NCHRP Project 25-47

How to Measure and Communicate the Value of Access Management

TECHNICAL MEMORANDUM #5

Implementation Plan

Prepared for:

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Transportation Research Board
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I. INTRODUCTION

This technical memorandum provides recommendations for how the project findings and tools developed for NCHRP 25-47 (How to Measure and Communicate the Value of Access Management) can be implemented as a means of widely disseminating the products from this research effort. This implementation plan is designed in accordance with NCHRP 20-44: Moving Research into Practice with a goal to integrate findings into daily practices in conjunction with other implementation funding efforts such as Every Day Counts, Accelerating Innovation Deployment, and Transportation Pooled Funds. Ultimately this effort is intended to encourage implementation of NCHRP products throughout the transportation community. The research products are valuable not only to state transportation agencies, but also to metropolitan planning organizations (MPOs), local governments, and transportation consultants throughout the U.S. The implementation plan includes:

- A clear description of the research product and essential functions.
- A realistic assessment of implementation impediments and drivers.
- A technology transfer plan to facilitate implementation in state DOTs and other agencies

Research Product and Functions

The main product of NCHRP 25-47 is an online **Access Management Communication (AMC) Toolkit** that serves as a quick reference for key project findings and links users to a variety of spreadsheet tools developed for the project. The TRB Access Management Committee has offered to be the host for this toolkit. These tools are accompanied by links to other research products and online resources designed to help practitioners measure and communicate the value of access management. These materials were compiled in the form of an Access Management Communication Toolkit, complete with pages addressing the value of the various techniques accompanied by the links to the tools and resources. These tools include guidance for both quantitative and qualitative measures.

These quantitative and qualitative resources guide the user with strategies to effectively communicate the value of access management in relation to the four core areas of safety, economy, mobility, and livability. The toolkit content also identifies and links to a variety of other resources developed as part of other research efforts and that complement these four core focus areas. To encourage widespread implementation, the project team developed simple self-calculating spreadsheet tools that are editable and customizable so that they may be uniquely adapted and implemented by the widest possible target audience. The functions of the spreadsheet tools are discussed below.

Safety

The suite of safety spreadsheet tools primarily employs crash modification factors (CMFs) or the latest predictive methods from the 2010 AASHTO *Highway Safety Manual* (HSM). These spreadsheet tools enable a user to estimate the potential crash reduction associated with the following selected access management treatments or techniques:

1. **Unsignalized Intersection Density (**UnsignalizedIntersectionDensity.xlsx**)**: Estimated number of crashes by changing the unsignalized intersection density on an urban/suburban 4-lane roadway with a TWLTL;
2. **Signalized Intersection Density (**SignalizedIntersectionDensity.xlsx): Estimated number of crashes by changing the density of four-leg and three-leg signalized intersections per mile;

3. **Left-turn Lanes** (LT-3LegIntersections.xlsx, LT-4LegIntersections.xlsx): Estimated change in crashes of providing a left-turn lane(s) at three-leg intersections and estimated change in crashes of providing a left-turn lane(s) at four-leg intersections;
4. **Right-turn Lanes (**RT-3LegIntersections.xlsx, RT-4LegIntersections.xlsx): Estimated change in crashes of providing a right-turn lane(s) at three-leg intersections and at four-leg intersections;
5. **Median Type and Driveway Density** (**MedianTypeDwyDensity.xlsx**.): Predicted crashes (per HSM) based on median type and driveway density (does not include localized calibration); and
6. **Median Opening near Signalized Intersection (MedianOpeningNearSignalizedIntersection.xls)**: Estimated number of crashes from providing a median opening near a signalized intersection based on median opening configuration and number of through lanes.

