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The State of Practice in Community Impact Assessment

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Determine Socioeconomic Impacts of Projects**

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16. Abstract The objective of this research was to provide recommendations to the Illinois Department of Transportation for updating and revising the “Community Impact Assessment Manual” in accordance with the latest research and practice. The guide incorporated findings from a literature review, a scan of state department of transportation (DOT) community impact assessment (CIA) guidance and manuals, a survey of practitioners from state DOTs involved in CIA, and a series of interviews with those same practitioners to recommend process updates. According to the Federal Highway Administration, community impact assessment can be defined as “an iterative process to evaluate the effects of a transportation action on a community and its quality of life,” which includes elements of health, safety, air quality, connectivity and access, and equity. Six states had publicly available CIA guidance. While all manuals provided basic guidance, some were more detailed in prescribing analytical methods for different types of impacts or provided more structure for conducting the analysis, such as report templates, technical memos, interactive screening tools, field visit checklists, and community context audit forms. According to surveys and interviews with state DOT practitioners, DOTs varied in how or whether they conducted CIA, whether they screened for the need for CIA in advance of conducting it, and what factors they consider when conducting them. A few DOTs had innovative practices with respect to CIA, such as mapping tools, an equity and health assessment, and robust community engagement. The CIA guidance produced as a component to this project constitutes the state of the art in practice, including quantitative and qualitative analytical methods for screening and methods for conducting and documenting CIA. The guidance also emphasizes equity in the assessment process.					
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We thank Sandy Dall'Erba for his contributions in producing the economic multipliers, described in Chapter 5 of this report.

The contents of this report reflect the view of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Illinois Center for Transportation, the Illinois Department of Transportation, or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

EXECUTIVE SUMMARY

The objective of this research was to provide recommendations to the Illinois Department of Transportation for updating and revising the *Community Impact Assessment Manual (2007)* in accordance with the latest research and practice. Two key questions guided this research:

1. What is the academic research and state of practice with respect to community impact assessment since IDOT published the *Community Impact Assessment Manual (2007)*?
2. How can updated methods for community impact assessment create sustainable and equitable conditions in Illinois communities?

The main deliverable of this project was a guide to community impact assessment (CIA) for IDOT. A copy of the guide is found in the appendix of this report. The guide incorporated findings from a literature review, a scan of state department of transportation (DOT) CIA guidance and manuals, a survey of practitioners from state DOTs involved in CIA, and a series of interviews with those same practitioners to recommend process updates. An advisory panel of representatives from transportation agencies across Illinois reviewed and commented on the updated process throughout the term of the project.

According to the Federal Highway Administration (2018, 1), community impact assessment can be defined as “an iterative process to evaluate the effects of a transportation action on a community and its quality of life,” which includes elements of health, safety, air quality, connectivity and access, and equity. The process involves engaging the public to determine community needs with respect to project goals, identifying community characteristics, analyzing anticipated project impacts, and developing solutions to avoid, minimize, or mitigate potential negative impacts. The assessment process helps transportation agencies understand the social environment of communities and the multiple direct, indirect, and cumulative impacts that transportation projects can have. Community impact assessments are both iterative and scalable, and there is no one-size-fits-all approach to an assessment. They are often conducted in parallel with the environmental review process for project approval, though CIA uses a more holistic approach to impact analysis and emphasizes the protection of vulnerable and historically marginalized populations. Community impact assessment is related to, but distinct from, environmental justice analysis.

Six states had publicly available CIA guidance, either in a stand-alone format or as a section in environmental review preparation guidance. While all manuals provided basic guidance, some were more detailed in prescribing analytical methods for different types of impacts or provided more structure for conducting the analysis, such as report templates, technical memos, interactive screening tools, field visit checklists, and community context audit forms. Guidance tended to be based on federal laws, regulations, and executive orders that support CIA, but some states had supplemental laws and policies that also govern assessment requirements. Definitions to some of the elements in CIA, like quality of life or marginalized populations, were not always clear or consistent across the manuals. Likewise, considerations within CIA varied in their specificity and were often categorized differently, with common categories including social impacts, economic impacts, and

relocations. The responsibility for assessment generally fell under environmental offices or divisions with the DOTs; states described the multiple stakeholders involved in various stages of the process to varying degrees. Some states provided clear guidance for screening which projects required a CIA, detailing either a list of project types, linking them to a certain level of environmental review (categorical exclusion, environmental assessment, or environmental impact statements/reviews), or linking them to potential project impacts. Others did not provide specific guidance on screening methods.

Documentation also varied on how to analyze baseline conditions and project impacts. Vulnerable populations were defined differently for analytical purposes, and various terms, like “vulnerable” and “transportation disadvantaged” were used. All included analysis of populations protected under the environmental justice executive order or Title VI of the Civil Rights Act, but some additionally included disability, linguistic isolation, and sex or gender as population groups. Most manuals emphasized original data collection, both qualitative and quantitative, field visits, and community engagement to help determine baseline conditions. The manuals were generally consistent in which categories to analyze as potential impacts, pointing to social, economic, land use, mobility, aesthetics, relocation, and environmental justice and Title VI as key considerations. Some states provided more detail than others with respect to methodology and how to consider indirect and cumulative impacts. While all assessment documentation provided guidance on how to ensure disproportionate impacts of transportation projects were avoided, they did not offer guidance on redressing past inequities.

According to surveys and interviews with state DOT practitioners, DOTs varied in how or whether they conducted CIA, whether they screened for the need for CIA in advance of conducting it, and what factors they consider when conducting them. When it is conducted, CIA is most commonly a component of environmental review under the National Environmental Policy Act (NEPA) or state environmental laws. At least one DOT is in the early stages of innovation in CIA, coupling a formal CIA with a health impact assessment for an equity and health assessment. Some states have new environmental laws that require an equity focus for their community impact assessments.

A few DOTs had innovative practices with respect to community impact assessment. One reported using a mapping tool to identify demographic characteristics as well as health and environmental justice concerns. Another reported piloting an equity and health assessment, which would consider explicitly environmental justice and public health outcomes as part of the CIA. Another report noted having a community impact specialist on staff who reviewed CIA documentation for transparent practices. Public involvement was common, but some DOTs shared extensive changes to project design that occurred as a result of robust community engagement processes. DOTs most commonly reported addressing relocation or displacement and access to businesses and other social and cultural institutions in their community impact assessments, though one respondent stressed that because CIA is a contextual process, it was difficult to say what would be the most influential factor in their analysis. Community impact assessments did not necessarily address existing transportation inequities or past harms, like high transportation cost burdens, but did work to prevent disproportionate impact on people of color and low-income people. Some agencies expressed an interest in more peer guidance as well, including information about how to link the CIA process with health impact assessments, planning and environmental linkages, and context-sensitive solutions.

The CIA guidance produced as a component to this project constitutes the state of the art in practice, encompassing a process based in research and on recommendations from federal partners, other state DOTs, and this project’s advisory council. The guidance provides the necessary information for conducting a CIA. It includes the quantitative and qualitative analytical methods for screening—that is, determining when to conduct a CIA—and methods for conducting and documenting the CIA when screening determines that one needs to be done. A companion to the text guidance is a screening tool, which includes a mapping component to describe demographics of the project area as well as a checklist of questions to answer to determine whether a full CIA needs to be conducted. The guidance also emphasizes equity in the assessment process. Vulnerable and historically marginalized population groups receive particular attention under CIA under equity considerations; they should be prioritized with respect to the distribution of transportation benefits and burdens and the decision-making process through community engagement and public participation.

A key feature of the guidance is that it provides considerable discretion on how to conduct a CIA. There is no one-size-fits-all solution to community impact assessment, as CIA is a highly customizable and iterative process and must be tailored to the project and community.

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CHAPTER 1: INTRODUCTION

The Federal Highway Administration (FHWA) recently published *Community Impact Assessment: A Quick Reference Guide for Transportation* (2018), which updates guidance for conducting a community impact assessment (CIA). The publication points to several ways in which the CIA process should be updated. For example, it describes broad steps to executing a CIA, emphasizing community visioning and engagement as an important part of the process. It also includes guidance on updated methods and metrics that ensure broad fairness and equity in the distribution of benefits and mitigation of burdens from transportation projects. At the same time, research on qualitative and quantitative methods has illuminated new approaches to enhance equitable outcomes in transportation planning and project development (Martens 2017; Karner, Rowangould, and London 2016; Lowe and Mosby 2016). With these developments, it is time to re-examine approaches to CIA.

The objective of this research was to provide recommendations to Illinois Department of Transportation (IDOT) for updating and revising the *Community Impact Assessment Manual* (2007) in accordance with the latest research and practice. Two key questions guided this research:

1. What is the academic research and state of practice with respect to community impact assessment since IDOT published the *Community Impact Assessment Manual* (2007)?
2. How can updated methods for community impact assessment create sustainable and equitable conditions in Illinois communities?

The main deliverable of this project is a guide to community impact assessment. A copy is found in the appendix of this report. The guide incorporates findings from a literature review, document scan, practitioner survey, and series of interviews to recommend an updated approach to IDOT's CIA process. The remainder of this introduction describes the research methods, explains how an advisory panel of practitioners contextualized and shaped CIA guidance, and describes the chapters that follow.

RESEARCH METHODS

The research team conducted three separate research activities to support the guidance provided to IDOT.

We first conducted a literature review, including a scan of documentation of state DOT CIA practices. To conduct the academic literature review, we searched academic databases including the Transportation Research International Database (TRID), Web of Science, and Google Scholar to identify articles with search terms that included "community impact assessment," "environmental justice analysis," "accessibility analysis," "economic impacts of transportation," "performance measures," and "transportation impacts," among others. We prioritized studies published since IDOT last updated the CIA manual in 2007 and focused on discovering recent advances in analytical methods and community engagement with respect to transportation projects. The initial literature scan yielded little empirical research related to CIA in project delivery processes, so we included components of the literature from transportation planning. We also identified literature related to

similar kinds of impact assessments, such as health impact assessment and racial equity impact assessment. The emphasis of the review was to identify research relevant to community impact assessment methods that center transportation equity.

Supplementing the literature review, the research team scanned websites of all 50 states to identify manuals or other documentation that state DOTs used to guide their own community impact processes. As with the literature review, we focused on documentation published since 2007. We supplemented this scan by asking DOT representatives to submit examples of documentation in the survey. The scan yielded resources from six states: California, Florida, Indiana, New Jersey, Pennsylvania, and Texas. Resources included websites, manuals, application guides, templates, forms, and other documents that guide the CIA process for each state. We summarized this documentation to identify innovative or promising practices as well as opportunities where practices could be improved to center equity in impact analysis.

The second phase of research consisted of a survey distributed to state DOTs to understand their familiarity with and use of CIA processes, including their guidance, policies, and methodology for conducting CIA. Survey questions focused on whether the state had a required environmental review process, whether the state had written guidance to conduct community impact assessments, whether the guidance was due to be updated, what screening processes they used to determine whether projects go through CIAs, key analytical components of the CIA, and inclusion of equity principles in CIA. In August 2021, IDOT sent a recruitment email with a survey link via Qualtrics to their colleagues through an American Association of State Highway and Transportation Officials email list. We received 12 responses that identified the state of the respondent, 10 of which were mostly or fully complete. Respondents included the state DOTs from Arkansas, California, Colorado, Indiana, Michigan, Minnesota, Ohio, Oklahoma, Tennessee, and Texas. The research team summarized the responses to identify common practices at state DOTs.

The third phase of research consisted of interviews with state DOT representatives about their CIA processes. A question on the survey invited respondents to participate in a follow-up interview to discuss responses in more detail. In addition to clarifications and additional detail on the survey responses, interview questions focused on differences between state- and federal-level environmental review; the positive aspects of the CIA process on helping states understand social, economic, and health impacts of projects; and what else is needed to understand those impacts. We conducted six interviews by phone or Zoom, which we recorded and transcribed for later analysis. Interview participants included representatives from California, Colorado, Minnesota, Ohio, Oklahoma, and Texas. The research team summarized these responses to supplement findings from the survey, adding context and providing additional detail about current practices and additional needs.

Finally, the research team, led by Professor Sandy Dall'Erba, updated the economic multipliers of investment in transportation projects originally published in the previous *Community Impact Assessment Manual* (2007).

ADVISORY PANEL

In the process of developing the CIA recommendations to IDOT, the research team held three advisory panel meetings representing various transportation and planning agencies throughout the state of Illinois to review and provide feedback on the manual's update process, tools, and documents. The first meeting discussed familiarity with the CIA process or similar evaluation processes. The second meeting discussed details of how to conduct a CIA and where advisory members sought clarification or room for improvement. The final meeting introduced and sought feedback on the screening tool.

Most of the advisory panel members were not familiar with the CIA process; however, many had experience using different tools and techniques to measure equitable outcomes on their respective projects and were able to provide specific feedback for improvement while learning more about CIA. Common suggestions for using the CIA manual were to begin the process early in the planning and project phases and to commence stakeholder involvement early on for context-sensitive solutions.

Advisory panel members discussed project outcomes that could negatively impact vulnerable populations and communities, including gentrification, displacement (including loss of community network, relocating to a place with minimum safety standards, access to affordable transportation options), job loss, inappropriate relocation compensation, and acquisition amount. Some recommendations to avoid these adverse impacts included working with and supporting local small businesses, engaging the local workforce in projects, and inclusive community outreach (including rural communities) at different stages in the process.

Advisory panel members provided feedback on factors that would lead to a CIA being conducted, who would conduct it, and when/how it should be conducted. Factors that could "trigger" a CIA could include the relocation of people or businesses and working on projects that would directly affect marginalized communities. CIAs should be clear and standardized enough to be able to be conducted by project sponsors (including project engineers), but optimally should be done by planning/outreach staff or a consultant team experienced in equitable outreach.

Panel members reviewed the mapping tool and discussed qualitative questions that would be used to conduct the CIA. General comments included the need for the screening tool to be simple enough to be conducted by the project sponsor and conducted early in the project timeline. General comments on the CIA process emphasized the CIA manual be used to improve community outreach and use a blend of both quantitative and qualitative data.

STRUCTURE OF THIS REPORT

The findings from these research activities formed the development of the guidance that may be used to update IDOT's CIA manual. While it is up to IDOT to develop policy and procedures for CIA to hold its consultants and its staff accountable to the process, the guidance is intended to serve as the basis for such policy. Guidance developed as part of this project include a set of economic multipliers that estimate the economic impact of roadway and transit investment, a screening tool that helps

identify the need for a full analysis of community impacts, and the process for community impact analysis itself.

This report is structured as follows:

- Chapter 2 reports findings from the literature review. This chapter establishes the empirical basis for the need for community impact assessment by reviewing how communities benefit from and are burdened by transportation investment. The review examines project-level analysis, which is the primary focus of CIA, and planning-level considerations, which requires its own evaluation and impact assessment to lay the groundwork for successful project implementation that accounts for community needs and effects.
- Chapter 3 reports findings from the document scan. The findings include the structure and a summary of contents from the DOTs reviewed, methods used, opportunities for improvement, and recommendations for the CIA process. Many of these recommendations are incorporated into the guidance developed as part of this project, while others are left for future consideration.
- Chapter 4 reports findings from the survey and interviews. The findings collectively summarize the state of practice of CIA across state DOTs. While some states have mature CIA processes, many either do not conduct CIA apart from what is required under NEPA or have more nascent practices. The findings also identify opportunities for embedding equity more fully into CIA.
- Chapter 5 introduces the CIA guidance, describes the use of the economic multipliers that result from this research, offers recommendations for next steps, and concludes the report.
- The appendix provides a copy of the CIA guidance. The guidance is intended to be used as a stand-alone document to support revision to IDOT's current CIA manual.

CHAPTER 2: LITERATURE REVIEW

INTRODUCTION

Transportation planning and project implementation have had profound impacts on the American landscape. While communities of all sorts face impacts from the process of building transportation infrastructure, historic planning and decision-making processes have left low-income communities and communities of color with disproportionately less benefit and higher burdens from transportation investments (Bullard, Johnson, and Torres 2004; Karner, Rowangould, and London 2016; Twaddell and Zgoda 2020). The ability to distribute the burdens and benefits of the transportation system more equitably stems from the formal authority of the state to plan and finance transportation investments. Community impact assessment is one formal state tool to evaluate the effects of transportation actions on community residents and their quality of life and to influence transportation decisions and investments. CIA is a holistic evaluation intended to span the entire transportation decision-making process—from developing a regional vision and goals and evaluating and prioritizing alternate strategies to implementation and evaluation (Federal Highway Administration 2018). However, CIA practices and guidance focus on midstream processes related to project development rather than on upstream processes related to long-range planning or on downstream processes related to evaluation. There is limited literature regarding CIA practices, but there has been more analysis of planning and public outreach processes.

CIA helps shape project decisions and outcomes under the National Environmental Policy Act (NEPA), Title VI of the 1964 Civil Rights Act, and related federal and state law, guidance, and policy (see Chapter 1 in the CIA Guide in the appendix). The purpose of CIA is to evaluate a transportation project's impacts on communities, assessing possible effects across socioeconomic groups and road system users, to neighborhood institutions, and to community cohesion, among other characteristics, and to ensure that the project reflects community needs. CIA is related to, but distinct from, environmental justice (EJ) analysis; however, EJ scholarship, particularly regarding challenges, best practices, and recommendations, is instructive to CIA practice. Although the U.S. Department of Transportation (USDOT) has provided several guiding documents regarding compliance with Title VI and EJ requirements to reduce and prevent the inequitable distribution of transportation benefits and burdens, transportation agencies are legally bound by state and federal legislation that predetermines their mission and funding, which makes it challenging to understand and evaluate the comparative impacts of their actions on differing population groups. Additionally, the ambiguous definitions of temporal scales used for assessing community impacts in many NEPA documents fail to look far enough into the past to assess the cumulative effects of past actions (Ma, Becker, and Kilgore 2012). This is problematic because it makes the effects of past actions part of the baseline rather than a contributor to adverse and cumulative effects. Agencies seek guidance on how to analyze how impacts differ for populations of different incomes, demographics, languages, and geographic areas; how to measure effects on health, environment, and community cohesion; and how to understand the ways their actions influence community outcomes (Twaddell and Zgoda 2020).

The purpose of this literature review is to provide background and a broader context for revisions and updates to IDOT's *Community Impact Assessment Manual* (2007) and to better support agencies in

analyzing how transportation impacts differ for various population groups. The literature reviewed includes a mix of peer-reviewed journal articles, reports from public agencies, and technical reports. The review summarizes FHWA's *Community Impact Assessment: A Quick Reference for Transportation (CIA Quick Reference)*, and describes the intersection of NEPA, EJ, and CIA. The review explores shortcomings and considerations of current transportation practices within the organizational framework of the *CIA Quick Reference*.

COMMUNITY IMPACT ASSESSMENT

Community impact assessment can be defined as “an iterative process to evaluate the effects of a transportation action on a community and its quality of life,” which “involves understanding the needs of communities and documenting the existing and anticipated social environment of a community with and without the proposed action” (Federal Highway Administration 2018, 1). Several pathways have been identified as to how transportation systems may impact health, health-related quality of life, and healthcare costs (Lane et al. 2019):

- Safety and injury prevention
- Physical activity and active transportation
- Air quality
- Connectivity and access
- Equity

In this section, we briefly summarize the *CIA Quick Reference*, the most current guide to CIA practice. We supplement this summary by explaining the literature on the connections between NEPA, EJ analysis, and CIA. Given the limited literature available on CIA at the project level, this section also discusses impact assessment and equity analysis at the planning level.

FHWA CIA Quick Reference

In 2018, FHWA released an update to the original *CIA Quick Reference* guide published in 1996. The *CIA Quick Reference* (2018, p. 8) defines community impact assessment as:

An iterative process to evaluate the effects of a transportation action on a community and its quality of life. The assessment process is an integral part of transportation planning and project development that shapes the outcome of transportation decisions. It involves understanding the needs of communities and documenting the existing and anticipated social environment of a community with and without the proposed action. The information gleaned from this iterative process can inform decisions concerning transportation planning, project alternatives, design, and implementation. The assessment should include all items of importance to people, such as mobility, safety, employment effects, relocation, isolation, and other community issues.

The guide explains that CIAs are integral to the entire transportation decision-making process to:

- Foster quality of life and support sustainable, livable communities
- Ensure policies and investments are in line with community concerns and values
- Reduce project delays and the risk of litigation
- Coordinate among land use, economic, and transportation plans and goals
- Achieve nondiscrimination

CIA serves a number of key roles in guiding the consideration of transportation impacts within the long-range planning process, the project development process, and in project implementation. While the FHWA guide focuses on describing how to conduct an assessment during project development, it emphasizes that “effective assessment begins in the long-range planning process before project decisions are made” (2018, p. 18).

CIAs are both iterative and scalable. The guide explains that there is not a one-size-fits-all approach and that analysts must be prepared to anticipate future steps and revisit prior steps. Moreover, the findings of a CIA are not merely something produced at the end of the assessment but are valuable for decision making throughout the planning and project development process. The guide is organized into ten sections, which are based on the following components of the assessment process: engage the public, develop community vision and goals, define need and action, identify community characteristics, analyze impacts, identify solutions, document findings, implement and monitor, and sources of information.

NEPA, State EJ Programs, and CIA

While CIA is often conducted in parallel with the NEPA process for project approval, the two processes are conceptually different. Whereas NEPA prescribes a procedural process to make an environmentally and socially informed decision, the philosophy of CIA requires that agencies consider the broad range of impacts that transportation projects will have on communities and emphasizes the protection of vulnerable and historically marginalized populations.

Environmental justice (EJ) analysis within NEPA review offers an additional framework with which to analyze community impacts. EJ analysis follows many of the same principles as CIA, including meaningful engagement, identifying populations of concern, analyzing impacts, mitigating adverse impacts, and monitoring effectiveness of mitigation strategies (Federal Interagency Working Group on Environmental Justice and NEPA Committee 2016). There are a few key differences, however. EJ guidance applies specifically to low-income and minority populations (Clinton 1994), while CIA may identify other vulnerable populations depending on the context, such as linguistically isolated households, older adults, carless households, or others. Because EJ analysis is conducted within the NEPA process, agencies may find disproportionately high and adverse impacts that do not rise to the level of “significant” within the NEPA definition (Federal Interagency Working Group on

Environmental Justice and NEPA Committee 2016). Under the CIA framework, all such impacts would need to be addressed.

There are some limitations to relying on EJ analysis within project-level review under NEPA to assess community impacts. If a project does not require a NEPA review because it is not federally funded, project sponsors may not complete the analysis to the same degree as they would under NEPA. Only 16 states have adopted statewide comprehensive protocols that mimic NEPA in scope and intensity for proposed projects (Ma, Becker, and Kilgore 2012). Furthermore, EJ analysis often faces definitional challenges, many of which are similar to CIA challenges (Amekudzi et al. 2012):

- How to define and apply concepts of equity, such as disproportionality
- How to identify target populations, given ambiguous census categories
- How to define a study area with appropriate boundaries, given that an affected region will rarely coincide with the boundaries of census units
- How to account for the modifiable areal unit problem, where using different geographical units of analysis results can lead to different results

Typically, EJ programs are housed in various divisions of state DOTs (Amekudzi et al. 2012). In some states, the unit that handles Title VI and Civil Rights compliance also handles EJ compliance. In other states, EJ is seen as an environmental issue, and the process is conducted through the environmental division, often as a part of the NEPA process (Amekudzi et al. 2011). Regardless of where the responsibility lies, few agencies have formalized policies and performance-based processes for evaluating EJ, such as detailing outreach activities for underserved populations; documenting the needs of underserved populations; determining whether a group is disproportionately adversely affected by the impacts of proposed agency activity; providing detail on the ways in which a plan/program addresses the needs of underserved populations; and incorporating feedback into future policies, decision making, and resource allocation (Amekudzi et al. 2011; Duthie, Cervenka, and Waller 2007; Ma, Becker, and Kilgore 2012; Twaddell and Zgoda 2020).

Impact assessments are difficult tasks for state agencies to conduct. Researchers surveyed environmental review program administrators of 48 active programs across 37 states about barriers to and opportunities for effectively incorporating cumulative impact assessments into existing state environmental review procedures. They found that despite federal and state guidance provided through various handbooks and manuals, cumulative impacts assessment was among the most difficult tasks environmental planners faced and cumulative impacts were often ignored or given very little attention in NEPA's implementation. Major barriers to implementation included lack of explicit procedures, unavailable data, and ambiguous definitions of temporal scales, which failed to look far enough into the past to assess the cumulative effects of past actions (Ma, Becker, and Kilgore 2012). Other researchers surveyed key personnel at eight state DOTs to learn about the status of EJ implementation. A key finding was a lack of a standardized approach to addressing EJ. Impacts were determined on a case-by-case basis, with inconsistency in how EJ policies and processes were understood across the department (Amekudzi et al. 2011).

Performance-based planning can extend considerations of EJ analysis and CIA by determining measures to describe key outcomes from a transportation plan or project, such as health effects, emissions, transportation cost-burden, and collision rates, and ensure metrics and models are used to assess these contemporary measures beyond the traditional measures of vehicle delay (Karner et al. 2020). The performance management literature recommends measuring inputs, outputs, and outcomes for a comprehensive view of performance (Amekudzi et al. 2012). However, efforts to modify performance metrics and transform the transportation system have been incremental. Not only have practitioners and scholars struggled to define outcomes that should be sought when investing in transportation, but they have also struggled to define outcomes that should be sought when pursuing transportation equity. There remains a blurry line between public and private goods in transportation, as people must purchase a vehicle to utilize the transportation system and access opportunity (Duthie, Cervenka, and Waller 2007). In addition, standard principles of planning and project implementation are often in conflict with EJ goals. Projects that prioritize congestion mitigation and roadway construction over traffic injuries and deaths, environmental costs, and the needs of marginalized populations are common and have stunted necessary transformation of the transportation system and left unchanged the power positions, distribution of resources, and quality of life of disadvantaged populations (Karner et al. 2020). To that end, there is a need to ensure that planning professionals and elected officials fully understand the impacts associated with their decisions.

State DOTs commonly engage both other agencies and public stakeholders in the NEPA scoping process. A study of state DOT representatives found that over 90% involved the general public or other key stakeholders in project scoping. Nearly all those who did conducted open houses or established steering committees; far fewer, or about one-third, conducted community surveys, interactive design charrettes, or solicited review or comments on the scoping document. Most thought public engagement was effective for identifying additional stakeholders, selecting alternatives for evaluation, identifying impacts for analysis, and defining the data for analysis, but fewer thought it was effective for selecting mitigation strategies or in selecting the methods for environmental review (Slotterback 2008).

Although many federal statutes and regulations regarding Title VI and EJ are more than 25 years old—some more than 55 years old—they have not adequately addressed inequities in the distribution of transportation benefits and burdens. Limitations of traditional, state-centric transportation planning remain evident today, and various disadvantaged groups, including low-income people, people with disabilities, older adults, and youth, are at risk of various forms of transportation injustice (Karner et al. 2020). By only seeking to not make existing conditions worse, existing policies and practices have overlooked substantial gaps in transportation benefits and burdens that already exist.

KEY COMMUNITY IMPACT ASSESSMENT PROCESSES

The *CIA Quick Reference* guide details the steps required in a community impact assessment. In this section, we briefly summarize some of the key components in the process—engaging the public,

defining community needs, identifying communities, and conducting analyses—and the literature that identifies limitations and opportunities for improvement.

