plan for the Oak Hill Parkway Project

The agencies involved with the Oak Hill Parkway project include those named earlier as well as the Federal Highway Administration (FHWA). The project has benefited from a dedicated effort to include the community in the project development process. The public involvement plan, developed by CTRMA, includes a number of mechanisms to keep to the community informed and involved.

The main site for communications about the Oak Hill Parkway project is a website (www.oakhillparkway.com), maintained by CTRMA. Social media tools include project-specific e-mail alerts and Twitter and Facebook accounts facilitated by TxDOT and the CTRMA.

In addition to the above mentioned communication tools, the project team is holding numerous open houses in order to provide members of the public the opportunity to provide input on the problems and potential solutions for the Oak Hill Parkway. Advisory committees were also formed in order to glean important local insight from members of neighborhoods along the corridor. In addition to the in-person, traditional open houses (TOHs) and advisory committee meetings, the project team partnered with TTI to develop a virtual open house (VOH). TTI entered this partnership with the intention of evaluating whether providing a virtual forum would increase participation in the planning process. The research team at TTI used the Oak Hill Parkway TOH as a comparison to understand the value of the VOH. The following sections will provide a brief description of the Oak Hill Parkway TOH and a detailed description of the Oak Hill Parkway VOH.

DESCRIPTION OF OAH HILL PARKWAY TOH AND VOH

Objective of the Traditional Open House

The TOH provided an in-person, hands-on experience to discuss design scenarios and construction options for Oak Hill Parkway. It featured stations for each option with display boards, schematic diagrams and specific details for each alignment. A representative from the project team was located at each station to answer questions about each design scenario and facilitate discussion about the Oak Hill Parkway project.

Format of the Traditional Open House

The TOH was held on Thursday, May 23, 2013, from 6:00 to 8:00 p.m. at Clint Small Middle School in Austin, Texas. Interested parties signed in and were given information packets and a brief explanation of the layout of the stations. Participants came and went as their schedules and interest allowed, and while in attendance they were able to flow freely through the room to view each design scenario at their leisure.

Objective of the Virtual Open House

The VOH provided users with an online, interactive experience that was designed to mimic the Oak Hill Parkway project's TOH as closely as possible. The opening page provided an overview of the VOH, and then visitors were asked to sign in. The website featured the same display boards and schematics presented at the TOH and included videos that explained each of the eight concepts under consideration for the Oak Hill Parkway project (7 newly developed concepts and a concept developed during a previous study of the corridor) as well as the no-build alternative.

In addition, in order to provide an interactive experience that more closely resembled the TOH, the VOH featured two separate real-time chat sessions where the materials presented were accompanied by the presence of an Oak Hill Parkway project representative via a real-time chat feature. The real-time chat feature enabled users of the VOH to ask questions directly of Oak Hill Parkway project representatives, as well as provide comments regarding the material presented to them.

The objective for offering the VOH was to compare participation to that obtained at the TOH to understand whether providing a virtual forum would expand participation in order to broaden representation in the planning process.

Format of the Virtual Open House

The VOH was live from May 23 to the conclusion of the official comment period for the Oak Hill Parkway project on June 3. On both May 24 from 11:00 a.m. to 1:00 p.m. and May 28 from 6:00 p.m. to 8:00 p.m., real-time chat sessions with Oak Hill Parkway project representatives were held. During the real-time chat sessions, VOH users were able to ask questions and provide comments directly to Oak Hill Parkway project representatives while receiving responses and answers in real-time. The format of the VOH was organized in the manner described in the following subsections:

Landing Page

The VOH was styled to replicate the design of the Oak Hill Parkway project website. The landing page featured an introduction video that provided a brief overview of the Oak Hill Parkway project, an explanation of what the VOH intended to accomplish, instructions on how to use the VOH, rules that users had to follow in order to participate in the VOH, a project disclaimer that explained that the VOH was a pilot test, and, finally, directions on how to enter the VOH.

The landing page also provided a written explanation of the VOH's purpose, an overview of how to use the VOH, links to the Oak Hill Parkway project website, a link to

join the Oak Hill Parkway's e-mail list, a link to background information, and frequently asked questions.

The top of the landing page featured a highly visible button that instructed users to "please register to visit" the VOH. Once users clicked on this link they would be directed to the registration page. Figure 2Figure 2 provides a screenshot of the VOH landing page.

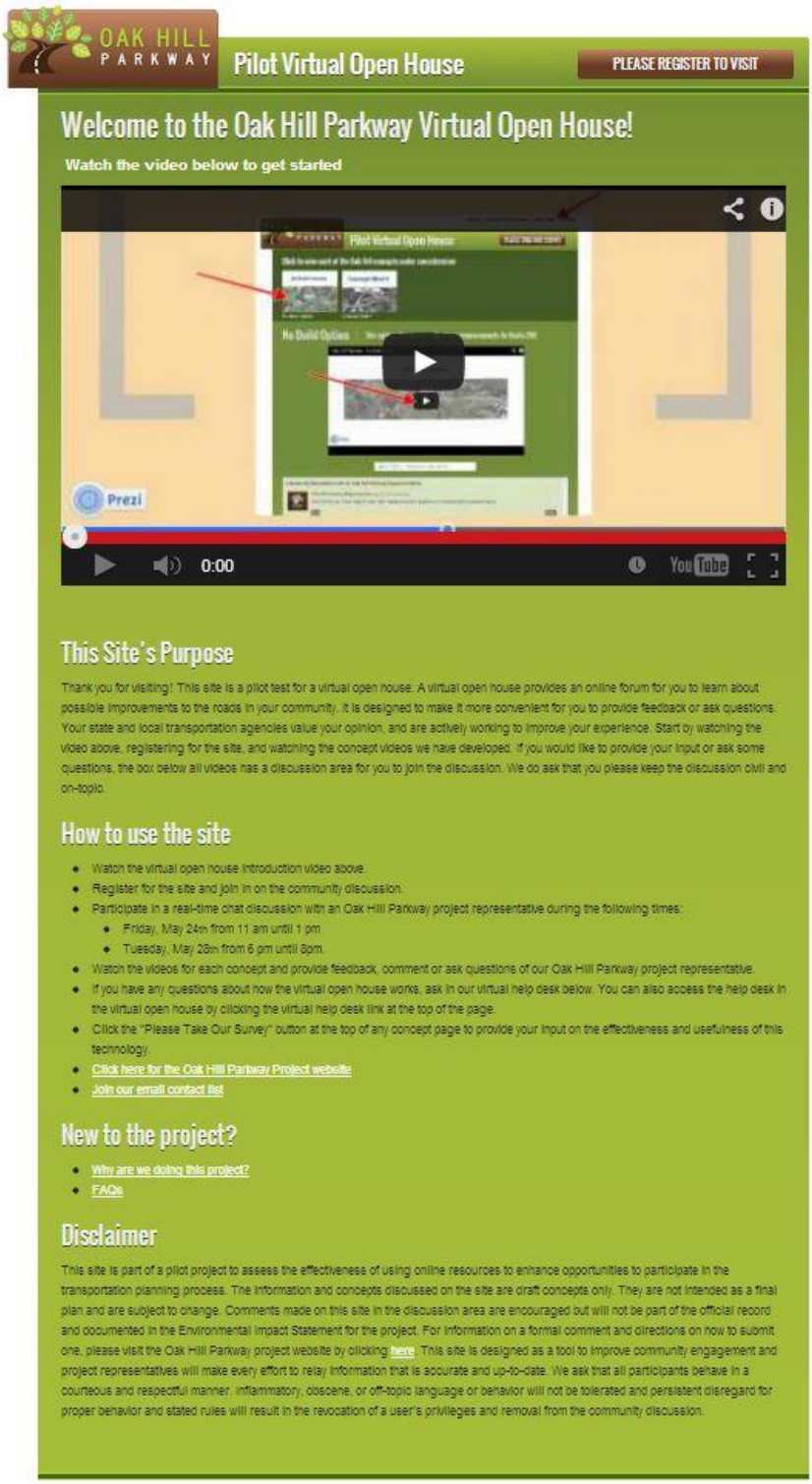

Figure 2. Screenshot of the Virtual Open House Landing Page.

Registration Page

The registration page for the VOH asked users for their name (first name and last initial), e-mail address, whether they would like to receive e-mail updates, zip code, home street (no number) and how they heard about the VOH. The intent of the registration page was primarily to register users for the real-time chat feature. The motive for requiring users to register in order to enter the VOH was to deter users from providing feedback anonymously, with the assumption being that users would be more likely to provide constructive, rather than derogatory, feedback if they provided basic information about themselves. The registration page also enabled TTI to collect general information on what neighborhoods users lived in and how they heard about the VOH. Figure 3 provides a screenshot of the VOH registration page.

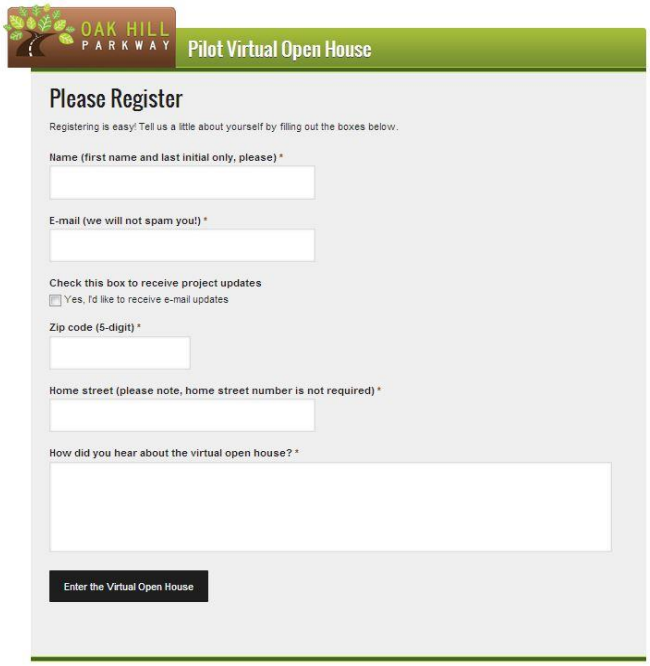

Figure 3. Screenshot of the Virtual Open House Registration Page.

Virtual Open House Concept Pages

The VOH concept pages were where the Oak Hill Parkway project materials were disseminated to users. Upon entry, users landed on an Overview page. The Overview page featured images of all of the display boards presented at the Oak Hill Parkway TOH. The display boards featured in the VOH Overview page included the following topics: project purpose and need, survey results on project purpose and need, background on the environmental process for the Oak Hill Parkway project, project schedule, next steps for the Oak Hill Parkway study, a summary of up-to-date public comments for each of the concepts under consideration for the Oak Hill Parkway project, and a summary of public involvement during the Oak Hill Parkway project. Figure 4 provides a screenshot of the VOH Overview page.

