



RTD Bus Stop Infrastructure and Accessibility Assessment

Final Report – June 2026

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Glossary

ADA	Americans with Disabilities Act
BID	Business Improvement District
BRT	Bus Rapid Transit
BSIAA	Bus Stop Infrastructure and Accessibility Assessment
CDOT	Colorado Department of Transportation
CIP	Capital Improvement Program
CMAQ	Congestion Mitigation and Air Quality Grant Program
DRCOG	Denver Regional Council of Governments
FLM	First and Last Mile
FTA	Federal Transit Administration
GIS	Geographic Information Systems
MOU	Memorandum of Understanding
PAG	Project Advisory Group
PAR	Pedestrian Access Route
PROWAG	Public Right-of-Way Accessibility Guidelines
RTD	Regional Transportation District
SOP	System Optimization Plan
SS4A	Safe Streets and Roads for All Grant Program
TIP	Transportation Improvement Program

1. Introduction

Why Bus Stops Matter

Bus stops function as customers' first touchpoint with the Regional Transportation District (RTD) and are a significant part of the experience of riding with RTD. They are where customers enter and exit service, wait for vehicles, transfer between routes, and connect to surrounding sidewalks, trails, and destinations. Whether a customer spends one minute at a stop alighting after a ride or twenty minutes waiting for a transfer, they expect the stop to be safe, clean, accessible, and to facilitate movement between their origin, ride, and destination.

The RTD Board of Directors has identified bus stop improvements as an essential component of advancing system accessibility, safety, equity, and customer experience. Accessible boarding areas enable compliance with federal law and ensure that customers with disabilities can use fixed-route service independently. Well-designed stops improve visibility, comfort, and customer confidence. Transparent and data-driven investment decisions support equitable service delivery across RTD's diverse communities. Local jurisdictions, counties, and state agencies all have important roles to play regarding the investment in and upkeep of bus stops. Decisions need to be made collaboratively with all bus stop stakeholders to deliver a consistent, high-quality, and seamless bus stop experience for RTD customers.

The Bus Stop Infrastructure and Accessibility Assessment (BSIAA), establishes a systemwide understanding of stop conditions and provides a structured framework to guide future investment.

Bus Stop Infrastructure and Accessibility Assessment



Figure 1-1: RTD Bus Stops Across the Service Area

Bus Stop Infrastructure and Accessibility Assessment

Project Background and Purpose

A bus stop is a designated location along a transit route where customers board and alight transit vehicles, defined by signage and the surrounding passenger waiting and boarding environment. An effective bus stop:

- Is clearly marked by agency signage or wayfinding, so that the transit agency, bus operators, and customers share a mutual understanding of its location.
- Is accessible, consistent with the Americans with Disabilities Act, so that customers of varying levels of physical ability can safely and independently board and alight.
- Provides appropriate amenities to support customer comfort while waiting, such as seating, shelters, and lighting.

RTD maintains thousands of bus stops across its service area. Over time, stops have been added, relocated, or modified in response to service changes and corridor projects. However, accessibility conditions and amenity data had not been comprehensively updated to reflect current conditions or changes in technical standards.

The BSIAA was initiated to support the following interrelated goals:

Table 1-1: BSIAA Goals and Goal Descriptions

Goal	Description
Advance Accessibility	Ensure that all bus stops meet ADA requirements and provide a safe environment for all customers
Improve Equity	Ensure Title VI compliance and promote equity by investing in historically underserved and transit-dependent communities
Enhance Transit Experience	Improve the customer experience through stop amenities that support comfort, information access, safety, and dignity
Grow Ridership	Align stop investments with existing and potential ridership demand to maximize impact on the network
Improve Coordination	Leverage jurisdictional partnerships and concurrent capital projects to reduce implementation costs and timeline
Promote Regional Consistency	Ensure that the stop inventory and classification system is standardized and maintainable across jurisdictions
Advance Strategic Priorities	Reinforce RTD's broader goals around customer excellence, community value, financial sustainability, and innovation

Rather than serving as a construction program, the BSIAA provides the analytical foundation needed to achieve these goals through phased and coordinated implementation.

What This Study Does—and Does Not—Do

This study translates Board-directed goals into a structured planning framework. It documents accessibility and amenity conditions across active bus stops and establishes a scalable typology framework aligned with service characteristics. It also quantifies the magnitude of infrastructure need

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and provides a flexible and transparent prioritization structure to guide capital programming. Finally, it supports coordination with local jurisdictions.

However, it does not mandate upgrades at every stop or solve funding needs for bus stop infrastructure upgrades, nor does it replace RTD and municipal design standards or govern investment in transit centers or BRT stations.

The BSIAA is designed as a decision-support tool that advances accessibility, safety, equity, and transparency while allowing flexibility in implementation.

Study Approach

The study integrates planning context, regulatory requirements, data governance improvements, and stakeholder engagement into a cohesive framework. The framework includes the following:

- **Best Practices and Existing Conditions Review:** A review of RTD's current policies, standards, and datasets, alongside peer agency practices from across North America. This step establishes a baseline understanding of how bus stop infrastructure is planned, designed, and maintained today, and identifies opportunities to strengthen standards, data practices, and coordination moving forward.
- **Bus Stop Inventory:** A comprehensive database of bus stops that documents existing conditions, including location characteristics, accessibility features, amenities, ownership, and maintenance responsibilities. This inventory serves as the foundation for the study and is designed to support ongoing agency decision-making and integration with RTD's existing systems.
- **Typologies:** A classification system that assigns each stop to one of four categories based on ridership, service characteristics, and surrounding context. Each typology defines a set of baseline and enhanced amenities, establishing a consistent and scalable standard for what each stop should provide.
- **Gap Analysis:** An evaluation of how existing conditions compare to desired conditions. This step identifies where stops do not meet accessibility expectations or lack appropriate amenities, helping to quantify systemwide needs and highlight key deficiencies.
- **Prioritization Process:** A data- and stakeholder-informed analysis that supports decision-making about where to invest in improvements. The process considers factors such as ridership, equity, land use, and existing conditions to help direct resources toward locations with the greatest need and potential impact.
- **Implementation Framework:** Guidance for how improvements can be delivered in practice. This includes defining roles and responsibilities across agencies, identifying funding and coordination opportunities, supporting ADA compliance efforts, and outlining approaches to maintenance and long-term asset management.
- **Stakeholder Engagement:** A coordinated process of outreach and collaboration with municipalities, partner agencies, and internal RTD staff. Engagement activities informed key elements of the study, including the inventory, typologies, and prioritization approach, and helped shape a regional framework for coordination, data sharing, and implementation.

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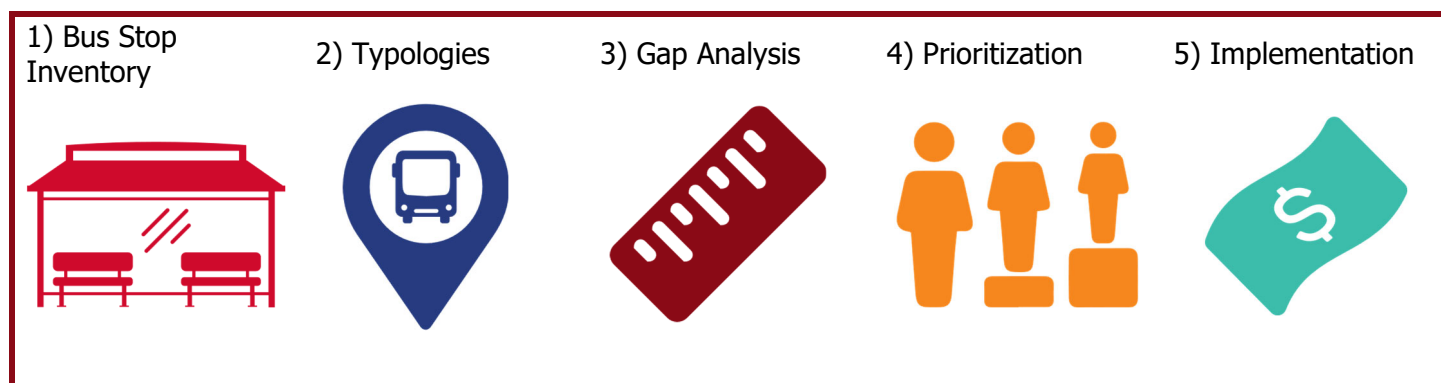


Figure 1-2: Five-Step Study Approach

The resulting layout of the report documenting this process is as follows:

Table 1-2: Report Structure

Chapter	Content
1	Background and purpose
2	Reviewing relevant regional plans and regulatory standards
3	Conducting a comprehensive bus stop inventory
4	Evaluating accessibility compliance and amenity gaps
4	Developing a scalable typology framework
4	Estimating the systemwide scale of investment need
5	Establishing prioritization criteria that are flexible and can be modified for different contexts and funding sources
6	Stakeholder engagement
7	Implementation recommendations
8	Next steps

Throughout the process, RTD engaged municipal partners to ensure that the framework reflects real-world implementation conditions and shared responsibilities.

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Key Outcomes

The BSIAA advances the Board's goals by delivering:

1. **An Updated Accessibility Baseline**
A clear understanding of where boarding areas meet current standards and where improvements are needed.
2. **A Transparent Typology Framework**
Scalable infrastructure expectations aligned with ridership and service characteristics.
3. **A Data-Driven Prioritization Tool**
A structured method to guide equitable and strategic investment decisions.
4. **A Strengthened Regional Foundation**
A standardized dataset and framework to support coordination with municipalities and partner agencies.

Together, these outcomes support RTD's long-term objective of improving access, safety, and customer experience at bus stops across the district.

How to Use This Report

This report supports implementation by providing a common reference for:

- Capital programming and budget development
- Grant applications and funding requests
- Municipal coordination and corridor integration
- Ongoing updates to stop classifications and priorities

The typology and cost estimates presented in this report represent a snapshot based on current data. As service patterns evolve and new information becomes available, RTD can update stop classifications and investment priorities accordingly.

The BSIAA establishes a flexible framework. Implementation will occur incrementally and in coordination with funding availability, municipal partners, and future Board direction.

2. Planning Context, Regulatory Framework, and Best Practices

Introduction

Bus stops represent the most visible and widely distributed elements of RTD's transit system. They connect service planning, accessibility requirements, municipal infrastructure, and customer experience. However, bus stop improvements do not occur in isolation. They are shaped by federal accessibility law, RTD policies, capital programs, municipal responsibilities, and evolving ridership patterns.

This chapter establishes the planning and policy context that informed the BSIAA. It synthesizes relevant regional plans, regulatory requirements, municipal coordination practices, and peer agency approaches. These factors informed the approach to updating the inventory, the development of the stop typology framework, and the investment methodology presented in subsequent chapters.

Rather than prescribing specific investments, this chapter provides the context needed to understand why a systemwide inventory, typology structure, and cost assessment are necessary.

Regional Planning Context

Bus stop infrastructure is directly influenced by service planning decisions, first- and last-mile access conditions, and corridor-level investments. Several regional and local efforts informed the BSIAA and provided important context for stop-level decision-making.

Regional Plans

RTD System Optimization Plan (2022)

The System Optimization Plan (SOP) established a long-term framework for service delivery, categorizing routes as Core, Connect, Commute, or Community based on ridership and frequency. While the SOP does not prescribe stop-level design standards, it differentiates corridors by service intensity. This differentiation supports the BSIAA's development of a scalable typology framework that aligns infrastructure expectations with ridership and service frequency.

First and Last Mile Strategic Plan (2019)

The First and Last Mile (FLM) Strategic Plan identified barriers to safe and accessible transit access, including incomplete sidewalks, poor lighting, and inaccessible boarding areas. The plan evaluated network-level access conditions and prioritized areas for improvement. The BSIAA builds on this work by documenting stop-level accessibility conditions and quantifying specific deficiencies in boarding and alighting areas.

RTD Adopt-a-Stop Program (Ongoing)

The Adopt-a-Stop Program allows community members and organizations to assist with litter removal and minor stop maintenance. The program reflects local interest in maintaining stop environments and

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highlights the visibility of bus stops within neighborhoods. However, the program does not address structural accessibility improvements or capital infrastructure needs, reinforcing the importance of a coordinated regional investment framework.

Regional Bus Rapid Transit Partnership (Ongoing)

RTD and regional partners are advancing multiple Bus Rapid Transit (BRT) corridors, including East Colfax Avenue BRT, Federal Boulevard BRT, and Colorado Boulevard BRT, under a coordinated partnership structure. BRT stations include enhanced platforms, shelters, and passenger amenities that operate at a higher scale than conventional bus stops. While BRT stations are excluded from the stop typology framework in this study, the tiered approach to BRT station design informed the development of scalable infrastructure expectations for conventional stops.

Municipal Planning and Inventory Efforts

Bus stops are typically located within municipal right-of-way, and local governments have responsibility for sidewalks, lighting, and site conditions. Several jurisdictions have undertaken bus stop-related studies or developed design guidance.

- **City and County of Denver – Passenger Amenity Analysis (2022).** Denver evaluated shelter placement and amenity distribution within city limits to better understand equity and ridership relationships. This effort demonstrates municipal interest in data-driven amenity placement.
- **City of Westminster – Bus Stop Inventory (2022).** Westminster developed a municipal inventory to document stop conditions within its jurisdiction. The inventory demonstrates the value of localized data but also highlights variation in data structure and maintenance responsibilities across agencies.
- **City and County of Denver – Transit Design Guidelines (2026).** Denver’s guidelines establish standards for stop layout, functional zones, accessibility integration, and furnishing placement within the public right-of-way. These standards complement RTD’s design guidance and reflect increasing formalization of stop-level design expectations.
- **City of Lakewood – Accessibility Inventory (2025).** During stakeholder engagement for this study, Lakewood staff noted a recent effort to document accessibility conditions at bus stops within city limits.

These municipal efforts underscore growing regional attention to bus stop infrastructure while highlighting the need for standardized data and consistent evaluation criteria.

Summary of Planning Context

Across these efforts, several themes emerge:

- Service frequency and ridership vary across corridors
- Access conditions significantly influence transit usability
- Enhanced corridor investments demonstrate the value of tiered infrastructure standards
- Municipal responsibilities for sidewalks and lighting differ across jurisdictions

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- Data collection and maintenance practices are inconsistent regionwide

These conditions directly informed the BSIAA's focus on developing a standardized inventory, a scalable typology framework, and a transparent method for identifying infrastructure gaps.

Regulatory Framework and RTD Policies

In addition to this regional planning context, bus stop infrastructure is shaped by federal law and RTD policies that establish minimum compliance requirements and guide amenity placement decisions.

Americans with Disabilities Act of 1990 (ADA)

The Americans with Disabilities Act of 1990 (ADA) requires public entities, including transit agencies, to ensure that services, programs, and facilities are accessible to individuals with disabilities. For fixed-route bus service, this includes providing accessible boarding and alighting areas and maintaining accessible pedestrian connections. Facility design must comply with the ADA Standards for Accessible Design ("ADA Standards"), most recently revised and adopted in 2010. These standards, along Title II and Title III regulations, specifically address what is required for a building or facility to be physically accessible to people with disabilities.

Under ADA Title II, transit agencies must remove barriers where it is readily achievable and ensure that alterations to facilities improve accessibility to the maximum extent feasible. When a stop is modified or reconstructed, accessibility improvements must be incorporated into the project.

For bus stops, accessibility requirements generally include:

- A firm, stable, slip resistant boarding and alighting surface
- Minimum clear space dimensions of 8 feet deep (back from curb/roadway) by 5 feet wide (along curb/roadway)
- Maximum slope of 2 percent perpendicular to the roadway direction of travel
- An accessible path connecting the stop to the public sidewalk network, where one exists

These requirements directly informed the data collection methodology described in Chapter 3. In some cases, field teams measured boarding area dimensions and slopes to assess compliance and document deficiencies.

The ADA establishes a baseline condition that applies to all stops, regardless of ridership or typology.

Public Right-of-Way Accessibility Guidelines (PROWAG)

The Public Right-of-Way Accessibility Guidelines (PROWAG), issued by the United States Access Board in 2023 and adopted by USDOT effective January 17, 2025, for transit stops in the public right-of-way, provide technical accessibility standards for pedestrian facilities within the public right-of-way, including transit boarding areas. It serves as the primary federal technical standard for evaluating accessibility in pedestrian facilities within the public right-of-way, including sidewalks and streetscape elements.

PROWAG standards address:

- Boarding area dimensions

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- Surface slope and cross slope
- Curb ramp design
- Pedestrian access routes
- Obstruction-free clear space

The BSIAA inventory incorporated PROWAG dimensional and slope thresholds when evaluating stop conditions. As a result, the accessibility deficiencies identified in Chapter 3 reflect current technical standards.

Title VI of the Civil Rights Act

Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national origin in programs receiving federal funding. For transit agencies, this includes equitable distribution of amenities and services.

Federal Transit Administration (FTA) Circular 4702.1B requires agencies to evaluate service and amenity placement to ensure that minority (hereafter referred to as Black, Indigenous and People of Color, or BIPOC) and low-income populations do not experience disparate impacts or disproportionate burdens. These populations are defined using the latest available Census or American Community Survey data; and low-income populations are defined as those living within households earning incomes no greater than 200% of the Federal Poverty Level.

Historically, RTD's shelter policy has relied on weekday boarding thresholds to guide shelter placement. While ridership is a defensible criterion, reliance on boardings alone may not fully capture equity considerations.

The typology and prioritization framework described in Chapters 4 and 5 provides a more transparent structure for aligning amenity investments with ridership, service frequency, demographics, and accessibility needs across the system.

RTD Bus Infrastructure Design Guidelines

RTD's Bus Infrastructure Design Guidelines (2016) establish layout standards for bus stops, including:

- Functional zones (boarding area, furnishing zone, pedestrian through zone)
- Shelter placement
- Clear path requirements
- Accessibility integration

These guidelines provide site-level design direction but do not define a systemwide framework for determining where different amenity levels should be applied.

The BSIAA typology framework complements the Design Guidelines by clarifying when specific infrastructure elements are envisioned, while the guidelines continue to inform how those



Figure 2-1: RTD Bus Infrastructure Guidelines Document

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elements are physically configured within the right-of-way. RTD may revise these guidelines at a later date to incorporate the guidelines established as part of the BSIAA's typology framework.

RTD Service Policies and Standards: Bus Stop Shelter Warrants (Draft)

RTD's Draft Bus Stop Shelter Warrants policy (2021) establishes boarding thresholds and criteria for shelter installation. The policy provides a structured, ridership-based approach to amenity placement.

However, shelter warrants alone do not address broader accessibility deficiencies, seating installation, lighting, or real-time information. In addition, boarding thresholds may not reflect evolving service patterns or equity considerations.

The BSIAA expands beyond shelter warrants by evaluating all stops against a comprehensive accessibility baseline and a scalable amenity framework.

Implications for the BSIAA

The regulatory and policy framework establishes several important conditions. Accessibility applies systemwide, with clearly defined technical standards for boarding areas and pedestrian access. Amenity placement must be equitable and transparent. While RTD policies provide site-level design guidance, they do not establish a systemwide investment framework.

These conditions reinforced the need for:

- A comprehensive, updated accessibility inventory
- Clear documentation of compliance with current technical standards
- A scalable framework that aligns infrastructure expectations with service characteristics
- A transparent methodology for identifying and prioritizing investments

Chapters 3 and 4 build on this foundation by documenting existing conditions and establishing a conceptual framework for systemwide investment. While regulatory standards define what is required, effective implementation depends on accurate and well-governed data.

Evaluation of Existing Bus Stop Data

The effectiveness of any bus stop investment program depends on the quality, consistency, and governance of the underlying data. A review of several sources of existing data identified both data content gaps and governance challenges that limit its usefulness for systemwide decision-making.

Condition and Completeness of Existing Data

RTD maintains a bus stop database containing approximately 14,600 stop records, some of which have been updated incrementally since the last inventory was completed in 2009. However, accessibility and amenity information is not comprehensively updated to reflect current ADA or PROWAG standards.

The existing dataset includes location information, shelter ownership, and selected amenity attributes. Several limitations affect its usefulness for systemwide planning:

- Accessibility attributes do not consistently reflect current dimensional or slope standards
- Cross-slope measurements are not uniformly documented

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- Boarding area dimensions are not verified against current requirements
- Shelter and bench ownership information is distributed across multiple datasets
- Records for inactive or retired stops remain in the database

In many cases, stops that appear compliant in the database have not been evaluated under current technical standards. Conversely, some stops lack sufficient documentation to determine compliance without field verification.

These conditions limit RTD's ability to quantify accessibility needs, assess amenity distribution consistently, or evaluate conditions across jurisdictions using a standardized methodology.

Fragmentation Across Systems

Bus stop data resides across multiple internal systems and teams. Location data, service data, shelter contracts, and maintenance records are not fully integrated within a single platform.

This fragmentation creates several operational challenges:

- Data fields are not standardized across systems
- Updates to stop locations are not always reflected in amenity records
- Ownership and maintenance responsibilities are not consistently documented in a single location
- Version control is limited, making it difficult to track changes over time

As a result, answering foundational planning questions requires manual reconciliation across systems. Determining how many active stops meet current accessibility standards or where shelters are installed relative to ridership and service frequency is not straightforward using existing data alone.

Without a unified and current dataset, systemwide capital planning remains constrained.

Data Governance and Organizational Considerations

In addition to data completeness challenges, governance practices affect how bus stop data are maintained and updated.

Responsibility for stop-related data is distributed across multiple departments, including service planning, facilities, operations, and contracted facilities. Each team maintains information relevant to its function, but there is no formalized, programmatic process for regularly reconciling stop-level data across systems.

Data updates typically occur in response to specific events, such as route changes, shelter installations, or construction projects, rather than through routine systemwide review. Accessibility conditions are not consistently re-evaluated following service changes or adjacent roadway improvements. Documentation standards for new installations vary by project and department.

These conditions are common among transit agencies where bus stop infrastructure evolves incrementally over time. However, as accessibility standards become more precise and investment decisions increasingly data-driven, limitations in data governance become more consequential.

The BSIAA addresses both the physical condition of stops and the structure of the underlying dataset, establishing a standardized and transparent foundation for ongoing monitoring and decision-making.

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Implications for the BSIAA

The review of existing data revealed three primary needs:

- A comprehensive update of accessibility and amenity conditions using current technical standards
- Standardized data fields and definitions that align with regulatory requirements and typology classifications
- Clear documentation of ownership and maintenance responsibilities to support coordinated implementation

Chapter 3 describes the updated inventory methodology developed to address these needs. The revised database structure provides a foundation for ongoing monitoring, prioritization, and capital programming.

The BSIAA does not resolve all governance challenges. However, it establishes a consistent baseline dataset and highlights the importance of defining clear data maintenance responsibilities moving forward.

Municipal Coordination and Roles

Bus stops are typically located within municipal right-of-way, where sidewalks, curb ramps, drainage, and lighting are owned and maintained by local jurisdictions. As a result, bus stop improvements require coordination between RTD and municipal partners across planning, design, construction, and maintenance.

To better understand local priorities and implementation realities, RTD convened six county-level workshops in fall 2025. The feedback from these workshops was used to inform the next stages of the process, including the development of the typology and prioritization frameworks. They also informed the project team's understanding of challenges and opportunities surrounding maintenance and implementation. In spring of 2026, RTD presented a virtual update on the BSIAA to the regional county stakeholders. Throughout this engagement process, several consistent themes emerged. They are described in Chapter 6, sections 3 and 4.



Figure 2-2: County Workshops in October 2025

Other Agency Best Practices

To inform the BSIAA, RTD reviewed bus stop programs and accessibility initiatives at several other, comparable transit agencies, including Utah Transit Authority (UTA), Metro Transit (Twin Cities), King County Metro, and TriMet (Portland, OR). These agencies operate in diverse urban and suburban contexts but face similar challenges related to accessibility compliance, amenity distribution, data management, and interagency coordination.

Several consistent best practices emerged.

1. **Comparable agencies maintain dedicated bus stop capital programs.** Rather than relying solely on project-driven improvements, these agencies allocate recurring funding for accessibility upgrades, shelter installation, and amenity replacement. Dedicated programs allow agencies to address deficiencies systematically rather than reactively.
2. **Agencies use structured prioritization frameworks to guide investments.** Common criteria include ADA compliance, ridership, service frequency, transfer activity, equity indicators, and proximity to community destinations. These frameworks provide transparency and support funding requests while allowing flexibility to address site-specific conditions.
3. **Strong data governance practices are critical.** Peer agencies maintain a single system of record for bus stop conditions, assign clear responsibility for data updates, and limit the number of administrators authorized to modify records. Several agencies conduct periodic field audits to maintain data accuracy and ensure compliance with evolving accessibility standards.
4. Agencies increasingly use public-facing dashboards to communicate accessibility status and improvement progress. Transparent reporting supports accountability and builds public trust in capital investment decisions.
5. **Other agencies emphasize formal maintenance agreements with municipalities and vendors.** Clearly defined ownership and upkeep responsibilities reduce ambiguity and improve long-term asset management.

These practices reinforce several essential elements of the BSIAA framework by establishing a foundation in a comprehensive, standardized inventory and by ensuring accessibility is evaluated against current technical standards. Amenity placement is guided by a transparent and scalable structure, while data governance and maintenance roles are clearly defined. Investment decisions are anchored by documented prioritization criteria to promote consistency and accountability. While local conditions vary, experience at other agencies demonstrates that systematic data management and structured investment frameworks improve efficiency, equity, and regulatory compliance. The BSIAA incorporates these principles within RTD's regional context.

3. 2025 Bus Stop Inventory

Overview

This chapter describes the 2025 systemwide inventory of RTD’s existing bus stops. It documents how RTD determined which stops to inventory in the assessment, how data were collected and verified, and how the resulting information is organized.

The inventory focused on approximately 7,500 fixed-route stops across RTD’s eight-county service area. RTD gathered and reviewed imagery data to assess accessibility conditions, amenity presence, and right-of-way ownership for each location. Additionally, fieldwork was completed to verify the imagery data in targeted locations.

The inventory establishes a baseline of current conditions of bus stops in the region. It provides a consistent dataset that supports accessibility analysis, amenity evaluation, coordination with partner agencies, and future investment planning.

The sections that follow provide an overview of the methodology used to assess each stop and summarize the systemwide conditions documented through this effort. A complete description of the data collection methodology and filtering process used to define the scope of data collection is included in **Appendix A**.

The bus stop inventory scope was narrowed from a 14,000-record database to identify **7,521 stops** that are active (or inactive but flagged for inclusion) in the inventory by RTD service planning staff. Data was collected for stops through image capture, desktop review, targeted field verification, and quality control. This data was used to develop the final database.

The final database includes attributes which are grouped into the following primary categories:

Table 3-1: Database Architecture

Category	Description
Stop ID and Location	Stop ID, Stop Name, Address, Facility ID, Stop Placement
Accessibility	Pad size, slope, obstructions
Amenities	Presence of 13 amenities, type/quality of 10 amenities
Stop Typology	Results of typology generation process and key input metrics
Stop Prioritization	Results of prioritization process and key input metrics
Administrative*	Notes and other updates related to database management
Maintenance*	Stop ROW ownership, third-party maintenance vendors
Cost*	Cost to add required and preferred amenities to stop

**These fields are only available on RTD’s internal version of the database.*

Stop ID and Location fields were refined and validated to align with current service and geospatial systems. Accessibility, Amenities, and Administrative represent newly collected or newly verified data.

Bus Stop Infrastructure and Accessibility Assessment

Stop Typology and Stop Prioritization fields were developed after the inventory was completed and are addressed in subsequent chapters of this report. The Maintenance field reflects current contracts. The cost field includes estimates to bring stops up to baseline accessibility standards as well as to add required and preferred amenities (according to the Stop Typologies); these estimates are in 2025 dollars. A complete data dictionary of the 2025 inventory is provided in **Appendix B**.

State of the System

The 2025 Bus Stop Infrastructure and Accessibility Assessment provides the first comprehensive snapshot of RTD's active fixed-route bus stop network in more than 15 years. Across approximately 7,500 inventoried stops, conditions vary by corridor type, surrounding land use, and right-of-way ownership.

The updated inventory reveals that accessibility and amenity conditions vary widely across the RTD system, but deficiencies are not isolated to a single geography or service type. Accessibility gaps are present in every county and across all route categories. While some stops meet current dimensional requirements, slope compliance and pedestrian connectivity remain common challenges.

Amenity distribution reflects historical installation patterns and corridor investments. Higher-investment stops tend to align with frequent service corridors, but gaps remain even in areas with strong ridership.

Administrative and ownership attributes also vary, reinforcing the need for clear documentation of roles and responsibilities before large-scale improvements are advanced.

Overall, the findings indicate that accessibility improvements represent a systemwide need, while amenity upgrades can be scaled according to service characteristics and context. The inventory establishes a clear baseline for future investment decisions.

Accessibility

Accessibility is the foundation of an effective bus stop network. A stop must provide a compliant boarding and alighting environment before additional amenities meaningfully improve the customer experience.

Following desktop review, targeted field verification, and final quality control, the inventory indicates:

- 2,720 stops (36 percent) are ADA sufficient pending slope verification
- Of these, 442 (6 percent) were field verified as sufficient including verification of slope
- 4,801 stops (64 percent) are ADA insufficient
 - Of these, 1,302 (18 percent) were field verified as insufficient

As explained in subsequent sections, a stop is classified as sufficient if it meets dimensional requirements, **preliminary** slope threshold determination, obstruction

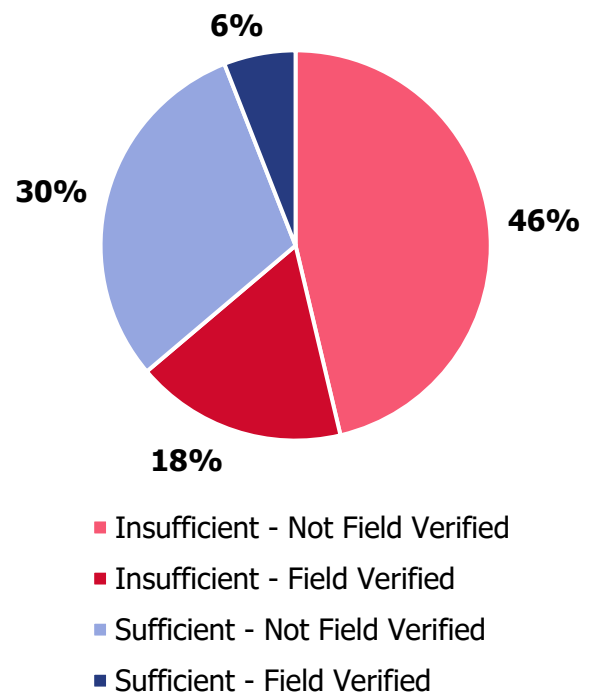


Figure 3-1: Share of ADA Accessible Stops

Bus Stop Infrastructure and Accessibility Assessment

clearance standards, and pedestrian connection criteria. It is important to note that stops that have not been field verified are marked as Sufficient on a tentative basis; future field verification may determine that these stops do not meet the slope threshold for sufficient accessibility. Stops classified as insufficient fail at least one of these requirements.

The following sections examine accessibility – and the contributors to a stop failing to qualify as accessible – at the county level. RTD has stops located within eight counties. In Weld County, there is only one bus stop. For the purposes of this analysis, the bus stop in Weld County is grouped with the stops in Boulder County.

Bus Stop Infrastructure and Accessibility Assessment

What Makes a Stop "Accessible"?

An accessible bus stop provides a safe, stable, and usable boarding environment for all customers, including people who use mobility devices, older adults, and customers traveling with strollers or personal items. Accessibility should be the foundation of every stop. Before amenities such as shelters or seating are considered, the boarding area must meet minimum standards.

1. Boarding and Alighting Area

Every stop must include a defined boarding area directly adjacent to the bus stop sign. To be accessible, the boarding area must:

- Measure at least **8 feet deep** (perpendicular to the curb or roadway) and **5 feet wide** (parallel to the curb)¹
- Maintain a slope of no more than 2 percent perpendicular to the roadway
- Be firm, stable, slip resistant and free of obstructions

If any of these conditions are not met, the stop does not meet minimum accessibility standards.

2. Pedestrian Connection

If a sidewalk or pedestrian access route is present, the boarding area must connect to it. The accessible path must:

- Provide at least 4 feet of clear width and remain free of barriers and excessive slope

Customers should not have to navigate unsafe or indirect routes to reach the stop.

3. Shelters and Benches

When shelters or benches are installed, they must not block the required boarding area. Shelters must maintain clear entry space and interior maneuvering space. Benches must allow circulation space for wheelchair users. A stop may include a shelter and still be inaccessible if the boarding area does not meet dimensional or slope requirements.

