Amtrak Station Planning and Development Guidelines

AMTRAK®

January 2022 | V.4

Contents

This Document is organized to facilitate the development and design process.

Part 1: Development Process (Chapters 1 and 2)
Includes general planning and background information.

Part 2: Design Considerations (Chapters 3 through 8)
Includes design criteria, functional and program requirements for stations of all sizes and typologies.

Part 3: Appendices (Appendices A through H)
Reference material, technical content.

1.0 Overview

1.1 Preface

The Amtrak® Station Planning and Development Guidelines (Guidelines) were written and developed primarily with these three groups in mind:

Interested parties looking to understand the Amtrak station planning and development process:

- Communities interested in new Amtrak service.
- Local and regional transit agencies.
- Regional infrastructure planning professionals.
- Real estate developers.
- Existing station owners.

Design Professionals looking for criteria and design considerations for station related projects:

- Architects.
- Planners.
- Engineers.

Internal Amtrak station development stakeholders, as a general reference guide.

Please confirm that this edition of the Guidelines is the most current and up-to-date version of the document by visiting the Great American Stations website (GreatAmericanStations.com).

These Guidelines provide design considerations and criteria to guide station planning, development, and design, rather than simply listing standards or specifications. As your project develops, an Amtrak Facilities Development Manager (FDM) will shepherd the team through the process and provide the design professional with Amtrak's requirements, standards, and specifications. They may also be able to assist in collecting and compiling requirements from other stakeholders including the Host Railroad. Figure 1.1.1 explains the relationship between the Guidelines and other documents that include Amtrak standards and regulatory codes.

The use of these Guidelines does not ensure Amtrak approval and/or agreement regarding any proposed station improvements or design for new stations, and does not eliminate the need for coordination with Amtrak during all phases of station design projects.

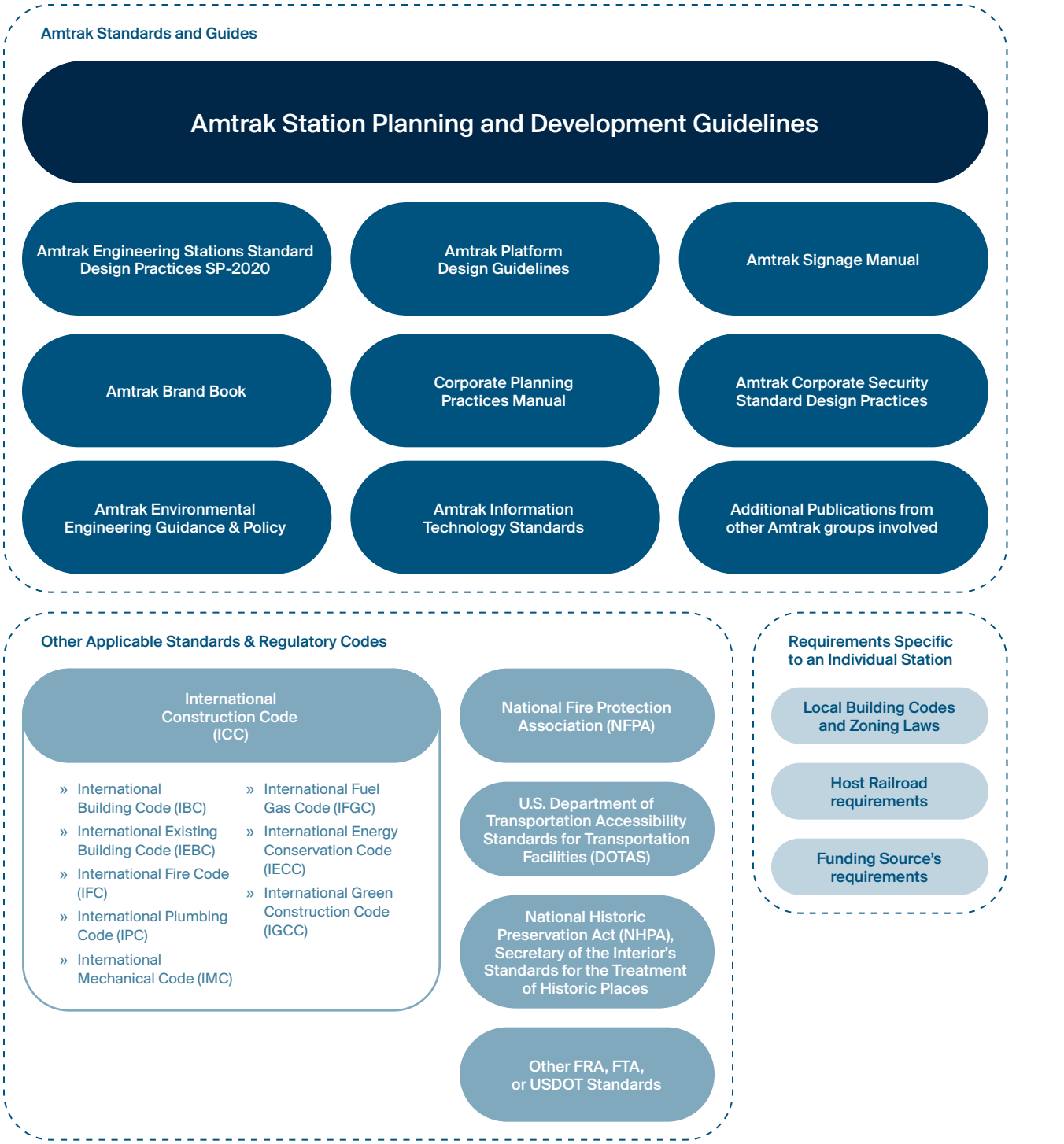
Amtrak is not responsible and has no liability for any damages, loses, expenses, or claims arising or purporting to arise from use of or reliance on the information contained herein.