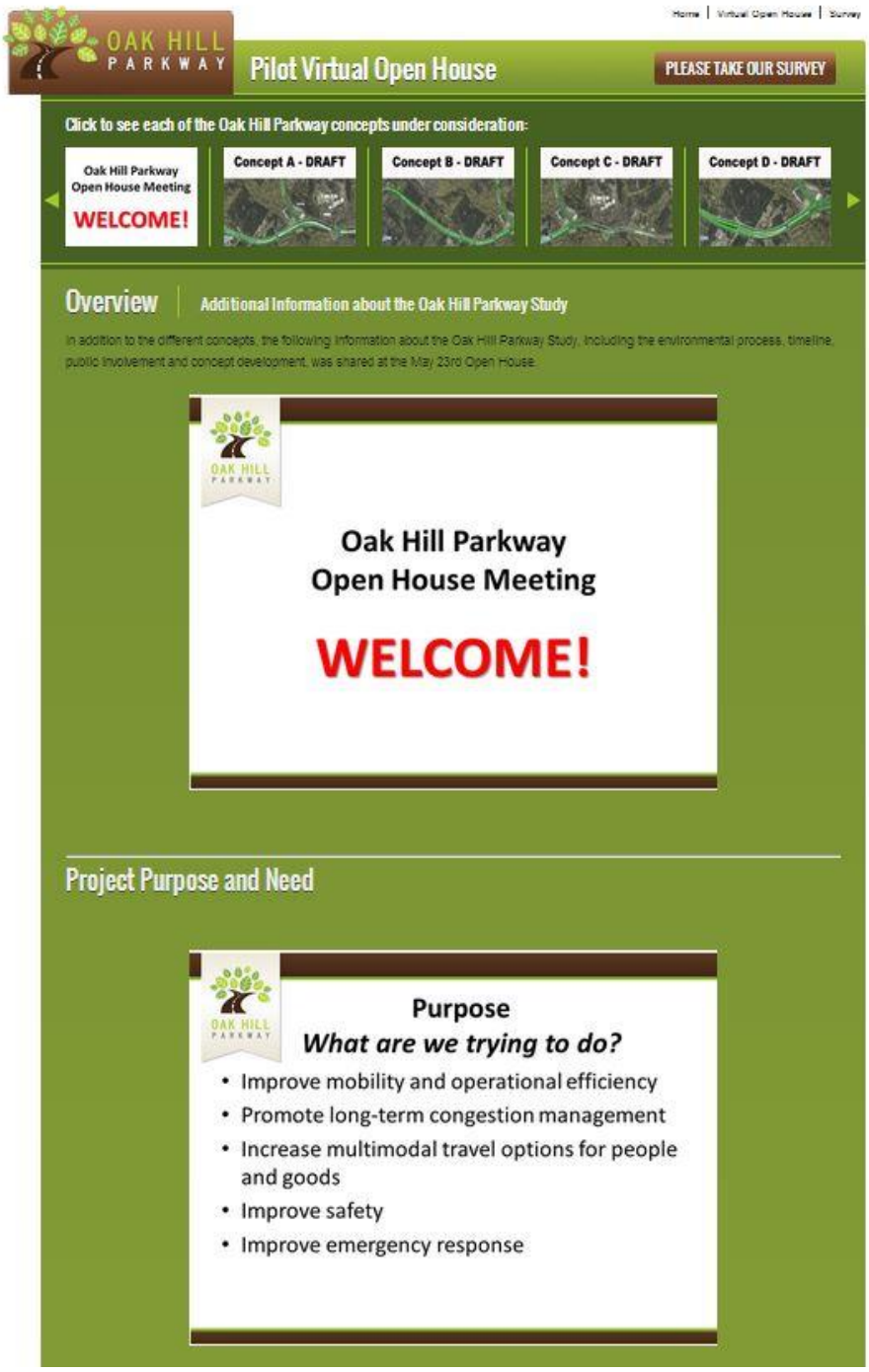

Figure 4. Screenshot of the Virtual Open House Overview Page.

The individual concept pages were organized as a row of thumbnails at the top of the VOH, with each of the eight concepts, the no-build alternative and the overview page featured as a linked thumbnail. When a user scrolled his or her mouse over a thumbnail, a brief description of that concept/page was provided, and the user could then click on a thumbnail, which would open the page for that concept. Figure 5 provides a screenshot of the VOH Concept A page.

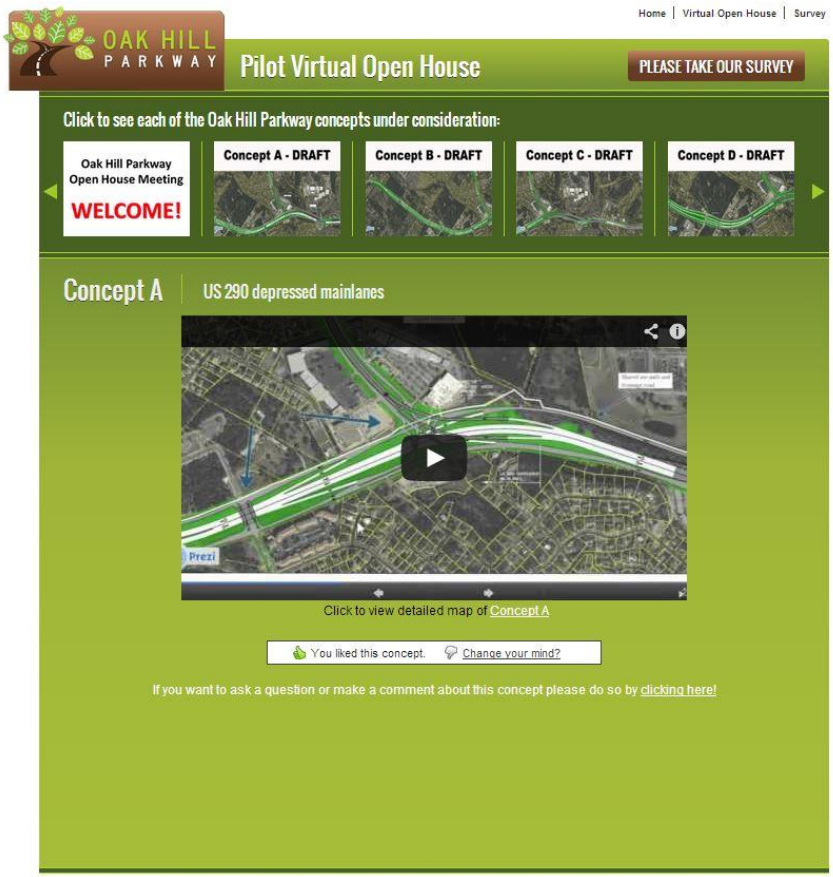

Figure 5. Screenshot of the Virtual Open House Concept A Page.

Each concept page featured a video describing said concept in great detail. The videos for all eight concepts and the no-build alternative were developed in an identical

manner. The videos featured complete schematics of each of the concepts with a voiceover that explained the specific details of each concept. While the details of each concept were being presented, the corresponding locations on the schematics were zoomed in on, and the mouse was used as a pointer to further illustrate the descriptions. Videos were uploaded to YouTube and embedded in the VOH in order to maximize user familiarity and ease of use. A link to a full PDF of the featured concept schematic was also included directly below the video so users could view each concept in greater detail. Figure 6 provides a screenshot of a concept video

Figure 6. Screenshot of the Concept A Video with the Mouse Acting as a Pointer.

Real-Time Chat Sessions

On both May 24 from 11:00 a.m. to 1:00 p.m. and on May 28 from 6:00 p.m. to 8:00 p.m., users were given the opportunity to participate in a real-time chat with Oak

Hill Parkway project representatives. During these sessions, Oak Hill Parkway project representatives were stationed at computers in order to reply directly to users, in real-time, regarding questions or comments that they had about the Oak Hill Parkway project concepts. Project team members were assigned to monitor and reply to specific concepts to ensure consistency of responses to the public comments posed. Figure 7 shows the command center during the real-time chat session.

Figure 7. Picture of the Command Center during a VOH Real-Time Chat Session.

During the real-time chat sessions, a chat box was featured below the concept videos, and users were able to enter questions and comments directly into the chat box. A highly visible disclaimer was featured directly below the chat box advising users that the comments received during the VOH were encouraged and would be responded to, but would not be considered part of the official public record. The disclaimer also

provided a link for users to follow in order to enter a comment into the official public record, if they desired. Figure 8 provides a screenshot of a VOH concept page during the real-time chat sessions.

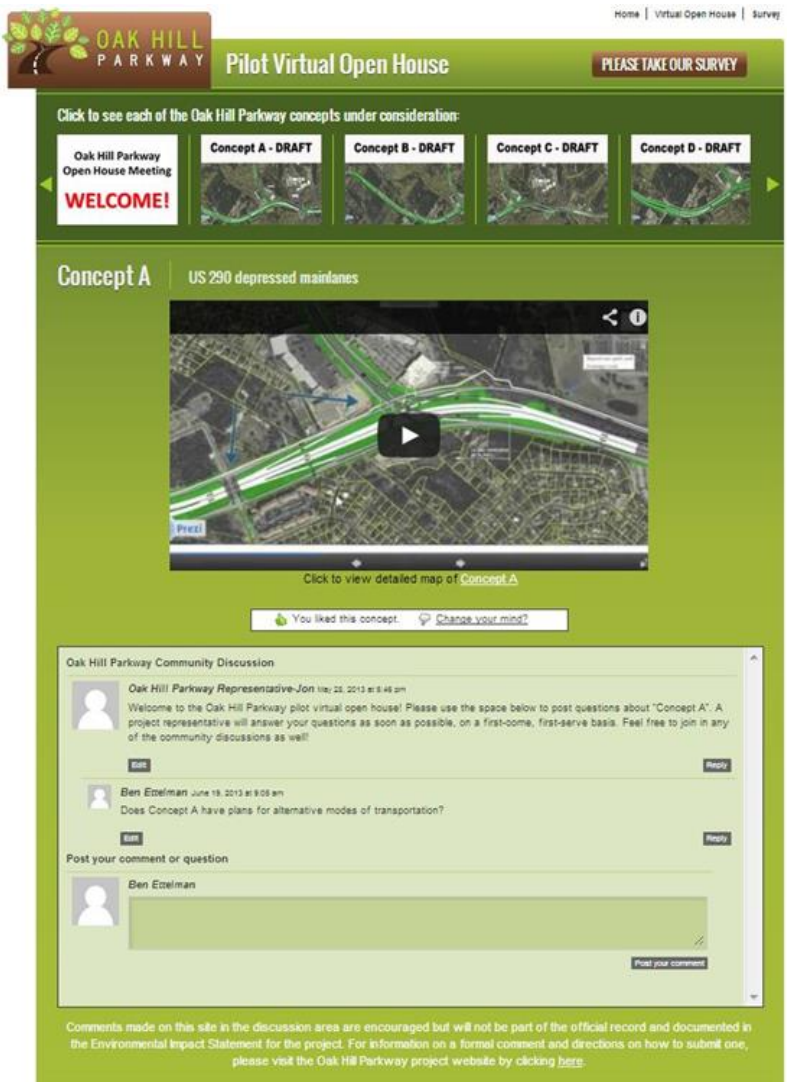

Figure 8. Screenshot of the Virtual Open House Concept Page during a Real-Time Chat Session.

Virtual Help Desk

During the real-time chat sessions, a virtual help desk was featured at the bottom of the VOH landing page and was staffed by an Oak Hill Parkway team member to answer questions in real time. The purpose of the virtual help desk was to provide users who were experiencing difficulty navigating the VOH with technical help. The presence of the virtual help desk was explained in the introduction video and was also featured in text on the landing page itself. Once users entered the VOH, a link to the virtual help desk was featured on the website navigation bar at the top of every page in the VOH. Figure 9 provides a screenshot of the virtual help desk at the bottom of the landing page.

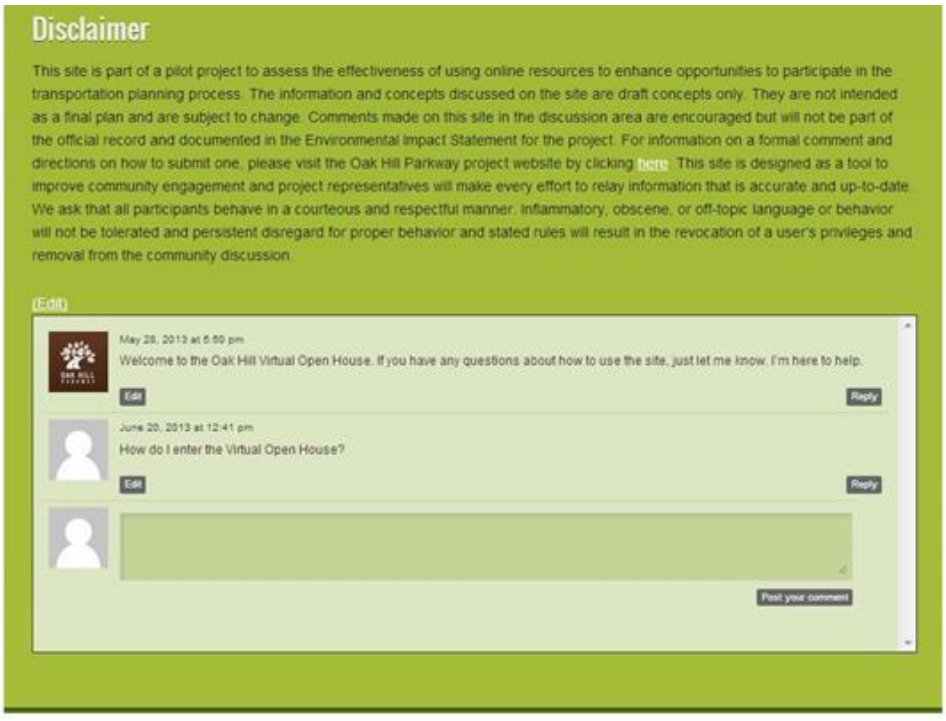

Figure 9. Screenshot of the Virtual Help Desk Available during a Real-Time Chat Sessions.