4. Why Slope Matters

Cross slope is one of the most common accessibility deficiencies. A boarding pad may appear compliant but exceed the 2 percent maximum slope when measured in the field. Excessive slopes can prevent safe and stable boarding. For this reason, field measurements were essential to confirm compliance at select locations.



Figure 3-2: Stop Accessibility Dimensions

¹ [RTD Bus Infrastructure Design Guidelines and Criteria](#), includes an additional design requirement that the bus boarding and alighting area shall be a minimum of 6 feet long and 8 feet wide (9 feet preferred). This reflects RTD's design criteria and is intended to supplement, not define, the minimum ADA compliance standard.

Bus Stop Infrastructure and Accessibility Assessment

Field Verification and Slope Measurement

Cross slope can only be definitively confirmed through in-person measurement. The project team conducted field verification at 1,741 stops, where staff measured boarding area dimensions and slope using digital levels.

For stops that underwent field verification, accessibility determinations reflect measured conditions and represent final compliance status based on available data.

For stops that did not require field verification, the team relied on structured desktop screening using imagery collected by the project team using a Trimble 360 camera mounted to a vehicle and measurement tools. For these locations:

- Stops classified as insufficient were clearly noncompliant based on visible deficiencies such as missing boarding pads, inadequate dimensions, or evident obstructions. In cases where slope was visibly out of compliance, the stop was also marked insufficient.
- Stops classified as sufficient met dimensional and obstruction criteria based on desktop review. However, because slope was not physically measured at these locations, sufficiency reflects compliance with all observable criteria and remains subject to confirmation if future field measurement is conducted.

Fieldwork focused on locations where imagery could not definitively determine compliance, while desktop review allowed the project team to evaluate the full network efficiently.

Primary Accessibility Deficiencies

Across the network, the most common drivers of insufficiency include:

- Boarding and alighting areas that do not meet the minimum 8-foot by 5-foot dimensional requirement
- Cross slopes exceeding 2 percent
- Obstructions within the required clear landing space
- Missing or non-compliant pedestrian connections

Cross slope is the most prevalent deficiency among field-verified stops. In many cases, a boarding pad appears adequate in size but fails due to roadway crown, drainage design, or constrained right-of-way conditions.

In other locations, stops lack a defined boarding surface entirely. Customers board from dirt, gravel, or uneven terrain. These stops represent the most significant accessibility gaps and typically require capital improvements rather than minor adjustments.

Accessibility deficiencies occur across urban, suburban, and low-density contexts. The type of deficiency varies by setting, but the need for improvement is systemwide.

Bus Stop Infrastructure and Accessibility Assessment

Bus Stop Signs

The vast majority of bus stops within the RTD service area – 97% – have a clearly visible sign that marks the presence of the stop with recognizable RTD branding and lists the routes served by the stop. Bus stops that lack a sign may have been experiencing temporary closures due to construction at the time of field review, or may have been inactive but had plans to be reactivated.

Nearly 6,800 of these signs are mounted on a free-standing pole. About 450 signs share are located on a shared pole, such as a telephone pole or other municipal signpost. About 60 signs are attached to bus stop shelters.

Denver County, Arapahoe County, and Boulder County have the greatest number of bus stops without signs, each with at least 45 stops missing. While no county had a significant proportion of its own stops missing signs, Douglas County had the greatest share at 5%, followed by Boulder and Arapahoe Counties at 4% each.

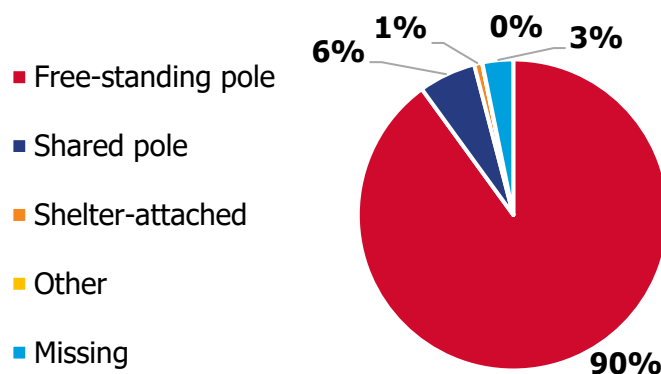


Figure 3-3: Regional Share of Sign Types

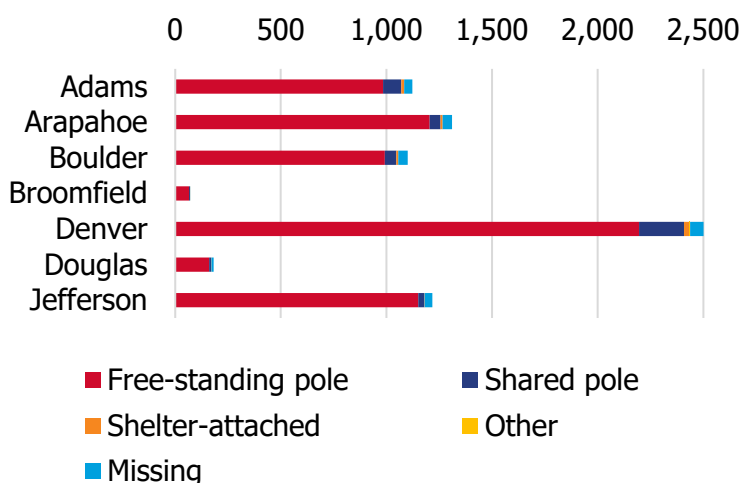


Figure 3-4: Sign Types by County

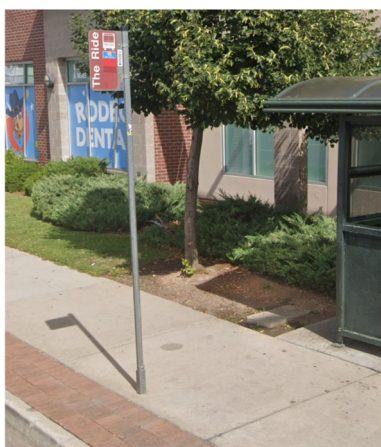


Figure 3-5: Sign on Free-Standing Pole at W Colfax Ave & W Wadsworth Blvd in Lakewood (Stop ID: 13004)

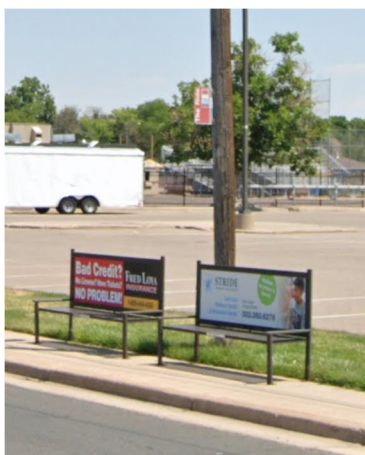


Figure 3-6: Sign on Shared Pole at 11th Ave & Nome St in Aurora (Stop ID: 10129)



Figure 3-7: Sign Attached to Shelter at S University Blvd & Hampden Ave in Englewood (Stop ID: 16844)

Bus Stop Infrastructure and Accessibility Assessment

Boarding Area Presence and Size

A boarding area at a stop functions as both a visual marker of where the stop is located and a surface from which customers can safely board the bus. To be considered accessible under the ADA, a bus stop must have a level, solid pad that is at least 5 feet wide and 8 feet deep (6 feet wide and 9 feet deep preferred by RTD) and no more than 2% cross slope. The bus driver must align the front door of the bus to the pad for customers to board.

Over half of RTD's stops have a boarding area of sufficient size. Approximately one-third have a boarding area whose size may not meet ADA accessibility standards. Over 10% of stops have no boarding area.

Adams County, Douglas County, and Jefferson County have the greatest share of boarding areas with a size limitation at 49%, 45%, and 43% respectively. Boulder County and Douglas County have the highest share of stops with no boarding area, at 20% each.

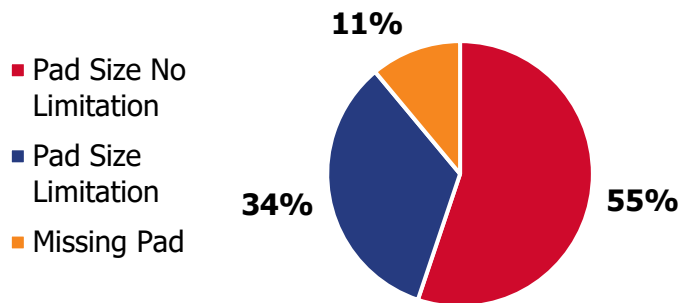


Figure 3-8: Regional Share of Pad Presence and Size

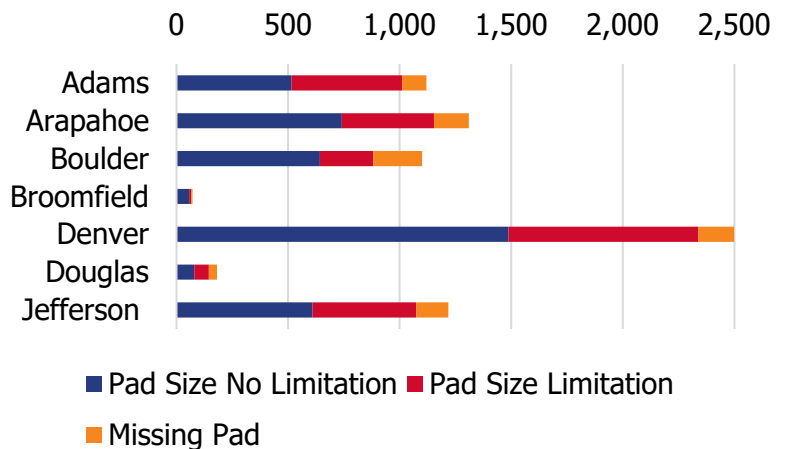


Figure 3-9: Pad Presence and Size by County



Figure 3-12: No Pad Size Limitation at Canyon Blvd & 19th St in Boulder (17987)



Figure 3-10: Pad Size Limitation at Monaco Pkwy & MLK Blvd in Denver (15554)



Figure 3-11: Missing Pad at W Coal Mine Ave & S Ward St in Unincorporated Jefferson County (24575)

Bus Stop Infrastructure and Accessibility Assessment

Boarding Area Material

The boarding area material is the primary material present in the location where customers board the bus, regardless of whether a pad is present. Accessible boarding areas are made of a durable, solid, and stable material such as concrete or asphalt. Other materials present at boarding areas within the RTD service area, including dirt, gravel, and lawn, are not considered accessible.

Nearly 85% of boarding areas within RTD’s service area are made of pavement, which can include purpose-built pads and existing sidewalks. Approximately 100 stops across the region, including 60 stops in Denver County and 30 stops in Boulder County, are made of a decorative surface, which includes pavers and bricks, and are accessible as long as the pavers remain level. Over 10% of stops in the region have dirt, gravel, or lawn as the boarding area material, which can pose challenges to customers boarding and alighting the bus, particularly those with mobility impairments. Douglas County and Boulder County have the highest shares of stops with either dirt, gravel, or lawn as their boarding material, at 20% and 19%, respectively.

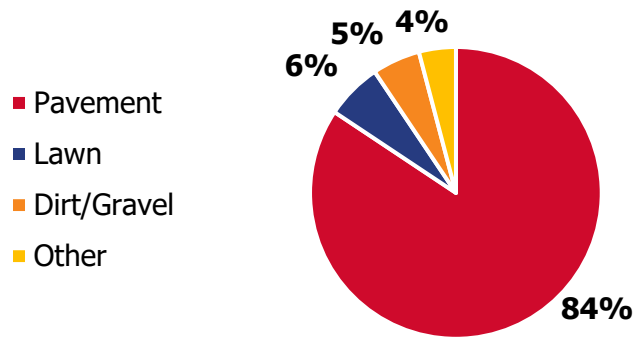


Figure 3-13: Regional Share of Boarding Area Material Figure

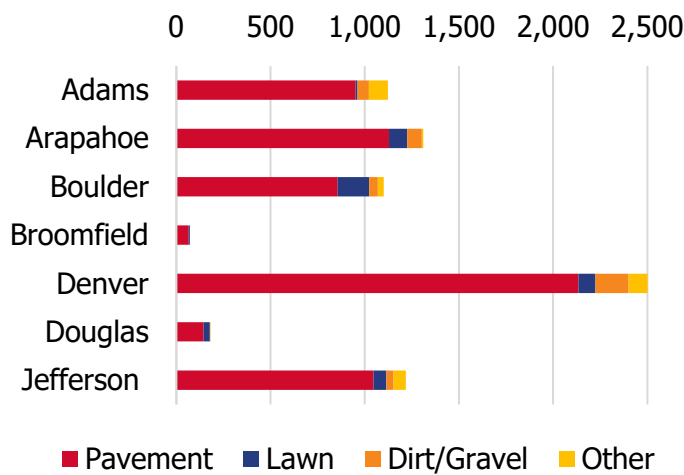


Figure 3-14: Boarding Area Material by County



Figure 3-15: Pavement-Based Primary Boarding Area at Havana St & 37th St in Denver (23425)



Figure 3-16: Dirt and Gravel-Based Primary Boarding Area at Arapahoe Rd & Euclid Ave in Centennial (12261)



Figure 3-17: Lawn-Based Primary Boarding Area at 119th St & Meadow Sweet Farm Pkwy in Erie (33248)

Bus Stop Infrastructure and Accessibility Assessment

Boarding Area Slope

For a boarding area to be considered accessible, it must have an average cross (i.e., perpendicular to the roadway) slope of no more than 2%. This can be both challenging to achieve in practice and resource-intensive to measure, as a boarding area can appear level to the eye but not meet the slope requirement. This inventory field-verified 23% of stops, approximately half of which exceeded the maximum slope requirement. Due to the resources required to measure slopes, measurements were not taken at the 42% of RTD stops that had other accessibility limitations.

Further investigation and planning must be done by stop owners to address boarding area slope issues and bring stops to ADA compliance.

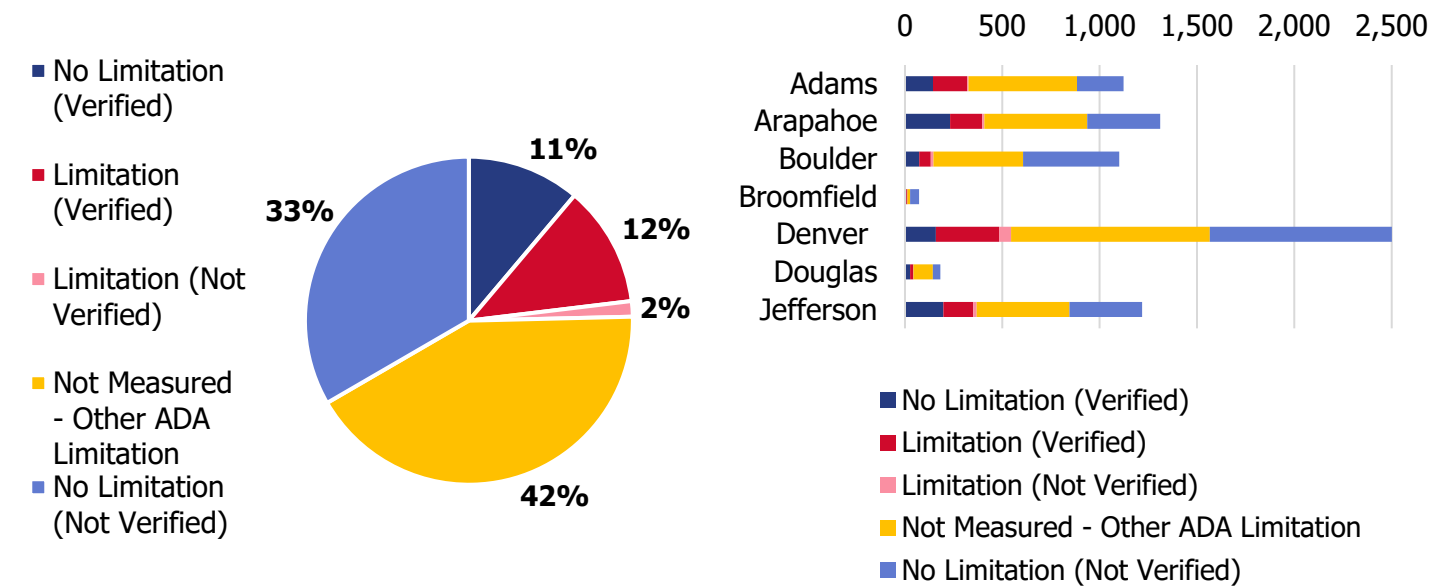


Figure 3-18: Share of Slope Accessibility by County

Figure 3-19: Share of Slope Accessibility by County



Figure 3-20: Pad Slope Limitation (Not Field Verified) at Federal Blvd & W 95th Ave in Westminster (13775)

Figure 3-21: Pad Slope Limitation (Field Verified) at Evans Ave & S Logan St in Denver (13601)

Bus Stop Infrastructure and Accessibility Assessment

Boarding Area Obstructions

Boarding areas must remain free from obstructions to be considered accessible. A variety of obstructions may impact boarding area accessibility. Some obstructions may be temporary, such as parked cars or minor debris. Trees, bushes, and grass may grow over time into previously accessible boarding space. Benches, utilities, and poles present more permanent obstructions.

At the time of inventory, 13% of stops had some obstruction at the boarding area. This figure is more variable than other accessibility measures, as obstructions may be temporary. Douglas County and Boulder County have the highest share of stops with boarding area obstructions, at 23% and 21%, respectively.

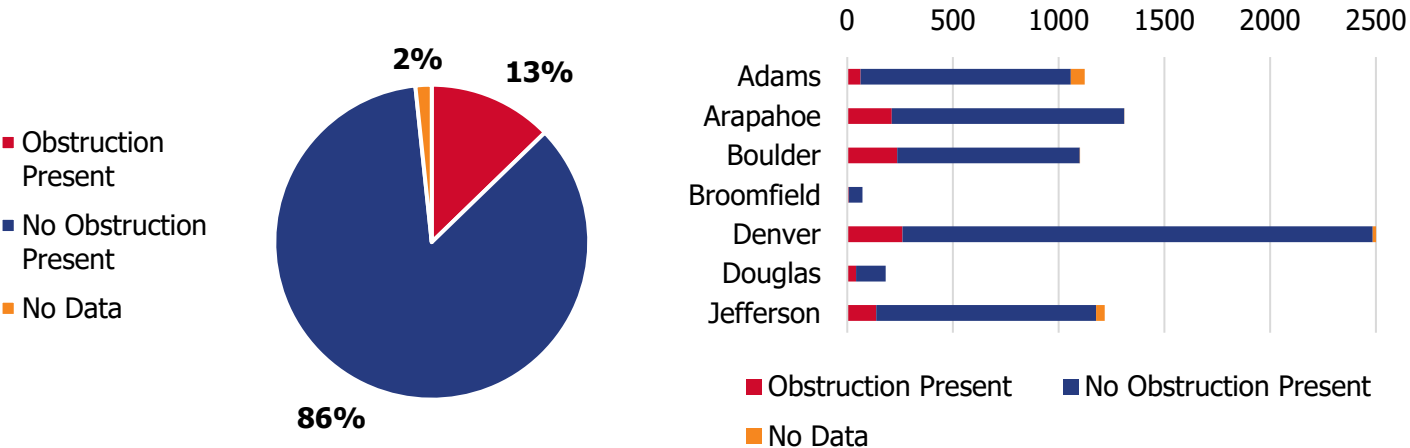


Figure 3-22: Regional Share of Boarding Area Obstruction Limitations

Figure 3-23: Share of Boarding Area Obstruction Limitations by County



Figure 3-24: Bench Obstructing Boarding Area at W 64th & Union St in Arvada (11506)

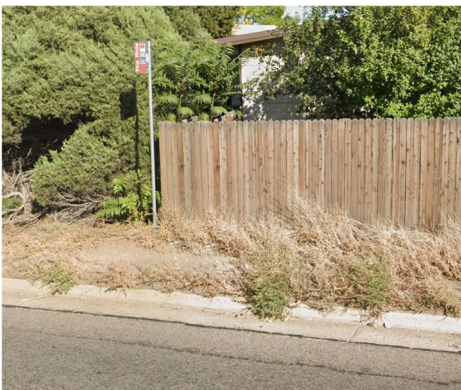


Figure 3-25: Foliage Obstructing Boarding Area at Hampden Ave & S Clermont St in Denver (14136)



Figure 3-26: Mailboxes Obstructing Boarding Area at 53rd Ave & Kittredge St in Denver (25510)

Bus Stop Infrastructure and Accessibility Assessment

Path of Travel

Boarding areas must have a path of travel to and from the intersection that is at least 4 feet wide and free from obstructions with a cross slope of 2 percent or less, to be considered accessible. This attribute specifically examines the presence of a path of travel, while the following attribute examines the presence of obstructions within the path of travel. The review was limited to the immediate bus stop area; right-of-way owners (municipalities, counties, and other regional partners) will need to confirm and address insufficiency outside the bus stop envelope. The inventory verified approximately 23% of stops’ path of travel.

Across the region, 6% of stops are missing a path of travel. The counties with the greatest share of stops with a path of travel ADA limitation are Boulder County (12%) and Adams County (9%).

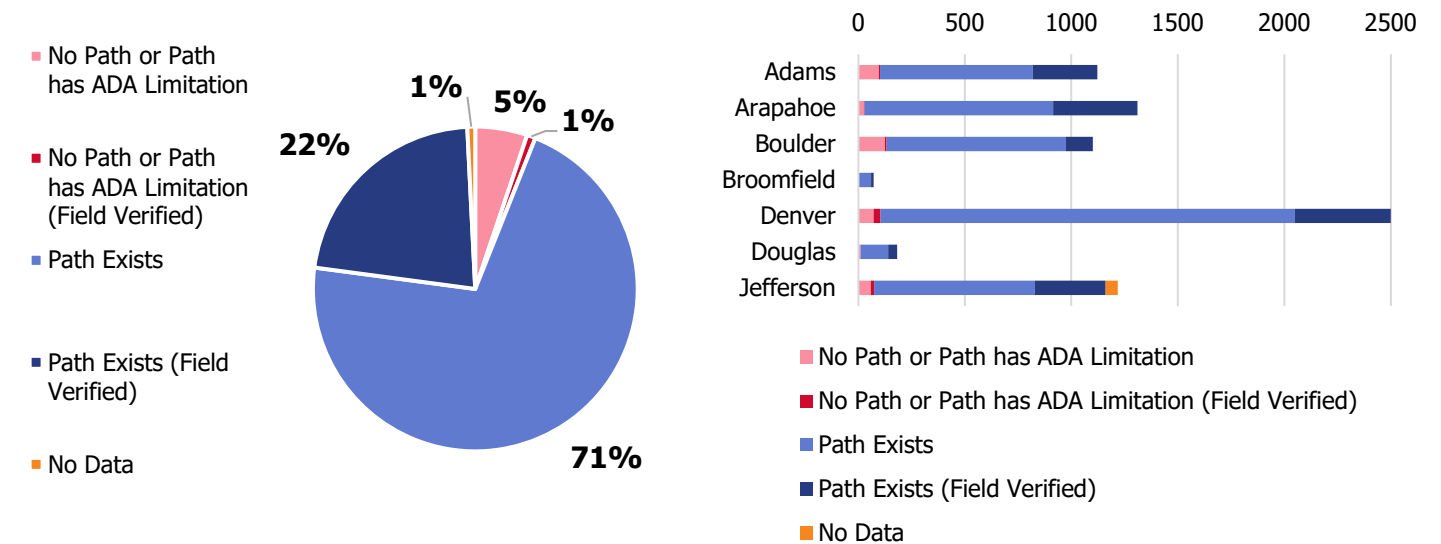


Figure 3-28: Regional share of stops with path of travel ADA limitations

Figure 3-27: Share of Stops with Path of Travel ADA Limitation by County



Figure 3-29: Field-Verified ADA Limitation for Presence of Accessible Path of Travel at 120th Ave & Brighton Rd in Commerce City (33033)

Figure 3-30: Field-Verified No ADA Limitation for Presence of Accessible Path of Travel at Sheridan Blvd & W 78th Ave in Westminster (23507)

Bus Stop Infrastructure and Accessibility Assessment

Path of Travel Obstruction

Boarding areas must have a path of travel to and from the intersection that is at least 3 feet wide and free from obstructions and excessive slope to be considered accessible. This attribute specifically examines the presence of obstructions within the path of travel. Construction, cones, and debris may temporarily block paths of travel, and foliage such as trees, bushes, and grass may grow over time into previously accessible paths of travel. Shelters, utilities, and poles present more permanent obstructions.

The inventory found that 4% of stops' paths of travel have an obstruction that poses an ADA limitation. The counties with the greatest share of these obstructions are Douglas County with 6% and Denver County with 5%.

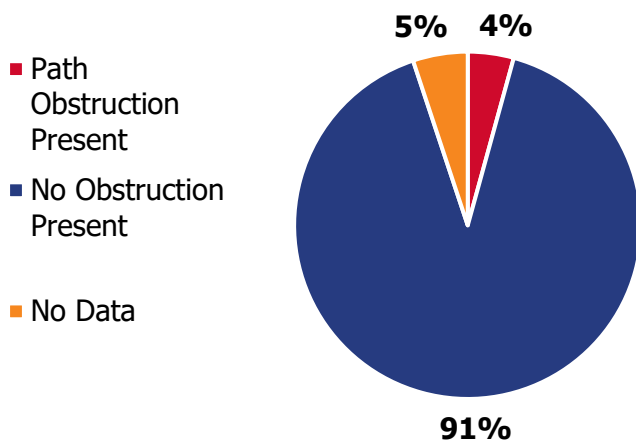


Figure 3-31: Regional Share of Stops with ADA Limitation for Path of Travel Obstruction

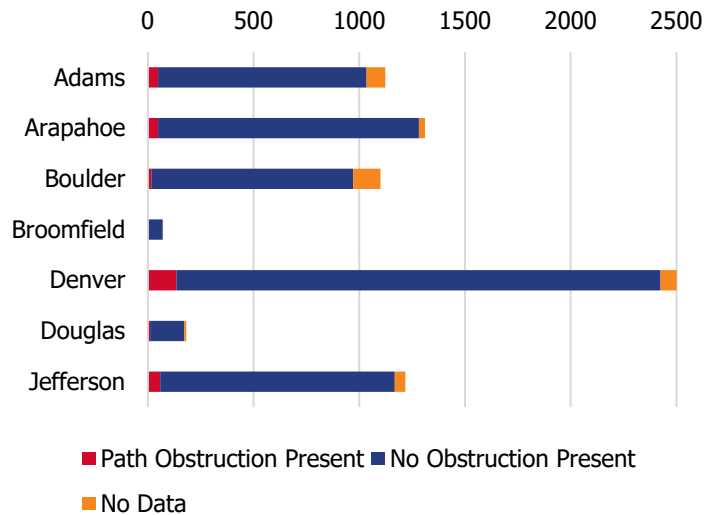


Figure 3-32: Share of Stops with ADA Limitation for Path of Travel Limitation by County



Figure 3-33: Lawn Obstructing Path of Travel at 5700 Block Arapahoe Ave in Boulder (12237)



Figure 3-34: Poles Obstructing Path of Travel at Lipan St & W 38th Ave in Denver (14991)



Figure 3-35: Debris Obstructing Path of Travel at W Oxford Ave & Natches Ct in Sheridan (25032)

Bus Stop Infrastructure and Accessibility Assessment

Shelter Clearance

Boarding areas and paths of travel must not be obstructed by shelters. Most stops regionally – 83% – do not have shelters. The counties with the greatest share of ADA limitations for shelter clearance are Douglas County (50%), Adams County (47%), and Arapahoe County (38%).

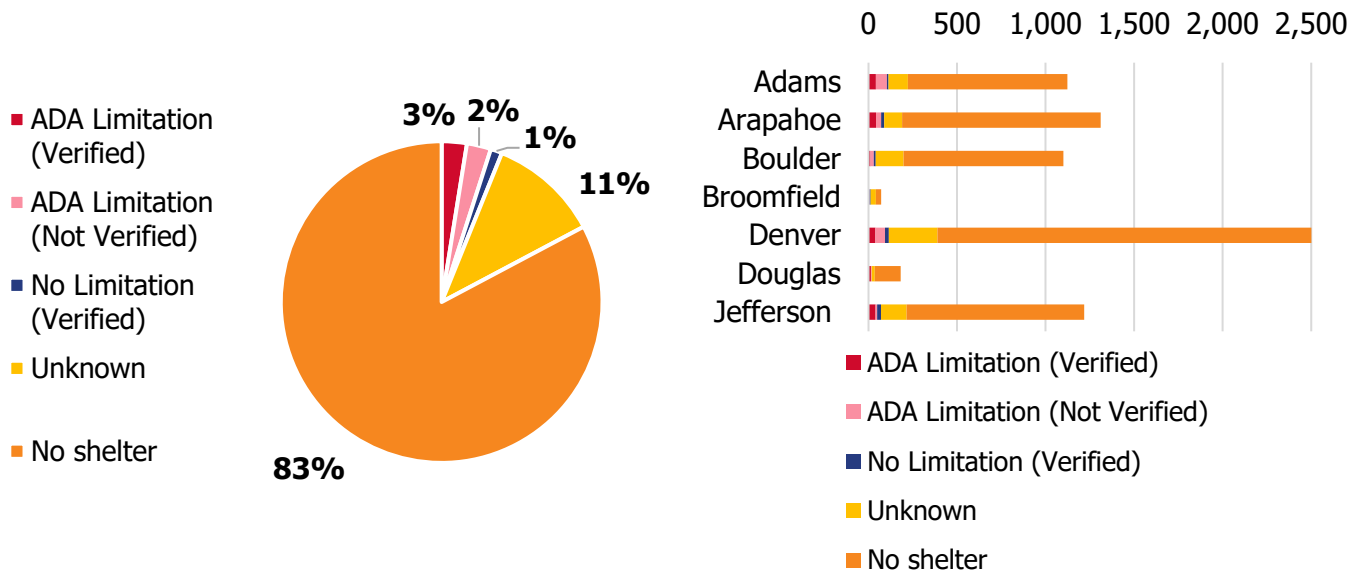


Figure 3-36: Share of ADA Limitations for Shelter Clearance by County

Figure 3-37: Regional Share of ADA Limitations for Shelter Clearance



Figure 3-38: Field Verified Shelter Clearance Limitation at Mainstreet & S Parker Rd in Parker (25746)



Figure 3-39: Unverified Shelter Clearance Limitation at Spine Rd & Williams Fork Trail in Boulder (16631)

Bus Stop Infrastructure and Accessibility Assessment

Amenities and Infrastructure

While accessibility determines whether a stop can function safely and legally, amenities influence comfort and waiting conditions. Amenity distribution reflects historical installation practices rather than a systemwide typology framework. As described in later chapters, the inventory enables RTD to align amenity expectations with stop context, ridership levels, and corridor function. The inventory shows substantial variability in amenity distribution across the system:

- Approximately 43 percent of stops include seating
- Approximately 17 percent of stops include shelters
- Approximately 36 percent of stops include lighting
- Approximately 24 percent of stops include trash receptacles

In many suburban and lower-density areas, stops consist only of a sign and boarding surface. In higher-ridership corridors, shelters and seating are more common but remain absent at many locations. Shelters are concentrated at a relatively small share of stops. Among stops with shelters, most are in good condition, though some require repair or replacement. Seating is more prevalent than shelters but remains unavailable at more than half of all stops.