Interactive Contents

The interactive Table of Contents, List of Figures, and List of Tables are provided to aid readers in easily locating and moving ahead to the specific content for which they are searching for.

Family Tree of Documents

Figure 1.1.1



1.2 Introduction

Amtrak® operates hundreds of intercity passenger trains every day, serving over 500 rail stations in 46 states and three Canadian provinces. Most Amtrak trains operate over track owned by freight railroads; and most of the stations served are owned by parties other than Amtrak, including commuter rail agencies, state and local governments, as well as private owners.

Amtrak rail stations range from platform-only stations to large urban mixed-use transit centers; in addition, Amtrak serves over 300 bus stop locations with coordinated service. Each station has unique design requirements, depending on whether it is served by Long Distance, State Supported Corridor and/or Northeast Corridor services, or it is served by other High Speed Rail (HSR) designated tracks. Detailed information on those services can be found in Appendix B: Amtrak System Details.

Overview of Amtrak's rail services.

Long Distance

- Routes greater than 750 miles and generally consist of one train per day in each direction.
- Current routes may pass between three and 12 states, and use freight railroad tracks for 95% of their route mileage. Thus, coordination among the various stakeholders of stations serving these routes is particularly critical to the success of new station projects.

State Supported Corridor

- Routes of less than 750 miles, providing intercity, short-haul service.
- The services on these routes are finacially supported by the states in which they operate, hence, new station projects may also be funded and/or led by the state.

Northeast Corridor and High Speed Rail*

- The NEC and connecting network supports a daily schedule of more than 2,200 trains, including more than 150 Amtrak trains, mostly on Amtrak owned and operated tracks.
- The Acela® makes up Amtrak's current HSR offerings, with more to come in the near future.

* A separate document called Corporate Planning Practices Manual provides information related specifically to station projects along the NEC and other Amtrak-owned infrastructure. Interested parties should contact an Amtrak FDM to request a copy.

Amtrak is witnessing an exciting period in its history with many changes currently underway, including:

- An ambitious new vision for expanded services, new connections, and infrastructure improvements across the continent by the year 2035.
- Rapidly growing passenger ridership and growing State Supported Corridor service.
- Changes in rail operation, with new customer service offerings and procedures such as methods of ticketing and baggage handling.
- Planned growth in many areas of the country, often in parallel to State Supported Corridor routes.
- Procurement of hundreds of new cars and locomotives, including a second generation of faster and greener high speed trains.
- Refinements to train and platform accessibility standards.
- Substantially expanded station and platform accessibility.
- Changes in security standards and procedures.

1.3
Station Development Branding Alignment

Amtrak® stations development should reflect the brand's greater mission of *Delivering Intercity Transportation with Superior Safety, Customer Service, and Financial Excellence.* The brand character traits portray the foundation for building the Amtrak culture and provide a unified expression of the brand nationwide.

Brand Character Traits

Professional

Provide a consistent brand to deliver a cohesive brand and message (signage branding and messaging, furniture, and cleanliness).

Welcoming

Create an environment that enhances customer experience. Design should be inviting, using warm and welcoming colors and furnishings, strong spatial relationships, accessible routes and facilities, and clear wayfinding.

Caring

Amtrak cares about the customers and the communities that we serve. Station development should promote the protection of and integration with existing historic contexts, practice sustainable and environmentally conscious building design, and provide amenities to encourage alternate transportation, such as biking parking areas.

Contemporary

The station development should be modern, optimistic, and inviting. Encourage designs that respond to current technologies such as self-service kiosks, charging stations, Wi-Fi connections.

Community-Minded

Amtrak is part of each community that it serves. Promote integration and connectivity through stations development and design.

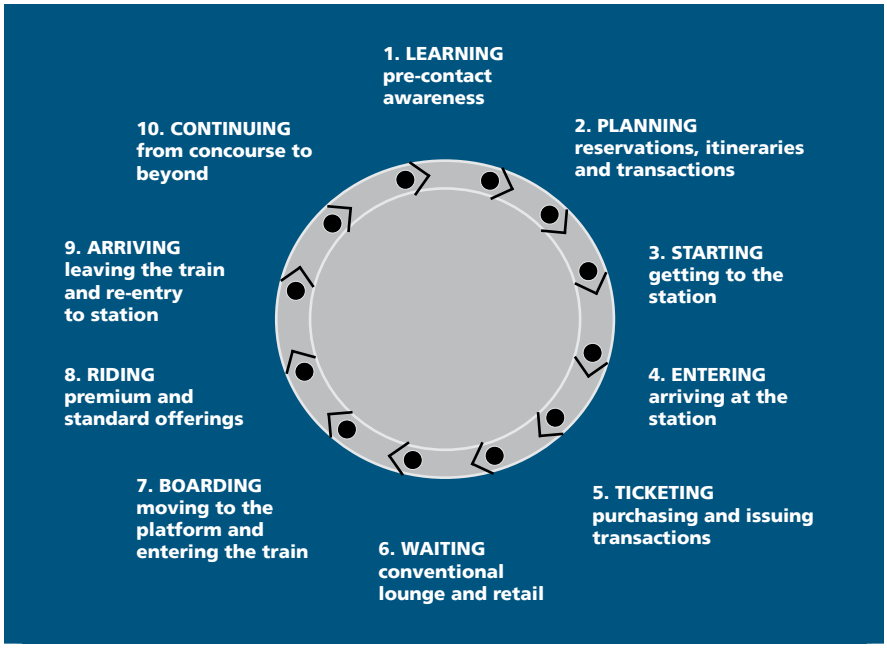


Figure 1.3.1 - The Seamless Journey

To further the mission of delivering intercity transportation with superior safety, customer service, and financial excellence, Amtrak has developed a philosophy of the Seamless Journey that comprises 10 components of the travel experience as shown in the diagram above.