VOH Command Center Setup

In order to provide seamless communications during the virtual open house, TTI set up a command center so that the project representatives could all be in the same room while the real-time chat sessions were taking place. The command center consisted of a large room with tables set up in a U shape, with all Oak Hill Parkway representatives and TTI staff sitting with laptops along the outside of the U. Real-time website analytics for the VOH were projected onto a screen in the front of the room so everyone in the room could monitor the number of attendees and other VOH statistics during the real-time chat sessions.

All representatives responsible for managing a content chat box were provided with a unique VOH login, which they were able to customize to include their name. For example, Oak Hill Parkway project representative Kelli Reyna's name was displayed as "Oak Hill Parkway Representative—Kelli" in order to personalize the user experience in the VOH.

Each Oak Hill Parkway project representative was provided with digital copies of canned language to use for a variety of situations in order to increase staff efficiency and message consistency. To increase the efficiency in which representatives were able to respond to VOH users, language was developed as a team to answer questions that representatives felt might be asked more than once (environmental issues, trees, etc.) as well as to respond to potential disruptive VOH users who broke stated rules. In

addition to canned language developed for specific topics and unruly VOH users, four standard statements were developed:

- A standard introduction that representatives entered at the start of the real-time chat sessions.
- A standard statement alerting users that15 minutes remained before the real-time chat closed.
- A statement explaining that the VOH was closed was developed for the end of the real-time chat sessions.
- A canned message urging users to take the VOH exit survey.

The following section will review the data that was gathered from the Oak Hill Parkway TOH and VOH.

TRADITIONAL AND VIRTUAL OPEN HOUSE DATA RESULTS

The Oak Hill Parkway TOH was held at Clint Small Middle School in Austin, Texas, on Thursday, May 23, 2013, from 6:00 p.m. to 8:00 p.m. TTI staff were present to collect observational attendance and demographic data, as well as conduct a brief exit survey, in order to compare data gathered from the TOH with data gathered from the VOH. The following is a summary of the results of data collection from the Oak Hill Parkway TOH.

Traditional Open House Attendance Data

Observational attendance data were informally gathered to record the flow of members of the public who attended the Oak Hill Parkway TOH. TTI staff was stationed at the entrance to the TOH and recorded entry and exit counts in 15-minute increments.

Figure 10 provides the public flow data collected at the open house. Based on tally counts of entries, a total of 81 people attended in-person, not including project representatives and staff. In addition, there was approximately 30 project staff present at the TOH not included in the attendance and demographic data collected.

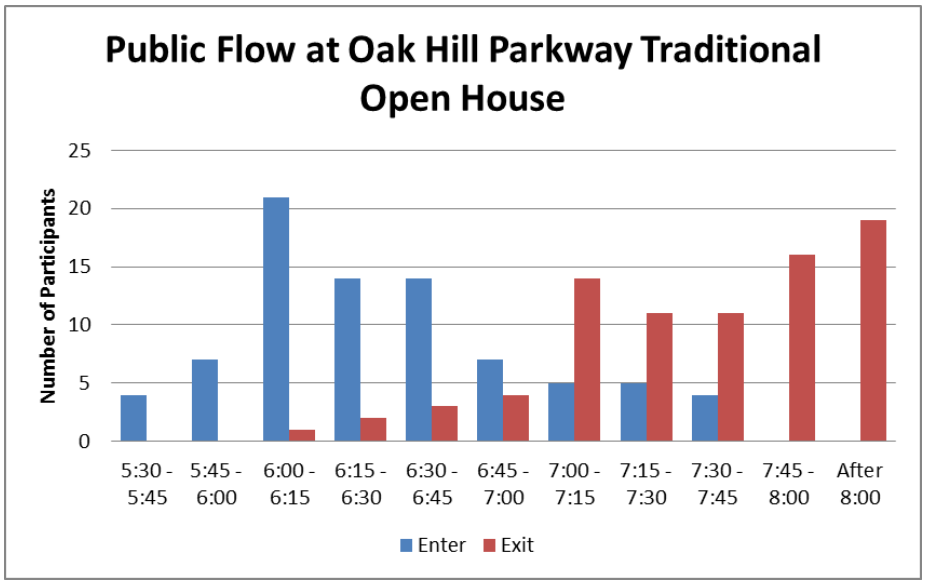

Figure 10. Public Flow at the Oak Hill Parkway Traditional Open House

Traditional Open House Exit Survey

Participation in an exit survey was also requested of those attending the Oak Hill Parkway TOH. The exit survey was conducted by TTI staff, who intercepted the TOH participants as they left the event. The exit survey asked attendees questions regarding

home zip code and street; how the attendees heard about the TOH; whether the material presented in the TOH was useful, informative and clearly explained; whether attendees felt more informed about the project and if they had the option, whether attendees would rather attend an in person TOH or view details of a project over the internet. The full results of the exit survey can be viewed in TTI's final research report *Exploring New Technology: Results of the Oak Hill Parkway Virtual Open House Pilot.*

Of note for this evaluation was the final question asked of attendees of the TOH as to whether they preferred an in-person open house or view the details over the internet. 78 percent of respondents explained that they would rather come to an in-person open house and 16% responded that they would like to have both options. Of those that responded that they prefer an in-person TOH over an internet option (VOH), researchers inquired as to why they preferred that method of engagement (note that the answers to this question were open ended). Of the attendees that responded, without a prompt, that they would prefer to attend an in-person TOH, 66 percent responded that the reason they preferred this method of engagement was because they preferred to have direct interaction with project representatives.

Virtual Open House Attendance Data

The VOH was live from May 23 through June 3. There were two real-time chat sessions, the first of which was held on May 24 from 11:00 a.m. to 1:00 p.m. and the second was held on May 28 from 6:00 p.m. to 8:00 p.m. The site URL was www.oakhillopenhouse.com.

Data Retrieved from Project-Specific Site Design

The Oak Hill Virtual Open House was designed with the intention of capturing as much data as possible to evaluate the effectiveness of the pilot program and to specifically evaluate whether the VOH expanded participation in the planning process. Some of these metrics were in the form of survey questions, and some were in the form of data that was captured in the back end of the VOH itself using Google Analytics. The following subsections give a summary of the data retrieved through the VOH.

Registration Page Data

A total of 126 users registered for the live chat portion of the VOH through the registration page. All registrants were asked for an e-mail address and a first name. Those that provided an e-mail address were asked to check a box if they would like to receive e-mail updates about the project. Registrants were also asked to indicate their home street and zip code.

Data Retrieved from Google Analytics

The Oak Hill Parkway Virtual Open House used Google Analytics to provide metrics to measure user traffic and participation in the VOH. Google Analytics is a free service that provides data on website user behavior and traffic, such as the number of users that visit a specific site, the location they came from on the Internet, the geographic location of users who visit a specific site, the amount of time users spend on the site, and what pages they visit most. In order to track the activity of users participating in the VOH, a tracking code was embedded into all of the pages of the

VOH. This enabled Google to install tracking cookies on users' computers in order to provide a report providing data on the range of user activities while participating in the VOH. The following data was reported by Google Analytics.

Visits and Unique Visitors

A visit is defined as a series of interactions by a user on a website within a given time frame (30 minutes is the default for Google Analytics). Users may visit several pages and interact with several aspects of a website, but this will only count as one visit as long as the session does not become inactive (website open and no activity) for 30 minutes or does not span over the start of a new day (triggered at 12:00 a.m.). If, for example, a user opens a webpage and leaves it inactive for 30 minutes after interacting with the site, and then returns and continues to browse after 30 minutes, this would count as two visits.

Unique visitors, on the other hand, are identified by unique visitor cookies that the site installs on the user's computer. If this cookie is left installed and the user visits the same webpage with the same browser on the same computer, it will only count as one unique visit, regardless of how much time has lapsed.

When evaluating how many users attended the VOH, the unique visitor metric more accurately reflects the number of individual people that participated in the VOH. The visit metric will likely overstate the total number of participants in the VOH as users who visited the VOH more than once on separate days would count as separate visits.

Table 1 provides the total number of visits and unique visitors to the VOH for each day the site was live, as well as the total number of visits and unique visitors.

Table 1. Total Number of Visits and Unique Visitors to the Virtual Open House May 23 through June 3.

Date	Visits	Unique Visitors
May 23	21	18
May 24	187	161
May 25	72	65
May 26	19	16
May 27	57	53
May 28	168	156
May 29	111	106
May 30	28	27
May 31	20	19
June 1	9	7
June 2	14	13
June 3	19	18
Total	**725**	**659**

While the number of unique visitors per day provides a good understanding of the number of attendees to the VOH, Google Analytics provides additional measures, discussed below, that speak to the quality of the participation of attendees while in the virtual open house.

Average Visit Duration

Average visit duration is defined as the average duration of time a user visits a site within a session. Sessions are containers of activity, including screen views, events,

etc. By default, Google Analytics measures sessions in 30-minute intervals. Table 2 provides the average visit duration of all visits per each day the VOH was live, with the days of the real-time chat sessions highlighted in gray.

Bounce Rate

Bounce rate is defined as the percentage of visits in which a user exited the VOH from the landing page without interacting with the page or advancing to other pages within the VOH. Table 2 provides the bounce rate for all visits per each day the VOH was live, with the days of the real-time chat sessions highlighted in gray.

Pages per Visit

Google defines pages per visit as the average number of pages viewed during a visit to a website. This metric provides insight into how "deeply" users explored a specific site (i.e., average page depth). Note that repeated views of a single page are counted in this metric. Table 2 provides the pages per each day the VOH was live, with the days of the real-time chat sessions highlighted in gray.

Table 2. Average Visit Duration, Bounce Rate and Pages per Visit for All User Visits to the Virtual Open House May 23 through June 3.

Date	Avg. Visit Duration	Bounce Rate	Pages/Visit
May 23	4:30	52.38%	2.57
May 24	9:28	52.41%	5.22
May 25	3:00	70.83%	2.75
May 26	11:56	26.32%	6.26
May 27	1:45	63.16%	2.32
May 28	8:24	51.19%	5.4
May 29	5:50	56.76%	2.33
May 30	7:48	46.43%	4.71
May 31	2:53	60%	2.5
June 1	1:45	88.89%	2.22
June 2	2:11	78.57%	2.57
June 3	4:00	36.84%	2.53
Average	**5:17**	**56.98%**	**3.45**

A full review of the evaluative metrics and a more in-depth analysis of the Oak Hill Parkway VOH can be found in TTI's final research report, *Exploring New Technology: Results of the Oak Hill Parkway Virtual Open House Pilot* (Ettelman et al, 2013).

EVALUATION OF TRADITIONAL AND VIRTUAL OPEN HOUSE DATA

One of the primary benefits of using Google Analytics as an evaluative data tool is that researchers can use the data to gauge the traffic to and from the VOH in a similar manner as the TOH. For the entire period the VOH was live, the VOH had 659 unique visitors. The probability is that some of the individuals who visited the VOH may have either cleared their computer cookies or used more than one Internet browser,

computer or device, so the 659 unique visitors may be slightly overstated. However, this still provides researchers with the most accurate reflection of individual visitors to the VOH during the entire period it was live.

