

**APPENDIX**

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01

**Best Practices  
Literature Review**





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**From:** Mauricio Hernández, Alta Planning + Design  
**CC:** Stuart Geltman, TMD, Inc.; Doug Arseneault, Alta Planning + Design  
**Date:** February 24, 2025  
**Re:** Caltrans Bay Area Transit Plan – Best Practice Literature Review

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## Introduction

This memorandum summarizes best practices for transit-supportive infrastructure and transit equity from thought leaders throughout the country, including the Federal Transit Administration, academia, thinktanks, and regional and local agencies outside of the Bay Area. These policies, standards, studies, and reports were reviewed to gain a better understanding of best practices for transit infrastructure planning and equity to inform improved transit implementation along the State Transportation Network (STN) in the Bay Area. Along with the Caltrans Policy and Plans Report (Task 4B), this document provides a foundation for the development of the transit infrastructure planning toolkit (Task 4C) that will be used by Caltrans and transit agencies in District 4 for planning equitable transit supportive infrastructure in the future.

This memorandum is divided into three sections:

1. **Introduction:** an overview of the memo and included information
2. **Key Takeaways:** a high-level summary of common themes identified within the plans reviewed.
3. **Full Document Review:** a complete summary of the 25 documents reviewed. Information is presented in individual tables for easy reference.

The following documents were reviewed as part of this memo:

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| <ul style="list-style-type: none"><li>• Bus Priority Program Toolbox (District Department of Transportation, 2021)</li><li>• Transit Priority Best Practices – Regional Dedicated Transit Lanes Study (Southern California Association of Governments, 2022)</li><li>• Transit Priority Toolkit (TransLink, N/A)</li><li>• Context Classification Framework for Bus Transit (Florida Department of Transportation, 2020)</li><li>• Equity in Practice: A Guidebook for Transit Agencies (TransitCenter, 2021)</li></ul> | <ul style="list-style-type: none"><li>• First Last Mile Strategic Plan &amp; Planning Guidelines (Los Angeles County Metropolitan Transportation Authority and Southern California Association of Governments, 2014)</li><li>• MOVE! THAT! BUS! - Tactics for Transforming Transit in Two Years (National Association of City Transportation Officials, N/A)</li><li>• Transit Speed &amp; Reliability Guidelines &amp; Strategies (King County METRO, 2021)</li><li>• Transit Street Design Guide (National Association of City Transportation Officials, 2016)</li></ul> |
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- Capital Investment Grant Program: About the Program/Fact Sheet (Federal Transit Administration, N/A)
- Capital Investment Program: Real Estate Information (Federal Transit Administration, 2023)
- Title VI of the Civil Rights Act of 1964 (Federal Transit Administration, 1964)
- Defining and Measuring Equity in Public Transportation (Mineta Transportation Institute at San Jose State University, 2023)
- Enhancement of Multimodal Traffic Safety in High-Quality Transit Areas (Mineta Transportation Institute at San Jose University, 2021)
- Equity Analysis in Regional Transportation Planning Processes, Volume 1: Guide 2020 (Transit Cooperative Research Program, 2020)
- Equity Analysis in Regional Transportation Planning Processes, Volume 2: Research Overview 2020 (Transit Cooperative Research Program, 2020)
- Partnerships for Equitable Pandemic Response and Recovery (Transit Cooperative Research Program, 2023)
- Pedestrian and Bicycle Safety in Bus Rapid Transit and High-Priority Bus Corridors: A Synthesis of Transit Practice (Transit Cooperative Research Program, 2023)
- Prioritization of Public Transportation Investments (Transit Cooperative Research Program, 2021)
- Racial Equity, Black America, and Public Transportation – Volume 1: A Review of Economic, Health, and Social Impacts (Transit Cooperative Research Program, 2022)
- Transit Agency Relationships and Initiatives to Improve Bus Stops and Pedestrian Access (Transit Cooperative Research Program, 2021)
- Transit Service Evaluation Standards – A Synthesis of Transit Practice (Transit Cooperative Research Program, 2019)

## Key Takeaways

The documents below are policy guidance and research reports from the Federal Transit Administration, the National Association of City Transportation Officials, academic institutions, transit-associated thinktanks, MPOs, and transit providers from major North American regions comparable to the Bay Area. These studies present high level standards and strategies for developing transit infrastructure and promoting equity in planning. The overall key findings from these documents are:

- **Streets that work for transit work for everyone.** Transit-oriented streets support local businesses, pedestrians, the bicycle network, and safer access for drivers. Ensuring that ADA is considered in complete streets is important for overall safety and access for elderly and disabled persons. The North American City Transportation Officials (NACTO) *Transit Street Design Guide* outlines the design principles and infrastructure that make for transit-oriented streets, which are reinforced and expanded upon for a California context in *First/Last Mile Strategic Plan and Planning Guidelines* developed by the Los Angeles County Metropolitan Transportation Authority (LA Metro) and Southern California Association of Governments (SCAG). The Florida DOT explored how transit can work in different streetscapes through their *Context Classification Framework for Bus Transit*. Investments to improve pedestrian access to transit stops, such as having a complete sidewalk network and well-maintained bus stop waiting areas, are highlighted in the *Transit Agency Relationships and Initiatives to Improve Bus Stop and Pedestrian Access* published by the Transit Cooperative Research Program (TCRP).
- **Transit priority treatments offer a cost-efficient approach to improve transit travel times as well as support more frequent and reliable service, resulting in increased transit ridership, mode shift, and more equitable communities by improving the travel experience of transit-dependent populations, including low-income**

**people, people with disabilities, and other likely transit users.** While the most significant benefit to transit speed and reliability is gained from operating in dedicated transit-only spaces (bus lanes and queue jumps, HOV/HOT Lanes), transit supportive policies, tools, and practices can be tailored to a variety of local needs and constraints. The main issue with implementation tends to be resistance from stakeholders, including the general public, who are concerned about impacts to parking from local business owners, traffic from drivers concerned about loss of travel lanes, bicycle advocates concerned about the interaction between buses and bikes, fiscal responsibility issues (is this a good use of public dollars), and sufficient public engagement to all concerned stakeholders. The documents we reviewed provide best practices and identify issues in implementing transit priority including the SCAG *Transit Priority Best Practices – Regional Dedicated Transit Lanes Study*, the Washington DC District Department of Transportation *Bus Priority Toolbox*, TransLink’s *Bus Priority Toolkit*, King County Metro’s *Transit Speed & Reliability Guidelines & Strategy*, and NACTO’s *MOVE! THAT! BUS – Tactics for Transforming Transit in Two Years*.

- **Transit works best when services are frequent, local policies support the transit network (e.g., parking pricing, congestion pricing, and zoning), and streets are designed to prioritize transit service.** This is highlighted in NACTO reports, including the *Transit Street Design Guidebook* and *MOVE! THAT! BUS!*
- **Transit should be treated as a public service and not a business expected to achieve profitability.** Public policies, such as equity and climate change, are reflected in the support of public transit. The NACTO report highlights this point in NACTO’s *MOVE! THAT! BUS!* as well as referenced throughout many of the reviewed documents.
- **Policy changes and funding programs are necessary to get transit out of traffic congestion and to improve bus and paratransit speed and reliability on city streets and arterials.** Interventions must acknowledge the significant hurdles transit agencies currently face in trying to deliver transit priority projects. This includes securing prioritized funding for transit service and infrastructure, and sufficient political support from cities, regional agencies, and state departments of transportation, as highlighted in NACTO reports including the *Transit Street Design Guidebook* and *MOVE! THAT! BUS!*
- **Successful transit systems provide frequent, well-connected service that its users can easily navigate seamlessly.** To achieve this goal, regional and state funding programs must incentivize collaboration among local jurisdictions to address road conditions that cause transit delays. Connectivity between providers should be seamless, which points to improved wayfinding, schedule coordination, and transfer policies. Programs are necessary to support both coordinated transit corridor investments (e.g., bus lanes, transit signal priority, and arterial HOV lanes) and hot-spot and quick-build solutions for locations that experience consistent transit delays. NACTO’s *Transit Street Design Guidebook* and *MOVE! THAT! BUS!* emphasize the importance of prioritizing customer experience to increase transit ridership and protect vulnerable roadway users that rely on transit. Traffic delays create a feeling of inferiority and frustration among transit users, leading people into purchasing or returning to single occupancy vehicles that are currently prioritized on most roadways.
- **Supporting transit service is the most impactful strategy for reducing Vehicle Miles Traveled (VMT).** Transit-supportive land use and infrastructure should be central to VMT reduction planning. Planning for a sustainable STN needs to incorporate all modes, while prioritizing transit and paratransit services, and connections between modes.
- **Transit prioritization cannot be a one-size-fits-all approach.** There are multiple routes for success in transit prioritization depending on roadway design, geographic area, and local, regional, and state goals. The NACTO *Transit Street Design Guide* and TCRP’s *Prioritization of Public Transit Investments* outlines transit

improvement principles and options that should be a part of Caltrans' toolbox and aligned with MTC, transportation authority, transit agency, and city policies and practices.

- **Transit improvements work best when agencies and funders consider the project's impacts on the transit system as a whole.** According to the NACTO *Transit Street Design Guide*, individual improvements have direct local area benefits, but the greatest advantages come when improvements are considered in the context of improving on-time performance and user experience across the transit network and interconnected modes that support the transit network. Agencies and funders should consider these indirect, systemwide benefits when prioritizing investments in transit-supportive infrastructure projects, and work with partner agencies for the portions of the network that they do not control. LA Metro's *First/Last Mile Strategic Plan and Planning Guidelines* supports this approach by highlighting the importance of pedestrian and bicycle connections to access high-capacity transit service.
- **Equity must be considered in all aspects of transportation planning and funding. Prioritizing the right measures can help prevent disadvantaging transit-dependent populations that often face multiple interconnected barriers to mobility and access to economic opportunities.** TCRP's *Racial Equity, Black America, and Public Transportation* establishes the historical causes and impacts to the Black community and notes that transportation equity is needed to address these impacts. FTA's guidance for *Title VI of the Civil Rights Act of 1964* identifies analyses that transit agencies should conduct to ensure equitable use of federal, state, and local funds. Published by the Mineta Transportation Institute at San Jose State, *Designing and Measuring Equity in Public Transportation* outlines deficiencies in FTA Title VI guidance, including key performance metrics. TransitCenter's *Equity in Practice: A Guidebook for Transit Agencies* provides practical guidance to transit providers and their partners on implementing the letter and spirit of Title VI.
- **Agencies responsible for transportation could conduct a five-step process for equity analyses that includes identifying the populations to be analyzed; identifying the needs and concerns of the population; measuring the impact of the proposed activity; determining if that impact will have a disparate or disproportionately high and adverse effect; and developing mitigation strategies.** This established process is detailed in TCRP's *Equity Analysis in Regional Transportation Planning Processes, Volume 1, and Volume 2*. This approach is reinforced by TransitCenter's *Equity in Practice: A Guidebook for Transit Agencies and Defining* and the Mineta Institute's *Measuring Equity in Public Transportation*.
- **Strong leadership and collaboration between stakeholders are vital for the success of the project.** Effective local, regional, and state leadership and champions are needed to guide projects from concept to implementation. Leaders should foster a sense of ownership over the project among stakeholders, including the transit providers and local jurisdictions, leading to widespread public support for holistic transit improvements and mitigating concerns during construction and implementation. This concept is explored in SCAG's *Transit Priority Best Practices – Regional Dedicated Lanes study* and TransitCenter's *Equity in Practice: A Guidebook for Transit Agencies*.
- **The Caltrans Bay Area Transit Plan is the first of its kind in transit planning. While many transit agencies, County Transportation Agencies, Metropolitan Planning Organizations, and cities have developed plans, standards, and best-practices for transit facilities, including bus stops and bus stop locations, amenities and waiting spaces at stops, and design guidelines for priority treatments, many of these guidelines are very high-level descriptions with use cases and benefit matrices.** Very few present actual design guidelines. While there has been some regional coordination, a regional-wide plan or standards being developed by MTC have yet to be completed. In many instances local jurisdictions and transit agencies have their own design guidelines.

## Documents Reviewed

The documents presented below are categorized by toolkits, guides/strategies, policies/programs, and research/study and ordered by relevancy to the project.

### Toolkits

- [Bus Priority Program Toolbox](#) (District Department of Transportation, 2021)  
The Toolbox contains 24 bus preferential treatments organized into five major categories: bus operations, traffic control, bus stop infrastructure, bus lanes, and shared bike and bus facility integration. These potential bus priority treatments can be consistently applied to future efforts to improve the speed and reliability of bus service or create safer interactions with other modes.
- [Transit Priority Best Practices – Regional Dedicated Transit Lanes Study](#) (Southern California Association of Governments, 2022)  
The SCAG study identifies a range of best practices and lessons learned from the development and implementation of dedicated bus lanes and other transit speed and reliability improvements by over 100 agency and municipal transit operators in the SCAG region, serving over 19 million people across six counties. It also includes guidance on addressing impacts to equity. **This regional study from a similar California mega-region will be particularly important to the development of the transit-priority improvement aspects of the Toolbox (Task 4C).**
- [Transit Priority Toolkit](#) (TransLink)  
Transit priority strategies are detailed in profiles with a brief definition, description of required stakeholder coordination, and summary of benefits and costs in terms of travel time, transit reliability, customer experience, and safety. Each strategy describes the typical challenges, complementary and alternative treatments, and specific agency examples. Challenges include logistical, temporal, or stakeholder limitations pertaining to the implementation and effectiveness of the treatments. The Complementary Treatments section highlights other strategies within the Transit Priority Toolkit that can be used to enhance co-benefits to transit. Additionally, the toolkit provides examples of agencies in cities across the US and Canada that have implemented the treatments.