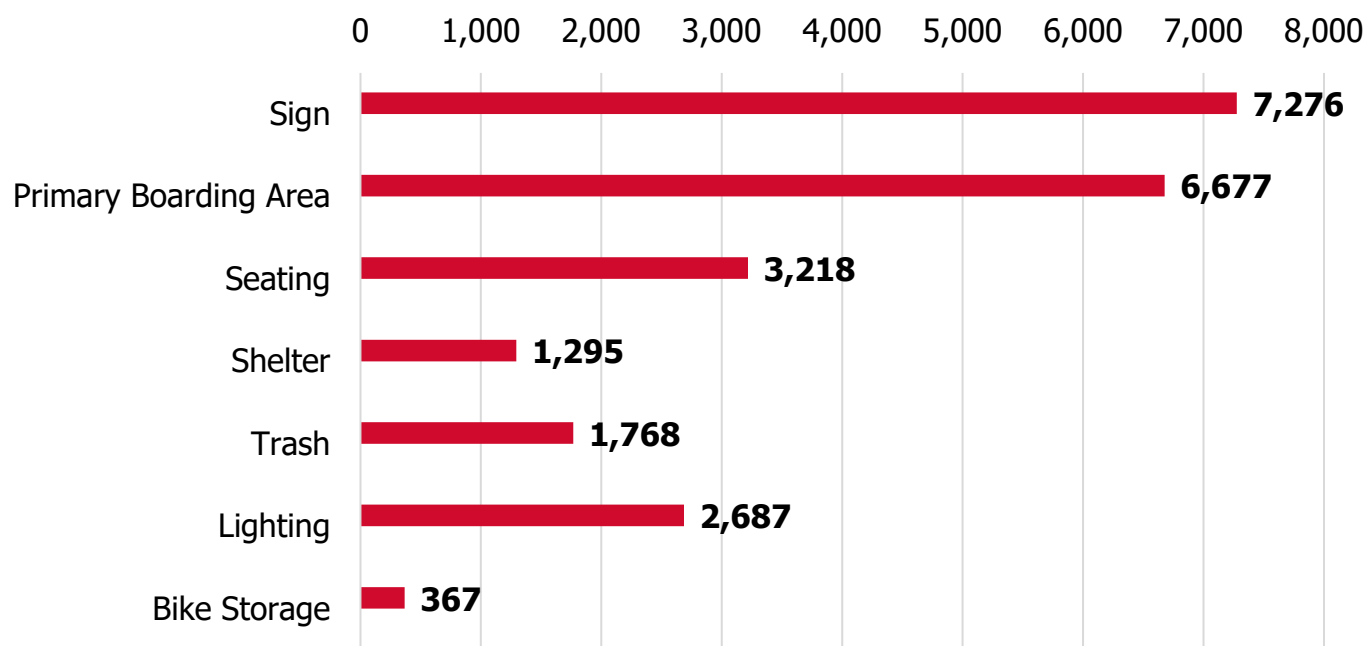


Figure 3-40: Distribution of Amenities Throughout System

The following sections summarize the regional and county-level distributions of each amenity by condition and type, depending on the data available. They include summary statistics and example photos of various stop conditions, providing a detailed view into inventory amenity findings.

Bus Stop Infrastructure and Accessibility Assessment

Seating

Bus stop seating provides customers with somewhere to sit while they wait for their bus. It is one of the most basic amenities to increasing customer comfort at stops. Standard stop seating is 6-foot, steel contoured or a backless bench with a center armrest, but municipalities and third parties may choose to install seating of varying materials and dimensions. Seating is considered to be in sufficient condition if it is usable and intact. It is considered to be in insufficient condition if it is broken, unstable, or unusable.

Approximately 43% of RTD stops have seating. The vast majority of these are considered to be in sufficient condition. Denver County has the highest share of stops with deficient seating, with 6% or 46 stops considered to have deficient seating.

The counties with the lowest share of stops with seating are Douglas County (25%), Adams County (35%), and Boulder County (36%).

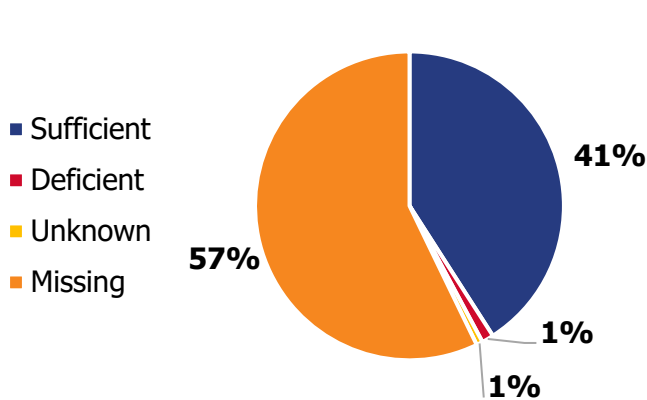


Figure 3-41: Regional Share of Bench Condition

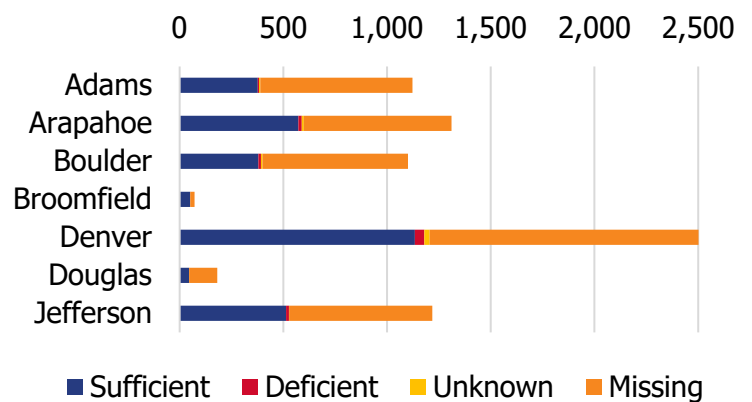


Figure 3-42: Bench Condition by County



Figure 3-43: Sufficient Bench at S Broadway & W Union Ave in Englewood (12607)

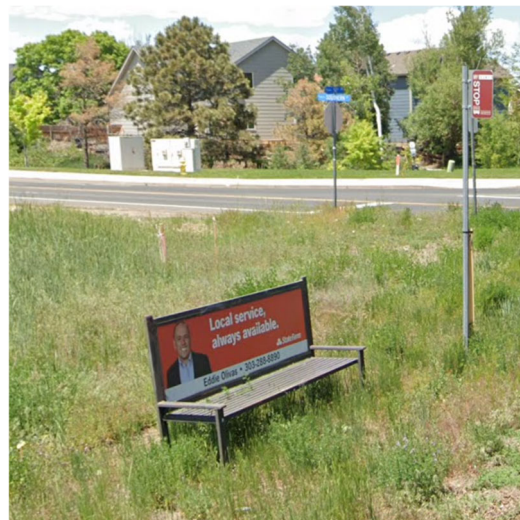


Figure 3-44: Deficient Bench at S 50th Ave & Southern St in Brighton (33413)

Bus Stop Infrastructure and Accessibility Assessment

Shelters

Shelters provide protection from sun, rain, wind, and snow to customers waiting for the bus. Most have benches within them. Shelters can provide significant comfort upgrades at key stops and are typically located at stops with higher ridership. Standard stop shelters are 18 feet across and 5.5 feet deep. They are made of an aluminum alloy with tempered glass panels and anchored to the ground with stainless steel. RTD shelters can be either permanent (built into the streetscape using concrete or other materials) or removable. A shelter is in sufficient condition if the roof and walls are intact and there is no major damage. It is in insufficient condition if there are visible structural issues.

Approximately 17% of the region's stops have shelters. The counties with the lowest share of stops with shelters are Arapahoe County (14%) and Denver County (16%). Broomfield has a high share of stops with shelters at 58%.

85% of existing shelters are considered in sufficient condition. The counties with the highest share of stops in deficient condition are Adams County (28%), Denver County (19%), and Arapahoe County (17%).

87% of existing shelters across the region are removable, and 13% are permanent.

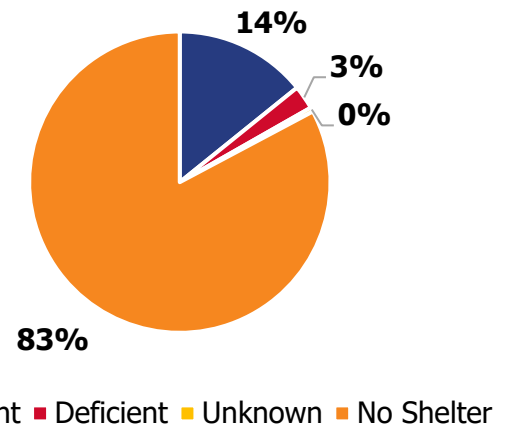
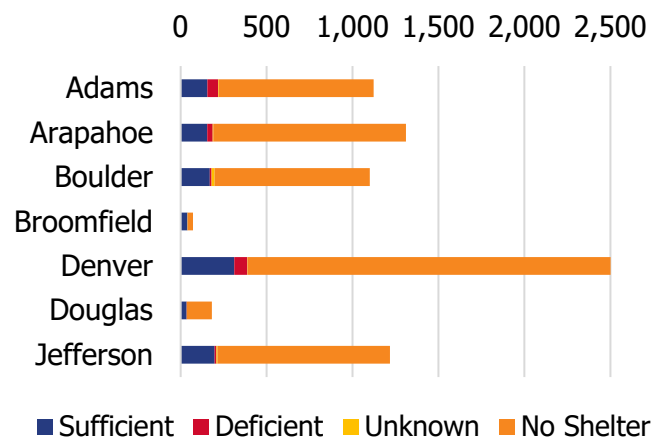


Figure 3-45: Regional Share of Shelter Condition



3-49: Figure Shelter Condition by County



Figure 3-46: Permanent Shelter at W 38th Ave & Parfet St in Wheat Ridge (11033)

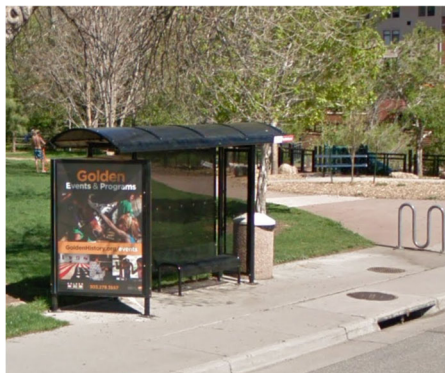


Figure 3-47: Removable Shelter at Washington Ave & 10th St in Golden (24397)



Figure 3-48: Deficient Shelter at 8th Ave & Colorado Blvd in Denver (11830)

Bus Stop Infrastructure and Accessibility Assessment

Trash Receptacles

Trash receptacles at stops provide customers and other pedestrians a place to dispose of trash. They are an important amenity to help maintain the cleanliness and safety of the stops. Trash receptacles may either be permanent (attached to a shelter or other infrastructure at the stop) or removable. Standard permanent receptacles have a 36-gallon capacity and are bolted to the walkway with stainless steel bolts. Removable receptacles may vary in design and are not bolted to the walkway.

Across the region, 26% of stops have trash receptacles, of which a slight majority are permanent and the rest are removable. Most counties have a similar share of stops with trash receptacles within their limits, with the exception of Douglas County which has 17% of stops with trash receptacles, and Broomfield County, which has 51% of stops with trash receptacles.

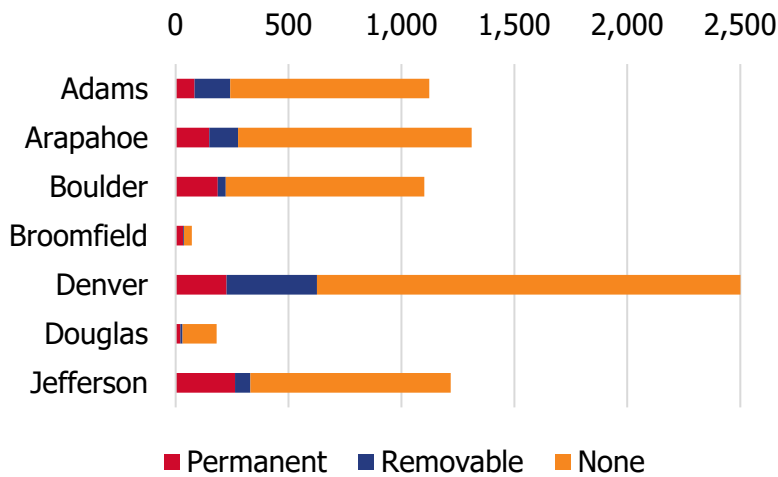
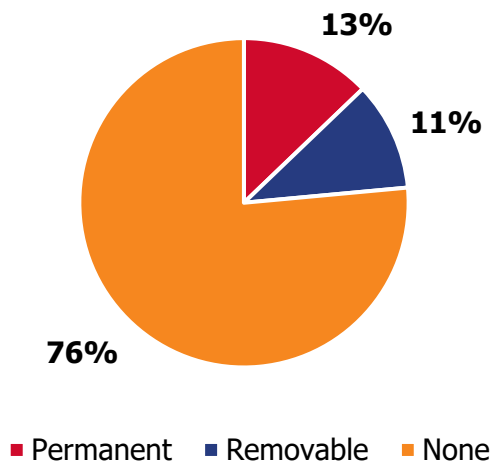


Figure 3-50: Regional Share of Trash Receptacles by Type Figure 3-51: Trash Receptacle Type by County



Figure 3-52: Removable Trash at Marion St & Walnut St in Denver (15212)



Figure 3-53: Permanent Trash Receptacle at Highlands Ranch Pkwy & Ridgeline Blvd in Highlands Ranch (24648)

Bus Stop Infrastructure and Accessibility Assessment

Lighting

Lighting at bus stops illuminates the stop when it is dark and is an important amenity for safety and security. Lighting may be provided by nearby streetlights, adjacent businesses, a pole that is purpose-built for the stop, or on the bus stop shelter.

Regionally, one-third of bus stops have some type of lighting, the majority of which (73%) are streetlights. Jefferson County and Arapahoe County have the lowest share of stops with lighting, at 24% and 26%, respectively. Broomfield County has the highest share of stops with lighting, at 54%.

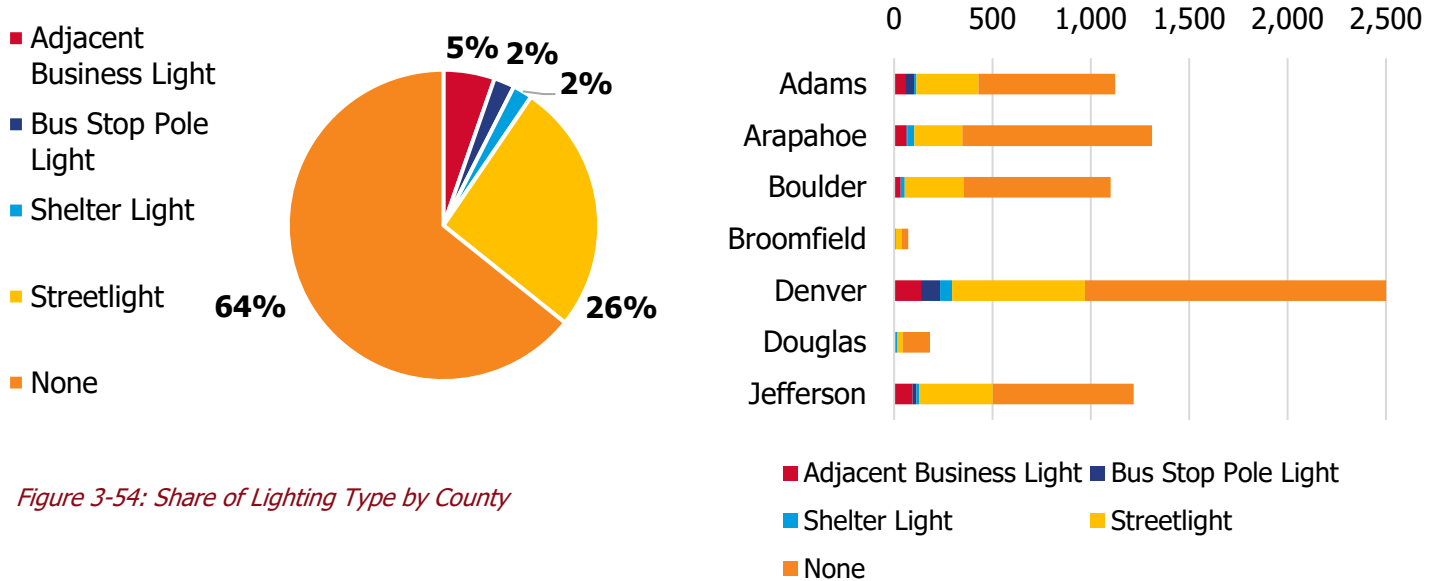


Figure 3-54: Share of Lighting Type by County

Figure 3-55: Regional Share of Lighting Type



Figure 3-56: Bus Stop Pole Lighting at Broadway & Blake St in Denver (33349)



Figure 3-57: Shelter Lighting at 6th Ave & Corona St in Denver (11454)



Figure 3-58: Street Lighting at S Cherry St & Mississippi Ave in Glendale (12757)

Bus Stop Infrastructure and Accessibility Assessment

Bike Storage

Bicycle storage allows customers to store their bikes before they board the bus. This amenity can be helpful for customers if the bus bike rack is full or if they would prefer not to bring their bike to their final destination. Bike storage can be “U racks” or bike lockers. U racks are U-shaped 3-foot tall steel rods bolted to the ground. Bike lockers are made of fiberglass-reinforced plastic and are fully enclosed, with a capacity of two bicycles per locker. They are also bolted to the ground. RTD provides bike lockers for rent at nearly half of rail stations and Park-n-Rides; renters provide their own padlocks.

Bike storage is rare at RTD stops, with only 5% of stops – about 360 – providing this amenity. The vast majority of these are bike racks; bike lockers are only found at RTD facilities. Most bike storage is found in Boulder County (180 stops) or City and County of Denver (94 stops).

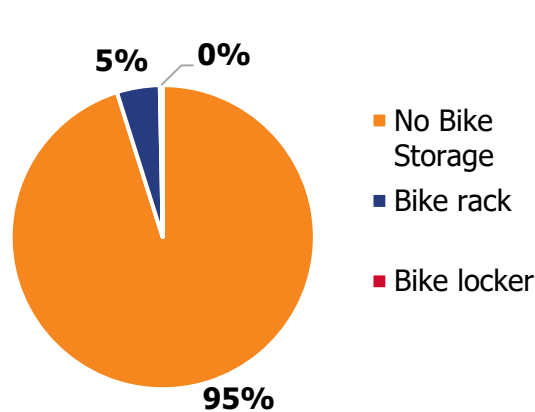


Figure 3-59: Regional Share of Bike Storage by Type

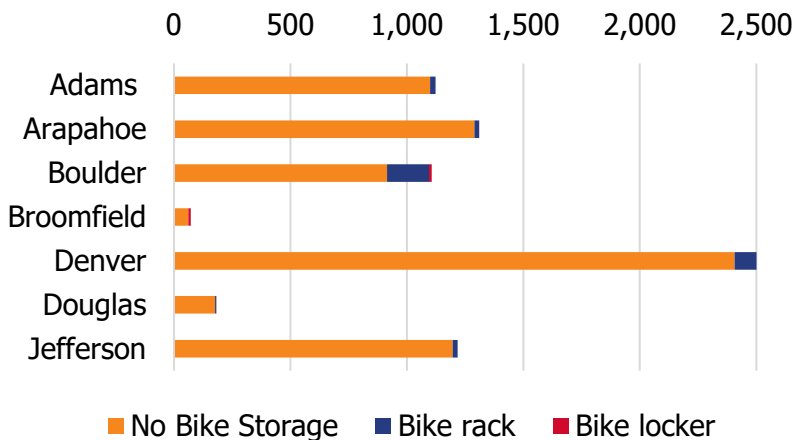


Figure 3-60: Share of Bike Storage Type by County

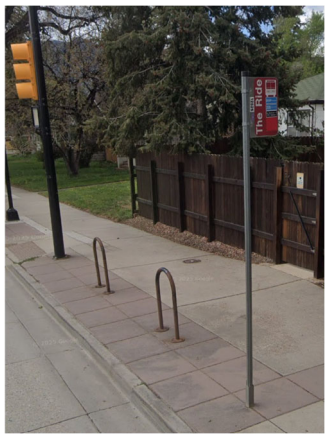


Figure 3-61: Bike Rack at Broadway and Forest Ave in Boulder (12525)



Figure 3-62: Bike Rack at W Littleton Blvd & S Spotswood St in Littleton (15018)



Figure 3-63: Bike Locker at US 36 & Flatiron Gate F in Broomfield (35242)

Bus Stop Infrastructure and Accessibility Assessment

Other Amenities and Bus Stop Infrastructure

There are several other amenities that are occasionally provided at bus stops. Nearly 200 stops across the region have public art at or near the stop. Approximately 115 stops have ticket vending machines; mostly located at light rail or commuter rail stations. Nearly 50 stops have a digital display for advertising or wayfinding.



Figure 3-64: Digital Display at Champa St & 15th St in Denver (17740)



Figure 3-65: Ticket Vending Machine at Southmoor Station in Denver (26317)

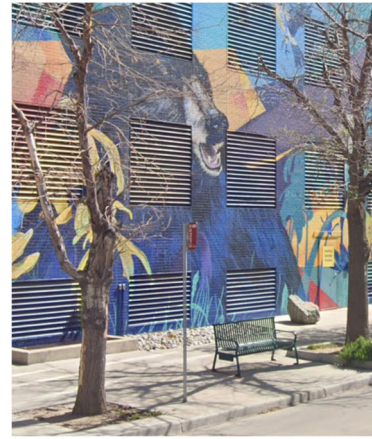


Figure 3-66: Public Art at 19th Ave & Grant St in Denver (10357)

A bus pad is a durable concrete surface installed at bus stops that reduces the impact of bus wear-and-tear on the street, helping to maintain accessibility. Over a quarter of bus stops across the region have a bus pad.

The elevation of a bus stop can be curb-level, flush with the street, above ground (as in an elevated station), or underground. The vast majority of stops regionally – 97% – are located at curb level.



Figure 3-67: Bus pad at W 38th Ave & Wolff St in Denver (11061)

Bus Stop Infrastructure and Accessibility Assessment

Administration and Maintenance

Bus stops operate within a complex governance environment. While RTD provides bus service, many stops are located within municipal, county, or state right-of-way. Improvement responsibilities vary based on ownership, maintenance agreements, and corridor context.

The inventory documents right-of-way ownership and maintenance responsibility for each stop. In many cases, accessibility improvements require coordination with local jurisdictions before design and construction can proceed.

Ownership patterns vary across the service area. In urban areas, stops are often located within municipal right-of-way. In suburban and unincorporated areas, county or state ownership may apply. Some stops are adjacent to private development, which may influence pedestrian connectivity improvements.

Stop analysis shows that a significant majority of stops — nearly three-quarters — are located on right-of-way owned by local municipalities. About one-fifth are located on Colorado Department of Transportation (CDOT) right-of-way, while stops located on County right-of-way make up 7% of the inventory. Only 3% of stops are located on RTD-owned property, and many of these are located in bus bays at transit centers. Less than 1% of stops are located on private or other state agency property.

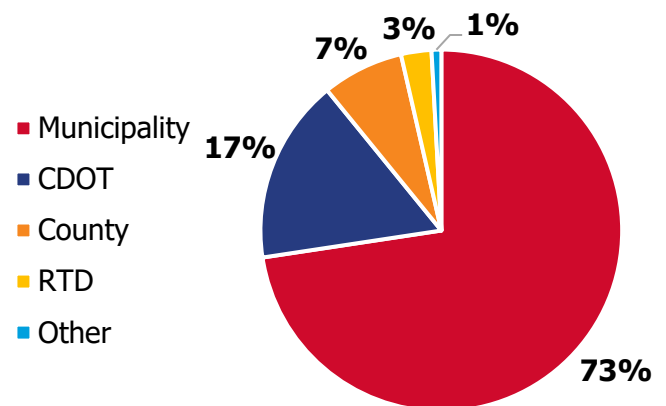


Figure 3-68: Stop Right-of-Way Ownership

Systemwide Observations

Taken together, the 2025 inventory confirms three systemwide realities:

- Accessibility deficiencies are widespread and cannot be addressed through isolated spot improvements alone
- Amenity distribution varies significantly across the service area and does not consistently align with stop function or ridership intensity
- Implementation will require coordinated action across multiple agencies and jurisdictions

These findings establish the factual foundation for the typology framework and gap analysis presented in the next chapter, where the report moves from describing existing conditions to defining what each stop should provide and what it will take to achieve that standard.

4. Bus Stop Typologies and Identification of Regional Gaps

What Is a Bus Stop Typology Framework?

Chapter 3 documented the existing condition of RTD's active fixed-route bus stops, which have significant variation in service and contextual characteristics. Some stops serve high ridership corridors with frequent service and transfer activity; others serve lower-demand routes in suburban contexts. A single amenity standard cannot reasonably apply to all stops. At the same time, investment decisions must be consistent, transparent, and financially achievable.

To address this, RTD developed a **bus stop typology framework**. A typology establishes a limited number of stop categories and assigns a defined set of required, preferred, and optional amenities to each category. The typology structure establishes guiding expectations for infrastructure at each location and provides a consistent framework for evaluating investment decisions.

The typology is designed to achieve three objectives:

- Establish accessibility as a baseline requirement at every stop
- Scale amenities in proportion to ridership and service level
- Remain implementable within realistic funding and right-of-way constraints

Limiting the number of categories improves clarity and long-term consistency. A concise framework supports implementation across multiple jurisdictions and capital programs.

The typology also allows flexibility. Some locations may qualify for higher-level amenities based on ridership but face physical constraints such as limited sidewalk width, utility conflicts, or adjacent property limitations. In those cases, the typology establishes expectations while allowing context-sensitive solutions. The framework is intended to guide decision-making and support coordination with local jurisdictions; it is not a rigid prescription that overrides site-specific constraints or partnership agreements.

The sections that follow describe how the framework was developed and define the proposed stop types.

Bus Stop Infrastructure and Accessibility Assessment

Proposed Typology Framework

Amenity Categories: Required, Preferred, and Optional

The typology framework establishes clear expectations for the infrastructure provided at each stop. To support consistent implementation, RTD grouped amenities into three categories: required, preferred, and optional.

- **Required** amenities represent the minimum infrastructure envisioned for that stop type under this framework. These elements are necessary to support the operational role and level of customer activity at that location.
- **Preferred** amenities enhance comfort and usability. These elements should be installed where funding and right-of-way allow but may be deferred based on constraints.
- **Optional** amenities may be installed where space, corridor investments, or partnership opportunities support additional enhancements.

Accessibility improvements are not optional. Every stop, regardless of typology, is expected to meet minimum ADA requirements, including a compliant boarding and alighting area and accessible pedestrian connection where one exists. Distinguishing between required and preferred amenities allows RTD and municipalities to align investment expectations with fiscal and spatial realities while maintaining a consistent framework across the region.

Scaling Amenities Across Stop Types

The typology includes four stop categories that reflect increasing ridership, service frequency, and operational importance:

- Standard Stop
- Enhanced Stop
- Signature Stop
- Premium Stop

Each category includes a defined set of required and preferred amenities. Amenities scale upward as ridership and operational role increase.

Bus Stop Infrastructure and Accessibility Assessment

Table 4-1: Typology Amenity Matrix

Amenity	Standard Stop	Enhanced Stop	Signature Stop	Premium Stop
Sign Pole with Route Information	Required	Required	Required	Required
Accessible Boarding Area	Required	Required	Required	Required
Seating	Preferred	Required	Required	Required
Area Lighting	Preferred	Required	Required	N/A
Trash Receptacle	Optional	Preferred	Required	Required
Shelter	Optional	Preferred	Required	Required
Stop Lighting	Optional	Preferred	Preferred	Required
Detailed Route Information/Wayfinding	Optional	Optional	Preferred	Required
Bicycle Storage	Optional	Optional	Preferred	Preferred
Double Shelter	N/A	Optional	Optional	Preferred
Real-time Information	N/A	Optional	Optional	Preferred

This matrix establishes a transparent relationship between stop context and infrastructure expectations. It also provides a consistent reference for gap identification and cost estimation.

Stop Type Descriptions

Each typology reflects a distinct role within the network. There are additional station facilities in the RTD system that are not included in this framework.²

² The typology framework applies to active fixed-route bus stops located within public right-of-way. It does not apply to larger transit facilities that RTD owns and operates. During the inventory process, the project team identified transit centers and major transfer facilities that function as part of Park-n-Ride locations, rail transfer stations, or dedicated transit centers. These facilities typically include multiple bus bays, passenger platforms, structured circulation areas, and facility-level amenities that extend beyond the scope of a standard bus stop. Because these facilities operate at a different scale and are governed by separate design and operational standards, RTD excluded them from the stop typology framework.

Similarly, bus rapid transit stations are not included in this typology. Regional BRT corridors are being developed through partnership agreements that establish corridor-specific station design standards. Those station typologies reflect higher-capacity infrastructure and dedicated capital programs that differ from conventional bus stop improvements. By excluding transit centers and BRT stations, this framework focuses on the approximately 7,000 active fixed-route bus stops on predominantly non-RTD right-of-way that comprise most of the system and represent the primary area of unmet infrastructure need.

Bus Stop Infrastructure and Accessibility Assessment

Standard Stop

Standard stops represent the majority of locations in the system. These stops typically serve lower to moderate ridership and are often located on non-frequent routes or in lower-density contexts.

As Standard stops do not typically include many amenities, their primary objective is to ensure safe and accessible boarding conditions.

Required amenities:

- Stop sign with route information
- Compliant boarding and alighting area

Preferred amenities:

- Seating, where right-of-way allows
- Lighting



Figure 4-1: Standard Stop Illustration (Preferred Amenities "Glowing")

Bus Stop Infrastructure and Accessibility Assessment

Enhanced Stop

Enhanced stops serve moderate ridership locations or stops on frequent routes that warrant additional comfort features beyond the baseline. These stops often support consistent daily use and may serve as neighborhood anchors.

Required amenities:

- Stop sign with route information
- Compliant boarding and alighting area
- Seating
- Area lighting

Preferred amenities:

- Shelter
- Trash receptacle
- Stop-scale lighting



Figure 4-2: Enhanced Stop Illustration (Preferred Amenities "Glowing")

Bus Stop Infrastructure and Accessibility Assessment

Signature Stop

Signature stops serve higher ridership corridors or function as key transfer locations. These stops experience greater passenger volumes and visibility within the network.

Required amenities:

- Stop sign with route information
- Compliant boarding and alighting area
- Shelter
- Seating
- Trash receptacle
- Lighting

Preferred amenities:

- Enhanced wayfinding
- Bicycle storage



Figure 4-3: Signature Stop Illustration (Preferred Amenities "Glowing")

Bus Stop Infrastructure and Accessibility Assessment

Premium Stop

Premium stops represent the highest ridership and most operationally significant locations in the network. These stops often function as transfer hubs or anchor stops along high-capacity corridors.

Required amenities:

- Stop sign with route information
- Compliant boarding and alighting area
- Shelter
- Seating
- Trash receptacle
- Lighting
- Real-time information
- Enhanced wayfinding

Preferred amenities:

- Real-time information
- Bicycle storage



Figure 4-4: Premium Stop Illustration (Preferred Amenities "Glowing")

Bus Stop Infrastructure and Accessibility Assessment

Assigning Typologies Across the System

After defining the typology framework, RTD assigned each stop to a category using ridership and service data.

Each stop was evaluated using:

- Average weekday boardings
- Service frequency, including identification of frequent routes
- Corridor role within the System Optimization Plan

Boarding thresholds were scaled based on service frequency. Stops located on frequent routes required higher ridership to qualify for elevated categories than stops served by non-frequent routes. This approach reflects the tradeoff between making investments in stop comfort amenities (like shelters and seating) in places where customers may be waiting longer for buses that arrive less frequently vs. targeting higher levels of amenity investment at stops that serve the most customers.

Table 4-2: Typology Criteria

Criteria	Standard Stop	Enhanced Stop	Signature Stop	Premium Stop
Frequent Routes (Buses arriving every 15 minutes or better)	Fewer than 10 boardings*	10 to 39 boardings	40 to 99 boardings	100 boardings or greater OR located near intersection of two SOP "Core" Routes
Non-frequent Routes (Buses arriving less often than 15 minutes)	Fewer than 5 boardings*	5 to 24 boardings	25 to 99 boardings	100 boardings or greater OR located near intersection of two SOP "Core" Routes

* Boarding thresholds reflect average weekday boardings. Boarding data based on Fall 2024 ridership. Active stops without ridership or frequency data were assigned a preliminary "Standard Stop" typology

Not all inventoried stops had complete ridership and service frequency data available at the time of analysis. Several factors contributed to this condition. The inventory intentionally included some stops that are not currently active but may return to service. In addition, temporary construction impacts and service adjustments created discrepancies between the Fall 2024 ridership dataset and the most current stop list. For stops without sufficient data to assign a typology using the established thresholds, staff assigned an interim classification of Standard Stop for inventory purposes.

The assignment process was reviewed and calibrated through stakeholder workshops and internal coordination. Adjustments were made where operational context warranted refinement. The resulting distribution reflects regional partners' understanding of where stop amenity upgrades will have the greatest impact.