Overall, attendance at the VOH was incredibly robust during the 12 days that it was open. Additionally, looking at unique visitors on the two days that the real-time chat sessions were held shows that there was a significant increase in visitors. On May 24, the day that the first real-time chat session was held in the evening from 6 p.m. to 8 p.m., the total unique visitors to the VOH was 161. On May 28, the day the second real-time chat session was held during lunchtime from 11 a.m. to 1 p.m., there were 156 unique visitors to the VOH. Of note is the fact that both on both of the days the live chats were held the attendance was very similar, with the evening session on the 28th getting 5 more unique visitors. This would indicate the utility of providing events to engage the public at various times, both during lunchtime and in the evenings. In total, the number of unique visitors on May 24 and 28 equals 48 percent of the total unique visitors to the VOH over the 12 day period it was live. Based on the increase in unique visitors during the days of the real-time chat sessions, it is clear that these interactive sessions were a major attraction that drew people to visit and participate in the VOH.

Google Analytics provides data that can measure not only how many individuals visited the VOH, but how effectively they engaged with the materials in the VOH. Google Analytics provided the average visit duration and average number of pages per visit for all users of the VOH. Table 2 provides a breakdown of the data by each day the VOH was

live. With the exception of Sunday, May 26, the days that the real-time chat sessions were held had the highest average visit duration (9:28 minutes on May 24 and 8:24 minutes on May 28) and the highest number of pages per visit (5.22 on May 24 and 5.4 on May 28). The high average visit duration (11:56 minutes) and pages per visit (6.26) on Sunday, May 26, could be a result of a small number of users (or possibly one) throwing the average off for that day, based on the small sample set on that day because Sunday had a small number of unique visitors as compared to May 24 (16 to 161 respectively).

Google Analytics provides evaluative metrics that support that online participatory planning spaces can expand participation in the planning process. Since the VOH mimics the form of communication used in the TOH, there is a natural inclination to directly compare the attendance of the TOH (81 people in 2 hours) with the attendance of the VOH (659 unique visitors over a 12 day period). In reality the two tools are completely different ways in which to engage the public; some members of the public truly desire having face to face interaction, while others appreciate the ease and convenience of online portals. However, there is no denying the fact that the robust participation in the Oak Hill Parkway VOH is an example of a virtual setting expanding participation. When observing the increase in participation as measured by the increase in the average visit duration and average number of pages per visit during the real-time chat sessions, it becomes even more clear that not only are members of the public interested in using virtual forums to participate in the planning process, but that the

presence of real time, two-way interaction will increase the level of participation from members of the public.

The evaluative metrics discussed above speak to the volume of people who are interested in participating in virtual forums for participatory planning. The following section will discuss whether the Oak Hill Parkway expanded participation over a broader geographic area.

EVALUATION OF GEOGRAPHIC REPRESENTATION OF VOH AND TOH

As discussed in the previous section, home zip codes of attendees of both the TOH and VOH were collected. In order to evaluate whether the VOH reached a broader geographic area the home zip codes of attendees of the VOH and TOH were mapped for comparison. Figure 11 is a map of all of the home zip codes of attendees of the TOH. Of all attendees of the TOH, 9 total zip codes were represented. The red star on Figure 11 shows the location of the Clint Small Middle School where the Oak Hill Parkway TOH was held and the yellow line shows the portion of the Oak Hill Parkway that is within the project study area.

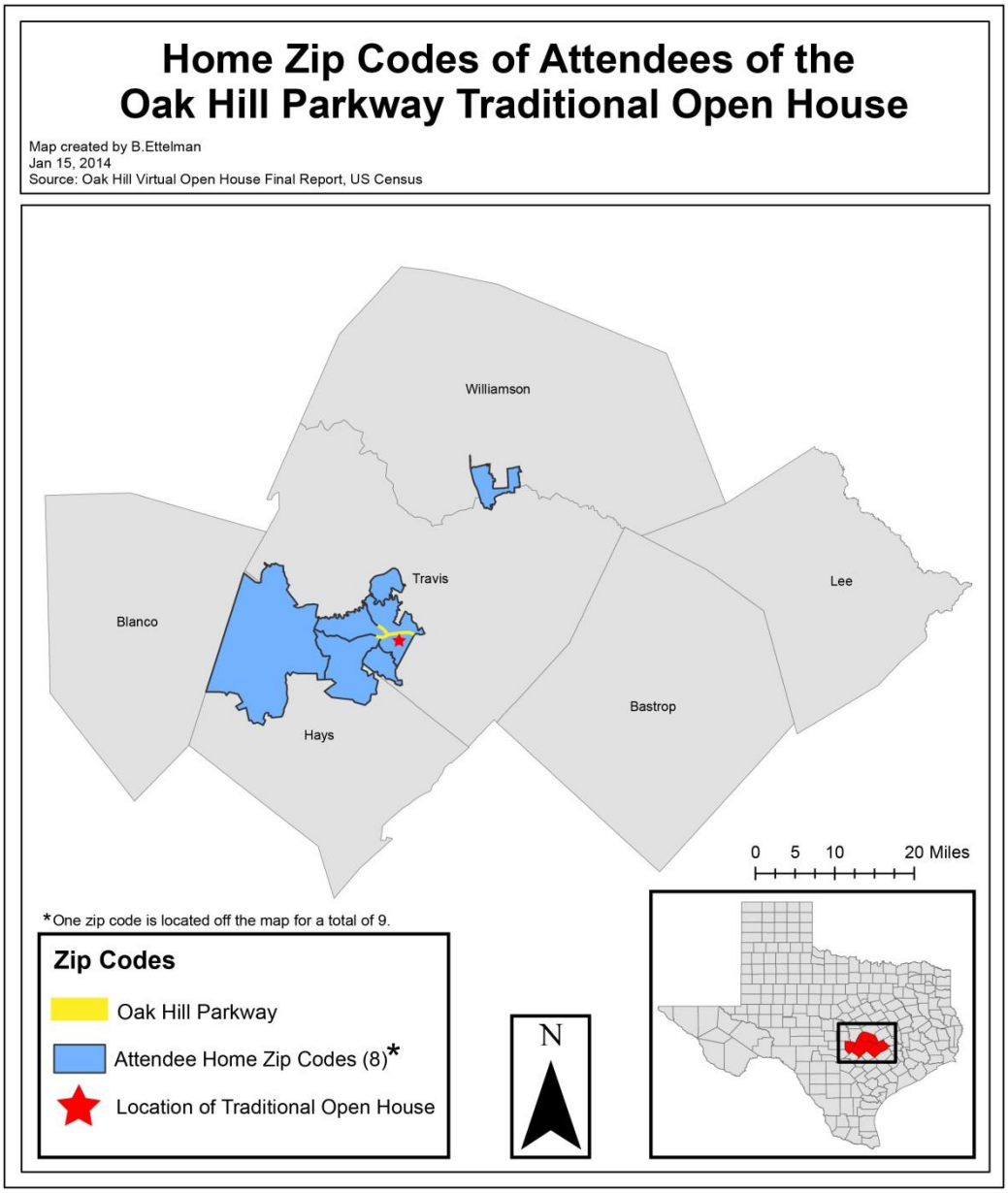

Figure 11. Home Zip Codes of Attendees of the Oak Hill Parkway Traditional Open House

As shown in Figure 11 the majority of the home zip codes of attendees of the Oak Hill Parkway TOH are located within close proximity of the location of TOH, with the exception of one zip code in southern Williamson County, and one zip code that is not

shown on the map, which is located well west of Blanco County. Figure 12 is a map of all of the home zip codes of attendees of the VOH.

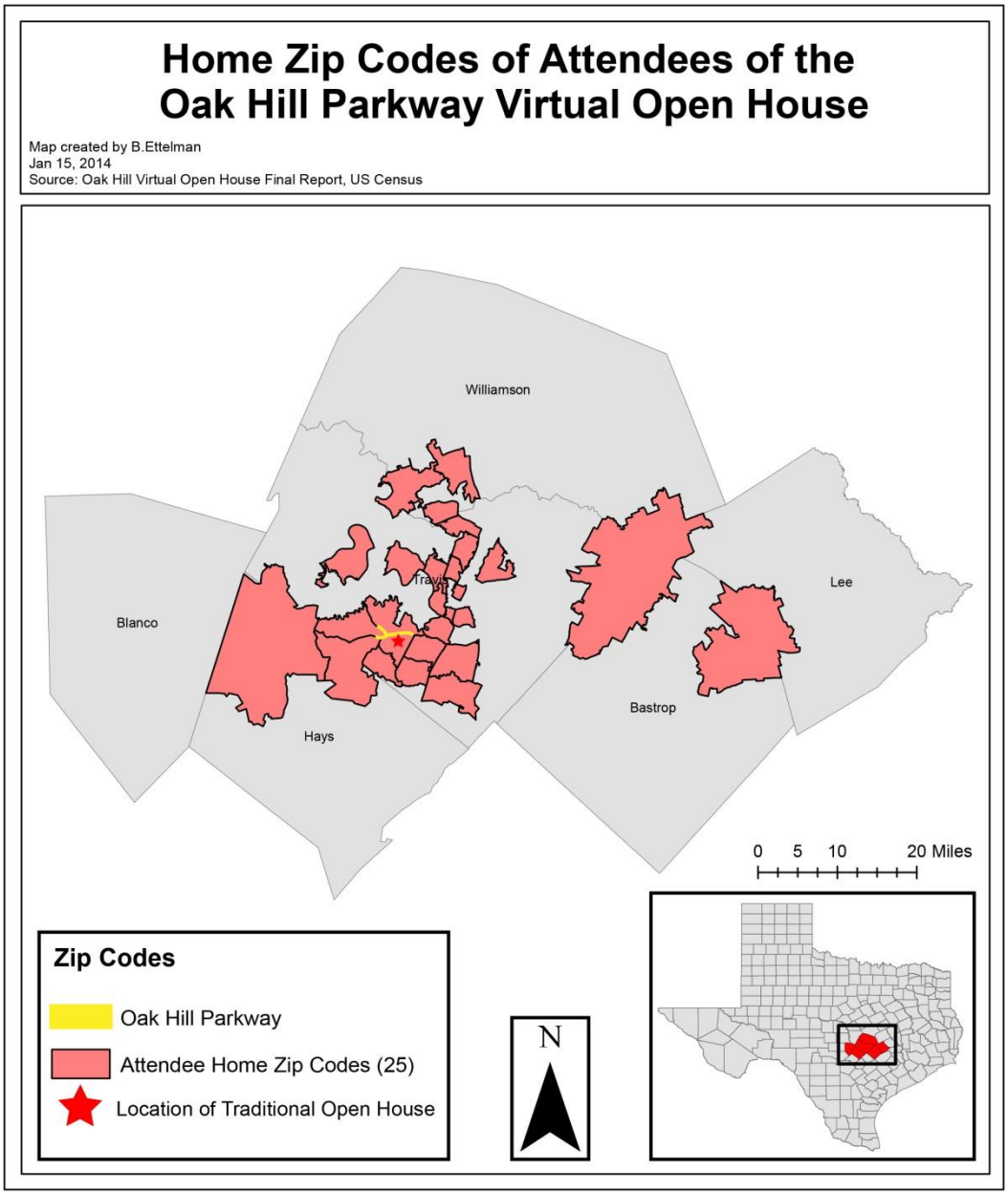

Figure 12. Home Zip Codes of Attendees of the Oak Hill Parkway Virtual Open House

As shown in Figure 12, a total of 25 zip codes were represented by attendees of the Oak Hill Parkway VOH. This shows that using an online participatory planning space expanded the geographic participation to 16 additional zip codes for the Oak Hill Parkway planning process. While the majority of the participation is from zip codes within close proximity of the location of the TOH and the Oak Hill Parkway study area, there are numerous zip codes represented from locations throughout the city of Austin and Travis County, as well as representation from Bastrop, Lee and Williamson counties.

The broader range of geographic participation speaks to the VOH's ability to expand participation in the planning process. The following section will evaluate the whether there is redundancy amongst attendees of the Oak Hill Parkway TOH and VOH.

EVALUATION OF REDUNDENCY AMONGST ATTENDEES OF VOH AND TOH

In addition to the collection of zip codes from attendees of the VOH and TOH, email addresses were also collected. The email addresses from the TOH were cross referenced with emails from the VOH in order to analyze how many of the attendees of the TOH also attended the VOH. The number of unique email addresses registered for the VOH provides researchers with an understanding of whether the VOH expanded participation from the TOH in the Oak Hill Parkway planning process. The assumption is that a user would likely enter the same email address at the sign in at both the VOH and TOH.

