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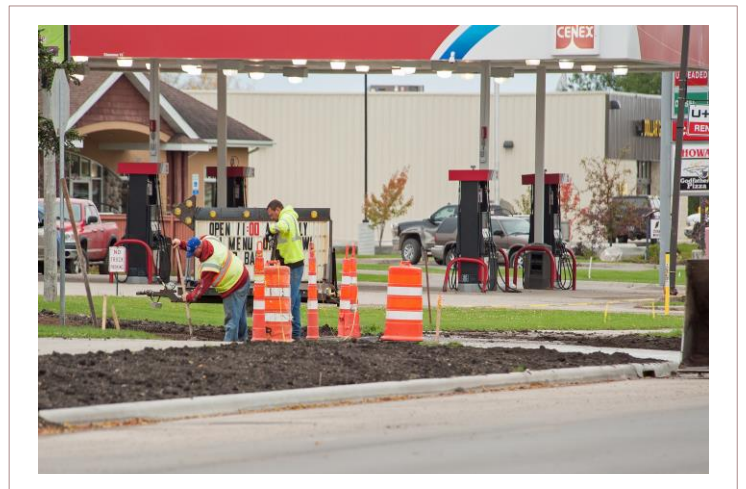
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MITIGATING CONSTRUCTION IMPACTS ON LOCAL BUSINESSES

Prepared by CTC & Associates LLC

The MnDOT Office of Public Engagement & Constituent Services is evaluating how MnDOT and other states are working to mitigate the impacts of construction projects on local businesses. Successful approaches are being sought in the areas of communication strategies, construction techniques that mitigate noise and project duration, and outreach to business owners from minority communities or those with limited proficiency in English.

To inform this evaluation, a survey was distributed to selected state transportation agencies and Minnesota municipal transportation agencies that examined the practices and experience of these agencies in mitigating the impacts of construction projects. This Transportation Research Synthesis presents the findings of that survey, including brief case studies of 11 successful construction projects in Minnesota and other states. The results of a limited literature search supplement the survey results.



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The purpose of this TRS is to serve as a synthesis of pertinent completed research to be used for further study and evaluation by MnDOT. This TRS does not represent the conclusions of either the authors or MnDOT.

Mitigating Construction Impacts on Local Businesses: A Survey of Practice

Introduction

The MnDOT Office of Public Engagement & Constituent Services is updating its guidance on the mitigation of transportation construction impacts on nearby businesses. MnDOT is particularly interested in best practices in communication strategies and outreach to affected businesses, tools and resources available through new technology, construction techniques that mitigate noise and project duration, and best practices for engaging with business owners from minority communities or communities with limited proficiency in English.

To inform its updated guidance for mitigating construction impacts on local businesses, MnDOT sought information from state departments of transportation (DOTs) and Minnesota municipal transportation agencies expected to have experience with mitigation practices. This Transportation Research Synthesis presents the findings from a survey of transportation agencies, including the effectiveness of tools related to communication, construction, and business accommodation and compensation. Results of a limited literature search supplement survey findings.

Summary of Findings

Survey of Practice

An online survey was distributed to selected members of the American Association of State Highway and Transportation Officials (AASHTO) Committee on Construction and to selected municipal area transportation agencies. Eleven representatives from six state transportation agencies—Michigan, Minnesota, Oregon, Pennsylvania, Vermont and Wisconsin—and one Minnesota municipal transportation agency—Metropolitan Council—responded to the survey. Below are highlights of the survey results in five topic areas:

- Policies and programming.
- Mitigation tools and practices.
- Liaisons and partnerships.
- Assessment of mitigation tools and practices.
- Case studies.

A goal of this information-gathering effort was to identify how other state practices differed from current Minnesota strategies and activities. The survey findings did not uncover common, consistent practices used by other states or Minnesota agencies in any of the topic areas. Instead, respondents reported a range of strategies and practices in all areas.

Following the discussion of survey results is a **Related Resources** section that presents the findings from the limited literature search.

Policies and Programming

Mitigation Policies and Procedures

Among the respondents providing information about mitigation policies and procedures, only the Vermont Agency of Transportation reported having published guidelines for engaging the public. Michigan DOT currently uses a series of best practices for engaging with businesses that may be used along with pilot efforts in the Every Day Counts, Round 5 (EDC-5) virtual public involvement initiative to create future policies and procedures. The Metropolitan Council follows federal environmental commitments for noise, vibration, dust, detour notifications and other issues. Wisconsin DOT relies on two resources: the agency's In This Together program, an online resource that facilitates efforts for the agency, businesses and communities to work together before and during a construction project; and the public involvement guidance from its Facilities Development Manual.

Vermont was also the only state participating in the survey that had specific guidance for different types and scales of construction projects. Oregon DOT places more emphasis on the specific types of impacts on businesses, regardless of project size or type. Wisconsin DOT addresses construction mitigation on a project-by-project basis.

Assistance for Minority Communities

Translation services was the only form of assistance cited by survey participants for businesses serving minority communities or those with limited English language proficiency. The range of translation services varied considerably, from keeping translators on retainer to using online translation resources and producing informational materials in multiple languages.

Leadership

In most transportation agencies participating in the survey, responsibility for construction impact mitigation falls to staff in agencies' construction operations, public information, or construction operations and public information areas. In MnDOT's District 7, responsibility varies depending on the stage of the project or project circumstances. In Oregon, the construction project manager and area manager are primarily responsible, however the construction section at the agency's headquarters is also a resource. In Wisconsin, the Office of Public Affairs provides general department guidance, and region communications managers work directly with staff in the field.

Mitigation Tools and Practices

Respondents assessed the effectiveness of three categories of tools frequently used to mitigate the impacts of construction on local businesses:

- Communication tools.
- Construction-related tools.
- Business accommodation and compensation tools.

Communication Tools

Survey respondents rated the effectiveness of a series of communication tools in their agencies' efforts to mitigate the impacts of construction. These tools included meetings and traditional communications such as mailings, emails and flyers. Construction project websites and preconstruction meetings were rated quite effective or highly effective (the higher ratings on the scale) followed by regular meetings with business owners

during construction and public meetings. Most respondents considered traditional communications effective (a midrange rating).

Respondents also rated the effectiveness of social media tools, giving Twitter and Facebook higher ratings (quite effective or highly effective) followed by YouTube. Most respondents either don't use LinkedIn to mitigate the impacts of construction or rated it as ineffective.

Three respondents provided information about other useful communication tools. In addition to virtual town hall meetings, Michigan DOT has used project visualization videos for complex or innovative project designs such as diverging diamond interchanges. The Vermont Agency of Transportation has hired a local community liaison for some projects that significantly impact local businesses, and Wisconsin DOT's Southeast Region frequently uses one-page construction project briefs that summarize project information for stakeholders.

Construction-Related Tools

Three construction-related strategies—on-site signage, alternative parking for affected businesses and staging incentives—were rated effective; on-site signage and staging incentives also earned higher ratings. Four of 11 respondents do not use alternative parking options or rated them ineffective.

Other construction-related strategies reported by respondents included a “get in, stay in, get out” approach to mitigate construction time; A+B bidding; incentives or disincentives; and working with the local community in construction project planning.

Business Accommodation and Compensation Tools

Among the three categories of tools and strategies rated in this survey, respondents reported the least experience with business accommodation and compensation tools. Coordinating construction activity timing with business owners received the highest ratings, followed by advertising campaigns or funding, and project hotlines for public input and/or complaints. Nine respondents rated financial compensation for loss of business as either ineffective or a strategy their agencies don't use.

Impact of Tools on Project or Contract Cost

Respondents were asked to describe how the most effective tools from all three categories impacted project or contract cost. Some respondents commented on specific tools or strategies that impacted cost while others addressed project impacts overall. Tools that require staff time and involvement tended to be the most effective. These included meetings with businesses, construction timing coordination and social media use. Successful plans—those that balance community and contractor needs—are key in Wisconsin DOT's Southeast Region.

Liaisons and Partnerships

Most of the agencies participating in the survey use internal staff as project liaisons between the agencies and affected businesses. Three community outreach coordinators at the Metropolitan Council serve as liaisons to businesses. In Oregon and Pennsylvania DOTs, liaison activities are shared among several agency offices, depending on the phase of the project or project needs. Wisconsin DOT's five regions each employ a communications manager who works with agency staff and consultants to guide outreach communications during design and construction.

Wisconsin DOT's Northeast and Southeast regions have used consultants to fill this role; the Southeast Region has also used an official liaison paid in whole or in part with project funds for larger, long-term projects.

Vermont Agency of Transportation has supported a paid community liaison in addition to or instead of an outreach consultant, and MnDOT District 4 project plans include a pay item that requires the contractor to provide a business liaison.

Respondents described a range of partnerships and activities with other state and local agencies or community organizations to assist businesses in mitigating construction impacts. Chambers of commerce, economic development groups, and other community or professional groups were among the most frequently cited organizations and associations.