Engaging the Public and Developing a Community Vision and Goals

Public engagement is a continual, two-way process that needs to be fostered through an open exchange of information and ideas between the community and planning staff (Federal Highway Administration 2018). Although documentation will be discussed in another section, it is critical to point out that documentation for the CIA process should begin with public outreach and engagement. Effective engagement involves reaching people, providing information, and gathering input. According to the *CIA Quick Reference*, strategies include:

- Scheduling meetings or activities that are convenient to the public, with considerations for people with nontraditional work schedules
- Reaching out to the public rather than having them come to you
- Virtual meetings
- Recognizing and addressing potential barriers to low literacy
- Recognizing and avoiding technical jargon
- Partnering with locals to serve as liaisons
- Using visualization techniques, photographs, or videos
- Conducting surveys, interviews, and focus groups
- Using interactive polling and mapping

Developing a community vision and goals is an important step in considering impacts broadly, recognizing both historical context and anticipated future context, particularly among minority and low-income populations. The planning and environment linkages process can improve communication and sharing of information and eliminate duplicative efforts in planning and the NEPA process. This approach to transportation decision making considers environmental, community, and economic goals early in the transportation planning process and uses the information to inform the environmental review process. Ultimately, transportation agencies should engage communities, including those that are often difficult to reach or historically had limited involvement in public meetings, to identify community needs, goals, and visions before project decisions are made (Federal Highway Administration 2018).

Despite mandates to consult the public in transportation planning and project development, agencies face challenges in creating conditions for meaningful engagement that has direct impact on decision making. Both internal and external barriers exist to implementing participation processes effectively. Agencies may lack financial and human resources, face conflicting priorities from elected officials, or

lack time, training, and support to conduct effective outreach. The public may not be aware of opportunities to participate, face their own time constraints, or be generally distrustful of the process (Giering 2011). Much of this distrust comes because formal processes are designed to favor individual input over collective input, which may pit neighbors against one another and obscure how the totality of public comments change decisions (Innes and Booher 2004; McAndrews and Marcus 2015). Advisory committees and other formal public engagement efforts have been critiqued for ignoring input and failing to demonstrate how public involvement leads to change in preordained outcomes. Many of these “official” channels of participation, like two-minute testimonials at public meetings, are onerous, particularly when focused on technocratic issues. The public is concerned that state agencies delegitimize public input that is not obtained through these channels (Karner et al. 2020). And though agencies use various methods for involving underserved populations, such as working with community group partners, attending cultural festivals, developing culturally sensitive outreach materials, and establishing advisory committees that engage underserved populations (Williams and Golub 2017), literature tends to point to shortcomings in equitable public outreach and engagement. This problem is exacerbated because few agencies document their outreach and engagement efforts, which limits informal sharing of best practices.

Scholars and practitioners have identified promising ways to improve public participation at the project level that emphasize improving equitable outcomes. One strategy suggests a three-step process to ensuring meaningful involvement: (1) identify unmet needs through an adequately resourced community participatory process; (2) allocate funding to address those needs specifically, and (3) ensure outcome metrics are defined, measured, and tracked (Karner and Marcantonio 2018). Community-led data collection and analysis are emerging public participation strategies where community leaders lead or collaborate directly with planners on data collection and analysis. For example, community-based entities can conduct community needs assessments, health impact assessments, and social impact assessments, and in collaboration with scientists, residents themselves can collect and share data (Karner et al. 2020). The results of community-led analysis can reveal different definitions and conditions of EJ communities than agency-led analysis (Rowangould, Karner, and London 2016). Proper resourcing includes compensating community-based organizations when they are key partners in the engagement work. Tracking outcomes helps ensure agencies remain accountable to communities and can help illuminate the value in meaningful public engagement (Karner et al. 2020; Twaddell and Zgoda 2020).

Defining the Need and Action, Collecting Data, Defining Community Characteristics

Needs and Implementation

The need for a transportation project should be based on the characteristics of the community and expertise of multiple stakeholders, including planners, engineers, community impact analysis, and community members (Federal Highway Administration 2018). One component of assessing community needs is assessing exposure to the existing burdens of the transportation system, such as pedestrian fatalities and injuries; household transportation expenses/transportation cost burden; neighborhood bisection, isolation, and demolition; air pollution; noise; and inaccessible and infrequent transit service. Another component of assessing transportation needs is to measure the gap between mobility (the ability to move along the transportation network) and accessibility (how

many destinations individuals can reach). While most agencies complete some form of environmental justice assessment in project planning, such as overlaying maps of walking buffers around transit stops over equity priority areas, they often fail to link or document specific community needs identified through this process (Twaddell and Zgoda 2020). Moreover, agencies often fail to collect data far enough into the past to account for cumulative inequities resulting from past actions (Ma, Becker, and Kilgore 2012).

Systematic barriers to project implementation prevent transportation agencies from fully meeting community needs. The effort that goes into engaging the community, developing a vision, and identifying needs is not fully realized by decision makers due to disjointed responsibility for transportation decision making (Kuzmyak 2012; Gunasekera and Hirschman 2014; Perrin et al. 2018). Transportation agencies confront a wide range of issues when determining the trade-offs of transportation decisions and the consequences of allocating resources to one project versus another. State DOTs and metropolitan planning organizations (MPOs) are often looked to as the appropriate organizations on which to place the responsibility for ensuring the proper allocation or apportionment of transportation funds across modes (Perrin et al. 2018). Although MPOs have an important role in coordinating regional projects and weighing between investments across modes, they control very little money for project implementation (Lowe and Sciara 2018), which may prevent a comprehensive approach to decision making when evaluating projects. For example, at the program level, few prioritization processes examine the equity effects on individuals, nor do many weight equity criteria highly enough to have a meaningful impact on project outcomes (Krapp, Barajas, and Wennink 2021). Comparing projects across modes can provide important additional information for decision makers, potentially leading to a better allocation of scarce resources, a more transparent prioritization process, and a better understanding of project trade-offs (Gunasekera and Hirschman 2014).

Defining Communities

Methods to identify community characteristics, particularly vulnerable or underserved populations, vary in their complexity and effectiveness. A typical means of identifying a significant concentration of population groups of interest is to use the regional average as the basis for setting a numerical threshold (Twaddell and Zgoda 2020). Using this place-based approach, agencies then identify tracts, block groups, or transportation analysis zones (TAZs) where a given population group exceeds the threshold. However, there is no national guidance for selecting the threshold (Rowangould, Karner, and London 2016). An arbitrary distinction such as this overlooks relatively diverse areas that have high numbers, but not high percentages of underserved populations (Duthie, Cervenka, and Waller 2007; Bills and Walker 2017; Twaddell and Zgoda 2020). Moreover, the method overlooks neighboring areas that fall just below the concentration threshold (e.g., a TAZ with 19% minority persons next to a TAZ with 21% minority persons in a study with a concentration threshold of 20%), as well as areas that fall below the concentration threshold but experience multiple other indicators of concern, such as older adults, female heads of households, rent-burdened households, zero-vehicle households, and adults without a high school diploma (Twaddell and Zgoda 2020). While the static threshold method may work well for groups that are spatially segregated, it works less well for groups that do not congregate spatially, like seniors and single-female households (Duthie, Cervenka, and Waller 2007). Instead, authors suggest using methods that measure the distribution of the

population and identifying high-priority areas that have high percentages and high numbers of each of the population groups selected for analysis by using threshold concentrations, such as one standard deviation from the regional average, indices with multiple indicators of disadvantage, or population weighting methods (Rowangould, Karner, and London 2016; Bills and Walker 2017; Twaddell and Zgoda 2020).

Some agencies use supplementary indicators to define communities experiencing transportation disadvantage more comprehensively beyond required EJ and Title VI populations (Golub et al. 2019). Although zero-vehicle households, for example, is neither a required population per federal requirements nor a singular indicator of transportation disadvantage, when in areas underserved by transit, it is a significant dimension of transportation disadvantage, especially when considered in combination with other indicators of concern (Golub et al. 2019). Agencies are using zero-vehicle households, seniors, young persons, persons with a disability, female head of household, single-parent households, rent-burdened households, low-educational attainment, foreign-born, and receiving some form of public assistance to define communities experiencing transportation disadvantage (Bills and Walker 2017; Golub et al. 2019; Twaddell and Zgoda 2020).

Yet some public health researchers have argued that focusing on indicators typically used in transportation planning misses important outcomes related to health and quality of life. Models that focus on traditional measures of socioeconomic disadvantage, such as poverty, educational level, and minority status, may not account for the consequences neighborhood patterns and the built environment have on mobility and premature mortality (Kolak et al. 2020). Researchers, nonprofits, and planning organizations have developed various composite indexes to measure multidimensional aspects of vulnerability, such as those focused on general vulnerability, social vulnerability, child opportunity, quality affordable transportation, and displacement potential (Flanagan et al. 2018; Chapple, Thomas, and Zuk 2021; Kolak et al. 2020; Ogojiaku et al. 2020; Chicago Metropolitan Agency for Planning n.d.).

Without adequate predictions, the distributions in future years are typically assumed to be the same as those in the base analysis year (Duthie, Cervenka, and Waller 2007; Rowangould, Karner, and London 2016). However, demographic trends point to a diversifying and aging population. A study examining how state DOTs and MPOs identify EJ populations and conduct EJ analyses found that no regions actively attempt to model displacement of groups by race or ethnicity as part of their main regional planning exercises (Golub et al. 2019). Moreover, most demographic projections do not explicitly forecast race and ethnicity, especially at the finer spatial scales (e.g., traffic analysis zones), and often use existing race and ethnicity breakdowns as assumptions for long-range estimates. Current models used to forecast populations do not appear equipped to forecast race and ethnicity at a scale and precision needed to perform detailed EJ analyses far into the future (Golub et al. 2019). Partnering with experts in housing and displacement can help transportation agencies better understand transportation impacts and changes in housing value. Including land use and zoning changes in the evaluation process for transportation system projects can also support efforts to predict displacement and future conditions (Currans, Nelson, and Chambers 2019).

Analyzing Community Impacts

Analyzing community impacts should compare the anticipated future with and without the transportation action and various alternatives. Examples of community impacts that might be analyzed include pedestrian and bicycle safety and access, public transit access, changes in population, community cohesion, isolation, crime, quality of life, business and employment impacts, gentrification, noise, aesthetics, displacement, use of public facilities, land use patterns, and compatibility with plans and goals (Federal Highway Administration 2018). Cross cutting these issues is an interest in public health and concern for nondiscrimination, because some effects may be positive or negative for different population groups. Thus, it is important to examine direct impacts, indirect impacts, cumulative impacts, and counterbalancing impacts, particularly among specific subgroups. New or rehabilitated infrastructure may offer opportunities to repair harms to low-income communities and communities of color that have been negatively impacted by previous projects.

Disparate impacts are differences in the effects generated by transportation plans and programs on disadvantaged population groups relative to advantaged population groups. Predicting transportation investment impacts requires the application and maintenance of a variety of analytical tools. The sophistication, fidelity, and robustness of these analytical tools will further be determined by the types of questions asked and measures used (The Connecticut Academy of Science and Engineering 2013). However, few agencies have formalized policies and performance-based processes for documenting the needs of an underserved population and determining whether a group is disproportionately adversely affected by the impacts of the proposed agency activity (Amekudzi et al. 2011; Ma, Becker, and Kilgore 2012; Duthie, Cervenka, and Waller 2007; Bills and Walker 2017; Twaddell and Zgoda 2020). The result of this is a lack of consensus on what constitutes a fair distribution of transportation impacts (Williams and Golub 2017). Transportation agencies face institutional challenges and lack clear equity indicators and targets to pursue a “restorative approach” and distribute transportation investments to underserved communities to reduce inequities over time.

If the agencies find that an indicator for any population group differs from that of its control group or the regional average, then the agency must seek to understand reasons for the discrepancy and determine whether the difference is disparate or generates disproportionately high and adverse effects (Twaddell and Zgoda 2020). However, many agencies do not do this, largely due to inadequate understanding of and methods for analyzing impact on disadvantaged communities (Owens et al. 2008; Amekudzi et al. 2011; Ma, Becker, and Kilgore 2012; Duthie, Cervenka, and Waller 2007; Williams and Golub 2017). Lack of guidance on methods for evaluating distributional effects has led to patchwork approaches. Moreover, analyses rarely find a disparate or disproportionate impact, describe a specific reason for the null finding, or contain detailed descriptions of how agencies resolved potential disparate impacts before the development of the final plan or program (Karner and Niemeier 2013; Twaddell and Zgoda 2020).

The economic impact of transportation appears to be decreasing over time. Studies demonstrate that after most of the interstate system was completed in the 1970s, additional highway spending did not lead to the same economic productivity gains. The slowing rate of return seen in recent years is

thought to be a result of a mature highway system that has met all the initial needs and demands that prompted its original construction (Ellis et al. 2012). The previous literature on the economic impacts of transportation has focused on theorizing and gathering evidence on the ways that transportation infrastructure generates economic benefits at large geographic scales—often states or nations. That literature overlooks many of today’s transportation projects which are at the neighborhood scale and which typically include nonmotorized transportation (Boarnet et al. 2017). Moreover, the standard assumption is that transportation investments provide economic and social opportunities and benefits and tend to be more wealth producing. However, transport investments tend to have declining marginal returns, and deficient systems can have an economic cost such as reduced or missed opportunities and lower quality of life and, thus, can be wealth consuming (Rodrigue and Notteboom 2020).

Thus, there is little consensus on what type of economic results should be expected or what methods should be used. The exact relationship between transportation construction projects and the economy is still widely debated, with numerous conclusions being drawn on both ends of the spectrum (Searle 2010). Much of the evidence on the relationship between transportation investment and economic development suggests that there could be some moderately positive growth effects from improvements to transportation networks, but that the returns to transportation investment have been generally declining over time as many types of networks have matured (Iacono and Levinson 2013).

The two basic types of analysis are divided into numerous methods for analyzing economic impacts of transportation projects, such as case studies, computer models, input-output models, statistical and nonstatistical comparisons, surveys, benefit/cost analysis, and others. It is important to identify the correct method and procedure to obtain the desired results (Searle 2010). An objective analysis of the benefits and costs over the life cycle of a project (e.g., benefit-cost analysis) would be useful for considering project alternatives in both the planning and engineering phases of project development (The Connecticut Academy of Science and Engineering 2013). However, although more than 40% of state DOTs and MPOs in one study reported using benefit-cost analysis, which is one method for cross-modal prioritization, some of these agencies “did not actually have a benefit-cost analysis process despite indicating using it” (Gunasekera and Hirschman 2014, p. 13). They determined that no single approach is best, but that agencies should pursue flexible prioritizations processes that are appropriate to agency goals and operating conditions and reflect multiple criteria. Refining the cost-benefit analysis process for transportation investments that incorporates all its goals can support the development of a more effective decision-making process (Ellis et al. 2012).

Attempts to determine economic impacts of transportation projects—or failure to implement a project—should also account for costs associated with poor health, quality of life years lost, and premature death. Given the local, state, and federal expenditures on poor health, lost productivity due to poor health, and premature death as well as the important role mobility plays in health and quality of life, mentioned previously, the CIA process could better serve to explore and consider these issues.

CONCLUSIONS

There is a need to improve transportation decision-making patterns that have generated unbalanced burdens and benefits. Thus, it is necessary to identify and address existing inequities from past decisions in parallel with efforts to identify and address potential inequities from future decisions by modifying the primary tool intended to assess the potential effects of transportation actions on the human environment—the community impact assessment.

Because numerous environmental and individual factors shape transportation experiences, evaluating the distributional impacts of transportation plans and projects across multiple demographic groups can seem off-putting. By strengthening CIAs to conduct robust equity analyses in conjunction with other socioeconomic analyses, agencies can address inequities within their transportation system and improve their ability to make transportation investments that contribute to health, prosperity, and quality of life. This can be achieved by integrating EJ programs into transportation policy decisions while also integrating CIA into state environmental review policies and decisions. Integrating CIA implementation into state-level environmental review by adopting detailed guidelines with explicit procedures and data for conducting a community impact assessment are important strategies for CIA improvement.

CHAPTER 3: DOCUMENT SCAN

This chapter summarizes the scan of CIA documentation for the six states reviewed. Links to the documents are found in the appendix.

STRUCTURE/CONTENTS

Of the six states with publicly available CIA guidance, five have CIA handbooks or manuals separate from environmental guidance manuals, and one (Indiana DOT [INDOT]) has CIA guidance included in their *Procedural Manual for Preparing Environmental Documents* (2008). CIA guidance ranges from 15 pages to 209 pages, with the shortest being INDOT's guidance. This is likely because many other sections in their *Procedural Manual for Preparing Environmental Documents* cover topics that are considered in the stand-alone CIA guidance in other states. Although five CIA handbooks/manuals are stand-alone documents with their own detailed tables of contents, three are volumes or chapters in environmental manuals or handbooks and two are completely stand-alone documents. Florida DOT (FDOT) calls their CIA process sociocultural effects evaluation and New Jersey DOT (NJDOT) calls their CIA process socioeconomic impact assessment. For simplicity and consistency, throughout this report, we will refer to all processes as CIA and all guidance as either CIA manual or CIA handbook.

Most CIA guidance documents include an introduction explaining the purpose and summary of the process, a section explaining relevant laws and regulations that support CIA, and a section explaining the procedures and various issues and topics for consideration. The manuals varied somewhat in how they described the CIA methodology; some like Caltrans, NJDOT, and FDOT offered complete chapters or sections with key topic areas to focus on in an analysis, while the others were more succinct in outlining the process.

Many CIA manuals provide additional resources to support CIA, such as report templates, technical memos, interactive screening tools, field visit checklists, community context audit forms, demographic tables, sample interview and survey questions, socioeconomic screening forms, and other state guidance. Additionally, some CIA manuals mention other state initiatives, like context-sensitive solutions, Smart Growth and Complete Streets, but most only included a summary of the initiatives without explaining how CIA is connected to or integrated with them. NJDOT's CIA manual (2010) recommends a thorough review of the State Development and Redevelopment Plan, initiatives from the Office of Smart Growth, and county, regional, and local plans when assessing land use impacts to determine if a proposed project is consistent and compatible with goals for the area. Many CIA manuals mention indirect and cumulative impacts but do not provide detailed guidance; some refer to other guidance specific to these types of impacts.

DIRECTIVES

Most guidance lists national laws, regulations, and executive orders that support CIA. Some guiding documents list numerous directives while others only provide a few. The federal directives listed are common among the documents, though five states mention state policy and legislation that guides CIA in those states. Some states have their own version of NEPA that require environmental review

for state-level projects, some have laws that strengthen protections for vulnerable groups, and some require additional documentation when projects have the potential to create adverse impacts for vulnerable communities. Some of the state-level directives are listed below.

Caltrans (California):

- In 1970 California passed the California Environmental Quality Act [PRC 21000 et seq.] requiring public agencies and local governments to evaluate, disclose, and mitigate adverse physical changes in land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance. Social and economic effects may be used to determine significance of physical changes.
- Caltrans has a policy to maintain an Environmental Commitments Record for each project, to “ensure that Caltrans meets its environmental commitments by recording the commitments made, specifying how each commitment will be met, and documenting the completion of each commitment” (California Department of Transportation, 2011, p. 24).
- According to CEQA (California Environmental Quality Act) guidelines, Caltrans must establish a program for reporting or monitoring mitigation measures that are adopted or are made conditions of project approval to ensure compliance with the required mitigation measures or project revisions during project implementation.

FDOT (Florida):

- When FDOT is the lead agency, projects may require a State Environmental Impact Reports (SEIR) or Non-Major State Action Checklist.
- Conceptual Stage Relocation Plans (CSRPs) are required when relocations are anticipated for a project regardless of Class of Action.

NJDOT (New Jersey):

- In 1989, New Jersey passed Executive Order 215 requiring state departments, agencies, and authorities to submit an environmental assessment or environmental impact statement in support of major construction projects to reduce or eliminate potential adverse environmental impacts of projects initiated or funded by the state.

PennDOT (Pennsylvania):

- Pennsylvania Act 120 [71 P.S. § 512] requires the department of transportation to consider “residential and neighborhood character and location, ...displacement of families and businesses, ...recreation and parks, ...aesthetics, ...public health and safety, ...economic activity, ...employment, ...fire protection, ...public utilities, ...religious institutions, ...the conduct and financing of government including the effect on the local tax base and social service costs, ...natural and historic landmarks, ...and education, including the disruption of

school district operations” in the preliminary planning and design of certain transportation projects (p. 11-3).

- In 2003, PennDOT issued a policy (Strike-Off-Letter 438-03-04) on CIA, stating, “it is the policy of PennDOT to work proactively in collaboration with communities in implementing the principles of Community Impact Assessment throughout the Transportation Project Development Process” (p. 11-3).
- “Commonwealth of Pennsylvania Executive Order 1993-3,” “State Land Use Planning—Goals and Objectives for Commonwealth Agencies,” and Executive Order 1999-1, “Land Use Planning,” seek to increase the consideration and understanding of the link between transportation actions and local planning initiatives.

TxDOT (Texas):

- TxDOT’s Title VI/Nondiscrimination Program is distinct from the federal Title VI statute. “The Title VI statute specifically mentions race, color, and national origin as protected classes; however, the TxDOT Title VI program also requires the consideration of age, gender, and disability” (p. 4).

PURPOSE

The documentation varied as to defining the purpose of community impact assessment. Most CIA guiding documents describe the purpose of CIA guidance in terms of process and procedures. For example, Caltrans’s (2011, p. 8) guidance states, “[CIA] should simply identify the potential effects of a project, both positive and adverse, and present measures to avoid, minimize, or mitigate any identified adverse effects.” Similarly, INDOT’s (2008, p. 60) guidance states, “the goal of a CIA is to identify community concerns early so that they may be considered throughout the project decision-making process; from planning through project development, implementation, operation and maintenance.” However, only a few CIA manuals explicitly state the goals and outcomes of CIA. FDOT’s (2020, p. 4-1) CIA manual, for example, states that the CIA process is to ensure that “no population groups are disproportionately affected,” and NJDOT’s (2010, p. 1-11) CIA manual states that identifying minority, low-income, and other special needs populations “ensures that adverse impacts do not fall disproportionately upon these groups and the benefits of funding and decision-making are distributed among all populations.”

Several of the CIA guiding documents describe the role of maintaining or improving quality of life in the CIA process but do not define or quantify it. Caltrans and TxDOT, for example, reference the FHWA *CIA Quick Reference* from 1996 when stating that a community impact assessment is “a process to evaluate the effects of a transportation action on a community and its quality of life” (Caltrans 2011, p. 6; TxDOT 2020, p. 4). However, neither agency defines or operationalizes quality of life and neither defines nor justifies quality of life measure concepts. Similarly, although FDOT’s guidance repeatedly mentions quality of life, their guidance also does not operationalize the term. The lack of definition about quality of life suggests that many assumptions are being made about factors that influence quality of life. For example, although NJDOT (2010, p. 1-11) explains various

quality of life issues, they also make the claim that “the affected community will experience improved quality of life if the transportation project results in improved mobility and safety.” Some documentation suggests a definitional bias toward vehicular mobility and safety rather than a comprehensive view of such. For example, in an environmental impact statement for an interstate interchange project shared by a different state in the CIA survey (see Chapter 4), the description of how a project will impact mobility and safety are inconsistent. A document section about potential social environmental impacts claims one proposed alternative would benefit minority populations because improved traffic flow would result in improved safety. However, another section of this document states that this same alternative “would result in additional through traffic in the [minority] neighborhood, which could reduce safety for pedestrians and bicycles in the vicinity.” Despite the findings from the CIA pointed to pedestrian and bicycle safety concerns in a primarily minority neighborhood, the state DOT did not consider mitigation measures to improve pedestrian and bicycle safety because they determined that safety concerns were pre-existing and the major investment of public dollars would not make them worse. This example illustrates the need for transparent and evidence-based claims regarding the effects of transportation actions and attentiveness to potential conflict effects, as well as the need for agencies to consider and address existing inequities rather than justify adverse baseline conditions.

STEPS AND CONSIDERATIONS

Five of six DOTs’ CIA guidance list and explain the step-by-step process involved in conducting CIA, typically based on the FHWA *CIA Quick Reference Guides* from 1996 and 2008. See Table 1 for steps/procedures in the CIA process for five states. Within these steps and in addition to these steps, all guidance provides various considerations, examples, and techniques, explained in greater detail below. CIA manuals vary in their explanations regarding during which phase in transportation planning and project delivery these steps are emphasized.

All guiding documents provide examples of various topics and issues to consider when exploring impacts. These considerations vary in their specificity and are often categorized differently, with common categories including social impacts, economic impacts, and relocations. However, most CIA guidance only provides examples specific to federal aid projects that require environmental documents. Additionally, due to the connection with federal environmental review, CIA guidance typically focuses on relevance to EJ populations, without reference to other marginalized populations, and typically only considers if a census block or block group has a minority concentration higher than the county average or a higher percentage of residents living below the poverty line than the county average. TxDOT’s (2020, p. 4) guidance stands out because it states that a thorough CIA addresses concentrations of elderly populations, children, people living with disabilities, and people with limited English proficiency, in addition to minority and low-income population groups; thus, the EJ assessment is a subset of a properly conducted CIA.

Table 1. Steps/Procedures in CIA Process in Guidance from Five States

Caltrans	FDOT	INDOT
<ol style="list-style-type: none"> 1. Determine your approach and the methods you will use 2. Involve the public throughout the process 3. Describe the project, define your study area, and map the project alternatives onto the study area 4. Create a profile of the social and economic characteristics of the communities that may be affected by the project 5. Analyze the impacts of the project on the communities that may be affected 6. Identify solutions to the project impacts, including avoidance, minimization, and/or mitigation 7. Document the findings of the assessment in a technical report or specific ED sections 	<ol style="list-style-type: none"> 1. Review project information 2. Define the study area 3. Prepare community information 4. Evaluate sociocultural effects 5. Recommend/identify solutions 6. Document findings 	<ol style="list-style-type: none"> 1. Define project, study, and planning area 2. Develop a community profile 3. Analyze impacts 4. Identify solutions 5. Use public involvement 6. Document findings
	PennDOT	TxDOT
	<ol style="list-style-type: none"> 1. Project understanding and define the CIA study area boundaries 2. Establish baseline conditions 3. Identify and analyze potential beneficial and adverse impacts 4. Determine significance of potential impacts 5. Identify solutions 6. Document findings 	<ol style="list-style-type: none"> 1. Project screening/scoping 2. Conduct initial data collection 3. Develop a community profile 4. Scale the assessment 5. Identify project-induced changes 6. Consider mitigation 7. Develop conclusions

ACTORS

In most states, CIA is conducted through the environmental office or division. Some CIA manuals mentioned coordination with the civil rights office or division. Although most manuals mentioned an “analyst” as a key party responsible for oversight of the CIA process, none explained the roles and responsibilities of the position or whether the role was carried out by an internal staff member or external consultant. However, PennDOT’s (2005) CIA manual and FDOT’s (2021) *Efficient Transportation Decision Making (ETDM) Manual* detailed the multiple actors involved in the CIA process to include screening applicable projects, determining the required environmental document, and collecting data and analyzing impacts. PennDOT engages with internal departments, MPO and Regional Planning Organization (RPO) staff, and project sponsors throughout the process; coordinates with FHWA and resource agencies during construction; and coordinates internally during maintenance and operation. The agency describes community and public involvement as actors during the entire CIA process.