At the TOH, a sign-in table was located by the entrance staffed with project representatives who greeted guests and specifically asked them to sign in and provide their email address. In addition, attendees of the VOH were required to enter their email address in order to participate in the live chat sessions. Table 3 shows the total email addresses collected from both the VOH and TOH, with duplicate email addresses removed, and the total unique VOH email addresses.

Table 3. Email Addresses Collected at the Traditional and Virtual Open Houses.

	Email Addresses Collected
Traditional Open House	126
Virtual Open House	58
Duplicate Email Addresses	6
Total Unique VOH Users	**120**

As shown in Table 3, there were 58 unique email addresses collected at the sign-in table at the TOH. In addition, there were 126 unique email addresses collected from users who registered for the live chat in the VOH. These emails were cross referenced and only 6 duplicate emails were found. This shows that for these two events, 120 new and unique individuals participated in the VOH. This supports the hypothesis that online participatory planning spaces can expand participation in the planning process as only 10% of the attendees of the TOH also attended the VOH and only 5% of the attendees of the VOH also attended the TOH.

Chapter 5: Oak Hill Parkway Project Representative Interviews

Oak Hill Parkway Project representatives were interviewed in order to evaluate whether the Oak Hill Parkway Virtual Open House expanded participation in the planning process and whether the website analytics gathered from the Oak Hill Virtual Open House provided them with quantifiable data that was useful to evaluate the usefulness of online participatory planning spaces. Interviewees included Melissa Hurst, Community Outreach Manager at the Central Texas Regional Mobility Authority; Kelli Reyna, Public Information Officer for the Texas Department of Transportation Austin District; Joseph Carrizales, Advanced Project Development Engineer for the Texas Department of Transportation Austin District and James Williams, Oak Hill Parkway Project Manager for the Texas Department of Transportation Austin District.

The four interviewees were chosen because of their roles in the project planning, public involvement and project development of numerous transportation projects, including the Oak Hill Parkway Project. The interviewees are all responsible for insuring that the public is meaningfully involved in the planning process. Ms. Hurst and Ms. Reyna's specific role is to oversee the public's involvement in the planning process for the Oak Hill Parkway project. Given their roles, both can provide unique insight as to whether they think the VOH expanded participation in the Oak Hill Parkway planning process as they have been involved since the beginning of the project and are both responsible for understanding the level of participation that the project is experiencing.

In addition, their previous experience in the field of public involvement provides the opportunity for both professionals to draw upon this knowledge in order to provide insight into not only how VOHs expand participation but also into what institutional barriers exist and how having performance metrics for VOHs can help overcome those institutional barriers.

In addition to the benefit of gaining insight from public involvement professionals directly responsible for the outreach of the Oak Hill Parkway Project, Mr. Williams and Mr. Carrizales provide insight regarding the planning and programing of not only the Oak Hill Parkway projects but numerous other transportation projects. Mr. Williams is responsible for ensuring that the budget of a project is adhered to and in his capacity as project manager the success or failure of the public involvement in the Oak Hill Parkway Project rests squarely on his shoulders. While the role of a project manager in the planning process spans beyond just public involvement, Mr. Williams understands that all of the different moving parts that are necessary to a successful planning project must work in lock-step in order for a project to be successful. Public involvement is a key component in ensuring the success of a project and Mr. Williams can provide valuable insight into the public involvement methods that are most, and least effective. Mr. Carrizales plays a similar role as he is responsible for ensuring that the outcome of the planning project can ultimately be built. Mr. Carrizales understands that in order for a project to move forward into the programming stage, it must have public support. In addition, seeing as both Mr. Williams and Mr. Carrizales are decision makers in the

planning and programming process, they can provide unique insight into how evaluative metrics help convince them of the merit of VOHs in the public involvement process.

Interviews were conducted in interviewee's offices and interviewees were all asked the following questions:

- How do you think providing online planning portals for public involvement can increase participation from the public?
- What are your biggest concerns about providing online planning portals for public involvement?
- Do you think having greater geographic representation from the public in planning processes will generate more useful input? How so? Why not?
- Are developing online participatory planning spaces cost effective? Why?
- What do you think is most challenging about developing virtual open houses from a staffing perspective?
- How do you think website analytics will help convince decision makers that website portals for public involvement are worthwhile?
- How are the evaluative metrics developed in the Oak Hill Parkway Virtual Open House helpful to planning professionals?
- What are the most important components of online participatory planning spaces?
- What would you do to change online participatory planning spaces in the future?

The following section will provide a summary of the interview findings from each of the four interviewees.

INTERVIEW 1: MELISSA HURST, COMMUNITY OUTREACH MANAGER, CTRMA

Ms. Hurst began the interview by sharing that CTRMA has taken the lessons learned from the Oak Hill Parkway VOH and implemented them into the rest of the studies that they are conducting. Ms. Hurst explained that for every project CTRMA has a VOH where materials are available that provides information on all potential concepts, as well as handouts and any other materials that are available at the traditional open houses. Ms. Hurst explained that CTRMA generally launches their VOHs at the traditional open houses at the start of an official comment period and leaves it open for at least the length of the comment period, if not longer. Ms. Hurst explained that CTRMA views the live chat as a tool in the toolbox, and will use this tool when it is right for the community. Ms. Hurst also explained that as the public becomes more comfortable with using a live chat feature, and begin to rely and expect that it will be part of the public involvement process, that she truly believes it will increase participation in the planning process.

How do you think providing online planning portals for public involvement can increase participation from the public?

Ms. Hurst explained that providing multiple ways for people to get information about projects provides increased accessibility which always increases participation. Ms.

Hurst emphasized that each individual community has their own way of communicating; for example the Oak Hill Community prefers to have in person participation but the community members involved with the Route 183 corridor have shown that they prefer having an online option to learn about the project. Ms. Hurst believes that the 183 community is more likely to communicate online instead of coming to a public meeting in person. Ms. Hurst explained that if you have a sense of what a community prefers, you can make the public participation process more cost effective.

What are your biggest concerns about providing online planning portals for public involvement?

Ms. Hurst explained that her biggest concern with the VOHs is the web commenting and live chat feature. Ms. Hurst elaborated that since the projects that CTRMA works on usually go through the NEPA process, she has to work with FHWA in order to ensure that the VOH commenting falls within the guidelines of the very strict environmental process. Ms. Hurst explained that one of the most pressing concerns with the live chat is whether or not the public perceives the comments to be part of the official record. Ms. Hurst explained that if a member of the public expects their comment to be part of the administrative record in an environmental review process and it is not, it could potentially create issues if a statement of finding is legally challenged. Ms. Hurst explained that FHWA wants to make sure that the public is not confused as to what is considered part of the official public record and what is not. Ms. Hurst emphasizes that in her discussions with FHWA she regularly explains that the VOH

is above and beyond the requirements outlined in the NEPA process and that the use of VOHs are still being evaluated at the federal level. In addition to this, Ms. Hurst also explained that her concern is making sure there is a consistent message and consistent expectation from the public. In addition to the commenting issues, Ms. Hurst explained that the live chat feature makes VOHs expensive and there is a need to streamline the development process.

Do you think having greater geographic representation from the public in planning processes will generate more useful input? How so? Why not?

Ms. Hurst explained that she believes that increased participation from the public in the planning process is always a good thing, as the worst thing she can hear as a community outreach manager is someone from the public saying that they didn't know about the project. Ms. Hurst explained that even if they don't live near the project, people from a broader geographic area still use the facility. Ms. Hurst explained that the public engagement process on the 183 South project developed a final outcome that better met the needs of the community as they added extra turnarounds and trailheads after learning through the public involvement process that those features were important to the public. Ms. Hurst explained that, while this is a better project for the community, it also ended up costing more, and that some officials view that as a negative outcome of public involvement processes. Ms. Hurst however, explained that she feels very confident that going the extra mile with public involvement is not just beneficial to the region but directly contributes to the development of projects that are

ultimately more accepted by the community. Ms. Hurst explained that increasing buy in from communities and getting a better project out of the process is the primary goal of her job.

Are developing online participatory planning spaces are cost effective? Why?

Ms. Hurst explained that the live chat tool is just as expensive as a traditional open house because of all of the staff required to man each of the chat boxes. Ms. Hurst believes there is an opportunity to winnow down the number of consultants needed for the live chat in order to increase the cost effectiveness of the live chat tool, but that it must be cost-effective in order to be used regularly.

What do you think is most challenging about developing virtual open houses from a staffing perspective?

Ms. Hurst explained that it is challenging to staff VOHs as they are extra work for project representatives. Ms. Hurst did relay that her experience has shown that when people who aren't usually proponents of the extra work that quality public involvement processes entail see the difference that they make, they are usually convinced that there is great merit in going the extra mile.

How do you think website analytics will help convince decision makers that website portals for public involvement are worthwhile?

Ms. Hurst explained that CTRMA uses analytics on all of the VOHs in order to track how many people are participating and this informs whether the investment is

worthwhile. Ms. Hurst explained that the website analytics also helps her understand how a community is most interested in engaging with a project, for example if a traditional open house held for a certain community is not well attended but there are numerous unique page visits on the project's VOH that is a strong indication as to how that particular community is interested in engaging with CTRMA. Ms. Hurst explained that it is also helpful to see what concept materials are the most downloaded as that provides an indication of what concepts that CTRMA should make sure they spend an ample time explaining and talking to the public about.

What are the most important components of online participatory planning spaces?

Ms. Hurst explained that recreating the same exact experience in a VOH as in a public meeting/open house is important so that members of the public have the same opportunity to provide input and so they get a consistent set of information from all sources. Ms. Hurst explained that one difficulty is that CTRMA occasionally makes changes to exhibits up until the day of meetings so it is challenging to plan ahead to make sure that all materials are consistent in VOHs. Ms. Hurst elaborated that this is part of the process: project concept and schematics are continually changing, so it can be hard to continually provide consistent materials. Ms. Hurst explained that consistency is a challenge as it is a key part of the planning and public involvement process. Ms. Hurst also explained that members of the public expect the most updated information, so keeping VOHs current is challenging.

What would you do to change online participatory planning spaces in the future?

Ms. Hurst explained that she would like to see a serious investment in VOHs as having to develop VOHs inexpensively produces subpar products. Ms. Hurst elaborated that the best product will really lead to a successful process.

INTERVIEW 2: KELLI REYNA, PUBLIC INFORMATION OFFICER, TxDOT

How do you think providing online planning portals for public involvement can increase participation from the public?

Ms. Reyna explained that online planning portals like the Oak Hill Parkway VOH can broaden participation geographically, it can increase support for a project and it can increase participation from segments of the public that don't normally participate. Ms. Reyna explained that VOHs can help people who struggle with time management have more opportunities to participate in planning processes. Ms. Reyna indicated that multiple formats and multiple platforms are an effective way to increase participation. Ms. Reyna touched on the issue of accessibility as not all individuals are computer literate. Ms. Reyna explained that she believes that even though not everyone will be completely comfortable using VOHs, this lack of comfort should not preclude planning agencies from taking advantage of these tools. Ms. Reyna stressed that she does everything she can to provide participation processes that are broadly inclusive, but that there are also people who are less comfortable in traditional participatory settings (public meetings), or have less time to be there (such as full time parents). Providing diverse options is important to ensure that all segments of the population are included

in the planning process, so VOHs should not replace public meetings, but they should not preclude the need for online participatory planning spaces either.

Ms. Reyna explained that in addition to expanding participation, the VOH was effective in helping TxDOT effectively craft their messages by fully vetting all of the issues and topics that came up regarding how the information regarding the project was displayed. Ms. Reyna explained that when you have a poster board and a presenter, the poster board really can't stand alone, it acts as more of a prop for the presenter. Ms. Reyna felt strongly that in this traditional setting, this is a missed opportunity in terms of public relations as the point of the poster board is often lost. Ms. Reyna emphasized that developing the material for the Oak Hill Parkway VOH makes TxDOT more thoughtful about how their visual material communicates their messages.

What are your biggest concerns about providing online planning portals for public involvement?