Assessment of Mitigation Tools and Practices

Post-Project Evaluations

Only three agencies have undertaken post-project evaluations to determine the success of construction impacts mitigation measures. MnDOT District 4 collects customer feedback during construction while Michigan DOT gathers stakeholder feedback during post-construction review meetings. Some consultants in Vermont conduct post-project surveys with stakeholders, but results have not been aggregated.

Ineffective Tools and Practices

Among the tools and practices identified as ineffective in mitigating and communicating the impacts of construction were project hotlines, public meetings, email and some traditional mailings. The Oregon DOT respondent shared two areas that may result in negative impacts to construction projects:

- Rights of way negotiations: Failing to settle rights of way before construction can lead to project delays and delay claims by the contractor.
- Transition from design to construction: A clear, smooth transition will ensure business owner agreements are honored.

Potential Tools and Practices

Two respondents described construction impact mitigation efforts that have not been implemented because of cost or other limitations. The Metropolitan Council considers an “open for business” approach along construction corridors as potentially beneficial. The organization is trying to obtain funding with project partners for this practice in the future. Two potential practices are under consideration in MnDOT’s District 7: advertising share and contributions, and more dedicated staff and resources for liaison interactions and communication.

Case Studies

Eight respondents described recent construction projects for which mitigation of construction impacts on businesses was considered successful or demonstrated best practices, and in follow-up research two agency representatives provided three more cases from rural areas. Projects described by these respondents varied and included a diverging diamond interchange, mini-roundabouts, a 100-year-old bridge replaced by a tunnel, and other urban reconstruction. Key findings from these case studies are presented in the following topics:

- Project description.
- Number and types of affected businesses.
- Preconstruction activities with businesses to mitigate impacts.
- Activities during construction to mitigate impacts.

Among these success stories is a major, multiyear project in southwestern Wisconsin to reconstruct and expand US 18/State Highway 151 (Verona Road). The local community and businesses have formed the Verona Road Business Coalition, which has been very active in engaging its members and construction staff on the project's progress.

Related Resources

Supplementing the survey results are publications sourced through a limited literature search. These resources include national and state reports and journal articles that evaluate the mitigation of construction impacts on local businesses.

Next Steps

Going forward, MnDOT may wish to consider:

- Examining Vermont Agency of Transportation's policy for engaging local businesses and the public to mitigate construction impacts on businesses.
- Reviewing the 11 case studies summarizing other agencies' success stories, and contacting the project manager and community liaison for the Verona Road project in southwestern Wisconsin and for the Middlebury bridge and rail project in Vermont.
- Following up with Wisconsin DOT representatives for updates about the state's revisions to its In This Together program.
- Contacting Michigan DOT for additional information about the best practices used to engage local businesses and the agency's pilot efforts with the Every Day Counts, Round 5 (EDC-5) virtual public involvement initiative.

Mitigating Construction Impacts on Local Businesses: A Survey of Practice

Introduction

The MnDOT Office of Public Engagement & Constituent Services is exploring how MnDOT and other states are currently working to mitigate the impacts of their construction projects on nearby businesses. Successful approaches are being sought in the areas of communication strategies, construction techniques that mitigate noise and project duration, and outreach to business owners from minority communities or those with limited proficiency in English. MnDOT will use this information to begin the process of updating its guidance in this area.

Survey of Practice

To gather information about mitigation practices, an online survey was distributed to two groups of potential respondents:

- Selected members of the American Association of State Highway and Transportation Officials (AASHTO) Committee on Construction.
- Selected officials from Minnesota municipal area transportation agencies.

Survey questions are provided in [Appendix A](#). The full text of survey responses is presented in a supplement to this report.

Six state transportation agencies participated in the survey:

- Michigan.
- Minnesota (two responses).
- Oregon.
- Pennsylvania.
- Vermont.
- Wisconsin (four responses).

One municipal transportation agency responded to the survey:

- Metropolitan Council.

Survey results are presented in the following topic areas:

- Policies and programming.
- Mitigation tools and practices.
- Liaisons and partnerships.
- Assessment of mitigation tools and practices.
- Case studies.

At the direction of the Technical Advisory Panel, researchers followed up with survey respondents for clarification on the use of certain tools, descriptions of community liaison relationships and additional case

studies focused in rural areas. Supplementing these survey results are findings from a limited literature search, which are provided in **Related Research** beginning on page 29.

Policies and Programming

Respondents were asked to describe their agencies' construction mitigation policies and practices, including information about the staff or business areas within the agency responsible for implementing and overseeing these policies and practices. Survey responses are summarized below in the following topic areas:

- Mitigation policies and procedures.
- Policies for different project types.
- Assistance for businesses serving minority communities.
- Leadership.

Mitigation Policies and Procedures

Respondents were asked to describe any documented policies or procedures their agencies have in place for mitigating construction impacts on businesses. Of the agencies responding to this question, only one—Vermont Agency of Transportation—provided published guidelines for engaging the public (see **Related Resources**, page 8). Two agencies—Michigan DOT and the Metropolitan Council—currently do not have documented policies or procedures on this topic. The Michigan DOT respondent added that the agency does have a series of best practices for engaging with businesses and these, along with pilot efforts with the Every Day Counts, Round 5 (EDC-5) virtual public involvement initiative, may yield policies and/or procedures in the future. The Metropolitan Council respondent noted that the organization follows federal environmental commitments for noise, vibration, dust, detour notifications and other issues.

The respondents from Minnesota, Oregon and Wisconsin DOTs took different approaches to providing policy and procedure information, some addressing specific policies and programs within their states while others focused on the timing of mitigation plan development:

Minnesota. District 7 develops project management and communications plans with businesses to mitigate the impact of construction. Using or adopting policies and procedures from statewide efforts (for example, the Business Impacts Checklist and Guidance and “In This Together,” drafted in 2009 and 2010, respectively), district representatives have created specific tools and tactics that are unique and customized for the community and each project.

Oregon. Most mitigation of construction impacts on businesses occurs during project development and design. The agency lists the state's obligations, outlining all right of way impacts and agreements made during this phase to share with the construction office. Examples of mitigation efforts include restoring a site to its original condition if damage occurs during a project, compensating a business owner for a construction easement for staging or paying a business owner for taking down business signage.

Wisconsin. Three Wisconsin DOT respondents—the Central Office, Northeast Region and Southwest Region—cited the state's In This Together program, an online resource that encourages the agency, businesses and communities to work together before and during a construction project (see **Related Resources**, page 9). The site currently offers links to a workbook, case studies and sample materials, including brochures, promotional campaigns, newspaper advertisements and signs. The agency is currently revising this program and is expecting to launch the new program soon.

The Central Office also obtains public involvement guidance from Chapter 6 of Wisconsin DOT's Facilities Development Manual (see **Related Resources**, page 9). The Southwest Region also allows temporary business signage during construction. The permit is completed by the business or businesses, and is signed and approved by construction staff.

The Southeast Region consults with the agency's Bureau of Traffic Operations director.

Related Resources

National Guidance

"Virtual Public Involvement," Every Day Counts, Center for Accelerating Innovation, Federal Highway Administration, undated.

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/virtual_public_involvement.cfm

Michigan DOT is actively involved in a pilot effort related to this initiative. *From the website:*

Virtual public involvement supports agencies' efforts to engage the public more effectively by supplementing face-to-face information sharing with technology. ... Nearly all State DOTs and most local agencies use websites to post information about their activities. With the increased use of social media tools and mobile applications, the public can access user-friendly features such as online videos, podcasts, crowdsourced maps, and other interactive forums to receive information and provide input.

These new opportunities for information sharing and public involvement in the transportation planning, programming, and project development process include, but are not limited to, telephone town halls, online meetings, pop-up outreach, social meetings/meeting-in-a box kits, story maps, quick videos, crowdsourcing, survey tools, real-time polling tools, social media following, visualization, and working with bloggers.

State Guidance

Vermont

Engaging the Public: Outreach Guidelines for Projects, Plans and Other Agency Activities, Vermont Agency of Transportation, June 2017.

<https://vtrans.vermont.gov/sites/aot/files/highway/documents/publications/VTransPublicInvolvementGuide2017.pdf>

From the website:

This guide was prepared to enhance public involvement, encourage active participation, and lead to improved transportation decision making. Virtually every activity the Agency undertakes impacts a wide range of stakeholders — people, agencies, or groups having an interest or a "stake" in the project or activity. This could include other departments within VTrans, the traveling public, emergency responders, truck and bus companies, businesses, other agencies, and many other groups of people. It is especially important to include our most vulnerable populations that have traditionally been underserved, such as low income or minority populations. Different stakeholder groups can have unique, and sometimes conflicting, needs and desires related to Vermont's transportation infrastructure.

Section 1.6 (page 11 of the report, page 17 of the PDF) provides a summary of communication tools based on project impact.