The term, Seamless Journey, refers to the concept of providing service to Amtrak customers from the beginning to the end of the passenger trip.

The Seamless Journey Includes:

- Delivering needed information at all points of the trip-making process.
- Supporting simplified decision-making and choices.
- Providing an appealing, safe, comfortable and quality experience throughout the trip.

The station must first-and-foremost serve the passenger, providing safety, comfort, expediency, and enjoyment of the travel experience. But even a visitor, entering a station to buy a ticket, drop off a passenger, or obtain information, experiences multiple facets of the Seamless Journey.

Because the station represents a major portion of the travel experience (note that most of the 10 steps in the Seamless Journey take place within the station), it is imperative to create an environment in the station that is welcoming, functional, and clean—one that will be memorable and will encourage repeat business for Amtrak and create a civic focal point in the community.

Objectives

Great service

» From ticketing, to waiting, to boarding, to riding, the passenger experiences courteous and efficient service.

» Station operations, back office support and baggage handling are performed with efficiency and sustainability in mind.

Convenient access to the station

» Station is a major hub in a multimodal network connecting downtown and other important places in the region.

Enjoyable physical environment in and around the station

The passenger or visitor experiences the station as a community asset or important public place.

» Through its urban design and architectural design, the station positively contributes to the public realm.

» The station architecture exhibits a sense of strength, usefulness, and beauty.

2.0 Stations Development Process

The planning and design of a new station or a renovation to an existing station involves a number of complex issues that must be carefully coordinated. They include determining the ridership, funding, agreements, ownership, operations, programing, design, construction, and implementation of the project. This chapter provides guidance regarding the stakeholders that may be involved in a station project, and the planning process from project inception through station opening.

2.1 Key Stakeholders Involved in Station Projects

Station projects involve a range of stakeholders, including Amtrak®, federal and state agencies, cities and towns, regional and local transportation authorities, host railroads, and private developers. Organizing of stakeholders' efforts and understanding the role of each entity involved is critical to the success of the project.

Amtrak

Amtrak includes multiple departments and groups who will be involved in the planning and development process. Typically, an interested party (the station sponsor) will make initial contact with representatives from either the Government Affairs Group or State Supported Group. Soon after initial contact, a Facilities Development Manager (FDM) from the Facilities and Development Group will be assigned to manage the project.

Other internal Amtrak groups also become involved throughout the process to provide guidance and review the project's development. Those may include:

- ADA Stations Program.
- Amtrak Police.
- Corporate Communications.
- Corporate Security.
- Information Technology.
- Long Distance Service.
- Northeast Corridor.
- Operations / Engineering.
- Planning.
- Pricing and Revenue.
- Real Estate.
- Scheduling and Consist Planning.
- Station Design.

Federal Level Governmental Entities

United States Department of Transportation (USDOT)

USDOT has several operating administrations that may influence a station development project.

- The Federal Railroad Administration (FRA) is responsible for rail safety regulation and enforcement. The FRA issues guidelines and rules that affect passenger station platform design. The FRA may also provide both grants and loans for certain intercity passenger rail station projects.
- The Federal Transit Administration (FTA) may provide funding if commuter railroads or local/regional transit agencies are partners in a station project.
- The Federal Highway Administration (FHWA) may be able to serve as a funding source if the project involves bus or parking facilities.

United States Department of Homeland Security (TSA)

TSA has jurisdiction over security at rail passenger stations. Amtrak can coordinate between the TSA and project stakeholders, as appropriate.

State Departments of Transportation (DOT)

State DOTs will often provide capital funding and subsidize state-supported services to station projects along State Supported Corridors. They also prepare and regularly update State Transportation Improvement Plans (STIPs) which outline the State's intended strategic plan for transit-oriented projects. STIPs serve two important purposes: 1- they are reviewed by federal agencies to be considered for federal funding, and 2- Amtrak considers them as indicators when deciding where to locate new service.

Cities and Towns

Municipalities and the communities they serve are potentially the stakeholders that are most immediately affected by the success of any new station project. The economies and urban development plans of cities and towns can benefit greatly from improved transit access. Buy-in from local constituencies is often essential.

Regional and Local Transit Authorities

Regional and Local Transit Authorities can be key stakeholders and partners in station development, particularly where multimodal facilities are planned. Successful operation of shared facilities will depend on serving the needs of both their passengers as well as Amtrak's.