Ms. Reyna explained that her biggest concern with providing online planning portals is people's unwillingness to be open minded because new technology is not "the way it has always been done". Ms. Reyna elaborated that sometimes people are afraid to try new approaches, potentially because of their fear of failure. Ms. Reyna emphasized that her largest frustration is when a good idea gets shot down for no better reason than "we haven't done it that way before".

Ms. Reyna indicated that personnel resources and implementation costs are a problem as well. Ms. Reyna explained that if there were a product, such as a template, with a one-time fee that allowed TxDOT to reproduce VOHs over and over than it would be a lot easier to integrate VOHs in more public involvement processes.

Do you think having greater geographic representation from the public in planning processes will generate more useful input? How so? Why not?

Ms. Reyna explained that she does believe that having input from a greater geographic subset of the public is a good thing. Ms. Reyna explained that TxDOT's mission is to maintain, develop and build a state-wide transportation system and that all roads are connected. Ms. Reyna explained that TxDOT should not preclude the participation of people who travel on a roadway where there is a project, just because they don't live in that neighborhood. Ms. Reyna elaborated that people may not drive on the road every day, or live on the road, but they travel on the roadway when they visit family and friends and when they travel to work, so their input is important. Ms. Reyna did explain that it would be helpful to have some sort of criteria to keep people from overweighting the input on a project if they don't live anywhere near a project, but that her ultimate belief is that if they are a user of the system, they should have the right to provide input. Ms. Reyna indicated that having people enter a zip code is helpful to understand if input is weighted too heavily towards the interest of people who don't live in the study area. Ms. Reyna confirmed that input is not weighted currently.

Ms. Reyna elaborated on the concept of anonymity in the public involvement process, which is a concern of having VOHs. Ms. Reyna explained that anonymity in the public involvement process is a double edged sword as some people will leave far out comments without leaving their name, and that with anonymity there is a greater opportunity for crudeness. Ms. Reyna indicated that this is an advantage of traditional as opposed to online participatory planning spaces. Ms. Reyna explained that the other side of the coin is that sometimes people are more comfortable with anonymity, so there is the potential to expand participation by providing an outlet for people to participate without feeling self-conscious.

Are developing online participatory planning spaces cost effective? Why?

Ms. Reyna clarified that she does not oversee the budgets of projects but there is a large cost to having 20 consultants sit in an empty meeting room. Ms. Reyna emphasized the need for operators of a VOH to multi-task (man multiple concepts during a VOH for example) in order to make them more cost-effective. Ms. Reyna indicated that there is great potential in the cost effectiveness of VOHs as the material (videos in the case of the Oak Hill Parkway VOH) may take 3 hours develop, but it can be reused. Ms. Reyna explained that this is more cost effective than when you have a roomful of consultants being paid to attend public meetings that are not well attended.

What do you think is most challenging about developing virtual open houses from a staffing perspective?

Ms. Reyna explained that she thinks the technology used to portray the information is the most challenging, as for example, the Oak Hill Project had numerous concepts so the VOH material (videos and maps) needed to be understandable even without someone there to answer questions as to how the concepts were different. Ms. Reyna explained that this is a question of accessibility because if members of the public can't understand what the material is conveying it will create frustrations. Ms. Reyna explained that in addition there is a risk that members of the public will misconstrue what is being portrayed, which in many ways is more problematic than if they simply don't understand the material.

How do you think website analytics will help convince decision makers that website portals for public involvement are worthwhile?

Ms. Reyna explained that website analytics provide hard data as to whether there was an increase in participation. Ms. Reyna emphasized that without analytics there is no way to measure participation in VOHs except for looking at the number of comments and questions. Ms. Reyna also discussed that relying on the number of comments in both VOHs and traditional methods is problematic because if the public have no comments or questions that may not necessarily be a bad sign.

What are the most important components of online participatory planning spaces?

Ms. Reyna explained that the interactive features such as real-time chat are the most important as they provide members of the public with a two way dialogue, just like if you were at an traditional open house. Ms. Reyna emphasized that the two way dialogue is what makes a VOH truly "virtual" and without the two-way interaction the tool is just an online open house, which is helpful, but different than a VOH.

Ms. Reyna elaborated on the Oak Hill Parkway VOH live chat feature and discussed that while there were less comments than they expected during the live chat sessions, TxDOT still saw great value in using the tool in the future. Ms. Reyna explained that it was a learning process and she saw great value in having the project team in the same room at the same time as it helped team members collaborate while answering questions. Ms. Reyna elaborated that this was helpful in helping the team prepare for future questions in this project. Ms. Reyna discussed the possibility of project team members being in numerous locations (for convenience, cost savings), but that the live chat worked best when everyone was in the same room.

What would you do to change online participatory planning spaces in the future?

Ms. Reyna emphasized the need to make VOHs easier to reproduce as the Oak Hill Parkway VOH was time intensive on the front end. Ms. Reyna supports the need to streamline the process so the final product is less costly.

INTERVIEW 3: JOSEPH CARRIZALES, ADVANCED PROJECT DEVELOPMENT ENGINEER, TxDOT

How do you think providing online planning portals for public involvement can increase participation from the public?

Mr. Carrizales explained that typically TxDOT has open houses for two hours whereas the Oak Hill Parkway VOH was open for a larger time period (four hours during live chat and open house up for 12 days in total) Mr. Carrizales also explained that VOHs provide more flexibility for members of the public to attend, and that flexibility increases accessibility. Mr. Carrizales explained that TxDOT can have a VOH with a live chat session during the middle of the day, in the evening, on the weekend, and this provides a wider net to catch folks when they are available. Mr. Carrizales explained that even outside of those hours TxDOT is still getting people coming in and looking at the information about the project and that overall, people need as many opportunities to get information about a project as possible as the increased accessibility increases participation. Mr. Carrizales explained that TxDOT is using a VOH for the I-35 planning effort and due to the expansive nature of the project and the large amount of people that are affected a VOH is a very effective method to increase participation.

What are your biggest concerns about providing online planning portals for public involvement?

Mr. Carrizales explained that there is always concern regarding the level of effort that is put forth as you want to see a return on the effort, and If you don't, you have to

question if is worth the level of effort expended. Mr. Carrizales explained that since the concept of using VOHs for public outreach is different and new, maintaining the input and the data is time consuming as there is no standard protocol to follow. Mr. Carrizales explained before TxDOT implemented VOHs, there were only traditional open houses to collect input, now that there are more ways to get additional input. TxDOT has to make sure they have the resources ready to ensure that input is properly collected and documented without getting lost. Mr. Carrizales explained that the importance of this is extremely high, as members of the public will ask where their comment has been entered and responded to and TxDOT has to make sure they have the capacity to show where all comments are entered. Mr. Carrizales explained that there is concern from FHWA with members of the public entering official comments in VOHs during the projects that are in the NEPA process, as comments entered into the administrative record are heavily scrutinized in lawsuits if the outcome of a NEPA process is legally challenged. This causes FHWA to be extremely restrictive of how members of the public can submit comments into the official public record.

Do you think having greater geographic representation from the public in planning processes will generate more useful input? How so? Why not?

Mr. Carrizales explained that while making sure people who live in close proximity to a project are able to provide their input is extremely important, it is also helpful to expand participation beyond what often times becomes NIMBYism ("not in my backyard"). Mr. Carrizales explained that more often than not the people who

attend public meetings tend to have more of a NIMBY attitude but that the projects that TxDOT works on are of regional significance, so expanding participation beyond folks who only view the project in terms of how it directly affects them can be helpful to providing input that creates a picture of what the region needs as a whole. Mr. Carrizales emphasized the importance of providing people who live in close proximity to TxDOT projects the ability to provide thorough and extensive input, but that TxDOT wants to make sure that the voice of the entire public at large is represented.

Are developing online participatory planning spaces cost effective? Why?

Mr. Carizales emphasized the need for VOHs, along with all public involvement activities, to be cost effective. Mr. Carrizales voiced his hesitance regarding whether or not VOHs can ever be cost effective as the cost to provide live chats is expensive because of the need to include project consultants. Mr. Carrizales did say that he believes that if TxDOT continues to have more live chats in the future that their use will result in increased participation, which could over time make the tool more cost-effective as more members of the public would use them as opposed to public meetings. Mr. Carrizales explained that to try and develop VOHs within the budgets that TxDOT often has allocated for roadway projects is very difficult. Mr. Carrizales explained that there are more and more tools being developed in order to produce VOHs and hopefully those tools will make them less expensive and will motivate the private sector to meet the agency's need, but emphasized the need to do this at an effective and reasonable price. Mr. Carrizales explained that currently TxDOT is spending more

money providing VOHs, but acknowledged that that they are resulting in increased input.

How are the evaluative metrics developed in the Oak Hill Parkway Virtual Open House helpful to planning professionals?

Mr. Carrizales explained that metrics are a good tool to use to let TxDOT know how many people are interacting in a VOH. Mr. Carizalles emphasized that even though there were not an overwhelming amount of comments during the Oak Hill Parkway VOH the metrics really helped TxDOT understand how many people attended and what the level of interest is in VOHs.

INTERVIEW 4: JAMES WILLIAMS, PROJECT MANAGER, TxDOT

How do you think providing online planning portals for public involvement can increase participation from the public?

Mr. Williams explained that the hope for the VOH was getting a larger geographic representation by making it possible for more of the public to provide input--not just the people that live within close proximity to the project but the people that also use the facility--is the intended goal. Mr. Williams elaborated that in terms of the two live chats that were held for the Oak Hill Parkway VOH, there was not a lot of participation in the live chat, but that wasn't necessarily a bad thing. Mr. Williams explained that TxDOT as an agency benefits from providing more interaction with the public because if the only time that people deal with TxDOT is when they get their

driver's license then they may not think that TxDOT is interested in hearing from the public. Mr. Williams believes that having the live chat feature provides more exposure to the public involvement efforts that TxDOT provides and allows members of the public more opportunities to interact directly with the agency.

Mr. Williams also explained that he believes that VOHs can provide the ability for people that may not be comfortable speaking in front of crowds to provide input. Mr. Williams discussed a scenario where maybe an individual has an opinion that differs from his neighbors, but he may not be comfortable sharing it in front of them in a public meeting, so providing the ability to provide input in a virtual setting may produce public input that more accurately reflects the true opinions of the public. Mr. Williams acknowledges that this also opens the door for the people who would normally show restraint in voicing extremely negative comments.

What are your biggest concerns about providing online planning portals for public involvement?

Mr. Williams explained that the biggest concern is being able to respond promptly enough to people entering comments, and the worry that people will take screenshots of misinterpreted information out of context. Mr. Williams suggested that if there was a video option it would be helpful to make sure that the two-way conversation is not high-jacked and that there is a clear understanding of the information being relayed from TxDOT. Mr. Williams was also concerned with a live chat

not invoking the same feeling of trust that a member of the public might have when they attend an in-person public meeting.

Mr. Williams elaborated on his concern with the live chat tool by explaining that the tool needs to be more cost effective as developing and running the chat session took a lot of time and effort, but there were only a few questions. Conversely, Mr. Williams explained that for the I-35 project, the project limits have been extended over so many miles that the population would be huge and it could make using a live chat actually become overloaded with questions and responses. Mr. Williams explained that TxDOT would be willing to do the live chat again for a smaller project. Mr. Williams explained that if there is a project where people are lingering at the end of a public meeting than it might make sense to provide more avenues for people to interact with project representatives, and having the people who were at the public meeting to receive the same experience online, the answers have to be in real time, so it is truly the same experience.

Do you think having greater geographic representation from the public in planning processes will generate more useful input? How so? Why not?

Mr. Williams explained that having greater representation beyond just the individuals whose property abut a project is helpful. Mr. Williams emphasized that TxDOT is also responsible for the safe and reliable transport of people and economic goods and that it is important to think on a larger scale than just the local neighborhood, and that often the interactions at public meetings are just the small

scale, local aspect. Mr. Williams emphasized the importance of the local input, but explained that it is necessary to have broader geographic input from the public in order to make sure that the regional perspective and greater needs are represented as well.

Are developing online participatory planning spaces cost effective? Why?

Mr. Williams expressed his doubt as to whether the live chat sessions could be cost-effective. Mr. Williams explained that there is great benefit to having a very effective website with a user friendly interface for public involvement processes so people can see the project materials if they can't make a traditional open house. Mr. Williams also explained that there is currently no way to evaluate exactly how a public involvement process is or is not cost effective.