In This Together, Wisconsin Department of Transportation, undated.

<https://wisconsindot.gov/Pages/projects/in-together/default.aspx>

This web page describes Wisconsin DOT's program to facilitate communication and planning with local businesses in construction areas. The site currently includes links to a workbook, case studies and sample promotional materials. The program is currently under revision; an updated program is expected to launch soon.

Chapter 6, Public Involvement, Facilities Development Manual, Wisconsin Department of Transportation, November 30, 2018.

<https://wisconsindot.gov/rdwy/fdm/fd-06-05.pdf#fd6-5-20>

This chapter includes policies and procedures for developing and administering Wisconsin DOT's public involvement process. Section 6-5-20 (page 7 of the report) addresses the requirement to incorporate translation needs in public involvement plans.

Policies for Different Project Types

Respondents were asked to describe policies that address different types and scales of construction projects. Among the states responding to this question, only Vermont provided specific guidance. Two state DOTs—Minnesota and Oregon—tailor construction mitigation based on the type of impact to a project. Wisconsin DOT addresses construction mitigation on a project-by-project basis. Survey responses are summarized below.

Specific guidance. Section 1.6 of Vermont Agency of Transportation's public involvement guide (see **Related Resources**, page 8) summarizes communication tools appropriate for low-, medium- and high-impact projects. According to the respondent, the agency is developing additional guidance.

Type of impact. The respondent from MnDOT District 4 reported that the agency has more contact with businesses for urban reconstruction projects because of the above-average impacts to the businesses, such as customer access during construction. Oregon DOT also places more emphasis on the specific types of impacts on businesses, regardless of project size or type.

Project by project. Three of the four Wisconsin DOT respondents indicated that their agencies approach communication and mitigation on a project-by-project basis:

- The respondents from Wisconsin DOT's Central Office, Northeast Region and Southwest Region noted that the amount of business outreach and involvement differs depending on the project and its complexity. A public involvement plan is developed for each that matches the outreach to the stakeholders based on the impacts of the project. The Wisconsin DOT Central Office respondent added that region communication staff works with engineers "from scoping to construction to determine right-size methods of communication throughout project delivery."
- The Wisconsin DOT Southwest Region respondent provided details about the Verona Road project—a major, multiyear project to reconstruct and expand US 18/State Highway 151 (see **Case Studies**, page 28). The local community and businesses formed the Verona Road Business Coalition, which has been "extremely active" in engaging its members and construction staff to ensure everyone is up to date on the project's progress.

Other. Wisconsin DOT's Southeast Region consults with the agency's Bureau of Traffic Operations director to address different types and scales of construction projects.

Assistance for Businesses Serving Minority Communities

Among the states participating in the survey, assistance to business owners serving minority communities or those with limited English language proficiency is focused on translation services. Respondents described a range of services, from keeping translators on retainer to using online translation resources and producing informational materials in multiple languages. Table 1 summarizes agency practices, when provided.

Table 1. Agency Practices for Businesses Serving Minority Communities

State/Agency	Practice
Michigan	Translator services are kept on retainer for engaging with local businesses or contractors, when necessary.
Metropolitan Council (Minnesota)	Engagement policies require the organization to consult with affected groups before any consultation or work begins to assess the groups’ engagement needs and expectations, including language requirements. Several vendors provide on-site interpretation services, as well as specific translation services for different resources.
MnDOT District 4	Because of very few projects requiring this type of assistance, District 4 coordinates communication efforts as needed, for example, ensuring that a family member is available to assist in communicating with MnDOT Construction staff.
MnDOT District 7	District 7 provides translators when requested and also uses Google Translate.
Oregon	The agency identifies the most commonly spoken languages in the area before deciding whether to translate flyers and other materials. If projects require a robust environmental review process, the agency conducts early interviews with stakeholders in immigrant and minority communities to determine the best outreach strategies. For example, during the environmental phase of one project, the agency conducted community walks in Spanish, Vietnamese, Russian and Chinese. For a value pricing feasibility study, the agency held focus groups in Spanish, Vietnamese, Chinese and Russian, and met with African American and Native American community groups.
Vermont	The agency translates project information and uses other outreach tools for minority communities when needed, for example, for projects along the Canadian border.
WisDOT Central Office	Section 6.5.20 of the agency’s Facilities Development Manual (see Related Resources , page 9) requires translation needs to be incorporated in public involvement plans.
WisDOT North-east Region	The Northeast Region creates materials in multiple languages to reach specific communities that may be impacted by a project.
WisDOT South-west Region	While no financial assistance is available, the Southwest Region “strives to be transparent” and uses multiple communication methods for all construction projects. Outreach materials include mailings, posters at community centers, newsletters, website postings, phone contacts, email updates and social media. Outreach materials are translated into another language, depending on the community.

Leadership

In most transportation agencies participating in the survey, responsibility for construction impact mitigation for local businesses falls to construction operations, public information, or construction operations and public information staff. In MnDOT’s District 7, responsibility varies depending on the stage of the project or circumstance, ranging from state construction resident engineers and public engagement staff to construction supervisors and inspectors. The Oregon DOT respondent noted that while the construction project manager and area manager primarily work together to implement mitigation practices, the construction section at the agency’s headquarters is also a resource. The respondent from Wisconsin DOT’s Central Office reported that the Office of Public Affairs provides general department guidance but the region communications managers work directly with staff in the field. Wisconsin DOT’s Southeast Region consults with the agency’s Bureau of Traffic Operations director. Table 2 summarizes survey responses.

Table 2. Responsibility for Implementing Construction Mitigation Policies

Area of Responsibility	State/Agency	Description
Construction	Michigan, MnDOT District 4, MnDOT District 7, Oregon, Pennsylvania, Vermont	<p><i>Michigan.</i> Construction Operations engineer. <i>MnDOT District 4.</i> MnDOT Construction engineer. <i>MnDOT District 7.</i> Varies by project. Includes:</p> <ul style="list-style-type: none"> • Assistant district engineer. • Resident engineers. • Supervisors and inspectors. <p><i>Oregon:</i></p> <ul style="list-style-type: none"> • Construction project manager. • Area manager. • DOT Construction section. <p><i>Pennsylvania.</i> Construction Quality Assurance section chief. <i>Vermont.</i> Construction engineer.</p>
Public Affairs	MnDOT District 7, WisDOT Central Office, WisDOT Northeast Region, WisDOT South-west Region	<p><i>MnDOT District 7.</i> Public Engagement coordinator. <i>WisDOT Central Office.</i> Office of Public Affairs and region communications managers. <i>WisDOT Northeast Region.</i> Office of Public Affairs. <i>WisDOT Southwest Region.</i> Region project communications manager.</p>
Other	Metropolitan Council, WisDOT Southeast Region	<p><i>Metropolitan Council.</i> Various areas within the organization. <i>WisDOT Southeast Region.</i> Bureau of Traffic Operations director.</p>

Several respondents provided contact information for staff members within their organizations who are directly responsible for mitigation activities. This contact information, when provided, is given in [Appendix C](#).

Mitigation Tools and Practices

Respondents were asked to assess the effectiveness of a series of tools frequently used to mitigate the impacts of construction on local businesses. The tools were presented in three categories:

- Communication tools.
- Construction-related tools and strategies.
- Business accommodation and compensation tools.

The following rating scale was used for all categories:

- Do not use or ineffective.
- Somewhat effective.
- Effective.
- Quite effective.
- Highly effective.

Respondents' ratings for tools in each of these categories are summarized below. Following these ratings are respondents' assessments of how the tools from all three categories impacted project or contract cost.

Communication Tools

Survey respondents rated the effectiveness of both traditional, face-to-face communication tools and social media in their agencies' efforts to mitigate the impacts of construction. The following face-to-face or traditional tools were evaluated:

- Public meetings.
- Preconstruction meetings with business owners.
- Regular meetings with business owners during construction.
- Traditional communications (such as mailings, email, phone and flyers).
- Construction project websites.

Of these tools, construction project websites and preconstruction meetings received higher ratings on the effectiveness scale (quite effective or highly effective) followed by regular meetings with business owners during construction and public meetings. Most respondents rated traditional communications as an effective communication tool, including MnDOT District 7, which sends email updates through the GovDelivery platform for government agencies. In follow-up comments, WisDOT Southeast Freeways chief noted that his office relies on public information teams to reach out directly to area businesses to coordinate needs for signage and invite feedback, and relies on these relationships rather than on preconstruction meetings and regular meetings during construction activity. Survey responses are presented in Table 3.