Economic Value

The **Safety and Mobility Economic Value.xlsx** spreadsheet tools work in tandem with outputs of the safety and mobility tools to calculate the economic value of the reduction in crashes or delay to society. The tools are demonstrated in the example applications, as well as the case study applications. The basis of the safety analysis is a benefit-cost ratio where benefit is represented as the monetary value of the reduction in number of crashes and cost is represented as expenditures to construct and maintain the facility. The mobility analysis calculates the increase in travel times resulting from reductions in signal spacing and applies a value of time to present a daily and annual increased cost.

Mobility

The suite of mobility spreadsheet tools adapts findings from a variety of NCHRP research projects and enables the user to estimate the potential implications of access management techniques relative to delay. These mobility spreadsheet tools include the following:

1. **Signal Spacing**: The estimated increase in travel time based on adding new signals.
2. **Right-turn Lanes**: The reduction in delay to through traffic associated with adding a right-turn lane on four-lane and two-lane arterial roadways.
3. **Left-turn Lanes**: The reduction in delay from adding a left-turn lane at an unsignalized intersection for an existing site as well as for a new development site.
4. **Signal Progression**: The estimated progression speed based on signal spacing and cycle length.
5. **Unsignalized Access Spacing**: The mobility impacts of unsignalized access and driveway spacing on traffic flow.
6. **Corner Clearance**: The percentage of signal cycles during which a driveway near a signalized intersection will be blocked.

Livability

Resources for communicating the value of access management to livability are qualitative. The tools developed for this effort include fact sheets that include before/after images and case studies on roadway projects that address how to integrate medians, improve bicycle and pedestrian facilities and crossings, and enhance landscaping. Supporting data is also provided on benefits to safety, mobility, and business activity, as well as environmental benefits to energy usage and emissions.

Other Resources

Additional products of the research project include complementary fact sheets, infographics, and case study examples illustrating the spreadsheet outputs and concepts along with a guide, supplementary videos, and PowerPoint training materials to help practitioners apply the tools and understand their limitations. The toolkit includes simple PowerPoint slide decks for each section of the toolkit on the value of each technique. The intent is to offer content that can be readily adapted by agency staff or consultants for use in communicating the value of their access management project, program, or plan. A graphic of

Economic Talking Points rounds out the materials to help the user frame and guide access management discussions with key stakeholders.

II. REALISTIC ASSESSMENT OF IMPEDIMENTS AND DRIVERS

Despite the documented value of access management, numerous obstacles to implementation continue to present challenges when implementing effective access management techniques. Specifically, while there are many sound access management policies and programs around the U.S., implementation of standards and guidelines has varied. To assess the extent of this challenge, the research team for NCHRP 25-47 conducted a survey and state of the practice interviews that included a discussion of obstacles participants have encountered when attempting to implement access management. The most commonly noted obstacles encountered by state transportation agencies when attempting to implement access management were opposition to medians by property owners and businesses, followed by use of political influence to obtain access approval (Figure 1).