Host Railroads

Freight Railroads, the owners of the majority of the infrastructure that Amtrak uses, serve as host railroads. They make the decision on any element planned to be on or adjacent to their right of way, particularly in relation to platform designs and canopy clearances, as these elements will affect their operations. Their own trains and schedules will determine the frequency of Amtrak's train service, and can limit the locomotives and equipment Amtrak can use. Host Railroads can also determine the structure of a proposed station project with additional requirements for indemnity and insurance, ownership and maintenance, design specifications, and additional cost for related host railroad work and flagging costs. Amtrak's Host Railroads Group coordinates between the station sponsor and the host railroad.

Real Estate Developers

Developers can sometimes serve as the sponsor for an Amtrak station project. In other scenarios, they can be good partners, capable of providing capital funding or operational support related to retail amenities and transit oriented development around stations.

2.2 The Development Process

1. Initial Contact

The first step for any new project involving an Amtrak® station is visiting Amtrak's Great American Stations website (greatamericanstations.com); for the renovation or relocation of an existing station, or for a new station along an existing or proposed rail line. From there, an interested party can learn about other Amtrak stations and see case-studies. They can gain access to the latest edition of the *Amtrak Station Planning and Development Guidelines*, as well as other relevant Amtrak guides and manuals, like the *Amtrak Signage Manual,* and the *Amtrak Standard Practices SP-2020* (SP-2020). The interested party, such as a community, municipality, Regional Transit Agency, State DOT, or private developer, should complete the station project intake form on the website to provide initial project information. Amtrak encourages interested parties to conduct independent assessments and gather information prior to contacting Amtrak.

The following are some tasks that can be done prior to contact with Amtrak:

- Contact the municipal planning department and State Department of Transportation (DOT) to better understand how the project may fit into the state's transportation plan.
- If rehabilitating an existing structure, schedule an independent building assessment to find out what magnitude of work is needed to make the structure suitable for the functional requirements of a passenger rail station.
- Investigate possible state and federal funding options, and gather any information as required.

Great American Stations

The first step for any new project involving an Amtrak station is visiting Amtrak's Great American Stations website greatamericanstations.com

Stations Development Process

For a high-level overview of the Stations Development Process, please reference the Flow Chart on page 22.

2. Feasibility & Analysis

Once Amtrak receives a formal station project request, a manager from the Government Affairs or State Supported Group will be assigned as initial contact. The project will be assessed by Amtrak, according to the service that would be provided at that station.

Criteria for the assessments are unique to each individual station project, but might include the following:

- Effects on the timetable of an existing route.
- Effects on ridership of an existing line.
- Effects on revenue.
- Initial site considerations.
- Conformance with Amtrak and DOT plans.

If, after the initial assessment, the project is deemed feasible, a Facilities Development Manager (FDM) will be assigned to shepherd the project through the station development process up to and including station opening. At this point, the FDM will develop *a Program Detail* to establish key functional requirements for the station—including minimum area requirements and supplemental comments—in a table format.

Establishing these basic program elements early in the project's development will create a framework to organize a group of station stakeholders and discuss each partner's contribution to the project.

3. Responsibility

An important step in the structure of a station project is determining the responsible parties for the station development project, and the long-term ownership and maintenance of the station. Since projects can be complicated and costly, the responsibilities will be outlined in a project term sheet, discussed below. In addition, the responsible party will obtain funding, typically from a variety of sources.

Ownership and Operational Responsibility

The next step is to define the various roles of all the entities involved. The goal is to identify which parties will legally own the station, operate it, and/or provide funding. This is typically accomplished through drafting and signing a Term Sheet. The *Term Sheet* is developed by Amtrak to help define essential relationships and responsibilities as they relate to a specific project, such as capital funding, ownership, and operational responsibility between communities, host railroads, State DOTs, and Amtrak. See Amtrak's Development Process Checklist document for information on possible variations in Project Stakeholder relationships and responsibilities.

Project Funding

Station projects are typically funded by local partners, state partners, and other non-Amtrak related sources. Amtrak's capital funding comes from Congressional appropriations and grants from the Federal Railroad Administration (FRA). Very limited amounts of those funds are allocated to station development. Therefore, the responsibility for securing project funding primarily falls upon the station sponsor. That said, if Amtrak is contributing funds to a project, those funds may come from a federal source, which would trigger compliance with federal regulations. Verify the source of Amtrak's contribution to determine whether compliance is required.

Public Funding

Depending on the rail services and agreements, public funding may come from the following:

- Federal or state grants or loans.
- Direct contributions from municipal funds.
- Public or semi-public development entities.

Joint Developments

Amtrak and local communities can invite private developers to invest in the station project as part of a broader community development process. The developers can provide capital funds for the project; and in return, gain access to land, space within the station for commercial development, lease payments, and eligibility for tax benefits.

Public / Private Partnerships

Working with states, municipalities, and/or private enterprises can benefit a project in a number of ways. In addition to capital funding, stakeholder partners may be able to offer the following:

- Property.
- Professional or technical services.
- Responsibility for operating the station or components of a station and maintenance expenses.

Their responsibility may also extend beyond the actual station building to include the following:

- Parking.
- Passenger Accessibility.
- Landscaping.
- Security.
- Platform Maintenance.

See Appendix D, Funding Sources for additional information related to the following:

- Revenue Bonds.
- Tax Incentives.
- Loans.
- Transportation Grants.
- ADA-specific Grants.
- Community Development Grants.
- Energy Efficiency Grants.
- Historic Preservation Grants.
- Planning and Demonstration Programs.