Table 3. Communication Tools: Meetings, Traditional Communications and Websites

State/Agency	Public Meetings	Preconstruction Meetings	Regular Meetings During Construction	Traditional Communications	Construction Project Website(s)
Michigan	Quite effective	Quite effective	Quite effective	Effective	Effective
Metropolitan Council (Minnesota)	Quite effective	Highly effective	Highly effective	Somewhat effective	Quite effective
MnDOT District 4	Quite effective	Quite effective	Quite effective	Effective	Quite effective
MnDOT District 7	Somewhat effective	Highly effective	Somewhat effective	Effective	Quite effective
Oregon	Highly effective	No response	Somewhat effective	Highly effective	Effective
Pennsylvania	Highly effective	Highly effective	Quite effective	Somewhat effective	Quite effective
Vermont	Effective	Quite effective	Quite effective	Effective	Effective
WisDOT Central Office	Effective	Effective	Effective	Effective	Effective
WisDOT Northeast Region	Effective	Effective	Effective	Somewhat effective	Quite effective
WisDOT Southeast Region	Somewhat effective	Don't use	Don't use	Quite effective	Quite effective
WisDOT Southwest Region	Effective	Highly effective	Quite effective	Effective	Quite effective

The effectiveness of the following social media platforms was rated:

- Facebook.
- Twitter.
- LinkedIn.
- YouTube.

Among these tools, Twitter and Facebook received higher ratings on the effectiveness scale (quite effective or highly effective) followed by YouTube. Most respondents don't use LinkedIn to mitigate the impacts of construction. The Metropolitan Council respondent noted that the organization does not regularly use Facebook, LinkedIn or YouTube for impact mitigation.

Wisconsin DOT’s Central Office respondent added that while some larger, complex projects have had Facebook accounts, most individual projects do not have Facebook or YouTube accounts. Instead, information is shared through the agency’s corporate account, when appropriate. The most suitable approach to communications is determined by each region through a project’s public involvement plan.

Table 4 summarizes survey responses about the effectiveness of social media.

Table 4. Communication Tools: Social Media

State/Agency	Facebook	Twitter	LinkedIn	YouTube
Michigan	Highly effective	Quite effective	Don’t use	Effective
Metropolitan Council (Minnesota)	Don’t use	Effective	Don’t use	Don’t use
MnDOT District 4	Effective	Quite effective	Don’t use	Quite effective
MnDOT District 7	Quite effective	Quite effective	Don’t use	Don’t use
Oregon	Quite effective	Quite effective	Don’t use	Effective
Pennsylvania	Quite effective	Quite effective	Effective	Quite effective
Vermont	Effective	Effective	Effective	Effective
WisDOT Central Office	Somewhat effective	Somewhat effective	Don’t use	Don’t use
WisDOT Northeast Region	Somewhat effective	Somewhat effective	Don’t use	Somewhat effective
WisDOT Southeast Region	Quite effective	Quite effective	No response	Quite effective
WisDOT Southwest Region	Highly effective	Highly effective	Don’t use	Highly effective

Other Communication Tools

Three respondents provided information about other communication tools that have been effective in mitigating the impacts of construction. The Michigan DOT respondent reported that project visualization videos for complex or innovative project designs such as diverging diamond interchanges have been of significant assistance in helping businesses understand impacts to them. Virtual town hall meetings, an EDC-5 best practice, have also been beneficial. Michigan DOT recently began using these meetings to supplement face-to-face town hall business engagement.

The Vermont Agency of Transportation has hired a local community liaison for some projects that significantly impact local businesses. The liaison, who is hired through a grant to the town or city, focuses specifically on working with the business community on a day-to-day basis. For some projects, the agency has also created a local advisory committee that weighs in on defined project aspects, such as design.

Wisconsin DOT’s Southeast Region frequently uses one-page construction project briefs that summarize the project and provide information that stakeholders need to know. The construction project manager approves the content and context of the brief to ensure accuracy. The brief can be leveraged on social media platforms as

an attachment or email, and also scaled down for door-to-door distribution. Also, the region conducts local officials meetings instead of business meetings to explain the construction plan, build trust with officials and emphasize the region's commitment to excellence.

Construction-Related Tools and Strategies

Transportation agencies and contractors use construction-related strategies and techniques to ensure customers can access businesses during a construction project or to incentivize contractors to minimize routing or other traffic management impacts. Survey respondents rated the effectiveness of the following construction-related tools and strategies in their agencies' efforts to mitigate construction impacts:

- On-site signage (such as "Businesses still open" or "Business this way").
- Alternative parking for affected businesses.
- Staging incentives (such as detour rental fees and intersection closing time limits).

Respondents rated all three strategies effective; on-site signage and staging incentives also earned higher ratings. Four of 11 respondents do not use alternative parking options. Several respondents supplemented their ratings with additional information related to these strategies or with details about other practices.

Signage. The Michigan DOT respondent reported that the agency often uses "... is open to businesses," although specific businesses or hours of operation are not listed. Alternate route signage to reach businesses is used on a case-by-case basis. Traffic special provisions are included in Michigan DOT contracts and often display the allowable hours of operation for the contractor, which may be based on local business needs. The respondent added that business coordination and a needs case is developed during the project planning phases.

Staging. MnDOT District 4 considers planned staging to be highly effective, and Wisconsin DOT's Central Office finds that email blasts during design and construction are very effective.

Other strategies. Respondents from Wisconsin DOT's Northeast and Southeast regions both referred to a "get in, stay in, get out" approach to mitigate construction time. In the Southeast Region's urban freeway area, the agency closes the bridge, key ramp or roadway; rebuilds the area "extremely fast"; and commits to the reopen date. Area businesses appreciate the shorter impact duration, the respondent noted, although the approach is more impactful under a full closure. Major intersections have been closed for 10 days to complete all the work at once instead of several weeks or months. Occasionally, the region will provide incentives and disincentives for rebuilding key bridges. The respondent added that these additional strategies are only effective if the construction plan is "sound and achievable." Other construction administration techniques used to mitigate contract time in Wisconsin DOT's Northeast Region include A+B bidding and incentives or disincentives.

Other respondents cited the importance of working with the local community in construction project planning. Vermont Agency of Transportation works with the community to identify the best time of year for a closure or work period to avoid peak tourist seasons, special community events and other activities. The closure period or specified work hours are then imposed on the contractor. In Wisconsin DOT's Southwest Region, public meetings and outreach alert the public and businesses to the planned construction staging once the project is let. This transparency allows the public to plan and anticipate impacts during construction, even if the work is months or years down the road.

Table 5 summarizes survey responses about construction-related tools and strategies.

Table 5. Construction-Related Tools

State/Agency	On-Site Signage	Alternative Parking	Staging Incentives
Michigan	Quite effective	Effective	Effective
Metropolitan Council (Minnesota)	Quite effective	Don't use	Don't use
MnDOT District 4	Effective	Don't use	Highly effective
MnDOT District 7	Highly effective	Don't use	Highly effective
Oregon	Effective	Effective	Effective
Pennsylvania	Somewhat effective	Somewhat effective	Somewhat effective
Vermont	Effective	Effective	Effective
WisDOT Central Office	Effective	Effective	Don't use
WisDOT Northeast Region	Somewhat effective	Don't use	Quite effective
WisDOT Southeast Region	Effective	Somewhat effective	Quite effective
WisDOT Southwest Region	Highly effective	Effective	Effective

Business Accommodation and Compensation Tools

Survey respondents rated the effectiveness of the following business accommodation and compensation tools and strategies in their agencies' efforts to mitigate construction impacts:

- Project hotline for public input and/or complaints.
- Construction activity timing coordination with business owners (for example, running a jackhammer only at times agreed to with a local business owner, timing activities to avoid selected high-traffic drive-through food service hours).
- Financial compensation for loss of business.
- Advertising campaigns or funding.

Among the three categories of tools and strategies rated in this survey, respondents reported the least experience with business accommodation and compensation tools. Construction activity timing coordination received the highest ratings, followed by advertising campaigns or funding, and project hotlines. Eight respondents rated financial compensation for loss of business as a strategy their agencies don't use; one respondent described the strategy as one the agency does not use or finds ineffective; one respondent rated the

strategy somewhat effective and one respondent rated the strategy effective. Six respondents rated advertising campaigns or funding as a strategy their agencies don't use; one rated the strategy as one it does not use or finds ineffective; four respondents gave the same rating to project hotlines.

Several respondents supplemented their ratings with additional information related to these strategies or with details about other practices.

Project hotline. The Michigan DOT respondent, who rated project hotlines as somewhat effective, explained that an agency best practice has been to provide an email or phone resource for public input and/or complaints. The outcomes of this practice are “widely variable” depending on the community size and engagement. MnDOT District 4 noted in follow-up communication that in lieu of a hotline, larger projects have websites that include contact information for the project manager and public affairs coordinator for comments.