Bus Stop Infrastructure and Accessibility Assessment

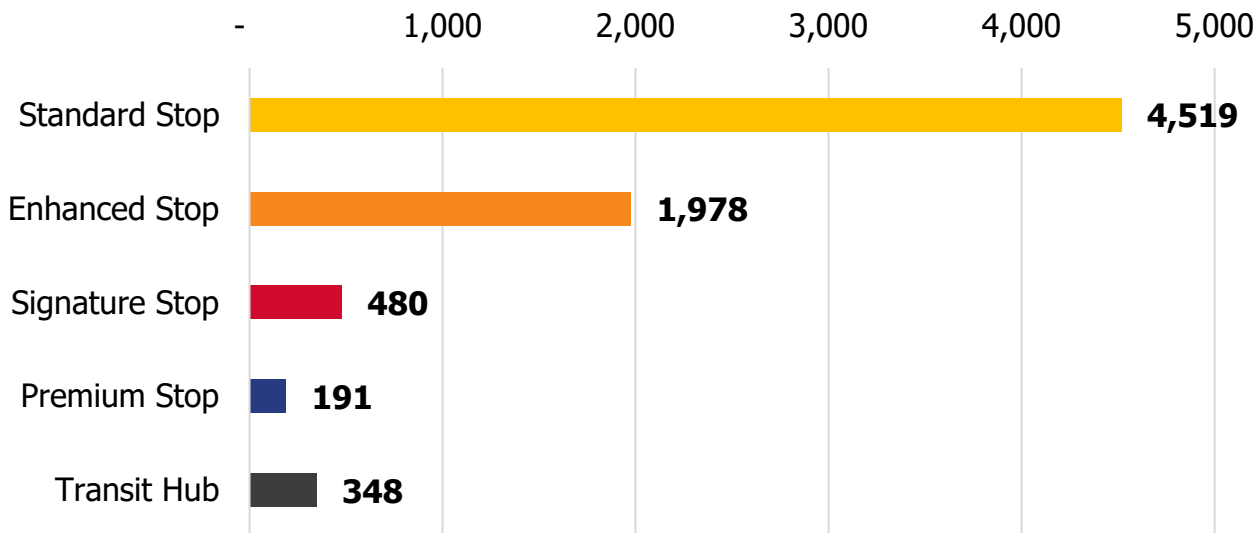


Figure 4-5: Number of Stops by Typology

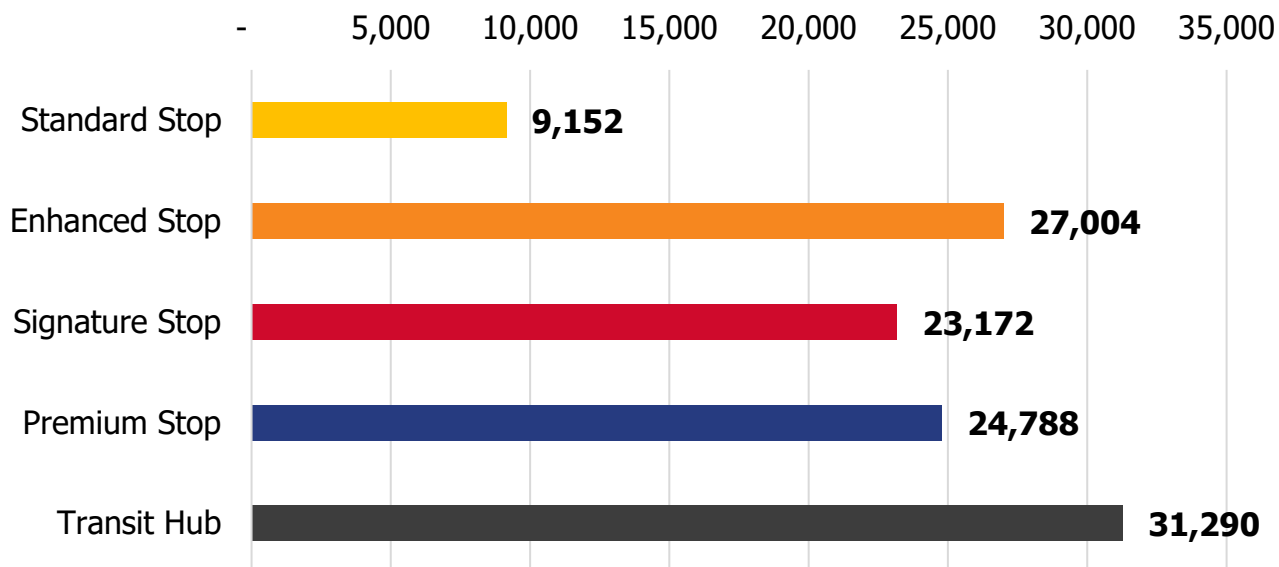


Figure 4-6: Ridership (2024) by Typology

The majority of stops – 60% – fall within the Standard category, reflecting the geographic breadth of the system. This large proportion of stops saw only 8% of RTD’s bus boardings in 2024. Enhanced stops represent 26% of the stop network, a substantial share of moderate-demand locations. These stops account for 23% of RTD bus ridership. Signature stops represent 6% of the network but 20% of bus ridership, and Premium stops represent 3% of the network but 21% of bus ridership.

Therefore, while Signature and Premium stops represent a smaller share of the network, they account for a disproportionate share of all boardings. This typology distribution guides RTD and its partners to invest in stops that see the most activity, while still bringing lower activity stops to a baseline level of accessibility and dignity.

Bus Stop Infrastructure and Accessibility Assessment

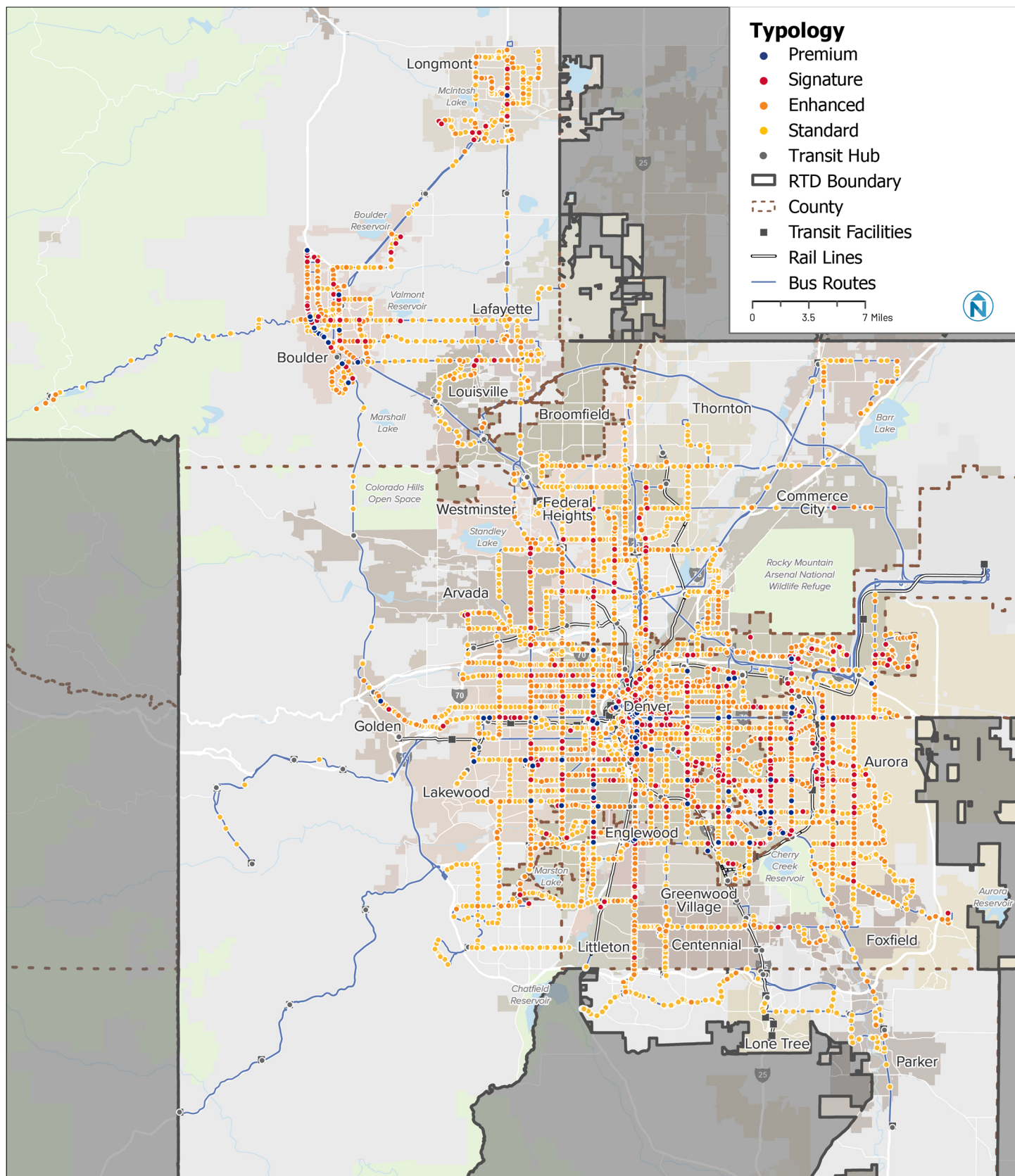


Figure 4-7: Typology Distribution Across Service Area

Bus Stop Infrastructure and Accessibility Assessment

The typology assignments presented in this chapter reflect available ridership and service data at the time of analysis. As service levels change and ridership patterns evolve, stop classifications may also shift. Periodic updates to boarding and frequency data will allow RTD to reassess typology assignments and adjust investment priorities accordingly. The framework is intended to remain consistent, while individual stop classifications should be reviewed over time to reflect current operating conditions.

This typology assignment establishes a consistent framework for evaluating infrastructure expectations at each stop and provides the foundation for identifying where existing conditions do not align with this proposed framework.

Identification of Regional Gaps

After assigning each stop a typology and defining expected amenities, staff compared existing conditions to the standards established in Section 4.2. This comparison identifies where infrastructure does not meet defined expectations and clarifies the scale and distribution of unmet need.

Because amenity requirements vary by stop type, this section presents gaps by typology. Accessibility applies to all stops and is discussed within each category.

Bus Stop Infrastructure and Accessibility Assessment

Standard Stops

Standard stops represent the majority of locations in the system. These stops are generally located on non-frequent routes or in lower-density areas. They are expected to provide safe and accessible boarding conditions but are not required to provide any amenities.

Table 4-3: Missing Required Amenities for Standard Stops

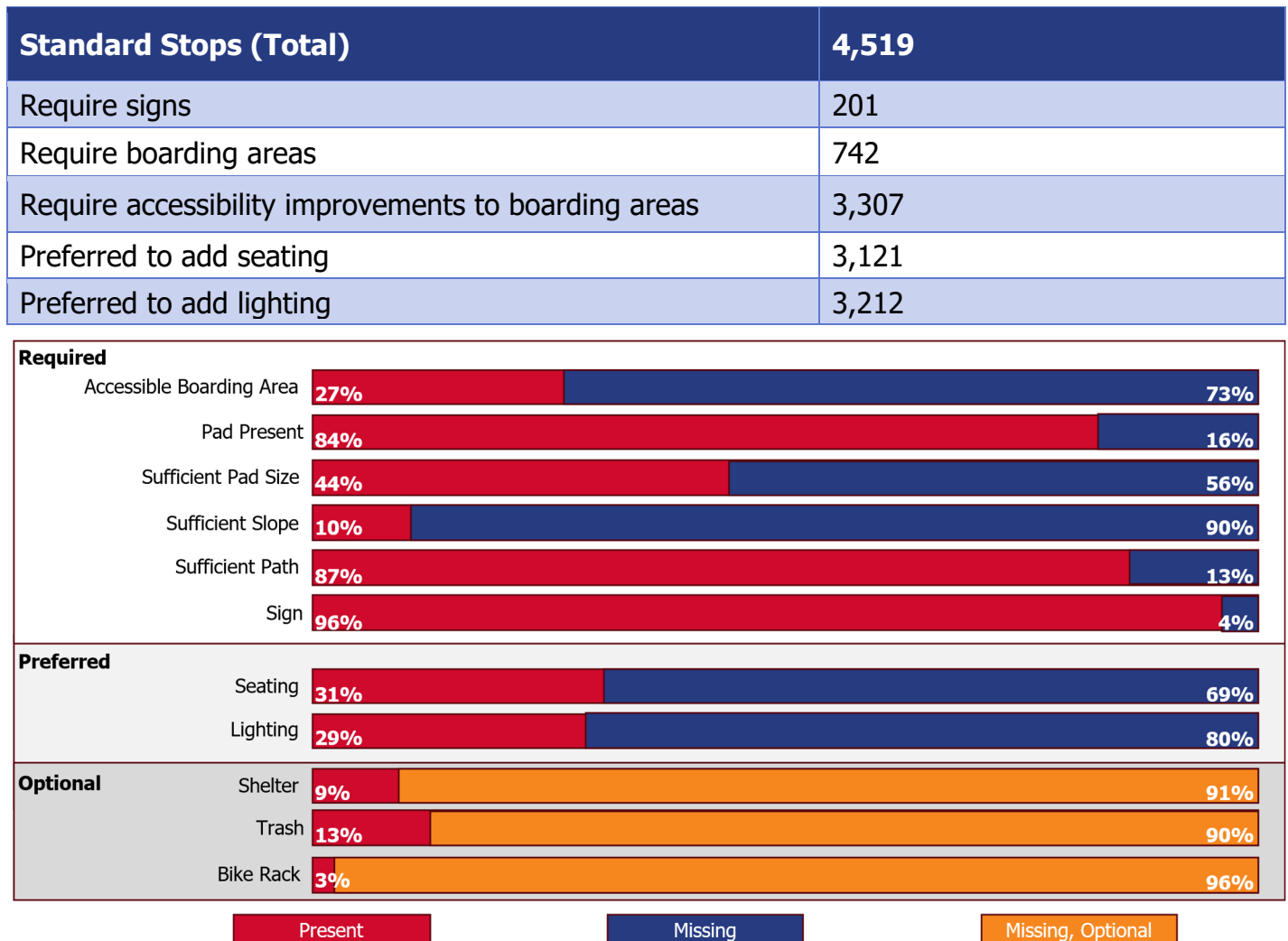


Figure 4-8: Percentage of Present Amenities for Standard Stops

Accessibility

All Standard stops must meet minimum ADA requirements. As documented in Chapter 3, accessibility deficiencies remain widespread across the network, and Standard stops account for the largest share of deficient locations due to their overall volume, with nearly three-quarters of these stops presenting accessibility deficiencies.

Common deficiencies at Standard stops include:

- Missing boarding pads
- Inadequate boarding area dimensions

Bus Stop Infrastructure and Accessibility Assessment

- Excessive cross slope
- Missing or non-compliant pedestrian connections

In suburban and lower-density contexts, missing boarding pads are the most frequent deficiency. In urban contexts, slope and dimensional constraints are more common. Missing or obstructed paths are most common in low-density contexts, particularly along highways. Broomfield County and Boulder County have the lowest rates of stops with ADA limitations at Standard Stops.

Table 4-4: Accessibility Deficiencies at Standard Stops by County

County	Number of Stops with ADA Limitation	Percent of Stops with ADA Limitation	Percent of Stops with Missing Pad	Percent of Stops with Inadequate Boarding Area Dimensions	Percent of Stops with Excessive Cross Slope (or not measured)	Percent of Stops with Missing or Non-Compliant Path
Adams	646	82%	13%	61%	88%	15%
Arapahoe	494	73%	18%	56%	85%	8%
Boulder	461	62%	28%	52%	93%	19%
Broomfield	21	46%	11%	28%	87%	4%
Denver	938	74%	11%	55%	95%	9%
Douglas	124	80%	23%	61%	85%	12%
Jefferson	619	74%	16%	57%	84%	19%

Amenities

Under the typology framework, Standard stops require a compliant boarding area and stop sign. Seating is preferred but not required. Because seating is not mandatory at this level, most amenity gaps at Standard stops relate to accessibility rather than required infrastructure. However, a substantial number of Standard stops lack seating in locations where right-of-way would support installation. Broomfield County lacks seating at one-third of its Standard stops, while the remaining counties lack seating at two-thirds or more of their Standard stops.

Table 4-5: Missing Optional Amenities at Standard Stops by County

County	Number of Stops Missing Seating	Percentage of Stops Missing Seating
Adams	575	73%
Arapahoe	447	66%
Boulder	574	77%
Broomfield	16	35%
Denver	827	65%
Douglas	127	82%
Jefferson	551	66%

Bus Stop Infrastructure and Accessibility Assessment

Enhanced Stops

Enhanced stops serve moderate ridership and are often located on frequent routes or at neighborhood anchor locations. They are also sited at stops with low to moderate ridership and lower frequencies, to provide greater comfort to customers who have longer transfer times. These stops are expected to provide seating and improved customer comfort.

Table 4-6: Missing Required Amenities for Enhanced Stops

Enhanced Stops (Total)	1,978
Require signs	19
Require boarding areas	79
Require accessibility improvements to boarding areas	1,164
Require seating	900
Require lighting	1,232

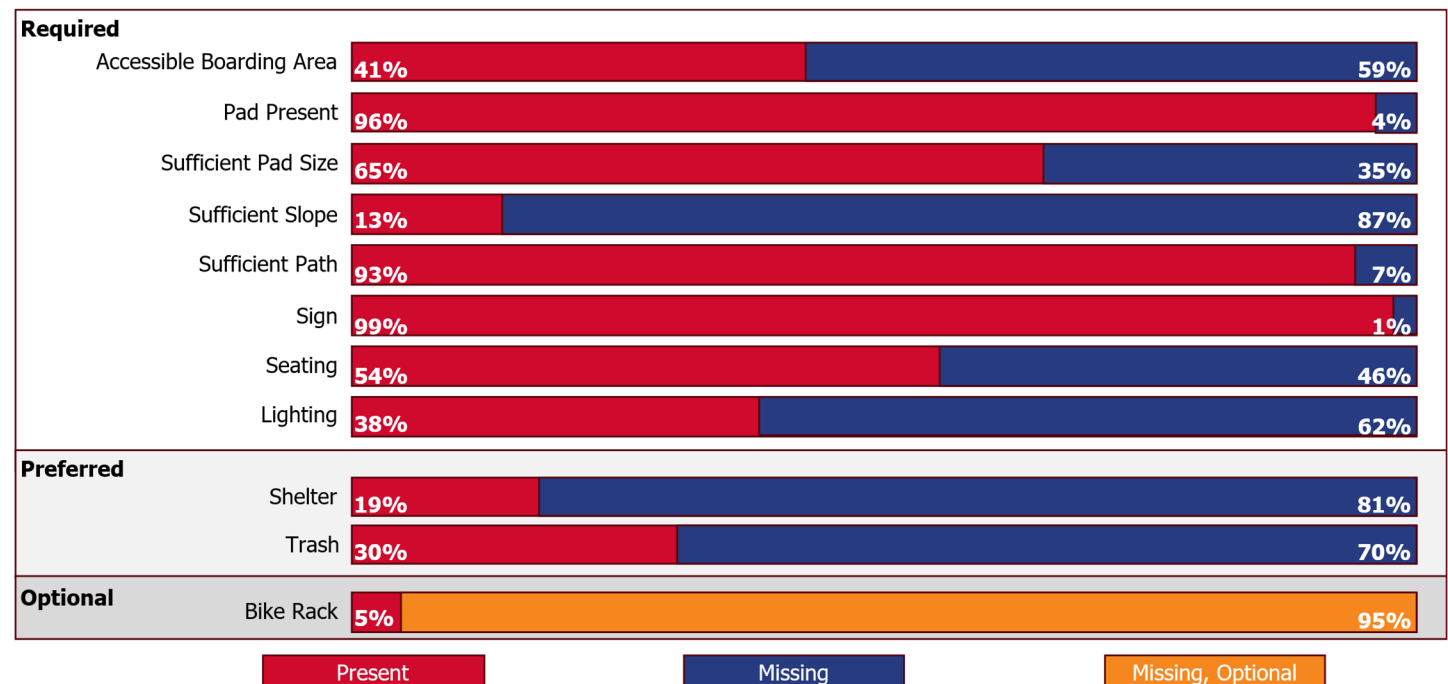


Figure 4-9: Percentage of Present Amenities for Enhanced Stops

Accessibility

Accessibility deficiencies remain present at approximately 60% of Enhanced stops, though the rate of deficiency is lower than at Standard stops. Slope and dimensional issues are more common drivers than missing boarding pads. Because Enhanced stops serve consistent daily ridership, accessibility gaps at these locations have a direct impact on customer experience. As with Standard Stops, Boulder County and Broomfield County have the lowest share of stops with accessibility deficiencies. Missing and obstructed paths are less common at Enhanced Stops.

Bus Stop Infrastructure and Accessibility Assessment

Table 4-7: Accessibility Deficiencies at Enhanced Stops by County

County	Number of Stops with ADA Limitation	Percent of Stops with ADA Limitation	Percent of Stops with Missing Pad	Percent of Stops with Inadequate Boarding Area Dimensions	Percent of Stops with Excessive Cross Slope (or not measured)	Percent of Stops with Missing or Non-Compliant Path
Adams	164	72%	2%	46%	84%	11%
Arapahoe	242	57%	7%	35%	77%	5%
Boulder	98	43%	5%	29%	93%	2%
Broomfield	4	36%	9%	18%	91%	0%
Denver	492	60%	3%	32%	93%	8%
Douglas	11	85%	8%	54%	77%	8%
Jefferson	153	60%	3%	40%	81%	8%

Amenities

Enhanced stops require seating, and are preferred to have trash receptacles, lighting, and shelter. The gap analysis indicates that just under half of Enhanced stops are missing seating; the variation between counties is not extreme. Approximately 60% of Enhanced stops lack lighting; 70% lack a trash receptacle, and 80% lack a shelter. Shelter gaps are particularly notable along frequent service corridors where ridership levels support higher investment.

Table 4-8: Missing Required Amenities at Enhanced Stops by County

County	Number of Stops Missing Seating	Percentage of Stops Missing Seating
Adams	128	56%
Arapahoe	197	47%
Boulder	98	43%
Broomfield	5	45%
Denver	350	43%
Douglas	7	54%
Jefferson	115	45%

Bus Stop Infrastructure and Accessibility Assessment

Table 4-9: Missing Optional Amenities at Enhanced Stops by County

County	Number of Stops Missing Trash Cans	Percentage of Stops Missing Trash Cans	Number of Stops Missing Lighting	Percentage of Stops Missing Lighting	Number of Stops Missing Shelter	Percentage of Stops Missing Shelter
Adams	164	72%	148	65%	174	76%
Arapahoe	305	72%	318	75%	358	85%
Boulder	160	70%	147	65%	170	75%
Broomfield	6	55%	5	45%	5	45%
Denver	590	72%	488	59%	691	84%
Douglas	8	62%	8	62%	10	77%
Jefferson	150	59%	118	46%	196	77%

Bus Stop Infrastructure and Accessibility Assessment

Signature Stops

Signature stops serve higher ridership corridors and frequently function as transfer points between routes. These stops require seating, trash receptacles, lighting, and shelter under the typology framework.

Table 4-10: Missing Required Amenities for Signature Stops

Signature Stops (Total)	480
Require signs	1
Require boarding areas	8
Require accessibility improvements to boarding areas	227
Require seating	153
Require lighting	248
Require a shelter	309

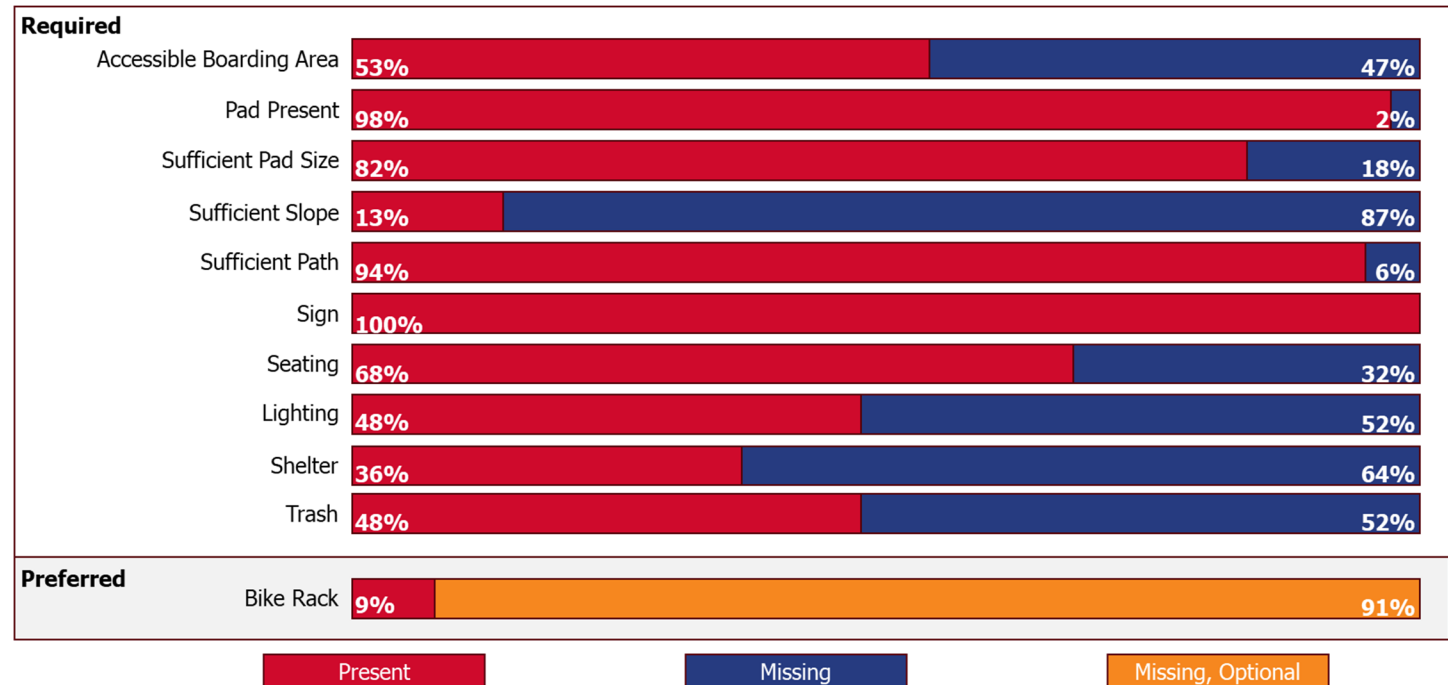


Figure 4-10: Percentage of Present Amenities for Signature Stops

Bus Stop Infrastructure and Accessibility Assessment

Accessibility

Missing boarding pads and paths are uncommon at Signature stops. Some Signature stops fail dimensional or slope requirements, despite prior infrastructure investment.

Table 4-11: Accessibility Deficiencies at Signature Stops by County

County	Number of Stops with ADA Limitation	Percent of Stops with ADA Limitation	Percent of Stops with Missing Pad	Percent of Stops with Inadequate Boarding Area Dimensions	Percent of Stops with Excessive Cross Slope (or not measured)	Percent of Stops with Missing or Non-Compliant Path
Adams	25	68%	0%	22%	81%	8%
Arapahoe	64	57%	4%	25%	81%	5%
Boulder	13	22%	0%	7%	90%	0%
Broomfield	-	-	-	-	-	-
Denver	112	48%	2%	15%	92%	9%
Douglas	-	-	-	-	-	-
Jefferson	13	36%	0%	25%	81%	6%

Amenities

Signature stops require shelter, seating, and lighting. The gap analysis indicates that two-thirds of Signature Stops already have seating. Approximately half have trash receptacles. Lighting is inconsistent across corridors, with approximately half of these stops having lighting. Shelters are currently present at just over one-third of these stops. Amenity gaps at this level are fewer in number than at lower typologies but are concentrated at high-visibility locations.

Table 4-12: Missing Required Amenities at Signature Stops by County

County	Number of Stops Missing Seating	Percent of Stops Missing Seating	Number of Stops Missing Trash	Percent of Stops Missing Trash	Number of Stops Missing Lighting	Percent of Stops Missing Lighting	Number of Stops Missing Shelter	Percent of Stops Missing Shelter
Adams	16	43%	18	49%	15	41%	21	57%
Arapahoe	45	40%	74	65%	73	65%	80	71%
Boulder	16	27%	29	48%	32	53%	35	58%
Broomfield	-	-	-	-	-	-	-	-
Denver	67	29%	114	49%	117	50%	151	65%
Douglas	-	-	-	-	-	-	-	-
Jefferson	8	22%	15	42%	10	28%	21	58%

Bus Stop Infrastructure and Accessibility Assessment

Premium Stops

Premium stops represent the highest ridership and most operationally significant locations in the network. These stops function as major transfer points or anchors along high-capacity corridors.

Table 4-13: Missing Required Amenities for Premium Stops

Premium Stops (Total)	191
Require signs	4
Require boarding areas	4
Require accessibility improvements to boarding areas	71
Require seating	64
Require lighting	105
Require a shelter	105

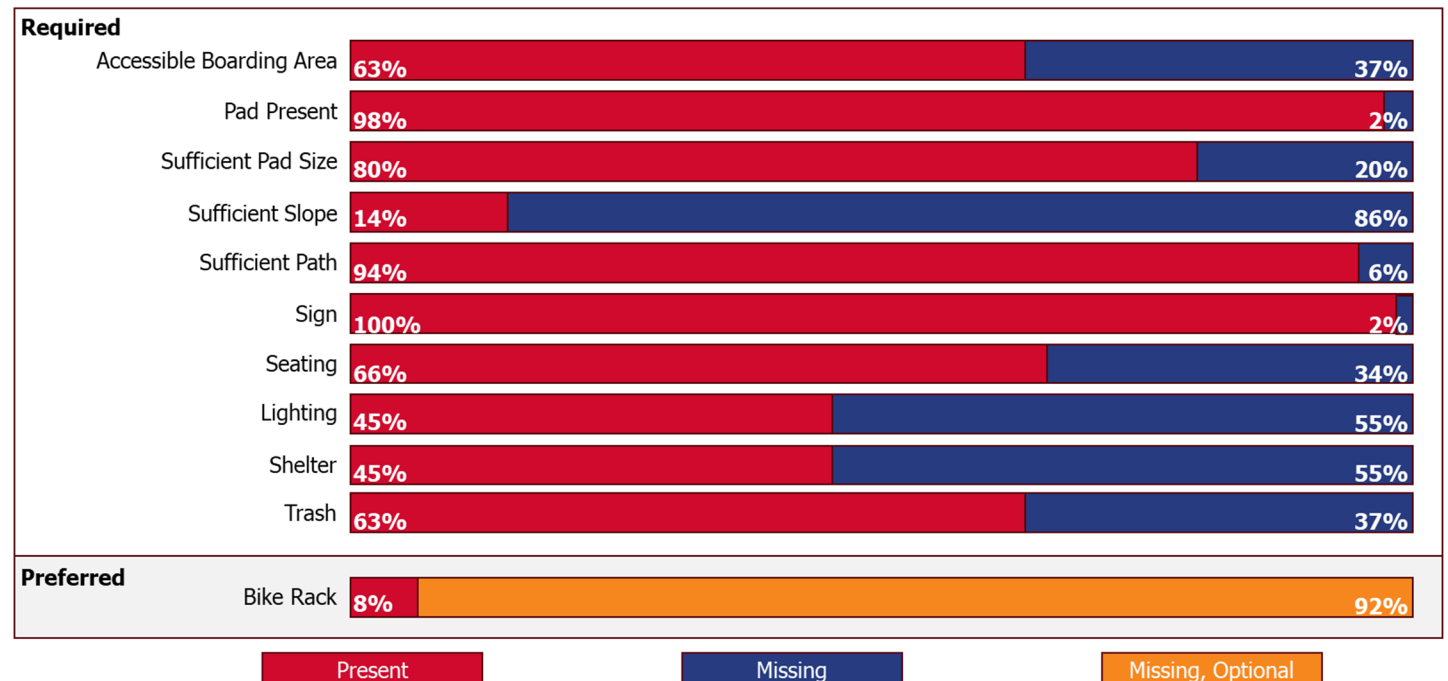


Figure 4-11: Percentage of Present Amenities for Premium Stops

Bus Stop Infrastructure and Accessibility Assessment

Accessibility

Most Premium stops include substantial infrastructure; however, accessibility deficiencies remain at some locations, particularly related to slope or boarding area configuration. Missing boarding pads and paths are rare.

Table 4-14: Accessibility Deficiencies at Premium Stops by County

County	Number of Stops with ADA Limitation	Percent of Stops with ADA Limitation	Percent of Stops with Missing Pad	Percent of Stops with Inadequate Boarding Area Dimensions	Percent of Stops with Excessive Cross Slope (or not measured)	Percent of Stops with Missing or Non-Compliant Path
Adams	10	71%	0%	57%	86%	0%
Arapahoe	13	36%	3%	22%	72%	6%
Boulder	2	10%	0%	0%	100%	0%
Broomfield	-	-	-	-	-	-
Denver	34	36%	1%	15%	91%	9%
Douglas	-	-	-	-	-	-
Jefferson	12	46%	8%	31%	81%	4%

Amenities

Premium stops require shelter, seating, lighting, and are preferred to have bike storage, double shelters, and real-time information. While many Premium stops meet these expectations regarding seating and trash receptacles (around 60% for each amenity), gaps persist in the presence of shelters (40%), lighting (50%), and the installation of preferred amenities. Because Premium stops are few in number, amenity gaps are concentrated and highly visible.