How do you think website analytics will help convince decision makers that website portals for public involvement are worthwhile?

Mr. Williams explained that having website metrics is extremely helpful in evaluating the usefulness of a VOH, and also in order to understand what concepts people have the most questions about.

OAK HILL PARKWAY PROJECT REPRESENTATIVE INTERVIEW FINDINGS

All four of the project representatives spoke candidly and positively about the Oak Hill Parkway VOH and the potential for future web-based planning portals. This section will focus on this report's two primary research questions and then detail the additional findings from interviews with project representatives.

Research Question 1: How can providing online participatory planning spaces expand participation in the planning process?

All interviewees explained that in their experience, providing additional resources for the public to learn and engage about a project increases and expands participation. The increased accessibility is helpful for people with time constraints, as well as people who are more comfortable participating in an online setting. All interviewees agreed that as a general rule of thumb, providing additional avenues for the public to participate expands participation in the planning process, and that there is no one "silver bullet" for public engagement: it is important to include a range of options for members of the public.

There was overwhelming support for the notion that expanding participation to include members of the public from a greater geographic area is extremely important, especially in roadway projects. Interviewees stressed the importance of including all stakeholders in the planning process, and while making sure the local, abutting stakeholders have a strong say in the process is extremely important, it is as equally important to reduce the possibility of overweighting the voice of one set of interests. This means that it is just as important to ensure that a variety of users of the system, who may not live within the project study area have the opportunity to provide input in the process. All interviewees strongly believe that online participatory planning spaces are one of the most effective ways to include the voice of individuals who do not live directly in the area.

It should be noted that all interviewees heavily emphasized the importance of including local stakeholders in the planning process. While members of the regional public who use the corridor are stakeholders, their stake in the actual design of the roadway is a fraction of what it is for local stakeholders. Transportation agencies are aware of this and the interviewees specified as much. It was indicated that including the regional stakeholders is something that is not always a given in the public involvement process. These stakeholders often do not live as close to the project and are less likely to attend public meetings (TOHs). These events are generally held near local stakeholders, and are often heavily weighted towards local stakeholders. This is evidenced in the regional representation of attendees of the Oak Hill VOH and TOH in Chapter 4 of this report. Interviewees indicated that one of the most obvious benefits of VOHs as compared to TOHs was gaining insight from portions of the population that are not always represented in traditional outreach processes. Local public meetings will always be part of the public engagement process and they will more often than not be heavily weighted towards local stakeholders, and transportation agencies will always make every effort to meaningfully include these stakeholders in the process.

Research Question 2: How can website analytics provide decision makers with the ability to quantitatively evaluate the usefulness of online participatory planning spaces?

Ms. Hurst of CTRMA provided insight into how CTRMA has taken the lessons learned from the Oak Hill Parkway Virtual Open House Pilot and used them in practice

on a regular basis. Ms. Hurst explained that she directly uses Google Analytics to evaluate the performance of her virtual open houses in the field in order to understand how a community is most interested in engaging with CTRMA. In addition Ms. Hurst shared that she is beginning to use the quantitative metrics to help evaluate the cost effectiveness of virtual open houses as compared to traditional open houses. In this manner, Ms. Hurst is directly using the data received from Google Analytics to compare attendance and cost in order to understand what approach gets the most "bang for the buck".

The representatives from TxDOT also agreed that having quantitative data from VOHs will help them make informed decisions regarding VOHs by gauging the general level of interest and participation. In addition to understanding the level of participation, all interviewees explained that seeing what pages were most visited really helps inform them as to what concepts and issues are most important to the public.

Additional Findings from Project Representative Interviews

In addition to the above two research questions, all project representatives spoke at great length regarding the cost of VOHs. Providing a VOH where the website is live but there are no live chat sessions has been the practice of CTRMA and TxDOT since the Oak Hill Parkway VOH. This is a cost effective method of engagement as discussions with interviewees revealed that the high cost of the Oak Hill Parkway VOH was paying for the consultant's time to participate in the real time chat. Interviewees also commented on the lack of comments that were received, but specified that this was not

indicative of the future potential of live chats in virtual open houses. All of the interviewees indicated that they believe that participation would increase over time as more and more members of the public come to expect the live chat option to be accessible on a regular basis. It may be a good option to reduce the staff significantly at the live chat sessions in order to increase cost efficiency while continuing to provide greater accessibility to project resources (material and human), and reevaluate the cost effectiveness as popularity in the live chat portion of the VOH grows. Interviewees were concerned that members of the public would be dissatisfied and maybe not participate if they had to wait for a response from project staff due to the live chat experiencing a heavy volume of activity. This concern was allayed by providing an extensive amount of staff. For a reference, a portion of the staff that were at the live-chat sessions can be seen in Figure 13 (please note that the picture does not capture all staff members that participated in the real-time chat sessions). Future research will need to carefully evaluate what makes a process cost-effective (number of comments, unique visits, etc.) and how that can be measured against the cost effectiveness of other methods of engagement. Ms. Reyna also noted that there were intangible benefits to the team being together during the real-time chat sessions, including their ability to hone their messages and carefully think about the types of questions that they were asked, and will potentially be asked again in the future. The benefit of these intangible aspects will need to be accounted for as well, so that transportation agencies can truly understand the cost effectiveness of this new technology.

Figure 13. Portion of Project Staff at Real-Time Chat Session

Chapter 6: Using an Evaluative Framework to Assess the Oak Hill Parkway Virtual Open House

Given the evaluative framework established in Chapter 3 of this report, an assessment of the Oak Hill Parkway VOH will provide greater insight into the effectiveness of virtual planning forums in comparison to traditional public meetings and open houses. In Chapter 3 the following criteria were established as the evaluative framework to assess public involvement processes:

- Representativeness and inclusiveness
- Independent and unbiased
- Early involvement
- Influence
- Transparency
- Resource Accessibility
- Task Definition
- Cost-effectiveness
- Opportunity for two-way interaction

Rowe and Frewer (2004) provide a framework useful for assessing public participation processes such as the VOH by providing an example of a general rating system (very bad to very good with very bad being dreadfully insufficient and very good being above and beyond what is considered the best practices) (Rowe and Frewer, 2004). To provide a thorough assessment of a public involvement process or tool given the established evaluative framework, a number of measures for each criterion must be developed and assessed individually by a range of participants and practitioners (Rowe and Frewer, 2000; Rowe and Frewer, 2004). Given that this report only intends to provide general guidance on how to assess public involvement processes and tools within the framework of the evaluative criteria established in Chapter 3, the following assessment is provided only as an example of how the Oak Hill Parkway virtual open house could be evaluated in comparison to TOHs, given the suggested set of criteria. Please note that a more exhaustive assessment is needed to provide a thorough analysis of the effectiveness of the virtual open house. This exercise does however; provide researchers with a high-level understanding of the strengths and weaknesses of the Oak Hill Parkway VOH within the established evaluative criteria. Table 4 provides a summary of the evaluation of the Oak Hill Parkway virtual open house.

Table 4. Summary Evaluation of the Oak Hill Parkway Virtual Open House

Evaluative Criterion	Rating
Representativeness and inclusiveness	Good
Independent and unbiased	Good
Early involvement	Moderate
Influence	Good
Transparency	Good
Resource Accessibility	Very Good
Task Definition	Good
Cost-effectiveness	Bad
Opportunity for two-way interaction	Very Good

The following is a description of the potential evaluation of the Oak Hill Parkway virtual open house as compared to the traditional open house, as shown in summary in Table 4.

REPRESENTATIVENESS AND INCLUSIVENESS

Given that the stakeholder group for the Oak Hill Parkway project includes both local users, abutters and regional users of the Oak Hill Parkway, the fact that the VOH expands participation to a broader geographic area makes this tool score well in terms of being more representative and inclusive of a broad representative sample of the public, relative to the TOH. Given this assessment, the performance on this criterion is GOOD.

INDEPENDENT AND UNBIASED

This metric is better suited to access the public involvement process as a whole and speaks to the need for decision makers to enter into the public involvement process without any pre-determined decisions. The Oak Hill Parkway project has focused on meaningfully including the public's input in the decision making process from the outset of the project. Integrating the VOH into the public involvement process even though it is not required, and is considered above and beyond speaks to the project team's commitment to meaningfully including the public in the decision making process. Given this assessment, the performance on this criterion is GOOD.

EARLY INVOLVEMENT

This metric is, as above, also focused on the public involvement process as a whole, rather than a specific tool. The Oak Hill Parkway project team began the public involvement process in October 2012 and will continue working with the public through the project's conclusion in 2016. With respect to the VOH, while the use of this tool is above and beyond what is federally required, it was only utilized during the official public comment period between May 23rd, 2013 and June 3rd, 2013. There is the potential to increase the use of this tool within the public involvement process, especially early in the public involvement process. It should be noted that the Oak Hill Parkway VOH was not part of the original scoping of the public involvement plan. Given this assessment, the performance on this criterion is MODERATE.

INFLUENCE

As discussed earlier, the project team is committed to ensuring that public input is reflected in the final outcome of the product. The Oak Hill Parkway project is a context sensitive solutions project and public involvement is a key component to developing concepts for consideration. The use of the VOH, especially considering it is above and beyond what is required is a strong indication of the project team's commitment to empowering members of the public to influence the outcome of the Oak Hill Parkway project. The VOH is one of the many tools that helps empower citizens to influence the outcome. At the time that this report was written, citizen input has influenced the inclusion of trailheads near the project and most notably, citizen input regarding historic oak trees influenced the design of the concepts under consideration. While the project is still underway as of the writing of this assessment, the performance on this criterion is a tentative GOOD.

TRANSPARENCY

The VOH was specifically designed to ensure that all aspects of the planning process are clearly explained to members of the public, including the vast amount of detail that the environmental process entails. While succinctly displaying this complicated information is challenging, the opportunity that the VOH provides to consistently update information and include vastly large amounts of information (as compared to the TOH) results in a tool that can provide far more transparency in the

planning process than TOHs. Given this assessment, the performance on this criterion is GOOD.

RESOURCE ACCESSIBILITY

The VOH was developed to provide increased resource accessibility. A number of the attendees of the Oak Hill Parkway TOH complained about traffic and the lack of parking to project representatives at the TOH (Ettelman et al, 2013). This exemplifies why the VOH is a tool that can dramatically increase accessibility of resources to the public. In addition to concerns with parking and traffic, issues such as scheduling and child care can also be overcome with virtual planning spaces like the VOH. During the live chat sessions, members of the public also have direct access to project representatives. While some may prefer in person access, the VOH provides access to these human resources in a manner that some members of the public prefer. The VOH provides a wealth of options that are not available to the public when traditional public meetings are the only option provided to engage with a planning process. In addition to the increased convenience, the fact that VOHs can stay open for longer than TOHs and provide greater access to project materials (outside two hour windows) underscores the VOHs strong performance in this criterion. Given this assessment, the performance on this criterion is VERY GOOD.

TASK DEFINITION

The process that the project team followed throughout the Oak Hill Project leading up to the VOH was documented in the VOH. All documents that are available at the TOH were available in the VOH. In addition, the documents could be downloaded and read carefully so it could be argued that the VOH provides a better opportunity for members of the public to clearly understand their role in the process. Given this assessment, the performance on this criterion is GOOD.

COST EFFECTIVE

This report has documented a number of concerns with the cost effectiveness of the live chat function of the VOH. The Oak Hill Parkway project representatives that were interviewed all emphasized that as it stands the Oak Hill Parkway project was not cost effective and there needs to be a process that streamlines the cost in order to make future VOHs possible from a cost standpoint. To specify, the real-time chat sessions were the cost driver of the Oak Hill Parkway VOH. If transportation agencies can reduce staff in order to increase cost efficiency there is an opportunity for more positive reactions to the cost benefit of VOHs. Holding the VOH without the real-chat sessions may make the VOH score more favorably in this area in the future, but given that this assessment is focusing on the Oak Hill Parkway VOH Pilot project, cost effectiveness performed very poorly. Given this assessment, the performance on this criterion is BAD.