### Guides & Strategies

- [Context Classification Framework for Bus Transit](#) (Florida Department of Transportation, 2020)  
This state DOT guide describes how bus-based transit fits into each of the Florida Department of Transportation (FDOT) Context Classification categories. Strategies and amenities suitable for typical state roadways in each Context Classification are illustrated and briefly described. The framework emphasizes that higher density land uses allow for more intense transit use, which requires investment in amenities to support transit. Conversely, fewer amenities are appropriate on more rural highways due to less intense transit usage.

- [Equity in Practice: A Guidebook for Transit Agencies](#) (TransitCenter, 2021)  
 This report from the prominent national thinktank TransitCenter provides the transit industry with a shared vocabulary to productively discuss issues of equity and to supply models for operationalizing equity in transit agency practice. The report addresses persistent inequities within transit service delivery and transit-oriented infrastructure including bus stops and transit centers. It also examines how current practices in the field of transit can marginalize groups of people — including Black people, Indigenous people, people of color, people with low incomes, people with disabilities, women, and LGBTQ people. Intended as more than a list of grievances, the report explores how some agencies are changing these practices, confronting racism and discrimination in their own decision-making, and establishing new protocols to prioritize riders who have historically been neglected.
- [First Last Mile Strategic Plan & Planning Guidelines](#) (Los Angeles County Metropolitan Transportation Authority and Southern California Association of Governments, 2014)  
 This joint document by LA Metro and SCAG develops a first-last mile pathway toolbox that focuses on street crossing enhancements and connections; signage and wayfinding; safety and comfort; allocation of street space; and plug-in components for electric vehicles. The planning guidelines outline specific infrastructure improvement strategies designed to facilitate easy, safe, and efficient access to the LA Metro system. It introduces a concept referred to as “the Pathway” and provides direction on the layout of transit access networks and components within Metro Rail and fixed-route Bus Rapid Transit (BRT) station areas. The guidelines serve as a resource for Metro and the many public and private organizations throughout the region working to update programs, land-use plans, planning guidelines, business models, entitlement processes, and other tools that take advantage of LA’s significant investment in the public transportation network. **This regional guidebook from a similar California mega-region will be particularly important to the development of the transit-access improvement aspects of the Toolbox (Task 4C).**
- [MOVE! THAT! BUS! – Tactics for Transforming Transit in Two Years](#) (National Association of City Transportation Officials)  
 Move! That! Bus! provides decision-makers with a clear action plan for improving bus service and reducing transportation-related emissions within the following two years (2023-2025) as well as the next 5-10 years (by 2032). A response to the drop of transit ridership during the COVID-19 pandemic, the action plan was the result of a NACTO working group consisting of transit professionals from 89 cities across the U.S. and Canada. These actions include offering frequent all-day bus service, redesigning streets to prioritize bus service, and adopting local policy reforms that support transit. This guidance document describes best practices; identifies and clarifies operational, jurisdictional, and political actors and responsibilities; and includes case studies that demonstrate where successful efforts are already underway, which can be replicated and expanded. **This post-pandemic practical guide derived from leading transit practitioners’ insights will be particularly important to the development of the Toolbox (Task 4C).**
- [Transit Speed & Reliability Guidelines & Strategies](#) (King County Metro, 2021)  
 This living document provides a framework for Seattle’s King County Metro, Washington Department of Transportation, local jurisdictions, and other stakeholders to work together to improve transit vehicle speeds and service reliability, including street and intersection design strategies and guidelines for their use. The guide establishes transit speed and reliability improvements as essential to the functionality of Metro’s transit system and meeting customers’ needs. The guidelines also provide details on the benefits, trade-offs, and implementation of specific speed and reliability strategies.

- **[Transit Street Design Guide](#) (National Association of City Transportation Officials, 2016)**  
To codify and advance best practices in transit design, the National Association of City Transportation Officials brought together practitioners and leaders from the transit and street design sectors to develop the Transit Street Design Guide. This framework for designing transit corridors as public spaces was developed to help cities and their residents work together to create the streets that are the foundation of a vibrant urban future. The guide details how reliable public transportation depends on a commitment to transit at every level of design. Each subsection has additional subsections with detailed, non-technical descriptions and designs. **This comprehensive guidance on transit street design will be particularly important to the development of the Toolbox (Task 4C).**

## Policies & Programs

- **[Capital Investment Grant Program: About the Program/Fact Sheet](#) (Federal Transit Administration)**  
The Capital Investment Grant (CIG) Program is the primary federal funding program for high-capacity transit infrastructure improvements, such as light rail (LRT) and bus rapid transit (BRT) projects. The program fact sheet outlines the multi-year, multi-step process that agencies must follow to receive project funds. Equity is a required component in the planning process for all eligible projects. As a highly competitive program, agencies must highlight equitable project benefits.  
  
The CIG program categorizes projects into three investment levels:
  - Small Starts: New projects *less than* \$400 million in total project cost; seeking CIG funding of less than \$150 million.
  - New Starts: New projects with total project cost of \$400 million *or more*; seeking CIG funding of \$150 million or more.
  - Core Capacity: Existing fixed guideway corridors that are at capacity today or will be in 10 years, where the proposed project will increase the capacity of the corridor by at least 10 percent.
- **[Capital Investment Program: Real Estate Information](#) (Federal Transit Administration)**  
This FTA guide for grant recipients outlines laws, regulations, and agency guidance related to the acquisition of real property for use on federally supported transit projects. FTA recipients must ensure all private property owners are treated fairly, consistently, and equitably throughout the real property acquisition process.
- **[Title VI of the Civil Rights Act of 1964](#) (Federal Transit Administration)**  
Title VI protects people from discrimination based on race, color, and national origin in programs and activities receiving federal financial assistance. The Federal Transit Administration (FTA) works to ensure nondiscriminatory transportation in support of its mission to enhance the social and economic quality of life for all Americans. Transit providers are required to prepare and submit service and fare equity analyses for any major service change or fare change. During these analyses, agencies review their policies and practices to ensure service and fare changes do not result in disparate impacts on the basis of race, color, or national origin. **This federal policy on transportation equity will be particularly important to the development of the equity aspects of the Toolbox (Task 4C).**



## Research & Studies

- [Defining and Measuring Equity in Public Transportation](#) (Mineta Transportation Institute at San Jose State University, 2023)**

The research report assesses transit service equity to assist Caltrans and transit agencies in California in better evaluating past, existing, and future inequities. The study applies a series of metrics to a test case in Santa Cruz and compares their results to those generated by the metrics required by Title VI. Findings suggest traditional Title VI measures (race and income) do not correlate well with other potential measures of inequity, such as households without personal vehicles, female-headed households with children, and households without internet access. The report highlights that transit inequity is a multifaceted problem that needs to include neighborhood displacement risk and the potential for individual anti-displacement strategies to mitigate that risk. According to the report, Caltrans and transit agencies need to find metrics that address the specific, context-appropriate equity conditions of the communities they are measuring to ensure fair and equal public transportation for all.
- [Enhancement of Multimodal Traffic Safety in High-Quality Transit Areas](#) (Mineta Transportation Institute at San Jose State University, 2021)**

The report ranks the importance and impact of variables pertinent to pedestrian and bicycle traffic safety near transit stops. Higher population, employment, and bus stop density were correlated to more pedestrian and bicycle-involved crashes as these conditions generate more pedestrian and bicycle trips. Conversely, retail job density and longer block lengths were related to less crashes due to less overall active transportation activity. According to the authors, transit agencies should consider walking and biking modes altogether in transit system planning. Transportation professionals also need to apply various engineering, education, and enforcement countermeasures to enhance walking and bicycling safety. Despite their unique travel behavior, pedestrians and bicyclists are highly correlated, and they share the same space and time when accessing transit stations. By reallocating more resources to non-motorized modes, such as widening the sidewalks, adding bike lanes, adding physical barriers to separate motor-vehicle traffic from bicycle traffic, transit agencies and their partners can further reduce the potential crashes between pedestrians/bicyclists and vehicles.
- [Equity Analysis in Regional Transportation Planning Processes, \[Volume 1: Guide\]\(#\) and \[Volume 2: Research Overview\]\(#\)](#) (Transit Cooperative Research Program, 2020)**

The two-part guide describes a five-step framework for conducting equity analyses for regional transportation plans and programs developed by metropolitan planning organizations (MPOs). Each step includes detailed methods and examples to help agencies develop and implement equity analyses that best meet the unique context of a community. Volume 1 provides a list of the major elements of each step and resources that can assist with that step. Volume 2 identifies ways in which equity in public transportation can be analyzed through an integrated participatory and quantitative approach by MPOs in partnership with transit agencies. This approach incorporates environmental justice analysis and Title VI procedures, implementation, and reporting compliance.
- [Partnerships for Equitable Pandemic Response and Recovery](#) (Transit Cooperative Research Program, 2023)**

This synthesis summarizes initiatives and partnerships that formed in response to the COVID-19 pandemic. The goal of the study was to inform future partnership collaboration and improve pandemic and other emergency response planning. Significant lessons learned include that proactive communication and engagement with the public allow transit agencies to identify needs; establishing and maintaining connections with other community organizations during non-emergency times contributes to a transit agency's ability to form successful partnerships to respond to emergency situations; and transit agencies can leverage various information and data within their organization and in coordination with partners to target initiatives to the most vulnerable in their communities.

- [Pedestrian and Bicycle Safety in Bus Rapid Transit and High-Priority Bus Corridors: A Synthesis of Transit Practice \(Transit Cooperative Research Program, 2023\)](#)**

This synthesis report summarizes the current state of practice for improving pedestrian and bicycling safety along the BRT or bus priority transit corridors. Some lessons learned include how different transitway designs require different considerations for safety for pedestrians and bicyclists at intersections; midblock crossing locations and station design, and that accessibility is multifaceted. Additionally, the report provides best practices for platform design (including at-level boarding), curb ramps, station messaging, accessible pedestrian signals, and leading pedestrian intervals for intersection crossing signals.
- [Prioritization of Public Transportation Investments \(Transit Cooperative Research Program, 2021\)](#)**

This guide provides practical advice for transportation agencies looking to improve their prioritization practice for public transportation projects, including cross-modal decision-making. It identifies realistic approaches to transit prioritization that are appropriate to the realities of diverse communities. The report aims to “level the playing field” when comparing and prioritizing capital investments across multiple modes. A key recommendation includes that transit prioritization cannot be one-size-fits-all – there are multiple routes to success, and that equity scores offer an objective consideration of distributional equity.
- [Racial Equity, Black America, and Public Transportation – Volume 1: A Review of Economic, Health, and Social Impacts \(Transit Cooperative Research Program, 2022\)](#)**

This report presents a literature review of transportation’s economic, health, and social impacts on Black people in the United States. Preliminary recommendations include: (1) the need to ascertain the general variance between what literature and policies say about the experiences Black people have regarding transportation and what interviews revealed about how transportation is currently experienced by Black people; (2) the importance of including specific and intersectional experiences of Black people who are especially vulnerable to inequities; and (3) the necessity of an intentional effort to incorporate geographic equity in research methods and recommendations.
- [Transit Agency Relationships and Initiatives to Improve Bus Stops and Pedestrian Access \(Transit Cooperative Research Program, 2021\)](#)**

This synthesis report summarizes the current state of practice for bus stop and pedestrian infrastructure improvement programs and processes in place at transit agencies and other organizations committed to public transportation. The report presents available information on existing programs; considerations and methods for prioritizing improvements; program leadership and funding; relationships and agreements with external public and private entities; and best practices for bus stop improvements. Additionally, the report includes a scoring system for prioritizing bus stop needs and for measuring the outcomes and resulting benefits of improvements at given agencies. This report focuses particularly on the accessibility to bus stops among people with disabilities based on the Americans with Disabilities Act (ADA). It addresses both the ADA regulations that transit agencies must follow in making improvements and the options for transit agencies in prioritizing improvements for older stops to achieve ADA compliance.
- [Transit Service Evaluation Standards – A Synthesis of Transit Practice \(Transit Cooperative Research Program, 2019\)](#)**

This synthesis report identifies successful strategies and best-practice solutions for service performance evaluation. The report provides findings on the state of service evaluation, including lessons learned from transit agencies, challenges, and gaps in information. Best practices include flexibility in the evaluation process, use of verified and understandable data, simplicity, active board involvement, and ongoing communication and education. Adjusting service levels was the most successful action that resulted from service evaluation.

## Full Document Review Tables

The following section includes a summary of plans reviewed. Information for each plan is organized in individual tables for easy readability.