Table 4-15: Missing Required Amenities at Premium Stops by County

County	Number of Stops Missing Seating	Percent of Stops Missing Seating	Number of Stops Missing Trash	Percent of Stops Missing Trash	Number of Stops Missing Lighting	Percent of Stops Missing Lighting	Number of Stops Missing Shelter	Percent of Stops Missing Shelter
Adams	8	57%	7	50%	13	93%	9	64%
Arapahoe	14	39%	17	47%	20	56%	25	69%
Boulder	2	10%	4	20%	8	40%	6	30%
Broomfield	-	-	-	-	-	-	-	-
Denver	34	36%	36	38%	51	54%	54	57%
Douglas	-	-	-	-	-	-	-	-
Jefferson	6	23%	6	23%	13	50%	11	42%

Bus Stop Infrastructure and Accessibility Assessment

Regional Patterns and Systemwide Observations

When evaluated across all typologies, several patterns emerge:

- Accessibility deficiencies remain widespread across all stop types and represent the largest category of unmet need
- Amenity gaps increase with typology level, reflecting higher infrastructure expectations at higher-ridership locations
- Gaps are distributed across the region and are not confined to a single jurisdiction or corridor

Standard stops account for the largest number of accessibility reconstruction needs due to their volume. Enhanced stops represent the largest concentration of shelter and lighting installation needs. Signature and Premium stops account for a smaller number of locations but require higher-cost, higher-visibility improvements.

These findings define the scope of infrastructure improvements required to align existing conditions with the adopted typology framework.

The following section translates these identified gaps into order-of-magnitude cost estimates.

Developing Cost Estimates

After identifying accessibility and amenity gaps across each typology, the project team developed order-of-magnitude cost estimates to illustrate the scale of investment that would be needed if the full framework were implemented systemwide.

These estimates are intended for planning purposes. They provide a systemwide understanding of infrastructure need and support prioritization and phasing decisions. They do not represent site-specific construction budgets.

Methodology Overview

The project team developed the cost model using unit cost assumptions informed by RTD engineering data, recent corridor projects, and regional construction cost references. Applying consistent assumptions across the network allows for comparability between stop types and geographies.

For locations with accessibility deficiencies, the model assumes full reconstruction of the boarding and alighting area where dimensional or slope noncompliance was identified. In cases where a boarding pad does not exist, the model includes installation of a compliant surface. Where pedestrian connections are missing, the cost estimate includes sidewalk construction sufficient to meet minimum accessibility standards.

Amenity costs reflect installation of required and preferred elements identified in Section 4.3. Shelter costs include procurement, foundation work, and installation. Seating costs reflect bench procurement and placement. Lighting costs account for installation of dedicated stop-level illumination, which may require electrical connection or pole installation. Real-time information displays reflect hardware, installation, and associated infrastructure.

Bus Stop Infrastructure and Accessibility Assessment

To reflect uncertainty at the planning stage, the cost model incorporates construction contingency and allowances for design and program administration. Estimates are rounded to the nearest million dollars for clarity. Detailed unit cost assumptions are provided in **Appendix C**.

Bus Stop Infrastructure and Accessibility Assessment

Table 4-16: Stop-Level Cost Estimates by Typology

	Standard Stop	Standard Stop	Enhanced Stop	Enhanced Stop	Signature Stop	Signature Stop	Premium Stop	Premium Stop
	Required Amenities	Required + Preferred Amenities	Required Amenities	Required + Preferred Amenities	Required Amenities	Required + Preferred Amenities	Required Amenities	Required + Preferred Amenities
Base Cost	\$11,000	\$12,000	\$22,000	\$43,000	\$45,000	\$47,000	\$46,000	\$73,000
Total Construction Cost (Base + Contingencies)	\$20,000	\$21,000	\$38,000	\$75,000	\$78,000	\$81,000	\$80,000	\$127,000
Total Cost (Including ROW and Sidewalk Improvements)*	\$55,000	\$56,000	\$73,000	\$110,000	\$113,000	\$116,000	\$114,000	\$161,000

*Assumes \$20,000 in ROW cost per stop for locations requiring property negotiations or minor acquisitions and \$6,500 in sidewalk improvement cost per stop for locations requiring new or expanded concrete walkway

The costs are analyzed for each stop typology's required amenities and each typology's required and preferred amenities. Each has a base cost, a construction cost that includes base and contingencies, and a total cost that includes base, contingencies, and right-of-way and sidewalk improvements. The total costs for each of the typologies' required and preferred amenities are as follows:

- Standard Stop: \$56,000
- Enhanced Stop: \$110,000
- Signature Stop: \$116,000
- Premium Stop: \$161,000



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Accessibility Investment Need

Accessibility improvements represent the largest and most foundational category of investment.

Because accessibility applies to every stop regardless of typology, deficiencies are distributed across the entire network. The scale of need is driven primarily by the number of Standard and Enhanced stops that require boarding area reconstruction or installation of compliant surfaces.

Accessibility reconstruction often involves removal and replacement of existing pavement, grading to correct cross slopes, and installation of accessible pedestrian connections. These improvements require site-specific construction and coordination with roadway owners.

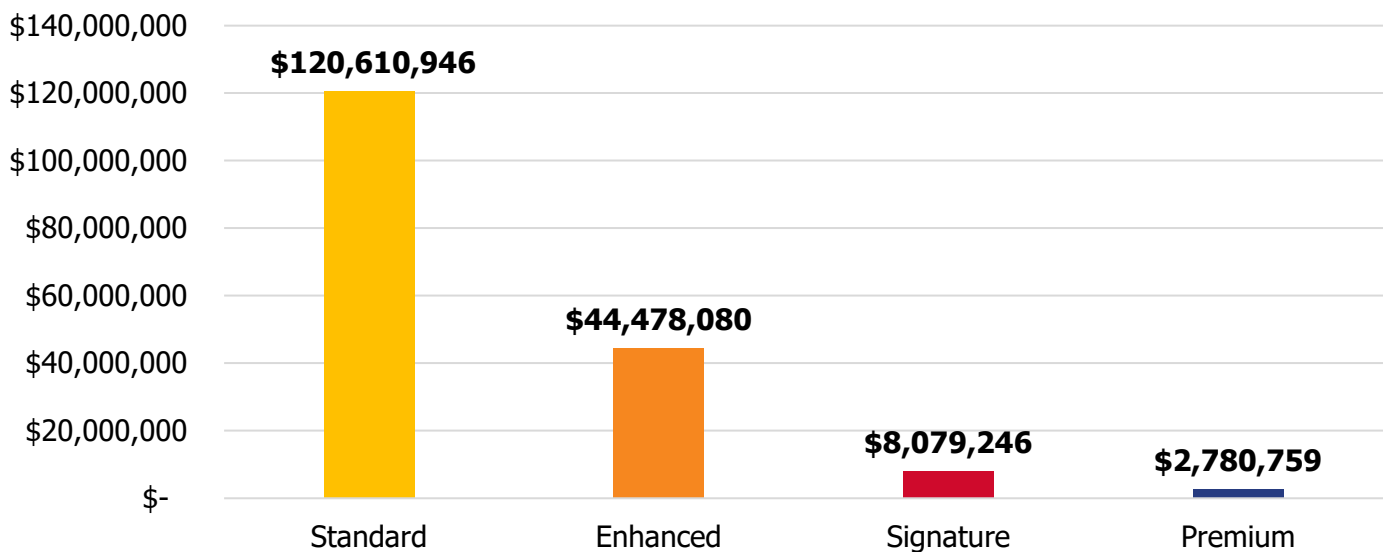


Figure 4-12: Accessibility Reconstruction Costs by Stop Typology

Higher-order stops may require more complex site work. The overall accessibility investment is largely driven by the volume of deficient stops at lower typology levels. Standard stops across the system have the highest accessibility investment cost, at \$121M. Enhanced stops across the system require \$45M; Signature stops, \$8.1M; and Premium stops, \$2.8M.

Amenity Investment Need

Amenity investments reflect the infrastructure required to meet typology expectations beyond the accessibility baseline.

Shelter installation represents the most significant amenity cost driver. Enhanced stops account for a large share of new shelter installations due to their frequency and moderate ridership. Signature and Premium stops require fewer installations but may require higher-cost infrastructure or upgrades to align with adopted standards.

Seating improvements represent a smaller but systemwide need. While seating is less capital-intensive than shelters, the number of stops requiring installation results in a meaningful aggregate investment.

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Lighting improvements vary by corridor and jurisdiction. In some cases, existing street lighting provides sufficient illumination. In other locations, dedicated stop-level lighting is required, which may involve coordination with utility providers and roadway agencies.

Real-time information displays are concentrated at Signature and Premium stops. Although fewer in number, these installations carry higher unit costs and contribute to the total amenity investment.

Amenity investments increase in complexity at higher typology levels but are more numerous at Enhanced stops due to their distribution across the system.

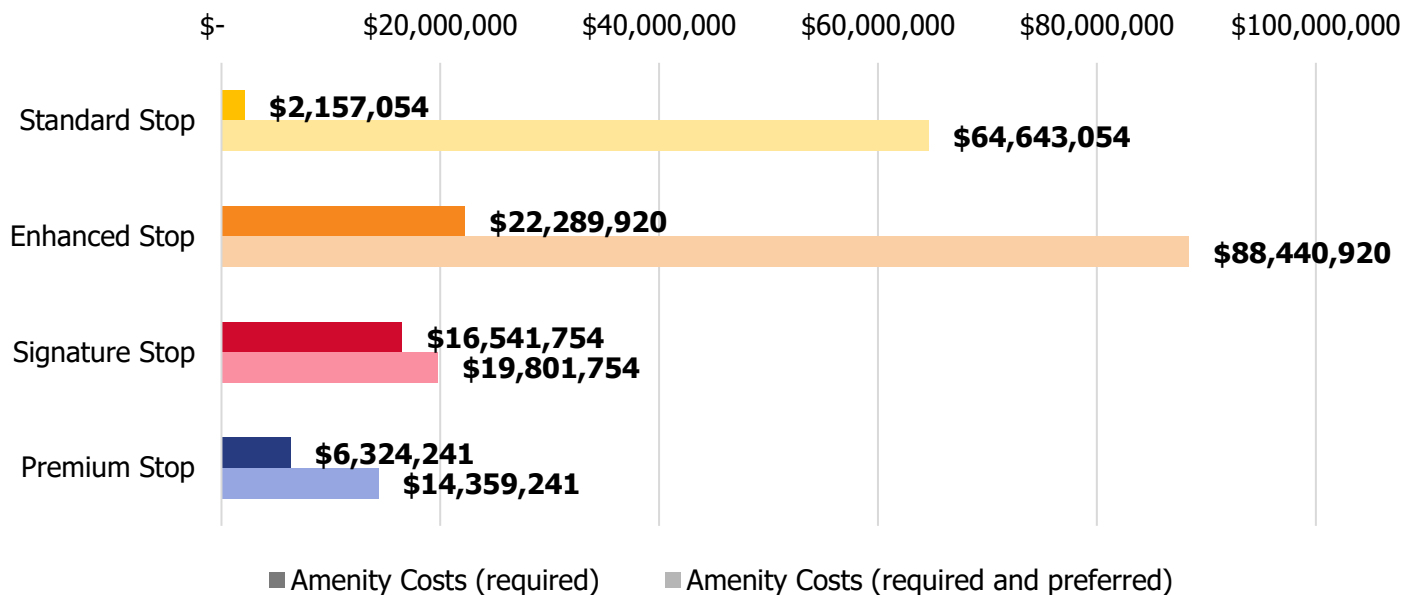


Figure 4-13: Costs to Install Required and Preferred Amenities by Typology

The full costs to implement required and preferred amenities across the system are as follows:

- Standard Stops: \$2.2M (required only), \$65M (required and preferred)
- Enhanced Stops: \$23M (required only), \$88M (required and preferred)
- Signature Stops: \$17M (required only), \$20M (required and preferred)
- Premium Stops: \$6.3M (required only), \$14M (required and preferred)

These costs do not include accessibility upgrades.

Planning-Level Nature of Estimates

These cost estimates reflect consistent planning-level assumptions applied across approximately 7,200 inventoried fixed-route (non-Transit Hub) bus stops. They do not account for site-specific engineering constraints, final design details, or future escalation. Actual construction costs will vary based on existing conditions, right-of-way constraints, drainage requirements, utility conflicts, and coordination with partner agencies.

The cost model reflects a conceptual implementation of the typology framework across all deficient locations. In practice, RTD and its partners may phase improvements, bundle investments with corridor projects, or adjust implementation based on funding availability and local priorities.

Bus Stop Infrastructure and Accessibility Assessment

Systemwide Investment Need

Based on the accessibility and amenity gaps identified in Section 4.3 and the planning-level cost methodology described in Section 4.4, the total estimated investment required to align existing conditions with the adopted typology framework is approximately:

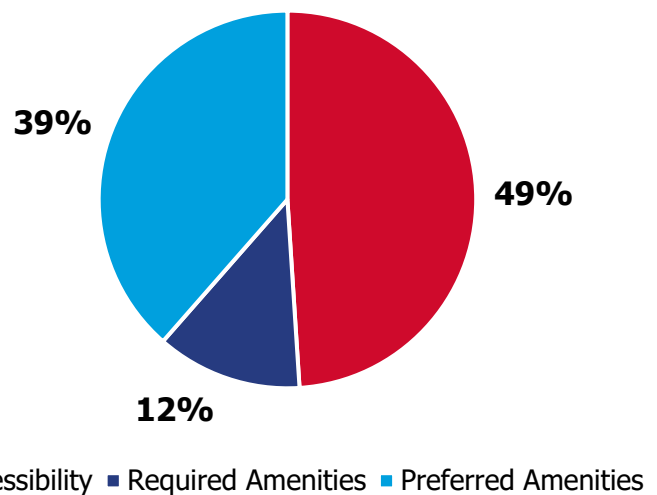
\$363 million (planning-level estimate)

This estimate reflects the full conceptual implementation of the typology framework across all identified gaps. Actual implementation will occur over time and will be shaped by funding availability, partnership opportunities, and site-specific constraints.

Accessibility and Amenity Breakdown

Of the total estimated investment:

- Approximately **\$177,883,000** is associated with accessibility reconstruction, including boarding area installation, slope correction, and pedestrian connections
- Approximately **\$185,312,000** is associated with installation of required **and** preferred amenities, including shelters, seating, lighting, and trash receptacles



Accessibility improvements account for the largest share of the total investment due to the number of stops requiring reconstruction. Amenity improvements represent a smaller but still significant portion of systemwide need.

Figure 4-14: Share of Accessibility, Required Amenity and Preferred Amenity Costs

Investment by Typology

Investment needs vary across stop types. Standard stops account for the largest total cost due to their volume and associated accessibility reconstruction needs. Enhanced stops represent a substantial share of amenity installation costs, particularly for shelters and lighting. Signature and Premium stops represent fewer locations but carry higher per-stop investment requirements.

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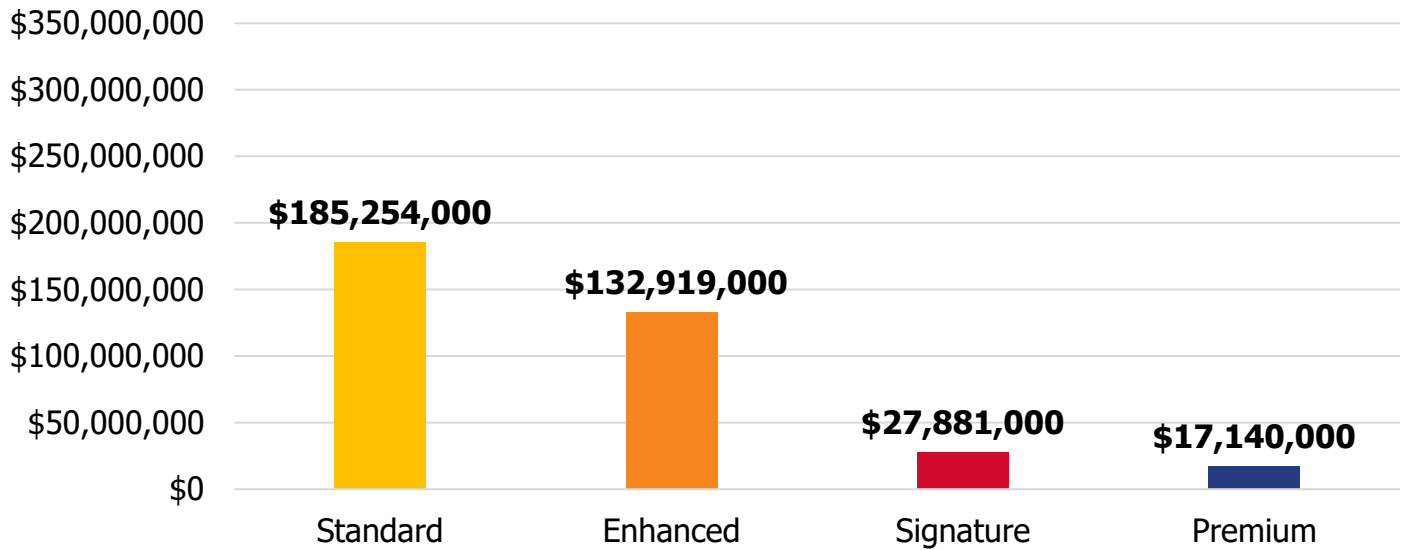


Figure 4-15: Total Cost of Accessibility and Amenity Improvements by Typology

Although higher-order stops require more infrastructure per location, the cumulative cost at lower-order stops is driven by the number of deficient locations. The total costs by stop typology are as follows:

- Standard Stops: \$185M
- Enhanced Stops: \$133M
- Signature Stops: \$28M
- Premium Stops: \$17M

Investment by Geography

Infrastructure needs are distributed across RTD's eight-county service area. To reflect the structure of stakeholder engagement, the project team summarized investment needs by county.

- Adams County would require an investment of \$56,557,000
- Arapahoe County would require an investment of \$71,680,000
- Boulder County would require an investment of \$45,121,000
- Broomfield County would require an investment of \$1,696,000
- Denver County would require an investment of \$126,943,000
- Douglas County would require an investment of \$7,394,000
- Jefferson County would require an investment of \$53,730,000

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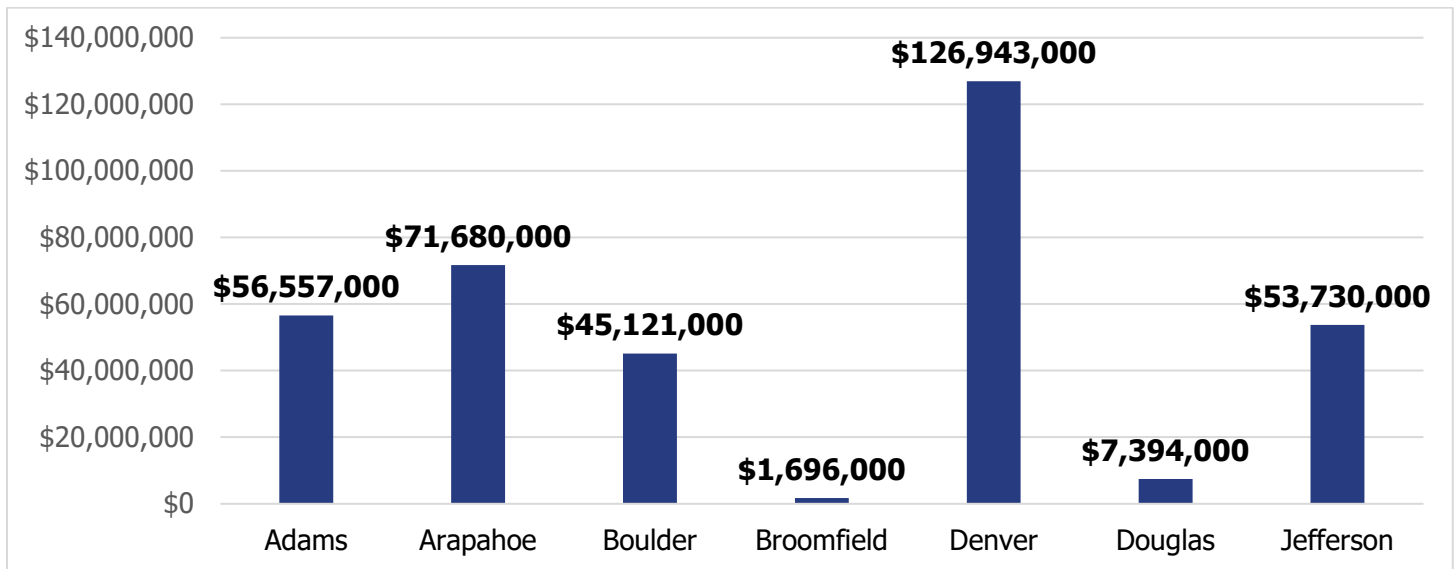


Figure 4-16: Total Investment Need by County

The distribution of need reflects several factors:

- The total number of active stops within each county
- The proportion of stops with accessibility deficiencies
- The concentration of Enhanced, Signature, and Premium stops
- Historical investment patterns

Counties with the largest number of Standard stops account for a significant share of accessibility reconstruction costs. Counties with a higher concentration of frequent service corridors account for a larger share of shelter, lighting, and real-time information investments.

Although total investment varies by county, accessibility deficiencies are present in every jurisdiction. Amenity gaps also occur throughout the region, reinforcing the need for coordinated implementation across municipal partners.

This geographic distribution underscores that the systemwide investment need is regional in nature. Addressing gaps will require collaboration between RTD and local jurisdictions responsible for right-of-way and sidewalk infrastructure.

Scale of Need

The systemwide estimate reflects decades of incremental development, evolving accessibility standards, and varying investment patterns across jurisdictions.

The identified investment need does not imply immediate implementation or uniform application at every location. Instead, it illustrates the magnitude of infrastructure gaps under a consistent regional framework. RTD and its partners will use this information to guide phased investment decisions, coordinate with local jurisdictions, and integrate improvements into corridor projects and capital programs.

Bus Stop Infrastructure and Accessibility Assessment

The following chapter describes the prioritization approach used to sequence investments and guide future funding decisions.

5. Prioritization Process

Purpose and Approach

The BSIAA documents extensive accessibility and amenity needs across RTD's active bus stop network. As shown in Chapters 3 and 4, these needs are widespread, occur across all counties and typologies, and significantly exceed available near-term funding and implementation capacity. Prioritization is necessary not because some stops are less important than others, but because the scale of need exceeds available resources.

Given this scale of need, RTD requires a structured and transparent approach to determine where investments should be advanced first and how decisions can be made consistently over time. The prioritization framework described in this chapter provides that framework in a flexible structure that can be applied in a variety of geographic contexts and use cases.

The framework does not prescribe a fixed list of funded projects. Instead, it functions as a durable decision-support tool built within the bus stop inventory database. It allows RTD, the Board, and partner agencies to:

- Compare needs across thousands of stops using consistent criteria
- Align investment decisions with goals and regulatory requirements
- Balance accessibility, equity, ridership, and feasibility considerations
- Adapt priorities as funding, service, and local conditions evolve

In practice, this framework is intended to support relative prioritization decisions rather than produce a single fixed project list. All scoring outputs are stored within the bus stop inventory database and can be accessed by RTD staff and partners to evaluate and compare individual stops or groups of stops. Scores may be used to support decision making at multiple geographic or programmatic scales, such as systemwide analysis, corridor studies, or jurisdiction specific evaluations for the purpose of guiding investment decisions.

The framework was developed iteratively and is grounded in:

- Findings from the systemwide inventory and gap analysis
- RTD Project Advisory Group (PAG)³ input, which focused on goals, criteria, and scoring concepts
- County-level stakeholder workshops that emphasized implementation realities, coordination, and funding constraints

Across these discussions, stakeholders consistently emphasized that a context-driven prioritization must:

- Treat ADA compliance as foundational, not discretionary

³ For more information on the PAG, see Chapter 6.

Bus Stop Infrastructure and Accessibility Assessment

- Explicitly incorporate equity and Title VI considerations
- Reflect ridership and service frequency, but not rely on them alone
- Account for right-of-way ownership, jurisdictional readiness, and cost
- Remain flexible enough to support corridor-based and partnership-driven implementation

These principles directly informed the goals, criteria, and scoring structure described below.

Goals to Guide Prioritization

Through PAG discussions and workshops, RTD refined a set of seven goals to guide prioritization and implementation. These goals provide the policy lens through which individual criteria are weighted and interpreted.

Advance Accessibility

Ensure that all bus stops meet ADA and PROWAG requirements and provide a safe and usable boarding environment. Accessibility deficiencies, such as missing or non-compliant boarding pads, excessive slope, and missing pedestrian connections, are treated as the highest-priority needs. This top-level prioritization recognizes that compliant boarding and alighting conditions are the minimum requirement for a functioning bus stop and safe environment for all customers.

Improve Equity and Support Title VI Compliance

Promote equitable investment by prioritizing stops located in areas with higher concentrations of Title VI populations, including low-income households and communities of color. Additional equity factors include prioritizing people with disabilities, seniors, youth, and transit-dependent households. This goal ensures that ridership is not used as the sole determinant of investment need and reinforces RTD's transit equity commitments.

Enhance the Transit Experience

Improve comfort, safety, dignity, and access to information through amenities such as seating, shelters, lighting, and wayfinding. PAG feedback emphasized that safety and dignity should be explicitly considered alongside comfort.

Grow and Support Ridership

Align stop investments with existing and potential ridership demand, service frequency, and transfer activity to maximize benefit to customers and overall system performance.

Improve Coordination

Leverage jurisdictional partnerships, planned capital projects, and corridor initiatives to reduce cost and delivery timelines. Stakeholders emphasized that ease of implementation is a critical factor in advancing projects.

Promote Regional Consistency

Ensure that stop classification, evaluation, and prioritization are standardized and maintainable across jurisdictions, while still allowing context-sensitive design responses.

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Advance Strategic Priorities

Reinforce RTD's broader goals related to customer experience, safety, financial sustainability, innovation, and community value, including alignment with Vision Zero and access to key civic destinations.

Together, these goals provide the policy framework for evaluating tradeoffs and sequencing investments. The PAG-ranked priority order of these goals is shown below.

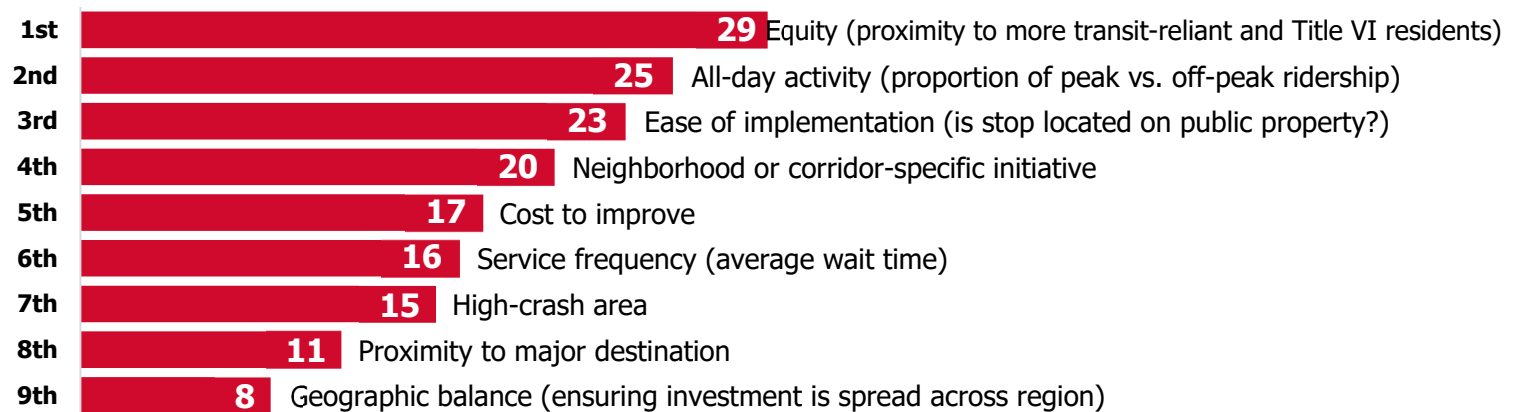


Figure 5-1: PAG Ranking of Goal Importance

Prioritization Criteria

To operationalize these goals, the project team developed a set of prioritization criteria organized into thematic categories. The criteria were refined through PAG exercises and reflect both need-based and feasibility-based considerations. The criteria described below translate the adopted goals into measurable factors. Some criteria evaluate need, while others reflect benefit, context, or feasibility. Together, they ensure that prioritization reflects the full function of a bus stop within the transit system.

Accessibility Need

This category evaluates the presence and severity of ADA deficiencies, including boarding pad size, slope, surface condition, clear zones, and pedestrian connections. This category represents baseline compliance and is treated as non-negotiable. The prioritization framework intentionally places the greatest weight on the presence and basic adequacy of boarding and alighting areas, as these elements represent the minimum conditions required for accessible transit service. Stops that do not have a defined boarding area receive the maximum score in this category, reflecting a complete failure to meet baseline ADA and PROWAG requirements. Stops with a boarding area that is present but does not meet the minimum 5-foot by 8-foot dimensional standard receive a partial score.

This step-based scoring approach is designed to clearly distinguish the most severe accessibility barriers and to ensure that limited capital resources are first directed to locations with the greatest compliance gaps. While other accessibility considerations and contextual factors remain important in the overall prioritization process, the absence of a compliant boarding area is treated as a gating condition and a primary driver of strategic investment decisions.

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Equity and Areas of Persistent Poverty

This category evaluates equity considerations grounded in Title VI criteria to maintain consistency with RTD's adopted policies and established Title VI equity analyses. Title VI indicators are used as the foundation for identifying populations that may experience disproportionate transportation burdens, including low-income households and people of color.

To supplement the Title VI framework and better reflect local and corridor-level conditions, additional context-sensitive equity factors were incorporated. These include the presence of youth and senior populations, proportion of households without access to a vehicle, people with disabilities, and regional equity indices derived from demographic data. Together, these measures provide a more nuanced understanding of transit dependence and help distinguish investment priorities among locations with similar accessibility conditions.

Transit Experience and Stop Dignity

This criterion captures the extent of amenity gaps relative to the stop's assigned typology, as well as contextual factors. In response to data availability and to simplify quantification during the process, the facility type of the roadway on which a stop is located was used as metric to represent other factors such as roadway speed and number of travel lanes.

Ridership and Service Frequency

This criterion reflects customer exposure and the potential benefit of investment by considering how many customers are served and how frequently service operates at each stop. Measures include average weekday boardings, service frequency, transfer activity, service span, and surrounding land use intensity. Service frequency is evaluated using a 15-minute threshold, recognizing that stops served at this level or better function as part of the frequent transit network and affect a larger share of daily customers. For the purpose of prioritizing comfort amenities such as seating and shelters, stops with less transit frequency are prioritized as customers typically wait longer for buses and would benefit more from amenities.

Additional weighting is applied to stops served by more than one route, reflecting their role as transfer locations or shared access points within the transit system. Together, these factors help prioritize improvements at locations where investments can benefit the greatest number of customers, support frequent and connected service, and reinforce high-use transit corridors.

Access to Key Destinations

This category assesses how well each stop connects customers to essential destinations and daily needs that generate frequent and high-value transit trips. Proximity to major employment centers, schools, healthcare facilities, grocery stores, senior centers, and other community destinations is evaluated to understand the role each stop plays in supporting access to jobs, services, and essential activities.

By prioritizing stops that provide access to these key destinations, the framework helps direct investment toward locations where improvements can meaningfully expand access to opportunity, support independence for older adults and people with disabilities, and strengthen the connection between transit service and community needs.

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Implementation Readiness and Coordination

This criterion accounts for right-of-way ownership, likelihood of being in public right-of-way, alignment with planned capital projects, potential for corridor bundling, and overall ease of implementation. Implementation readiness is not included as part of the quantitative prioritization scoring but is intended to function as an additional qualitative filter that can be applied when specific projects, funding opportunities, or implementation phases are being considered. This approach allows decision makers to identify opportunities where coordination, cost efficiency, or timing considerations can inform project selection and sequencing.

Cost-Effectiveness and Strategic Alignment

This category considers relative cost, opportunity for bundling, and alignment with RTD and jurisdictional strategic priorities, including safety initiatives and corridor investments. While important and applicable to prioritization exercises, a quantitative scoring process was not included in the standard prioritization scoring. Stop level improvement costs can be aggregated flexibly in the prioritization process to help with fiscally constrained prioritization.

These criteria allow prioritization to reflect the full context of each stop, rather than relying on a single metric.