4. Requirements

Gathering and defining all the requirements from multiple project stakeholders is an essential step in the development of a station project. The following are a sampling of the possible sources of requirements:

Requirements related to specific funding sources

Typically, understanding the requirements attached to specific funding sources is the responsibility of the station sponsor.

Host railroad requirements

If the project is to take place adjacent to tracks not owned by Amtrak, the host railroad may ask to review and approve elements such as platform designs and canopy clearances. If the project affects the operations of the host railroad, they have authority to approve or reject the project/these elements. Amtrak acts as the intermediary between the station sponsor and the host railroad.

Federal Agency, State DOT, and local jurisdictions' requirements

These typically take the form of codified legislation. Amtrak may be able to assist with identifying these requirements.

Amtrak's own functional requirements

These are provided to the station sponsor by the FDM and relate to operations, station size, staffing, amenities, and train equipment.

5. Concept Development

During this phase, the station sponsor will hire an Architectural Engineering team to identify site constraints and use the Program Detail to begin developing the station's conceptual design. Concept Development normally results in a high-level understanding of the scope, schedule, budget, project delivery method, and the development of design alternatives related to the station project. Depending on the size and complexity of the project's scope, this phase may take anywhere from 3 to 15 months.

Scope & Budget

Starting from the Program Detail, Amtrak will help further develop the station's functional requirements and facility sizing by determining the projected ridership levels in relation to the rail services provided and potential future growth. The project scope should reflect the review and input from Amtrak, the host railroad, the station owner, local jurisdictions, FRA, FTA, and other stakeholders. For renovations and other rehabilitations, additional requirements should be identified and worked into the scope as they relate to accessibility and historic preservation (if applicable). Having secured project funding by this point, a budget can be drafted. Ideally, the project budget should reflect the project scope.

Schedule

For all station projects, schedules should include periods for project review by Amtrak and other stakeholders. For projects involving existing, operating stations, schedules should allow for construction-related phasing to support the continuation of existing rail services.

Project Delivery Methods

The following delivery methods are used for station projects led by Amtrak:

Design-Bid-Build

The most typical design and construction approach, where separate contracts are prepared for the design phase and construction phase. This method relies on a three-party relationship between the A/E team, the contractor, and depending on the project's size and complexity, either a construction manager or other Representative of the Owner. The construction documents are fully completed by the A/E team before issuing bid documents and selecting the best bid from multiple contractors.

Design-Build

Viewed as a faster, alternative delivery method where both design and construction are provided using a single contract. This method relies on developing a complete schematic design at the very beginning of the project so that construction can begin while the final design is still being developed. Instead of issuing 100% complete drawings, smaller bid packages are issued to subcontractors as they are developed, reducing the project schedule.

IDIQ (Indefinite-Delivery, Indefinite-Quantity)

Used in combination with specific task orders for prequalified contractors to complete smaller-scale, minor repairs, improvements, or alterations.

6. Agreements

At this point, the project team should have a better understanding of the project's specific characteristics, such as its relationship to its context, the amenities offered, and staffing requirements. Considerations including securing retail tenants, maintenance contracts, and Amtrak's access-to, and use-of station facilities will need to be addressed.

The station's stakeholders should develop and sign legal agreements in order to finalize arrangements between the various entities. These tend to take the form of real estate transaction documents like leases, subleases, and easements. They often include operation and maintenance agreements.

7. Basis of Design

This phase represents a significant milestone by marking the completion of the Concept Development.

At this point in the station project's development, the following should be accomplished:

- The building size and program requirements should be fixed.
- An architectural concept should be chosen from the design alternatives.
- A conceptual understanding of materials should be selected.
- A general project direction should be established.

Amtrak will review the project's 15% Design Submission at this time. Submission percentages may vary depending on the size and complexity of the project; the project's FDM will provide specific deliverable requirements.

Typical deliverables include the following:

- Drawings.
- Selected Specifications.
- Conceptual Schedule.
- Conceptual Budget.

8. Detailed Design

After the Basis of Design phase, the design documents should be developed into construction documents. Amtrak will review the project's development at key milestones. Submissions should typically include drawings, specifications, construction cost estimates, and project schedules. Amtrak, and possibly State DOTs and host railroads, will need to review platform dimensions, clearances, ticket counters, signage, and data and communications plans early to ensure they meet standards.

The FDM will provide submission criteria relative to the specific project; typically, depending on the project delivery method and project complexity, the major milestone submissions may include:

- Schematic Design (30% Design).
- Design Development (60% Design).
- Construction Documents (95% Design).
- Bid Documents (100% Design).

All applicable regulatory reviews must be completed as soon as feasible. Depending on federal involvement and associated reviews, there may be a requirement to complete such reviews as early as 30% design. If applicable, mitigation measures must be incorporated into the design documents.

9. Construction

Regardless of the project delivery method, the project's FDM will establish key progress checkpoints and will hold regular construction progress meetings with the station sponsor, A/E team, contractor, and other internal Amtrak stakeholders. Throughout construction, on-site inspections will be performed by local jurisdictions, Amtrak, and other stakeholders. Environmental or historic preservation commitments made during regulatory reviews must be followed throughout design and construction, as appropriate.

10. Commissioning

Typically, when construction is substantially complete, the A/E team or construction manager will conduct a visual inspection and will provide a punch list of issues to be resolved by the contractor. Also, local jurisdictions will conduct regulatory inspections before issuing a Certificate of Occupancy.