### Bus Priority Program Toolbox

PLAN NAME	AGENCY	YEAR
Bus Priority Program Toolbox	District Department of Transportation (Washington, D.C.)	2021
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>The District Department of Transportation Bus Priority Program is working to streamline delivery of projects that improve bus service in the District of Columbia, with a goal of faster delivery timelines and improved coordination. To support those efforts, DDOT developed a Toolbox of potential bus priority treatments that can be consistently applied to future efforts to improve the speed and reliability of bus service or create safer interactions with other modes.</p> <p>The Toolbox will be used to identify bus priority treatments to address bus speed or reliability issues, informed by industry best practices and past DDOT project experience. Additionally, the Toolbox will serve as a resource for DDOT and transit agency staff, the public, and stakeholders.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Toolbox Organization:</p> <ul style="list-style-type: none"> <li>• Bus Operations</li> <li>• Traffic Control</li> <li>• Bus Stop Infrastructure</li> <li>• Bus Lane</li> <li>• Bike and Bus</li> </ul>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	Bus Operations Strategies; Traffic Control Strategies; Bus Stop Infrastructure Strategies; Bus Lane Strategies; Bike and Bus Strategies	
<b>Standards</b>	<p>Bus Operations Strategies:</p> <ul style="list-style-type: none"> <li>• Stop relocation involves moving bus stops to the far side of the intersection saving travel time.</li> <li>• Stop rebalancing is removing bus stops to save travel time.</li> <li>• Route design &amp; alignment changes to reduce the number of turns to improve travel times.</li> <li>• Fare payment changes &amp; all-door boarding to reduce transit vehicle dwell time at bus stops</li> </ul>	
<b>Policies</b>	<p>Traffic Control Strategies:</p> <ul style="list-style-type: none"> <li>• Bus movement exemptions prohibiting movements that may impact transit vehicle progression.</li> <li>• Transit signal priority allows for transit vehicles to have signal priority at intersections.</li> <li>• Queue jumps are short transit lanes that allow transit vehicles to move ahead of traffic queues at intersections</li> </ul>	
<b>Infrastructure</b>	<p>Bus Stop Infrastructure Strategies:</p> <ul style="list-style-type: none"> <li>• Bus stops cross hatching allows for the bus stop to be easily identifiable to general traffic, so they do not block it.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Bus stop lengthening gives more space for buses to approach the bus stop and pull closer to the curb.</li> <li>• Bus bulb-outs allow for an increase in passenger waiting area and reduces the need for buses to pull out of and into traffic at bus stops</li> </ul>
	<p>Bus Lane Strategies:</p> <ul style="list-style-type: none"> <li>• Curbside bus lanes are bus only lanes adjacent to the curb.</li> <li>• Offset bus lanes maintain parking or turn movement lanes by having the bus stop off-set from the curb.</li> <li>• Contra-flow lanes are lanes for buses on one-way street that go against the flow of traffic.</li> <li>• Busways are streets that restrict general traffic allowing for the street to function primarily for buses.</li> <li>• Red-colored pavement is used to identify bus lanes.</li> <li>• Automated bus lane enforcement using cameras to ticket vehicles illegally utilizing transit infrastructure</li> </ul>
	<p>Bike and Bus Strategies:</p> <ul style="list-style-type: none"> <li>• Separated bike-bus lanes are shared bike and transit infrastructure that is separated from general traffic.</li> <li>• Left side bike lanes have bike lanes on the left side of a one-way street or in a median allowing the right-hand side to function as a bus lane.</li> <li>• Bike-pedestrian mixing platform is a bus bulb out that accommodates bicycles.</li> <li>• Narrow floating bus islands allow for close to level boarding at transit stops and stations with a narrow area used for boarding. Passenger bus stop amenities are not provided on the island.</li> <li>• Wide floating bus island is wide enough to accommodate near level boarding and passenger amenities</li> </ul>

**KEY TAKEAWAYS**

The Toolbox contains 24 bus preferential treatments organized into five major categories: bus operations strategies, traffic control strategies, bus stop infrastructure strategies, bus lane strategies, and bike and bus strategies. These potential bus priority treatments that can be consistently applied to future efforts to improve the speed and reliability of bus service or create safer interactions with other modes.

The Toolbox is expected to be utilized as part of the larger project development process for the Bus Priority Program, rather than a standalone solution. Before using the Toolbox for a project, DDOT and the transit agency will first assess the performance of bus service to identify the needs and issues. Then, potential treatments that are appropriate for the context will be identified using the Toolbox. It is important to note that not all treatments are possible for every street context. After the treatments are selected, they will be appropriately designed to safely fit within the project location.

## Transit Priority Best Practices – Regional Dedicated Transit Lanes Study

PLAN NAME	AGENCY	YEAR
Transit Priority Best Practices – Regional Dedicated Transit Lanes Study	Southern California Association of Governments	2022
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>SCAG conducted a Regional Dedicated Transit Lanes Study to explore the opportunities, needs, challenges, and best practices for developing not only a regional network of dedicated bus lanes, but also bus rapid transit (BRT) corridor projects, other transit priority treatments that would enable enhanced transit services, improve mobility, accessibility and sustainability, and advance implementation of Connect SoCal, SCAG’s 2020 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).</p> <p>While the most significant benefit to transit speed and reliability is gained from operating in dedicated transit-only spaces, this toolkit of potential priority treatments, as well as supportive policies, tools, and practices, can be tailored to a variety of local needs and constraints in Southern California communities.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>The focus of this report is on the planning, design and implementation of elements that improve both actual and user-perceived experiences of transit (travel) speed and service reliability. The subsequent chapters of this report are organized as follows:</p> <ul style="list-style-type: none"> <li>• Chapter 2: Project Identification / Prioritization – methods for identifying opportunities for transit priority treatments; integration with policy and decision-making.</li> <li>• Chapter 3: Speed &amp; Reliability Design Treatments – transit lane configurations and operations, intersection treatments, bus stop/station area improvements, and complementary active transportation facilities.</li> <li>• Chapter 4: Speed &amp; Reliability Operations and Technology – policies, tools, and technologies such as stop location, signal priority, and fare collection.</li> <li>• Chapter 5: Supporting &amp; Enabling Policies – identifies areas where federal, state, and local policies may influence transit speed and reliability project development, prioritization, and implementation.</li> <li>• Chapter 6: Getting on Board – principles for education and outreach; examples of how to communicate the benefits of transit priority projects.</li> <li>• Chapter 7: Lessons Learned – roles and responsibilities among transit operators and stakeholders coordinating project development, implementation, and operations within constrained right of way.</li> </ul>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>Interagency and Interdepartmental Coordination:</p> <ul style="list-style-type: none"> <li>• Strong leadership from the state and regional levels is essential to the successful implementation of bus lanes and transit priority treatments on intercity and inter routes that may be high performing candidates for speed and reliability improvements.</li> <li>• Regional authorities may have vital roles to play in project development and implementation, including emergency responsibilities and protocols, even though they may not have jurisdictional control over roadways or a direct role in service operations.</li> <li>• Local coordination between potentially affected transit agency and municipal stakeholders at the interdepartmental and agency levels may include but is not limited to capital planning and projects, information technology, service operations, traffic and transportation, public works, economic development, etc.</li> </ul>	
	<p>Project Identification and Prioritization:</p>	

	<ul style="list-style-type: none"> <li>• As part of the planning process and establishment of mobility goals and objectives, identify performance metrics around speed, reliability, comfort, and connectivity, to identify priority corridors and hotspots.</li> <li>• Adopt a regional network long-range plan that includes identification of transit priority corridors.</li> <li>• Lead with equity and climate impacts within capital project planning and prioritization.</li> <li>• Seek scalable solutions applicable across geographies and jurisdictions.</li> <li>• Foster a sense of ownership, competency, and capacity with stakeholders.</li> <li>• Identify complementary treatments and/or projects promoting complete streets, station access, active transportation, and connectivity.</li> <li>• Prioritize pilot investments for bus only lanes where there is high delay and treatments will be highly utilized (volume of buses).</li> <li>• Be opportunistic for pilot bus lane and transit priority pilot implementation to capitalize on tactical, quick-build techniques (ex – paint, striping, signage, etc.) to modify traffic operations and driver behaviors while traffic volumes are still low.</li> <li>• Capitalize on jurisdictional willingness and ability to implement transit priority treatments to expedite demonstrations of success.</li> </ul> <p><b>Project Development and Implementation</b></p> <ul style="list-style-type: none"> <li>• Where possible, alleviate the burden of proof for local stakeholders and partners.</li> <li>• Define roles and responsibilities supporting interdepartmental, interagency, and interjurisdictional coordination.</li> <li>• Bring stakeholders along, early.</li> <li>• Leverage design standards and pilots to expedite the process.</li> <li>• Develop project design QA/QC review and decision-making processes that incorporate input and coordination among municipal departments, as well as appropriate peer staff within stakeholder agencies.</li> <li>• Align schedules of transit priority projects with planned implementation of complementary infrastructure and land use changes.</li> <li>• Before/after data collection is essential to building user confidence and making the case for continued investment in transit priority treatments and preservation of ROW, where possible.</li> </ul>
<b>Standards</b>	N/A
<b>Policies</b>	N/A
<b>Infrastructure</b>	N/A
<b>KEY TAKEAWAYS</b>	
<p>The purpose of this document is to identify a range of best practices and lessons learned from the development and implementation of dedicated bus lanes and other transit speed and reliability improvements. It additionally includes guidance on addressing impacts to equity.</p> <p>SCAG counties see benefits of transit priority treatments such as:</p> <ul style="list-style-type: none"> <li>• Potential to increase ridership, change travel habits, and improve convenience.</li> <li>• Improved travel times for riders and drivers</li> <li>• High impact at a low cost</li> </ul> <p>SCAG counties see challenges of transit priority including:</p> <ul style="list-style-type: none"> <li>• Resistance to removing parking or potentially slowing vehicular traffic.</li> <li>• Justifying the financial investment</li> <li>• Coordination across jurisdictions</li> </ul>	

- Community opposition related to RHNA.

This study facilitated one-on-one conversations with peer transportation agency stakeholders in metropolitan areas implementing transit priority programs of improvements. Discussions centered on agency lessons learned through project development and implementation that include but are not limited to components of capital infrastructure selection, design and deployment, transit service and traffic operations, as well as procurement, technology integration, staff resources and training.

## Transit Priority Toolkit

PLAN NAME	AGENCY	YEAR
Transit Priority Toolkit	TransLink	N/A
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>The Transit Priority Toolkit provides TransLink and municipal partners with specific strategies to improve travel time and reliability of transit service for over 900,000 customers who ride the bus each day. The toolkit focuses on 14 transit priority strategies from 5 categories, ranging from interagency coordination to minor capital enhancements to significant infrastructure improvements.</p> <p>Each strategy addresses one or more specific challenges that fall into four broad categories: Congestion; Delay; Operations; and/or Safety.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Bus stop and curb management; Traffic regulations; Street design; Signal priority; TransLink practices and policy including rolls and responsibilities</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>The report identifies benefits and cost for transit priority strategies for the following categories:</p> <ul style="list-style-type: none"> <li>• Bus stop and curb management</li> <li>• Traffic regulations</li> <li>• Street design</li> <li>• Signal priority includes passive priority that adjusts signal timing to allow for transit vehicle progression, and active priority which allows transit vehicles to change the traffic signals.</li> <li>• TransLink practices and policy</li> </ul>	
<b>Standards</b>	<p>Bus Stop and Curb Management – bus stops can be placed far-side of an intersection, near-side of an intersection, and mod-block. Benefits and costs are identified for bus stop consolidation. Curb management treatments such as transit approach lane or dedicated bus lanes (all-day or peak hour) are complimentary treatments.</p> <p>TransLink Practices and Policy</p> <ul style="list-style-type: none"> <li>• Schedule/operator recovery</li> </ul>	
<b>Policies</b>	<p>TransLink Practices and Policy</p> <ul style="list-style-type: none"> <li>• All-door boarding where passengers utilize all transit vehicle doors for both exiting and entering the transit vehicle</li> </ul>	
<b>Infrastructure</b>	<p>Traffic Regulations include movement restrictions that prohibit certain types of movements to discourage general traffic from using a transit corridor.</p>	



Street Design improvements allow for improvement to transit travel speed and include the following:

- Bus stop infrastructure such as bus bulbs and boarding islands that do not require buses to pull-out and into traffic.
- Turn pockets that remove turning traffic from the lane that transit vehicle is utilizing.
- Vertical control devices that only allow transit vehicles to access a section of street.
- Queue jumps and transit approach lanes that are short distance bus lanes approaching an intersection that allow transit vehicles to get ahead of general traffic.
- Peak-hour bus lanes which are reserved lanes for transit vehicles in use during peak commute hours.
- Dedicated bus lane that are always in use for transit vehicles

**KEY TAKEAWAYS**

Each transit priority strategy is detailed in a profile with a brief definition, description of required stakeholder coordination, and a summary of benefits and costs. Each profile begins with a definition of the transit priority strategy. Implementation of transit priority strategies requires coordination between agencies and stakeholders, and each profile includes a brief description of required coordination efforts. The benefits and costs section describes the typical benefits of each treatment in terms of travel time, transit reliability, customer experience, and safety. Each strategy describes the typical challenges, complementary and alternative treatments for each strategy, and specific agency examples; Challenges describe logistical, temporal, or stakeholder limitations pertaining to the implementation and effectiveness of the treatments. Complementary treatments highlight other strategies within the Transit Priority Toolkit that can be used to enhance the benefits to transit. Additionally, agency examples of cities in the US and Canada that have implemented the treatments are provided.