FDOT was more explicit in identifying specific roles for staff involved in the sociocultural evaluation (SCE) process, which is a component of the overall ETDM process. Each FDOT district, each metropolitan/transportation planning organization, and the turnpike unit have a community liaison coordinator whose role is to conduct SCEs and work with the affected community. Each entity also

has an ETDM coordinator who works with the community liaison coordinator to conduct the SCE. The overall project team includes the community liaison and ETDM coordinators as well as agency staff with the technical expertise to evaluate impacts to natural, physical, social, and cultural resources.

Some of the actors and roles in CIA are actively changing. Of note, two state DOT representatives who participated in the CIA survey and interview (Chapter 4) revealed that one of their states had recently created an Office of Sustainability and Public Health and the other was in the process of creating an office specifically to focus on equity. These offices were expected to play a substantial role in CIA once established.

APPLICABLE PROJECT TYPES AND SCREENING PROCESSES

The manuals reviewed differ in their guidance for when CIA is required and to what depth the assessment takes. This section describes how each state approaches CIA within—and in some cases, outside of—NEPA review, including how projects are screened for required assessments and where the process falls in the transportation project delivery pipeline.

Indiana

INDOT guidance states that CIAs are typically performed for large, complex projects and not for categorical exclusions (CEs). Because INDOT CIA guidance is part of the *Procedural Manual for Preparing Environmental Documents* (2008), the reporting and documentation requirements are specific to sections within the environmental document rather than specific to a stand-alone CIA document. For example, regarding relocation impacts, a conceptual stage relocation study is required for environmental impact statements (EISs) and potentially required for CEs and economic assessments (EAs) if a project is anticipated to have more than ten relocations. In CEs and EAs, relocation impacts are documented in Part II, Right-of-Way and in Part III, Section G: Community Impacts and other community impacts are documented in Part III, Section G: Community Impacts of the INDOT guidance.

New Jersey

NJDOT is clear that its CIA manual is intended to establish a process to address “the comprehensive range of socioeconomic topics under NEPA,” stating “the [CIA] Manual presents an approach for identifying and addressing the effects of transportation actions on social and economic considerations as required under the National Environmental Policy Act (NEPA) and the Federal Highway Administration (FHWA) Environmental Review Requirements” (p. 1-1). When determining NEPA class of action, NJDOT requires a Field Visit Checklist to support in the initial field visit and assist in determining the appropriate level of environmental document. If a determination cannot be made from that checklist, NJDOT provides a socioeconomic screen form to support findings for CEs or rationale for EA or EIS. However, it is not clear how detailed the CIA analysis should be. Additionally, although they provide a list of the screening criteria below for NEPA environmental documents (CE and EIS), it is not clearly stated what level of CIA analysis is recommended for these documents. Rather, NJDOT’s CIA guidance states that the level of screening and public involvement necessary will vary by project type and scale and practitioners need to use their own judgment and consult with division managers to determine the level of screening and analysis required for each project (p. 1-2).

- Criteria for projects that require EIS:
 - A new controlled access freeway
 - A highway project of four or more lanes on a new location
 - New construction or extension of fixed rail transit facilities
 - New construction or extension of a separate roadway for buses or high occupancy vehicles not located within an existing highway facility
- Criteria for projects classified as CE:
 - Does not induce significant impacts to planned growth or land use for the area
 - Does not require the relocation of significant numbers of people
 - Does not have a significant impact on any natural, cultural, recreational, historic, or other resource
 - Does not involve significant impacts on travel patterns

While NJDOT clearly defines phases for the project delivery process, they do not detail where and how the CIA process is integrated into these phases.

California

The California Environmental Quality Act (CEQA) is a comprehensive law similar to NEPA that sets forth standards for what projects must be reviewed for potential environmental impacts. Projects subject to CEQA are not always the same as actions that must be reviewed under NEPA. Caltrans CIA guidance states that per CEQA guidelines, the following socioeconomic effects will likely mean that an environmental issue is relevant and thus likely require an environmental impact report, the California-specific equivalent to an EIS:

- Disrupt or divide the physical arrangement of an established community
- Conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan
- Convert prime agricultural land to nonagricultural use or impair the agricultural productivity of prime agricultural land
- Conflict with existing zoning for agricultural use, or a Williamson Act contract

- Require new facilities to provide acceptable levels of public services, the construction of which would cause significant environmental impacts
- Interfere with emergency response plans or emergency evacuation plans
- Result in inadequate emergency services
- Result in inadequate parking capacity
- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system

Caltrans’s CIA guidance provides several options in the project delivery process for when the determination for the level of CIA analysis required might be made. During the project initiation phase during preliminary scoping, a list of potential community or environmental impacts and concerns related to the proposed project is developed and would lead to considerations for conducting a full CIA. During project development meetings or scoping meetings during formal scoping, if “there is high community interest in the project, and a higher-level [environmental decision] is expected to be prepared, it may be appropriate to prepare a stand-alone community impact assessment” (Caltrans 2011, p. 11). The manual also states that it may be necessary to prepare a stand-alone community impact assessment if there is the presence of a minority or low-income community that will be adversely affected, even if the need for CIA was not identified through the formal scoping process. Finally, comments made during the public involvement process may determine the need for preparing a separate CIA. Thus, there are several checkpoints to ensure that analysts review how new information learned as part of the scoping and screening process may lead to the need for a full assessment. Caltrans explains the transportation planning process but does not explicitly state when and how CIA is integrated in the process.

Pennsylvania

PennDOT’s (2005, p. 1-1) CIA manual states, “the procedures and guidance outlined in this handbook, when applied properly, will enhance PennDOT’s abilities to better identify, analyze, and document potential impacts of transportation projects on communities while meeting both the spirit and letter of the National Environmental Policy Act (NEPA) and other applicable Federal and State laws, regulations, and policies.” PennDOT’s CIA manual also states, “these procedures and guidance apply to all Federal aid and State-funded transportation projects” (p. 1-1). PennDOT does not explain screening criteria or procedures for applicable projects but qualifies that the procedures in the handbook were developed for all classes of transportation projects including those that require the preparation of categorical exclusion evaluations, EAs, and EISs.

PennDOT’s CIA guidance explains how the six CIA process steps fit into each of the six phases of the transportation project development process and provides a table of examples of CIA activities for each phase of the transportation project development process to include CIA participants. The guidance also includes a table emphasizing how CIA process steps align with the transportation project development process (Table 2).

Table 2. PennDOT CIA Process Integrated in the Transportation Project Development Process

Transportation Project Development Process	CIA Process Steps with Major Emphasis	CIA Activities	CIA Actors	
Planning	1. Project Understanding and Define the CIA Study Area Boundaries 2. Establish Baseline Conditions 6. Document Findings	Focus on developing a broad-based understanding the project and the affected communities, defining the CIA study area boundaries, establishing baseline conditions, and documenting these activities. Initiate Community Context Audit.	PennDOT, MPO/RPO representatives, and/or project sponsors	Community/Public Involvement
Prioritization and Programming	1. Project Understanding and Define the CIA Study Area Boundaries 2. Establish Baseline Conditions 6. Document Findings	Review and update of broad-based CIA information developed in planning phase to confirm conditions and update community issues and concerns.	MPO/RPO representatives (planning partners) and project sponsors, in coordination with PennDOT	
Preliminary Design (preliminary engineering and environmental studies)	2. Establish Baseline Conditions 3. Identify and Analyze Potential Beneficial and Adverse Impacts 4. Determine Significance of Potential Impacts 5. Identify Solutions 6. Document Findings	Detailed CIA activities building on the broad-based information developed at the planning and prioritization/programming phases and incorporating a thorough assessment of project-level impacts. CIA information should be documented and included as part of NEPA/PA Act 120 compliance.	PennDOT bureaus, offices, officials involved in coordinating with MPOs and RPOs, project sponsors and other planning partners, such the Office of Planning’s Program Center from Central Office and the District Planning and Programming units and the [Assistant District Executive (ADE)]	
Final Design (design development, right of way and utility coordination)	3. Identify and Analyze Potential Beneficial and Adverse Impacts 4. Determine Significance of Potential Impacts 5. Identify Solutions 6. Document Findings	Review and update of detailed CIA information developed at preliminary engineering phase to confirm effects.		
Construction	3. Identify and Analyze Potential Beneficial and Adverse Impacts 4. Determine Significance of Potential Impacts 5. Identify Solutions 6. Document Findings	Review of CIA solutions and mitigation commitments, if any exist, including the consideration of solutions to temporary impacts resulting from project-related construction activities.	PennDOT, FHWA, and Resource Agencies	
Maintenance and Operation	6. Document Findings	Obtain feedback from users, document that feedback, and pass that feedback along to project team members.	PennDOT	

Texas

TxDOT provides clear screening criteria for applicable projects. The TxDOT (2020, p. 4) CIA manual states, “the conclusions of a CIA are used to help inform the overall NEPA process for TxDOT projects and indicate whether Title VI or EJ issues exist that warrant further consideration or mitigation by TxDOT.” TxDOT’s CIA manual also states, “all TxDOT projects must consider the potential for impacts to community resources as well as potential EJ and Title VI issues. This includes both federally funded projects and projects funded solely by the state, regardless of the approval authority” (p. 5). In Texas, the type, size, and location of the project are documented in the Environmental Compliance Oversight System (ECOS) work plan development screens. During the initial project scoping phase, they use the activities documented in the ECOS to make the determination of whether a project has the potential to result in community impacts. The Community Impacts Assessment Technical Report Project Form must be completed for the following project conditions:

- Displacements of any kind
- Permanent increase in travel times to community facilities, businesses, or homes (except for projects that construct a new or extend an existing raised median or median barrier—see bullet below)
- Permanent elimination of driveway connections to/from community facilities, businesses, or homes
- Permanent impediment to use of non-automobile modes of travel
- Constructs a highway on a new location
- Creates a new bypass or reliever route
- Upgrades of a non-freeway facility to a freeway facility
- Adds toll lanes
- Expansion of the roadway pavement by the width of one vehicle lane or more
- Creates a grade separation
- Constructs a new or extends an existing raised median or median barrier in front of a school OR with a section longer than three miles without a break or crossover

In Texas, the CIA Technical Report Form should be completed for many CEs, most EAs, and most EISs, if the threshold for the CIA is met in the project work plan process. Complex EAs and EISs may require more detailed analysis for complex issues or a narrative report. Although TxDOT’s CIA manual states, “the CIA developed for a project should be appropriately scaled to reflect: 1) the magnitude of the potential impacts that could occur as a result of the improvements; and 2) the likelihood for those impacts to occur” (p. 16), the manual does not explain what level CIA analysis is required for state

environmental documents. Moreover, their guidance does not explain the actors involved or documentation required in the screening process.

According to TxDOT's *Environmental Guide: Volume 2 Activity Instructions* (2021), CIA activities should be completed prior to the environmental clearance, the first of five possible milestones in the project development process (p. 9).

Florida

Like Caltrans, PennDOT, and TxDOT, FDOT explicitly states that the CIA process applies to all federal aid and state-funded transportation projects in the *EDTM Manual*. FDOT states that their CIA supports the development of an environmental document. Thus, the screening process for SCE is similar to the process to determine which type of environmental document is required and the level of analysis required for the CIA. The screening process begins in the planning phase prior to initiating the project development and environment phase. As part of the planning phase, FDOT has an efficient transportation decision-making (ETDM) process to facilitate early interaction among transportation planners, agencies, and affected communities to incorporate environmental considerations to inform project delivery. All state and federal projects must be screened to determine if the project qualifies for the ETDM process. Qualifying projects include additional through lanes that add capacity to an existing road, new roadway, freeway, or expressway; a new or reconstructed arterial highway; and addition of interchanges. For qualifying projects, the ETDM process is composed of the Planning Screen and the Programming Screen, which support consideration of projects for inclusion or prioritization in cost-feasible plans and the five-year work plan. To determine which type of environmental document will be required for the project, FDOT determines the NEPA class of action and the state environmental evaluation among the projects that qualify for the ETDM process.

The project sponsor, FDOT district, ETDM coordinator, environmental manager, statewide acceleration transformation team, community liaison coordinator, also known as the SCE coordinator, and others are involved in these determinations. Pursuant to NEPA, the class of action determination includes three classes; however, FDOT recognizes two types of CEs. Additionally, environmental evaluations are required for all state-funded projects to comply with state and federal laws and FDOT procedure. They use the Non-Major State Action Checklist to determine if the project is a non-major state action or if a SEIR will be necessary. These determinations establish the required SCE documentation. For example, projects requiring an EIS require a concise summary of the existing sociocultural environment for each of the six SCE issues in the Social and Economic sub-section of the Environmental Analysis section, and projects requiring a SEIR require an SCE reevaluation results in Section 2 of the State Environmental Impact Report Form. In Florida, the level of CIA analysis is required for the following types of environmental documents:

- EIS: Concise summary of the existing sociocultural environment for each of the six SCE issues in the Social and Economic sub-section of the Environmental Analysis section
- Type I CE: Generally does not warrant an SCE evaluation or only requires minimal documentation of SCE issues

- Type 2 CE: Documentation of the six SCE issues in the Social and Economic section of the Type 2 Categorical Exclusion Determination Form
- EA/FONSI: Summary of results of the SCE evaluation, to include the six SCE issues and community outreach activities, in the Social and Economic sub-section
- Non-Major State Actions: Generally does not warrant an SCE evaluation or only requires minimal documentation of SCE issues
- SEIR: SCE evaluation results in Section 2 of the State Environmental Impact Report Form

In Florida, it is during the earliest stages of a project in the ETDM process that the community liaison and ETDM coordinators start the SCE evaluation process. Throughout both the ETDM process and the project delivery process, the community liaison coordinator and others continue to build on the data, analysis, and results of previous SCE evaluations. The ETDM coordinator enters the project information into the environmental screening tool, which is a customized web application that performs standardized GIS analyses and queries for data pertinent to natural, physical, social and cultural resources and transportation programs as well as provides numerous tools for review and reporting, particularly review by the Environmental Technical Advisory Team (ETAT), which includes representatives from metropolitan/transportation planning organizations, federal and state agencies, and participating Native American Tribes. ETAT members provide comments and select a Degree of Effect for each analysis and topic area. ETDM topic areas include social and economic (which is supported by the SCE evaluation), cultural and tribal, natural, physical, and special designations. The ETDM coordinator also documents potential project issues and assigns a Summary Degrees of Effect to each category within the environmental screening tool. Baked into FDOT's ETDM process is an issue resolution process to resolve complex issues among agencies and within the ETAT to find solutions that will address natural, physical, social, or cultural resources of concern. FDOT provides guidance for both informal and formal issue resolution.

All six steps of FDOT's SCE evaluation process apply whether the evaluation occurs during the planning screen, programming screen, or project development and environment phase. The programming screen builds upon the planning screen SCE evaluation to further understand project issues and inform project scoping. Any SCE issue that was not adequately evaluated and documented during the planning and programming screens must be evaluated in the PD&E phase. Each of the six SCE issues must be discussed in the Environmental Document to show when and how they were considered in project decision making. See Figure 1 for a diagram of the SCE process.

COMMUNITY IMPACT ASSESSMENT PROCESS

While each of the states reviewed has a slightly different process for conducting community impact assessment, there are enough similarities across them to group procedures into three categories: understanding the community and establishing baseline conditions, determining effects, and identifying and documenting solutions. This section describes those procedures and compares them across the states reviewed.

Florida Department of Transportation Sociocultural Effects Evaluation Process

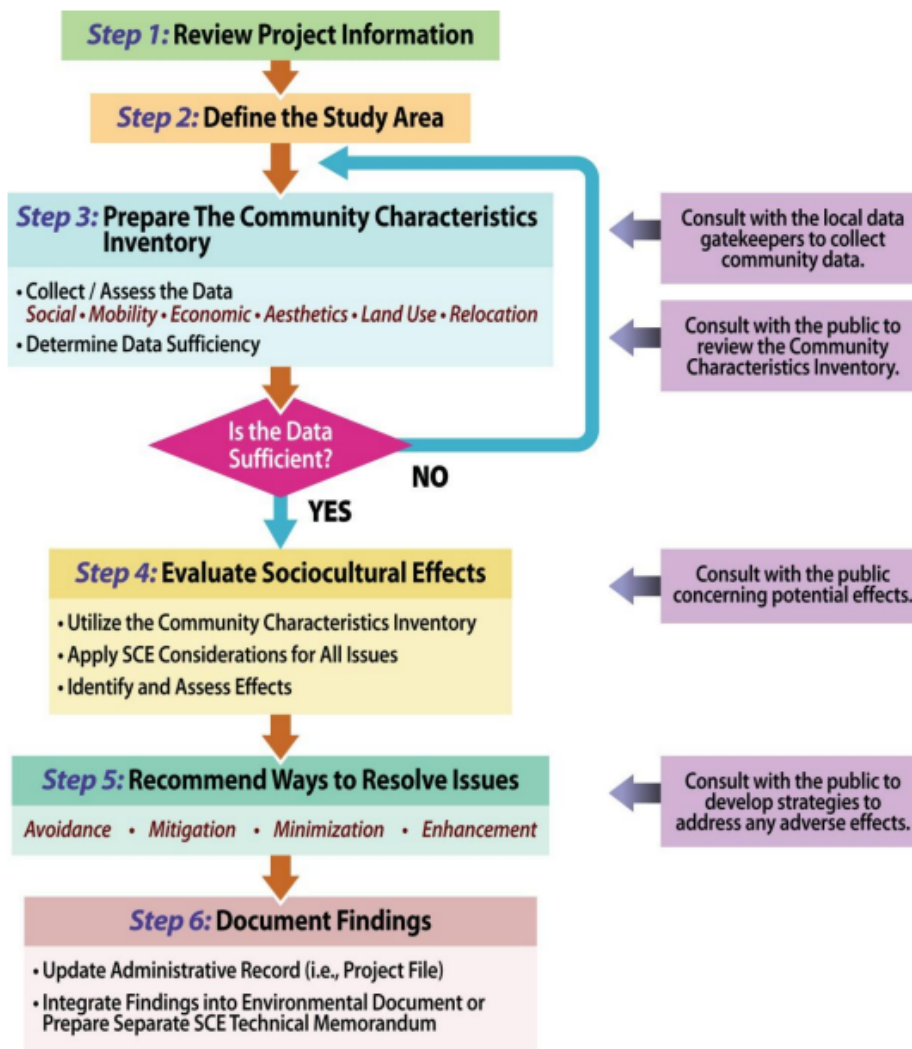


Figure 1. Flowchart. FDOT sociocultural effects evaluation process.

Source: FDOT (2020)

Understanding the Community and Establishing Baseline Conditions

Identifying underserved populations is the most recommended activity in the CIA process. Most of the manuals list data sources to use in analysis, such as the American Community Survey. Caltrans and TxDOT both provide interactive mapping tools for CIA analysts to identify and document underserved populations. Beyond identifying underserved populations, part of understanding the community also includes establishing baseline conditions, which includes the history and present physical and sociocultural characteristics.

All CIA guidance uses various terms for groups of vulnerable and underserved populations. Environmental justice and Title VI populations are defined in policy and legislation and are common across each agency. Some of the different terms and definitions include:

- Traditionally Underserved Populations: “those specifically identified in the Executive Order 12898 on Environmental Justice—that is, low-income populations and minority populations including Hispanics/Latinos, African Americans/Blacks, Asian/Pacific Islanders, and Native Americans—as well as other populations recognized in Title VI and other Civil Rights legislation, Executive Orders and transportation legislation, including those with limited English proficiency such as the foreign-born, low literacy populations, seniors, disabled populations, and transit-dependent populations” (NJDOT 2010, p. 3-6).
- Special Needs Patrons (NJDOT 2010, p. 4-7):
 - Elderly
 - Physically and mentally disabled
 - Low income
 - Limited-English proficiency / linguistically isolated
 - Ethnic and racial minorities
- Potentially Underrepresented Populations: (FDOT 2020, p. 4-2):
 - Race, color, or national origin
 - Disability
 - Age
 - Gender
 - Limited English proficiency
 - Minority and low income
- Protected Populations: (Caltrans 2011, p. 89):
 - Race
 - Color
 - National origin
 - Age
 - Sex
 - Disability

However, not all terms were fully defined. For example, manuals variously mentioned “vulnerable populations,” “transportation-disadvantaged population,” and “transit-disadvantaged populations” but without providing the characteristics of those definitions. Whatever the definition of underserved populations considered, the documents commonly suggested using tables to list the characteristics of the population in the study area and the population in a larger reference community such as the county, census tract, or traffic analysis zone.

Each of the manuals describes other characteristics that are important to establishing baseline conditions as well. Establishing baseline conditions requires an understanding of tangible and intangible features present, key characteristics, and the interactions of people within the community present through maps, graphics, tables, and narratives. For example, PennDOT recommends that analysts map the following community characteristics: cemeteries, community centers (ethnic or civic clubs), cultural centers (museums, theaters), emergency services (police, fire, ambulance), health care facilities (hospitals, major clinics), historic sites, libraries, municipal buildings, parks and recreation facilities, places of worship, public housing, and schools. Caltrans emphasizes the location and averages of demographic characteristics, housing characteristics, economic conditions, residential and commercial areas, and circulation and traffic patterns. Other community characteristics cannot be mapped, but are suggested topics for inclusion in PennDOT’s guidance, including the degree of community cohesion and community interactions, governance, and community values. Likewise, NJDOT’s (2010, p. 111-3) CIA manual states that “the identification of community resources should not only focus on their physical location, but also on their function, value, quality, and capacity.”

Understanding various aspects of the community requires field visits; spending time in the community; conducting surveys, interviews, and focus groups with community members; and collecting secondary data. Many CIA manuals list examples of data sources. Some manuals, such as the Caltrans guidance, also provide sample interview and survey questions. The PennDOT manual also provides tips for conducting effective interviews.

Determining Effects

Determining project effects in a CIA is guided in part by Council on Environmental Quality (CEQ) regulations for implementation in NEPA. A previous version of the Code of Federal Regulations (40 CFR 1508) defined three types of effects to be analyzed, incorporated into five of the manuals:

- Direct effects, which are caused by the action and occur at the same time and place
- Indirect effects, which are caused by the action and are later in time or farther removed in distance but still reasonably foreseeable
- Cumulative effects, which result from the incremental effects of an action when added to other past, present, and reasonably foreseeable actions regardless of which agency or person undertakes the action

The manuals define similar categories of direct effects to analyze, including social, economic, land use, mobility, aesthetics, relocation, and environmental justice and Title VI. Manuals vary in the

details in which they describe each of the categories, with Caltrans and NJDOT describing multiple subcategories of effects in separate chapters, and others using examples of the types of factors that fall within the category of impact. Most of the manuals provide analytical techniques for how to assess the direct impacts, though do so in different ways. PennDOT, for example, provides a menu of tools and techniques, both qualitative and quantitative, that may be useful for understanding project impacts. Caltrans separately identifies analytical techniques applicable to each kind of impact analyzed.

CIA manuals varied on the specificity in defining indirect and cumulative impacts. Where it was defined, indirect impacts most commonly referred to growth-induced impacts from transportation projects. Some DOTs, such as Caltrans, published separate guidance for estimating indirect impacts. Others, like NJDOT, referred to non-state guidance: *NCHRP Report 466: Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* (Louis Berger Group 2002) provides an eight-step process for estimating indirect impacts. Similarly, most states had separate guidance for conducting cumulative impact analysis based on CEQ regulations.

Most CIA manuals described the need to consider context and intensity when determining the degree of effect and significance of an impact, to include both positive effects (benefits) and adverse effects (burdens). Caltrans (2011, p. 20) takes care to explain the difference between magnitude and significance when determining impacts stating that “under NEPA, significance is a function of both the context and intensity of the impact,” and “significance (...) does not need to be determined in community impact assessments, but magnitude does.” Additionally, state environmental regulations may differ in terms of what is considered significant and whether effects must be reported—CEQA requires more documentation, for example. Caltrans guidance also provides that even if an impact is not significant under NEPA, there may be effects that should be reported in the CIA. FDOT’s (2020, p. 5-3) CIA manual, in describing significance and intensity, explains “the significance of an action must be analyzed in several contexts such as society as a whole (human and national), the affected region, the affected interests, and the locality,” and additionally cautions that intensity may be affected by “the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.” NJDOT (2010, p. 5-1) guidance mentioned case law and legal principles for considering effects, stating, “case law has established guidelines for use in determining whether an effect warrants further exploration. Legal principles call for analysis of only those effects that are “reasonably foreseeable.”

Community outreach was frequently mentioned as a key step to determine effects. Many DOTs have separate and detailed public involvement guidance, incorporated into the CIA manual by reference. An important aspect of outreach requires establishing feedback loops and documenting how public feedback influences decision making. Caltrans’ CIA manual states that FHWA’s Office of Planning, Environment, and Realty has requested that people at the local level should look at the data and conclusions in the community impact assessment to determine if the information is reasonable, a process termed “validation” (p. 15-16). While there no specific guidance on how the CIA analyst should achieve this, validation ensures that community input is reflected accurately and has meaningful input on the decision-making process.

Identifying and Documenting Solutions

Each CIA manual mentions four strategies to resolve issues—avoidance, minimization, mitigation, and enhancement—or cite CEQ guidance directly (40 CFR 1508.1(s)) about how to address adverse impacts. Some of the manuals provide additional guidance. For example, FDOT’s (2020, p. 4-33) guidance requires a description of how impacted communities participated in the decision-making process when there is a disproportionately high and adverse effect on EJ populations and requires documentation “to identify what practicable mitigation commitments have been made.” NJDOT provides a list of mitigation strategy examples, including identifying funding for relocation and renovation of homes and community centers, partnering to create job training centers for local hiring initiatives, reaffirming or building upon the cultural heritage, scenic, aesthetic, or environmental features of communities, and formally committing to ongoing air quality and noise monitoring. The explanation between the adverse impacts identified and the mitigation strategies proposed should be transparent.

Documentation of community impact assessments commonly takes place in environmental documents, though several states have provisions that allow or encourage for the development of a distinct CIA report. However, these reports do not have the same kind of approval and review processes that an environmental document does. Caltrans recognized in their CIA guidance that there is not a state agency to review and approve CIA technical reports like there are state agencies to review and approve other technical reports. Similarly, TxDOT recognized that there are no permits issued by regulatory agencies related to community impacts. Nevertheless, both Caltrans and TxDOT provide example tables of contents or templates for a CIA report. Caltrans explains the need to balance tables and charts with the narrative text and includes the reminder that the report should be prepared with the general public in mind as the audience. Documentation of adverse impacts may be recorded in the environmental document or, for some states, included within the text of the CIA report itself.