Compensation. Pennsylvania DOT indicated in a follow-up interview that in rare cases in which access is completely shut off to a business, if that business can demonstrate revenue stream differences before and during construction, the department may compensate the business. Wisconsin DOT's Southeast Region rarely compensates businesses. Instead, the region listens to specific business needs and restricts contractor operations accordingly, if applicable. For example, the region will fast-track pile driving during restaurant lunch times, and ensure that local and regional special events, such as festivals, parades and concerts, take place without too severely restricting the contractor's work schedule. Wisconsin DOT's Southwest Region only provides financial compensation for business relocation or fair compensation for temporary limited easement onto private property. The Metropolitan Council does not regularly compensate businesses. When it has used this strategy, the projects were sponsored by community organizations and coordinated with construction, but the council did not operate or manage them.

Advertising campaigns or funding. Wisconsin DOT's Central Office explained that as long as information about project timing is communicated well in advance, the agency does “whatever possible” to work with businesses to minimize impacts or provide information that helps them communicate with customers. Any state-funded campaign is related to project delivery of the project; those campaigns are focused on “education, awareness and garnering public input.” WisDOT's Southeast Freeways chief indicated that when work is complete his office may host “first look” media tours, and the office has also held short local TV segments on Fridays during long construction projects to describe finished work and impacts. These media activities work as alternatives to advertising campaigns. As with financial compensation, the Metropolitan Council does not typically support advertising campaigns. Projects that have used this strategy in the past were sponsored by community organizations and coordinated with construction, but the council did not operate or manage them.

Table 6 summarizes survey responses related to business accommodation and compensation tools and strategies.

Table 6. Business Accommodation and Compensation Tools

State/Agency	Project Hotline	Construction Activity Timing	Financial Compensation for Loss of Business	Advertising Campaigns or Funding
Michigan	Somewhat effective	Don't use	Don't use	Don't use
Metropolitan Council (Minnesota)	Highly effective	Highly effective	Don't use	Don't use
MnDOT District 4	Don't use	Quite effective	Don't use	Effective
MnDOT District 7	Ineffective	Highly effective	Don't use	Quite effective
Oregon	No response	Effective	Don't use	Highly effective
Pennsylvania	Effective	Somewhat effective	Effective	Don't use
Vermont	Effective	Highly effective	Don't use or ineffective	Don't use or ineffective
WisDOT Central Office	Ineffective	Effective	Don't use	Don't use
WisDOT Northeast Region	Don't use	Effective	Don't use	Don't use
WisDOT Southeast Region	Somewhat effective	Quite effective	Don't use	Don't use
WisDOT Southwest Region	Somewhat effective	Effective	Somewhat effective	Quite effective

Impact of Tools on Project or Contract Cost

Respondents were asked to describe how the most effective tools from all three categories impacted project or contract cost. Some of the respondents commented on specific tools or strategies that impacted cost while others addressed project impacts overall. Staffing, timing and planning were frequently mentioned in survey responses:

- The MnDOT District 7 respondent indicated that tools that require staff time tend to be the most effective, such as meetings with businesses, construction timing coordination and social media use. Incentives or shared advertising campaigns, which are used infrequently by the district because of financial constraints, have a financial component that varies based by project.

The Wisconsin DOT Southwest Region respondent also emphasized staffing as a key component. Approximately three staff members in the region assist with project communications and outreach, including updates to websites and social media, and share notifications via an email distribution list. Some consultant staff also assists in creating animation videos, renderings, and displays or exhibits for use at meetings.

- According to the MnDOT District 4 respondent, impact mitigation tools generally allow projects to be completed more efficiently in less time, which results in fewer business impacts.
- The Michigan DOT respondent reported that most tools do not have a direct project or contract cost during construction. Costs related to signs for businesses or alternate routes to businesses are minimal, as are paper and electronic communication efforts. He added that costs are higher during project development because this phase requires working with businesses, but these costs are “very hard to quantify” because each project is unique and may warrant a specific business outreach plan. Project-specific visualizations is one of the highest preliminary costs of all the methodologies discussed in this survey.
- The Oregon DOT respondent reported that most negotiations with businesses are conducted during project development and design, not during construction. Around-the-clock freeway closures require a public education initiative using social media, radio and other communication channels to reach the public.
- The Metropolitan Council respondent noted that working with property owners to manage noise and vibration outside of business hours has a high impact.
- The Wisconsin DOT Southeast Region respondent emphasized the importance of successful plans—those that balance community and contractor needs. “Balance out the plan, share the plan with local officials and key businesses, then resource it and deliver it,” he explained. This approach does not cost very much to implement, he added, and if the plan is reasonable and responsible, the negative impacts on businesses can be “understood and absorbed.” Social media is also a low-cost, effective tool used in the region.

Liaisons and Partnerships

Survey respondents were asked to describe project liaisons and partnerships established with other organizations to assist businesses affected by construction. Survey results are summarized below in the following categories:

- Project liaisons.
- Partnerships with other agencies and organizations.

Project Liaisons

Most of the agencies participating in the survey use internal staff as liaisons between the agencies and affected businesses. At the Metropolitan Council, three community outreach coordinators serve as liaisons to businesses in the coordinator’s assigned area. The coordinators are Metro Transit employees (Metro Transit is an operating division of the Metropolitan Council) hired specifically for this task during project design and engineering. In Oregon and Pennsylvania, liaison activities are shared among several agency offices, depending on the phase of the project or project needs. Wisconsin DOT’s five regions each employ a communications manager who works with agency staff and consultants to guide outreach communications during design and construction. Michigan DOT rarely contracts out for liaison services, preferring to take ownership and direct responsibility of these engagements internally.

Wisconsin DOT’s Northeast and Southeast regions have used consultants to fill this role; the Southeast Region has also used an official liaison for larger, long-term projects—someone who is paid in whole or in part with

project funds—to communicate day-to-day changes and impacts of a complex project to key stakeholders. MnDOT District 4 includes a pay item in project plans that requires the contractor to provide a business liaison. The Verona Road Business Coalition, a group of local community and business members in Wisconsin DOT’s Southwest Region, has contracted a project manager to represent the organization, serving as a liaison and regularly meeting with DOT staff to discuss the project.

The Vermont Agency of Transportation engages community liaisons on large, ongoing projects in downtowns. The agency provides funding for the positions, but the liaisons are city employees on city payrolls and report to city managers. The community liaison maintains a public presence and communicates via newsletters, email and other methods throughout the project duration, emphasizing the positive outcomes expected.

Table 7 summarizes survey responses.

Table 7. Liaison for Construction Projects

Liaison	State/Agency	Description
Internal staff	Michigan, Metropolitan Council, MnDOT District 7, Oregon, Pennsylvania, WisDOT Central Office	<p><i>Michigan.</i> Project-level staff, with a designated champion during project development and construction. (Rarely contracts out for liaison services.)</p> <p><i>Metropolitan Council.</i> Three community outreach coordinators serving assigned geographic areas during project design and engineering.</p> <p><i>MnDOT District 7.</i> Liaison activities coordinated among the MnDOT construction supervisor, MnDOT inspector and a contractor-designated access manager or business liaison.</p> <p><i>Oregon:</i></p> <ul style="list-style-type: none"> • During project development and design: Right of Way section. • During construction: Community Affairs and Construction. <p><i>Pennsylvania.</i> Various staff, based on each project’s needs.</p> <p><i>WisDOT Central Office.</i> Regional communications manager during design and construction.</p>
Engineering/ other consultant	WisDOT Northeast Region, WisDOT Southeast Region	<p><i>WisDOT Northeast Region.</i> Engineering consultant used for a limited number of projects.</p> <p><i>WisDOT Southeast Region.</i> Public information consultant teams to reach wider audience and leverage agency websites and email distribution lists, particularly for projects involving large campuses or business parks.</p>
Paid community liaison	Vermont	A paid community liaison in addition to or instead of an outreach consultant for a standard project with general impacts.
Other	MnDOT District 4, WisDOT Southeast Region, WisDOT Southwest Region	<p><i>MnDOT District 4.</i> Pay item in project plans requires the contractor to provide a business liaison.</p> <p><i>WisDOT Southeast Region.</i> Official liaison sometimes used for larger, long-term projects.</p> <p><i>WisDOT Southwest Region.</i> Verona Road Business Coalition: Contracted project manager.</p>

Partnerships With Other Agencies and Organizations

Respondents reported on a range of partnerships and activities their agencies engage in with other state and local agencies or community organizations to assist businesses in mitigating construction impacts. Chambers of commerce, economic development groups and other community or professional groups were among the most frequently cited organizations and associations. Table 8 summarizes partnerships and activities supported by agencies.