## Context Classification Framework for Bus Transit

PLAN NAME	AGENCY	YEAR
Context Classification Framework for Bus Transit	Florida Department of Transportation	2020
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>This document describes how bus-based transit fits into each of the Florida Department of Transportation (FDOT) Context Classification categories. Strategies and amenities suitable for typical state roadways in each Context Classification are illustrated and briefly described.</p> <p>As with other elements of roadway design, the approach to integrating transit is not one-size-fits-all. As such, the level of investment and priority for transit may be tailored based on the role that a street plays within a transportation network and a transit network. A single corridor should not be over-emphasized: transit should be oriented to connecting origins and destinations (including major activity centers). The level of pedestrian and bicyclist activity is another important consideration. As such, this guidebook also illustrates strategies that can support non-motorized access to transit.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>This document provides an illustrated overview of appropriate transit supportive services and streetscapes for different roadway classifications ranging from rural to suburban to urban.</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	This is a guidebook for amenities and services along different roadway classes.	
	More urban roadways need additional amenities to be transit supportive and allow for all modes to operate (bike/ped/transit/private vehicles)	
	Illustrations and case studies are provided	
<b>Standards</b>	Standards are not presented because there are no one-size fits all, but this guidebook is tailored towards identifying basic and desired amenities on different roadway types.	
<b>Policies</b>	N/A	
<b>Infrastructure</b>	This is a guidebook for the types of investment in infrastructure and service for different roadway classification	
<b>KEY TAKEAWAYS</b>		
<p>Higher density land uses allow for more intense transit use which requires investment in amenities to support transit. Conversely fewer amenities are appropriate on more rural highways due to less intense transit usage.</p>		

## Equity in Practice: A Guidebook for Transit Agencies

PLAN NAME	AGENCY	YEAR
Equity in Practice: A Guidebook for Transit Agencies	TransitCenter	2021
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>This report addresses the persistent inequities within transit. It examines how current practices in the field of transit can marginalize groups of people—including Black people, Indigenous people, people of color, people with low incomes, people with disabilities, women, and LGBTQ people. And it explores how some agencies are changing these practices, confronting racism and discrimination in their own decision-making, and establishing new protocols to prioritize riders who have historically been neglected.</p> <p>Transit agencies often describe their mission in terms of operating safe and efficient service. Committing to equity requires that transit leaders ask: How can agencies optimize their service to help people who have been marginalized thrive?</p> <p>This report aims to provide the transit industry with a shared vocabulary to productively discuss issues of equity and to supply models for operationalizing equity in transit agency practice. It includes:</p> <ul style="list-style-type: none"> <li>• A framework for transit agencies to define equity and consider how it should shape their work.</li> <li>• Recommended actions that transit agency staff and leaders, advocates, and the federal government can take to further transit equity.</li> <li>• Case studies of transit agency equity initiatives, reviews of software tools that can be used to evaluate equity, and lessons from non-transportation fields.</li> <li>• A bibliography of equity-related research and practice</li> </ul>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>To break the cycle of marginalization, agencies must engage more deeply with the communities they serve, collect more and different types of information about how people use (or are unable to use) their services, and structure themselves to deliver transit improvements that advance equity.</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>The most meaningful approaches to transportation equity rest on five fundamental pillars:</p> <ol style="list-style-type: none"> <li>1. Articulate a vision of an equitable transportation system and explain why resources must be prioritized to benefit people who have been marginalized.</li> <li>2. Connect transportation to other aspects of people’s lives, recognizing that transportation exists within broader inequities.</li> <li>3. Acknowledge past transportation decisions that have deepened inequity.</li> <li>4. Measure equitable outcomes for people and the neighborhoods where they live and work.</li> <li>5. Create processes for the people most affected by agency actions to express their interests and exert meaningful influence over agency decisions.</li> </ol>	
<b>Standards</b>	<p>Example: SFMTA Muni Equity Service Strategy</p> <p>SFMTA shall develop performance targets for each strategy based on peer Muni route performance and track progress compared to baseline conditions, performance targets, and year-over-year progress.</p> <p>Performance metrics will include:</p> <ul style="list-style-type: none"> <li>• On-Time Performance</li> <li>• Service Gaps</li> </ul>	

	<ul style="list-style-type: none"> <li>• Crowding (also serves as a proxy for pass-ups)</li> <li>• Capacity Utilization</li> <li>• Travel Times to/from key destinations such as the nearest grocery store, nearest medical facility, colleges, downtown, and nearest major park</li> <li>• Customer satisfaction information</li> </ul> <p>Metrics will include data by time of day (including midday and late evening). Where available, data will be evaluated for conditions within the neighborhood, as well as the route as a whole.</p>
<b>Policies</b>	N/A
<b>Infrastructure</b>	N/A
<b>KEY TAKEAWAYS</b>	
<p>Transit agencies should adopt the following practical equity actions:</p> <ul style="list-style-type: none"> <li>• Adopt statements of equity principles, with commitments by the agency board and leadership to embed equity in all decision-making.</li> <li>• Empower internal staff teams to lead the agency’s equity work.</li> <li>• Use advanced quantitative tools to measure the impact of agency decisions on equity and adjust policy in response.</li> <li>• Pursue dynamic outreach and engagement to fully capture the priorities of marginalized communities in agency work.</li> <li>• Collaborate with community-based organizations and incorporate their perspectives in agency decision-making. Because of resource limitations and competing priorities.</li> </ul>	

## First Last Mile Strategic Plan & Planning Guidelines

PLAN NAME	AGENCY	YEAR
First Last Mile Strategic Plan & Planning Guidelines	Los Angeles County Metropolitan Transportation Authority and Southern California Association of Governments	2014
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>This document presents planning guidelines outlining a specific infrastructure improvement strategy designed to facilitate easy, safe, and efficient access to the Metro system. It introduces a concept herein referred to as ‘the Pathway’ and provides direction on the layout of transit access networks and components within Metro Rail and fixed route Bus Rapid Transit (BRT) station areas. They serve as a resource for Metro and the many public and private organizations throughout the region working to update programs, land-use plans, planning guidelines, business models, entitlement processes, and other tools that take advantage of LA ’s significant investment in the public transportation network.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>The planning guidelines provide a coordination tool and resource for Metro, LA County, municipal groups, and private institutions for connecting transit. It serves as a key resource of direction when undertaking planning and design efforts aimed at improving first and last mile connections to transit. Finally, this document articulates the pathway concept for connecting to transit. As a management tool this document is part of station area planning.</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	Support multimodal connections to transit stations	
	Station area planning should not only include access but transit supportive land use	
	Develops a process for network identification, design, and implementation with a planning toolbox	
<b>Standards</b>	Design guidelines are developed for all the toolbox elements	
<b>Policies</b>	The first last mile connection serves as the policy guide for station area planning	
<b>Infrastructure</b>	The strategies do include infrastructure changes such as allocation of street space and infrastructure for charging electric vehicles as part of the strategies	
<b>KEY TAKEAWAYS</b>		
<p>This document develops a first last mile pathway toolbox that focuses on crossing enhancements and connections, signage and wayfinding, safety and comfort, allocation of street space, and plug-in components for electric vehicles</p>		

## MOVE! THAT! BUS! – Tactics for Transforming Transit in Two Years

PLAN NAME		AGENCY	YEAR	
MOVE! THAT! BUS! – Tactics for Transforming Transit in Two Years		National Association of City Transportation Officials	N/A	N/A
HIGH LEVEL INTRODUCTION/ SUMMARY				
<p>The most powerful tool leaders have to address catastrophic climate change is the humble city bus. The power of the bus as a tool for fighting carbon emissions comes from three places. First, improvements to the bus service can be implemented quickly. All the actions outlined in this paper can be realized in less than two years, and often in a matter of months. Second, results are equally rapid. Leaders who commit to improving bus service can expect to see an immediate increase in bus ridership, as well as related safety, equity, and reliability benefits for their constituents. The bus is proven and effective. Finally, and perhaps most importantly, almost all decisions about bus service are made locally, by local governments and local leaders. Local transportation departments control the design of streets where the bus operates. Transit agencies decide which destinations to serve, how frequently to operate the bus, and what fares to charge. National policy cannot move at the speed needed to avert catastrophic climate change: local leaders must use local policy to reduce emissions and make key changes that improve the lives of their constituents.</p>				
TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS				
<p>Action 1: Offer Frequent All-day Bus Service                      Action 2: Redesign Streets to Prioritize Bus Service                      Action 3: Adopt Local Policy Reforms that Support Transit</p>				
PLAN/ REPORT RECOMMENDATIONS				
<b>Overall</b>	<p>Action 1: Offer Frequent All-day Bus Service                      Action 2: Redesign Streets to Prioritize Bus Service                      Action 3: Adopt Local Policy Reforms that Support Transit</p>			
	<p>Guiding Principles:</p> <ol style="list-style-type: none"> <li>1. Transit is a public service, not a business.</li> <li>2. More frequent bus service means more freedom.</li> <li>3. People have jobs, lives and transportation needs outside of 9-to-5 office hours.</li> <li>4. Streets that work for transit work better for everyone</li> </ol>			
<b>Standards</b>	<p>Action 1: Offer Frequent All-day Bus Service</p> <ul style="list-style-type: none"> <li>• Change service to increase frequency and service span.</li> <li>• Redesign bus networks to expand access.</li> <li>• Invest in more service (service buy-ups, transit referendums)</li> </ul>			
<b>Policies</b>	<p>Action 3: Adopt Local Policy Reforms that Support Transit</p> <ul style="list-style-type: none"> <li>• Price parking based on demand.</li> <li>• Price congestion</li> <li>• Adopt zoning reforms</li> </ul>			
<b>Infrastructure</b>	<p>Action 2: Redesign Streets to Prioritize Bus Service</p> <ul style="list-style-type: none"> <li>• Dedicated bus lanes</li> <li>• Spot improvements</li> <li>• Transit signal priority (TSP)</li> <li>• Bus stop balancing</li> <li>• Safe connections at bus stops</li> </ul>			
KEY TAKEAWAYS				

The NACTO working group refined research and practices from each city into direct actions and programmatic paths to dramatically transform bus service in two years. This document describes those best practices, identifying and clarifying operational, jurisdictional, and political actors and responsibilities, and includes case studies that demonstrate where successful efforts are already underway that can be replicated and expanded.

*Move! That! Bus!* provides decision-makers—elected officials, transit board members, department, and agency executives—a clear action plan for improving bus service and reducing transportation-related emissions in the short time we have left to avert lasting catastrophic climate change.

## Transit Speed & Reliability Guidelines & Strategies

PLAN NAME	AGENCY	YEAR
Transit Speed & Reliability Guidelines & Strategies	King County METRO	2021
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>The Speed and Reliability Guidelines and Strategies is a living document that describes how King County Metro, local jurisdictions, WSDOT and other stakeholders work together to improve transit speed and reliability. This document is for transportation professionals representing jurisdictions in King County, Washington. Also, it can be used as a resource by metropolitan areas nationwide.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Transit Speed and Reliability Tools:</p> <ul style="list-style-type: none"> <li>• Street and Intersection Design</li> <li>• Bus Stops and Routing</li> <li>• Traffic Regulations</li> <li>• Signals</li> </ul>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>Each tool in the Speed and Reliability Toolbox is summarized individually and includes implementation guidance and examples that have been completed throughout the County (the list of examples included is not exhaustive). Traffic impact analysis might be needed to better understand the impacts of the improvement.</p>	
<b>Standards</b>	N/A	
<b>Policies</b>	N/A	
<b>Infrastructure</b>	<p>Street and Intersection Design:</p> <ul style="list-style-type: none"> <li>• Dedicated bus lane</li> <li>• Queue bypass (short bus lane)</li> <li>• Roadway channelization</li> <li>• Turn radius improvements.</li> <li>• Speed hump modifications</li> </ul>	
	<p>Bus Stops and Routing:</p> <ul style="list-style-type: none"> <li>• Bus stop location</li> <li>• Route design</li> <li>• Bus stop lengthening</li> <li>• Bus bulbs</li> <li>• Boarding islands</li> </ul>	
	<p>Traffic Regulations:</p> <ul style="list-style-type: none"> <li>• Turn restrictions/exemptions.</li> <li>• Parking removal/alterations</li> </ul>	



	<p>Signals:</p> <ul style="list-style-type: none"> <li>• Passive traffic signal retiming</li> <li>• Transit signal priority (active)</li> <li>• Signal phase modification</li> <li>• New signal installation</li> <li>• Queue jumps</li> </ul>
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**KEY TAKEWAYS**

This document presents street and intersection design strategies and guidelines for their use. These Guidelines:

- Establish a framework for how Metro, local jurisdictions, WSDOT and other stakeholders can work together to create and realize opportunities to plan and implement speed and reliability improvements.
- Define speed and reliability improvements and their benefits. Transit speed and reliability improvements are essential to the functionality of Metro’s transit system and meeting customers’ needs.
- Provide details on the benefits, trade-offs, and implementation of specific speed and reliability strategies.