CONCLUSION

The documents reviewed as part of this scan revealed that several states have robust community impact assessment processes guided by NEPA, state environmental laws and policies, and internal department regulations. Several states provided templates, checklists, and interactive screening tools to use when conducting CIA to ensure a systematic approach to the process. The guidance generally makes clear that analysis methods are context-specific, and the depth of analysis and content covered will depend on the degree of potential impact of a transportation project. Several guidebooks emphasize the need to consider CIA elements throughout the transportation project lifecycle—from planning to implementation—especially when environmental justice and Title VI protected populations may be impacted. Most guidance also included a list of data tools and techniques that analysts could rely on to conduct the assessments. Some states emphasized qualitative data collection and aspects, such as interviews or focus groups, to determine how community cohesion might be disrupted by a project.

The guidance documents also emphasized the need for community engagement and often included communities as a key stakeholder in each of the steps in the CIA process. Several states had separate

public involvement guidance, but many offered principles for community outreach within the CIA guidance itself. A few described the importance of engaging the public when there may be disproportionate impacts for protected populations, and one document described the need to validate results with the community to ensure that their understanding of project impacts and mitigation strategies matched with the DOT's understanding.

According to the documentation reviewed, CIA is limited in scope as it is currently practiced. While the guidance broadly stresses the importance of complying with environmental justice and Title VI requirements for ensuring that people of color and low-income individuals do not face disproportionate adverse effects from transportation projects, none of the guidance suggests formally accounting for past harmful impacts of transportation. Taking the status quo as a baseline does not guarantee that a project will advance equity, only that further harms may not be introduced. In the process of compiling community characteristics—including demographic, social, cultural, and historical factors—the CIA process enables the opportunity to assess how past transportation decisions have affected communities, which may provide input to further planning processes to ensure that future projects remedy those harms.

The CIA process is linked to the environmental review process, but the procedures, tools, and techniques can provide a template for holistic review of community needs outside of a particular project scope. CIA not only depends on subject matter experts from engineering and physical sciences, but also people with expertise in social and behavioral science as well as public health, which would help identify deeper community relationships and potential areas of impact. Furthermore, broadening definitions of priority populations to include characteristics such as car ownership, transportation cost-burdened households, and location affordability may provide a more comprehensive perspective of potential project impacts and, again, future community needs.

Finally, CIA does not fall under regulatory oversight according to any of the documentation reviewed. This is not a problem per se but may limit the effectiveness of the CIA process to resolve inconsistencies in claims regarding benefits and impacts or enforce implementation of mitigation measures when projects are deemed to have adverse impacts.

CHAPTER 4: SURVEY AND INTERVIEW SUMMARY

OVERVIEW

After conducting a national scan of community impact assessment guidance across state DOTs, we developed a survey to further examine the CIA guidance, policies, and methods of other state DOTs. Representatives of 10 DOTs completed the survey, and among those, six participated in a detailed follow-up interview. (More detailed methods are available in Chapter 1.) The results of this two-step process, along with key takeaways for CIA practice in Illinois, are summarized in the remainder of this chapter.

RESULTS

Overview

Most agencies represented in the survey (80%) conduct CIA at some point in transportation planning or project delivery, primarily at later stages in the process. Most agencies conduct CIA for federal projects only, and often only as part of the broader NEPA process. Eight of the 10 respondents reported that their state has a mandated environmental review process for transportation projects, and six of the agencies have written CIA guidance.

Only two agencies (Caltrans and TxDOT) reported having a formal screening process to identify projects for which CIAs are required. The most common impacts considered in the CIA process are (1) access to businesses and/or social, religious, education, or cultural resources and (2) displacement of residents, businesses, and/or social, religious, education, or cultural resources. Responding agencies did not appear to consider impacts related to transportation cost burden or traffic safety. In determining disproportionate impacts, all agencies consider low-income populations, minority populations, and populations with low English proficiency; fewer considered elderly populations and people with mobility limitations or disabilities, and none considered zero-vehicle households or female-headed households.

These survey findings, complemented by detailed information from follow-up interviews, are described in greater depth in the sections that follow.

Federal and Non-Federal Projects

Of the 10 agencies that responded to the survey, seven conduct CIA for federal projects. For all seven of these agencies, CIA for federal projects is integrated with the environmental review process (NEPA) rather than functioning as a stand-alone process.

Three of the above agencies also conduct CIA for non-federal projects following a similar overall process. Of these three agencies, one conducts CIA for non-federal projects integrated with the state environmental review process, one conducts CIA independent of the state environmental review process, and one does not have a state environmental review process.

For the agency with a state environmental review process, this process is similar to NEPA in that it has three levels of documentation: categorical exemption, initial study with either a negative declaration or a mitigated negative declaration, and environmental impact report. This process differs from NEPA, however, in that it requires a significance determination for each resource (rather than for the project as a whole); this means that any social, economic, or community impacts must be related to a physical change in the environment, and that it tends to be more sensitive and stringent than NEPA. “[The state environmental review process] leads you to really analyze in more detail the impacts of a projects,” the interviewee said.

Whether agencies conduct CIA for non-federal projects appears, based on follow-up interviews, to be related to how connected their CIA process is to NEPA. For example, agencies that only assess community impacts as part of the NEPA process only conduct CIA on federal projects, while those that assess community impacts outside of the NEPA process tend to conduct CIA on non-federal projects as well. One agency said the funding source (state versus federal) and NEPA classification do not matter for its CIA process. Instead, they evaluate all projects when screening projects for whether to conduct CIA.

One additional agency had not yet conducted a formal CIA at the time of the interview but is piloting a joint CIA and health impact assessment, which they call an equity and health assessment. This process is being piloted on a federally funded project but conducted with state funds; in the future, they hope to conduct the assessment regardless of the funding source.

Minnesota DOT, which is piloting the equity and health assessment, is unique in that the agency had never conducted CIA in the past but had recently created an Office of Public Health and Sustainability and hired a public health professional to begin considering these issues. The interviewee worked at the state department of health a few years before when the state DOT underwent the first health impact assessment of any kind, which was on the statewide multimodal plan. Then, this person was hired into the newly created DOT Office of Public Health and Sustainability and was tasked with working with the office of environmental stewardship to consider how to better assess impacts. This person briefed leadership in these offices and across the agency, as well as leadership at FHWA, about health impact assessments, equity assessments, and differences between community impact assessments and equity and health impact assessments. At the time, efforts to address equity were supported by the state DOT commissioner, who had recently apologized on behalf of the DOT to an African American community for a 1950s transportation project that divided their community and destroyed hundreds of homes and businesses. Additionally, at the time, the DOT was working on developing a working definition of transportation equity and a planning-level framework for intentionally thinking about equity. Within this context, the interviewee created an equity and health assessment working group that meets every other week, with a liaison that serves between their team and project management team. “I think that’s definitely an advantage, right, is we have the structural capacity and authority to work on [equity],” said the interviewee about the agency’s newly created Office of Public Health and Sustainability and newly created transportation equity initiative.

One agency, Colorado DOT, operates in a state that recently passed legislation concerning sustainability and equity, and dedicated funding to developing modernized infrastructure to mitigate

environmental and health impacts. Although hyper-focused on electric vehicles, the new law created additional requirements when considering environmental impacts, redefined “disproportionately impacted community” to include households that are housing cost-burdened in addition to low-income households and minority households, and directed the agency to create an equity and environmental justice branch. The additional requirements regarding environmental impacts include engaging in an enhanced level of planning, modeling and other analysis, community engagement, and monitoring, such as additional steps in the planning process to account for the impacts on the amount of greenhouse gas pollution and vehicle miles traveled. These new requirements apply to three criteria: any regionally significant project, any project that adds transportation capacity, and any decision document that is published after July 2022. However, the terms, “regionally significant” and “adding transportation capacity” were not yet defined. Additionally, at the time of the interview, the state had not yet hired a director for the newly created equity and environmental justice branch and had not yet released guidance on how to comply with the new equity requirements. Similar to the agency piloting the equity and health assessment, the executive director of this branch was called out by the interviewee for being very interested in equity. Prior to this law, the state had not had any prior guidance on assessing community or equity impacts other than federal requirements for NEPA, EJ, and Title VI.

CIA Screening Process

On the survey, only two agencies, Caltrans and TxDOT, reported having a formal screening process to determine whether a project requires a CIA. The TxDOT process is documented online, where the agency clearly lists 11 project types (rather than anticipated impacts) that trigger a CIA: new location projects, bypass projects, upgrading to highway standard, and other large projects, as well as projects that substantially change access and travel patterns, such as grade separations, displacements, roadway expansions, or median barriers. If the project meets the criteria, analysts are directed to the technical report. The technical report form then serves as a second level of screening to determine if they need to do the full CIA.

“We focused really on the project type rather than the funding source or the NEPA classification,” the interviewee associated with this screening process said. “We kind of cast a wide net up front in terms of screening to make sure that we at least get eyes on those kinds of projects [to determine if] you can get away with the summary analysis or if we need you to do a full analysis.” Regarding defining which projects substantially change access, the interviewee stated that it comes down to training and one-on-one consultation. Some districts make the call on their own while others reach out to the interviewee or their colleagues for guidance. Regarding trainings, they have an annual conference, and they do bi-monthly trainings on common questions that come up during conversations about community impacts.

Caltrans shared their scoping checklist, which covers community impacts related to land use, growth, community character and cohesion, economic activity, relocations, environmental justice, traffic, and bicycle/pedestrian modes. Depending on the findings, the planner then does a brief community impact memo, mid-level report, or a full CIA.

Beyond these two agencies, the screening process was largely informal. Interviewees revealed a key reason for the scarcity of formal screening processes: because most agencies conduct CIA as part of the NEPA process, they have not needed to develop a separate screening process to determine which projects trigger a CIA. Despite this lack of formality, there appears to be a great deal of informal decision making at the discretion of senior environmental leadership that goes undocumented. Indeed, there was a consistent sentiment across several interviewees that they conduct some type of informal analysis of impacts to determine that there are no impacts, in order to avoid triggering a full CIA or public involvement.

Project screening may yield different results based on the state. One agency repeatedly mentioned that widening projects do not need a CIA if they are within the existing facility and do not result in relocations: “It’s very easy to identify, you know, that there’s not a disproportional impact because a lot of our projects are widening and it is an existing facility,” the interviewee said regarding criteria for conducting CIA. Another agency that does not conduct CIA said most of their project types are minor enough that they are not as likely to have big impacts: “Ninety-nine percent of our program is focused on rehab of the current system, and most of our projects are pretty small,” the interviewee said.

The agency piloting the equity and health assessment is still in the early stages and has not yet developed a set of criteria for which to screen projects. They selected the first project because there were already some clear issues in terms of safety, communities being disproportionately impacted, and community readiness, with community members already having asked for an environmental impact statement. “This is a community that has a disproportionate amount of safety concerns, is highly diverse, traditionally underrepresented, and highly impacted by transportation decision making,” the interviewee said about selecting the first project for which to pilot the equity and health assessment.

Finally, one agency is currently developing a project screening process. Since the agency recently made the internal decision to conduct CIAs, they have mostly used relocations as an informal criterion for when to conduct a CIA; they are in the early stages of conducting a CIA for a project without relocations but with a two-year closure of an important bridge. However, before developing a project screening, they are waiting for FHWA to release new EJ guidance. “I’m afraid to put something out, and then we get new guide says that makes us ... redo this again,” the interviewee said regarding waiting to develop a project screening until FHWA updates their EJ guidance.

Written Policies and Guidance

Survey respondents were asked to report whether their state and/or agency has written policies for conducting CIA. Four reported having an agency policy only, one reported having a state policy only, four reported having neither, and one was unsure. Respondents did not provide links/attachments to any of these policies, nor was policy information readily available on agency websites. Two responding agencies reported future plans to create, update, or adopt state and/or agency policies for conducting CIA.

Six agencies reported having written guidance to conduct CIA, although further investigation revealed that this guidance was sometimes conflated with general NEPA guidance. Three of these six agencies reported having future plans to update their written guidance for CIA. Both agencies that conduct CIA but do not currently have written guidance reported that their agency does have plans to create written guidance; one of these is the agency piloting the equity and health assessment. Neither of the agencies that do not currently conduct CIA have plans to create written guidance. Beyond the guidance shared by survey respondents, we summarize all guidance identified during our scan in Chapter 3.

There is a connection between state or agency written policies and guidance, with more agencies that have state or agency policies also having guidance. Among the four agencies that do not have written guidance for conducting CIA, three also do not have state agency policies and one was unsure. Among the six agencies that do have written guidance to conduct CIA, four have agency policies only, one has a state policy only, and only one has neither state nor agency policy.

More agencies have plans to create or update written guidance than plans to create or update state or agency written policies. For example, one agency reported that they are “currently working on a Project Screening to determine the level of effort required for EJ analysis, removing redundancies/updating questions in the CIA and how to improve our outreach to the EJ community.” Additionally, as mentioned previously, one agency is piloting an equity and health assessment, which they anticipate will serve a similar (and possibly more comprehensive) purpose to a traditional CIA.

Interviewees shared additional details about their policies and guidance. For CIA guidance, the various formats included templates, manuals, and an interactive mapping tool. One agency has had CIA guidance for over a decade while the others have only had guidance for a few years.

One agency recently updated their guidance to include more detailed guidance, a template, and a GIS-based tool to map race, income, and language. Although they explored a few other states’ guidance and the *CIA Quick Reference* (FHWA, 2018), they relied more on internal conversations to explore questions and problems the districts were frequently get stuck on when conducting a CIA. The interviewee joked that they locked themselves in a room with a coworker for three days and came up with every scenario they could imagine regarding impacts. They emphasized that their recently updated guidance is not the “end-all-be-all” but is supposed to identify red flags and trigger deeper thought into certain things. This agency also hosts an annual conference and bi-monthly trainings on common questions around CIA, which they call “community impact conversations.” The interviewee got the idea to develop bi-monthly trainings because the agency does them for other topics, like water quality and biology. Based on questions submitted directly from staff, the interviewee picks a topic, prepares a slide deck, schedules a virtual meeting, and sends out an email blast announcing the opportunity. For example, they have done trainings on handling virtual public involvement in areas with limited internet access and trainings on defining the study area. These serve as an aid to the guidance, particularly regarding areas for which they did not want to be too prescriptive in the guidance because there are too many situations to address.

The three interviewees with agency guidance reported that it has been very helpful and beneficial. They all stated that they recognized impacts they would have otherwise missed had it not been for the guidance.

Regarding updates to CIA guidance, two agencies said they are waiting to make any changes or updates until FHWA updates EJ guidance. In the meantime, one said they are in learning mode to see how other agencies are doing CIA. The agency piloting the equity and health assessment is beginning to think about developing guidance. One agency said they do not have plans to develop written CIA guidance because they do not want a rigid process; rather, they want the process to be fluid.

One agency has a few current research projects that will influence future CIA updates. One is to create a metric for determining community engagement in order to be able to state how much communication they have done and at what level. Another is to put together the history of how transportation projects have affected sensitive communities. “By better understanding the past, it helps you to better inform our decisions moving forward,” the interviewee said about the research project.

The CIA Process

Timing

Survey respondents with written CIA guidance were asked to indicate which stage or stages of the planning and project delivery processes the CIA guidance covers (Figure 2). The responses indicate that CIA is often conducted in later stages of transportation planning and project delivery.

Which of the following stages in transportation planning or project delivery does your written guidance cover?

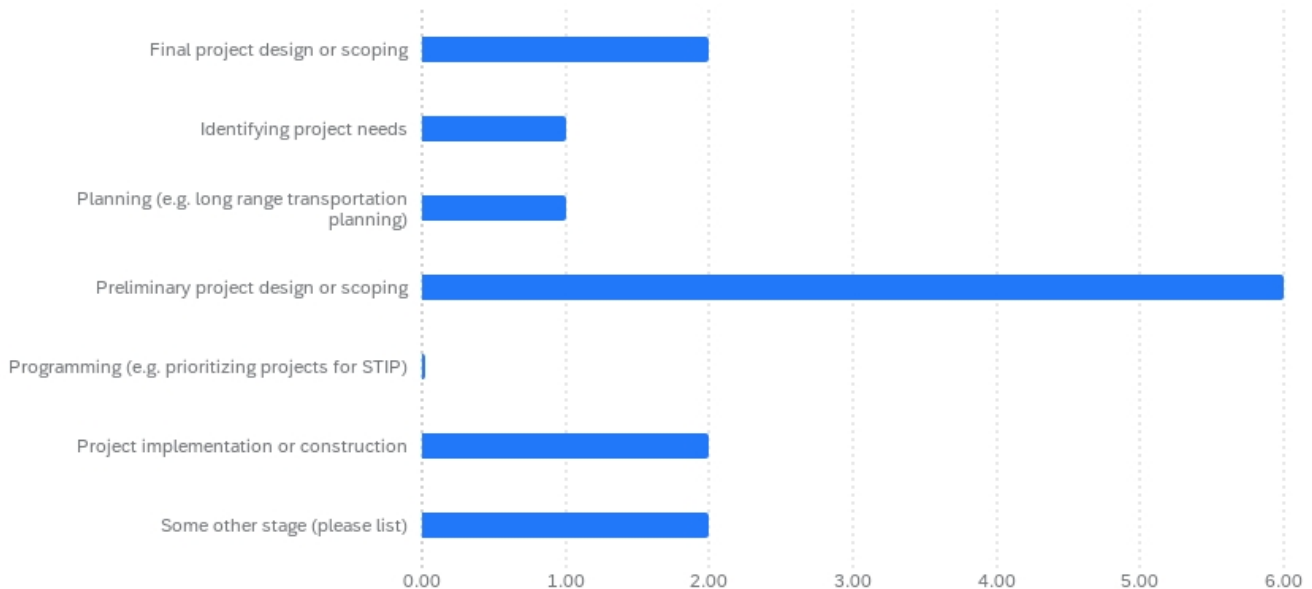


Figure 2. Chart. Transportation process stages in which CIA is conducted.

Similarly, based on the interviews, there does not appear to be a consistent approach to the CIA process, except that is conducted in later stages of transportation planning and project delivery. Most of the interviewees suggested doing some type of informal analysis of community impacts in advance of determining if a CIA is needed in order to avoid doing a CIA. However, no agency provided examples of guidance for or documentation of this pre-CIA analysis. While some interviewees mentioned considering community impacts before preliminary project design or scoping, again, there is little documented.

General Process and Public Participation

Interviewees described two general approaches to the CIA process. First, some interviewees said the agency identifies underserved communities, analyzes impacts, develops mitigation measures, and then does public involvement. Second, some interviewees said they identify underserved populations and do public involvement before they analyze impacts and develop mitigation measures to help them better consider impacts and develop more relevant mitigation measures. Some interviewees gave examples of both approaches.

One agency that does not conduct CIA said they go through a rigorous process early in the project development process to avoid and minimize impacts. They have a section for considering impacts in their categorical exclusion form, but by the time they get to that step, they do not usually have any impacts. Thus, they usually do not document the analysis or do public involvement in the environmental review. “When you’re working with the rest of the team to try and scale back impacts, it is just like meetings and emails and just sort of general communication ... there’s not really, like, an official memo or anything that we create when we’re trying to work through our project,” this interviewee said.

On the other hand, another agency said that early in the project development process, they conduct a feasibility study to compare project alternatives across environmental impacts, geotechnical impacts, utility impacts, real estate, engineering costs, relocations, access to businesses, and other issues. The final documents for these feasibility studies are unique, without any requirements for specific issues or details, or a specific format. “By the time that feasibility study is being worked on, we have some sense of what’s important to the community, because even though we haven’t gone directly to the public, we’ve talked to the stakeholders who are, you know, in that community and know what’s important. That feasibility study is our first sense that there could be issues or there could be concerns,” the interviewee said. Once the feasibility study is concluded, they begin public involvement. The public gets to see the feasible alternatives, see what the agency thinks is important, and provide input about what is important to them. “And that’s when we start recognizing whether or not there’s going to be risk or concerns or things that we really want to focus on from a community impact assessment standpoint,” the interviewee said.

One agency shared that decision making in their agency is really a team effort. “It’s always a group of people talking through the pros and cons rather than one person sitting high on top saying ‘yes’ or ‘no’ for approval through certain phases,” an interviewee said.

One agency said CIA plays a role in preliminary scoping and project initiation. During this time, environmental planners can assess the project and notify the team if there may be any issues with the project. They said it is also involved in system planning but are not familiar with that phase. “With all these phases there’s, like, a dozen different offices doing their part, and so, for environmental for [project initiation] phase we produce [a preliminary environmental approval report], and that report will kind of detail what we think the impacts may be and what permits we think we may need ... and how that might fit in the timeline of our project and the resources needed,” the interviewee said.

In the state that recently passed new legislation regarding equity, the new law addresses environmental and equity requirements in both design-level and NEPA-level planning as well as construction.

One agency that does not conduct CIA said they focus on NEPA and EJ requirements first, and then focus on the public involvement process to help identify where issues and concerns might be. “You don’t really get to CIA until you get in depth into the public involvement side of things,” the interviewee said.

Many agencies referenced public involvement as very influential in considering impacts. However, this sentiment seems to apply to final environmental documents rather than CIA. For example, in the public involvement section of the template shared by one agency, there are no questions regarding findings from public input. The questions only refer to the measures and techniques implemented, with some questions specific to limited English proficiency (LEP) populations, and concludes by asking if EJ and LEP populations were given the opportunity for meaningful involvement in the NEPA process. There is no indication to document or consider public input in the CIA template. One agency shared that they include a description of public outreach activities, how many people showed up, and what comments they had in the final environmental document, but not in the CIA. One agency that does not conduct CIA said they use census data at scoping, which is when the project has been planned and funding has been set aside but before design, to determine populations and resources present to inform their public involvement plan. Prior to and during the first public meeting, the agency tries to guess the amount of controversy. If controversial, the executive director will have influential say in how much effort is put into public involvement. “Public outreach and participation from the public is really key to understanding that community and how a proposed transportation project may affect them,” one interviewee said.

Analysis and Evaluation Criteria

States varied in their approach to data analysis in the assessment. One state has a mapping tool similar to EJSCREEN to identify minority and low-income populations, as well as low birth weight, asthma, housing burden, and unemployment. The tool also identifies communities that have been impacted by lead, toxic releases from facilities, particulate matter, and hazardous waste. The planner uses this tool to assess if there is a special or sensitive population in the area to help determine if there are going to be impacts to them. One agency mentioned modeling the field visit section in their guidance after a report where home health workers or nurses conducted a survey or interview on patients in their homes about barriers they face, to include transportation.

The agency piloting the equity and health assessment will do so at different points in the development of the scoping decision document to influence the development of evaluation criteria. The assessment will also support the evaluation of project alternatives. They reported the process is similar to a health impact assessment and will result in a baseline report and an impacts report. A baseline report covers health conditions and past social inequities as well as an explanation of the intersection of health and transportation. An impacts report contains an evaluation of equity and health impacts and recommendations. To achieve this, they have an equity and health assessment working group with people from the FHWA state division, county, and transit agency. The group meets every other week, and they rely on both public-facing data and special requests for data from the state department of health. They also recently developed a group of 15 community members, known as the equity and health neighborhood advisors, to meet every month or so to help them direct public engagement and ensure they talk to the right people and ask them the right questions. "It's a lot of bringing people along in what we're doing so, we don't catch people off guard," said the interviewee about working with multiple committees across multiple offices and agencies.

Although they do not have a formal approval process for the assessment, the Office of Public Health and Sustainability and the Office of Environmental Stewardship will review the documents before they go to the project management team. "The project management team will receive [the equity and health assessment report] as input, not necessarily like a yes or no," said the interviewee.

Similarly, they will bring findings from the assessment to the technical committees, which are made of up staff and technical experts, in advance of the policy advisory committee, which is made up of local and state elected officials. Because this is new territory for them, they still need to determine the timeline and who needs to be involved in any kind of approval process. They also still need to consider potential integration with planning and environmental linkages and context-sensitive solutions. Overall, regarding project delivery decision making, community engagement, technical analysis, and state and federal requirements have overlapping components, and the equity and health assessment falls under the community engagement umbrella, with elements that align with both technical analysis and state and federal requirements. An additional goal with sharing findings with the political advisory committee is that they will take on a partnership role with agencies outside the DOT to support progress on non-transportation issues. "I think it's exciting through this process that we're opening that door to go beyond just like what's within our statutory discretion, if you will," stated one interviewee about using findings from their assessment to support progress on issues that are out of their jurisdiction, like housing.

One agency shared that common projects are widening projects that take some right-of-way and raised median projects that change access and travel patterns. Because screening criteria require a full analysis for these types of projects, the first step is to go through the community profile section and obtain demographic data and field data, to include minority and low-income populations, number of schools and churches, and signs of languages other than English. Then, they assess relocations, access and travel, and community cohesion. Afterward, they conduct an EJ analysis as part of the process. The community impact specialist and their colleague will then review the CIA reports. Sometimes they go to the district to ask questions or have a conversation with the engineer to make a slight design change. This agency emphasized the need to document the conversations

with the community and the subsequent decisions made internally. When part of a NEPA document, this documentation is included as an appendix, and when not part of an EA or EIS, this documentation lives in the agency's environmental compliance oversight system. "If it ends up in a design change, let's document that just so we're being transparent about the whole thing. If we can't do a design change, [document] why we can't do the design change," the interviewee said.

Community Collaboration

Some interviewees described how they worked successfully with communities in the CIA process to provide mitigation measures for project impacts. One agency shared an example of a project where after analyzing impacts and determining mitigation measures, many of which were traditional tools they often used, like cul-de-sacs, noise walls, and landscaping, they did public involvement and learned their mitigation measures created safety concerns among the community. "[Community members] would rather not be on the cul-de-sac street because police don't patrol a cul-de-sac street ... and transit doesn't go all the way down called a cul-de-sac street ... [and the] landscape and we were using were not safe for them [because] it created places for people to hide and jump out ... and even the noise walls create too much of a screen to keep people visible," the interviewee said. Thus, the agency spent a few years working with the public to understand their fears and their values.

One agency shared an example of collaborating with an EJ community early in the process about mitigation measures for a corridor improvement project. It resulted in a cap to reconnect the community. When considering public input and which mitigation measures to include, they considered the longevity, sustainability, and maintainability of the measures as well as cost and other factors. For example, per community input, they installed a cap to connect communities that had previously been divided by the highway. Although they did not have a developer lined up to build on the cap at the time, they constructed half of the cap to be able to support a three-story building. They wanted it to be strong enough so that nothing would prevent the locals from being able to develop there in the future. "That was this example of sort of a hidden costs that provided a benefit for a community that, you know, you don't see when you're driving down the street or a part of the community, but you know it's there to support them as they continue to grow and thrive," the interviewee said.

Types of Impacts Considered

In the survey, DOTs reported the types of impacts considered during the CIA process (Figure 3). Respondents most commonly reported addressing displacement or relocation and access to businesses or other social and cultural resources. Community cohesion and social aspects were also common.