Table 8. Partnerships With Other Agencies and Organizations

State/Agency	Partners/Activities
Michigan	<ul style="list-style-type: none"> • State-specific engagements when projects affect other states along Michigan’s borders. • Local agencies (e.g., County Road Association and Michigan Municipal League). • Community organizations, if project impacts and mitigation strategies are developed. Project information plans are often required of the contractor to outline potential strategies that may not have been covered by the project plans and requirements specific to contractor means and methods.
Metropolitan Council (Minnesota)	Mostly information and resource sharing to support mitigation campaigns.
MnDOT District 4	<ul style="list-style-type: none"> • County and city engineer gatherings. • Rotary or other local organization meetings.
MnDOT District 7	<ul style="list-style-type: none"> • Meetings. • Partnerships. • Assistance/shared communication or outreach. • Celebration planning (post-construction).
Oregon	<ul style="list-style-type: none"> • Chambers of commerce. • Other economic development groups.
Pennsylvania	Varies, depending on specific project: <ul style="list-style-type: none"> • Planning organizations. • Local governments. • Business groups.
Vermont	<ul style="list-style-type: none"> • Chambers of commerce. • Agency of Commerce and Community Development. • Local business groups.
WisDOT Central Office	<ul style="list-style-type: none"> • Local elected leaders and emergency response teams during design and construction. • Business leaders, depending on the location, type and impacts of projects.

State/Agency	Partners/Activities
	<ul style="list-style-type: none"> All stakeholders: Input is encouraged from all members of the general public impacted by project (during design and construction).
WisDOT Northeast Region	Local chambers of commerce to help with directional business signing. Example: A chamber of commerce coordinated one sign for all businesses instead of separate signs by 20 businesses.
WisDOT Southeast Region	<ul style="list-style-type: none"> State Patrol, to assist in detour routes and accident management on corridors. Business groups, to help explain how temporary business signs can be achieved during construction. Job fairs, to inform employees of local businesses. Local businesses, to speak to employers and employees about project impacts.
WisDOT Southwest Region	Verona Road Business Coalition continually reaches out to the communities, economic development groups and other agencies to ensure information is communicated early and often to businesses.

Assessment of Mitigation Tools and Practices

Survey respondents evaluated the following aspects of their agencies’ construction impacts mitigation measures:

- Post-project evaluations.
- Ineffective tools and practices.
- Potential tools and practices.

Post-Project Evaluations

Three respondents described evaluations undertaken by their agencies to determine the success of construction impacts mitigation measures:

- Michigan DOT hosts post-construction review meetings during which project stakeholders provide feedback to the DOT. Meeting minutes and comments are provided to the project’s construction and development staff.
- MnDOT District 4 collects customer feedback during construction. Early project completion dates seem to generate positive responses.
- Some consultants in Vermont conduct post-project surveys with stakeholders, but results have not been aggregated.

Ineffective Tools and Practices

The following measures were identified as ineffective in mitigating and communicating the impacts of construction:

- **Email** (MnDOT District 4). According to the respondent, most stakeholders do not check email regularly.
- **LinkedIn** (Michigan).
- **Project hotlines** (Minnesota DOT District 7 and Wisconsin DOT Southwest Region). Instead of using hotlines, the Wisconsin DOT Southwest Region respondent suggested providing contact information for project staff.
- **Public meetings** (Wisconsin DOT Southeast Region). The respondent recommended open and honest communication with stakeholders at public meetings—to “tell them the truth” and not “sugarcoat the impacts.”
- **Some traditional mailings** (MnDOT District 4). Letters, for example, are considered ineffective in this district.
- **Weekly meetings held later in the construction phase** (MnDOT District 7). According to the respondent, weekly meetings are most effective before and early in the construction phase.

The Oregon DOT respondent shared other issues that may negatively impact construction projects:

- **Rights of way negotiations.** Failing to settle rights of way before construction can lead to project delays and delay claims by the contractor.
- **Transition from design to construction.** The respondent noted that the transition between design and construction must be “clear and smooth” to ensure business owner agreements are honored.

Potential Tools and Practices

Two respondents described construction impact mitigation efforts that their agencies have considered using but have been unable to because of cost or other limitations:

- The Metropolitan Council respondent indicated that an “open for business” approach along construction corridors would be beneficial. The organization is trying to obtain funding with project partners for this practice in the future.
- Minnesota DOT’s District 7 respondent identified two potential practices for future use:
 - Advertising share and contributions.
 - More dedicated staff and resources for liaison interactions and communication during construction.

Case Studies

The following case studies describe a recent construction project for which mitigation of construction impacts on businesses was considered successful or demonstrated best practices:

- Michigan DOT: Eastbound and Westbound I-96, Grand Rapids.
- MnDOT District 4: Glenwood Complete Streets.
- MnDOT District 7: Highway 4, St. James.
- Oregon DOT: Inner Powell Safety Project.

- Pennsylvania DOT: Duke Street Project, Northumberland County.
- Pennsylvania DOT: Ohiopyle Project, Ohiopyle State Park.
- Vermont Agency of Transportation: Middlebury Bridge and Rail Project.
- Wisconsin DOT Northeast Region: Interstate 41 and State Highway 21 Interchange.
- Wisconsin DOT Northwest Region: Belknap Street Project, Superior.
- Wisconsin DOT Southeast Region: Zoo Interchange Megaproject.
- Wisconsin DOT Southwest Region and Central Office: Verona Road (US 18/State Highway 151) Project.

Each case study includes the following information (when provided by the respondent):

- Project description.
- Number and types of affected businesses.
- Preconstruction activities with businesses to mitigate impacts.
- Activities during construction to mitigate impacts.
- Additional comments, contacts or details.

Some of the case studies are followed by a **Related Resources** section that includes resources and guidance related to the project.

Michigan Department of Transportation

Success Story: Eastbound and Westbound I-96, Grand Rapids

Project Description	Diverging diamond interchange.
Affected Businesses	100 businesses (medical and commercial).
Preconstruction Activities	<ul style="list-style-type: none"> • Public open house and project-specific video. • Business association presentations. • Local community engagements, including eldercare facilities. • Renderings of the projects for aesthetics.
Mitigation Activities During Construction	<ul style="list-style-type: none"> • Door-to-door engagements. • Echelon paving at night to limit business impacts during the day.
Comments	Staged construction eliminated the need for detours and maintained traffic flow.

Minnesota Department of Transportation: District 4

Success Story: Glenwood Complete Streets

Project Description	Urban reconstruction.
Affected Businesses	Many.
Preconstruction Activities	<ul style="list-style-type: none"> • Informational meetings with businesses.

- Walkabout meetings with plans for new construction.
 - Website.
 - Newspaper articles.
- Mitigation Activities During Construction**
- Weekly meetings with businesses.
 - Business liaison.
 - Business discounts during project funded by city.
 - Facebook Live updates by chamber of commerce.

Minnesota Department of Transportation: District 7

Success Story: Highway 4, St. James

- Project Description** Downtown construction of two mini-roundabouts and diagonal, back-in parking.
- Affected Businesses** All businesses along Highway 4 through downtown St. James.
- Preconstruction Activities**
- One-on-one business meetings.
 - Presentations.
 - Roundabout Rodeo event downtown (to encourage business activity and traffic).
 - Business survival guide (created by chamber of commerce).
- Mitigation Activities During Construction**
- Construction liaison on-site.
 - Regular interaction.
 - Access.

Oregon Department of Transportation

Success Story: Inner Powell Safety Project

- Project Description** Project to increase safety for pedestrians, bicyclists, transit users and motorists on Southeast Powell Boulevard: Installed three new rectangular rapid flash beacons. Reconstructed Americans with Disabilities Act (ADA) ramps. Installed a pedestrian waiting area and truck apron. Added protected lefts from the mainline onto side streets. Added protected lefts from one side street onto the mainline of Powell.
- Affected Businesses** Five or more.
- Preconstruction Activities**
- Negotiated upfront how to work with business owners to stage project.
 - Compensated business owners if necessary or required.
- Mitigation Activities During Construction**
- Restored landscaping.
 - Used a construction easement.
- Related Resource** **U.S. 26: Powell Boulevard Safety Project**, Oregon Department of Transportation, undated.
<https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=18795>
From the website: The project is expected to increase safety by reducing serious crashes within the project area while minimizing traffic impacts to the neighborhoods and local businesses.

Pennsylvania Department of Transportation

Success Story: Duke Street Project

Project Description	Urban reconstruction in Borough of Northumberland, population 3,000.
Affected Businesses	Several on Duke Street and State Route 147-110.
Preconstruction Activities	<ul style="list-style-type: none">• Meetings with individual business operators and groups to determine potential impacts of construction.• Planned detour routes with businesses.• Staging plans developed with business input.
Mitigation Activities During Construction	<ul style="list-style-type: none">• Staged work in two phases to allow customer and employee access to businesses.• Message boards along detour routes directing delivery truck access to businesses.
Related Contacts	Christopher Neidig Design Project Manager 570-368-4391, CNeidig@pa.gov Ted Deptula Assistant Construction Engineer 570-368-4323, TDeptula@pa.gov

Pennsylvania Department of Transportation

Success Story: Ohiopyle Project

Project Description	Multiyear highway work and facilities upgrade in town of 27 full-time residents within Ohiopyle State Park. Town relies on tourist dollars from 1.5 million visitors each year.
Affected Businesses	Businesses and residents.
Preconstruction Activities	<ul style="list-style-type: none">• Research phase to plan improvements to help community fulfill vision for town.• Planned boating facility bathroom and shower upgrades in anticipation of future sewer upgrades.• Planned pedestrian underpass, sidewalks, bicycle paths and parking lots with tourist focus.
Mitigation Activities During Construction	Conducted work off tourist season.
Related Contact	William Beaumariage Construction Services Engineer 724-439-7378, WBeaumaria@pa.gov

Vermont Agency of Transportation

Success Story: Middlebury Bridge and Rail Project

Project Description	Construction project to replace two nearly 100-year-old rail bridges in the center of Middlebury with a 360-foot tunnel.
Comments	Project information available from the project manager and community liaison.
Related Resource	“News & Updates,” Middlebury Bridge & Rail Project, Vermont Agency of Transportation, undated. https://vtrans.vermont.gov/projects/middlebury Links to construction updates and information are available at the site.