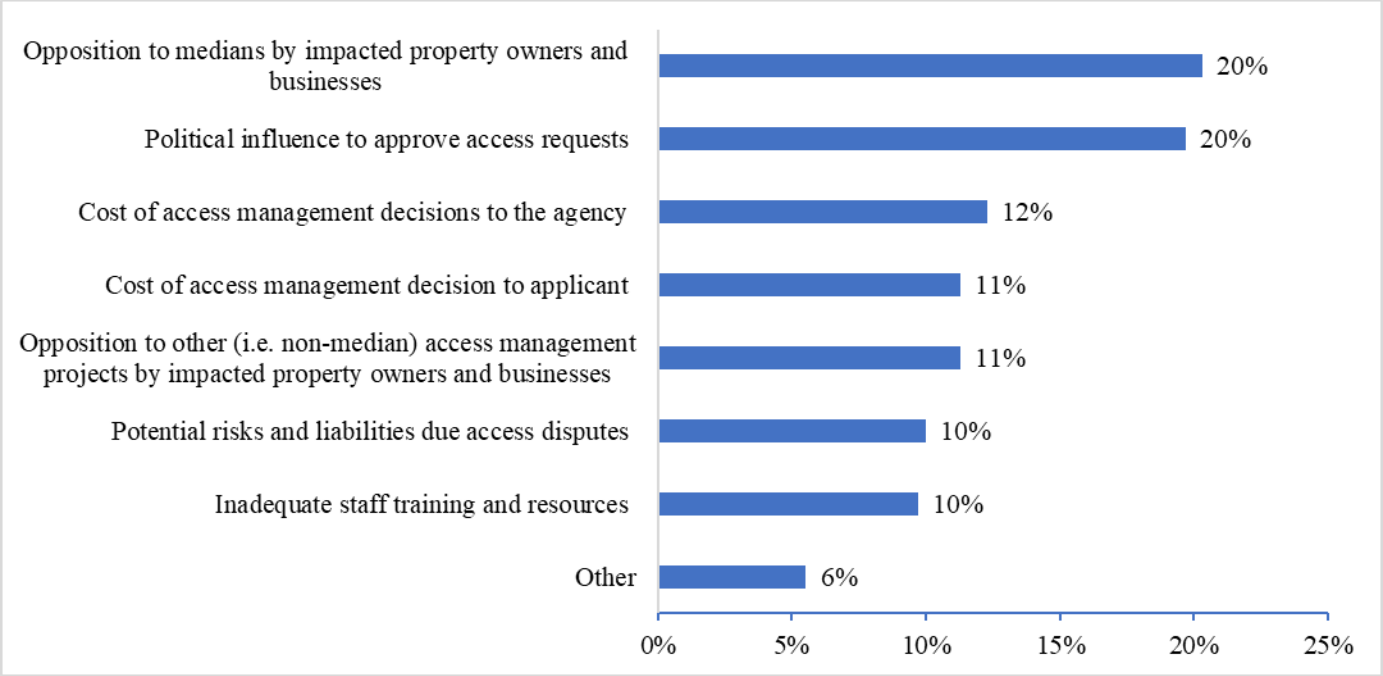

Figure 1. Obstacles encountered when implementing access management. (Source: NCHRP 25-47 Web Only Document)

Below is a synopsis of the obstacles typically encountered by transportation agencies as they seek to implement access management policies and projects. Additional details on these survey and interview findings may be found in the NCHRP 25-47 Web Only Document.

1. **Pressure on the agency to approve access requests is an overarching issue**. Property owners pressure high-level elected officials who intervene to sway access management decisions. Agencies also experience resistance or lawsuits when relocating or removing a driveway and some states are experiencing more cases where they must now compensate property owners for removal or relocation of a driveway. States also are under growing pressure by elected officials to provide state highway access to constituents even where the access is unsafe or where alternative access is available.

2. **Active public opposition to median projects.** Many median projects have been stopped or adversely affected by property owners who believed that these projects would prevent access to their property. Typically, negotiation for these projects results in a larger number of median openings, also known as crossovers. Additionally, applicants frequently claim that closing access points and consolidating driveways costs them too much. Educating the public, talking to business owners early in project development, and evaluating before and after retail sales using tax receipts and surveying shoppers for certain projects involving parking and access changes were suggested.
3. **Inadequate staff training**. More training is needed to help staff understand how to implement access management and what constitutes good access design. For example, right-of-way or construction staff sometimes make unauthorized commitments for access in the field due to lack of familiarity with access management rules and principles. In some states, this has resulted in new access points, as well as installation of right turn lanes to mitigate the adverse impacts of the new access points at state expense. Some state transportation agencies reported a decline in funding for training has reduced their ability to train staff on access management.
4. **Potential risks and liabilities due to access disputes**. The courts are increasing costs to the states of implementing access management projects in some cases. Where a state or local transportation agency must acquire right-of-way (ROW) for an access management project, the costs can be high, making agencies reluctant to improve access during reconstruction projects. Some states now must compensate property owners for loss of access if a raised median project involves the acquisition of ROW; the loss of access is considered part of the damages associated with the value an appraiser assigns to the access point. Shifting liability of unsafe access designs onto the property owner through case law and other mechanisms was suggested.