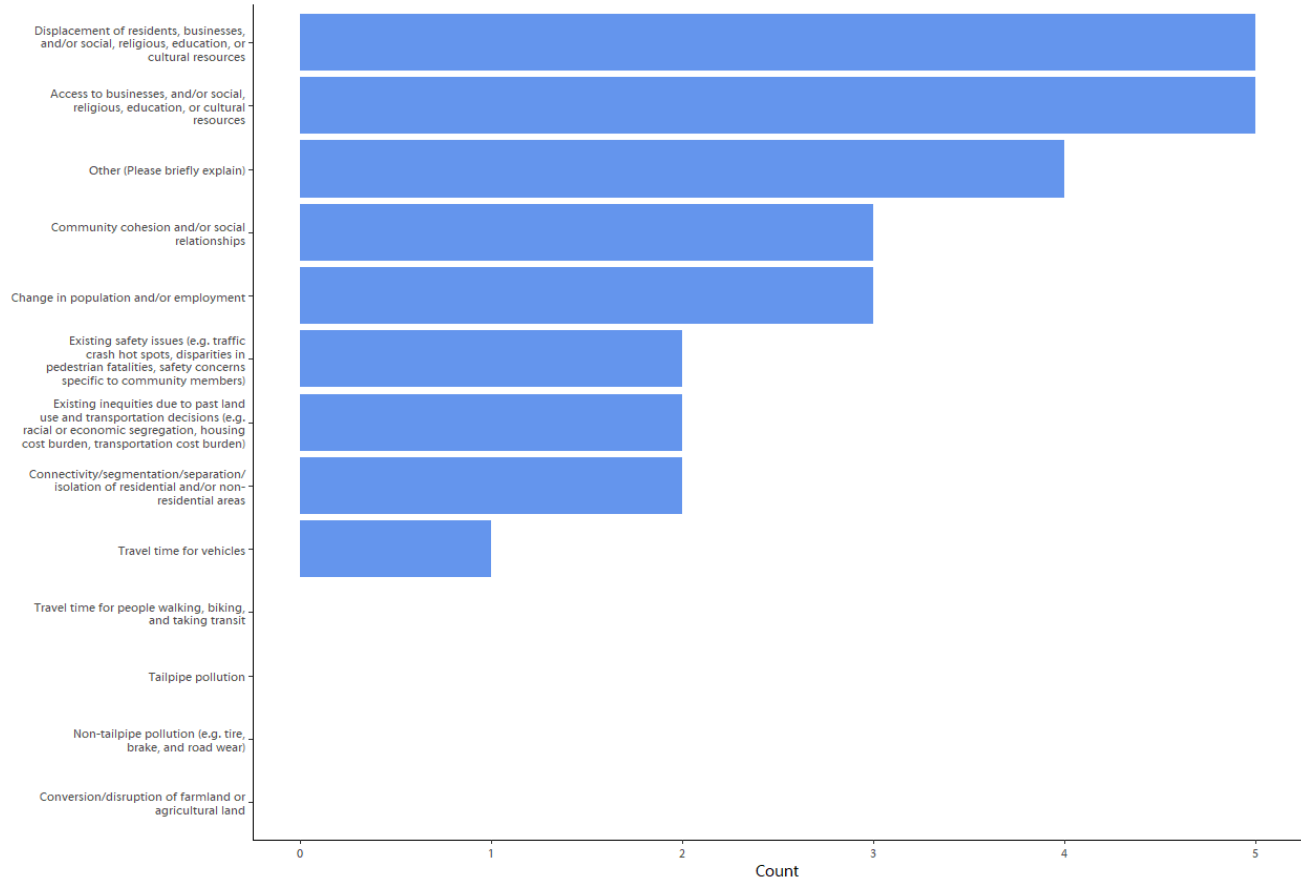


Figure 3. Chart. Types of community impacts considered in CIA processes.

Two agencies did not select any of the provided categories but selected other, for which they responded:

- “How a community may be impacted is dependent on the characteristics of a specific project and the individual communities that surround it. Each community has varying, independent needs and concerns and therefore a universal ‘three most influential topics’ cannot be determined when analyzing community impacts. What may be an influential topic in one community may not be considered as such in another.”
- “Changes in neighborhoods or community cohesion. Community resources (schools, churches, parks, shopping, emergency services, etc.). Community vision and values. Community transportation resources (alternative modes, etc.). Community mixed-use developments, Transit Oriented Development, Employment and tax base affected by project (retail sales, opportunity for development, tax revenues, relocation of employment centers, etc.). Businesses affected by project or construction (detours, bypasses, circulation). Housing. Infrastructure and public services. Changes in property values, etc... This doesn’t include any other resource (EJ, AQ, GHG, etc...)”

The agency piloting the equity and health assessment reported the following most influential topics:

- Existing safety issues (e.g., traffic crash hot spots, disparities in pedestrian fatalities, safety concerns specific to community members)
- Existing inequities due to past land use and transportation decisions (e.g., racial or economic segregation, housing cost burden, transportation cost burden)
- Other: community-identified priorities

One agency that does not conduct CIAs, but does conduct social evaluation as a component of the NEPA process, reported the following most influential topics:

- Displacement of residents, businesses, and/or social, religious, education, or cultural resources
- Access to businesses, and/or social, religious, education, or cultural resources
- Connectivity/segmentation/separation/isolation of residential and/or non-residential areas

Even though transportation projects have direct, indirect, and cumulative impacts regarding household transportation expenditures, transportation cost burden was not addressed in the guidance and technical reports shared by the agencies. While two agencies selected “existing inequities due to past land use and transportation decisions (e.g., racial or economic segregation, housing cost burden, transportation cost burden)” as one of the three most influential topics their agency relies on to evaluate project impacts, the examples they shared did not demonstrate an analysis of transportation cost burden. Additionally, no agency selected transportation cost-burdened households as a target population for which they assess disproportionate impacts. One agency even reported, “I am not familiar with the term transportation cost-burdened households.” Moreover, even though transportation projects have direct, indirect, and cumulative impacts regarding traffic/pedestrian crashes, fatalities, and injuries—and even though inequities in crashes, fatalities, and injuries are an EJ issue—inequities in crashes were not addressed in the guidance and technical reports shared by the agencies. While two agencies selected, “existing safety issues (e.g., traffic crash hot spots, disparities in pedestrian fatalities, safety concerns specific to community members)” as one of the three most influential topics their agency relies on to evaluate project impacts, again, there was no evidence of analysis of inequities in traffic and pedestrian crashes, fatalities, and injuries in the examples they shared.

All interviewees listed relocations among the impact categories considered, and many also mentioned access, community cohesion, noise, and air quality. Most interviewees expressed that they did not feel equipped to consider equity and health impacts.

The agency that recently updated their guidance decided to focus on the three categories of impacts: displacement, access, and cohesion. They, like many other interviewees, recognize that there can be drastic differences between types of project impacts and there can be many different topics. The interviewee said they selected the three main categories that were the most prevalent issues they were seeing, and that each category includes subtopics underneath. Depending on displacements,

the agency also has an appendix to conduct a detailed economic analysis. Additionally, depending on the resource being impacted, they explore encroachment impacts. Again, like many other interviewees, the interviewee also acknowledge they were not adequately considering health impacts. “This just kind of seemed to be the most comprehensive categories and the most comprehensive questions that we could think of, but [we] definitely recognize, you know, we’re not covering health impacts,” the interviewee said.

One interviewee said their agency considers relocations, access and control, community cohesion, noise, and whether a road closure will affect businesses, but was not able to provide specific examples. Regarding community cohesion, this interviewee also said they are looking at how to improve connection between two communities that were cut off by a six-lane interstate in the past.

Many agencies mentioned the need to consider access for people without vehicles and to include pedestrian, bicycle, and transit access; however, none were able to clearly articulate their approach. One agency said that health impacts, like active transportation, air quality, and noise, are bigger issues that warrant their own guidance, outside of environmental impacts. Additionally, there are agency-wide uncertainties among multiple agencies regarding whether environmental divisions or civil rights divisions should be responsible for considering equity. “When I was in school, environmental meant, like, bugs, bunnies, and biology. So, a lot of times, people would just get thrown at this community impact assessment with no experience and no idea what that meant,” one interviewee said. “Right now, I think there’s a lot more people coming out of school with some training in this area.”

One agency referenced a section of their state’s NEPA manual about which resources should be considered for inclusion in the NEPA document, and said they only knew of one example that went beyond this list to examine social and economic conditions. The consideration of food deserts and access to healthy food was unique to this example.

One agency said Title VI is part of CIA, but also its own unique regulation that is far more reaching than just NEPA. “That’s something we’re wrestling with now is how to incorporate [Title VI] in a meaningful way into the NEPA process without getting so far into the weeds that we’ve created a whole other separate set of documentation analyses and processes,” the interviewee said.

One interviewee mentioned that their agency was lacking when it comes to considering how past decisions have had adverse impacts on EJ populations because EJ populations do not trust the government and, thus, are less likely to participate in public involvement activities. “We used to put out flyers at community facilities or gas stations, and stuff like that, and we could see in this community there that was a very high EJ or minority population, but when we went to the public involvement, you know, it was very one-sided of what race was there, and that was white,” the interviewee said. “We’ve expanded our mailing ... and it costs a little more because we’re sending flyers to, I want to say, you know, hundreds of people instead of, you know, 100 people.”

The interviewee also said their agency is working on building those relationships and is considering having the environmental consultant on the project reach out to EJ leaders to see if something happened before. “Maybe they will feel more comfortable to reach out to us and let us know [the

highways we constructed in the 1950s and 1960s had] an adverse effect,” the interviewee said. “Because, otherwise, there’s no way of knowing.” This sentiment was not common among other interviewees. Although none of the interviewees were able to explain how their agencies account for existing inequities related to adverse effects of past transportation projects, they do not expect the disadvantaged population to explain it to them.

One agency is aware of a mayor’s initiative to reduce disparities in infant mortality rates. Although they are not doing anything directly, yet, to support the initiative, they recognize there are things they can do to help low-income moms and minority moms get to medical appointments and other places they need to go.

The agency piloting the equity and health assessment explores community characteristics, to include demographics, conditions of the built environment, and health disparities. For example, the baseline report will include disparities in diabetes, heart disease, asthma, transportation and housing costs and affordability, park access, mortality and life expectancy, etc. They developed a group of community members who will help determine the top priorities to be considered when assessing impacts. They will look beyond air quality and safety to areas outside their purview, like housing, health, and access to jobs. This interviewee reported that agencies tend to get stuck in their procedural way of doing things, which is a barrier for considering the use of new measures, like transportation cost burden. Although they have heard transportation cost burden discussed in their state, it does not seem to come up on the spectrum of measures that are available or on the spectrum of measures they are working towards.

Identifying Disproportionate Impacts

Several survey and interview participants described how their agency defines and analyzes disproportionate impacts to marginalized populations. This process involves at least two main components: defining “underserved” populations and assessing relative impacts. We discuss survey and interview findings related to each of these components below.

Among the six survey respondents whose agencies assess disproportionate impacts, all six of them consider impacts to the following marginalized populations: low-income populations, racial minority populations, and populations with low English proficiency. Other populations considered by some agencies (numbers noted in parentheses) include elderly populations (3), people with mobility limitations/disabilities (3), housing cost-burdened households (1), and color, national origin, and sex (1). No agencies reported considering zero-vehicle households, female-headed households, or transportation cost-burdened households. This pattern of results suggests that the CIA process remains dominated (and potentially constrained) by EJ and Title VI requirements.

During interviews, most participants expressed uncertainty about thresholds to establish communities of concern. Additionally, none were able to explain or provide an example of how they compare adverse impacts between underserved populations and the general population. Many interviewees and the documents they shared would only state whether an EJ population was geographically present. Many times, the document would mention that the EJ population is also benefiting from the project.

One agency said environmental documents will typically explain how EJ populations are benefitting due to reduced congestion or increased vehicle access, but beyond determining if the populations are physically present, environmental documents do not consider potentially disproportionate impacts. One agency said they are waiting for federal guidance on how to address equity, particularly because the current term, “readily identifiable population,” is open to interpretation.

The agency piloting the equity and health assessment does not yet have a plan for how they will determine if special populations would experience disproportionate adverse impacts compared to the general population. They anticipate they will rely on partners in public health to process special requests for data collection and analysis.

Regarding determining if there are disproportionate impacts of residential locations among minority or low-income populations, one interviewee said the only way to make that determination is if the residence is in an identifiable community with a high EJ population. “You can’t look at a house and know it it’s an EJ person that’s living there,” the interviewee said. “Really, we’re running off of, you know, just census numbers and making assumptions.”

In the state that recently passed a new law regarding sustainability and equity, there was recently successful litigation, which broke the 30-year period in which there was no litigation on any projects. The litigation was regarding a highway-widening project that had previously split a Latinx neighborhood, which resulted in the agency drafting new plans to drop the highway and add a lid with a park. However, despite winning national awards, the project still did not meet the needs of the community. “You know, this negative action on the community, this traumatic event was never really addressed. ... This highway split this neighborhood and resulted in brutal health and impacts, for, you know, 60 years,” the interviewee said.

One agency said they look at big picture impacts first and then overlay demographics in the area to see what happens. They specified that when looking at displacements or changes in access, they ask if they are happening in census blocks with over 50% minority populations. They also go beyond that to ask about recurring impacts that this community experienced from roadway projects or from other municipal projects in the past. This agency has an interactive mapping tool to help identify these populations. “Is there already a wastewater treatment plant in the area and now we’re coming in and putting in a freeway,” the interviewee posed as a question to consider when determining if underserved populations will be disproportionately impacted.

In the state that recently passed a new law regarding sustainability and equity, the law requires increased public involvement in their public engagement plans and requires the inclusion of housing cost-burdened households as an underserved population. Now, this state defines a disproportionately impacted community as being in a census block where the proportion of households that are low-income is greater than 40%, the proportion of households that are minority is greater than 40%, or the proportion of households that are housing cost burdened is greater than 40%.

Critique of Methods and Examples

Several survey respondents and interviewees provided specific examples of projects for which disproportionate impacts to marginalized communities had been assessed. A review of these documents suggests that, in many cases, the examples do not fully support the proper identification of disproportionate impacts.

One interviewee said they only knew of one example that compared impacts between target populations and the general population and it was regarding air quality. However, the document does not explicitly make any such comparisons. Rather, the document states the average modelled concentrations for a given pollutant in a study area in one table and states the modelled concentrations for a given pollutant at a sensitive receptor site in a different table on a different page. For example, regarding modelled particulate matter concentrations at sensitive receptor sites, the document only provides PM₁₀ concentrations for one sensitive receptor site, which is a majority-minority elementary school. The document concludes that the PM₁₀ concentrations at the elementary school are below the 24-hour standard but does not compare modelled concentrations to other sensitive receptor sites that are not majority-minority or to the general population. Thus, the reader is unable to determine whether this minority-majority school is disproportionately impacted compared to the general population. Overall, the document does not compare differences in the modelled concentrations of any pollutant between protected populations and the general population. The interviewee pointed out that the agency recognizes they would like to do better but does not really know how due to inadequate Title VI guidance, which the interviewee mentioned may be currently under revision.

In another case, the relocation and environmental justice document for a highway widening project, provided by one agency as an example of comparing adverse impacts between target populations and the general population, fails to account for the demographics of the residential relocations but claims that displacements are not anticipated to disproportionately impact EJ populations. The document states there will be seven residential relocations and the residences do not occur in primarily minority or low-income census geographies, thus claiming there are no disproportionate impacts on minority or low-income populations. However, due to data limitations, they are unable to identify the racial or ethnic make-up or socioeconomic status of those residences. Although the displaced residences may not be located in EJ census tracts, the residences themselves may house EJ populations. Because the agency does not provide this information, it is unknown whether minority or low-income populations are disproportionately burdened by displacement.

In an example provided by another agency to demonstrate how they compare adverse impacts between target populations and the general population, the document does state the racial/ethnic make-up of each residence that would potentially be displaced. In this example, which is an environmental impact statement for an interstate interchange project, all the residential displacements are African American; however, this fact is not stated under the section about potential relocation impacts. While the document states that there are direct relocation impacts on minority populations, the document fails to mention disproportionate impacts regarding the fact that all eight displacements are an EJ population. Moreover, the section about potential social environmental impacts claims one alternative would benefit minority populations because improved

traffic flow would result in improved safety. However, another section of this document states that this same alternative “would result in additional through traffic in the [primarily minority] local neighborhood, which could reduce safety for pedestrians and bicycles in the vicinity.” Although additional through traffic and reduced safety for pedestrians and bicycles would disproportionately burden the minority populations that live in the project area, the document, instead, justifies this by suggesting the current facilities already provide similar access and there would not be measurable impacts to pedestrian and bicycle safety. To summarize, the document called out pedestrian and bicycle safety concerns in a primarily minority neighborhood but declined suggesting mitigation efforts to improve pedestrian and bicycle safety because the safety concerns were pre-existing and the major investment of public dollars would not make them worse.

Similarly, in another example, an agency explicitly called out the exclusion of low-income populations from benefiting from a project but failed to suggest mitigation efforts. This example is from the environmental justice technical report for a tolled peak period shoulder project, which was, again, provided by a survey respondent as an example of comparing adverse impacts between target populations and the general population. The document states that “tolling and congestion pricing programs are often perceived as inequitable to lower income populations as managed lanes may be more of a financial burden for lower-income commuters than for higher-income commuters.” The document also recognizes that some motorists cannot or will choose not to use the managed lane because “any toll price is higher relative to income for low-income users.” However, the document claims that because two free lanes are always available, low-income motorists will benefit from improved travel time thanks to the drivers who “can choose to pay the toll when a faster, more reliable trip is necessary.” This is despite recognizing that low-income motorists cannot make that same choice for themselves. Although the project does not cause disproportionately high and adverse effects on minority or low-income populations, it disproportionately excludes these populations from the stated benefit of a managed lane—choice. Rather than offering a mitigation effort, such as a sliding scale so that low-income populations can choose the managed lane when a faster, more reliable trip is necessary, the agency determined that “no mitigation measures specific to environmental justice were required.”

These examples demonstrate that although agencies claim to assess disproportionate impacts among underserved populations compared to the general population, there is often not supporting evidence in the specific examples they provided.

Where CIA Fits: Connections with Environmental Review Processes

Eight of the 10 surveyed agencies have a state requirement regarding the environmental review process for transportation projects. Of those eight, five said the state environmental review process is somewhat similar to the federal environmental review process and three said the state environmental review process is extremely similar to the federal environmental review process. Of the eight agencies with a state environmental review process, six conduct CIA at some stage in transportation planning or project delivery. Additionally, one agency without a state requirement for the environmental review process still conducts CIA. This overall pattern suggests that there is a connection between having state requirements for the environmental review process and conducting CIA.

The environmental division or office is responsible for conducting CIA in seven of the eight agencies that conduct CIA. The agency piloting the equity and health assessment reported that the Office of Sustainability and Public Health is responsible for conducting the assessment. As previously noted, all seven agencies that conduct CIA for federal projects integrate this process with the federal environmental review process, rather than conducting CIA as a stand-alone process. Of the three agencies that conduct CIA for non-federal projects, two conduct CIA for non-federal projects integrated with the state environmental review process and one agency conducts CIA independent of the state environmental review process. Four agencies said they conduct CIA for federal projects with NEPA federally approved categorical exclusions. In a section for additional comments, one agency reported CIA is conducted when warranted by the NEPA process, and another agency reported that they typically bundle CIA with environmental justice.

All eight agencies that conduct CIA report that their agency documents findings from CIA. Of the six agencies that provided examples, three shared CIA reports that were part of environmental documents, two shared separate CIA reports which were stated to support the environmental impact report/environmental impact statement, and one shared a social, economic, and environmental justice report. One agency that does not conduct CIA reported that they consider community impacts in different parts of the environmental document. They also said that most of their projects are small lower-level categorical exclusions and do not require a detailed analysis. One agency that does conduct CIA reported that they produce independent community impact technical reports and summarize findings in the environmental impact statement/environmental assessment.

For many agencies, it appears that CIA replaces rather than supplements NEPA's required assessment of impacts. Aside from the agency piloting the health and equity assessment, it appears that one agency has disentangled the CIA process from the environmental review process. This is the same agency that reported the need for CIA is based on project action rather than NEPA classification and reported that they produce community impact technical reports independent of environmental documents, although the technical reports are generally included as an appendix in the environmental document. Additionally, this is the only agency to provide a document with a clear explanation of the formal screening process to determine for which projects CIAs are required.

The agency piloting the equity and health assessment is the only agency where the assessment is conducted outside an environmental department or office. Rather, in 2019, the state agency created an Office of Public Health and Sustainability, which oversees the assessment process. This office also works with the Office of Environmental Stewardship. Although there is no formal policy regarding equity, this office has a framework for considering equity, and the respondent said this office has support when it comes to equity from the DOT commissioner. They responded there are a lot of differences between the equity and health assessment and NEPA. For example, in the NEPA process, air quality is modeled at a regional level, but if the equity and health neighborhood advisors determine air quality is important, they will model air quality at the neighborhood level.

The agency that does not conduct CIA said they have assessed community impacts through the NEPA process for a couple major projects. "If there's a need for you to write, like, a full-blown CIA, then you in most cases, are doing a higher-level environmental document," said one interviewee.

Thus, based on the survey and interview results, it appears for many agencies that CIA replaces rather than supplements NEPA's required assessment of impacts. Furthermore, our findings suggest that community impacts are often conflated with environmental impacts. This could limit the consideration of important social, economic, and health impacts beyond those with environmental consequences. For example, of the seven agencies that conduct CIA, four reported never using findings from community needs assessments or community health needs assessments, and three reported not using findings very often. However, during the interview, two of these three revealed that they were not familiar with community needs assessments or community health needs assessments. This conflation could also limit the consideration of other vulnerable populations beyond EJ populations.

Needed Support

Many interviewees said they would benefit from peer exchange on various CIA topics. They also said they could use more internal training to ensure that what they are learning from other states or at conferences is getting passed down. Many agencies wanted guidance on assessing health impacts and considering equity. Agencies do not appear confident in EJ and Title VI analysis, often doing them infrequently only for projects with NEPA classification. Agencies need more support to consider social, health and equity impacts for categorical exclusions and mid-sized projects. "I feel, like many of us are at the beginning phase of piloting and starting new things, and the more we can share the better off we'll all be," said one interviewee about the need for peer exchange among state DOTs.

One agency said they would like examples of how small- and medium-sized projects are addressing impacts, such as relocations of daycares. The agency also said they would like guidance and examples for considering health impacts and what they can do about them, like a mitigation bank of ideas to improve health. They also recommended a more saturated approach to share little bits of information from different sources, across multiple platforms, and in different formats, rather than just one conference. "I think as part of the health impact of an intersection improvement, where we build a left turn lane or a right turn lane, is not going to dramatically change the air quality and the cancer rates of the area but what can we do as transportation agency ... to help assess that project in a way that could help in micro way," the interviewee said.

One interviewee said their state needs more consistency to reduce discrepancy, pointing out that the state has five regions, but lacks an EJ-Equity-Title VI specialist at headquarters. They also recommended the forthcoming FHWA Title VI guidance revision include any requirement for analyzing Title VI on categorical exclusions. "I think [a specialist at headquarters] could help out with, you know, a standardized screening tool [with] a flow chart. At the end of a flow chart, do I need to do an EJ analysis on my [categorical exclusion] or is there no resource impacted," the interviewee suggested. "[A specialist at headquarters] can offer different tools. They can offer different trainings, and they can offer guidance that is more in depth and more specific than our current NEPA manual, which is intended to be a little interpretable."

The agency piloting the equity and health assessment would have benefitted from guidance at the national level to incorporate health, consider health impact assessments, connect to various resources, and explain the pros and cons of certain methods. They still need guidance on efficient and

available measures to evaluate the link between transportation and health to make the process more mainstream and accessible. They are hoping for more support from decision makers at both state and federal levels as well as more connection between state and federal agencies, DOT and CDC, to include rededicating funding for CDC to support health impact assessments. They also want a way to connect DOTs that are interested in health impact assessments to understand different ways they are approaching the work, to include best practices and pitfalls. Similarly, they want more support connecting these assessments with planning and environment linkages or context-sensitive solutions.

Regarding transportation cost burden, the interviewee said agencies tend to get stuck in their procedural habits and fail to consider new measures. They said that agency staff need better understanding about and support for incorporating nontraditional measures, like transportation cost burden. “What’s the low hanging fruit of measures or things that we could be looking at and the data is probably available,” the interviewee questioned.

One interviewee emphasized that agencies need to do better at reimbursing community members for their time. It is often prohibited but is necessary to engage the community and value and acknowledge their lived experience. DOTs also need approval to and guidance for reimbursing public engagement. One interviewee said they are piloting a reimbursement model, but the agency’s current public engagement policy prohibits reimbursement for community time.

Finally, many interviewees said they need support to deal with issues the community brings up that are outside of their jurisdiction, like housing.

SUMMARY AND CONCLUSION

State DOTs vary in how or whether they conduct community impact assessment, whether they screen for the need for CIA in advance of conducting it, and what factors they consider when conducting them. When they are conducted, CIA is most commonly a component of environmental review under NEPA or state environmental laws. At least one DOT is in the early stages of innovation in CIA, coupling a formal CIA with a health impact assessment for an equity and health assessment. Some states have new environmental laws that require an equity focus for their CIA.

Most DOTs screen for which projects to conduct a full CIA, but the formality of this process varies. Two DOTs have formal processes, and one of those bases the need for a CIA on project type rather than NEPA classification. Others have informal processes to determine the need for a CIA during environmental review, which does not necessarily result in documentation about how decisions were made.

Written guidance for CIA processes was common and most DOTs were planning to update their guidance soon. The format of guidance differed—some had templates, manuals, and interactive mapping tools, while one agency reported conducting internal “community impact conversations” in a form of peer exchange to supplement written guidance with different kinds of expertise. Some agencies were proactive in funding research projects to update guidance, while others were waiting for new federal guidance before updating their own manuals.

The timing of when CIA was conducted was inconsistent across DOTs, though it tended to take place in later states of transportation planning and project delivery. Likewise, interviewees described general approaches as to when to involve the public: either after some project design has been concluded or after identifying underserved communities but before project design. Conducting community engagement later in the process allowed agencies to understand potential impacts from a scientific, engineering, or economic perspective after having done a feasibility analysis and spoken with key community stakeholders.

A few DOTs had innovative practices with respect to CIA. One reported using a mapping tool to identify demographic characteristics as well as health and environmental justice concerns. Another reported piloting an equity and health assessment, which would consider explicitly environmental justice and public health outcomes as part of the CIA. Another report noted having a community impact specialist on staff who reviewed CIA documentation for transparent practices. Public involvement was common, but some DOTs shared the extensive changes to project design that occurred as a result of robust community engagement processes.

DOTs most commonly reported addressing relocation or displacement and access to businesses and other social and cultural institutions in their CIAs, though one respondent stressed that because CIA is a contextual process, it was difficult to say what would be the most influential factor in their analysis. CIAs did not necessarily address existing transportation inequities or past harms, like high transportation cost burdens, but did work to prevent disproportionate impact on people of color and low-income people. Populations addressed across all DOTs include those protected by the environmental justice executive order and Title VI, as well as populations with limited English proficiency, while some also included older adults, people with disabilities, and housing cost-burdened households. There was some recognition that EJ populations and EJ communities are not synonymous—that is, there may be vulnerable populations in higher income or predominately white areas—but respondents found it difficult to identify those individuals.

Finally, CIA is most typically part of the environmental review process, but the results often supplement rather than replace required NEPA analyses. A few DOTs produce independent technical reports, though most include results in the environmental documentation. Producing an equity-forward document is a barrier for some who are waiting on more specific federal guidance or who lack a common point of contact within state headquarters, though others have more advanced equity considerations in their analyses. Some agencies expressed an interest in more peer guidance as well, including information about how to link the CIA process with health impact assessments, planning and environmental linkages, and context-sensitive solutions.