Scoring and Weighting

The scoring system is designed to be understandable, replicable, and adaptable over time. Each prioritization criterion is evaluated using a standardized scoring rubric. Individual scores are combined into a composite prioritization score that reflects performance across all goal areas. All bus stops receive a numerical score for each applicable criterion and amenity, providing a consistent and transparent basis for comparison across the system. However, these numerical scores are not automatically translated into predefined low, medium, or high priority classifications within the database.

Instead, the numerical scores are intended to be applied flexibly based on the specific planning or implementation question being addressed. Users may define an appropriate comparison group, such as all stops within a corridor, jurisdiction, service change area, or funding program. Stops are evaluated relative to other stops within the selected group and can be assigned a priority based on comparative scoring. This allows investments to be tailored to different geographies, funding constraints, or policy objectives while relying on a consistent underlying scoring framework.

Overall framework considers:

- Accessibility and equity-related criteria receive greater weight than discretionary amenities.
- Ridership and service frequency influence prioritization but do not override accessibility or equity need. High service frequency lowers the relative priority of a stop for some amenities versus a stop that has longer typical customer waiting times.
- Implementation readiness is included to ensure the framework supports deliverable projects.

The resulting scores can be classified into priority tiers at a variety of geographic scales to prioritize relative to a subset of stops or all stops in the system. These priority tiers would be defined at the time

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of prioritization by RTD or other regional stakeholders to allow for flexibility using the numerical scoring process. At the time of prioritization, the framework allows for the following priority tiers:

- High Priority – Significant accessibility or equity need, strong alignment with multiple goals, and reasonable implementation feasibility. The top third of stops being evaluated apply in this category.
- Medium Priority – Moderate need or benefit, or locations requiring additional coordination or phasing. The middle third of stops being evaluated apply in this category.
- Low Priority – Lower immediate need, benefit, or feasibility. The lower third of stops being evaluated apply in this category.

Stakeholder feedback strongly supported distinguishing between infrastructure deficiencies and contextual need. As a result, prioritization occurs in **two steps**.

Step 1 prioritization scores for ADA improvements, seating, shelters, and lighting are calculated at the individual bus stop level and stored in the bus stop inventory database. A **Step 2** service area context score is also calculated for each stop and can be combined with each amenity specific score to produce an overall priority score. All scores are calculated on a consistent scale, allowing bus stops to be compared relative to one another to identify where improvements should be prioritized. This consistency allows prioritization to be performed within any defined group of stops, rather than only across the entire system. These comparisons can be applied at multiple geographic or programmatic scales, as discussed below.

A more detailed flowchart of each step of the prioritization process is included in **Appendix D**.

Priority tier classifications are intentionally not stored directly in the database to preserve flexibility. This approach allows the same scoring framework to support multiple planning and implementation needs, including systemwide investment strategies, targeted area improvements, program specific evaluations, and future reprioritization as conditions or policy goals evolve.

When evaluating costs across bus stop improvements, it is recommended to use the per stop cost estimate guidance developed through this process, while relying on site-specific cost estimates to account for unique conditions such as right-of-way constraints and utilities.

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Step 1: Prioritization Based on Amenity Gaps and Service Characteristics

Table 5-1: Relationship Between Points and Amenity Considerations at Stops

	ADA Improvements	Seating	Shelter	Lighting
More Points ↓ Fewer Points	• Presence of boarding area • Missing or undersized boarding area	• Presence and accessibility of boarding area • Bus frequency • Stop typology • Number of routes served • Land use characteristics • Adjacent roadway type	• Presence and accessibility of boarding area • Bus frequency • Stop typology • Number of routes served • Land use characteristics • Adjacent roadway type	• Span of service • Bus frequency • Stop typology • Number of routes served • Land use characteristics • Adjacent roadway type

Scores for each type of stop improvement are calculated individually to allow for flexibility in how the scores are later used to prioritize stop improvements. The scoring categories can be used to approach specific amenity improvements, and a single stop will have different scores between amenities based on site and service context.

- **ADA Improvements:** Used when making decisions solely based on prioritizing ADA improvements at stops. This scoring does not include consideration of amenity improvements.
- **Seating:** This prioritization includes factors where a bench improvement would be most beneficial. Factors include ADA improvement criteria as well as operational characteristics, stop typology, and adjacent land use and roadway considerations.
- **Shelter:** This priority list considers similar characteristics as seating prioritization. Very frequent service decreases the priority of a shelter as there is less time a person would be waiting.
- **Lighting:** This priority list considers typology lighting requirement and where lighting improvements would be most beneficial. Factors are similar to other amenity prioritizations, with priority given to stops that serve routes during low-light times of day.

To further filter the infrastructure gap and service characteristic priority lists, an additional site-specific context score is calculated. This allows for an additional layer or prioritization based on the goals of the bus stop improvement process.

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Step 2: Prioritization Based on Area Context

Table 5-2: Relationship Between Points and Stop Service Area Context

	Service Area Context
More Points ↓ Fewer Points	• Title VI (Poverty) • Title VI (People of Color) • Proximity to critical destinations (health facilities, senior housing, schools, retail, recreation centers) • Households with no vehicle access • Share of population that is 65 or over • Share of population with a disability • Population and job density

This two-tiered approach was strongly supported by stakeholders as a way to:

- Avoid “half-upgraded” stops
- Support geographic balance
- Enable corridor-based implementation strategies

To improve transparency and policy awareness, the framework also allows for alternative prioritization scenarios, including:

- Equity-first scenarios, advancing stops in equity-priority areas
- ADA-first scenarios, focusing exclusively on major accessibility deficiencies
- Lowest-cost or readiness-based scenarios, emphasizing coordination with planned projects
- High ridership scenarios, prioritizing high-use or transfer locations

These scenarios do not change the underlying data. Instead, they illustrate how different policy emphases influence sequencing and support informed Board decision-making. The resulting prioritized list of stops with scores included in the bus stop inventory database can then be used to guide funding decisions, including identifying which stop improvements could be delivered within a given budget. The example maps below illustrate hypothetical funding levels and demonstrate how this process identifies the highest-priority stops for shelter upgrades.

If RTD were to focus exclusively on stops with deficient amenities, regardless of the surrounding context, the map below shows which locations would be prioritized for shelter improvements under funding levels of \$1 million and \$10 million. These priority stops are distributed throughout the district. Out of nearly 2,000 stops with identified shelter gaps, this approach prioritizes 20 stops with \$1 million in funding and 200 stops with \$10 million.

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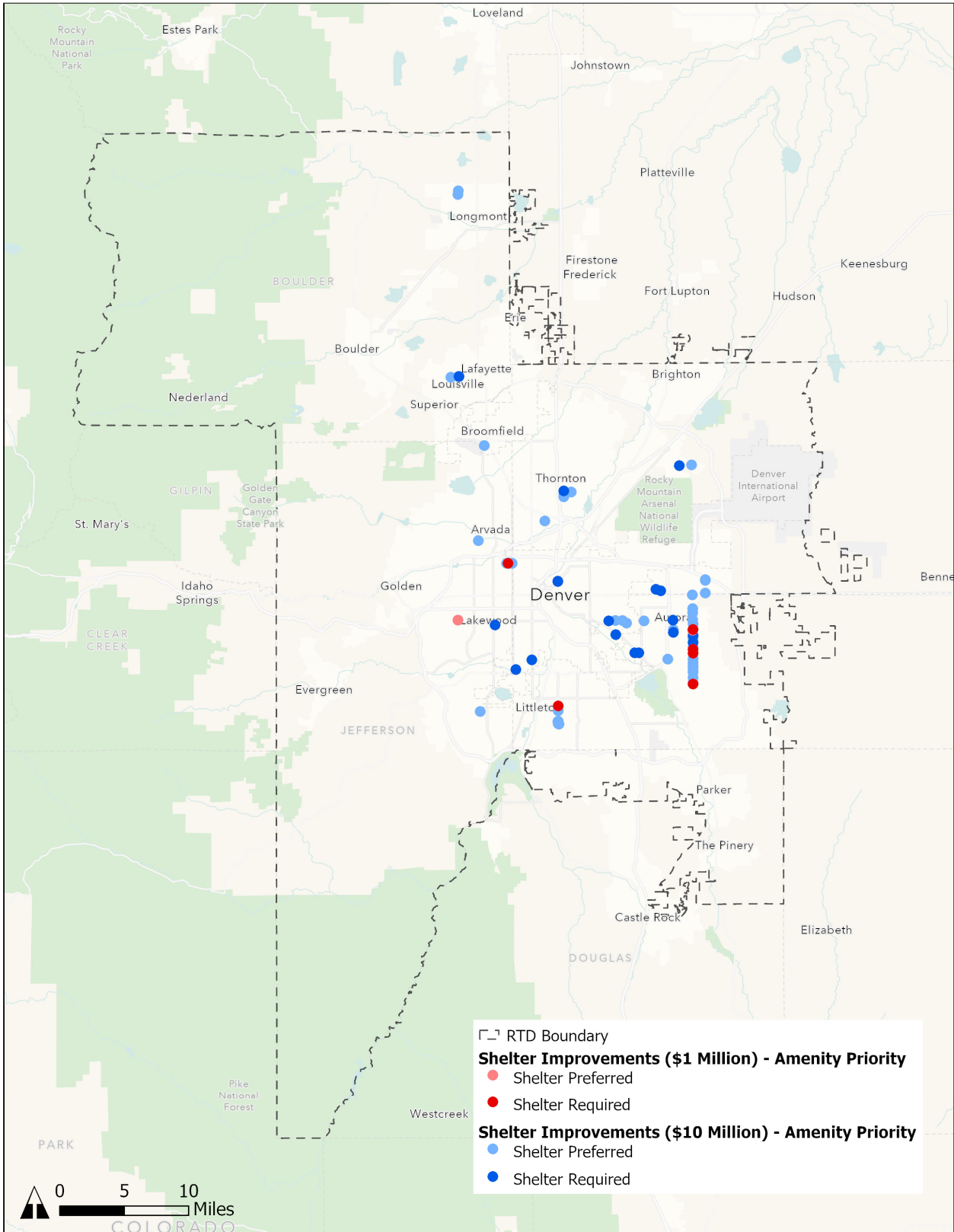


Figure 5-2: Priority Stops for Shelter Improvements Based on Amenity Scoring and Funding Availability

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If RTD were instead to consider both amenity deficiencies and stop context, the resulting set of priority locations becomes more geographically concentrated around the City of Denver. Under this approach, 19 stops would be improved with \$1 million in funding and 225 stops with \$10 million.

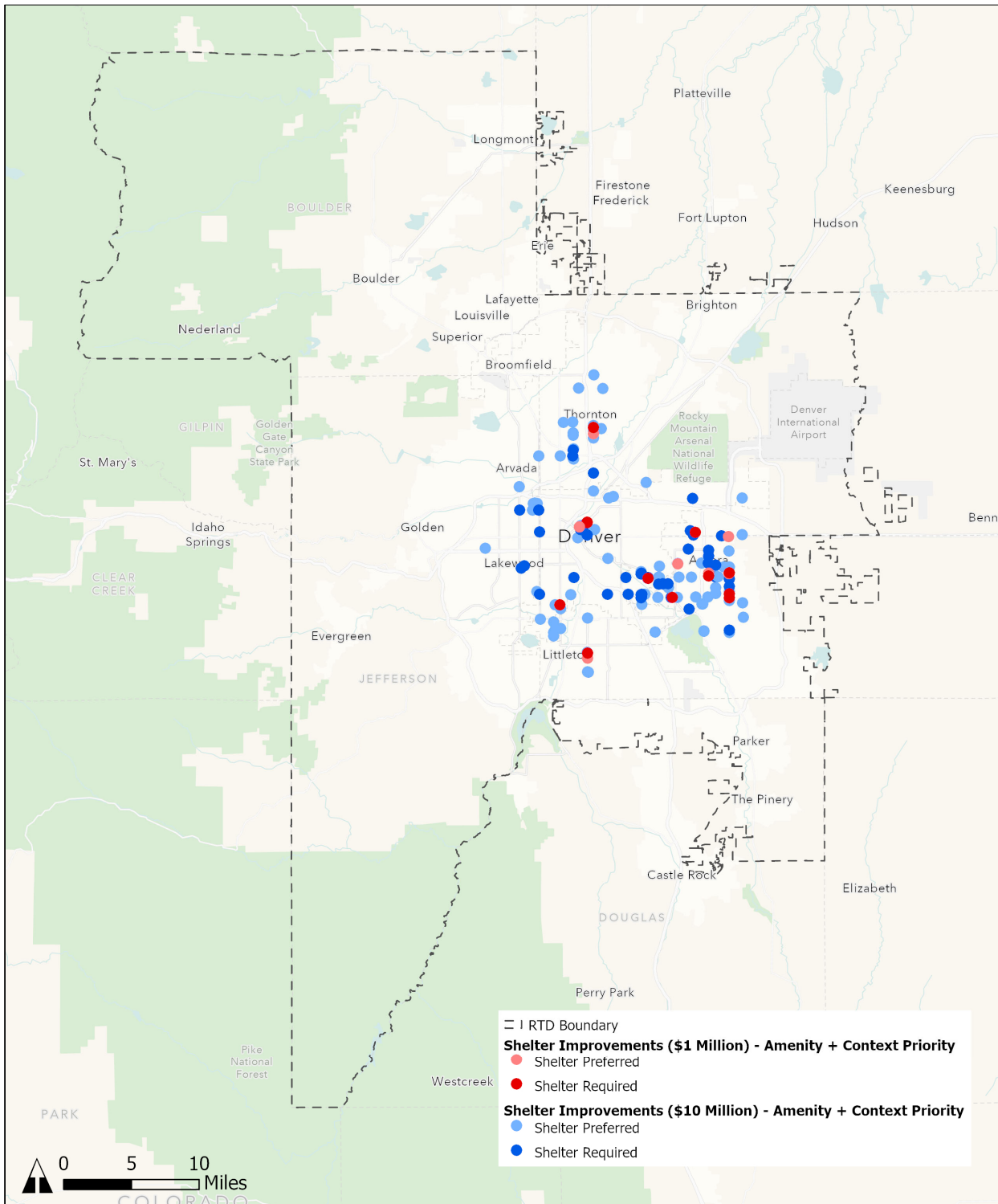


Figure 5-3: Priority Stops for Shelter Improvements Based on Amenity, Context Scoring and Funding Availability

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Role of Prioritization in Implementation

This prioritization framework is intentionally flexible. It does not prescribe funding commitments, construction schedules, or jurisdictional responsibilities. Instead, it establishes a durable structure that RTD and its partners can use to:

- Guide capital programming and grant applications
- Coordinate with municipalities and corridor projects
- Track progress over time as stops are upgraded
- Update priorities as service patterns and conditions change



Capital Planning



Grant Applications



Corridor Studies



Interagency Coordination

Figure 5-4: Internal and Local Agency Use Cases for Prioritization in Implementation

Capital Planning

The prioritization framework provides a consistent lens for informing capital planning decisions across the transit system. By identifying which stops have the greatest need and opportunity for improvement, the framework helps RTD and partner agencies align limited capital resources with strategic objectives such as accessibility, safety, ridership support, and equity. Rather than dictating project timing or funding sources, the framework supports comparison across locations and corridors, enabling planners to sequence investments, bundle improvements, and integrate stop upgrades into broader capital programs as funding becomes available.

Grant Applications

The framework strengthens grant competitiveness by offering a transparent, data-driven rationale for investment priorities. It allows RTD and its partners to clearly demonstrate need, document systemwide context, and show how proposed improvements fit within a larger, long-term strategy. Prioritization results can be used to support benefit narratives, equity considerations, and readiness assessments, while remaining flexible enough to align with the specific goals and criteria of individual funding programs. This consistency helps ensure that grant applications are grounded in adopted priorities rather than standalone or opportunistic projects.

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Corridor Studies

Within corridor studies, the prioritization framework serves as a starting point for identifying focus locations and shaping improvement concepts. It helps study teams understand how individual stops perform relative to others along a corridor and across the system, informing decisions about where more detailed analysis or design is warranted. As corridor concepts evolve, the framework can be refined to incorporate local conditions and regional priorities.

Interagency Coordination

The framework provides a shared reference point for coordination between RTD, municipalities, and other implementing partners. By defensibly showing why certain stops or corridors rise to the top, it supports productive conversations about roles, responsibilities, and timing without assuming jurisdictional obligations. Local agencies can use the framework to align transit stop improvements with roadway projects, land use changes, or maintenance schedules, while RTD can track how partner led investments contribute to broader system goals over time.

6. Governmental and Stakeholder Outreach

Introduction

The BSIAA was developed through a collaborative, iterative engagement process involving RTD staff, regional partners, and local stakeholders across the service area. Engagement was designed not only to inform the study, but to shape its core frameworks, validate findings, and clarify roles and responsibilities for implementation.

Given the regional scale of RTD's service area and the shared nature of right-of-way ownership, stakeholder coordination is essential to advancing bus stop improvements. The engagement process supported the development of:

- A typology framework grounded in operational and contextual realities
- A prioritization methodology aligned with accessibility, equity, and feasibility considerations
- An implementation and maintenance framework that reflects jurisdictional responsibilities
- A shared understanding of funding constraints and partnership opportunities

This chapter summarizes the engagement process and synthesizes key themes that informed the final framework.

Engagement Overview

Engagement for the BSIAA occurred in three primary phases:

1. RTD Project Advisory Group (PAG) meetings
2. County-level stakeholder workshops
3. A final regional virtual stakeholder meeting

These efforts were designed to ensure representation from across RTD's eight-county service area and to incorporate perspectives from planning, public works, accessibility advocacy, corridor initiatives, and community stakeholders.

The engagement process was iterative. Early discussions focused on goals, definitions, and policy direction. As the inventory and gap analysis findings emerged, later sessions focused on refining typologies, prioritization criteria, and implementation strategies. Stakeholders were asked to react to draft frameworks, evaluate tradeoffs, and identify real-world implementation considerations.

RTD Project Advisory Group (PAG)

PAG Composition and Role

The PAG consisted of internal RTD staff representing multiple business units, including Capital Programs, Service Development, Bus Operations, Asset Management, Information Technology, Facilities Maintenance, and Analytics. This cross-functional PAG was established to ensure that the BSIAA framework including the inventory, typologies, prioritization, and implementation strategies

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reflects operational realities, data governance practices, accessibility requirements, and capital delivery considerations across the agency.

Table 6-1: PAG Members

Name	Project Role
Steve Smith	Member (Engineer III Capital Programs)
Jonathan Wade	Member (Service Development Manager Service Development)
Dave Richardson	Member (Systems Administrator Bus Ops Maintenance Reporting)
Dan Jackson	Member (Lead GIS Architect IT)
Kelsie Ryan	Member (Senior Service Planner/Scheduler Service Development)
Nataly Handlos	Member (Senior Service Planner/Scheduler Service Development)
Michelle Sims	Member (Bus Stop Program Supervisor Bus Ops)
Daniel Eisenberg	Member (GIS Developer IT)
Dave Houston	Member (FM Contracted Public Facilities Technician Capital Programs)
Tom Garza	Member (FM Public Facilities Technician Capital Programs)
Zachariah Van Gemert	Member (Senior Operations Analyst Service Development)

The PAG met six times over the course of the project, beginning with a kickoff meeting and continuing through review of draft methodologies, findings, and implementation strategies. Meetings were structured around key project milestones and served as working sessions to refine assumptions, validate data, and stress-test proposed frameworks.

Key Themes from PAG Discussions

Because the PAG represented internal RTD expertise, discussions focused heavily on practical application and long-term governance.

Accessibility as a Foundational Requirement

PAG members emphasized that ADA compliance is not discretionary. Accessibility deficiencies must be addressed before amenity enhancements are considered. This guidance informed the decision to treat boarding area sufficiency as a gating condition in the prioritization framework.

Data Governance and System Integration

Given the scale of the bus stop inventory, PAG discussions included how stop data is stored, updated, and accessed across RTD systems. Members identified opportunities to improve clarity around data ownership, update protocols, and long-term database maintenance. These conversations informed the recommendations related to data management in Chapter 8.

Operational Feasibility

Bus Operations and Facilities Maintenance representatives highlighted the importance of designing stop improvements that are maintainable within existing staffing and contract structures. These insights influenced the emphasis on scalable amenity standards and maintenance agreement clarity.

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Coordination with Capital Programs

Capital Programs staff emphasized the importance of aligning bus stop improvements with corridor projects and grant cycles. This direction reinforced the need for scenario-based prioritization and integration with capital planning processes.

Flexibility in Constrained Conditions

Engineering and facilities staff noted that physical constraints frequently limit the feasibility of installing full amenity packages. The typology framework was refined to allow flexibility where right-of-way limitations prevent full implementation of preferred elements.

Influence on the Final Framework

Input from the PAG directly shaped several core elements of the BSIAA:

- The classification of accessibility improvements as a first-order priority
- The integration of equity indicators into prioritization scoring
- The two-step prioritization structure distinguishing infrastructure deficiencies from contextual enhancements
- The inclusion of implementation readiness considerations
- The development of clearer guidance around data governance and maintenance responsibilities

The PAG process ensured that the final framework is not only policy-aligned, but operationally grounded and implementable within RTD's existing structure.

County-Level Stakeholder Workshops

To ensure that the framework reflected local conditions and implementation realities, the project team conducted a series of county-level stakeholder workshops across RTD's service area.

Workshop Structure

Each workshop included:

- A presentation of inventory findings and identified gaps
- Review of draft typologies and amenity standards
- Explanation of prioritization goals and criteria
- A facilitated activity in which participants allocated limited "investment" resources across sample stops
- Group discussion of tradeoffs and implementation barriers

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The interactive exercise simulated real-world capital constraints and encouraged participants to weigh accessibility improvements against amenity enhancements, geographic distribution, and equity considerations.

Workshops were held on the following dates:

- Adams County & City of Westminster – Tuesday October 14, 2025
- Jefferson County – Wednesday October 15, 2025
- Boulder County, City and County of Broomfield, SW Weld – Thursday October 16, 2025
- Arapahoe County & City of Aurora – Wednesday October 22, 2025
- City and County of Denver – Thursday October 23, 2025
- Douglas County – Tuesday November 4, 2025

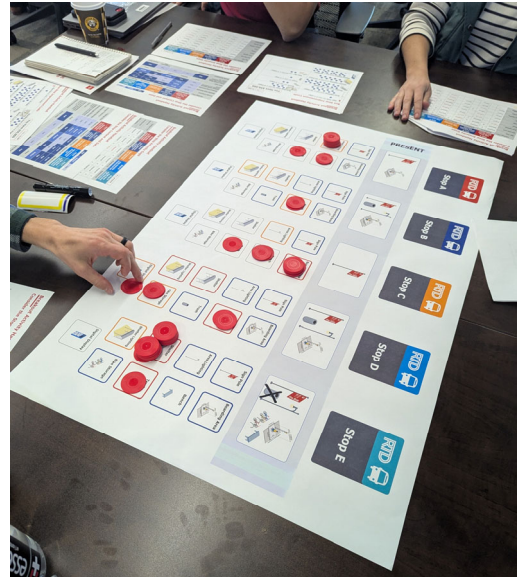


Figure 6-1: Photo of Prioritization Exercise at October Stakeholder Workshop

Cross-County Themes

While each county has distinct characteristics, several common themes emerged across workshops.

- *Accessibility is the highest regional priority.* Participants emphasized that many stops lack compliant boarding areas or continuous pedestrian connections. In low-density and high-speed corridors, drainage, narrow shoulders, and limited right-of-way create additional constraints. Even modest accessibility upgrades can require full sidewalk reconstruction or coordination with roadway projects.
- *Stakeholders supported clear regional infrastructure expectations but emphasized the need for flexibility.* Urban jurisdictions face constrained sidewalks and competing demands within the public realm. Suburban and low-density jurisdictions may prioritize lighting, seating, or durability based on context. Participants expressed support for a framework that distinguishes minimum accessibility requirements from scalable amenity expectations while allowing site-specific judgment. This feedback informed the typology approach described in Chapter 4.
- *Maintenance and ownership responsibilities remain fragmented.* Shelter ownership, snow removal, lighting, and trash collection are governed by varying agreements and vendor contracts. Participants requested clearer documentation of default responsibilities and improved visibility into data updates and stop relocations. These concerns highlight the importance of a standardized, authoritative stop database maintained by RTD.
- *Funding is a structural constraint across all counties.* Many jurisdictions lack dedicated transit capital funds and rely on roadway projects, grants, or development-driven improvements to implement upgrades. Participants emphasized the value of a transparent prioritization framework and regional coordination to support funding applications and capital programming.

Collectively, the stakeholder engagement confirms that improving bus stop infrastructure requires clear accessibility standards, scalable amenity guidance, defined maintenance responsibilities, coordinated

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data governance, and realistic funding pathways. The BSIAA framework is designed to support these objectives while allowing flexibility across diverse urban, suburban, and low-density contexts.

These discussions validated the need for a flexible, structured implementation framework and informed the expanded guidance included in Chapter 7.

County Highlights

While systemwide themes were consistent, each county context presents unique considerations. A complete summary of workshops findings is included in **Appendix E**.

Adams County

Stakeholders highlighted the challenge of improving stops in rapidly developing suburban corridors, where roadway widening and development activity create opportunities for integration but require early coordination.

Arapahoe County/Aurora

Participants emphasized corridor-level planning opportunities and the importance of aligning stop upgrades with larger transportation projects and redevelopment initiatives.

Boulder/Broomfield/Southwest Weld

Discussion focused on constrained right-of-way conditions and the need to balance amenity enhancements with pedestrian network improvements in semi-urban and suburban settings.

City and County of Denver

Denver stakeholders highlighted the importance of aligning bus stop improvements with Vision Zero initiatives and existing transit corridor investments, as well as addressing high ridership locations with significant shelter demand.

Douglas County

Participants noted the limited sidewalk network in some areas and the need for flexibility in applying typology standards within lower-density contexts.

Jefferson County

Stakeholders emphasized coordination with state highway corridors and the importance of integrating stop improvements into roadway reconstruction projects.

These county-specific perspectives reinforced that while the framework must be regionally consistent, implementation must remain context-sensitive.

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Virtual Regional Stakeholder Meeting

RTD and the BSIAA project team hosted a regional virtual stakeholder workshop on March 12, 2026, to present final findings from the BSIAA effort and gather targeted feedback on the proposed prioritization, data coordination, and implementation frameworks. The workshop built on earlier county-level engagement and served as a final opportunity for stakeholders to confirm that the study's conclusions and recommendations align with local needs and expectations. Approximately 70 participants attended, representing RTD, DRCOG, CDOT, and municipalities and counties across the region.

Stakeholder feedback during the workshop largely validated the direction of the BSIAA framework, with participants expressing strong alignment on key elements of the study. In particular, there was broad agreement that accessibility improvements should be the first priority for investment, reinforcing the framework's emphasis on addressing ADA deficiencies before expanding amenities.

Discussion of the amenity typology framework confirmed that stakeholders view the typologies as a useful tool for setting expectations, provided they remain flexible and adaptable to site-specific conditions. Participants highlighted several real-world considerations—including constrained right-of-way, utility conflicts, and varying suburban and urban contexts—that reinforce the need for implementation guidance rather than prescriptive standards.

Stakeholders also indicated that the prioritization framework will be most valuable as a planning and decision-support tool, particularly for identifying improvement needs, supporting grant applications, and informing capital planning efforts. Feedback emphasized the importance of clearly communicating how ridership, typology, and infrastructure deficiencies interact within the scoring framework.

The workshop reinforced strong interest in a centralized, regionally coordinated bus stop dataset. Participants identified ridership and service characteristics, accessibility status, ownership, and maintenance responsibility as the most critical data elements. Stakeholders also emphasized the need for ongoing data updates, integration with local systems, and clear processes for submitting corrections.

Finally, discussion of maintenance responsibilities and funding highlighted continued uncertainty around ownership and upkeep of bus stop infrastructure. Stakeholders expressed support for clearer documentation of maintenance responsibilities, as well as tools and templates to support interagency coordination. There was also interest in identifying funding mechanisms that can support both capital improvements and ongoing maintenance.

Overall, the workshop confirmed that stakeholders view the BSIAA as a practical, implementation-oriented resource. Feedback from this session informed final refinements to the report, particularly in clarifying data expectations, strengthening guidance on maintenance coordination, and reinforcing the role of the framework as a flexible tool to support regional and local decision-making.

Engagement Outcomes

The engagement process resulted in several clear outcomes with broad agreement between the PAG and regional stakeholders that shaped the final BSIAA framework. These outcomes aligned with the project goals identified by RTD and the project team at the outset of the BSIAA.

- Stakeholders uniformly agreed that achieving minimum ADA compliance is the first and most urgent step in improving the bus stop network.
- The prioritization framework reflects Title VI indicators and broader transit-dependence metrics to ensure that investments promote equitable access.
- The typology framework establishes clear expectations for required amenities while allowing professional judgment in constrained contexts.
- The scoring system enables RTD and its partners to understand how different policy emphases affect sequencing decisions without altering the underlying data.
- Stakeholders identified fragmentation in maintenance responsibilities and expressed support for more consistent documentation of roles and expectations.
- Participants emphasized the importance of maintaining an accurate, accessible bus stop inventory to support planning, grant competitiveness, and accountability.

Together, these outcomes informed the prioritization methodology in Chapter 5 and the implementation framework presented in Chapter 7. The engagement process reinforced that improving bus stops is not solely a capital investment challenge, but a long-term governance and coordination effort requiring sustained partnership across the region.

7. Implementation Framework

Purpose of the Implementation Framework

This chapter explains how the BSIAA guides implementation with key planning resources for expanding accessibility, improving bus stop design and amenities, and clarifying maintenance responsibilities. As a decision-support framework, it helps RTD and its partners make consistent, transparent choices about where to invest, which improvements to prioritize, and how funding and delivery conditions may shape implementation.

This chapter translates the BSIAA's findings into an implementation-oriented framework that supports coordinated action across RTD and its partners. Rather than introducing new technical standards or restating inventory findings, it focuses on how the tools developed in earlier chapters can be applied in practice. The framework is organized around four implementation pillars that reflect the lifecycle of bus stop delivery and management: improving bus stops, maintaining bus stops, maintaining bus stop data, and coordinating regional decision-making.

Improving Bus Stops

This section focuses on **capital improvements**, which workshop participants discussed primarily in the context of accessibility upgrades and amenity investments. In addition to public capital projects, the BSIAA framework is intended to support integration of bus stop improvements into development review processes. Clear expectations for accessibility and amenities can help ensure that new or redeveloped sites contribute to improving the bus stop network over time. The definitions of key elements such as the boarding area, pedestrian access route, and stop area are intended to provide consistent interpretation across jurisdictions, addressing a common source of confusion identified through stakeholder engagement.

Accessibility as the Baseline

Accessibility requirements and deficiencies are documented in detail in Chapter 3. In implementation, these findings should be used to define the minimum scope of work for any bus stop improvement project. Regardless of funding source or project type, accessibility upgrades should be incorporated as a baseline element of all capital investments.

Achieving ADA compliance is the top priority for improving the bus stop network and for bus stop investments across the region. Approximately 65% of stops currently do not meet accessibility sufficiency standards and achieving baseline accessibility across the system is estimated at approximately \$130 million. Sidewalk connectivity is often a limiting factor in achieving full compliance, and accessibility improvements often extend beyond bus stops themselves, including sidewalks and pedestrian access routes. Accessible boarding and alighting areas that meet pedestrian access route and slope requirements help to afford equal access to transit for all passengers, including those who use wheelchairs or other mobility devices.

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Pedestrian Access Route Requirements (PROWAG)

A clear, unobstructed pedestrian access route and boarding area. PROWAG requires a 5-foot accessible pathway to allow two wheelchair users to pass one another. Where there is infrastructure, such as a bus stop sign, the pathway may be reduced to a width of 4 feet for a maximum of 2 feet of distance.

Table 7-1 illustrates the preferred, standard, and minimum pedestrian access route clearances at bus stops. It also outlines the minimum PROWAG requirements for the accessible boarding area, also referred to as the landing pad, and the pedestrian access route.