An overarching impediment to access management is active opposition from key stakeholders. It follows, therefore, that a key driver for implementation of the NCHRP 25-47 research products is the ability to more effectively communicate the benefits of access decisions to the public and allay stakeholder concerns that lead to opposition. While such issues are always challenging, the tool outputs, infographics, slide decks, messaging techniques, and other resources developed in this project are directly aimed at addressing key stakeholder concerns, while expanding public understanding of the value of access management techniques. The goal of the toolkit is to increase support for effective access management, and to integrate the work products of this project, as well as access management generally, into current practice. Though knowledge of these impediments to implementation can be discouraging, they also provide useful information that can be directly targeted when introducing the profession to the access management tools developed for this research effort. The developed tools and techniques will be helpful in addressing common misperceptions related to access management techniques.

III. TECHNOLOGY TRANSFER PLAN

This Implementation Plan is focused on strategies for technology transfer of the project toolkit into daily use. To accommodate this goal, the project team recognizes the need for a structured approach for introducing the profession to the toolkit developed as part of this research effort. This plan includes the identification of a clearly defined target audience and proposed activities that include training, pilot projects, and creation of a "community of practice." The following sections summarize these recommendations.

Target Audiences

The primary target audience for training and tool application is planning and engineering professionals and technicians who are engaged in access management projects, plans, or permitting or who are

responsible for site development design or management efforts. These professionals and technicians may be employed by public agencies at all levels of government or by the private sector, and include agency leaders, who would benefit from training to become "champions" of access management within their organization. Secondary target audiences for these products are other groups within public agencies who are involved with access management decisions including right-of-way agents, attorneys, construction and maintenance personnel, and executives or appointed officials. This is in contrast to the intended target audiences for the messages and outputs from the application of these tools, which include a wide variety of key stakeholder groups and elected/appointed officials. As part of the toolkit development effort, the project team has developed brief fact sheets and more lengthy case studies that collectively are designed to communicate the value of access management to the management and technical stakeholders.

Proposed Activities

As previously noted, the research team feels that the most effective approach for widescale implementation is to conduct the following three key implementation strategies: 1) Training, 2) Demonstration Projects, and 3) Outreach to create and cultivate a "Community of Practice."

Training

The toolkit and companion materials developed for this research project are collectively a powerful resource for communicating the value of access management to key stakeholders. An effective implementation plan, therefore, should build on these materials and use this information to strengthen opportunities for widespread dissemination of the toolkit content. Training materials were developed for this purpose and although the Toolkit and its supporting materials are designed to be readily applied by the industry, the project team strongly recommends an implementation plan that is built around enhanced communication through training.

This training effort includes:

1. Enhancement of the Toolkit training materials: For this effort, the project team would use the existing Toolkit slide deck and training materials as a starting point and enhance or reformat this content as needed into a workshop that demonstrates how to use the toolkit and where to access the individual components. Exercises will also be developed to engage participants in hands-on application of the tools and communication strategies in an active learning format.
2. Development of a web-enabled course format: Recent events have magnified the need to develop training so that it can be presented virtually across the internet, as well as in-person when the circumstances permit. For this effort, the project team would develop a format that can be used for this web-enabled platform and an instructor workbook that will provide more detailed recommendations for the course based on audience structure and objective.
3. Piloting of the training materials (two offerings): The best way to develop high quality training is to pilot the training and solicit feedback from the participants. The research team recommends that the training material developed be piloted, possibly at the 2022 Access Management Conference as well as another venue. For the initial offering, members of the original project panel and the TRB Access Management committee would be potential invitees for the pilot training, as well as others with varying backgrounds and familiarity with access management to also gain their perspectives. The first offering of the pilot training will help the research team refine the training materials. For the second offering, the training will engage staff from a host state transportation agency that is interested in the Toolkit. These training workshops also offer the benefit of publicizing the availability of additional materials that are under development or developed by others and that complement the NCHRP 25-47 deliverables.