## Transit Street Design Guide

PLAN NAME	AGENCY	YEAR
Transit Street Design Guide	National Association of City Transportation Officials	2016
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>To codify and advance best practices in transit design, the National Association of City Transportation Officials has brought together practitioners and leaders from the transit and street sectors to develop the <i>Transit Street Design Guide</i>. This new framework for designing transit corridors as public spaces will help cities and their residents work together to create the streets that are the foundation of a vibrant urban future.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Transit Streets: Stations &amp; Stops; Station &amp; Stop Elements; Transit Lanes &amp; Transitways; Intersections; Transit System Strategies</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>Key Principles</p> <ul style="list-style-type: none"> <li>• Better streets, better service</li> <li>• Transit creates urban places.</li> <li>• A mobility service for the whole city</li> <li>• Growth without congestion</li> <li>• Safe movement at a large scale</li> <li>• Permanent economic benefits</li> </ul>	
	<p>Transit Street Principles</p> <ul style="list-style-type: none"> <li>• Transit streets are living streets.</li> <li>• Prioritize transit at every scale.</li> <li>• Design for growth.</li> <li>• Transit streets are active streets.</li> <li>• Design changes demand</li> <li>• Near-term projects, long-term plans.</li> </ul>	
	<p>Station &amp; Stop Principles</p> <ul style="list-style-type: none"> <li>• Stations are gateways.</li> <li>• Facilitate movement, ease interactions.</li> <li>• In-lane stops save time</li> <li>• Universal design is equitable design.</li> <li>• Design for safety.</li> <li>• Integrate vehicle and platform design.</li> </ul>	
	<p>Intersection Principles</p> <ul style="list-style-type: none"> <li>• Minimize person delay, maximize safety.</li> <li>• Prioritize reliability.</li> <li>• Combine signals &amp; dedicated lanes.</li> <li>• Separate problematic movements</li> <li>• Dedicate, then filter</li> <li>• Prioritize in context</li> </ul>	
	<p>Network &amp; System Principles</p> <ul style="list-style-type: none"> <li>• Systemwide approaches go farther.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Frequent, predictable, convenient</li> <li>• Ridership reinforces permanence.</li> <li>• Equity goes beyond coverage.</li> <li>• Complete trips need complete networks.</li> <li>• Easy to ride, easy to run</li> </ul>
<b>Standards</b>	N/A
<b>Policies</b>	N/A
<b>Infrastructure</b>	<p>Transit Streets</p> <ul style="list-style-type: none"> <li>• Transit can be integrated into a full variety of urban streetscapes, from one-lane shared streets to multi-lane boulevards. The street compositions in this section reflect a series of design packages that combine complementary treatments and service types in relevant urban contexts. They demonstrate ways to efficiently integrate on-street transit vehicle facilities, service-enhancing stops and stations, pedestrian and bicycle infrastructure, and general traffic lanes in a variety of street sizes and types. They also illustrate how street design elements work together to form a vibrant streetscape with transit as its spine.             <ul style="list-style-type: none"> <li>○ Subsections: Two-Way Streets; One-Way Streets</li> </ul> </li> </ul> <p>Stations &amp; Stops</p> <ul style="list-style-type: none"> <li>• Transit stops are more than a place to wait. Investments in better stops are an opportunity to improve transit speeds and enhance the value of the street with green infrastructure and small public spaces. Passengers on all transit modes and service types can benefit from better stops.</li> <li>• Stops and stations fit into a larger geometric puzzle involving transit vehicles and intersection operations. While the location of a stop largely determines how transit passengers gain access to transit service, the design and configuration of stops and stations impacts how everyone on the street interacts with the transit system. When designed with transit quality as the priority, stop configurations and location can be used to organize the interactions that occur at transit stops, including bus-bike and bus-turning vehicle interactions.             <ul style="list-style-type: none"> <li>○ Subsections: Stop Design Factors; Stop Configurations</li> </ul> </li> </ul> <p>Station &amp; Stop Elements</p> <ul style="list-style-type: none"> <li>• Improving on-street transit stops accomplishes a dual mission of making transit more attractive and highlighting the agency brand, while bringing immense benefits to accessibility and performance. Stops and stations are often where existing and potential riders first interact with a transit service; stops provide essential information and frame the level of comfort and satisfaction riders have with transit service.</li> <li>• Stops can be upgraded using interim design measures, but incorporating high-quality transit stop design and amenities into capital projects can expand pedestrian capacity and promote transit streets as a desirable place in the urban environment. Creating a simple, legible, and pleasant experience at the transit stop grows the capacity of the entire system and can help transform transit from a basic coverage service to a desirable mobility option.             <ul style="list-style-type: none"> <li>○ Subsections: Stop Elements</li> </ul> </li> </ul> <p>Transit Lanes &amp; Transitways</p>

- Transit street design elements are an investment—often the dense, constrained downtown and urban centers where transit has the highest potential ridership are also the places with the slowest and least predictable traffic speeds. In these contexts, where congestion is high and private parking is limited, transit has the greatest potential to efficiently move more people through fixed right-of-way. Allocating on-street transit facilities can boost reliability, travel speed, capacity, and modal balance, increasing the total performance of the street.
- Transit lanes and transitways must communicate to all users how street width is allocated in time and space. Transit lanes delineate space within the roadbed as exclusive, either full- or part-time, and can generate transit benefits with relatively low implementation costs. Transitways physically separate a portion of the street for transit’s exclusive use, providing high-quality running way at all times.
  - Subsections: Transit Lanes; Transitways; Lane Elements; Lane Design Controls

Intersections

- Intersections are pivotal conflict points for both safety and operations. Great streets are optimized for multiple modes and balance the converging demands of all users. Effective intersection design convenes elements of the street design toolbox including lane configuration, stop or signal control, transit stop location, pedestrian safety and access, management of turning movements, and bikeway location and design. In urban contexts, especially as density increases, design packages should combine and negotiate these elements to reduce risk to active users and create efficiency for transit operations.
  - Subsections: Signals & Operations; Intersection Design for Transit; Transit Route Turns

Transit System Strategies

- Good street design for transit requires a balance between two goals: serving dense, mixed-use places, while providing reasonable travel times and reliable operations. Busy streets—where walking and bicycling are practical and pleasant—signal vibrancy and tend to be important destinations for people arriving by any mode. But these popular and busy streets also often result in slow and unreliable transit.
- Transit speed and travel time not only affect customer satisfaction and ridership, but they also underlie operating costs. The slower and more variable transit travel times are, the more transit agencies must spend to deliver the same frequency of service. Where transit runs in mixed traffic, it is common for transit travel times to decline slowly as the city develops. Transit agencies must then pay more to maintain the same frequency of service along slower routes rather than spending those resources offering more service.
- Designing streets for transit, walking, bicycling, and driving is possible, but the right answer is different in different places, and it always requires both creativity and compromise.
  - Subsections: Network Strategies; Performance Measures

**KEY TAKEAWAYS**

The *Transit Street Design Guide* details how reliable public transportation depends on a commitment to transit at every level of design. This comprehensive document providing guidance on transit street design will be important to the development of the Toolbox. Note that each subsection has additional subsections with detailed, non-technical descriptions and designs.

## Capital Investment Grant Program: About the Program/Fact Sheet

PLAN NAME	AGENCY	YEAR
Capital Investment Grant Program: About the Program/Fact Sheet	Federal Transit Administration	2023
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>The Capital Investment Grant Program is a major funding program that provides significant capital for transit infrastructure improvements, such as LRT and BRT. Equity is required to be a component in the planning process. As a highly competitive program, agencies should highlight equitable project benefits.</p> <p>Discretionary &amp; Competitive Federal Grant Program</p> <ul style="list-style-type: none"> <li>• Authorized up to \$4.6 billion per year, subject to Congressional appropriations.</li> <li>• Funds light rail, heavy rail, commuter rail, streetcar, and bus rapid transit projects</li> </ul> <p>Outlines: Multi-year, multi-step process projects must follow to receive funds</p> <ul style="list-style-type: none"> <li>• Points during process when FTA must evaluate and rate projects.</li> <li>• Evaluation criteria that must be used</li> <li>• 5-point scale from low to high for ratings</li> <li>• Annual Report to Congress that must include ratings for each project and the Administration’s funding recommendations</li> </ul>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
Eligible Projects: New Starts; Small Starts; Core Capacity; Bundling		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p><b>New Starts</b></p> <ul style="list-style-type: none"> <li>• Total project cost is equal to or greater than \$400 million or total New Starts funding sought equals or exceeds \$150 million.</li> <li>• New fixed guideway system (light rail, commuter rail, etc.)</li> <li>• Extension to existing system</li> <li>• Fixed guideway BRT system</li> </ul>	
	<p><b>Small Starts</b></p> <ul style="list-style-type: none"> <li>• Total project cost is less than \$400 million and total Small Starts funding sought is less than \$150 million.</li> <li>• New fixed guideway systems (light rail, commuter rail, etc.)</li> <li>• Extension to existing system</li> <li>• Fixed guideway BRT system</li> <li>• Corridor-based BRT system</li> </ul>	
	<p><b>Core Capacity</b></p> <ul style="list-style-type: none"> <li>• Substantial corridor-based investment in existing fixed guideway system</li> <li>• Project must:                             <ul style="list-style-type: none"> <li>○ Be in a corridor that is at or over capacity or will be in ten years.</li> <li>○ Increase capacity by 10%</li> <li>○ "Not include project elements designated to maintain a state of good repair."</li> </ul> </li> </ul>	
	<p><b>Bundling</b></p> <ul style="list-style-type: none"> <li>• Establishes a process for bundling of projects to allow sponsors to move multiple projects through the CIG pipeline simultaneously.</li> </ul>	

<b>Standards</b>	N/A
<b>Policies</b>	N/A
<b>Infrastructure</b>	N/A

**KEY TAKEAWAYS**

The Bipartisan Infrastructure Law, enacted as the Infrastructure Investment and Jobs Act, continues the discretionary Fixed Guideway Capital Investment Grants (CIG) program, which funds fixed guideway investments including new and expanded rapid rail, commuter rail, light rail, streetcars, bus rapid transit, and ferries, as well as corridor-based bus rapid transit investments that emulate the features of rail. There are three categories of eligible projects under the CIG program: New Starts, Small Starts, and Core Capacity.

Each type of CIG project has a unique set of requirements in the law, although many similarities exist among them. To be eligible to receive a CIG construction grant, all proposed projects must go through a multi-year, multi-step development process outlined in the law. FTA is required to evaluate and rate CIG projects on statutorily defined project justification and local financial commitment criteria that differ by project type, and a project must receive at least a “Medium” overall rating to advance through the steps in the process and receive a construction grant award.

## Capital Investment Program: Real Estate Information

PLAN NAME	AGENCY	YEAR
Capital Investment Program: Real Estate Information	Federal Transit Administration	2023
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>FTA is committed to ensuring that FTA grant recipients comply with all laws, regulations, and agency guidance related to the acquisition of real property for use on federally supported transit projects. FTA recipients must ensure all private property owners are treated fairly, consistently, and equitably throughout the real property acquisition process.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>The FTA provides the following Real Estate Information:</p> <ul style="list-style-type: none"> <li>• Overview</li> <li>• Legislation and Regulation (see Policies)</li> <li>• Checklists</li> <li>• Forms</li> <li>• Training</li> <li>• Appraisal Scope of Work</li> </ul>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	N/A	
<b>Standards</b>	N/A	
<b>Policies</b>	<p>Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs:</p> <ul style="list-style-type: none"> <li>• The FHWA is revising the regulation that sets forth governmentwide requirements for implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act). These changes will clarify present requirements, meet modern needs, and improve the service to individuals and businesses affected by federal or federally assisted projects while at the same time reducing the burdens of government regulations. The amendments to the Uniform Act regulation affect the land acquisition and displacement activities of 18 federal agencies including the new Department of Homeland Security.</li> </ul> <p>FTA Circular 5010.1E (Revised 2018):</p> <ul style="list-style-type: none"> <li>• This circular provides requirements and procedures for management of all applicable Federal Transit Administration (FTA) programs.</li> </ul> <p>Uniform Act Frequently Asked Questions:</p> <ul style="list-style-type: none"> <li>• This law brought a minimum standard of performance to all Federally funded projects regarding the acquisition of real property and the relocation of persons displaced by the acquisition of such property.</li> </ul> <p>Development of a Model for the Development of a Real Property Acquisition Management Plan that includes an introduction, agency organizational structure, property acquisition schedule, a real estate cost estimate, the acquisition process, relocation process, and document control.</p>	
<b>Infrastructure</b>	N/A	

**KEY TAKEAWAYS**

This document is the statement of policy related to the acquisition of real estate for FTA projects.