CHAPTER 5: COMMUNITY IMPACT ASSESSMENT GUIDANCE AND RECOMMENDATIONS

The research and advisory group input led to the development of the community impact assessment guide, found in the appendix. This chapter provides an overview of the CIA guidance and describes the economic multipliers produced as part of this project. The chapter concludes with recommendations for implementation and further research.

COMMUNITY IMPACT ASSESSMENT

Community impact assessment is a process in which parties responsible for transportation projects work with communities to determine the impacts of their actions on the communities themselves and their quality of life. Communities may have groups within them that have different personal relationships and cultural affinities, important social institutions, means of or preferences for travel, and socioeconomic status. CIA must work to address issues that arise from transportation actions—small and large—across all different communities. CIA identifies existing community characteristics, demands robust and meaningful engagement with community members, addresses a broad range of potential impacts from transportation projects, adapts to the context, and develops solutions to ensure projects fit within communities. Community impact assessment is based on a set of principles rooted in environmental and equity law and policy, both federal and state.

The CIA guidance provided in the appendix constitutes the state of the art in practice, encompassing a process based in research and on recommendations from federal partners, other state DOTs, and this project’s advisory council. The guidance provides the necessary information for conducting a CIA. It includes the quantitative and qualitative analytical methods for screening—that is, determining when to conduct a CIA—and methods for conducting and documenting the CIA when screening determines that one needs to be done. A companion to the text guidance is a screening tool, which includes a mapping component to describe demographics of the project area as well as a checklist of questions to answer to determine whether a full CIA needs to be conducted. The guidance also emphasizes equity in the assessment process. Vulnerable and historically marginalized population groups receive particular attention under CIA under equity considerations; they should be prioritized with respect to the distribution of transportation benefits and burdens and the decision-making process through community engagement and public participation.

A key feature of the guidance is that it provides considerable discretion on how to conduct a CIA. There is no one-size-fits-all solution to community impact assessment, as CIA is a highly customizable and iterative process and must be tailored to the project and community.

ECONOMIC MULTIPLIERS

Economic multipliers are the factors that measure how much a variable responds to a change in investment. Three kinds of multipliers are commonly represented in input-output analysis:

- Output multipliers, which measure the total production created per dollar of investment
- Employment multipliers, which measure the total number of full-time equivalent (FTE) jobs created per number of FTE jobs created by the direct investment
- Labor income multipliers, which measure the total labor income created per dollar of labor income created by the direct investment

For this project, Sandy Dall’erba, Director of the University of Illinois Urbana-Champaign’s Center for Climate, Regional, Environmental and Trade Economics (<https://create.ace.illinois.edu/>), computed three multipliers for (1) new highway and street construction; (2) maintenance and repair construction of highways, streets, bridges, and tunnels; and (3) transit and ground passenger transportation using an input-output model derived from the IMPLAN software. The multipliers were provided for each county, and an overall value was provided for the state of Illinois. A screenshot of the spreadsheet is shown in Figure 4. While the different multipliers are only identified for the state values, the county values are arranged in the same pattern in the spreadsheet. The multipliers were updated in 2018.

2018 data	Effects Per Million Dollars of Output							
Illinois	Display Code	Display Description	Industry Code	Direct Effects	Indirect Effects	Induced Effects	Type I Effects	Type SAM Effects
IMPACT ON OUTPUT								
	54	Construction of new highways and streets	54	1,000,000.00	413,587.91	393,673.50	1,413,587.91	1,807,261.41
	62	Maintenance and repair construction of high	62	1,000,000.00	572,240.79	735,341.04	1,572,240.79	2,307,581.83
	418	Transit and ground passenger transportation	418	1,000,000.00	491,032.73	583,498.85	1,491,032.73	2,074,531.58
IMPACT ON EMPLOYMENT								
	54	Construction of new highways and streets	54	4.63	1.55	2.45	6.17	8.62
	62	Maintenance and repair construction of high	62	9.66	2.74	4.57	12.4	16.96
	418	Transit and ground passenger transportation	418	29.14	2.29	3.63	31.43	35.06
IMPACT ON LABOR INCOME								
	54	Construction of new highways and streets	54	311,233.31	120,311.69	132,369.64	431,545.00	563,914.64
	62	Maintenance and repair construction of high	62	638,518.41	167,145.03	247,291.01	805,663.44	1,052,954.45
	418	Transit and ground passenger transportation	418	478,488.22	157,532.23	196,524.79	636,020.45	832,545.25
Adams								
	54	Construction of new highways and streets	54	1,000,000.00	181,881.46	259,401.98	1,181,881.46	1,441,283.44
	62	Maintenance and repair construction of high	62	1,000,000.00	276,863.36	460,452.14	1,276,863.36	1,737,115.51
	418	Transit and ground passenger transportation	418	1,000,000.00	201,621.97	527,194.74	1,201,621.97	1,728,816.71
	54	Construction of new highways and streets	54	4.95	0.88	1.91	5.83	7.74
	62	Maintenance and repair construction of high	62	8.88	1.95	3.39	10.83	14.22
	418	Transit and ground passenger transportation	418	19.05	1.19	3.89	20.23	24.13
	54	Construction of new highways and streets	54	341,263.97	49,509.43	76,267.96	390,773.41	467,041.37
	62	Maintenance and repair construction of high	62	615,133.66	74,980.38	135,387.07	690,114.04	825,501.11
	418	Transit and ground passenger transportation	418	684,144.63	51,169.56	155,126.96	735,314.19	890,441.15

Figure 4. Screenshot. Economic multipliers for Illinois and Adams County.

The values in the spreadsheet columns indicate the different types of effects that a \$1 million investment would have on economic outputs, employment, and labor income. The interpretation for each of the effects is as follows:

- **Direct effects:** The amount matching the \$1 million direct investment in terms of economic output, jobs, or income. For example, as shown in Figure 4, a \$1 million investment to highway and bridge repair in Illinois (display code 62) would result in a \$1 million output, the creation of 9.66 FTE jobs, and an aggregate increase of \$638,518.41 in income for people directly employed to repair the highway. Direct effects are calculated for every component directly related to the sector, including project development, engineering, and construction.

- **Indirect effects:** The amount matching the change in all the inputs needed to satisfy the new demand created by the \$1 million investment. For example, highway and bridge repairs might need concrete or asphalt, steel to repair trusses, machinery to manufacture the new components, and various other materials. A \$1 million invested in highway repair and bridge repair in Illinois would create an additional \$572,240.79 in economic output, 2.74 FTE jobs, and \$167,145.03 in labor income for these associated sectors.
- **Induced effects:** The amount matching the personal purchases made by employees working in the sectors where the direct and indirect effects took place. For example, employees will pay rent, buy groceries, and pay for other expenses with the income from the money earned for the maintenance job. A \$1 million invested in highway repair and bridge repair in Illinois would create an additional \$735,341.04 in economic output, 4.57 FTE jobs, and \$735,341.04 in labor income in the broader economy.
- **Type I effects:** The sum of direct and indirect effects.
- **Type SAM (social accounting matrix) effects:** The total effect on the economy, which is the sum of direct, indirect, and induced effects.

The multipliers are linear; in other words, to calculate the effects of a \$5 million investment, analysts can multiply the values by 5. The calculations assume that the effect will be completed within a 12-month period. If the project sponsor knows in what year the money will be spent, yearly effects can be calculated, though it is not possible to account for seasonality in sub-yearly calculations. The multipliers estimate employment effects in terms of FTE rather than counting individual jobs that may be in different full-time, part-time, or temporary statuses. For projects that are contained within a county, the county multipliers provide a more accurate estimate. However, a county-level analysis does not account for intercounty leakages (e.g., investment in county *i* requires inputs from county *j*). As such, it is common practice to report local (county-level) multipliers and state-level multipliers when performing an economic and fiscal impact analysis. It is recommended to update the economic multipliers about every five years.

RECOMMENDATIONS AND CONCLUSION

Community impact assessment is an important tool in the transportation project delivery process. There is a connection between CIA and environmental review, which could serve to strengthen and solidify the CIA process under the umbrella of the long-standing and comprehensive environmental review process. However, this connection could also be a limitation in that it possibly confines the analysis of impacts to those with environmental consequences, such as impacts that destroy or disrupt man-made and natural resources; contribute to air, noise, and water pollution; and displace residences, businesses, farms, and public facilities and services. Additionally, this connection could also be a limitation in that environmental planners are not necessarily trained or equipped to determine far-reaching social, economic, and health impacts beyond those with environmental consequences. The emphasis on the human and natural environment may prevent agencies from considering a broad range of impacts at the intersection of transportation and quality of life, such as

impacts that sustain or increase household transportation expenditures; impacts that further exclude current non-motorists and future non-motorists; and impacts that reinforce inequities in safety, access, and affordability due to past projects and policies that divided, destroyed, displaced, and disinvested in minority and low-income communities. Moreover, lack of explicit written policies and guidance regarding when to conduct CIA may contribute to CIA falling squarely within the environmental review process rather than expanding and advancing it.

This project examined the state of practice with respect to environmental justice and prepared a guidebook with recommendations for implementation at IDOT and other considerations for a modern approach to community impact assessment. Some areas of research remain for future consideration.

First, new innovations in practice as discovered in the DOT interviews, such as equity and health assessments, examine community impacts from a different perspective than a CIA based in the environmental review process. Other tools like community needs assessments, health impact assessments, and racial equity impact statements are used in other contexts but also work to examine community conditions and potential impacts of planning, programming, and project implementation. Future work should examine how these approaches vary in their analysis of impacts and whether elements—or the entire processes—should be used to supplement a traditional CIA when equity considerations are at the forefront. This may mean decoupling the CIA process from environmental review and using the tools and techniques throughout the transportation planning and project lifecycle.

Second, analytical methods within CIA itself are evolving with the appearance of new data sources, new technologies, and new understanding about how to measure equity in transportation. Data tools like the new Climate and Economic Justice Screening Tool (<https://screeningtool.geoplatform.gov/>) are being developed to visualize multiple dimensions of vulnerability. Regional destination accessibility has emerged as a key indicator for transportation equity (Martens 2017; Bierbaum, Karner, and Barajas 2021), yet analysis in CIA more typically examines access in the vicinity of the proposed project rather than in a broader context. Similarly, qualitative methods, distinct from public engagement, often yield hidden insights into barriers to transportation, highlight vulnerabilities based on identity, and provide context for quantitative results (Barajas 2020; Lowe and Mosby 2016; Coren, Lowe, and Barajas 2022). Yet practitioners and researchers are not always attentive to such topics and may have biases toward legacy methods (Vigar 2017; Lowe 2021). Comparisons across tools and methods may illuminate hidden transportation impacts, and collaboration with social and behavioral science experts and community experts may yield additional methodological advances and more robust analytical findings.

Finally, this project did not examine public involvement methods in depth, but the research revealed a variety of approaches to community engagement in community impact analysis. Additional work may explore what forms of engagement most effectively impact analysis and how to work with communities to yield more equitable outcomes.

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APPENDIX: IDOT COMMUNITY IMPACT ASSESSMENT GUIDE

CHAPTER 1: INTRODUCTION

Purpose of Community Impact Assessment

Purpose Summary

Community impact assessment (CIA) is a process in which parties responsible for transportation projects work with communities to determine the impacts of their actions on the communities themselves and their quality of life. Communities may have groups within them that have different personal relationships and cultural affinities, important social institutions, means of or preferences for travel, and socioeconomic status. Community impact assessment must work to address issues that arise from transportation actions—small and large—across all different communities.

Community impact assessment:

- identifies existing conditions in communities, including sociodemographic characteristics, travel patterns, land use, economic conditions, and items of historical or cultural significance;
- requires robust, meaningful community engagement in all phases of the project development process to ensure that transportation projects meet community needs;
- addresses a range of concerns, including changes to the physical environment, the social environment, economic conditions, visual aesthetics, mobility and accessibility, and quality of life impacts;
- adapts to the context, such as location, built environment type, and community priorities;
- develops solutions to avoid, minimize, or mitigate negative impacts and enhance projects to fit within communities.

While community impact assessment formally takes place under the umbrella of environmental review and is thus conducted during the project development phase, the principles of CIA are relevant to all phases in the transportation decision making processes, from long-range transportation planning all the way to project delivery and maintenance. CIA is the final check to ensure that community input is carefully considered and the consequences of transportation actions are accounted for. In that way, CIA is a distinct process, and projects that do not require a determination under the National Environmental Policy Act (NEPA) or are determined to be a categorical exclusion should still undergo a separate determination as to whether the project requires a full community impact assessment.

Community impact assessment directs particular attention to historically marginalized or disadvantaged communities: for example, places with significant populations of Black, Hispanic or Latino, Asian, Native American, and other racial or ethnic minorities; low-income and high-poverty populations; people with disabilities; and populations that speak English to a limited degree. CIA

helps ensure that these population groups receive their fair share of benefits from transportation projects and investment, that they do not receive a disproportionate share of burdens, and that the consequences of historic decisions and policies are accounted for. Thus, CIA goes beyond assessment for Title VI and environmental justice to consider community impacts holistically and in a broader social context.

Defining Community Impacts

The term “community impacts” refers to any consequences that result from a transportation investment in a community. Impacts can be positive or negative, short-term or long-term, immediate or cumulative, physical or social, experienced or perceived. Community impacts may build on previous decisions, compounding inequities for vulnerable or disadvantaged populations. Impacts can be determined through analyst review of previous or similar work, modeling or forecasting, and through public identification of issues of concern.

Some potential areas of impact include:

- *Physical environment*: Residential or commercial relocations, barriers created by new infrastructure, increased traffic, noise, pollution, and other environmental burdens
- *Social environment*: Gentrification and displacement, changes to community cohesion, social exclusion or isolation
- *Economic conditions*: Business development and employment generation, commercial displacement, property values, tax base
- *Visual aesthetics*: Compatibility with existing infrastructure, physical representation of community values
- *Mobility and accessibility*: Pedestrian and bicycle access, public transit, micromobility, vehicle traffic, access for persons with disabilities
- *Health and safety*: Vulnerable road user crashes, public health impacts
- *Quality of life*: Overall health and well-being

Unanticipated impacts can be minimized by early and frequent consultation and engagement with community members about their priorities for improvement and concerns about disruption.

Relationship to Environmental and Equity Laws

The authority and guidance for community impact assessment is supported by a number of federal and state statutes, regulations, and policies. This section updates laws and guidance first described in the *IDOT Community Impact Assessment Manual (2007)* and adds relevant summaries from *Community Impact Assessment: A Quick Reference for Transportation (2018)* and new research.

Title VI of the Civil Rights Act of 1964 and related statutes (42 USC 2000d et seq.). Title VI of the Civil Rights Act prohibits that no person is excluded from participation in, denied benefits of, or discriminated against in any federally funded program on the grounds of race, color, or national origin. This statute is operationalized under USDOT Order 1000.12B (2019). USDOT assesses whether each applicant for funding is in compliance with Title VI by examining the characteristics of the population served by the program and whether any protected classes will be denied service in a discriminatory manner. Title VI assessments require analysis of population demographics, locations of programs or facilities, characteristics of any individuals required to be relocated, and any advisory bodies to the program. The USDOT order also extends protections to people with limited English proficiency and clarifies that anti-Semitic discrimination can also violate Title VI.

The Older Americans Act of 1965, as amended in 2020 (42 USC 6101) established the Administration on Aging (AoA) to administer social service and community planning grants and services for older adults. The AoA operates under a memorandum of understanding with the Federal Transit Administration (FTA) to coordinate transportation services and programs. Funding provided by the Older Americans Act can provide matching funds for FTA section 5310 (Enhanced Mobility of Seniors and Individuals with Disabilities) and 5311 (Formula Grants for Rural Areas).

The National Historic Preservation Act of 1966 (16 USC 470/54 USC 306108, also known as Section 106) seeks to protect historic sites and landmarks. Federal agencies must take into account the effects of their actions on historic properties and must consult with the public, local authorities, and state authorities on decisions that might impact such properties. Archaeological sites are also protected under the Act, and any transportation project that involves excavation must also follow the Section 106 process.

The **National Environmental Policy Act of 1969 (NEPA, P.L. 91-190)** sets forth a national policy to ensure the protection and enhancement of the human and natural environment. It has been the foundation for specific environmental regulations and actions at both the federal and state levels. There are also agreements between FHWA and other federal agencies, as well as between IDOT and other state agencies that establish procedures now used by the Division of Highways.

Concern about the impact of human-induced changes on the environment led to a national policy with the passing of this Act. Section 102 of NEPA requires the preparation of an Environmental Impact Statement (EIS) for every major federal action significantly affecting the physical or human environment. The NEPA process is used to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment. The mandate set forth in NEPA is further explained, emphasized, and restated in other laws, regulations and guidelines of the federal and state governments and individual agencies. Sixteen other states have enacted legislation similar to NEPA for state-level projects. NEPA also established the Council on Environmental Quality (CEQ). CEQ regulations set forth the environmental documentation process.

As of the time of this writing (February 2021), USDOT has proposed a rule that would incorporate into NEPA implementation the new streamlining measures issued by the CEQ in July 2020. The streamlined regulations would limit the time with which an EIS or EA would be completed and

broaden the availability of categorical exclusions, among other changes. A lawsuit challenging the legality of the CEQ streamlining regulations is pending.

Sections 174 and 176(c) and (d) of the Clean Air Act of 1970, as amended in 1977 and 1990. The Clean Air Act requires states together with local officials to develop planning procedures for any area in non-attainment for ozone, carbon monoxide, or PM-10. Planning procedures must be coordinated with the continuing, cooperative, and comprehensive long range transportation planning process. Once a non-attainment area is redesignated as an attainment area, the state must revise their implementation plan to show how they will maintain the ambient air quality standards.

Uniform Relocation Assistance and Real Property Policies Act of 1970 as amended in 1987. The purpose of this Act and its amendments is to “provide for uniform and equitable treatment of persons displaced from their homes, businesses, or farms by federal and federally assisted programs, and to establish uniform and equitable land acquisition policies for federal and federally assisted programs.” Title IV (Amendments) requires displacing agencies to pay homeowners reasonable costs for a comparable home and to pay small business owners, non-profits, and farmers the actual expenses needed to reestablish their displaced operations.

Federal-aid Highway Act of 1970 - Procedures/Processes for Consideration of Social, Economic, and Environmental Effects, 23 USC 109(h) (“Highway”). This section of the code requires the development of guidelines for consideration of social, economic, and environmental effects of proposed highway projects. These provisions state that: “Not later than July 1, 1972, the Secretary...shall submit to Congress...(and) promulgate guidelines designed to assure that possible adverse economic, social, and environmental effects relating to any proposed project on any Federal-aid system that have been fully considered in developing such project, and that the final decisions on the project are made in the best overall public interest, taking into account the need for fast, safe, and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects as the following:

1. air, noise, and water pollution;
2. destruction or disruption of man-made and natural resources, aesthetic values, community cohesion, and the availability of public facilities and services;
3. adverse employment effects, and tax and property value losses;
4. injurious displacement of people, businesses, and farms; and
5. disruption of desirable community and regional growth.”

Process Guidelines/State Action Plans resulted from 23 USC 109(h). By the late 1970s, all states had an approved Action Plan in place, and the incorporation of NEPA into state practice was strengthened. With the substance of the Process Guidelines/Action Plans contained in 23 CFR Part 771, as well as within state internal operating manuals, the regulation to develop environment Action

Plans was rescinded May 11, 1982. Title 23 USC 109(h), however, has remained in effect through subsequent surface transportation bills.

Section 504, Rehabilitation Act of 1973. The Act is civil rights legislation that prohibits discrimination against people with disabilities in federally funded programs and activities. It is a precursor to the Americans with Disabilities Act (ADA) that applies only to entities that receive federal funding. The protections the law offers are nearly identical to the protections offered under the ADA.

Farmland Protection Policy Act (7 USC 4201 and 7 CFR Ch. VI Part 658, 1981/1994). The purpose of the FPPA is to minimize the impact of federal programs on the conversion of prime, unique, or state and locally important farmland to uses than agriculture, such as building or widening a road. The FPPA encourages agencies to consider alternatives if the development irreversibly converts farmland and assures that federal programs are consistent with state and local farmland protection policies. To comply with FPPA, federal agencies seeking to develop farmland must consult the Natural Resources Conservation Service (NCRS) to complete a Land Evaluation and Site Assessment of the project location. While NCRS may provide guidance to the agency about the advisability of proceeding with a project, the decision is left up to the implementing agency.

Americans with Disabilities Act (1990) as amended in 2008 (42 USC 126). The ADA provides standards to prevent discrimination against people with disabilities, defined as “a physical or mental impairment that substantially limits one or more major life activities.” Protections for people using public transit are listed in Title II, while protections for people using private transportation operators are listed in Title III. Further, state and local governments must follow the 2010 ADA Standards for Accessible Design for newly constructed facilities. The Standards provide design guidance for transportation facilities such as sidewalks and bus stops. Additionally, entities in Illinois must follow the Illinois Accessibility Code (2018) (71 Ill. Adm. Code 400). The Code implements the Illinois Environmental Barriers Act (410 ILCS 25 (1985) as amended in 1996 and 2017), which adopts a similar set of policy and design guidance for ensuring accessibility as the ADA.

Federal Surface Transportation Laws (ISTEA [1991], TEA-21 [1998], SAFETEA-LU [2005], MAP-21 [2012], FAST Act [2015], IIJA [2021]). ISTEA was recognized as a landmark transportation bill that ushered in the post-Interstate Highway Area. It was the first bill that guaranteed funding levels to states for highways, transit, and active transportation infrastructure. It also established metropolitan planning organizations in all urbanized areas responsible for creating both long-term and short-term transportation plans, which require public participation and input. The later bills through and including the FAST Act maintained these community engagement requirements. The most recent transportation bill, the Infrastructure Investment and Jobs Act, dedicates planning and implementation money for projects that remove, retrofit, or mitigate infrastructure that creates barriers to mobility under the Reconnecting Communities program.

Executive Order 12898 on Environmental Justice for Low Income and Minority Populations (1994). EO 12898 directs federal agencies to (1) identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law; (2) develop a strategy for implementing environmental justice; and (3) promote nondiscrimination in federal programs that affect human

health and the environment, as well as provide minority and low-income communities access to public information and public participation. In transportation, specific implementation of EO 12898 is incorporated into USDOT, FHWA, and FTA policy. (See below.)

Executive Order 13166 on Improving Access to Services for Persons with Limited English Proficiency (2000) clarifies existing requirements under Title VI to ensure that people can meaningfully access federal programs and services even if they are not proficient in English. USDOT guidance requires funding recipients to assess how many people with limited English proficiency (LEP) would be served by a program, service, or activity, how often they would be served, how important the program would be, and the resources and costs available to decide how to ensure meaningful access. Appropriate services include interpretation for public meetings and services and translation for written documents, tests, and signs.

USDOT Order 5610.2 (a), FHWA Order 6640.23A, FTA Circular 4703.1 on Environmental Justice (updated 2012). These orders set forth each respective agency's policy to consider environmental justice in their activities, implementing EO 12898. The USDOT and FHWA orders require the agencies to monitor "operations and decision-making to assure that nondiscrimination and the prevention of disproportionately high and adverse effects are an integral part of its programs, policies, and activities." The FTA Circular offers guidance to grant recipients on how to incorporate environmental justice principles into plans and projects. The circular also includes sections on how to conduct an environmental justice analysis (similar in character to this Community Impact Assessment guidance) and how to conduct meaningful public engagement with environmental justice populations. Note that the Illinois Environmental Protection Agency defines an environmental justice community as a community with a low-income or racial minority (that is, all groups except non-Hispanic white) population greater than twice the statewide average.

Executive Order 13985 on Advancing Racial Equity and Support for Underserved Communities through the Federal Government (2021). This executive order directs the federal government to conduct an equity assessment for all federal agencies to identify potential barriers that underserved communities and individuals face to accessing benefits and services in federal programs and whether new policies are needed to advance equity. It directs each agency to study strategies to allocate investment to underserved communities, promote equitable delivery of government benefits and opportunities, and to engage with members of underserved communities. The order also sets up a data working group to ensure datasets are disaggregated by race, ethnicity, gender, disability, and other demographic variables. Although the order has not yet been formalized in transportation policy, it has the potential to be as wide-reaching as EO 12898 with respect to its impact on equity.

The executive order also sets forward an expansive definition of equity: "the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality."

Illinois **Public Act 102-0573** requires performance-based programming for transportation. The Act directs IDOT to “reduce disparities in transportation system performance experienced by racially marginalized communities, low-income to moderate-income consumers, and other disadvantaged groups and populations.” IDOT must select performance measures after consultation with public sector stakeholders, private sector stakeholders, community-based organizations, and the public. All new capacity projects after April 2022 require evaluation for adherence to the selected performance measures. Community impact assessment is one means to identify existing disparities that should be addressed through performance-based planning and programming.

The IDOT Bureau of Design and Environment Manual outlines requirements for several elements of community impact assessment in the design and engineering of IDOT-sponsored projects. The manual provides guidelines for public involvement and general environmental procedures under NEPA. The BDE Manual can be found at <https://idot.illinois.gov/doing-business/procurements/engineering-architectural-professional-services/Consultants-Resources/index>.

Document Purpose

The purpose of this document is to provide IDOT with the tools to develop guidance on how to conduct a community impact assessment, including:

- Screening for CIA need and when to conduct the CIA
- Assessing impacts, including using public engagement in CIA, identifying data sources, identifying potential impacts, and determining significance and extent of impacts
- Identifying solutions to problematic impacts, documenting findings, and implementation and monitoring of mitigation or avoidance steps in resolving conflicts that result from the CIA
- Integration with other transportation processes, including planning and programming

All parties involved with CIA at IDOT should be familiar with the contents of this how-to guide, including staff involved in environmental assessment at headquarters (BDE) and in regional offices, local and regional partners in the project implementation process, planning staff, and project consultants.

This how-to guide is also relevant for community members seeking to understand the CIA process and engage with IDOT in the planning and project delivery processes. Public engagement is an important component of ensuring that the benefits and burdens of transportation investments are equitably experienced across communities; this guidance allows community members insight into the process and helps them identify opportunities for intervention when more public input is required.

Summary of Community Impact Assessment Process

A full community impact assessment should be conducted for any IDOT project that has the potential to result in temporary or permanent community impacts. The first step in determining potential impacts is to conduct a screening assessment. The screening identifies socioeconomic characteristics,

major employers and businesses, community facilities, and outreach efforts in the project area. Screening should be done early in the project delivery process by the project sponsor, when there is still an opportunity to identify vulnerable communities and neighborhood assets that may be impacted by a transportation project. Screening also identifies whether sufficient engagement has been conducted and whether community input has shaped the project. If the screening identifies that community vulnerabilities exist and project impacts will be felt, IDOT and their consultants should conduct a full CIA.