Wisconsin Department of Transportation: Northeast Region

Success Story: Interstate 41 and State Highway 21 Interchange

Project Description	Reconstruction and interchange closed for six months.
Affected Businesses	Commercial businesses normally found along a service interchange.
Preconstruction Activities	<ul style="list-style-type: none">• Business meetings with chamber.• Individual business meetings.• Knock-and-drop flyers.
Mitigation Activities During Construction	Directional business signing to show traffic the way back to the area from the next interchange.

Wisconsin Department of Transportation: Northwest Region

Success Story: Belknap Street Project

Project Description	Reconstruction of U.S. Highway 2/Belknap Street in Superior, Wisconsin, a principal arterial and oversize/overweight truck route, with concrete roadway rebuild, storm sewer upgrades and safety road upgrades.
Affected Businesses	Commercial businesses on principal business arterial of small town.
Preconstruction Activities	<ul style="list-style-type: none">• Businesses formed project response group under direction of Business Improvement District (BID).• Identified construction stages and potential impacts on businesses.• Maintained open communication with BID throughout.
Mitigation Activities During Construction	<ul style="list-style-type: none">• Wisconsin DOT created 511 project page with interactive maps to show closures, future closures, traffic incidents and road user signage.• Group coordinated parking and access adjustments and signage with construction stages.• Directional business signing to show traffic the way back to the area from the next interchange.

Related Resources

US 2 Belknap Street, 511 Wisconsin Construction Projects, Wisconsin Department of Transportation, undated.

<https://projects.511wi.gov/belknap/full-project-overview/>

From the website: This project replaces 1.4 miles of concrete roadway, upgrades the storm sewer system and improves safety on Belknap Street. The project also includes improvements on most of the connecting side streets north and south of US 2, Belknap Street, back to the respective alleys.

Lindsay Jacobson
Executive Director, Superior Business Improvement District
715-394-3557

David Hunt
Communications Manager, Division of Transportation System Development
608-261-6121, David.Hunt@dot.wi.gov

Wisconsin Department of Transportation: Southeast Region

Success Story: Zoo Interchange Megaproject

Project Description	Complete rebuild of \$1.7 billion urban interchange.
Affected Businesses	Hundreds of businesses (Milwaukee Brewers baseball park, medical center, college campus, zoo, state fairgrounds and business parks).
Preconstruction Activities	<ul style="list-style-type: none"> • Early meetings with key stakeholders to ascertain traffic access, special events and seasonal needs. • Develop staging plan with mitigation actions and share. • Ask for options if stakeholders are dissatisfied.
Mitigation Activities During Construction	<ul style="list-style-type: none"> • Communicate and commit to plan. • Discuss temporary business signing needs. • Monitor performance. • Communicate any changes. • Deliver on schedule.
Comments	Region staff met with skeptical business owners at the agency’s field office to discuss business challenges. As a result, business owners better understood the project’s complexity and bought in to the effort.

Wisconsin Department of Transportation: Southwest Region

Success Story: Verona Road (US 18/State Highway 151) Project

Project Description	Reconstruction and expansion of urban highway.
Affected Businesses	More than 140 businesses (retail, lodging and destination locations).
Preconstruction Activities	<ul style="list-style-type: none"> • Meetings. • Flyers. • Special events.

Mitigation Activities During Construction	<ul style="list-style-type: none"> • Meetings. • Weekly construction updates. • Notices on social media and project website.
Comments	Multiyear project. Contact information for Verona Road Business Coalition available from respondent.
Related Resources	<p>Verona Road (US 18/State Highway 151) Project, 511 Wisconsin Construction Projects, Wisconsin Department of Transportation, undated. https://projects.511wi.gov/veronard/full-project-overview/ <i>From the overview:</i> The Wisconsin Department of Transportation (WisDOT) is overseeing a multi-year reconstruction project that will improve Verona Road (US 18/151), a heavily-used highway in Fitchburg and Madison.</p> <p>Verona Road Business Coalition, Verona Road Business Coalition, undated. www.veronaroad.info <i>From the website:</i> The Verona Road Business Coalition (VRBC) is a volunteer group of Verona Road businesses and citizens concerned about the largest and longest urban road construction in the state. Our mission is to minimize the disruption to businesses over the five year period. VRBC’s goals are to advocate for and promote businesses along the Verona Road Corridor by offering up to date road conditions for customers and employees, coordinated marketing campaigns for VRBC businesses, and targeted advocacy before and during construction.</p>

Related Research

Below are the results of a limited literature search for recent research evaluating the mitigation of construction impacts on local businesses. While much of the mitigation-related literature focuses on driver safety, congestion and traffic management, and project delivery, some addresses local economic and commercial impacts and their mitigation. Resources are organized according to the following topics:

- National guidance.
- State and other resources.

National Guidance

Community Outreach Tools and Strategies for Accelerated Highway Construction Projects: Implementation Guide, Farzad Minooei, Nathaniel Sobin, Paul Goodrum, Keith Molenaar, January 2016.

https://www.colorado.edu/tcm/sites/default/files/attached-files/community_outreach_tools_implementation_guide.pdf

From the introduction: The goal of this guide is to recommend a process for formulating outreach strategies during the construction phase of accelerated highway projects. Outreach strategies are categorized based on project characteristics (traffic impact and capacity loss) and types of travelers (passenger vehicles and commercial trucks). Three tiers of strategies are recommended in each situation. The five-step process explained in this guide allows the recommendation of three-tiered strategies for projects with multiple characteristics.

State and Other Resources

California

“Open for Business? Effects of Los Angeles Metro Rail Construction on Adjacent Businesses,” Rosalie Ray, *Journal of Transport and Land Use*, Vol. 10, Issue 1, 2017.

Citation at <https://trid.trb.org/view/1508831>

From the abstract: This paper examines whether transit construction negatively affected the revenue and survival of businesses along the second segment of the Los Angeles Metro Rail Red Line under Vermont and Hollywood Boulevards. Using National Establishment Time-Series business data, the research shows that business survival was significantly lower among businesses within 400 meters of stations, where cut and cover construction was used. A difference-in-differences technique was employed to determine whether revenue loss was the main mechanism by which businesses were displaced, but revenue loss was not found to be significant. The increased failure rate provides evidence that construction effects of mitigation programs for businesses should be standard practice when building new transit lines. Further research and data collection on business tenure are needed to understand the dynamics of business displacement around transit and to make such programs more effective.

Minnesota

METRO Blue Line Light Rail Transit Extension Final Environmental Impact Statement, Federal Transit Administration; Metropolitan Council of Twin Cities; Minnesota Department of Transportation, July 2016.

Citation at <https://trid.trb.org/view/1434767>

From the abstract: The Metropolitan Council proposes to construct and operate the 13-mile extension of the METRO Blue Line approximately 13 miles, starting from its terminus in downtown Minneapolis to the northwest area of the Twin Cities, serving north Minneapolis and the suburbs of Golden Valley, Robbinsdale, Crystal, and Brooklyn Park. In this Final Environmental Impact Statement (Final EIS), the project is defined as the METRO Blue Line Light Rail Transit (BLRT) Extension project. In addition to the proposed light rail alignment, LRT stations, park-and-ride lots, and ancillary facilities, including a proposed operations and maintenance facility (OMF), roadway and bicycle/pedestrian improvements and related freight rail modifications are discussed. This Final EIS includes the project's Purpose and Need Statement and a description of the alternatives currently and previously considered. The following environmental categories are addressed in this Final EIS, including related methods and regulations, agency coordination (where applicable), anticipated direct long-term (operating) and short-term (construction) impacts, indirect impacts and cumulative effects, and committed mitigation measures; freight rail conditions; vehicular traffic; pedestrians and bicyclists; parking; aviation; land use plan compatibility; community facilities/community character and cohesion; displacement of residents and businesses; cultural resources; visual/aesthetics; economic effects; safety and security; utilities; floodplains; wetlands and other aquatic resources; geology, soils, and topography; hazardous materials contamination; noise; vibration; biological environment (wildlife habitat and endangered species); water quality and stormwater; air quality; and energy. This Final EIS also addresses the following: environmental justice compliance; Section 4(f) compliance; finance; evaluation of alternatives; public involvement and agency coordination; and a potential related joint development project.