**Title VI of the Civil Rights Act of 1964**

PLAN NAME	AGENCY	YEAR
Title VI of the Civil Rights Act of 1964	Federal Transit Administration	1964 / 2012 / 2020
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>Title VI of the Civil Rights Act of 1964 protects people from discrimination based on race, color, and national origin in programs and activities receiving federal financial assistance. The Federal Transit Administration works to ensure nondiscriminatory transportation in support of our mission to enhance the social and economic quality of life for all Americans. The FTA Office of Civil Rights is responsible for monitoring FTA recipients’ Title VI programs and ensuring their compliance with Title VI requirements.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>General Requirements &amp; Guidelines; Requirements and Guidelines for Fixed Route Transit Providers; Requirements for States; Requirements for Metropolitan Transportation Planning Organizations; Effecting Compliance with DOT Title VI Regulations; Compliance Reviews; Complaints</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>States shall include the following information in their Title VI Program:</p> <ul style="list-style-type: none"> <li>a. All general requirements are set out in section 4 of Chapter III of this Circular.</li> <li>b. All requirements for transit providers are set out in Chapter IV of this Circular if the State is a provider of fixed route public transportation services.</li> <li>c. A demographic profile of the State that includes identification of the locations of minority populations in the aggregate.</li> <li>d. Demographic maps that overlay the percent minority and non-minority populations as identified by Census or American Community Survey data at Census tract or block group level, and charts that analyze the impacts of the distribution of State and Federal funds in the aggregate for public transportation purposes, including Federal funds managed by the State as a designated recipient.</li> <li>e. An analysis of impacts identified in paragraph d that identifies any disparate impacts on the basis of race, color, or national origin, and, if so, determines whether there is a substantial legitimate justification for the policy that resulted in the disparate impacts, and if there are alternatives that could be employed that would have a less discriminatory impact.</li> <li>f. A description of the statewide transportation planning process that identifies the transportation needs of minority populations.</li> <li>g. A description of the procedures the State uses to pass through FTA financial assistance to subrecipients in a non-discriminatory manner; and</li> <li>h. A description of the procedures the State uses to help potential subrecipients applying for funding, including its efforts to assist applicants that would serve minority populations.</li> </ul>	
<b>Standards</b>	N/A	



<p><b>Policies</b></p>	<p>All fixed route transit providers shall set service standards and policies for fixed-route service they provide. The standards shall be agency specific rather than industry wide. Providers will also adopt system-wide service policies to ensure service design and operations practice do not result in discrimination on the basis of race, color, or national origin. These standards should include:</p> <ul style="list-style-type: none"> <li>• Vehicle load for each mode</li> <li>• Vehicle headway for reach mode</li> <li>• On-time performance for each mode</li> <li>• Service availability for each mode</li> <li>• Availability and distribution of bus stop amenities</li> <li>• Vehicle assignment by mode</li> </ul> <p>Transit providers that operate 50 or more fixed route vehicles in peak service and are in a UZA of 200,000 or more in population shall collect and analyze racial and ethnic data as described below to determine the extent to which members of minority groups are beneficiaries of programs receiving Federal financial assistance from FTA.</p> <p>Transit providers that operate 50 or more fixed route vehicles in peak service and are in a UZA of 200,000 or more in population shall monitor service performance to ensure they are in compliance with Title VI regulations and service standards.</p> <p>Transit providers are required to prepare and submit service and fare equity analyses for any major service change or fare change complying with the DOT Title VI regulations which prohibit disparate impact discrimination, and therefore should review their policies and practices to ensure their service and fare changes do not result in disparate impacts on the basis of race, color, or national origin.</p>
<p><b>Infrastructure</b></p>	<p>N/A</p>
<p><b>KEY TAKEAWAYS</b></p>	
<p><b>PROGRAM OBJECTIVES.</b> The direction, guidance and procedures in this document will help FTA recipients to:</p> <ol style="list-style-type: none"> <li>a. Ensure that the level and quality of public transportation service is provided in a nondiscriminatory manner.</li> <li>b. Promote full and fair participation in public transportation decision-making without regard to race, color, or national origin.</li> <li>c. Ensure meaningful access to transit-related programs and activities by persons with limited English proficiency.</li> </ol>	

## Defining and Measuring Equity in Public Transportation

PLAN NAME	AGENCY	YEAR
Defining and Measuring Equity in Public Transportation	<b>Mineta Transportation Institute at San Jose State University</b>	<b>2023</b>
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>The purpose of this report is to aid the California Department of Transportation (Caltrans) and the state’s transit agencies in assessing transit service equity and assisting with the evaluation of potential solutions for past, existing, and future inequities. This report identifies and evaluates policies and practices associated with equity measurement in public transit from extant academic and professional literature sources. These include the federal laws and regulations addressing Title VI of the 1964 Civil Rights Act and the measurement tools (i.e., metrics) that are used to identify and evaluate equity impacts related to transit benefits and costs. Research and practice literature types reviewed include federal laws and regulations, metropolitan planning organization (MPO) and transit agency policy documents related to Title VI and other equity concerns, as well as academic research papers and reports regarding equity measurement. The report applies a series of metrics to a test case – public transportation in Santa Cruz County, California – and compares their results to those generated by the metrics required by Title VI (race and income) for transit equity analysis. From this comparison, the need for new metrics in transit equity analysis is assessed and evaluated.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Key Considerations for Selecting and Evaluating New Transit Equity Metrics:            What is meant by equity in transit? What have we learned so far? What are some barriers to improving transit equity? What groups should we consider when looking at equity? What aspects of transit service affect equity? At what decision-making level should we look at equity? How should we evaluate alternative approaches to assessing transit equity? Is there a conflict between equity and transit service efficiency? What are some potential equity measures? What data sources are available for assessing transit service equity?</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>This project has provided an initial look at transit equity in California in relation to existing Title VI guidelines. The study findings indicate several extensions to the work so far. Among these are the following:</p> <ul style="list-style-type: none"> <li>• A -by- analysis for all California counties of service provided in relation to various indicators of transportation-disadvantaged populations, like the example of Santa Cruz County.</li> <li>• Case studies of the application of service mapping techniques currently used by Los Angeles Metro and San Francisco to several other areas in California. We recommend that several rural as well as urban areas be included in this effort.</li> <li>• Development of context-sensitive equity metrics that reflect the unique conditions of each transit agency. We expect, at a minimum, that there would be significant differences between rural and urban areas in California.</li> <li>• An agency-by-agency review of current transit equity practices for all major transit agencies in California. Given the large number of providers, we suggest that for such a study to be feasible, it should be limited to those agencies who are full reporters on the National Transit Database, plus a sample of smaller agencies. This would: (1) determine how many agencies set a minimum to meet Title VI requirements; and (2) identify new practices in assessing equity. Some identification of new practices was done in this study, but we know that other transit agencies in California have gone beyond simply meeting Title VI requirements.</li> </ul>	
<b>Standards</b>	N/A	

<b>Policies</b>	N/A
<b>Infrastructure</b>	N/A
<b>KEY TAKEAWAYS</b>	
<p>Review of the literature and of transit practices first found that FTA Title VI requirements have significant shortcomings about current concerns about transit equity. These are:</p> <ul style="list-style-type: none"> <li>• They only look at race and income and not at other factors that contribute to inequity in mobility such as the unavailability of a car and working at night.</li> <li>• They only address potential inequities caused by planned service changes and not the issue of remedying existing inequities.</li> <li>• They do not set standards for defining and measuring equity.</li> </ul>	

## Enhancement of Multimodal Traffic Safety in High-Quality Transit Areas

PLAN NAME	AGENCY	YEAR
Enhancement of Multimodal Traffic Safety in High-Quality Transit Areas	<b>Mineta Transportation Institute at San Jose University</b>	<b>2021</b>
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>Active transportation has gained increased attention in the past few years due to its economic, environmental, and health benefits over the typical motorized modes. However, improving the safety of non-motorists is imperative in promoting active transportation modes, especially around transit stations where different transportation modes have much higher rates of interaction. Compared with other infrastructure facilities such as intersections, sidewalks, and bike lanes, there is a lack of studies dedicated to safety analysis around transit stations. It has remained unclear which factors are the main contributors to the walking and biking safety conditions adjacent to transit stops given the complexity of the influential factors and their interactions. To bridge this gap, the objective of the present study was to rank the importance and quantify the impact of variables pertinent to pedestrian and bicycle traffic safety near the transit stops.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>This research document uses models to quantify conditions that affect the numbers of bicycle and pedestrian crashes.</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>Directing more growth around high-quality transit areas and promoting more non-motorized travel are the right direction to go. Reducing the accidents related to these non-motorized modes while achieving the benefits associated with these adopted elements of a sustainable community strategy will be a challenging task facing various agencies.</p>	
	<p>The findings from this research show that it is essential for transportation professionals to consider walking and biking modes altogether in the planning. Despite their unique travel behavior, pedestrians and bicyclists are highly correlated, and they share the same space and time parameters when accessing transit stations.</p>	
	<p>It is also shown that the propensity of bike-related crashes decreases by providing bike lanes to bicyclists or designing a longer street block length. The bike lanes create a safer roadway environment for bicyclists and motor vehicles and encourage active modes. While it is hard to change the street block length, physical barriers can be added to separate motor vehicle traffic from bicycle traffic if necessary</p>	
<b>Standards</b>	N/A	
<b>Policies</b>	N/A	
<b>Infrastructure</b>	N/A	
<b>KEY TAKEAWAYS</b>		
<ul style="list-style-type: none"> <li>• Transit agencies should consider walking and biking modes together in transit system planning.</li> <li>• Transportation professionals need to apply various engineering, education, and enforcement countermeasures to enhance walking and bicycling safety.</li> <li>• Despite their unique travel behavior, pedestrians and bicyclists are highly correlated, and they share the same space and time when accessing transit stations.</li> </ul>		

- By reallocating more resources to non-motorized modes, such as widening the sidewalks, adding bike lanes, adding physical barriers to separate motor-vehicle traffic from bicycle traffic, transit agencies and their partners can further reduce the potential crashes between pedestrians/bicyclists and vehicles.

## Equity Analysis in Regional Transportation Planning Processes, Volume 1: Guide

PLAN NAME	AGENCY	YEAR
Equity Analysis in Regional Transportation Planning Processes, Volume 1: Guide (2020)	Transit Cooperative Research Program	2020
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>This guide describes a five-step framework for conducting an equity analysis for regional transportation plans and programs developed by metropolitan planning organizations (MPOs). Each step includes detailed methods and examples to help an agency develop and implement equity analyses that best meet the unique context of a community. After the fifth step, the guide provides a list of the major elements of each step and resources that can assist with that step.</p> <p>In this report, Volume 1 (the guide) provides quantitative and qualitative options for equity analyses, whereas Volume 2 (the technical report) summarizes the research process and policy considerations. This guide recommends the following steps in conducting equity analysis for regional transportation projects.</p> <p>Step 1: Identify Populations for Analysis            Step 2: Identify Needs and Concerns            Step 3: Measure Impacts of Proposed Agency Activity            Step 4: Determine Whether Impacts are Disparate or Have Disproportionately High and Adverse Effects (DHAЕ)            Step 5: Develop Strategies to Avoid or Mitigate Inequities</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	Invest in Projects that Advance Equity: <ul style="list-style-type: none"> <li>• Revise Project Evaluation Criteria</li> <li>• Fund Activities that Remedy Disparate Impacts/DHAE</li> </ul>	
	Address Equity in All Phases of Planning and Decision Making: <ul style="list-style-type: none"> <li>• Improve Underserved Persons’ Engagement in Planning Processes</li> <li>• Adopt Equity Goals in Plans and Policies</li> <li>• Evaluate and Measure Progress</li> <li>• Include Equity Initiatives in Unified Planning Work Programs (UPWPs)</li> </ul>	
	<b>Transit and Rideshare</b> In many areas, a high percentage of underserved households do not have access to a vehicle; therefore, the members of those households rely on transit. Gaps in mobility can be addressed by focusing investments in areas with high concentrations of low-income or zero-vehicle households. Examples of transit and ridesharing programs improvements to implement include: <ul style="list-style-type: none"> <li>• Increased transit service frequencies, headways, hours of service for underserved communities.</li> <li>• Improved pedestrian and bicycle access to transit for underserved communities; and</li> <li>• Public-private transit and ride-hailing service programs to fill gaps and improve access to transit services.</li> </ul>	
<b>Standards</b>	N/A	
<b>Policies</b>	N/A	
<b>Infrastructure</b>	N/A	

**KEY TAKEAWAYS**

The products of this research will be useful to transportation professionals engaged in the process of planning and programming federal transportation funds at MPOs and transit agencies. The reports provide information about methods, tools, and resources that agencies can use to support plans and programs that are compliant with equity-related federal requirements. The guidance and information provided in the reports do not constitute any standard, specification, or regulation.