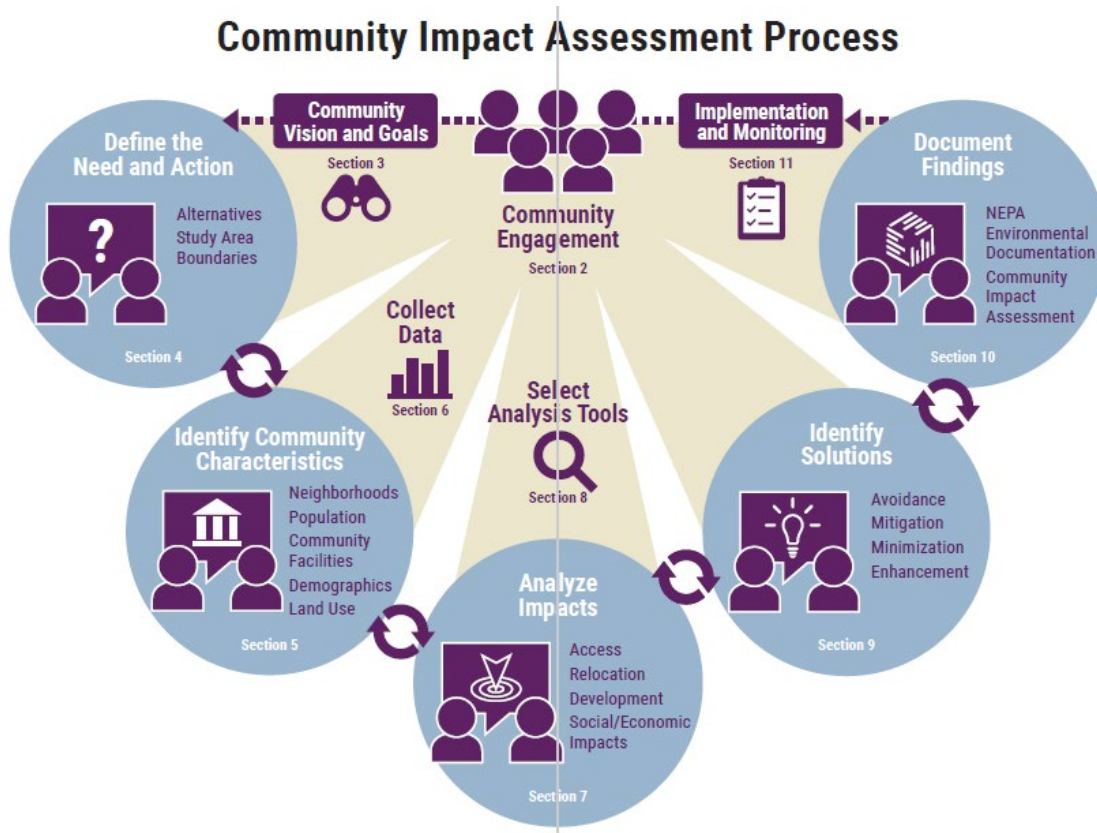


Figure 5. Community impact assessment process.

Source: Federal Highway Administration (2018)

Elements of the CIA process are depicted in Figure 1 and described in more detail in the remainder of this guide. A key point is that this is an iterative, not a linear process, so the steps below are continually revisited as depicted by the circular arrows in the diagram. In the first part of the process, CIA analysts and key stakeholders will learn more about the community. The process begins with **community engagement** about project needs, community vision and goals, and project alternatives. Community engagement should be considered a process that occurs throughout the project rather than a discrete event that occurs at the beginning of the project. Community engagement begins as early as possible within the project phase, and more appropriately in the planning process. **Defining the need and action** should incorporate community input into the planning, engineering, and environmental decision making about a transportation project. Defining action includes identifying project alternatives and determining the geographic scope of project impacts. **Identifying community**

characteristics is done initially in the screening phase, in determining neighborhood demographics and key community assets, like cultural centers, religious institutions, and neighborhood-serving businesses. In the CIA itself, more in-depth analysis of community characteristics, including land use, the economic base, travel behavior, and access will be done.

In the second part of the process, the goal is to understand how the transportation project will impact the community and to ensure that the impacts are equitable. **Impact analysis** examines all the potential short-term, long-term, and cumulative impacts of a transportation project to the community. Impacts can be both positive and negative, can be real or perceived, and can be affected by qualitative, contextual factors in the neighborhood. Potential impact categories may include safety, access, demographic change, and the physical and social environments, among others. When impacts are identified, **identifying solutions** includes actions to avoid harm, mitigate or minimize negative impacts, and enhance projects. This process is also iterative, as the identification of solutions often requires further analysis or outreach to assess their impacts.

Documenting findings should occur regardless of environmental determination so staff and the public can understand community impacts and the plan to address them, and which form the basis for **implementation and monitoring** to ensure that those plans are carried out.

About This Guide

This how-to guide provides the necessary information for conducting a CIA. It includes the quantitative and qualitative analytical methods for screening—that is, determining when to conduct a CIA—and methods for conducting and documenting the CIA when screening determines that one needs to be done. This document provides guidance that IDOT may consider adopting as a new CIA manual or incorporating into a revision of the current manual. The procedures and guidance contained within were informed by the research process documented in the associated final project report. Key information was gathered from current IDOT manual, the FHWA Quick Guide to Community Impact Assessment, a literature review, scan of other DOT CIA processes, a survey of DOT environmental and CIA processes, and interviews with key personnel involved in those processes.

This guide does not provide guidance on earlier planning stages prior to project delivery, but these are critical to ensuring that community impacts and equity concerns are considered as early in the process as possible. Some of the actions described in this document may expose gaps in past planning stages. This document does not advise on how to solve them, but it may suggest returning to those earlier stages before proceeding.

While this guide describes the importance of public engagement in the CIA process, it does not serve as a public participation manual for IDOT generally. The manual refers to some positive practices, but these are not all-inclusive, and the techniques described here are intended to supplement, not replace, other guidance for IDOT. The guide also does not serve as a design manual, which can be found elsewhere in IDOT guidance. Finally, this guidance is not a replacement for more advanced local processes; it is intended as a baseline rather than a frontier. Some communities may have more significant expectations or requirements, and this manual does not replace these.

CHAPTER 2: PROJECT SCREENING

Project Screening vs. Full CIA

One of the most important steps in conducting an effective CIA occurs before the CIA itself even begins: determining whether a CIA is necessary, and if so, what its specific scope should be. Not every CIA is the same, and each needs to be customized to the specific needs of the project and the community. It is important to understand early on what elements of a CIA are necessary, so they can be built into the project’s scope of work from the start.

This guide draws an important distinction between determining whether a project would benefit from a CIA—which we term “screening”—and conducting the actual CIA. Screening differs from conducting a CIA in several key ways (see Table 1).

Table 3. CIA Screening vs. Assessment

	Characteristics of community impact assessment	Characteristics of the screening process
Complexity	Variable process, customized to needs of the project and the community	Standardized process that can be conducted by anyone for any project
Outreach needs	Thorough externally focused process with extensive community outreach	Quick process conducted internally
Technical needs	Thorough technical analysis	Routine, simple, and partially automated analysis
Who conducts	Led by a specialist—planner, sociologist, or others with extensive experience in evaluating impacts on communities	Doable by project sponsors without technical expertise required

Screening will not necessarily result in a “yes/no” answer for conducting a CIA, because a CIA itself is not a standardized process—it varies based on the types of community impact that are expected. Screening is meant to generate information about potential community impacts, which is then used to develop a scope of work for the CIA that drives consultant selection.

Screening is the beginning of the CIA process, not its end. Post-screening, for projects that do require a CIA, the real work begins to integrate community impact analysis into the project scope, hire a consultant that has the right skills, and conduct a CIA. That said, the screening process is important and is laid out in the following pages.

Project Screening Instructions

What Types of Projects Justify Screening?

Screening should be performed for all projects that lead to construction regardless of size, type, and mode. Large projects typically have significant community impacts, simply due to their size and influence. For particularly large projects, screening can identify CIA elements to be included within the NEPA process, and even help to determine the class of action required for a given project. Projects that go through the NEPA process should not be exempt from CIA screening, because the screening will yield important information about project impacts that will need to be addressed in the scope.

But smaller projects often have impacts on communities too, and depending on where they are located, these impacts can be substantial. Perhaps counterintuitively, it may even be more important to use screening process on small projects that receive categorical exclusions, because these are not required to go through a detailed environmental review and therefore their community impacts may be missed. Screening for CIA relevance is meant to fill this gap.

It is important to reiterate here that purpose of screening is not to yield a “yes/no” decision on use of a CIA, because the CIA is not a one-size-fits-all process. As covered later in this manual, the CIA process is not meant to produce a single, standalone document. Different CIA elements will be used depending on project and community characteristics. In the plainest of terms, the screening process is meant to help us “figure out what community impacts to worry about” in a project, so that these can be addressed proactively from the very start. This is why the screening process—described below—needs to be easy and quick to conduct.

How Is the Screening Conducted?

Screening is not just about project size, type, or mode, and it includes both quantitative and qualitative questions. There are several factors that drive whether a CIA is justified:

- Whether the project will impact nearby residents who have been harmed by past transportation decisions—most commonly, people of color, lower-income people, and people with disabilities
- Whether the project will impact businesses, employers, and community facilities in the area, with particular attention whether they serve marginalized and vulnerable groups
- Whether the project creates potential for displacement, either through direct relocation or expected increase in property values

- Whether the project has potential for other complex impacts on nearby areas
- Whether the project has already completed thorough public engagement process to demonstrate local support and uncover community perspectives

The screening process is designed to identify whether the above conditions are met. It includes several steps supported by an interactive online tool and a spreadsheet-based checklist. Screening steps include:

Step 1: Quantitative Assessment

Use the interactive online mapping tool to identify demographic characteristics in the immediate project area (Figure 2). This tool is not a sophisticated analytical tool, but is meant to give a quick, simple analysis of the characteristics of people who live near the project.

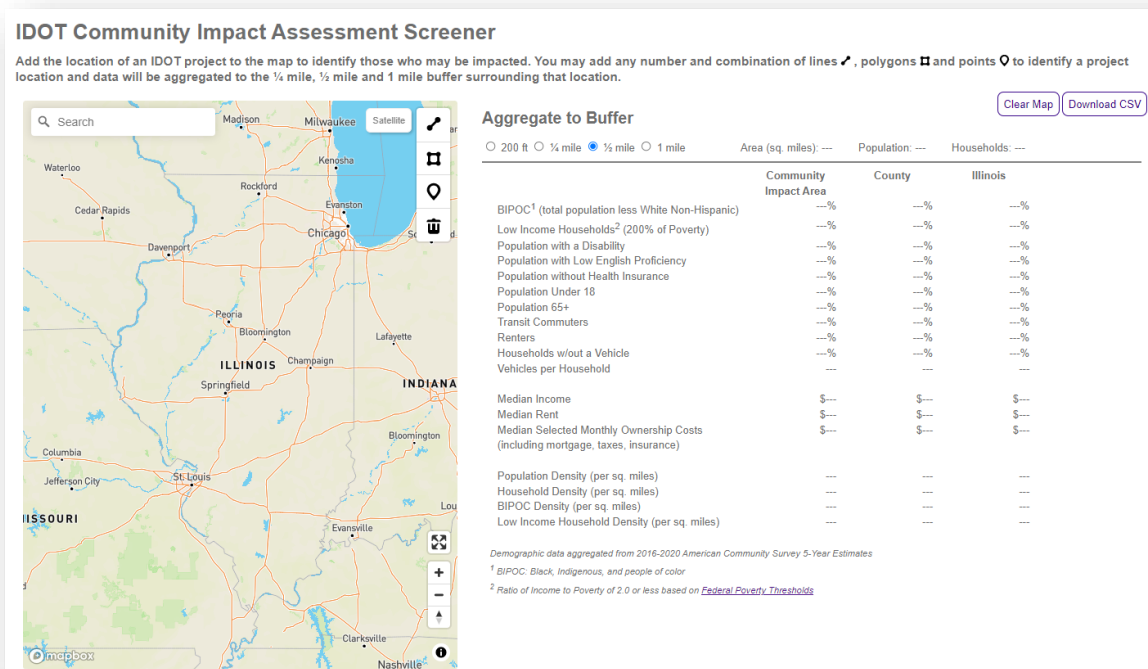


Figure 6. Interactive mapping tool homepage.

The first step is identifying project location (Figure 3). The tool user can draw the project on the interactive map, either as a line (for most projects), a series of points (for a series of intersection improvements, for example), or a polygon (for a project that affects a broad area, like miscellaneous sidewalk improvements in a neighborhood).

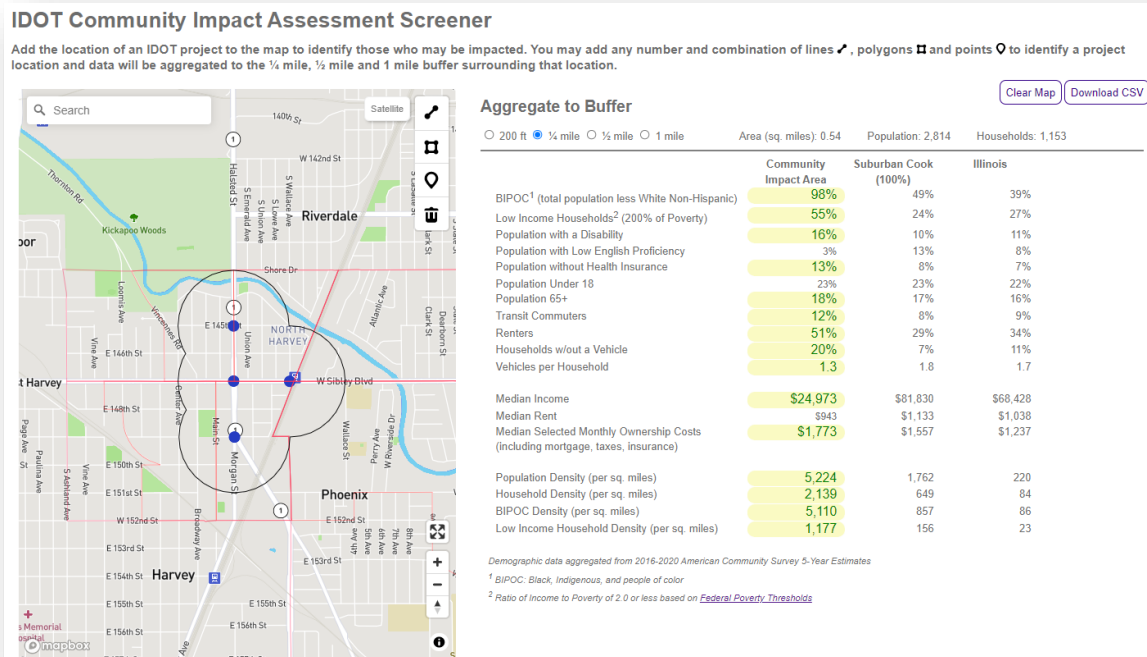


Figure 7. Example project location selection.

The user then can choose the size of buffer to use as the project’s impact area. Generally larger projects which will generate higher impacts should use larger buffers. The tool allows the user to experiment with different buffers to review the impacts of different assumptions.

Buffers are not the most sophisticated way of understanding project impacts, and are used here only because the screening happens very early in the project development process. For projects which do go through a CIA, more sophisticated ways of determining impact should be used, based on deeper understanding of facility users.

Once the project is mapped and the buffer is chosen, the tool will generate demographic data automatically (Figure 4). Data reported includes race and ethnicity, income, transportation and housing costs, and numerous other indicators related to equity.

The demographic data for the project area is then automatically compared to State and County averages. Figures that are above these averages—indicating that the project area has a higher concentration of marginalized residents—are highlighted.

Finally, the tool allows the user to export the demographic data directly into Excel (Figure 5), where it will feed into the larger set of questions that determine whether a CIA is necessary.

IDOT Community Impact Assessment Screener

Add the location of an IDOT project to the map to identify those who may be impacted. You may add any number and combination of lines, polygons and points to identify a project location and data will be aggregated to the 1/4 mile, 1/2 mile and 1 mile buffer surrounding that location.

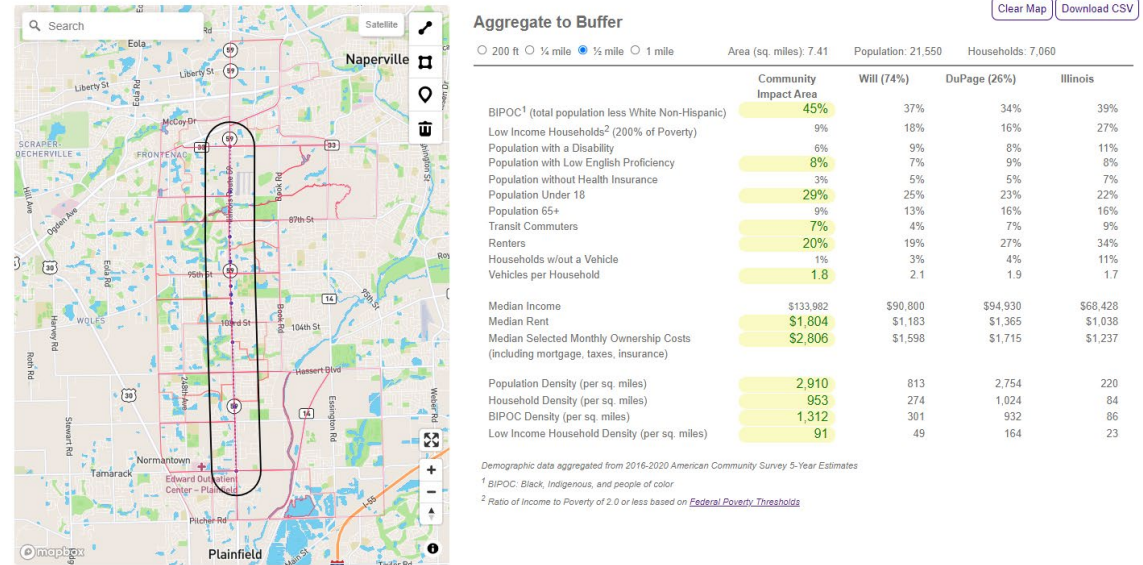


Figure 8. Demographic data display.

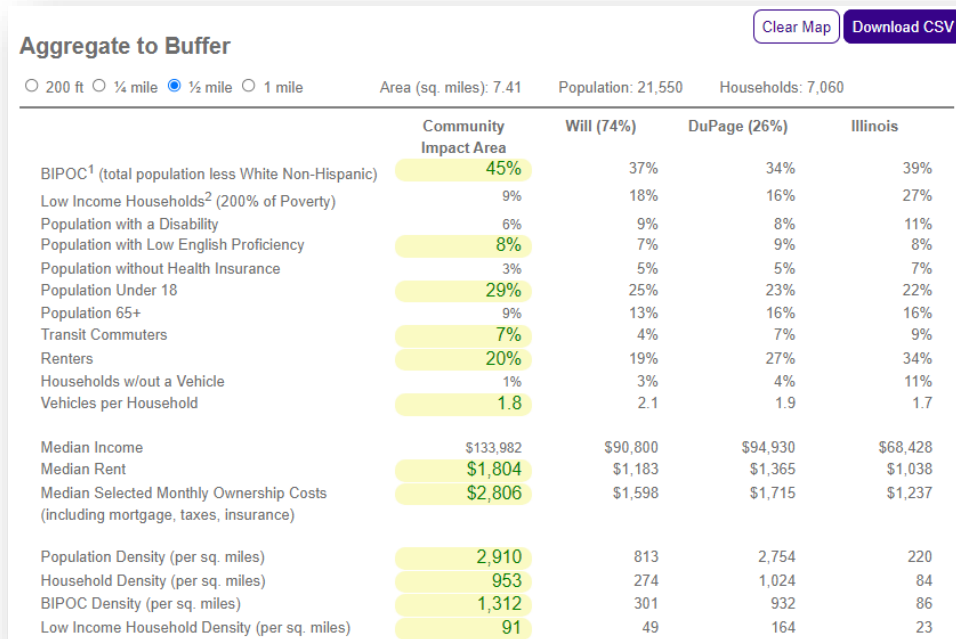


Figure 9. Data download preview.

1	A	B	C	D	E	F	G	H	I	J	K	L	M
2	name	sqmi	pop	pct_minor	households	pct_200po	pct_65seni	pct_under	pct_rent	pct_zero_c	pct_itw_tr	median_incom	median_gr
3	Community Impact Area	7.4	21550.3	45.1	7059.7	9.5	8.7	29.4	19.8	1.4	6.7	133982.5	1803
4	Will	848.7	689704.0	37.1	232395.0	18.0	13.0	25.0	19.0	3.0	4.0	90800.0	1183
5	DuPage	336.2	926005.0	33.8	344314.0	16.0	16.0	23.0	27.0	4.0	7.0	94930.0	1365
6	Illinois	57915.0	12716164.0	39.2	4884061.0	27.0	16.0	22.0	34.0	11.0	9.0	68428.0	1038
7													
8													
9													
10													
11													
12													

Figure 10. Screening tool data in Excel format.

Once the demographic data is in Excel (Figure 6), the user can then move on to answer several qualitative questions, coming back to review the data at the end of the screening process.

Step 2: Qualitative Assessment

The purpose of the qualitative assessment is to examine project impacts that go beyond the demographics of nearby residents. This segment of the screening is not quantitative because consistent data is not available, so it relies instead on the local knowledge of the project sponsor.

The qualitative questions are fairly simple although do require careful consideration and local knowledge by the project sponsor. The user will be asked to answer:

- What major businesses and employers are within the impact area? To what degree do they employ or serve marginalized or vulnerable groups (BIPOC [Black, Indigenous, People of Color], low-income, disabled, elderly, or children)?
- What community facilities are within the impact area? To what degree do they employ or serve marginalized or vulnerable groups (BIPOC, low-income, disabled, elderly, or children)?
- To what degree will this project involve relocation of people or businesses or other institutions?
- To what degree will this project cause increases in local property values?
- In general, does this project have the potential to cause complex community impacts?

Users are asked to enter their responses into the Excel form, coming back to review responses at the end of the process.

Step 3: Outreach and Engagement

In step 3, users are asked to evaluate the outreach process to date. Identifying, avoiding, and mitigating community impacts relies heavily on effective outreach. If such outreach has not occurred to date, the screening tool will flag this as a potential reason to conduct a CIA. In some cases, the primary purpose of a CIA may be to correct for incomplete or insufficient past community outreach.

The user will be asked to answer:

- Describe the community engagement process to date.
- How much engagement have you done for this particular project?
- How committed are residents and community organizations to this project?

Step 4: Review of Results

Once all results have been input into the Excel spreadsheet, the final tab summarizes the results of the screening process.

One on sheet, it displays:

- Whether marginalized groups live in proximity to the project
- Whether employers and community facilities may be impacted, and whether displacement or other complex impacts are likely
- Whether outreach to date has secured community support

For each question, it displays whether the response indicates the potential need for a CIA, communicating this as moderate to high need.

Generally, if a project has at least one or two “high” results, or three to four “moderate” results, or some combination of the two, this indicates that a CIA would be beneficial. However, the interpretation of these results is left to IDOT and the project sponsor. Some projects may benefit from a CIA even if they do not achieve the above guidelines.

The screening tool also can help determine what CIA elements are most important to include in project development. For example, in some cases, past outreach may have been limited, triggering the need for a CIA. In this case, focusing on the outreach-oriented CIA elements will make sense. In other cases, high concentrations of nearby residents may be members of marginalized groups. This would call for not only effective outreach, but also analysis of how these residents would use and otherwise interact with the facility. Again, the exact scope of the CIA will depend on the judgment of IDOT and the project sponsor.

Who Conducts the Screening?

Because it needs to be an early step, screening is expected to be done by project sponsors, whether agency staff or consulting engineers, without any specialized expertise. Following the screening, the project sponsor will review results with IDOT staff overseeing environmental review and confirm the direction forward. This is why the screening has been presented as an easy-to-use checklist of potential impacts with automated demographic analysis and simple qualitative questions: it is designed for these users.

If a full CIA is in fact justified, significant attention must be paid to who is conducting the analysis. The users of the screening tool—agency staff, their consulting engineers, and IDOT staff—are not the necessarily right groups to conduct a full CIA. Instead, a full CIA should be led by a specific community impact analyst position on the consultant team. It is unlikely that this role can be filled by a conventional engineering firm, and instead, subcontractors with backgrounds in planning, sociology, public health, or similar fields should be considered. The characteristics of a community impact analyst will be discussed further in later sections.

When Is the Screening Performed and When Is a Decision Made?

Conducting a CIA takes time and effort, and needs to be built into the scope of work for project development, so screening needs to happen very early in the project. Screening should be conducted by the project sponsor, as described above, and then reviewed by IDOT, who will approve the sponsor's plan for inclusion of CIA elements in project development. The primary outcome of the CIA screening is specification of the consultant scope of work for project development. If there is concern or disagreement about approach, the project should be brought for discussion to a regular IDOT Project Coordination Meeting for resolution.

During this screening, IDOT and the project sponsor may also identify appropriateness to use either a Context Sensitive Solutions (CSS) or Planning and Environmental Linkages (PEL) process for project development. In these cases, CIA elements can still be integrated within project scope. As emphasized earlier, CIA is not meant to be a standardized, separate process, but to contain a series of elements that can be included as relevant. This makes it very possible for the results of the screening to result in CIA elements being included within a CSS, PEL, or NEPA process.

How Is the Decision to Proceed with a CIA Made and What Happens Afterwards?

As described earlier, following the screening process, IDOT and the project sponsor will determine together whether, and how, a CIA will be conducted. If a CIA is justified, the project sponsor should build its elements into the scope of work for project development—just as they would build any required NEPA elements into the scope of work. This will affect the consultant team that is hired, because conducting a CIA requires specialized skills to engage with the impacted community and effectively represent their needs in project development.

For example, the following findings would trigger certain elements to be included in a CIA:

- Presence of vulnerable groups: make sure project team is culturally competent, include representation from community organizations that serve these groups
- Potential for displacement: involve specialists with knowledge of displacement avoidance strategies like housing affordability preservation or small business support
- Lack of past outreach: devote significant resources to both general and targeted outreach

CHAPTER 3: CONDUCTING COMMUNITY IMPACT ASSESSMENT

Analytical Needs and Process

An effective analysis of community impacts must include quantitative analysis, qualitative analysis, and community outreach. These are not done in sequence, but instead in an iterative process that continually questions past assumptions and conclusions in light of newly learned information.

Assessment of community impacts is very different than transportation engineering, and requires a very different skillset. It is critical that the consulting teams that take on projects that include a CIA approach be deliberately constituted to include this additional skillset, which may not be traditionally found on these teams. This may involve professionals from fields like urban planning, sociology, public health, or community development. As applicable, experience in conducting Health Impact Assessments (HIAs) or Racial Equity Impact Assessments (REIAs) will be useful or possibly necessary in many projects. Also, an effective CIA should treat community representatives as partners in the planning process—often by including them as compensated members of consulting teams—not simply as “targets” of outreach.

It is also important for a CIA process, from the very beginning, to be deliberate about its intent to advance equity. The evidence is clear that past transportation decisions have had real negative impacts in marginalized communities, and this recognition is a large part of the reason that CIAs are so important.

Geographic Scope

The publication *Community Impact Assessment: A Quick Reference for Transportation*, published by FHWA in 2018 (“The Purple Book”), provides the following guidance for early steps in defining the geographic scope of the assessment and its focus (p. 24):

1. Define community boundaries, and neighborhood or subdivision boundaries.
2. Locate the businesses, residences, and activity centers of potential impact, especially within neighborhoods along the roadway alternatives and near intersections.
3. Determine demographic characteristics, economic base, location of community facilities, and other characteristics.