Demonstration Projects

For this effort, the implementation team would identify up to three proposed enhancement projects with access management components and for which the governing agency is interested in assistance with application of the AMC Toolkit to assess performance and communicate with stakeholders. This effort will involve identifying individuals from state, regional and/or local government transportation agencies interested in being early implementers of the research products. Each project would include communication and planning efforts and establish tracking methods so that the transportation agency can assess the ongoing performance. Ideally, these projects would be identified in collaboration with host agencies that are also interested in training and the findings and any lessons learned would be directly incorporated into the training workshop.

Create and Cultivate a "Community of Practice"

A variety of outreach efforts can strongly influence the implementation of the project materials. For this effort, helping to cultivate this community of practice can substantially enhance the awareness and usage of the toolkit developed for this project. This effort should include up to four presentations at conferences or TRB committee meetings. In addition, the hosting of the materials on the TRB Access Management website could be highlighted and create an additional avenue for community input and discussion. The TRB Access Management Committee has a YouTube channel and has a procedure for creating presentation clips that link to the full presentation on the www.accessmanagement.info website. The project team has produced a series of YouTube videos demonstrating the capabilities and proper uses of the smart spreadsheets and visualization tools. These videos may be uploaded onto the TRB Access Management channel and may link back to the full tools hosted on the website. The TRB Access Management Facebook and LinkedIn communities can be leveraged to draw attention to the presence and location of the tools and the videos demonstrating their capabilities. Case examples of agency AMC Toolkit applications and successful access management projects can also be housed on the website, as well as any new tools and research that can be helpful complements to the Toolkit.

Final Deliverables

The implementation plan will culminate in the following main deliverables:

1) Development of a live and web-enabled course (two courses) with enhanced training materials so an agency can offer the recorded web version or a live interactive version of the training;
2) Case study reports summarizing toolkit application for up to three demonstration projects with access management components; these could be identified in collaboration with an agency interested in training and incorporated into the training workshop. Each project would include planning efforts and establish tracking procedures so that the transportation agency can assess ongoing performance.
3) A new section on the TRB Access Management website to host the materials and provide an avenue for outreach and increasing awareness of the project. This website location could also be a forum for community input, practitioner discussion, and a location to highlight new tools, research and case study applications related to the NCHRP 25-47 project.

Implementation Leadership

The TRB Access Management Committee can offer ongoing implementation leadership through its website, conference activities, and other social media venues to advance the dissemination and continued application of the AMC Toolkit well into the future. Committee members could also periodically seek funding for updates to the Toolkit to expand it and integrate new tools, methods and case examples. State DOTs with active access management programs can also offer implementation leadership by applying the

Toolkit in various contexts, including demonstration projects. Such projects could range from those specific to access management, such as a median reconstruction, to bicycle and pedestrian or freight plans. These project examples could be documented and posted on the TRB Access Management Committee website.

IV. CONCLUSIONS/SUMMARY

There is a need for tools that help the profession more easily measure and communicate the rationale and value of access management to stakeholders and how effective access management strategies can enhance livability, mobility and the economy, while also providing improved safety performance. The toolkit developed as part of NCHRP 25-47 includes the resources to accomplish this task, and the long-standing outreach efforts by the TRB Access Management committee provide a powerful conduit that will enable this outreach effort to reach the right audience. This Implementation Plan focuses on the final outreach steps of training, pilot projects, and communicating with the profession. The recommended activities have been identified to facilitate and promote the application of the tools developed as part of NCHRP 25-47. The intent of this implementation effort is to expedite the introduction of this toolkit to the profession so that transportation agencies can begin to rely on this toolkit as their "Go To" resource when making access management decisions.