## Equity Analysis in Regional Transportation Planning Processes, Volume 2: Research Overview (2020)

PLAN NAME	AGENCY	YEAR
Equity Analysis in Regional Transportation Planning Processes, Volume 2: Research Overview (2020)	Transit Cooperative Research Program	2020
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>Volume 2 describes the results of a research effort conducted to identify ways in which equity in public transportation can be analyzed through an integrated participatory and quantitative approach that is adaptable to plans and programs developed by MPOs in partnership with transit agencies and that relates to environmental justice analysis and Title VI procedures, implementation, and reporting compliance.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Step 1: Identify Populations for Analysis            Step 2: Identify Needs and Concerns            Step 3: Measure Impacts of Proposed Agency Activity            Step 4: Determine Whether Impacts are Disparate or Have Disproportionately High and Adverse Effects (DHAE)            Step 5: Develop Strategies to Avoid or Mitigate Inequities</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>Methods to identify and measure the impacts associated with implementation of the findings/ products could include:</p> <ul style="list-style-type: none"> <li>• Educational events based on the guide and this report, such as webinars and conference presentations.</li> <li>• Educational events based on indicators of engagement, such as participant questions and discussions, as well as responses to participant evaluation surveys.</li> <li>• Periodic practitioner surveys, peer exchanges, and interviews (coordinated with partner organizations) to measure the state of the practice with respect to each of the steps in the equity analysis framework, from the foundation of public involvement to the development, implementation, and evaluation of Step 5 strategies; and</li> <li>• Periodic discussions with FHWA regarding the state of the practice as evidenced by trends and issues noted in regular Title VI and Environmental Justice program evaluations and agency.</li> <li>• compliance reviews.</li> </ul>	
<b>Standards</b>	N/A	
<b>Policies</b>	N/A	
<b>Infrastructure</b>	N/A	
<b>KEY TAKEAWAYS</b>		
<p>The products of this research will be useful to transportation professionals engaged in the process of planning and programming federal transportation funds at MPOs and transit agencies. The reports provide information about methods, tools, and resources that agencies can use to support plans and programs that are compliant with equity-related federal requirements. The guidance and information provided in the reports do not constitute any standard, specification, or regulation.</p>		



## Partnerships for Equitable Pandemic Response and Recovery

PLAN NAME	AGENCY	YEAR
Partnerships for Equitable Pandemic Response and Recovery	Transit Cooperative Research Program	2023
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>This synthesis collects information on initiatives and partnerships that formed in response to the COVID-19 pandemic. The study documents the range of nontraditional initiatives implemented and the ways in which transit agencies assessed community needs, formed partnerships to implement these initiatives, leveraged diverse funding sources, and supported equity goals in their communities. The goal of the study is to inform future partnership collaboration and improve pandemic and other emergency response planning.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Pandemic Partnerships: Findings from Literature Scan</p> <ul style="list-style-type: none"> <li>• Nontraditional Transit Functions to Meet Essential Needs</li> <li>• Transit-Related Initiatives and Partnerships</li> </ul>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<p>Directions for Future Action and Research:</p> <ul style="list-style-type: none"> <li>• As transit agencies build toward recovery and rethink or reimagine their operations, they should ground their decision-making in equity principles.</li> <li>• Understanding demographic trends in return to ridership, including return to or continuation of in-person work, and the equity implications of proposed transit system changes will be critical.</li> <li>• Transit agencies will also benefit from a renewed focus, in research and implementation, on how to build effective process and infrastructure for (a) public and stakeholder engagement and communications; (b) equity in decision-making and performance tracking; and (c) emergency preparedness and response planning.</li> <li>• Finally, there is a need for the transit community to further explore the long-term role of transit agencies in providing access to social services or otherwise enhancing equity of access to essential needs.</li> </ul>	
<b>Standards</b>	N/A	
<b>Policies</b>	N/A	
<b>Infrastructure</b>	N/A	
<b>KEY TAKEWAYS</b>		
<p>This research highlights the following lessons from the pandemic to support transit agencies in building their future emergency and pandemic preparedness:</p> <ul style="list-style-type: none"> <li>• Partners can play diverse roles, including providing funding, materials, coordination, communications support, advertising, and staff. The key is to leverage each organization’s resources and expertise as effectively as possible.</li> <li>• Establishing and maintaining connections with other community organizations during nonemergency times contributes to a transit agency’s ability to form successful partnerships to respond to emergency situations.</li> <li>• Proactive communication and engagement with the public allow transit agencies to identify needs. These capabilities can be formed during nonemergency times by putting the institutional infrastructure in place. This requires time, effort, and funding but is key to success in understanding and meeting community needs.</li> </ul>		

- Transit agencies can leverage various information and data within their organization and in coordination with partners to target initiatives to the most vulnerable in their communities. This data includes previous ridership surveys, data gathered by community nonprofits, and data from the U.S. Census Bureau.
- Preparing action plans for different emergency scenarios can make emergency responses go more smoothly.
- Promoting a culture of flexibility within a transit agency makes it more likely that transit agencies can take on additional roles to meet community needs during emergencies.

## Pedestrian and Bicycle Safety in Bus Rapid Transit and High-Priority Bus Corridors: A Synthesis of Transit Practice

PLAN NAME	AGENCY	YEAR
Pedestrian and Bicycle Safety in Bus Rapid Transit and High-Priority Bus Corridors: A Synthesis of Transit Practice	Transit Cooperative Research Program	2023
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>This synthesis report summarizes the current state of practice for improving pedestrian and bicycling safety along the BRT or bus priority transit corridors. The report presents a detailed literature review of U.S. and international studies on safety impacts of BRT or high-priority bus corridors. The report also includes in-depth discussion about the safety of pedestrians and bicyclists within BRT and high-priority bus transit projects in seven communities across the country.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Literature Review:</p> <ul style="list-style-type: none"> <li>• BRT/Bus Corridors and Safety</li> <li>• Guidelines to Improve Pedestrian and Bicyclist Safety Along BRT Corridors</li> </ul>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
Overall	<p>Findings:</p> <ul style="list-style-type: none"> <li>• Transit agencies and partners rely on an array of design guidance to consider when making decisions about BRT route design.</li> <li>• Regular communication is necessary to keep the public, businesses, and advocacy groups informed and educated about BRT and how it will affect active travel.</li> <li>• Design solutions selected from an updated and innovative toolbox provide as safe a system as possible for active transportation users, and planning for these users’ needs to begin as early as possible.</li> <li>• Safety infrastructure needs to be implemented in a proactive and systemic way.</li> <li>• All designs for pedestrians need to comply with ADA standards.</li> <li>• The center-running bus-only lane design results in fewer conflicts with pedestrians and bicyclists.</li> <li>• A shared bus-bike lane is one in which the potential for conflict is higher given the passing maneuvers.</li> <li>• Trade-offs are to be expected because roadways often serve many purposes—multiple modes of travel, access to/from businesses, and on-street parking to name a few.</li> <li>• Public health was not a key factor in the decision to implement safe accommodations for pedestrians and bicyclists.</li> </ul> <p>Future Research:</p> <ul style="list-style-type: none"> <li>• Safety research is needed using empirical data studying U.S. BRT systems.</li> <li>• Safety for active transportation users’ needs to be measured in terms of risk per distance of street or risk per user with the focus on fatal or severe injury crashes.</li> <li>• A specific focus is needed on intersections along BRT corridors and the safety of pedestrians and bicyclists through complex/confusing signalized intersections.</li> <li>• Future research is needed on accommodating bicyclists behind curb extensions.</li> <li>• Pedestrian signal designs are often inconsistent. Different designs need to be researched with empirical data.</li> </ul>	

	<ul style="list-style-type: none"> <li>• The safety benefit of raised crosswalks or additional signs and markings between sidewalks and floating stations needs to be studied.</li> <li>• Research is needed on the safety of left-running buses.</li> <li>• More research is needed on designs that are best for persons with disabilities, studying the different types of disabilities alongside the different transit lane configurations with a specific focus on bus stations. The designs need to be studied with safety and comfort at the forefront.</li> </ul>
<p><b>Standards</b></p>	<p>Guidelines to Improve Pedestrian and Bicyclist Safety Along BRT Corridors:</p> <ul style="list-style-type: none"> <li>• Safe System Approach (safe road users; safe vehicles; safe speeds; safe roads; post-crash care)             <ul style="list-style-type: none"> <li>○ Core principles of a Safe System Approach for active transportation users include reducing or modifying conflict points, reducing vehicle speeds, improving visibility at intersections, and providing space and protection on the roadway and at intersections. Reducing speeds reduces the kinetic energy the body experiences when a crash does occur.</li> <li>○ There are a host of treatments that may be beneficial for transit agencies to consider, such as raised crosswalks, rectangular rapid flashing beacons, pedestrian hybrid beacons, road diets, bulb-outs/curb extensions, pedestrian refuge islands, and others.</li> </ul> </li> <li>• Complete Streets</li> </ul> <p>Given the popularity of BRT and bus priority systems, multiple planning guides document best practices, highlighting different design options. These planning documents provide valuable sources for transit agencies and planners. Strategies, practices, conflict mitigation measures, proven countermeasures, ADA design requirements and enhancements, and other safety designs included in these guidance documents emphasize options for addressing safety for pedestrians and bicyclists when planning and implementing the BRT or bus priority system. Other guidelines are available for transportation planners, designers, policy makers, and engineers to mitigate safety concerns along BRT/bus corridors, including the following:</p> <ul style="list-style-type: none"> <li>• NACTO Transit Street Design Guide (NACTO 2016).</li> <li>• FDOT Context Classification Framework for Bus Transit (FDOT 2020).</li> <li>• TCRP Report 90: Bus Rapid Transit—Volume 2: Implementation Guidelines (Levinson et al. 2003b).</li> <li>• TCRP Report 118: Bus Rapid Transit Practitioner’s Guide (Kittelson and Associates 2007).</li> <li>• TCRP Report 125: Guidebook for Mitigating Fixed-Route Bus-and-Pedestrian Collisions (Pecheux et al. 2008).</li> <li>• Institute for Transportation and Development Policy (ITDP) BRT Planning Guide, 4th edition (ITDP 2017).</li> <li>• Safe Transportation for Every Pedestrian (FHWA 2021).</li> </ul>
<p><b>Policies</b></p>	<p>N/A</p>
<p><b>Infrastructure</b></p>	<p>N/A</p>
<p><b>KEY TAKEAWAYS</b></p>	
<p>The agencies provided several lessons learned from their experiences with the pedestrian and bicycling safety improvements along the BRT or bus priority corridors, as follows:</p> <ul style="list-style-type: none"> <li>• Specific design elements are almost always decided on a case-by-case basis.</li> <li>• Coordination with transportation agency partners and other stakeholders needs to occur early in the process and regularly during the planning, design, and construction.</li> </ul>	

- Different transitway designs require different considerations for safety for pedestrians and bicyclists at intersections, midblock locations, and stations.
- Design solutions need to be selected from an updated and innovative toolbox such as the Federal Highway Administration’s Proven Safety Countermeasures to provide as safe a system as possible for active transportation users and begin planning for these users as early as possible.
- Safety infrastructure needs to be implemented in a proactive and systemic way.
- Accessibility is multifaceted and includes platform design (level boarding), curb ramps, station messaging, accessible pedestrian signals, leading pedestrian intervals, and more.
- The literature review found that the safety impacts of BRT or high-priority bus systems vary depending on the design and mitigation measures implemented along the transit corridor.
- The literature search revealed a plethora of guides and manuals for transportation agencies to use when planning and designing BRT and high-priority bus routes.
- The center-running bus-only lane designs result in fewer conflicts with pedestrians and bicyclists, but station design must be carefully considered with high-quality crossings for passengers.
- Project goals and the prioritization of modes or uses need to be established early in the process for smoother decision making.

## Prioritization of Public Transportation Investments

PLAN NAME	AGENCY	YEAR
Prioritization of Public Transportation Investments	Transit Cooperative Research Program	2021

### HIGH LEVEL INTRODUCTION/ SUMMARY

This guide provides practical advice for transportation agencies looking to improve their prioritization practice for public transportation projects. The guide focuses on methods used to prioritize transit capital projects and on cross-modal decision-making, specifically the comparison of public transit and non-transit projects. This guidebook identifies realistic approaches to transit prioritization that are appropriate to the realities of communities of diverse types and will make a difference in “leveling the playing field” when comparing and prioritizing capital investments across multiple modes.

### TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS

**Building Successful Practice:**

- Attributes of Successful Prioritization Practice
- Decision Criteria that Capture the Benefits of Public Transportation
- Data and Capability Requirements
- Evaluation Criteria Come in Many Forms
- Avoiding Modal Bias

**Guidelines for Application:**

- Roadmap to Strengthening Transit Prioritization
- Criteria and Strategies for Your Situation

**Spotlight on Equity Assessments:**

- Introduction to Equity Analysis
- Methods for Analyzing Equity
- Practices in Transit Equity Analysis

### PLAN/ REPORT RECOMMENDATIONS

<b>Overall</b>	<p>One key component of this work is the recommended criteria for the prioritization of public transportation investments. Another is the practical demonstration of how the implementation of recommended criteria can affect cross-modal prioritization outcomes.</p> <p>Important conclusions from these recommendations include the following:</p> <ul style="list-style-type: none"> <li>• Context matters. Transit prioritization cannot be one-size-fits-all, rather improvements need to be tailored to the characteristics of the community.</li> <li>• Successful transit prioritization builds on existing best practices for transportation investment prioritization with clearly defined goals and objectives and performance measures that are clear and concise.</li> <li>• There are multiple routes to success in transit prioritization. Different evaluation approaches should be done based on the goals and objectives and available data.</li> <li>• Evaluation criteria can capture transit’s many benefits for users and society.</li> <li>• Some criteria apply only to public transportation investments, while others can be used to evaluate more than one mode.</li> <li>• Certain factors negatively impact the competitiveness of transit projects, but strategies exist for broadening criteria to make them more applicable to public transit. For this reason, multiple criteria should be used that when taken together eliminate modal bias.</li> </ul>
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	<ul style="list-style-type: none"> <li>Emphasizing the right measures can help avoid disadvantaging transit in prioritization by capturing transit’s benefits for users and society.</li> <li>Equity scores offer an objective consideration of distributional equity.</li> <li>The multiple-objective decision analysis approach (MODA) offers a useful structure for transit and cross-modal prioritization.</li> <li>Testing and refinement over time demonstrate an ongoing commitment to effective transit prioritization.</li> </ul> <p>Further Research:</p> <ul style="list-style-type: none"> <li>Equity- and accessibility-guided public transportation investment for post-pandemic recovery and long-term prosperity.</li> <li>Market segmentation in transit planning and evaluation.</li> <li>Cross-modal prioritization in different contexts.</li> <li>Accounting for uncertainty in prioritization.</li> </ul>
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<b>Standards</b>	N/A
<b>Policies</b>	N/A
<b>Infrastructure</b>	N/A