Oregon

“Rapid Light Rail Construction in an Urban Downtown Core,” Leah Robbins, *Transportation Research Board 90th Annual Meeting Compendium of Papers DVD*, Paper #11-1047, 2011.

Citation at <https://trid.trb.org/view/1091732>

From the abstract: In 2009, TriMet completed three years of construction of a complex, in-street light rail extension through central Portland. The project added a light rail alignment, carrying two lines, to the existing bus mall through the downtown retail core. One of the primary challenges in implementing this project was the management of disruptions to downtown businesses, residents, patrons, pedestrians and drivers. Through a comprehensive rapid construction plan, TriMet achieved considerable success in expeditiously building the 1.8-mile alignment on two downtown streets while keeping Portland’s vibrant downtown available and attractive throughout construction. Specific rapid construction management measures used on the project included completing private and public utility relocation work prior to the start of civil construction; dividing the work area into three segments, with construction occurring simultaneously in each segment; providing for double shifts each work day; concentrating the most disruptive work into short, intensive work periods; and extensive traffic and parking planning and control. TriMet has received many public compliments for its success in mitigating disruptions during construction. Many of the mitigation methods would have applicability to other owners and designers planning urban, in-street transit systems.

Washington

“From Milepost to Milestone: Innovative Mitigation,” Kevin M. Bartoy, *Public Roads*, Vol. 76, Issue 4, January 2013.

Citation at <https://trid.trb.org/view/1239027>

From the abstract: Since the 1950s, the Alaskan Way Viaduct has served as a bypass for motorists traveling on State Route (S.R.) 99 through Seattle. A 2001 earthquake caused the viaduct to settle as much as 5.5 inches (12.7 cm) in some areas, which led transportation officials to plan a replacement for the aging structure. The chosen solution, a tunnel, would place the highway beneath the city, reopening the waterfront area for other uses, but bringing major construction activities to Seattle’s Pioneer Square-Skid Road Historic District. Historic preservationists, community advocates, and business owners feared that having a major construction project on the edge of a nationally designated historic district would drive away tourists and customers visiting businesses in Seattle’s first neighborhood. To mitigate potential adverse effects on the neighborhood, as part of a Section 106 memorandum of agreement, the Federal Highway Administration and the Washington State Department of Transportation committed to opening an information center in the heart of the neighborhood. According to the agreement, the goal of the center is to draw visitors to Pioneer Square during construction and educate them about the past, present, and future of the neighborhood, highlighting the area’s unique historical and archaeological features as well as engineering aspects of the Alaskan Way Viaduct Replacement project. The center’s name, Milepost 31, refers to the milepost on S.R. 99 where the tunnel will begin to travel under Pioneer Square and, thus, where the neighborhood’s future meets its past. This article summarizes both the tunnel construction project and the development of the Milepost 31 information center.

Washington, D.C.

“Work Zone Management in the District of Columbia: Deploying a Citywide Transportation Management Plan and Work Zone Project Management System,” Clarence L Dickerson III, Jianwei Wang, James Witherspoon, Scott C. Crumley, *Transportation Research Record 2554*, pages 37-45, 2016.

Citation at <https://trid.trb.org/view/1394229>

From the abstract: A proactive, citywide approach to managing all work zones is helping to reduce congestion and provide the District Department of Transportation with better control of how best to schedule and approve projects, as well as budget for cost-effective strategies to mitigate work zone congestion. A unique Citywide Transportation Management Plan, including a dynamic Work Zone Project Management System, has been deployed to coordinate and analyze project work zones and special events throughout the city for the next 5 years. Graphical, web-based software tools track and assess cumulative work zone effects. From these results, mitigation strategies are aimed at improving safety and mobility throughout Washington, D.C.

Appendix A

Mitigating Construction Impacts on Local Businesses: Survey Questions

The following survey was distributed to selected state departments of transportation, Minnesota transportation agencies and selected large municipal-area transportation offices expected to have experience with mitigating construction impacts on local businesses.

Policy and Programming

1. Who at your agency is responsible for implementing and overseeing construction mitigation policies and procedures?
2. Please describe below any documented policies or procedures your organization has in place for mitigating construction impacts on businesses. (Please provide title of policies and URL, if available online, or email relevant documents to Matt.Mullins@ctcandassociates.com.)
3. Please indicate below if your policies address different types and scales of projects. Summarize and/or cite relevant portions of policy documents.
4. Please describe below specific assistance, if any, provided by your organization to business owners from minority communities or those with limited English language proficiency.

Tools

5. Please rate the effectiveness (using the rating scale of not used/ineffective to highly effective) toward your overall efforts of any of the following communications tools, strategies or techniques that your agency uses to mitigate construction impacts on local businesses:
 - Public meetings.
 - Preconstruction meetings with business owners.
 - Regular meetings with business owners during construction.
 - Traditional communications (mailings, email, phone, flyers, etc.; please describe).
 - Construction project websites(s).
 - Facebook.
 - Twitter.
 - LinkedIn.
 - YouTube.
 - Other (please describe).

6. Please rate the effectiveness (using the rating scale of not used/ineffective to highly effective) toward your overall efforts of any of the following construction-related tools, strategies or techniques that your agency uses to mitigate construction impacts on local businesses:
 - Signage on-site (e.g., “businesses still open,” “business this way”; please describe).
 - Alternative parking for affected businesses.
 - Staging incentives (e.g., detour rental fees, intersection closing time limits; please describe).
 - Other (please describe)
7. Please rate the effectiveness (using the rating scale of not used/ineffective to highly effective) toward your overall efforts of any of the following business compensation or accommodation tools, strategies or techniques that your agency uses to mitigate construction impacts on local businesses:
 - Project hotline for public input and/or complaints.
 - Construction activity timing coordination with business owners (e.g., running jackhammer only at times agreed to with local business owner, timing activities to avoid select high-traffic drive-through food service hours; please describe).
 - Financial compensation for loss of business.
 - Advertising campaigns or funding.
 - Other (please describe).
8. Please describe the impact on project or contract cost of your tools indicated in questions 5, 6 and 7 that you rated quite effective or highly effective.

Partnerships and Project Evaluation

9. Please describe the liaisons, if any, provided by your organization or a contracted partner to work with affected businesses. (Please describe the liaison title and role, e.g., a DOT employee, engineering consultant, paid community liaison.)
10. Please describe below any cooperation your agency engages in with other state and local agencies, or with community organizations or economic development groups, to assist businesses in mitigating construction impacts.
11. Please describe below any evaluations your agency has undertaken of the success of its construction impacts mitigation measures. (Please summarize these evaluations, highlighting measures found to be most effective. Please provide a URL if evaluations are available online or email any evaluation documents to Matt.Mullins@ctcandassociates.com.)
12. Please describe below one or two recent construction projects for which mitigation of construction impacts on businesses was particularly successful or demonstrated best practices.
 - Name and location of project.
 - Description of construction.
 - Number and types of affected businesses.

- Preconstruction activities with businesses to mitigate impacts.
- Activities during construction to mitigate impacts.
- Other comments or details.

13. Please describe any construction impacts mitigation efforts that your organization has found to be not effective.
14. Please describe any construction impacts mitigation efforts that your organization would like to employ but has been unable to because of cost or other factors, and describe why it has been unable to employ them.

Appendix B

Mitigating Construction Impacts on Local Businesses: Contacts

Below is the contact information for the individuals responding to the survey for this report.

State Agencies

Michigan

Matthew Bellgowan
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Michigan Department of Transportation
616-690-6701, BellgowanM@michigan.gov

Minnesota

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Project Manager, District 4
Minnesota Department of Transportation
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Anne Wolff
Public Engagement Coordinator, District 7
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Oregon

Shelli Romero
Area Manager, Central
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Pennsylvania

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Minnesota Agencies

Metropolitan Council

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Metropolitan Council
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Vermont

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Wisconsin

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Ryan Luck
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Kristin McHugh
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Project Communications Manager, Office of Public
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Wisconsin Department of Transportation
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Appendix C

Mitigating Construction Impacts on Local Businesses: Additional Contacts

Below is the contact information for other agency representatives identified in the survey and research who are responsible for implementing and overseeing construction mitigation policies and procedures.

Minnesota

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Minnesota Department of Transportation
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Pennsylvania

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Ted Deptula
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Pennsylvania, continued

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Brent Trivelpiece
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Vermont

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Amy Tatko
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Wisconsin

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Bill McNary
Director, Bureau of Traffic Operations,
Southeast Region
Wisconsin Department of Transportation
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