Table 7-1: Accessibility Requirements

Bus Stop Element	Accessibility Standards
Accessible Boarding Area: 5 ft. wide by 8 ft. deep accessible boarding area, measured from the curb face (e.g., a sidewalk or concrete pad of sufficient dimensions).	Dimensions: 5 ft. x 8 ft. required by ADA, RTD Standard: 6 ft. x 8 ft. (9 ft. preferred) Surface: Stable, firm, slip resistant Curb height: 6 in. min. ⁴ Perpendicular clearance to road: 8 ft. min. Parallel clearance to road: 5 ft. min. Cross slope: 1:48 max. (2%)
Pedestrian Access Route (PAR): A clear, unobstructed accessible pathway.	Width: 6 ft (5 ft min), permitted to reduce to 4 ft. (exclusive of any curb) for a max. length of 2 ft. Running slope: 1:20 max. (5%) Cross slope: 1:48 max. (2%) Accessible paths of travel are required: Between the boarding area and bus shelter, bench, leaning rail, or other amenities; between the accessible boarding area and sidewalk and street; Horizontally through the bus stop, from one end to the other. Avoid bus stop placement where there is no sidewalk connection.
Curb ramp: Provide grade transition points between sidewalks and the street, offering a navigable pathway to people with mobility and vision disabilities.	Perpendicular Curb Ramps Width: 4 ft. min., Length: 15 ft. max. Running slope: 5 - 8.3% Cross slope: 1:48 max. (2%) Top Landing Area Dimensions/Slope: 4 ft. x 4 ft. min./2% max in any direction Parallel Curb Ramps Width: 4 ft. min., Length: 15 ft. max. Running slope: 5 - 8.3% Cross slope: 1:48 max. (2%) Top Landing Area Dimensions/Slope: Not specified for parallel curb ramps/2% max in any direction

⁴ For standard boarding, most buses can accommodate a maximum curb height of 8.5 in. At stops with level boarding there is not a maximum curb height requirement. The curb height should instead be designed to align with the vehicle floor and minimize vertical and horizontal gaps, typically ranging from 10 to 14 inches.

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Bus Stop Typology Framework

RTD developed a bus stop typology framework to more clearly define what amenities a bus stop should have and better guide investments in bus stop upgrades across the region. The framework organizes stops into four bus stop types with required and preferred amenities. Rather than serving as a fixed design standard, the typology framework supports planning, prioritization, and long-range decision-making. The typology framework is based primarily on peak weekday ridership activity and service frequency and may change over time.

The typologies help streamline decision-making for bus stop projects by providing guidance on where and what amenities are warranted and should be considered for the project. This framework can inform projects with partners and help reinforce the construction of shelter and landing pads at new developments with adjacent bus stops. RTD's partners are not required to follow these typologies but they serve as an important planning tool for filling amenity gaps.

The four bus stop typologies, which are described in greater detail in Chapter 4: Stop Typologies and Gap Analysis, are described below.

Standard

Standard stops are the majority of stops in the system, typically serving lower to moderate ridership often on non-frequent routes or in lower-density contexts.

Enhanced

Enhanced stops serve areas with moderate ridership or are stops on frequent routes that warrant additional amenities beyond the baseline.

Signature

Signature stops function as key transfer locations or serve higher ridership corridors, usually experiencing greater visibility within the network and higher passenger volumes than standard and enhanced stops.

Premium

Premium stops represent the highest ridership locations and most operationally significant stops within the network, often functioning as transfer hubs or anchor stops along high-capacity corridors.

Design Guidance for Bus Stop Zones

This section provides planning-level design guidance intended to support implementation of bus stop improvements across a range of contexts. The guidance presented here is not intended to serve as enforceable engineering standards beyond the accessibility requirements defined by ADA and PROWAG, which are summarized in Section 7.2.1 and **Appendix A**.

One of the key findings of the BSIAA is that RTD's existing bus stop design standards (last updated in 2016) should be updated to reflect current PROWAG requirements, as well as the flexible, context-sensitive approach to amenities established through the typology framework in Chapter 4. Until updated standards are developed, this section is intended to help RTD and its partners make consistent, practical decisions when implementing bus stop improvements.

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Bus Stop Spacing

The distance between bus stops along a route can significantly affect route reliability and travel times, and it can also impact potential customers' willingness and ability to take the bus. For local routes, bus stops that are closely spaced together provide shorter walks for accessing bus services, but this means buses must stop more frequently, which increases travel times. This can make it more difficult for people to travel by bus and may dissuade them from taking the bus at all.

The ideal spacing for local bus stops provides a balance between easy access to stops while avoiding an excessive number of stops that severely impact travel times. Providing fewer but safer and more accessible bus stops allow for a better experience for those taking the bus, rather than having more bus stops that are not as accessible.

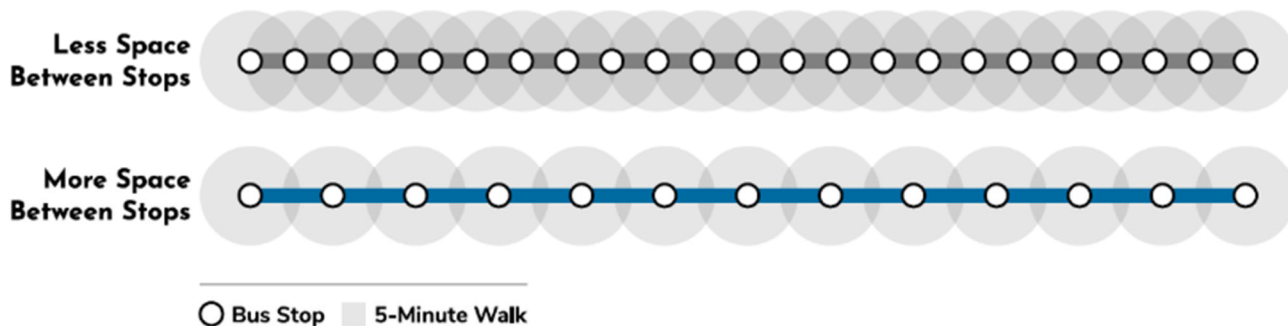


Figure 7-1: Bus Stop Spacing Concept

RTD's standards recommend placing bus stops one quarter mile apart, or 4 per mile. [RTD Transit Service Policies & Standards](#), 3.2 Stop Spacing Standards summarize RTD's minimum and maximum stop spacing standards for local and limited service in different land use contexts. RTD may further refine existing service policies and standards, such as stop spacing, as part of its ongoing Comprehensive Operations Analysis. Closer stop spacing may also be necessary where there are significant operating considerations or connectivity issues limiting placement. For express service, bus stop spacing will necessarily be much longer for most stops, since the nature of express service is to provide limited-stop service between the beginning and end of a route. There is currently no bus stop spacing standard for express service. RTD may consolidate some bus stops to reduce delays and improve reliability by shortening time spent stopping while focusing on stops at higher-demand locations.

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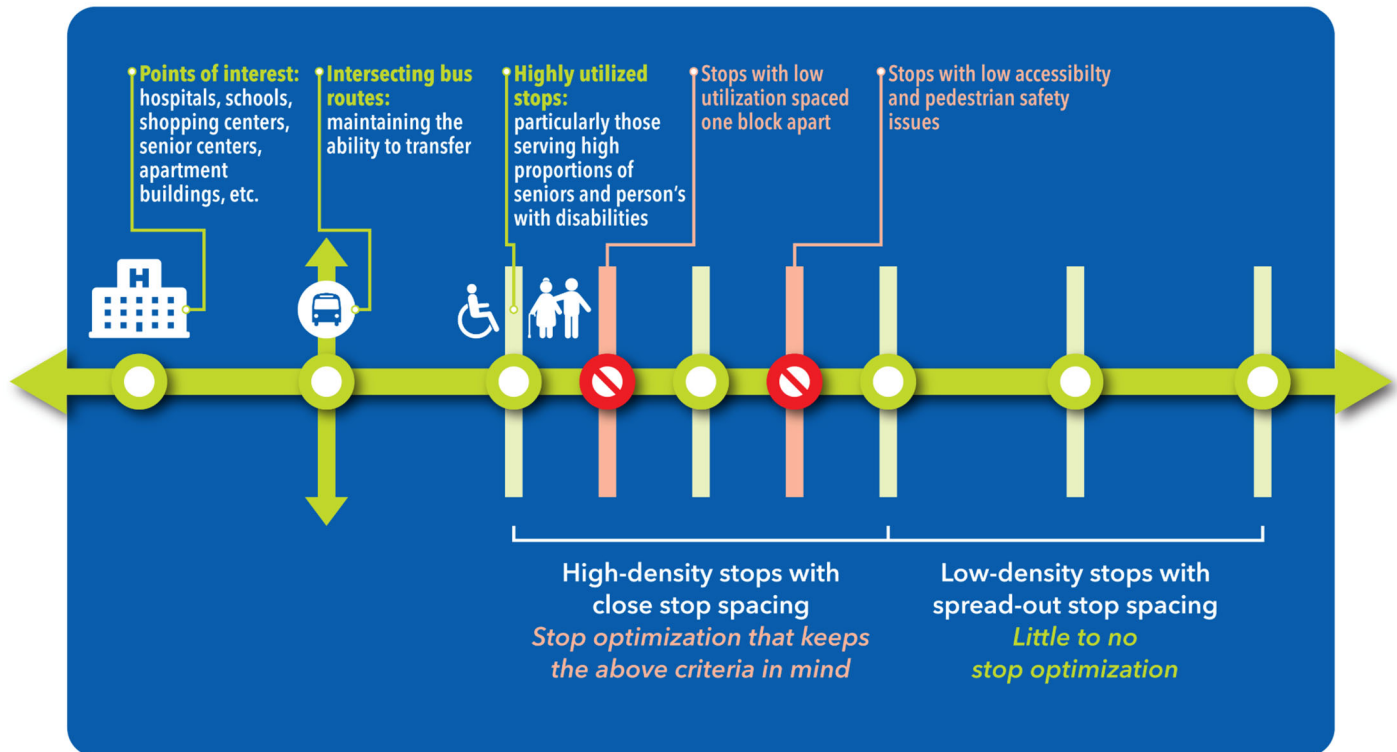


Figure 7-2: Bus Stop Spacing Considerations

Given the scale of investment required to improve bus stops across the RTD system, it may not be practical to bring every existing stop to standard. In constrained locations, agencies may evaluate opportunities to consolidate or relocate stops to nearby locations where accessibility improvements and amenities can be more readily implemented. When applied carefully, this approach can support systemwide accessibility goals while making efficient use of available resources.

Bus Stop Placement

There are three primary options for placing bus stops along a road in relation to an intersection, as shown in Figure 7-3:

- **Far-side of an intersection:** Bus stops after passing through the intersection.
- **Near-side of an intersection:** Bus stops just before reaching the intersection
- **Mid-block:** Bus stops in the middle of the block, between the near and on the far side of an intersection.

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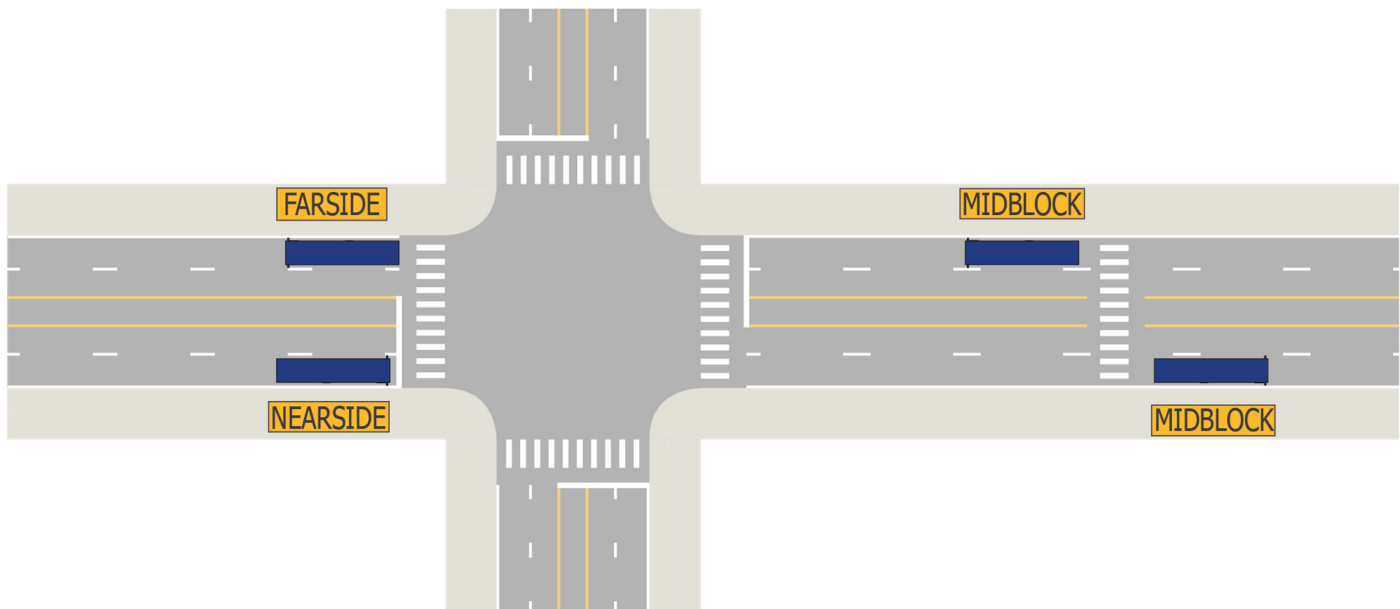


Figure 7-3: Bus Stop Placement Options

While each bus stop placement has advantages and disadvantages, RTD prefers far-side bus stops because:

- They mitigate conflicts with right-turning vehicles
- They streamline transit operations
- Customers cross behind—rather than in front of—the bus, improving pedestrian safety.

The benefits and tradeoffs of each bus stop placement are outlined in Table 7-2.

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Table 7-2: Benefits and Tradeoffs of Bus Stop Placement

	Preferred Context	Benefits	Tradeoffs
Near-side	- Used at stop-controlled or unsignalized intersections. - Queue jumps and bus bypass lanes. - Where far-side is not feasible due to access points (e.g., driveways, turn lanes, or bike lanes).	- Enables boarding during red light phase when buses are already stopped at the signal. - Improves access by placing stops closer to intersections and crosswalks. - Provides a merge opportunity using intersection gaps. - Efficient queue jump operations; the bus is stopped while the priority request is being processed.	- Increases stop length and parking impacts. - Creates merge challenges if traffic queues at the signal. - Risks multiple signal delays if bus misses green phase. - Blocks pedestrian sight lines, increasing crossing risk. - Obstructs right-turning vehicles and may encourage dangerous turns in front of the bus.
Far-side	- Preferred where signal coordination or TSP is present. - Suitable near intersections with frequent right turns or limited curb space near-side.	- Improves signal efficiency by allowing buses to clear the intersection before stopping. - Supports signal priority strategies like queue jumps and TSP. - Reduces curb conflicts and shortens required stop length. - Improves bus re-entry using signal cycle gaps.	- Greater distance from crosswalk. - Can block crosswalks if stop isn't long enough. - May require buses to stop twice, once at red and again at the stop. - Causes queuing if the stop is in-lane or misaligned.
Mid-block	- Used where far-side or near-side stops are infeasible. - Appropriate for long blocks near major destinations or activity centers.	- Reduces intersection conflicts and avoids right-turn congestion. - Improves pedestrian safety with enhanced mid-block crossings. - Allows stop placement closer to trip generators.	- Requires longer stop lengths and creates higher parking impacts. - Can encourage unsafe mid-block crossings if no crosswalk is provided. - Increases pedestrian travel distance to signalized intersections.

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Driveways

Bus stop siting must consider the location of driveways and maintain adequate sightlines for vehicles entering and exiting the driveway or curb cut and buses serving bus stops. There are specific design considerations for siting bus stops along streets with access points to driveways, alleys, or other curb cuts.

Design Considerations

- Where feasible, maintain adequate spacing between bus stops and driveways to preserve sightlines and reduce conflicts.
- Avoid siting bus stops on the near-side of driveways; where driveways are present, far-side placement is preferred to minimize turning conflicts.
- Avoid siting bus stops where the bus is blocking the driveway if feasible.

Bus Stop Configuration

How a bus reaches and serves a bus stop, and how the bus impacts traffic and parking while serving the stop, depends on the existing roadway context. All four common bus stop configurations — a bus stop in a **parking lane**, in a **travel lane**, at a **curb extension/bus bulb**, or a **pull out/bus bay** — impact traffic and parking differently. For bus stops in a **parking lane**, the bus must leave the travel lane and merge into the bus stop zone into the parking lane.

In-lane bus stops allow buses to drop off and pick-up passengers without leaving the travel lane. They include:

- **Bus bulbs**, shown in Figure 7-4, connect the bus stop zone to the sidewalk.
- **Floating bus stops** separate the boarding area from the sidewalk with a bike lane, using crosswalks to highlight potential conflict zones.
- **Median bus platforms** relocate the boarding area and amenities to a boarding platform along a median, accessible by crosswalk across bus and travel lanes.
- **Dedicated busway stations** fully separate bus operations from traffic, with at-grade or grade-separated stations in their own ROW.

Pull-out/bus bay stops created a dedicated zone, cut in to the curb, for a bus stop while typically allowing adjacent general-purpose traffic in the curbside travel to pass. RTD developed a typical standard for bus pull-outs for a 40-foot bus, for more details see [RTD Bus Infrastructure Standard Drawings](#), SD-C104.



Figure 7-4: Bus Bulb at Colfax Avenue & Josephine Street (Denver, CO), City and County of Denver

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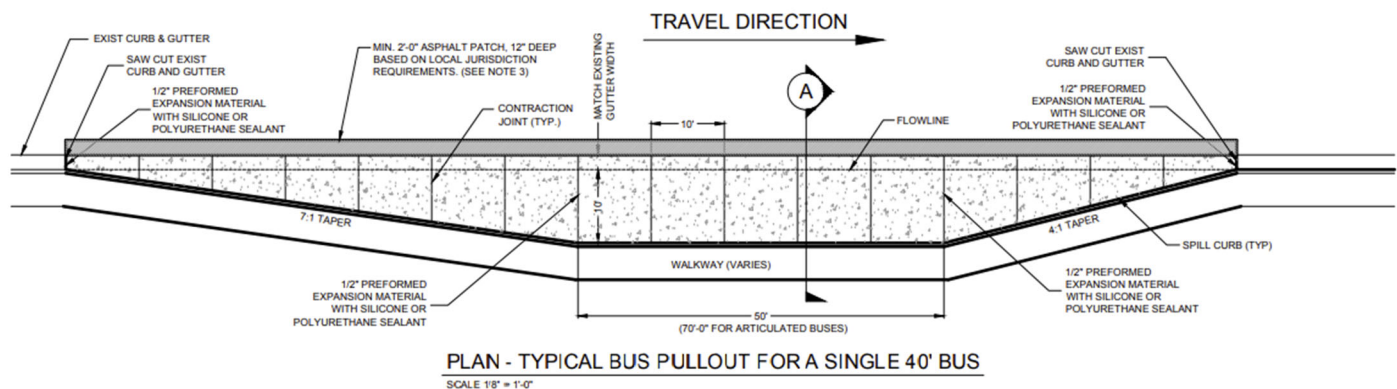


Figure 7-5: Pull-out Bus Stop

Bus Stop Length

Bus stops must be long enough for the bus to safely reach the curb and pull in and out of traffic without blocking the crosswalk or intersection. Insufficient bus stop lengths and clearances can significantly impact safety, accessibility, and traffic for customers and other street users.

Bus stop length depends on the length of the bus, roadway operations, roadway design, and the location and configuration of the stop. There are four key elements for calculating bus stop length:

- **Dwell zone:** This is usually the length of one bus (40 or 60 feet). Add the length of additional buses plus a 10-foot buffer if the stop requires bus layovers or for frequent service.
- **Merge zone:** This is the space required to pull in or pull out of a bus stop zone and must not have obstacles, such as curb extensions, parked vehicles, or flex posts. The merge zone is calculated based on the lateral distance that the bus travels to the curb. RTD requires a 7:1 taper for bus pull-in and 4:1 taper and 24' radius for bus pull-out (RTD Bus Infrastructure Design Guidelines and Criteria, 3.3.0 Bus Stops).
- **Setback:** This is the distance from the front sign to the intersecting cross street. RTD requires the following setback minimums for near-side and far-side stops:
 - **Near-side:** 50 feet minimum
 - **Far-side:** 90 feet minimum
- **Turn zone:** Add a minimum of 30 feet to the stop length after there is a right or left turn.

Bus Stop Layout

The bus stop layout determines how efficiently buses operate, how safely passengers can board and alight, and how comfortably they can wait. Proper layout ensures that stops are accessible, minimizes conflicts with traffic and pedestrians, and provides appropriate space for vehicles and amenities. Components of the bus stop include the front door landing area, rear door clear zone, Pedestrian Access Route (PAR), amenity zone, and clear zone (see accessibility and amenity guidelines for more details on design requirements and considerations).

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Accessible boarding area: Accessible boarding area aligned with the front door of the bus. This area should be six feet long along the curb (RTD minimum) and eight feet wide (RTD minimum, 9 feet preferred) perpendicular to the curb.

Rear door clear zone: Accessible alighting area aligned with the rear door of the bus. Where bus alightings warrant, provide one continuous concrete boarding area a minimum of 30 feet in length (40 feet for articulated buses).

Pedestrian Access Route (PAR): Accessible, 6-foot pathway (5-foot minimum from the curb face) connecting amenities to the boarding area, sidewalk network, and crossing elements.

Amenity zone: The space outside of the accessible boarding area, rear door clear zone, and pedestrian access route where there are passenger amenities including benches and shelters. This is typically adjacent to the building frontage zone. [RTD Bus Infrastructure Design Guidelines and Criteria](#), 3.3.0 Bus Stops, states street furniture shall be placed a minimum of 5 feet from the back of the curb.

Clear zone: Along the entire length of the bus stop zone there should be no vertical elements within 18 inches of the curb face to mitigate potential mirror conflicts.

[RTD Bus Infrastructure Standard Drawings](#), SD-C101 and [RTD Bus Infrastructure Design Guidelines and Criteria](#), 3.3.0 Bus Stops outline standards and design guidelines for bus stop layout including accessibility requirements like slope, and minimum and preferred boarding area and pathway width.

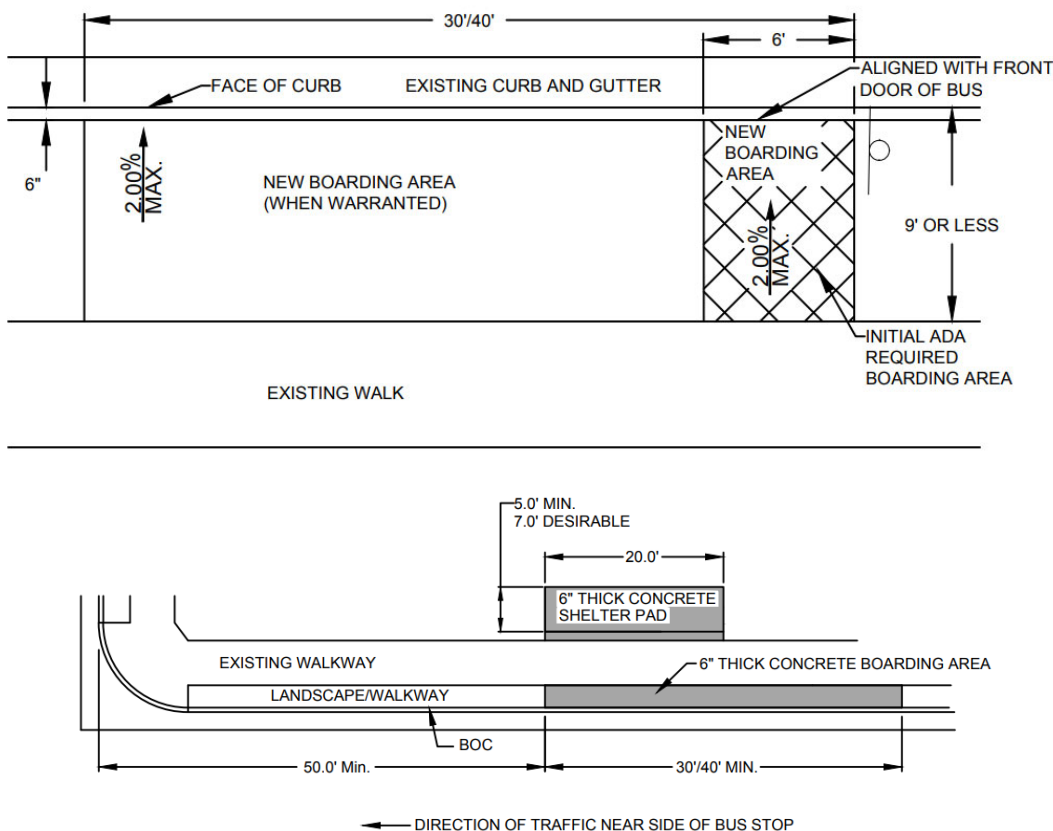


Figure 7-6: RTD Bus Stop Layout Standards

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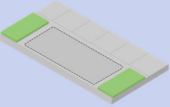
Amenity Placement Guidance

This section outlines key considerations for placing bus stop amenities within the right-of-way. Building on the typology framework in Chapter 4, it focuses on how amenities should be arranged to maintain accessibility, minimize conflicts, and support a safe and comfortable customer experience. The guidance is intended for use by RTD and partner agencies during design and implementation.

Table 7-3: Design Requirements and Best Practice Guidance for Bus Stop Amenities

	Amenity	Design Requirements (ADA and PROWAG)	Additional Design Requirements & Considerations
	Throughout the bus stop zone	- The accessible clear width of the pedestrian access route (PAR) is 5 ft. to allow people with mobility devices to maneuver to and from the stop. - Permitted to reduce to 4 ft. min. (exclusive of any curb) for a max. length of 2 ft.	- RTD recommends a 6 ft. PAR. - RTD requires street furniture be placed a min. of 5 ft. from the back of curb. - RTD requires providing 6 ft. of space between fixed objects where feasible. - Maintain consistent clear width through the stop; avoid pinch points near shelters or furnishings. - Where feasible, design for wider clearances to improve comfort and passing space. - Provide an 18-in. clear zone across the dwell area to reduce mirror strikes.
	Sign Pole with Route Information	- All bus stops RTD must have signs indicating where bus drivers will stop and where customers will board. These must be consistently maintained. - Letters and numbers must have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.	- Place the sign at the front of the stop aligned with the bus boarding area. - Ensure placement does not obstruct the accessible boarding area or PAR. - Include route number, direction, and stop ID. - Use high-contrast, non-glare materials and RTD-standard branding.

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	Amenity	Design Requirements (ADA and PROWAG)	Additional Design Requirements & Considerations
			- Where feasible, use double-sided signs for visibility from multiple approaches. - Mount on a dedicated post unless constrained by right-of-way.
	Accessible Boarding Area	Refer to Section 7.1.1 for boarding area dimensional, slope, and surface requirements.	- Provide additional depth where feasible to improve maneuverability; RTD prefers 9 ft. - RTD recommends a min. waiting area of 4 sq ft. per person. - Minimize cross slope where possible, even below maximum thresholds, designing for 1.5%.
	Seating	All benches and leaning rails that RTD or local governments install must meet ADA requirements. Benches must not block the accessible boarding area, PAR, bus door opening zones, shelters or posted information.	- Locate seating within the amenity zone, outside of the PAR. - Secure seating to a stable foundation (standard depth of 4 in. for concrete). - Integrate seating within shelters where feasible. - Provide space adjacent to seating for wheelchair users.
	Area Lighting	Area lighting must not block the accessible boarding area, PAR, bus door opening zones, shelters or posted information. The PAR may narrow to 4 ft. for up to 2 ft. where there are vertical elements.	- Prioritize locations with existing street lighting where possible. - Minimize dark areas and shadows within the waiting area. - Coordinate with local jurisdiction lighting standards. - Consider visibility from surrounding land uses to

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	Amenity	Design Requirements (ADA and PROWAG)	Additional Design Requirements & Considerations
			improve perceived safety.
	Trash Receptacle	Trash receptacles must not block the accessible boarding area, PAR, bus door opening zones, shelters or posted information. The PAR may narrow to 4 ft. for up to 2 ft. where there are vertical elements.	- Trash receptacles should be within easy reach of the accessible boarding area. - RTD should use waste bins that can be secured to the ground to prevent accidental tipping and typically require a 2 ft. by 2 ft. footprint.
	Shelter	- Bus shelters must be connected to an accessible boarding and a pedestrian access route. - Shelters shall provide a minimum of 30 in. x 48 in. of clear floor or ground space entirely within the shelter. - Floor or ground surfaces must be firm and stable. Changes in level are not allowed. - Floor or ground space must be positioned to either forward or parallel approach to an element.	- Where possible the shelter should face the roadway. - Where the back of the shelter faces the roadway, maintain a clear area of 5 ft. from the back of curb. - Provide a clear area around shelters from adjacent buildings or barriers for maintenance and snow removal, RTD recommends providing 6 ft. of space between fixed objects - Maintain a 12 ft. distance from curb cuts for sufficient sightlines. - Avoid shelters blocking or immediately adjacent to building entrances.
	Stop Lighting	Stop lighting must not block the accessible boarding area, PAR, bus door opening zones, shelters or posted information. The PAR may narrow to 4 ft. for up to 2 ft. where there are vertical elements.	Once bus stop lighting is installed, it is important to ensure that all bus stop lights work.

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	Amenity	Design Requirements (ADA and PROWAG)	Additional Design Requirements & Considerations
	Detailed Route Information/Wayfinding	Detailed route information must not block the accessible boarding area, PAR, bus door opening zones, shelters or posted information. The PAR may narrow to 4 ft. for up to 2 ft. where there are vertical elements.	- RTD should provide relevant route schedules at select bus stops. In the case of schedule changes, RTD will place customer notices at the affected bus stops. - Detailed route information is a preferred amenity at Signature Stops and required at Premium Stops, where there is likely significant amount of transfer activity or passengers who are more likely to be unfamiliar with the system.

Bus Stop Infrastructure and Accessibility Assessment

Working in Constrained Rights-of-Way

Many bus stops across the RTD system are located in constrained environments, including narrow sidewalks, attached sidewalks, high-speed corridors, and areas with drainage, utility, or right-of-way limitations. In these contexts, it may not be feasible to fully implement all accessibility elements or preferred amenities within the existing footprint. Utility conflicts (both above- and below-ground) are a common constraint and should be evaluated early in the design process when siting shelters, lighting, and other vertical elements.

When constraints are present, agencies should prioritize:

- Achieving the highest feasible level of accessibility within site limitations
- Maintaining a continuous pedestrian access route
- Minimizing conflicts between passengers, amenities, and adjacent uses

Where full compliance or amenity installation is not feasible, agencies may consider alternative approaches such as:

- Relocating stops to nearby locations with fewer constraints
- Consolidating stops to focus investment at higher-quality locations
- Implementing partial improvements as interim solutions

These decisions should be made in coordination with RTD and local jurisdictions, recognizing that constrained conditions vary widely across the region and require context-sensitive solutions rather than uniform design responses.

Roles and Responsibilities for Capital Improvements

Bus stop improvements are a shared responsibility between RTD and its partners, with accessibility and connectivity serving as consistent and urgent priorities. RTD surveyed partner municipalities at the start of the BSIAA, and only six of 35 jurisdictions have bus stop amenity programs, while 10 jurisdictions have accessibility programs. Funding limitations are a structural barrier to expanding bus stop amenities and accessibility across the region. Any investment can trigger a broader set of accessibility upgrades needed to maintain ADA compliance, increasing overall construction costs and complexity.

Roles are fragmented throughout the region and vary by right-of-way and amenity ownership. As the transit provider, RTD is responsible for delivering safe, accessible, and equitable transit service, but it relies on municipal partners and other entities to assist with the delivery of stops with high-quality boarding areas and core amenities. Municipalities and counties, as right-of-way owners, are responsible for the design, construction, and maintenance of sidewalks, curb ramps, and pedestrian access routes that connect customers to transit. On state highways, CDOT plays a similar role, coordinating with RTD and local jurisdictions. Adjacent property owners may also be responsible for sidewalk maintenance and keeping pedestrian access routes clear, depending on local regulations. Amenities are often delivered by third-party vendors (e.g., shelter or advertising providers), with RTD and municipalities serving as contracting agencies, and municipalities and CDOT responsible for permitting elements within the public right-of-way.

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There is no consistent regional process for determining which stops receive what improvements, and guidance on amenity placement is limited and fragmented. As a result, individual components of a single bus stop are often owned, funded, and maintained by different entities, complicating delivery and contributing to gaps in accessibility and customer comfort. The typology framework outlined above introduces a potential common methodology for prioritizing improvements.

The following summarizes the primary roles in planning, funding, designing, constructing, and maintaining bus stop capital improvements across the region.