The station sponsor will then provide Amtrak with formal certification of ADA compliance from the authority having jurisdiction. Alternatively, Amtrak may conduct its own ADA compliance inspection. At this point, the project's FDM will perform an on-site facility assessment, and contingent on their approval, Amtrak will issue its Facility Acceptance.

11. Station Opening

After commissioning the station, the final steps before project completion include the following:

- Installation of Amtrak equipment, seating, and other passenger amenities.
- Coordination of train schedule updates.
- Systems Activation.
- Stakeholder Notification.
- As the project draws to a close, the project's FDM will provide more guidance regarding specific final steps.

Stations Development Process Flow-Chart

Figure 2.2.1

3.0 Station Categories and Typologies

The two most influential factors to the development of a station's design and operations are the station category and typology.

1. Station Category is based on annual passenger ridership, type of rail services offered, staffing, programming, projected future growth, supporting infrastructure, location, and geography.

2. Station Typology is determined by the spatial relationship/ configuration of the station building to the rail tracks. It determines how the station building and platforms can be configured, how the station can operate, how it relates to its site, and the costs inherent to any required vertical circulation.

3.1 Station Categories Overview

Station categories are an important tool for use in planning and programming a station to meet local needs and in understanding the underlying factors determining the station's role in the transportation system.

Some stations may have blended characteristics due to the presence of other transportation providers or retail and community services. However, for stations that fit squarely within the typical Categories 2, 3, and 4 stations, Amtrak® has developed prototype designs featuring the program elements delineated in the Station Classification and Features Matrix (Chapter 4, "Program").

Amtrak may be able to provide station sponsors with full construction documents for these stations that are ready for permit applications, with minimal drawing adjustments to meet local site conditions and codes. Although the prototype designs may be usable without modification, Amtrak encourages station sponsors to modify these designs by incorporating features that reflect the character of the local community. Ask the project's Facilities Development Manager (FDM) for more information and for access to the drawings.

There are five station categories as follows:

Category 1
Large (including Major Stations)

Category 2
Medium

Category 3
Caretaker

Category 4
Unstaffed, Shelter

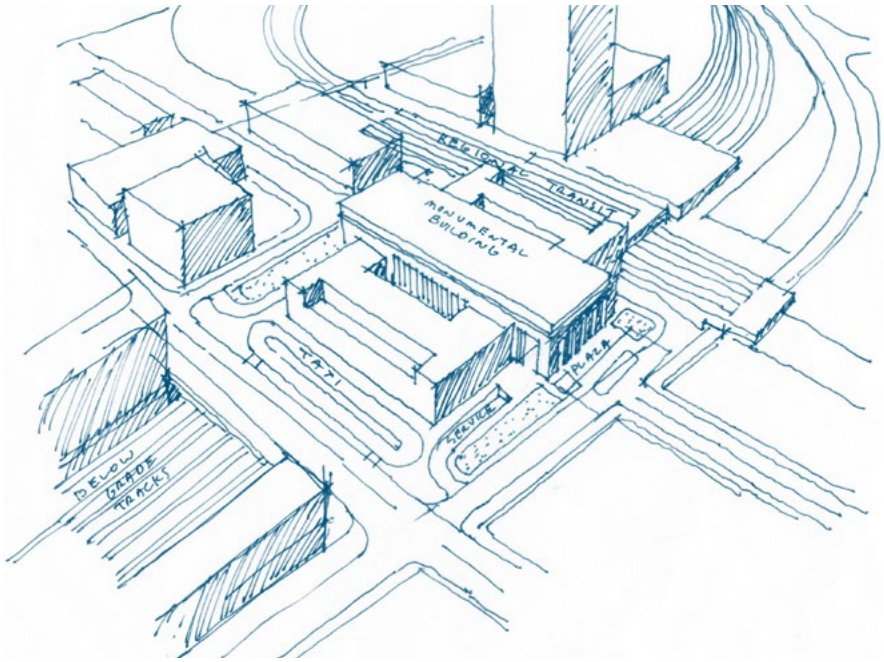
Category 5
Thruway Service Connection℠

3.2 Category 1 – Large Stations

Category 1 – Large Stations are located in dense urban downtowns, with connecting transit services such as commuter rail, subway/metro, light rail, and bus. Most of these stations are very similar in character to major airports, with a high level of passenger amenities, including restaurants and retail. They are staffed to provide ticketing and checked baggage services; some include a Metropolitan Lounge® for First class passengers, as well as on-site security or police.

Category 1 Station Sketch

Figure 3.2.1



Stations in this category can be broken up into two sub-categories:

Large Stations

Typically serving between 400,000 and 1,000,000 annual passengers, such as in Harrisburg, Pa.; Milwaukee, Wis.; San Diego, Calif.; and Seattle.

Major Stations

Serving more than 1,000,000 annual passengers, e.g. Los Angeles; New York City; Philadelphia; and Washington.

Due to their size and complexity, for projects involving major stations, the recommendations in this guide should be used to supplement the direction from the project's FDM.