**KEY TAKEAWAYS**

<p>Key takeaways from the recommendations of the guide include:</p> <ul style="list-style-type: none"> <li>Context matters. Transit prioritization cannot be one-size-fits-all. There are multiple routes to success.</li> <li>Successful transit prioritization builds on existing best practices for transportation investment prioritization.</li> <li>Evaluation criteria can capture transit’s many benefits for users and society. Emphasizing the right measures can help avoid disadvantaging transit in prioritization by capturing transit’s benefits for users and society.</li> <li>Some criteria apply only to public transportation investments, while others can be used to evaluate more than one mode.</li> <li>Certain factors negatively impact the competitiveness of transit projects, but strategies exist for broadening criteria to make them more applicable to transit.</li> <li>Equity scores offer an objective consideration of distributional equity.</li> <li>The multiple-objective decision analysis approach (MODA) offers a useful structure for transit and cross-modal prioritization.</li> <li>Testing and refinement over time demonstrate an ongoing commitment to effective transit prioritization.</li> </ul>
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**Racial Equity, Black America, and Public Transportation – Volume 1: A Review of Economic, Health, and Social Impacts**

PLAN NAME	AGENCY	YEAR
Racial Equity, Black America, and Public Transportation – Volume 1: A Review of Economic, Health, and Social Impacts	Transit Cooperative Research Program	2022

**HIGH LEVEL INTRODUCTION/ SUMMARY**

This report documents and presents the results of a review of literature that establishes a baseline understanding of transportation’s economic, health, and social impacts on Black people in the United States. This review was coupled with a qualitative analysis of practitioner interviews to arrive at gaps in the literature as well as key themes

that could inform an approach to subsequent research efforts. Preliminary recommendations deriving from the review of literature included (1) the need to ascertain the general variance between what literature and policies say about the experiences Black people have regarding transportation and what interviews revealed about how transportation is currently experienced by Black people; (2) the importance of including, in subsequent analyses, specific and intersectional experiences of Black people who are especially vulnerable to inequities; and (3) the necessity of an intentional effort to incorporate geographic equity in the research methods and final recommendations thereafter.

**TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS**

**Economic Causes and Impacts:**

- Transportation’s Origins in Slavery as Capital Interest
- Transportation Policies Supported De-concentration and White Flight while Devastating Black Communities
- White Flight’s Influence on Transit-Network Design

**Health Causes and Impacts:**

- Proximity to Highways and Main Roads Causes Generational Health Implications
- Commuter- and Pedestrian-Focused Pathways
- Pandemic-Era Transportation Policy and Planning Changes Have Disproportionately Affected Black Communities

**Social Causes and Impacts:**

- Investment-Induced Displacement
- Transportation Policing Actively Harms Black People
- Purple Lining Prioritizes White Comfort and Perpetuates Racist Planning Practices

**PLAN/ REPORT RECOMMENDATIONS**

<p><b>Overall</b></p>	<p>The social, environmental, and economic impacts that transportation systems have wrought on Black communities throughout the United States cannot be mitigated simply through better assessing distributions of burdens and benefits resulting from transportation projects, programs, and plans using Title VI, the National Environmental Policy Act, or other existing approaches focused on public engagement. These efforts are certainly important and can head off the worst impacts, but they aim to mitigate anticipated impacts as opposed to providing redress for prior inequities, spatial violence, and procedural harm. What is needed is research to identify a proactive strategy that agencies can employ to consider historical and cumulative impacts and take measures to address them outside of the context of a new project. In this project’s subsequent tasks, the research team will develop methods that can be used to estimate the extent of prior harms and lay out strategies for addressing them.</p> <p>Three key themes have evolved out of this literature review and will inform the research team’s approach to subsequent research for the purpose of establishing a recommended methodology for quantifying the impacts of racism in transportation on Black people and developing an approach to operationalizing reparative-planning priorities:</p> <p>(1) the necessity of reimagining the role of governance in addressing racism.</p> <p>(2) opportunities to learn from past policy-oriented efforts to address inequity in transportation; and</p> <p>(3) the insights of transportation practitioners whose identity profiles serve as the basis for a case study of ideal approaches relative to positionality within the transportation sector.</p>
<p><b>Standards</b></p>	<p>N/A</p>



<b>Policies</b>	N/A
<b>Infrastructure</b>	N/A
<b>KEY TAKEAWAYS</b>	
<p>Literature shows that harmful social, economic, and health impacts of transportation systems—and related systems such as public works, housing development, energy extraction and siting, and law enforcement—have resulted in racist outcomes that are less widely known among decision-makers and implementers. In addition to facilitating access, this research has revealed that physical transportation infrastructure creates a host of burdens on system users and nonusers alike. A few of the many burdens that transportation systems confer include exposure to statutorily inaccessible and hostile design practices; statistical disparities in policing; quantifiable increases in air pollution, noise, and vibration; causal increases in risk of injury and death; and proven destabilizing impacts on community economies and housing.</p> <p>In the best case, it is possible that with long-term reparative and harm-reductive planning, transportation and planning agencies could start meeting the unique needs of Black people and the communities in which they live. This type of progress could catalyze the creation and implementation of processes for redress that are celebrated and welcomed by communities that have experienced infrastructural racism. Furthermore, the interconnectedness between redressing the harm Black people experience and dismantling other forms of harm and oppression make this assessment of impacts to Black people an exponentially valuable contribution to the broader body of mobility-justice work.</p>	

## Transit Agency Relationships and Initiatives to Improve Bus Stops and Pedestrian Access

PLAN NAME	AGENCY	YEAR
Transit Agency Relationships and Initiatives to Improve Bus Stops and Pedestrian Access	Transit Cooperative Research Program	2021

### HIGH LEVEL INTRODUCTION/ SUMMARY

This synthesis report summarizes the current state of practice for bus stop and pedestrian infrastructure improvement programs and processes in place at transit agencies and other public organizations committed to public transportation. The report presents available information on existing programs, considerations and methods for prioritizing improvements, program leadership and funding, relationships and agreements with external public and private entities, and unique transit agency practices in bus stop improvements that can serve as examples for others to integrate into their own organizations. The report includes documented scoring systems for prioritizing bus stop needs and for measuring the outcomes and resulting benefits of improvements at given agencies. The report also includes examples of collaboration through either formal agreements or informal relationships between local agencies, which serve as a mechanism for broadening the impact of projects to improve the fixed-route bus infrastructure.

This report focuses particularly on the Americans with Disabilities Act (ADA) accessibility of bus stops, with respect to both the ADA regulations that transit agencies must follow in making improvements and the options for transit agencies in prioritizing improvements for older stops to achieve ADA compliance.

### TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS

Literature Review:

- Introduction to Bus Stop and Pedestrian Infrastructure
- ADA Requirements for Bus Stops and Pathways
- Bus Stop and Pathway Elements and Challenges
- Importance of Bus Stop Access
- Rationale for Bus Stop Infrastructure Improvement Programs

Survey:

- Practices in Bus Stop and Pedestrian Infrastructure Improvements

### PLAN/ REPORT RECOMMENDATIONS

<b>Overall</b>	<p>Practices that are key to effective bus stop programs include the following:</p> <ul style="list-style-type: none"> <li>• Incorporating bus stop improvements into larger corridor developments or other areawide projects ties transit needs into city projects, reduces total capital costs, and encourages coordination with other local entities for ease of implementation.</li> <li>• Packaging small improvement projects together, either within a transit system or across different communities, represents a key mechanism to help create a larger project effort that is more competitive when responding to federal funding opportunities.</li> <li>• Building relationships and coordinating with other local public entities and developers require a proactive process to include transit issues in the local conversation and to embed transit improvements as a part of new developments.</li> <li>• Index processes and prioritization systems are useful for establishing a consistent and transparent method for decision making and for the justification of improvement placement based on the factor of transit use and community need.</li> <li>• Communication with local planning departments at the city and county level is important to ensure that jurisdictions incorporate the bus service network and needed bus stop improvements into their planning processes.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Connections among transit schedules, ridership, and bus stop amenities data are established and maintained to support infrastructure improvement decisions.</li> <li>• Standards for amenity designs (such as bus stop shelters and seating) are helpful to enhance consistency in infrastructure installation, maintenance, and useful life.</li> <li>• Barriers to making bus stop improvements in lower-income or underserved communities should be proactively addressed and removed.</li> </ul>
<b>Standards</b>	N/A
<b>Policies</b>	N/A
<b>Infrastructure</b>	N/A
<b>KEY TAKEAWAYS</b>	
<ul style="list-style-type: none"> <li>• Most of the bus stop infrastructure programs at transit agencies are led by planning departments or divisions within the agency.</li> <li>• Amenities in transit agency programs typically include shelters, benches, and lighting because these elements are located within the immediate bus stop area and usually fall under agency control.</li> <li>• Agreements help assign responsibilities for partners, grant access to rights-of-way, establish liability, and specify any funding support and costs for improvements.</li> <li>• Nearly all agencies receive and act on feedback from organizations in the disability community, and most transit agencies have an ADA transition plan in place that considers bus stops and pedestrian infrastructure.</li> <li>• Transit agencies look for opportunities to coordinate and piggyback infrastructure improvement projects with other public and private projects in their service area.</li> </ul>	

## Transit Service Evaluation Standards – A Synthesis of Transit Practice

PLAN NAME	AGENCY	YEAR
Transit Service Evaluation Standards – A Synthesis of Transit Practice	Transit Cooperative Research Program	2019
<b>HIGH LEVEL INTRODUCTION/ SUMMARY</b>		
<p>This synthesis report identifies successful strategies and best-practice solutions through a review of literature documenting the history and development of transit service evaluation standards, a web-based survey of a cross-section of North American transit agencies, and case examples of six specific transit agencies. The report focuses on lessons learned through transit agencies’ experiences with performance evaluation. An important element is Chapter 4, which documents case examples that provide details on the development and updates of the service evaluation process, how standards are used, priorities among standards, board and agency attitudes toward the service evaluation process, challenges, lessons learned, and keys to success. Findings from all these efforts are combined to report on the state of practice, including lessons learned, challenges, and gaps in information. A summary of areas of future study is also included.</p>		
<b>TRANSIT RELATED/ ORGANIZATIONAL MANAGEMENT TOPICS</b>		
<p>Literature Review: TCRP reports related to performance evaluation; Evolution of performance metrics and criteria. Survey Results: Definition of standards; Priorities among performance standards; Performance standards and decision-making; Unintended consequences; Agency assessment of designing and applying service evaluation standards</p>		
<b>PLAN/ REPORT RECOMMENDATIONS</b>		
<b>Overall</b>	<ul style="list-style-type: none"> <li>• Develop a transparent, data-driven process that uses verified and understandable data. Buy-in at the very top of the organization is an absolute necessity.</li> <li>• Tie performance standards directly to the agency’s mission and goals.</li> <li>• Keep official or public-facing standards and metrics simple, broad, and few in number.</li> <li>• Choose metrics that can lead directly to action.</li> <li>• Communicate internally, with your board, and with stakeholders. Communication needs to be a constant process, not a one-time event.</li> <li>• Think through the implications of performance standards and be willing to revise them, as necessary.</li> </ul>	
<b>Standards</b>	<p>Areas of Future Study:</p> <ul style="list-style-type: none"> <li>• Exploration and use of metrics reflecting the customer’s experience,</li> <li>• Expansion of benchmarking efforts,</li> <li>• Ensuring accuracy of performance data,</li> <li>• Improving the data analysis process,</li> <li>• Implementing a service evaluation process that is transparent and has clear outcomes,</li> <li>• Extending the service evaluation process to emerging technologies and modes (such as microtransit or mobility on demand),</li> <li>• Customer-focused performance metrics for multimodal trips, and</li> <li>• Develop guides for board members and stakeholders regarding the evaluation process.</li> </ul>	
<b>Policies</b>	N/A	
<b>Infrastructure</b>	N/A	
<b>KEY TAKEAWAYS</b>		
<ul style="list-style-type: none"> <li>• Most respondents rate their efforts to design and apply service evaluation standards as either “very successful” (22%) or “somewhat successful” (44%).</li> </ul>		

- A transparent rationale for service changes and an objective, data-based framework for analysis are among the benefits of service evaluation standards.
- Ongoing education within the organization and with stakeholders and the public, investment in new technologies to collect and evaluate data, and attention to data collection protocols were the most common strategies to overcome challenges.
- Adjusting service levels was the most successful action resulting from service evaluation.
- Suggested changes included uniform application of a formal process, education, and automated data collection and analysis.
- Lessons learned included flexibility in the process, use of verified and understandable data, simplicity, active board involvement, and ongoing communication and education.
- Final thoughts from survey respondents stressed connections between standards and agency goals and between evaluation and action, consistency in how data are collected and analyzed, a transparent process, benchmarking, appropriate timeframes for presentation of information, and accountability to the standards.