OPPORTUNITY FOR TWO-WAY INTERACTION

The VOH's real-time chat sessions provide a significant opportunity for two-way interaction amongst the public and decision makers. The Oak Hill Parkway project experienced major increases in participation both in terms of volume and quality (see Chapter 4) during the real time chat sessions. Two-way, deliberative public involvement processes are clearly of interest to members of the public intent on participating in planning processes. This is also shown by the fact that 66% of the respondents of the Oak Hill Parkway TOH exit survey indicated that they prefer to have the option of an interactive experience in a public involvement process. While it is not financially feasible to have the chat boxes live for the entirety of the VOH, providing real time chat sessions (preferably with a range of time options) is an effective way to provide members of the public the opportunity for two-way interaction in the planning process. Given this assessment, the performance on this criterion is VERY GOOD.

Chapter 7: Conclusions and Future Research Needs

This section will review the findings of this report by focusing on the outcome of the two research questions that the report established in Chapter 1 and will conclude with a discussion of future research needs, research limitations and potential areas for improvement for online participatory planning spaces.

RESEARCH QUESTION 1 FINDINGS

How can providing online participatory planning spaces expand participation in the planning process?

The review of the Oak Hill Parkway case study provides a superb example of an online participatory planning space expanding participation in the planning process. The data gathered through Google Analytics showed robust participation from members of the public in the VOH. In addition, by mapping the home zip codes of the attendees of the VOH and the TOH, researchers were able to determine that there was increased representation from a broader geographic spectrum at the VOH, with 26 zip codes being represented at the VOH as compared to 9 zip codes being represented at the TOH. It is also notable that there were only 6 duplicate email addresses amongst attendees of the VOH and TOH, indicating that the majority of the visitors to the VOH were not repeat visitors from the TOH. These examples provide quantitative support that the VOH expanded participation beyond the individuals who attended the TOH.

In addition to data collected from Google Analytics, interviews with Oak Hill Parkway Project representatives also provided insight into how the VOH expanded participation in the planning process. All representatives spoke to the increased resource accessibility that the VOH provided, indicating that providing members of the public with the ability to participate without having to face obstacles such as traffic, parking, childcare, etc. expands participation in the planning process. The flexibility provided by the VOH is something that all project representatives lauded as being a key to the ability for a process to increase participation. All representatives also spoke to the importance of providing individuals who don't live in close proximity to a project but are users of the facility with the ability to provide input, as these members of the public are less likely to come to public meetings and traditional open houses that are located within the study area, but have a unique perspective and valuable input to contribute.

RESEARCH QUESTION 2 FINDINGS

How can website analytics provide decision makers with the ability to quantitatively evaluate the usefulness of online participatory planning spaces?

Interviews with project representatives provided valuable insight into the importance of developing evaluative data for online participatory planning spaces. This reinforces the findings of TTI's final research report: *Exploring New Technology: Results of the Oak Hill Parkway Virtual Open House Pilot* (Ettelman et al, 2013) that developing evaluative data helps public involvement professionals assess how successful an online participatory planning space is in terms of expanding participation relative to public

meetings and traditional open houses. This data can be used to make the case for investing more in online planning spaces when the community is interested in engaging in that manner.

FUTURE RESEARCH NEEDS

A major finding of this report was that the cost effectiveness of providing online participatory planning spaces is something that needs to be further researched. All project representatives interviewed for this report emphasized that the cost of the live chat feature in VOHs can be prohibitive. Further research needs to evaluate what potential tools there are to incorporate live chat in virtual planning spaces as the benefit of providing two-way interaction is noteworthy. All data from the Oak Hill Parkway VOH indicated that participation and attendance spiked during the real-time chat sessions. This is also directly in line with the criterion of "opportunity for two-way interaction" in the evaluative framework. Providing this element in virtual planning spaces is crucial to providing the public with a tool that they can use to fully engage in the planning process with.

In addition to researching the potential to lower the cost of developing VOHs, it should also be noted that the concepts of cost effectiveness needs to be an area of further research, as there does not seem to be a generally accepted understanding of how to measure whether a public involvement process is cost effective. Mr. Williams of TxDOT reiterated this in his interview as well. All interviewees discussed that the live

chat sessions were cost prohibitive because of the cost of paying consultants to staff them. Ms. Reyna brought up the point that there was value in gathering as a team in order to hone the project message and prepare for future questions from the public. She indicated that having the group all together was a benefit to the process as it created the opportunity for the team to increase their preparedness. The problem is that there is no way to apply a cost to this benefit. The VOH had over 650 unique visitors to the VOH during the entire time it was live. There needs to be further research into how a cost-benefit analysis can take these benefits into account, so when a project manager looks at what it costs to develop a VOH, there is a way to quantify the potential benefit of utilizing the VOH. In addition, it would be helpful to be able to evaluate how cost effective a VOH is over time. How can you value the increase in accessibility and transparency that VOHs achieve? How can you measure whether a VOH is pivotal in achieving community consensus on a transportation project? These aspects are difficult to measure, but moving forward they must be considered as part of the output of VOHs and live-chats. Further research must establish a consistent way to measure this engagement tool, in order for practitioners to understand whether there is a true benefit to using them consistently in public engagement processes, compared to the expenditure.

It is also noteworthy to make the point that while online participatory planning spaces may compete with traditional public meetings and open houses; they are in no way a replacement for this in-person interaction. Further research needs to be pursued

to examine how cost-sharing amongst these approaches may provide a more balanced set of options for members of the public. Since budget is such a large consideration regarding public participation processes, it is imperative that researchers establish what is the most efficient and effective way to engage with members of the public, so agencies can feel confident that the tool that they choose to use gives them the best "bang for their buck".

RESEARCH LIMITATIONS

Researchers intended to capture demographic information from users of the VOH in order to understand what age groups, income levels and ethnicities were accessing online participatory planning spaces. The research team included an exit survey that was available during the entire time the VOH was open to the public. Of the 659 unique visits to the VOH only 9 people took the exit interview. During the development of the VOH, project team members thoroughly discussed how and where to conduct the VOH user interviews. It was decided that the survey should be conducted by having a large, highly visible link at the top right of the VOH that said "please take our survey". The button can be seen in both Figure 4 and Figure 5 at the upper right corner of the screenshots. There was discussion of asking for the above mentioned demographic information at the registration page, and requiring people to enter this info in order to enter the VOH. It was ultimately decided that requiring too much information in the beginning of the VOH would be more of a deterrent to potential users of the VOH and that gathering demographic information at the risk of reducing

participation was not a favorable tradeoff. So while the research team was able to quantify a significant amount of information, such as how many people were attending the VOH and how long they interacted with materials while visiting, there was a large gap in the findings regarding who was actually accessing the virtual open house. This is an important future research need as researchers acknowledge the importance of understanding whether online participatory tools are more, less or equally effective at reaching a more representative spectrum of the population. In addition, it is important for researchers to understand whether this tool will be used by members of underserved populations, as the digital divide, discussed below, is a significant concern when discussing the potential of online participatory planning tools.

THE DIGITAL DIVIDE

The author acknowledges that while this report focuses on the potential for online participatory planning tools to expand participation the planning process, it does not evaluate whether participation is expanded to underserved populations. When discussing the merit of these new tools to engage members of the public, the issue of the digital divide, that is the belief that members of underserved populations do not have access to the internet and online planning portals such as the Oak Hill Parkway VOH, is always topic of debate. This report does not delve into this issue in detail, but acknowledges how important it is for all communities to have equal access to planning processes. The author does not advocate for online participatory planning spaces to replace traditional, in-person public meetings and open houses. Rather, this report's

findings inform the recommendation for online participatory planning tools to enhance and augment traditional public involvement processes, in order to develop the most robust and accessible engagement processes as possible.

It is also possible that increased opportunities for access to online participatory planning spaces could increase the opportunity for underserved populations to participate in planning processes if the digital divide is lessened as online resources are made more widely available. If for example, underserved populations are able to access online participatory planning spaces from less expensive and more widely available mobile devices this may counteract other factors that often cause underserved populations to have less access to traditional forms of public involvement, such as meetings being held during work hours, lack of public transportation opportunities to meeting locations and childcare concerns.

OPPORTUNITIES FOR IMPROVEMENT IN IMPLEMENTATION

The VOH pilot was largely considered a successful test of the effectiveness of providing an online or virtual version of a TOH experience. The ability to perform a pilot test of this technology provides an opportunity to learn what improvements could be made in order to enhance the experience and increase public participation.

Mobile Optimization

The Oak Hill Parkway VOH was not mobile optimized. This provides an enormous amount of potential improvement for future VOHs. Google Analytics provided insight

into the number of users who accessed the VOH with mobile devices, and the number was substantial. Of all users, 33 percent visited the VOH using mobile devices (smart phone or tablet). This shows that providing an avenue for the public to participate while on the move is an area of great opportunity to further expand participation in the planning process. As technology allows the public greater accessibility to project resources, participation in the planning process will continue to increase.

Spanish Language

The Oak Hill Parkway VOH provided only an English language option. Providing a Spanish language VOH is an opportunity to improve participation from a larger portion of the population as a whole. It is imperative that future VOHs provide language options to accurately reflect the public they intend to engage. Practitioners should evaluate the census data for communities they intend to engage in the planning process and ensure that all languages are provided access to the same human and material resources.

Real-Time Chat Sessions on the Weekend

The VOH real-time chat sessions were held during a lunchtime session (11:00 a.m. to 1:00 p.m.) and a standard evening session (6:00 to 8:00 p.m.). When examining the results of the visits and unique visitors in Google Analytics, it was apparent that there was interest in viewing the VOH over the weekend in between the two real-time chat sessions. It has traditionally been assumed that hosting a public meeting on the weekend would result in poor attendance since people generally want to spend their weekends engaging in recreational activities. With the increased level of accessibility of

the VOH, there may be an opportunity to provide the public with an alternative to forfeiting a lunch hour or weekday evening in order to participate in public engagement processes. With the potential for an individual to quickly "get in, learn what they need to learn, ask what they need to ask, provide input, and get out," it may be that a weekend is a better option than a lunch hour or evening during the busy week.

It should be noted that the VOH real-time chat sessions were held on the Friday before Memorial Day weekend, and the second real-time chat session was held the day after Memorial Day itself. The majority of the advertising for the VOH was focused on the first weekend it was open (Memorial Day weekend). While there were a large number of visitors, the overall participation may have been affected by being launched just prior to the holiday weekend. The real-time chat sessions may have also experienced lower levels of participation based on their being held the day directly before and after the holiday weekend.

Google Analytics and Potential for Better Metrics for Analysis

Google Analytics provided a readily available tool that produced a number of useful metrics to evaluate the effectiveness of the attendance and participation in the VOH. While much of the data was suitable for the VOH, Google Analytics is geared toward providing e-commerce websites with evaluative data to gauge how successful they are at converting web traffic into sales. There is the potential to develop customized internal counters into the VOH in order to measure attendance, pages per visit and site visit duration without having to rely on Google Analytics. One primary

disadvantage to using Google Analytics is that it does not provide the data with which it produces its reports, to respect the privacy of web browsers. For example, capturing the IP addresses of visitors of VOHs would produce far more accurate evaluative data, which would be more useful to planning organizations.

Concept Videos

The concept videos for the Oak Hill Parkway VOH were developed using free software. The final products were adequate in quality, but users only watched about half of each video on average; therefore, it is an area that could be improved. Shortening the overall length is a potential area to improve. In addition to creating shorter videos, there is the potential to provide more interactive video options using the more innovative presentation software, such as Prezi. This would allow users to interact with the materials in much of the same way that they interact with them at a TOH, looking specifically at the locations and areas within a plan that are of most interest to them. The concept videos provide the bulk of the information that is disseminated to users in the VOH, so focusing on producing the highest quality product with increased interactivity should be the goal for future VOHs.

Overall, the pilot Oak Hill Parkway VOH was a success. The endeavor provided an opportunity to engage more people in the transportation planning process. Improvements that are noted above will enhance the experience. There are several opportunities to build upon this success. Agencies can expect participation to increase as more people become familiar with the concept of VOHs and are convinced that

participating in a real-time chat sessions with project personnel are an effective mechanism for providing input in the planning process.

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