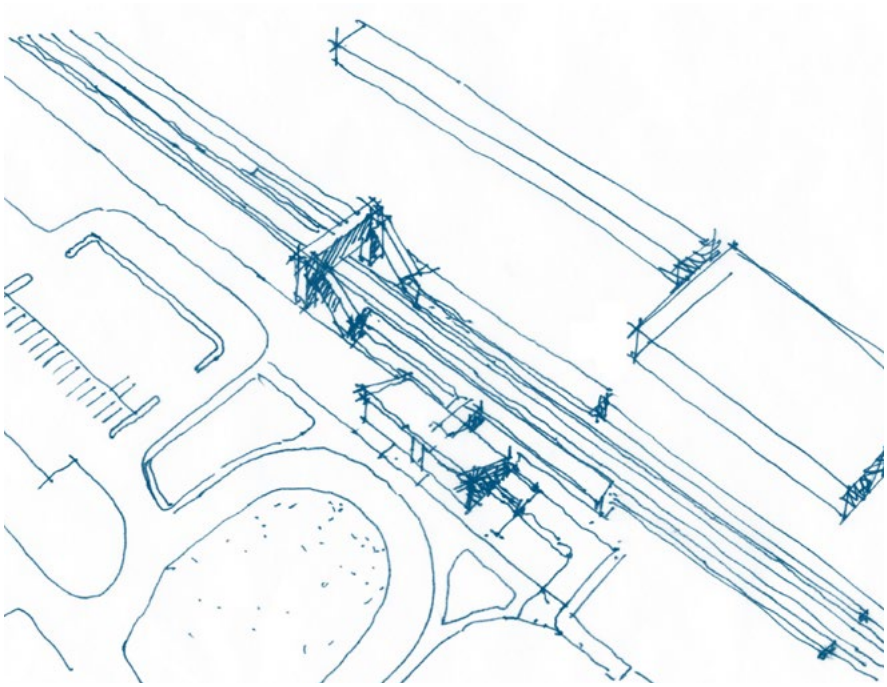
Large stations have multiple tracks and platforms, and frequently serve as both a terminal and a through-station. Because they often serve as origination points for State Supported Corridor and Long Distance services, the large stations typically include a crew base, commissary, and facilities for rolling stock servicing. Almost all of these stations are either currently served by Amtrak's Acela® high speed train, or are included in the High Speed Intercity Passenger Rail Program.

There are over 30 Category 1 stations located in several of America's largest cities that are served by a combination of High Speed Rail (HSR), State Supported Corridor, and Long Distance services.

3.3 Category 2 – Medium Stations

Category 2 – Medium Stations primarily serve State Supported Corridor routes, but also frequently accommodate Long Distance service, and are expected to play a significant role in High Speed Rail service routes. This station type is adaptable to a variety of locations, including city centers, suburban community locations, college towns, and airports.

Category 2 Station Sketch
Figure 3.3.1



Medium Stations

Category 2 stations typically have a ridership of 100,000 to 400,000 passengers annually. Examples of Category 2 stations are found in Alexandria, Va.; Ann Arbor, Mich.; San Jose, Calif.; and Charlotte, N.C.

Medium stations include a waiting area, ticket office, restrooms, and often a community space for other tenants providing services during business hours. On routes offering baggage service, the ticket office will incorporate baggage facilities. These stations may have two or more platforms for multiple tracks, elevators and escalators for vertical circulation, and a tunnel or an overhead pedestrian bridge to cross tracks and access platforms between tracks.

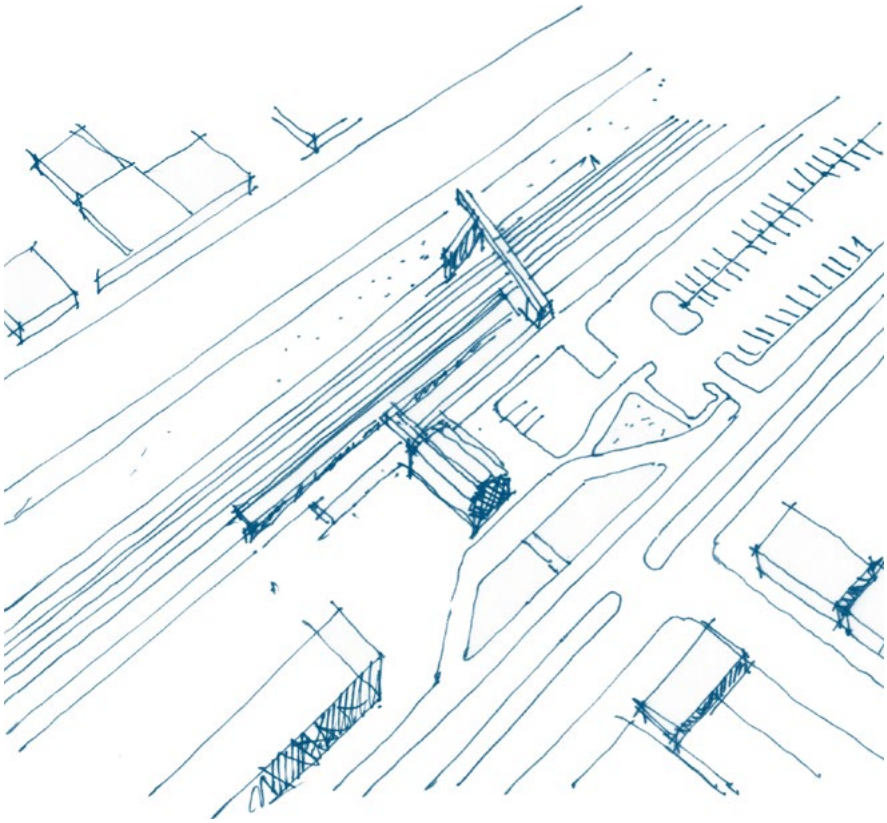
Although medium stations are staffed by Amtrak, staff costs are often supported by state and/or local stakeholder partners where passenger volume and revenue do not support the cost of staffing.