- **RTD:** As the transit provider, RTD leads transit service delivery and is responsible for stop placement, operations, and amenities on RTD property. Under the ADA and PROWAG, RTD is required to ensure stops have an accessible boarding area.
- **Municipalities:** Cities and towns control the public right-of-way and are responsible for sidewalks, curb ramps, crossings, drainage, and pedestrian access routes that connect customers to bus stops, often leading design and construction of stop-related infrastructure within local streets. They are also responsible for bus stops that they own or that are on their property.
- **Counties:** Counties control the public right-of-way in unincorporated areas and are responsible for the design, construction, and maintenance of roadway infrastructure, pedestrian facilities, and access routes to bus stops. Counties may also fund or coordinate bus stop improvements on county-owned roads. They are also responsible for bus stops that they own or that are on their property.
- **CDOT:** CDOT is responsible for infrastructure along state highways, including sidewalks (where applicable), curb ramps, and roadway design, and must coordinate closely with RTD and local jurisdictions to implement bus stops on state-owned corridors.
- **Developers:** Private developers may be required or incentivized to construct or upgrade bus stops, sidewalks, and access improvements adjacent to their projects as part of site development, helping to fill gaps in the network.
- **Vendors:** Vendors design, manufacture, install, and maintain bus stop amenities, such as shelters, seating, and real-time information systems, often through contracts or advertising agreements with RTD or local jurisdictions.

Bus Stop Improvements and ADA

Under the ADA, bus stop and right-of-way improvements are subject to “alteration” regulation, meaning that **when a facility is reconstructed or materially modified, it must be brought into compliance to the maximum extent feasible**. These cascading requirements can significantly increase costs and complexity, particularly when implemented as isolated, one-off projects. As a result, it is often more cost-effective to bundle accessibility improvements into larger corridor or capital projects, where economies of scale and coordinated design can reduce per-unit costs, or to deliver upgrades through new development, where site work, grading, and frontage improvements are already planned and can more efficiently incorporate ADA-compliant design from the outset. Some of the common alterations that trigger additional improvements are outlined below.

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Table 7-4: Bus Stop Improvement ADA Considerations

Bus Stop Upgrade by Type	Additional ADA Elements
Install boarding area	• Accessible boarding area • Accessible pedestrian access route • Compliant slopes • Connection to accessible crossings • Accessible pedestrian signal (APS) upgrades, where applicable
Relocate stop	• Accessible boarding area • Accessible pedestrian access route • Curb ramps • Accessible crossings and connections • Pedestrian signal upgrades (APS), where applicable
Upgrade shelter	• Accessible clear space and circulation • Accessible pedestrian access route • Connection to accessible boarding area • Connection to accessible crossings • Pedestrian signal upgrades (APS), where applicable • Note: new shelters must also connect to an accessible boarding area; altered shelters may not require upgrading substandard boarding areas
Roadway reconstruction	• Accessible pedestrian access routes • Curb ramps • Accessible crossings and connections • Pedestrian signal upgrades (APS)

Bus Stop Amenity Improvements

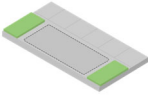
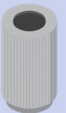
The bus stop typologies establish a consistent framework for identifying which stops should receive specific amenities and accessibility improvements across the RTD service area. These typologies support a broad range of related capital projects and programs, including corridor projects, new construction and development, targeted spot improvements, and coordination with vendors. This helps direct limited resources to the stops with the greatest need, improving accessibility and enhancing comfort for customers where it will have the most impact.

The gaps analysis further identifies locations with the greatest need for both accessibility and amenity upgrades, providing a data-driven basis for prioritizing investments. Together, these tools can guide coordinated capital planning between RTD and its partners, recognizing that different entities are responsible for delivering and maintaining different components of a bus stop.

The following table outlines the roles of each entity in delivering bus stop capital improvements and amenities. Roles vary based on right-of-way and amenity ownership, the below aims to summarize typical roles it does not capture all maintenance scenarios. RTD uses a mixed delivery model for stop amenities. RTD is responsible for amenities at some stops, but many municipalities manage their own amenity programs, which account for most amenities across the region. Both RTD and municipalities rely on contractors/ vendors to install and maintain shelters, benches, and related infrastructure.

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Table 7-5: Roles and Responsibilities by Amenity

	Amenity	RTD Responsibilities	Muni/CDOT/County Responsibilities	Third-Party Vendors Responsibilities
	Sign Pole with Route Information	Install	- Approve placement - Coordinate	
	Accessible Boarding Area	- Coordinate - Shared accessibility role - Implementation roles vary	- Approve/Manage - Shared accessibility role - Implementation roles vary	
	Seating	- Coordinate - Approve/Manage (RTD benches)	Approve/Manage	Install
	Area Lighting		Install	
	Trash Receptacle	Approve/Manage (RTD shelters, RTD property)	- Approve/Manage - Install (limited)	Install
	Shelter	- Coordinate - Approve/Manage (RTD shelters)	Approve/Manage	Install
	Stop Lighting	Approve/Manage (RTD shelters)	Install (pedestrian scale lighting)	Install (non-RTD shelters)
	Detailed Route Information/ Shelterboards	Install	Coordinate	

Maintaining Bus Stop Improvements

Ensuring ongoing compliance and maintaining a basic state of good repair is a fundamental challenge in delivering bus stop improvements. In many cases, the entity that approves an amenity is not the same as the entity responsible for its installation or maintenance. This fragmented structure creates

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gaps in accountability and makes it difficult to ensure that amenities consistently meet accessibility requirements. For shelters and benches in particular, approval, installation, and maintenance responsibilities vary from stop to stop.

This makes coordination between RTD, municipalities, and third-party vendors critically important. Without clear roles and design guidance, bus stop improvements are at greater risk of being non-compliant. Throughout the development of this bus stop study, RTD identified potential key staff for a bus stop working group that will guide and coordinate future bus stop improvements across the region. Once in place, the working group can outline clear processes for design review, inspection, and maintenance to ensure compliance and a basic state of good repair for customers.

Funding and Implementation Pathways

Implementation of bus stop improvements will depend on a combination of funding sources, as no single program or agency currently funds bus stop infrastructure at a systemwide scale. Stakeholder engagement confirmed that funding is a primary constraint across jurisdictions, particularly for accessibility improvements that extend beyond the immediate stop area.

The BSIAA does not identify a dedicated funding source. Instead, it provides a framework that supports multiple funding pathways and helps align investment decisions with available resources.

Key funding approaches include:

Project-Based Integration

Many bus stop improvements are delivered as part of larger capital projects, such as roadway reconstruction, corridor studies, or transit priority investments. Integrating bus stop upgrades into these projects is often the most cost-effective implementation strategy, particularly where accessibility improvements require sidewalk, drainage, or curb reconstruction.

Grant Funding and Competitive Programs

Federal, state, and regional grant programs — such as Safe Streets and Roads for All (SS4A), Congestion Mitigation and Air Quality (CMAQ), and FTA programs — can support bus stop improvements when aligned with broader safety, accessibility, or mobility goals. The BSIAA prioritization framework provides a defensible basis for identifying candidate locations and supporting grant applications.

At the state level, Colorado's transit funding established through **SB 24-230** presents a new opportunity for bus stop improvements. The legislation allocates a portion of revenue to a competitive grant program administered by CDOT that can fund capital investments associated with public transportation, including projects that improve accessibility and first/last mile connections. Bus stop accessibility upgrades and stop-area improvements may be strong candidates for this funding, particularly when bundled into corridor- or community-scale projects that demonstrate broader mobility, safety, or connectivity benefits. By comparison, the formula-based share of these funds is more closely tied to service delivery and operating expenses, making it less applicable to stand-alone bus stop capital improvements.

At the regional level, the **Denver Regional Council of Governments** Transportation Improvement Program (TIP) provides another pathway to fund bus stop improvements, typically through federal

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sources such as CMAQ, Surface Transportation Block Grant, and Carbon Reduction Program funds. While bus stop projects are often included as components of larger corridor or multimodal projects, the upcoming update to DRCOG's TIP policy framework for the 2029-2032 cycle presents an opportunity to more clearly define eligibility and evaluation criteria for bus stop accessibility and amenity investments. Coordinating with DRCOG and local jurisdictions during this policy update process could help position bus stop improvements as competitive stand-alone or bundled investments tied to transit access, safety, and first/last mile connectivity.

Local Jurisdiction Contributions

Because most bus stops are located within municipal right-of-way, local agencies play a critical role in implementation. Jurisdictions may fund improvements through capital improvement programs, development requirements, or corridor-specific initiatives. The BSIAA can help jurisdictions identify high-priority locations within their boundaries and coordinate investments with RTD.

Development-Driven Improvements

New development and redevelopment projects present opportunities to construct or upgrade adjacent bus stops. Incorporating BSIAA accessibility and typology guidance into development review processes can help ensure that new stops meet current standards without requiring separate capital projects.

RTD Capital Programming (Future Opportunity)

Peer agencies often maintain dedicated bus stop capital programs to address accessibility and amenity gaps systematically. While RTD does not currently have a comparable program at scale, the BSIAA establishes the data and prioritization framework needed to support future program development if funding becomes available.

Implementation Considerations

Across all funding sources, coordination is essential. Accessibility improvements often extend beyond the stop footprint, requiring alignment between RTD, roadway owners, and funding partners. The BSIAA framework supports this coordination by providing a consistent basis for defining needs, prioritizing investments, and communicating the scale of required improvements.

Maintaining Bus Stops

Clarifying roles and improving the approach to bus stop maintenance is a top priority for regional stakeholders. Overflowing trash, vandalized amenities, and delayed repairs undermine customer trust and the customer experience. A lack of clear roles and protocols places unnecessary burdens on staff trying to route requests and, in some cases, prevents public feedback from reaching the appropriate entity. To address these challenges, RTD is incorporating right-of-way and amenity ownership into the bus stop inventory database, as these are the primary factors that determine maintenance responsibility across the region. This data will help further clarify where there are ambiguities in roles and where additional coordination is required to ensure maintenance requests and needs are addressed.

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Current State of Maintenance Across the Region

Maintenance approaches vary by right-of-way, amenity ownership, and maintenance agreements held between RTD, municipalities, and third-party vendors or contractors. In some cases, responsibility is held by a single entity, such as shelters located on RTD property. More often, however, municipalities contract with third-party vendors, such as Outdoor Promotions or Street Media, to handle shelter and bench cleaning and repairs. Responsibility can become even more complex where right-of-way ownership varies.

For example, RTD staff reviewed stops on Wadsworth Boulevard at Hampden Avenue, a CDOT-owned roadway located in part within the City of Lakewood. In this case, both stops fall under the jurisdiction of Jefferson County. If RTD receives a maintenance request for these stops, staff may need to coordinate with the City of Lakewood and Jefferson County, who would then route the request to the appropriate vendor, such as Outdoor Promotions. **This layered ownership and contracting structure makes it more difficult to respond quickly and effectively to customer requests,** particularly when roles and points of contact are not clearly defined.

As Chapter 3 outlined, the Administrative Context for stop ownership is based on right-of-way data. RTD and its partners have yet to verify amenity data with third-party vendors. Vendors are required to maintain their own data, but it's not available to the public. To complete the inventory, municipalities, which typically are the contract holders with third-party advertisers, should coordinate and share data with RTD.

The following summarizes maintenance role by entity based on Administrative Context and the best available data and understanding of Third-Party Vendors.

- **RTD:** RTD maintains RTD-owned amenities such as RTD signage, trash receptacles, benches, shelters, and bus stop lighting. RTD also coordinates maintenance requests and holds maintenance agreements with municipalities and contractors to support bus stop maintenance.
- **Municipalities (Cities/Towns):** Municipalities maintain roadway, pedestrian, and public realm infrastructure such as sidewalks and lighting. They may also maintain or contract for the maintenance of bus stop amenities, including trash receptacles, benches, and shelters, and are responsible for permitting and coordinating maintenance activities in the right-of-way. They also hold maintenance agreements with RTD, BIDs, and other entities to support bus stop maintenance.
- **Counties:** Counties maintain roadway, pedestrian, and public realm infrastructure primarily in unincorporated areas. They typically also coordinate maintenance of bus stop amenities on county-owned roads with RTD, municipalities, or third-party vendors.
- **CDOT:** CDOT maintains state-owned roadways and associated pedestrian infrastructure, including sidewalks, curb ramps, and crossings. CDOT coordinates with RTD and local jurisdictions on bus stop maintenance along state highways.
- **Advertising Vendors:** Advertising vendors maintain shelters, benches, and associated amenities provided through advertising contracts. Their responsibilities typically include cleaning, repairs, graffiti removal, and in some cases trash collection.

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- **Business Improvement Districts (BIDs):** BIDs provide supplemental maintenance in commercial areas, including regular cleaning of sidewalks and street furniture and, in many cases, snow removal to maintain accessible pedestrian routes. Their scope varies based on agreements with municipalities.
- **Adjacent Property Owners:** Adjacent property owners are typically responsible for basic sidewalk maintenance and snow removal adjacent to their property, depending on local regulations. They may also serve as the primary maintainer of bus stop areas where no formal amenities are present and are responsible for stops located on private property, sometimes in coordination with vendors.

In addition to RTD, municipalities, and third-party vendors, adjacent property owners and BIDs play important roles in bus stop maintenance. In commercial areas, BIDs often have agreements with municipalities to provide supplemental services, including regular cleaning of street furniture such as bus stop amenities, typically on a weekly basis. This helps maintain clean, safe, and inviting business frontages and public spaces. In many cases, BIDs also perform snow removal, helping to keep pedestrian access routes clear.

Adjacent property owners also have a role in maintenance, even when bus stops are located within the public right-of-way. Depending on local regulations, property owners are typically responsible for basic sidewalk maintenance and snow removal. At stops without amenities such as trash receptacles, seating, or shelters, adjacent property owners may be the primary party responsible for maintaining bus stop infrastructure and cleanliness. Bus stops located entirely on private property, such as in large commercial districts, are the responsibility of the property owner, along with any third-party vendor or maintenance contractor involved. Given this variability, it is important for RTD and its regional partners to clearly define when and why adjacent property owners are responsible for maintenance. This includes establishing clear communication protocols to ensure expectations are understood and responsibilities are consistently met.

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Roles and Responsibilities for Maintenance

Maintenance responsibilities for bus stops vary based on right-of-way ownership, amenity ownership, and the presence of vendor or maintenance agreements. No single entity is responsible for all components of a stop, and responsibilities often differ by element. The table below summarizes outline what agency is responsible for what bus stop element and in what context, providing a general framework to clarify how maintenance is distributed across RTD and its partners. Actual responsibilities may vary by jurisdiction and agreement.

Table 7-6: Maintenance Roles and Responsibilities

Maintenance Element	RTD	Municipality/CDOT/County	Third-Party Vendor	Adjacent Property Owner
Accessible Boarding Area	Leads at stops RTD upgrades and on RTD project. Must maintain accessible condition.	Leads at non-RTD stops. Must maintain accessible condition.	Supports; must maintain accessible condition.	Supports; must maintain accessible condition.
Sidewalks, curb ramps, drainage	Leads at stops RTD upgrades and on RTD project. Must maintain accessible condition.	Leads at non-RTD stops. Must maintain accessible condition.	Supports; must maintain accessible condition.	Supports; must maintain accessible condition. May lead if required to install by local ordinance.
Area Lighting	Leads at stops on RTD property.	Leads at non-RTD stops. Sets lighting standards.		Supports implementing lighting standards.
Sign Pole with Route Information	Leads at all stops.	Coordinates sign pole location and construction impacts.		
Seating	Manages amenity contracts and maintenance agreements for RTD amenities.	Manages amenity contracts and maintenance agreements.	Leads at all contracted stops.	Leads at select adopt-a-stops or private seating on commercial properties.
Trash Receptacles	Manages amenity contracts and maintenance agreements for RTD amenities.	Manages amenity contracts and maintenance agreements.	Leads at all contracted stops.	Leads at select adopt-a-stops or private trash receptacles.
Shelters	Manages amenity contracts and maintenance agreements	Manages amenity contracts and maintenance agreements.	Leads at all contracted stops.	



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Maintenance Element	RTD	Municipality/CDOT/County	Third-Party Vendor	Adjacent Property Owner
	for RTD amenities.			
Stop Lighting	Manages amenity contracts and maintenance agreements for RTD amenities.	Manages amenity contracts and maintenance agreements.	Leads at select contracted stops.	
Detailed Route Information/ Shelterboards	Leads at shelterboard stops.	Supports with supplemental wayfinding.		
Landscaping	Leads at stops on RTD property. Manages maintenance agreements.	Leads at non-RTD stops. Sets landscaping standards.		Supports implementing landscaping standards.
Basic cleaning	Manages amenity contracts and maintenance agreements for RTD amenities.	Manages amenity contracts and maintenance agreements.	Leads at all contracted stops.	Leads at all stops that do not fall under an amenity contract or maintenance agreement.
Snow removal	Leads at select high-ridership stops.	Leads at select high activity stops.	Leads at select contracted stops.	Leads at all stops that do not fall under an amenity contract or maintenance agreement

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Existing Maintenance Agreements

Maintenance of bus stop amenities is typically governed through vendor contracts or interagency agreements tied to specific assets rather than a unified system. While these agreements provide clarity on ownership and funding, they vary in structure and level of detail. Across the following maintenance agreements: City of Lakewood with Outdoor Promotions and Creative Outdoor Advertising, and RTD with Front Outdoor Promotions, several common components emerge. See **Appendix F** for example maintenance agreements and contracts.

Common components of existing agreements include:

- **Asset-specific scope of work.** Agreements are typically structured around individual amenities, such as shelters or benches, rather than the full bus stop environment. This means that different elements of a single stop may be covered under separate agreements, reinforcing a fragmented maintenance structure.
 - RTD's contract with Front Range Services is broader and service- rather than asset-focused, including custodial/graffiti removal, and snow removal services at stops by group and corridor. The maintenance agreement, however, does not cover trash pick-up, which remains a key issue and area where maintenance roles are unclear.
- **Long-term contract duration with renewal options.** Contracts are often established for long durations, commonly 10 to 15 years, with optional extensions. This reflects the capital investment required for installation and ensures continuity of service, though renewal is not always tied to clearly defined performance outcomes.
- **Vendor-led installation and maintenance.** Third-party vendors are generally responsible for both installing and maintaining amenities. This includes routine cleaning, repairs, and services such as graffiti removal. While responsibilities are clearly assigned, the level of detail around how maintenance is performed can vary.
- **Defined compensation structures.** Agreements typically include clear payment mechanisms, such as per-unit payments, fixed-price service contracts, or advertising-based revenue models. These structures provide financial clarity but are not always linked to service quality or performance.
- **General maintenance expectations.** Most agreements include language describing maintenance responsibilities; however, expectations are often defined at a high level. Specific standards, such as cleaning frequency or response times, are not always consistently documented.
- **Administrative and reporting requirements.** Agreements consistently include invoicing procedures, documentation requirements, and periodic reporting. These elements ensure contract compliance and financial accountability but are primarily focused on administration rather than service outcomes.
- **Insurance, liability, and risk allocation.** Standard provisions require contractors to carry insurance and assume responsibility for damages, ensuring that agencies are protected from liability.

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- **Termination, renewal, and amendment provisions.** Agreements include standard clauses for contract renewal, amendment, and termination, including provisions for addressing non-performance.

Regional Maintenance Considerations

A more effective approach to bus stop maintenance requires clear roles, consistent standards, and well-defined agreements between RTD and its partners. Based on national best practices, strong maintenance agreements clearly outline ownership, responsibilities, service levels, performance expectations, and communication protocols, while accounting for long-term funding and coordination needs. Today, maintenance responsibilities across the RTD service area are fragmented and vary by right-of-way, amenity type, and contract structure, which can lead to inconsistent service and gaps in accountability. The following section outlines key components of effective maintenance agreements, along with regional considerations and opportunities for RTD to establish a clearer, more coordinated, and more comprehensive approach to bus stop maintenance across the system.

- **Defined Roles and Responsibilities.** A strong maintenance agreement clearly defines which entity is responsible for each element of a bus stop, including infrastructure, amenities, and surrounding conditions. This is often formalized through a memorandum of understanding (MOU) that outlines ownership, maintenance responsibilities, and coordination protocols.
- **Routine Cleaning Procedures.** Agreements should establish baseline cleaning expectations, including frequency and scope. This may include regular trash removal, sweeping, graffiti removal, and general upkeep of shelters, benches, and surrounding areas. Clearly defined schedules help ensure a consistent level of service and prevent the gradual decline of bus stop conditions.
- **Request-Based Cleaning Procedures.** In addition to routine maintenance, agreements should include processes for responding to customer complaints and service requests. This includes defined response times, reporting mechanisms, and clear routing of requests to the appropriate entity. Effective request-based procedures ensure that issues such as vandalism, damage, or safety concerns are addressed quickly and do not linger.
- **Duration.** Maintenance agreements should define a clear contract term that aligns with the lifecycle of shelters and benches. Longer-term agreements can provide stability and efficiency, but should be structured to allow for adjustments based on performance and evolving system needs.
- **Renewal Process.** Agreements should include a defined renewal process that allows for evaluation of performance, incorporation of updated standards, and adjustment of service levels. This creates an opportunity to refine roles, improve coordination, and respond to changing conditions over time.
- **Compensation and Escalation.** Maintenance agreements should establish clear compensation structures, including provisions for cost escalation over time. Escalation clauses help account for inflation and rising labor and material costs, ensuring that service levels can be sustained throughout the life of the agreement without degrading quality. In cases where amenities are provided through advertising contracts, revenue-sharing arrangements can help offset maintenance costs. Structuring agreements to reinvest a portion of advertising revenue

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into cleaning, repairs, and expanded service coverage can support more consistent and sustainable maintenance

Opportunities to Improve Existing Maintenance Approach

Bus stop maintenance is currently delivered through a mix of agency responsibilities, municipal services, vendor contracts, and supplemental programs. Most agreements are structured around individual amenities or services rather than the full bus stop, resulting in multiple entities responsible for different components of the same stop. This fragmented approach creates gaps in accountability and leads to inconsistent maintenance across the system. The following opportunities identify ways to improve coordination, strengthen existing contracts and programs, and move toward a more consistent, service-oriented approach to bus stop maintenance.

Advertising Based Contracts

Advertising-based contracts are one of the primary mechanisms for delivering shelters and benches in the region, but they are typically structured around individual amenities and revenue generation rather than systemwide maintenance outcomes or priorities. As a result, maintenance responsibilities are often limited to specific assets and not optimized for the customer experience.

There is an opportunity to strengthen these contracts by:

- Expanding scope to include adjacent elements such as trash, boarding areas, and immediate surroundings
- Defining clear maintenance standards, including cleaning frequency and response times
- Establishing performance metrics tied to contract renewal and compensation
- Improving coordination with RTD and municipalities to align stop priorities and accessibility needs

RTD's Service-Based Maintenance Model

RTD's maintenance contract represents a shift toward a service-based approach, with maintenance defined across a set of locations rather than tied to individual assets. This model provides a strong foundation for improving consistency and accountability across the system.

There is an opportunity to build on this approach by:

- Expanding scope to include additional elements, such as trash collection and basic stop area cleaning
- Aligning service areas with priority corridors and high-ridership locations
- Integrating maintenance responsibilities across all stop components, not just shelters
- Coordinating more closely with municipal and vendor efforts to reduce duplication and gaps

BID Maintenance Programs

BIDs already play an important role in maintaining clean and active commercial corridors, often providing services such as sidewalk cleaning, trash collection, and snow removal. These efforts can significantly enhance the condition of bus stops in high-activity areas.

There is an opportunity to better leverage BID programs by:

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- Formalizing coordination between RTD, municipalities, shelter advertisers, and BIDs
- Clearly defining the extent of BID responsibilities for bus stop areas compared to shelter advertisers
- Aligning maintenance standards and expectations across entities
- Identifying priority corridors where BID services can supplement existing maintenance

Adopt-a-Stop Programs

Adopt-a-Stop programs provide a low-cost, community-driven approach to maintenance, allowing individuals, businesses, or organizations to take responsibility for basic upkeep at specific stops. These programs can be particularly effective for addressing litter, minor cleaning, and localized issues.

To improve effectiveness, there is an opportunity to:

- Standardize program structure and expectations across jurisdictions
- Provide clear guidance on roles, responsibilities, and safety considerations
- Integrate reporting and coordination with RTD and municipal systems
- Target participation in areas with limited formal maintenance coverage

Maintaining Bus Stop Data

The bus stop inventory database will be maintained by RTD within ArcGIS Enterprise, which will serve as the authoritative system of record. To support transparency and public access, a subset of the data will be shared through RTD's Open GIS Data portal in a dashboard format, with select detailed or internal-use attributes excluded as appropriate.

At the time of this report, RTD is in the process of evaluating and establishing formalized procedures to support the long-term maintenance of the dataset. This includes developing internal protocols for update cycles, as well as considering a range of data governance elements that will inform a comprehensive internal management framework, including:

- Establishing clear data ownership and stewardship roles to ensure accountability for maintaining data quality and consistency
- Defining standards and protocols for data entry, editing, and validation
- Identifying mechanisms for ongoing quality assurance and control
- Developing processes for resolving data discrepancies, including how conflicting information from field observations, operations, or external partners will be reviewed and reconciled
- Determining approaches for documenting and communicating changes to the dataset, such as maintaining editing histories or change logs
- Assessing policies related to data retention and archiving, including whether and how historical records of bus stop conditions and attributes should be preserved over time

RTD is also outlining processes for coordination across departments and with external stakeholders. As these processes are refined, they will provide the foundation for ensuring the dataset remains accurate,

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consistent, and accessible for both internal and public-facing applications, with the ultimate goal of informing bus stop improvement efforts across jurisdictions.

Implementation Summary

The BSIAA establishes a comprehensive, systemwide framework for understanding bus stop conditions and guiding future investment. Implementation will occur incrementally over time and will depend on coordination across RTD, local jurisdictions, and funding partners.

This chapter outlines how the tools developed throughout the study can be applied in practice. Accessibility serves as the baseline for all investments, ensuring that improvements address fundamental compliance requirements before expanding to amenities. The typology framework provides a scalable structure for aligning investments with service characteristics, while the prioritization process supports transparent and data-driven decision-making.

Successful implementation will require:

- Coordination across agencies with shared responsibility for bus stop infrastructure
- Integration of bus stop improvements into larger capital and corridor projects
- Clear documentation of maintenance roles and responsibilities
- Ongoing updates to the bus stop inventory and database

Funding will continue to be a key constraint, and implementation will rely on a combination of project-based investments, grant funding, local contributions, and development-driven improvements. The BSIAA provides the foundation needed to support these funding pathways by clearly identifying needs and priorities across the system.

Rather than serving as a fixed capital program, the BSIAA functions as a durable decision-support framework. As service patterns evolve, funding conditions change, and additional data becomes available, RTD and its partners can use this framework to guide consistent, transparent, and coordinated improvements to the bus stop network.

8. Next Steps

From Framework to Action

The BSIAA establishes a comprehensive, data-driven foundation for improving RTD's bus stop network. The inventory, typology framework, prioritization methodology, and implementation guidance collectively provide a structured and transparent approach to advancing accessibility, equity, and customer experience across the system.

Rather than prescribing a single implementation approach, the BSIAA provides a framework that can be applied through a variety of existing capital, planning, operational, and coordination processes. Potential applications include integrating prioritization into capital programming, aligning investments with regional funding opportunities, strengthening data management practices, and supporting coordination with municipal partners.

The specific timing, sequencing, and scope of future implementation activities will depend on available funding, organizational priorities, partner coordination, and evolving system needs. By incorporating the BSIAA framework into routine decision-making processes, RTD can use the inventory and prioritization tools to help inform future accessibility improvements and amenity investments over time.

Potential Near-Term Actions (0-12 Months)

The following actions represent potential opportunities for applying the BSIAA framework in the near term:

Integrate Prioritization into Capital Planning

- Incorporate prioritization results into RTD's annual infrastructure planning processes
- Use prioritization outputs to support project nomination and justification within the DRCOG TIP and other regional funding programs
- Establish internal guidance for how prioritization should be applied across departments to ensure consistent use of the BSIAA framework

Advance Accessibility Improvements

- Identify high-priority accessibility deficiencies for early action
- Coordinate with jurisdictions where sidewalk or ramp improvements are required
- Document scope definitions for ADA-related improvements to streamline project delivery
- Bundle accessibility improvements with planned roadway, sidewalk, and corridor projects to reduce implementation costs and streamline delivery

Formalize Maintenance Coordination

- Inventory and document existing maintenance agreements in a centralized format

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- Identify gaps in maintenance responsibility (e.g., snow removal, trash, shelter upkeep) and prioritize locations for agreement development
- Establish standard templates and baseline expectations for maintenance responsibilities across jurisdictions
- Coordinate with RTD service development and facilities teams to align maintenance practices with stop upgrades

Public Transparency and Reporting

- Develop a publicly accessible dashboard or web interface to share bus stop conditions, accessibility status, and investment progress
- Provide clear communication to stakeholders and the public about how prioritization informs investment decisions
- Use reporting tools to track progress toward systemwide accessibility goals over time
- Coordinate with regional partners to share data and improve visibility into planned and completed improvements

Establish Ongoing Data Management Protocols

- Evaluate opportunities to maintain a centralized and authoritative bus stop inventory, with clearly defined ownership and update responsibilities
- Consider standard processes for updating stop data following capital projects, service changes, and maintenance activities
- Develop a process for incorporating updates from municipal partners and external stakeholders into the central database
- Establish routine update cycles for key inputs (e.g., ridership, service frequency) used in typology and prioritization
- Develop internal guidance to ensure that BSIAA data replaces legacy datasets in planning and decision-making workflows

Potential Medium-Term Actions (1-3 Years)

Over the medium term, RTD and its partners may focus on:

- Aligning bus stop improvements with regional funding opportunities, including the DRCOG TIP, federal discretionary grants, and state funding programs
- Supporting development of a regional funding strategy, including identification of local match requirements and potential funding partners
- Periodically recalibrating typology assignments and prioritization inputs as service patterns, ridership, and land use conditions evolve
- Monitoring accessibility compliance progress and documenting improvements
- Refining maintenance agreements based on implementation experience

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- Continuing coordination through internal cross-departmental working groups

The prioritization framework is intended to be adaptable. As new ridership data becomes available and service patterns change, RTD may choose to revisit typology assignments, scoring inputs, and implementation strategies to maintain alignment with organizational goals.

Long-Term Stewardship

The BSIAA highlights that bus stop improvements are not solely a capital issue; they require long-term stewardship.

Sustained progress will depend on:

- Clear governance structures
- Transparent decision-making
- Consistent maintenance practices
- Reliable data management
- Ongoing coordination with municipal partners
- Reliable capital and operational funding sources

Moving Forward Together

Improving RTD's bus stop network is foundational to delivering a safe, accessible, and reliable transit system. Bus stops are where customers experience transit most directly, and their condition shapes perceptions of safety, dignity, and system quality. The BSIAA establishes, for the first time, a comprehensive and data-driven understanding of conditions across approximately 7,500 bus stops in RTD's service area, along with a structured framework for addressing identified needs.

The findings of this study make clear that accessibility improvements represent a systemwide priority. At least 65% of stops do not currently meet accessibility standards (and likely higher for stops pending field verification), reflecting gaps in boarding area dimensions, slope compliance, and pedestrian connections. While many stops include basic infrastructure, amenity distribution remains uneven across the region, with features such as shelters and seating concentrated at a relatively small share of locations. Addressing these gaps will require sustained investment and coordination across multiple agencies and jurisdictions, with total systemwide needs reaching into the hundreds of millions of dollars when considering both accessibility upgrades and amenity improvements.

The BSIAA does not prescribe a single implementation path. Instead, it provides a flexible framework that allows RTD and its partners to advance improvements incrementally while adapting to local conditions, funding availability, and evolving service patterns. Accessibility serves as the baseline for all investments, while the typology framework provides a scalable structure for aligning amenities with ridership, service levels, and stop context. The prioritization process supports transparent, data-driven decision-making that can be applied across capital programs, grant applications, and corridor planning efforts.

Successful implementation will depend on embedding this framework into everyday practice. This includes integrating prioritization into capital planning and funding decisions, coordinating

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improvements with municipal partners and roadway projects, establishing clear maintenance responsibilities, and maintaining a current and reliable bus stop database. These actions reflect consistent themes raised through stakeholder engagement, including the need for clearer roles and responsibilities, improved data coordination, and practical guidance that supports implementation in diverse and often constrained environments.

Improving the bus stop network is not a one-time effort. As service evolves, infrastructure ages, and new data becomes available, RTD and its partners will need to update priorities, refine investment strategies, and continue coordinating across jurisdictions. The BSIAA provides a durable foundation for this ongoing work by establishing a shared language, a consistent dataset, and a transparent decision-making framework.

By grounding future decisions in data, aligning investments with agency goals, and strengthening regional partnerships, RTD and its partners can make meaningful, incremental progress toward a more accessible, equitable, and customer-focused bus stop network. Over time, these improvements will contribute to a more consistent, comfortable, and dignified transit experience across the region.

9. Appendices

Appendix A – Bus Stop Inventory Methodology and Accessibility Evaluation

Appendix B – Bus Stop Inventory Data Dictionary

Appendix C – Cost Methodology

Appendix D – Prioritization Flowcharts

Appendix E – Stakeholder Engagement Summary

Appendix F – Sample Maintenance Agreement