4. Learn about a community within the study area by comparing local or area population demographics, land-use, and other characteristics with State or regional information.
5. Continually refine the Community Characteristics Summary throughout the assessment process as impacts are identified and as situations change over time.

Particularly important in this process is the identification of the marginalized communities—that is, those whose needs and priorities have historically not been considered in transportation decisions—and conducting the process to center their perspectives. Depending on the situation, marginalized communities may include environmental justice populations, disabled people, people at risk of displacement from rising property values, pedestrian and bicyclists, or many others. Understanding the presence of these communities in the study areas, whether as residents or workers or visitors, is critical to an effective CIA.

Early in the process, the analyst will need to define the appropriate geography to study. The CIA Screening Tool provides a simplistic estimate of a study area, which is useful for early screening but needs to be considerably refined to capture the right geography. The Purple Book notes that project impacts may extend beyond its immediate vicinity (p. 24):

It is important to recognize that an affected community may not be geographically located next to a project. For instance, a population group that relies on a facility or service for access (such as commuters who rely on a bus route that might be affected) or that utilize a community resource (such as members of a faith-based congregation) could be affected and should be considered within the affected community. Sub-communities should also be identified, as well as stratifications within a community, based on economic or demographic characteristics.

Quantitative Analysis

The Purple Book provides numerous examples of the types of data in the early stages of a CIA. (See Figure 7 and Figure 8.)

Community Characteristics

How do you identify community characteristics?

The following are examples of the types of data to collect and incorporate into a community characteristics summary.

Population and Demographic Characteristics

- Trends in population growth and demographics
- Ethnicity and race
- Age and gender distributions
- Income levels
- Educational attainment
- Employment status/workforce population
- Special population subgroups, such as disabled populations
- Indian tribal governments, as appropriate

Economic and Social History/Characteristics

- Community historical background and context
- Community values and issues (e.g., security and solitude)
- Economic base and industry clusters (e.g., agriculture, manufacturing, and service)
- Property values
- Tax base
- Other economic characteristics (e.g., port city, tourism base, and lumber town)

Physical Characteristics Relating to Community Activities

- Community centers/activity centers
- Infrastructure (e.g., roads, transit, and water and sewage systems)
- Public services and facilities (e.g., schools, police, fire, libraries, and hospitals)
- Cellular and wi-fi availability and coverage, computer ownership
- Land-use plans and zoning
- Special areas, historic districts, parklands, and cemeteries
- Businesses

Figure 11. Community characteristics data types.

Source: Federal Highway Administration (2018, p. 25)

- Housing (availability, age, and type)
- Planned and approved future development
- Community focal points or informal meeting places (e.g., places of worship, playgrounds, hair salons, and laundromats)

Travel Patterns

- Travel options available (e.g., bicycle lanes, sidewalks, transit)
- Commute patterns, such as mode choices
- Vehicle ownership
- Other personal travel patterns and characteristics (e.g., traffic congestion, route choice, and safety and security concerns)
- Freight and goods movement patterns

Figure 12. Community characteristics data types (continued).

Source: Federal Highway Administration (2018, p. 26)

Quantitative elements of the analysis can be supported by data from many sources. Which of these is most effective depends to a great degree on the specific focus of the assessment. Many of the most available data sources lack the degree of hyperlocal detail that is necessary to truly understand a community's needs—which is what makes qualitative analysis, and extensive outreach to those most effective, so important.

Familiarity with relevant data sources is an important skillset to include on the consultant team, and should be considered during scope development and consultant selection. Data sources recommended in the Purple Book are comprehensive, and include data sources shown in Figure 9 and Figure 10.

What are some Data Sources?

Source	Primary Uses
U.S. Census - American Community Survey	Race and ethnicity, disability status, languages spoken at home, veteran status, educational attainment, employment and occupations, income and poverty status, commuting and place of work, housing characteristics
U.S. Environmental Protection Agency - EJScreen	Demographic indicators, environmental indicators, and overlays to identify vulnerable communities
U.S. Department of Education - National Center for Educational Statistics	Race and ethnicity of all students and number of students eligible for Free and Reduced Price Meals program
U.S. Department of Agriculture (USDA) - Food Desert Locator and location of businesses participating in SNAP (Food Stamps) program	Location of Food Desert Census Tracts and location of all businesses that accept electronic benefit transfers (EBT)
U.S. Department of Housing and Urban Development (HUD) - Affordable Apartment and Low Income Housing Credit Properties Search	Affordable apartments locator by city, county, and zip code; provides name of property type (elderly, family, and disabled) and locates Low Income Housing Credit Properties
U.S. Bureau of Labor Statistics	Employment and industry data
Metropolitan Planning Organizations (MPOs)	Economic base, land-use and zoning plans, and area planning history, anticipated future growth, existing traffic and congestion, access times, forecast future traffic and congestion, Transportation Improvement Program (TIP), Long Range Transportation Plan (LRTP), Public Participation Plan
State and local government planning and social service departments/agencies	Economic base, land-use and zoning plans, taxing districts, social and economic programs, and business and marketing information
Transit agencies	Existing and planned transit services, ridership

Figure 13. Data sources for community impact analysis.

Source: Federal Highway Administration (2018, p. 28)

State employment agencies or labor departments	Employment trends, unemployment rates, and economic base
Local public agencies	Tax records, property values, building permit records
State, local, and university libraries	General information, community historical background, economic base, and business and marketing information
Local historical societies and State Historic Preservation Officer (SHPO)	Community historical background, and location of historic structures, landmarks, and districts
Other relevant organizations, such as Chambers of Commerce, faith-based institutions, American Automobile Association (AAA), Meals-on-Wheels, social agencies, and other associations.	Special populations and needs, businesses, community issues, etc.
Center for Neighborhood Technology – Housing + Transportation Affordability Index	Combined housing and transportation costs
AARP – Livability Index	Housing affordability, proximity to destinations, crime rates, vacancy rate, frequency of local transit service, walk trips, congestion, household transportation costs, obesity rates, access to exercise opportunities, income inequality, age diversity, education
Real estate web sites and agencies, and interviews with realtors	Housing prices, trends in sales, age or characteristics of structures, and neighborhood composition
Interviews and public involvement with businesses, community leaders, and residents	Community values and issues
Field or windshield surveys and reviews	Locations and number of structures, and activity patterns

Figure 14. Data sources for community impact analysis (continued).

Source: Federal Highway Administration (2018, p. 29)

In addition to these sources, the CDC’s Social Vulnerability Index, <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>, combines various Census datasets into an overall index useful in determining relative vulnerability. The Council on Environmental Quality has recently published a

Climate and Economic Justice Screening Tool (<https://screeningtool.geoplatform.gov/>), designed to identify disadvantaged communities using a set of indicators related to climate change, clean energy, sustainable housing, pollution, clean water, health burdens, and workforce development.

To calculate economic benefits of a transportation project, use IDOT's economic multiplier spreadsheet tool. The tool estimates the economic multipliers resulting from investment in highway and rail projects on a county-by-county and statewide basis.

As noted earlier, conducting a community impact assessment is an iterative process, with data collection leading to data analysis, interpretation, and validation with community partners, which then drives the need for further data collection. This process may seem circular or repetitive when compared to the more linear and well-defined process for the physical design and engineering of transportation infrastructure—but it is necessary due to the unique focus and intent of the CIA.

Qualitative Analysis

The CIA should also include qualitative analysis, which is informed by the quantitative data but interrogates it further by asking questions about who benefits and who is burdened by the proposed project. Some transportation agencies have incorporated these types of questions into equity screening tools, which are not unlike CIAs in their intent. Several of those are provided as case studies below.

The City of Oakland's Racial Equity Impact Assessment uses a results-based racial equity approach that is data driven, concrete, and able to orient all analysis toward actionable solutions that will lead to more equitable outcomes. It applies to numerous fields, including transportation. It walks users through steps to identify desired outcomes, gather data about impacts, engage stakeholders, identify equity gaps, investigate how this project could fill these gaps, recommend equitable policy options, and evaluate results: <https://cao-94612.s3.amazonaws.com/documents/Racial-Equity-Analysis-Worksheet-Rev4.pdf>

LA Metro's Rapid Equity Assessment was created to make fast-paced decisions concerning equity within the context of COVID-19. The tool is designed to be used by project teams with a variety of experiences, knowledge, backgrounds, and skillsets. It asks users to identify who a project affects, who benefits, who may be harmed, whether the project has potential to advance equity outcomes, what mitigation strategies are possible, and how engagement has informed the project: <https://www.dropbox.com/s/fqodubs1huc25po/rapid-equity-assessment-tool.pdf?dl=0>

King County, Washington's Equity Impact Review process is used by staff, including transportation staff, to understand to what extent their proposal impacts or advances equity and provides a checklist for the different steps to take action on the inequity. This tool asks questions about who is affected, what the larger context surrounding the project is, what the impacts of alternative approaches will be on different groups, and whether intended outcomes are being achieved:

https://kingcounty.gov/~media/elected/executive/equity-social-justice/2016/The_Equity_Impact_Review_checklist_Mar2016.ashx?la=en

CIAAs can be informed by other types of impact assessments—namely Health Impact Assessments (HIAs) or Racial Equity Impact Assessments (REIAs). If warranted by project specifics, project scoping could specify that the consultant team should include team members with experience in these specific techniques. The transportation equity screening tools noted above are largely derived from these models, though focused specifically on transportation impacts.

A local example in Illinois is a REIA conducted for a transportation improvement in the Logan Square neighborhood of Chicago and led by community groups in the neighborhood. This project analyzes who benefits and who is burdened by a particular transportation proposal and then makes recommendations to protect vulnerable residents and avoid unintended negative consequences: https://docs.wixstatic.com/ugd/05f795_b7ee53bb4c9f4249b530b511edf93e64.pdf

The questions asked in the transportation equity analysis tools described above are fairly general, and can be applied to nearly any transportation project. They provide a good example of the mindset that should be brought to conducting a CIA. The Purple Book proposes a comprehensive list of impacts to analyze, including those found in Figures 11-13.

What questions help identify community impacts?

Impact Category		
Safety	Mobility and Access	Social and Psychological Aspects
<p>Pedestrian and Bicycle Safety Will the proposed action increase or decrease the likelihood of accidents for non-motorists?</p> <p>Crime Will the proposed action increase or decrease the likelihood of crime?</p> <p>Emergency Response Will there be changes in emergency response time (fire, police, and emergency medical)?</p>	<p>Pedestrian and Bicycle Access How does the project affect non-motorist access to businesses, public services, schools, and other facilities? Does the project impede or enhance access between residences and community facilities and businesses? Does it shift traffic?</p> <p>Public Transportation How does the project affect access to public transportation?</p> <p>Vehicular Access How does the project affect short- and long-term vehicular access to businesses, public services, and other facilities? Does it affect parking availability?</p>	<p>Changes in Population Will the proposed action cause redistribution of the population or an influx or loss of population?</p> <p>Community Cohesion and Interaction How will the project affect interaction among persons and groups? How will it change social relationships and patterns?</p> <p>Isolation Will certain people be separated or set apart from others?</p> <p>Social Values Will the project cause a change in social values?</p> <p>Cultural Changes Will the project cause a change in cultural identity?</p> <p>Quality of Life What is the perceived impact on quality of life?</p>

Figure 15. Questions to help identify community impacts.

Source: Federal Highway Administration (2018, p. 32)

Economic Conditions	Physical Aspects	Visual Environment
<p>Business and Employment Impacts Will the proposed action encourage businesses to move to the area, relocate to other locations within the area, close, or move outside the area? What is the impact on both the region and individual communities?</p> <p>Short-term Impacts How is the local economy affected by construction activities? Are there both positive (jobs generated) and negative (detours and loss of access) impacts?</p> <p>Business Visibility Will the proposed action alter business visibility to traffic-based businesses? How will visibility and access changes alter business activity?</p> <p>Tax Base What is the effect on the tax base (from taxable property removed from base, changes in property values, changes in business activity)?</p> <p>Property Values What is the likely effect on property values caused by relocations or change in land use? Is gentrification a potential issue (positive or negative)?</p>	<p>Barrier Effect Is a wall or barrier effect created (such as from noise walls or fencing)?</p> <p>Sounds Will noise or vibration increase? What will be the duration (short-term during construction or long-term)?</p> <p>Other Physical Intrusions Will dust or odor increase? Will there be a shadowing effect on property?</p>	<p>Aesthetics Will the community's aesthetic character be changed?</p> <p>Compatibility with Goals Is the design of the project compatible with community goals? Has aesthetics surfaced as a community concern?</p>

Figure 16. Questions to help identify community impacts (continued).

Source: Federal Highway Administration (2018, p. 33)

Land Use	Provision of Public Services	Displacement
<p>Land-Use Patterns Will there be loss of farmland? Does it open new areas for development? Will it induce changes in land use and density? What changes might be expected?</p> <p>Compatibility with Plans Is the project consistent with local land-use plans and zoning?</p>	<p>Use of Public Facilities Will the proposed action lead to or help alleviate overcrowding of public facilities (i.e., schools and recreation facilities)? Will it lead to or help alleviate underuse? How will it affect the ability to provide adequate services?</p> <p>Displacement of Public Facilities Will the project result in relocation or displacement of public facilities or community centers (e.g., places of worship)?</p>	<p>Effect on Neighborhoods What are the effects on the neighborhood from which people move and into which people are relocated?</p> <p>Residential Displacements How many residences will be displaced? What type(s) – multi-unit homes, single family, rural residential, others? Are there residents with special needs (disabled, minority, elderly residents)?</p> <p>Business and Farm Displacements How many businesses and farms will be displaced? What type(s)? Do they have unique characteristics, such as specialty products or a unique customer base?</p> <p>Relocation Sites Are there available sites to accommodate those displaced?</p>

Figure 17. Questions to help identify community impacts (continued).

Source: Federal Highway Administration (2018, p. 34)

Beyond the questions identified in the graphics above, analysis may also consider others, such as:

- *Accessibility to Destinations:* Beyond simply giving access to transit and bike/ped facilities, do these connect to locally valued destinations?
- *Impact on Accessibility for People with Disabilities:* How does this project specifically affect the ability of people with disabilities to travel?
- *Cumulative Impacts:* Have there already been negative impacts in the area that this project reinforces?

- *Air Quality*: Will the project affect air quality in the surrounding neighborhoods, either positively or negatively?
- *Heat Islands*: Will the project create new urban heat islands, or reinforce existing heat islands, or reduce an existing concern with heat islands?
- *Stormwater Runoff*: Does the project provide an opportunity to mitigate flooding problems that already exist in the community, or does it worsen them?
- *Displacement Potential*: Will property values rise, causing potential for indirect displacement?

Analysis needs to consider cumulative impacts, or the “incremental impacts of an action added to other past, present, or reasonably foreseeable future actions,” according to the Purple Book:

It is important to consider the history of the affected community in relationship to the current project as well as its potential contribution to cumulative effects based on previous projects or development plans. For instance, many low-income communities and minority communities were adversely affected by transportation projects in the past, and a new project or rehabilitation of an existing transportation infrastructure could exacerbate past burdens, or offer an opportunity to help address a past impact (p. 36).

Tools like EJScreen and the Climate and Economic Justice Screening Tool can provide a quantitative picture of cumulative impacts. But many of the cumulative impacts from past decision making are qualitative in nature, affecting quality of life, well-being, and community cohesion. Assessing these impacts requires a qualitative perspective.

An important observation about the qualitative analysis described above is how much it relies on quantitative data. To reinforce a point made in the introduction to this section: a CIA process is not linear, but iterative. Collection of quantitative data leads to formation of qualitative questions, which then then require other quantitative data analysis or outreach activities to answer, and so on. Project sponsors and IDOT should enter a CIA process with this understanding in mind and should dedicate sufficient time and resources to avoid shortchanging the process.

Effective Outreach

To advance equity in the transportation field, public agencies should commit to improving and increasing outreach efforts—specifically to reach and understand historically marginalized populations that have been harmed by transportation decisions and disinvestment. While inclusive outreach efforts can be time and resource intensive when engaging hard-to-reach populations, they are at the core of committing to a diverse, equitable, and inclusive process.

When included within a CIA, first steps should include scoping the project to create a clear role for an outreach expert on the external consultant team. In addition, IDOT should include staff from its planning department in project oversight. Over time, IDOT should be seeking to add staff who have familiarity with equity-oriented outreach processes so that this becomes a skill set that is present in-

house. Both for external consultants and internal IDOT employees, staff who interact directly with communities should be familiar and comfortable with the inclusive outreach concepts that are listed below.

The consultant team, with IDOT, should develop a project-specific Public Participation Plan at the project's outset. This plan should be consistent with IDOT's existing guidance for public participation, but be highly customized to what is needed in the CIA.

In no particular order, the following best practices should be embedded in outreach efforts:

- Engage with partners such as Community Based Organizations (CBOs) to help reach certain populations: CBOs, particularly those who directly confront environmental justice problems, represent the interests of the people who live in their neighborhoods, with a focus on residents who are most vulnerable and underrepresented in traditional planning processes. It is a fair, respectful, and increasingly common practice to compensate groups for their time and effort in your project. While no standard rate is recommended off-hand, hourly rates for CBO representatives should be comparable to members of the consultant team, and the amount should be discussed and agreed-upon with the community group for their scope of services to the project (examples include recruiting for and attending meetings, reviewing deliverables, taking and sharing survey information). The most practical way to achieve this outcome is to reserve funding for CBO engagement within the consultant contract.
- Take time building trust and remain accountable: Effective outreach is built on trust and accountability. IDOT and outreach staff should not only invite participants to one-off meetings for feedback, but work with them continuously while providing updates on how their suggestions have been incorporated in the project. Project staff should ensure that engagement is not a one-way tool for communication from the agency to the public or only offer methods for providing limited feedback without communicating how the feedback will be incorporated into decision making.
- Clear communication: Use terms that are appropriate for the populations being engaged. This includes translation for non-English speakers and having accessibility platforms for blind/deaf participants.
- Build on prior efforts and plans and pave the way for new ones: Oftentimes communities have addressed infrastructure concerns in other plans and processes, and can be frustrated if new planning efforts "start from scratch." Be sure to have knowledge of previous work that may have been conducted and feedback that was received regarding the project in question.
- Set expectations: Explain how the community members' feedback will be used to shape the plan, and the steps that will be taken to do so. This should also be agreed upon with the community at the beginning of the process.

- Offer different engagement platforms: Include options for virtual and in-person meetings, use different tools (project website, survey, focus group sessions, interviews, open houses, social media), and ensure materials are accessible for people of all abilities.
- Commit to an action-oriented process (when possible): Find ways to generate tangible outcomes in the short term to demonstrate progress towards the larger objective. Oftentimes, construction projects are multi-year long processes that can leave community members feeling frustrated with the lack of progress—identifying and implementing “low-hanging fruit” projects can be a way to continue enthusiasm and build more support.

Sources for further engagement best practices:

- Elevated Chicago

<https://elevatedchicago.org/Elevated%20Community%20Engagement%20Principles-Digital.pdf>

- Center for Neighborhood Technology

<https://cnt.org/blog/working-with-cbos-for-transportation-equity>

- Equity in Practice: A Guidebook for Transit Agencies

<https://cnt.org/sites/default/files/publications/Equity-in-Practice.pdf>

CHAPTER 4: OTHER CIA ELEMENTS

Identifying Solutions

If a community impact assessment identifies potential project impacts, the analyst should propose means to address them. Using NEPA parlance, the CIA should identify ways to **avoid** the impact altogether by altering the project to eliminate the potential impact; **minimize** the impact by altering the project to reduce the magnitude or severity of the impact; **eliminate** the impact over time through preservation and maintenance; or **compensate** for the impact by providing substitute resources or enhancing the project in a different way. Particular attention should be paid to whether any of the impacts disproportionately burden vulnerable populations. Extra effort should be expended to avoid those impacts altogether, and only then should other mitigation measures be proposed.

Avoidance or mitigation measures may result in different community impacts than those imposed by the project originally. Care should be taken to analyze the impacts of the alternatives and ensure they would improve project outcomes. Community engagement with key stakeholders and the public is a critical component of identifying solutions to potential adverse impacts.

Documentation

The IDOT Bureau of Design and Environment (BDE) Manual contains extensive guidance on the documentation needed for different classes of action under environmental review. Community impact assessments are meant to supplement analysis and documentation under NEPA, rather than replace them. The BDE Manual specifies that the Phase I Report for Categorical Exclusions, Environmental Assessment Document, and the Environmental Impact Statement all require analysis and documentation of socioeconomic and environmental justice impacts of projects. Community impact assessment may be folded into those reports or stand alone as a separate technical document. The format of the CIA report should follow BDE guidance for other environmental documentation so it may be used as a supplement to reports required under NEPA.

Documentation of community impact assessment is crucial for transparency about how analysts carried out the process, and how decisions are made in response to potential impacts identified. At a minimum, a description of the project and project area, along with results from the screening tool, should be described. Documentation might stop there if no potential for impact was identified. However, if any potential impact was identified, analysts should create a comprehensive report that explains those impacts. As described earlier, this report may be incorporated into the environmental document or stand alone as a technical report. Key elements of this documentation include:

- Executive summary of the document
- Description of the project and project area
- Community characteristics
- Results of the screening tool
- The specific sources and mechanisms of impact
- Methods used to assess impacts
- Project enhancements and steps taken to mitigate impacts through avoidance, minimization, or enhancement
- Community engagement methods, including lists of community members and CBOs consulted, forms of engagement, and timing of engagement activities.

Documentation should continually evolve through the assessment process. Writing the report should start early as a log of all activities conducted and results obtained from the analysis. Findings may change as engagement with community members identifies additional areas of concern or sources of impact, for example, requiring new or revised analysis. Changes in policy or legislation may dictate additional focus areas to review. Projects that have long periods of development may face a situation where community conditions and assets have changed since the initial screening, requiring a re-analysis of potential impacts. The documentation should record all the iterations of this process to maintain transparency.

The community impact assessment report should be written in accessible language, free of jargon and confusing terminology, so that community stakeholders can review and understand the entire process. Equitable engagement with community members might include a stakeholder review of draft documentation before finalizing the report for broader public comment to identify sources of potential impacts missed or differences in understanding between project sponsors, community impact analysts, and the community itself. Continued meaningful engagement with the community is key to building and maintaining trust.

Implementation and Monitoring

Community impact assessment does not end at the conclusion of project development. While the assessment will identify the *potential* impacts from the project, follow-up work is necessary to understand the *actual* effects of the project. Impacts may fall into two categories: short-term and long-term impacts.

Short-term project impacts are those most associated with disruption from construction or project implementation. These might include noise, dust and debris, equipment exhaust, temporary impediments to business access, and other detours, road access issues, and transit schedule changes. The effects of these impacts will vary based on the type of community; for example, areas with older housing may be more susceptible to irritation from construction dust, and people who use a bicycle for transportation may have greater access issues from road closures and detours than vehicle drivers. During project implementation, the project sponsor should verify that minimization, mitigation, and avoidance procedures for impacts are in place and being followed. The project sponsor should also monitor for unexpected impacts and work with the responsible parties to ensure that they are addressed as quickly as possible, and that no disproportionate burdens result.

Long-term impacts are those that arise once the project has been completed. They include the impacts assessed using the methods in Chapter 3 of this guide. Even if all the potential impacts are accounted for, forecasts about the magnitude of impacts may be inaccurate, new impacts may arise, or previous impacts may no longer be a concern. The project sponsor should periodically monitor project areas to ensure that project impacts continue to be addressed. Questions to ask in the monitoring phase include:

- Were all project impacts accounted for and addressed in the community impact assessment?
- Was the magnitude of forecast effects accurate?
- Have new impacts arisen as a result of the project?
- Did disproportionate burdens or benefits arise because of forecast inaccuracies or unintended impacts?
- Are different or new community members impacted?
- Does the project continue to bring benefits to the community in proportion to the benefits received outside the community?

- Has the project reduced transportation disparities for people of color, low-income people, or other marginalized groups?

If any of the answers indicate that additional negative impacts have arisen or may exacerbate disproportionate burdens rather than resolve them, IDOT should work with stakeholders to update the community impact assessment and work toward eliminating the impacts that were unaccounted for.

CHAPTER 5: SUMMARY

Community impact assessment is an iterative process that involves a holistic look at the potential short-term and long-term effects a project may have on a community. The elements of CIA begin at the earliest stages of planning, including meaningful engagement with communities to ensure that projects align with community needs and will not leave them with disproportionate burdens. The CIA itself is one of the last opportunities to guarantee that all the potential impacts of projects have been considered before implementation and offers project sponsors the opportunity to respond to concerns that have not been addressed. CIA is guided by legal requirements and federal and state policies. Vulnerable and historical marginalized population groups receive particular attention under CIA under equity considerations; they should be prioritized with respect to the distribution of transportation benefits and burdens and the decision-making process through community engagement and public participation.

This guidance on how to conduct a CIA leaves considerable discretion to IDOT, the project sponsor, and the project team. This is deliberate, as a CIA is a highly customizable and iterative process. Project screening prior to conducting the full CIA is more of a rote task, using a quantitative screening tool and qualitative checklist to assess whether there are potential project impacts that require a full assessment. Every project should undergo this minimal assessment to prevent unforeseen circumstances, regardless of the size of the project. But the results of this assessment require interpretation by the project team, including at least the project sponsor, IDOT, and consultants engaged in the work.

Once the CIA screening has been completed, and if it is determined that a full CIA is needed, there are many tools available to analysts to conduct this work. Demographic data are perhaps the most readily available data, but other data needs include travel surveys, community history, land use, economic bases, physical infrastructure, and key community landmarks and social centers. When and where possible, all data should be analyzed in as disaggregate a manner as possible. This includes careful consideration of EJ-related population groups by race/ethnicity and income or poverty status, as well as other vulnerable groups such as people with disabilities, single-headed households, people with limited English proficiency, and some zero-car households. Quantitative data and analysis are not enough, however. Qualitative assessments examine overall impacts to quality of life, including community cohesion, sociopsychological impacts, threats of gentrification and displacement, and other information not readily available in a numeric format. For this reason, the team conducting the CIA must be capable of conducting and interpreting and equity-oriented CIA—a requirement that cannot be overstated.

Standard processes defined in NEPA to avoid, minimize, and mitigate project impacts hold for CIA as well. However, CIA is also an opportunity to identify cumulative impacts from past projects—particularly those that have disproportionately burdened vulnerable and historically marginalized populations—and seek to create project impacts that begin to level the playing field. Comparing impacts among population groups is one means to identify those disproportionate burdens and shed light on what is necessary to remedy past inequities. Community impacts are concerned with both opportunity and outcome.

Finally, proper documentation of CIA process outcomes is critical for creating transparency and accountability for decisions made during the project phase. Many of these processes will be documented in the required environmental documents, but for those that do not require less extensive documentation, like projects falling under categorical exclusions, it may be necessary to create a standalone CIA report. This report should be in as plain a language as possible to be sure that non-specialists and community residents can understand the analysis and follow up with IDOT as necessary. Monitoring for actual impacts compared to the projected impacts should continue even after the project has concluded. Negative impacts should be remedied, and all impacts should form inputs into the next community impact assessment.



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