The Category 2 Station Prototype provides a simple and efficient organization of the building plan with clear circulation patterns heading to the ticket office, restrooms, waiting areas, and platforms. The station design provides a large, single waiting room with visibility to the trains and visibility from the street. It was designed with expandability in mind – the building can be extended/lengthened at each end to expand program. Ask the project's FDM for more information and to access readymade plans.

3.4 Category 3 – Caretaker Stations

Category 3 – Caretaker Stations serve Long Distance routes and State Supported Corridors with limited rail service. These stations are typically supported and maintained by the local community or a state agency, and in some locations share space with local and regional commuter rail services.

Category 3 Station Sketch
Figure 3.4.1



Caretaker Stations

The Category 3 station does not offer checked baggage or a ticket office, and does not provide passenger boarding/deboarding assistance, but may be equipped with self-service kiosks and restroom facilities. They typically serve between 20,000 and 100,000 Amtrak passengers annually. Examples include stations in Flagstaff, Ariz.; Durham, N.H.; Norfolk, Va.; and Whitefish, Mont.

This category station is maintained by a part-time custodian—who may or may not be an Amtrak employee—or community stakeholder responsible for the following:

- Opening the station a minimum of one hour before train arrival and keeping the station open until one hour after departure.
- Janitorial and maintenance activities, such as cleaning the waiting area and restrooms, and snow removal on walkways and platforms.

Since Category 3 stations most commonly serve Amtrak Long Distance Service—limited to two trains per day, one in each direction—these station buildings are often left empty for many hours every day. Amtrak's Category 3 Station Prototype was developed in order to make use of the building during those "empty" hours, allowing for space that could be used to support community functions (such as a small catering kitchen or support space). In this prototype, the main waiting room of the station can also be adapted for use by the community. Ask the project's FDM for more information and for access to readymade plans.

3.5 Category 4 – Shelter Stations

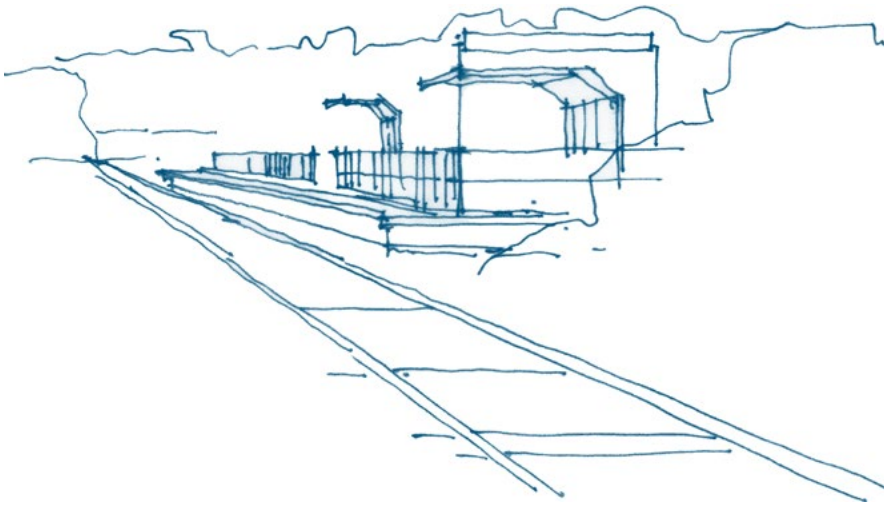
Category 4 – Shelter Stations serve less than 20,000 passengers annually and are located in smaller communities along either Long Distance or State Supported Corridor routes.

This category of station is not staffed and does not offer restrooms or a conditioned waiting space, but may feature lighting and provide passengers with protection from the elements by featuring a canopy and/or a small shelter. Train tickets can be bought using eTicketing and in some cases self-service kiosks. Train information is typically presented on static signage. At stations with very low ridership, Amtrak may serve a facility with only a platform.

Amtrak has developed a Category 4 Station Prototype design, providing shelter from the weather and presenting a pleasant waiting area for passengers. Ask the project's FDM for more information and access to readymade plans.

Category 4 Station Sketch

Figure 3.5.1



3.6 Category 5 – Thruway Service Connection℠

Amtrak's Thruway Service Connection℠ connects many communities without rail service to Amtrak stations for State Supported Corridor and Long Distance services. Services and amenities at Category 5 – Thruway Service Connection℠ Stop locations vary widely because they are, like most other transit bus stops, unstaffed and located on public thoroughfares or sidewalks.

Depending on site conditions, a Category 5 – Thruway Service Connection℠ Stop may include a sheltered waiting area and site lighting. They should all, however, have information related to Amtrak service at that location, including signage, identity markers, and other regulatory signage based on Amtrak signage standards. At Amtrak rail stations served by Thruway Service Connection℠, an integrated multimodal connection is provided with Amtrak rail passenger service.

3.7
Station Typologies

The station site and its relationship to its context is interdependent with the station's relationship to the tracks. Three station typologies are found within Amtrak's system: Side, Vertical, and Terminal. Principal characteristics of each typology are as follows:

Side Typology

Side Typology is the most common configuration. Side Typologies feature the station located adjacent to the tracks.

The Side Typology consists of two variations:

- A single track and side platform connected directly to the station.
- Two or more tracks and platforms connected to the station by an overhead pedestrian bridge or tunnel.

Vertical Typology

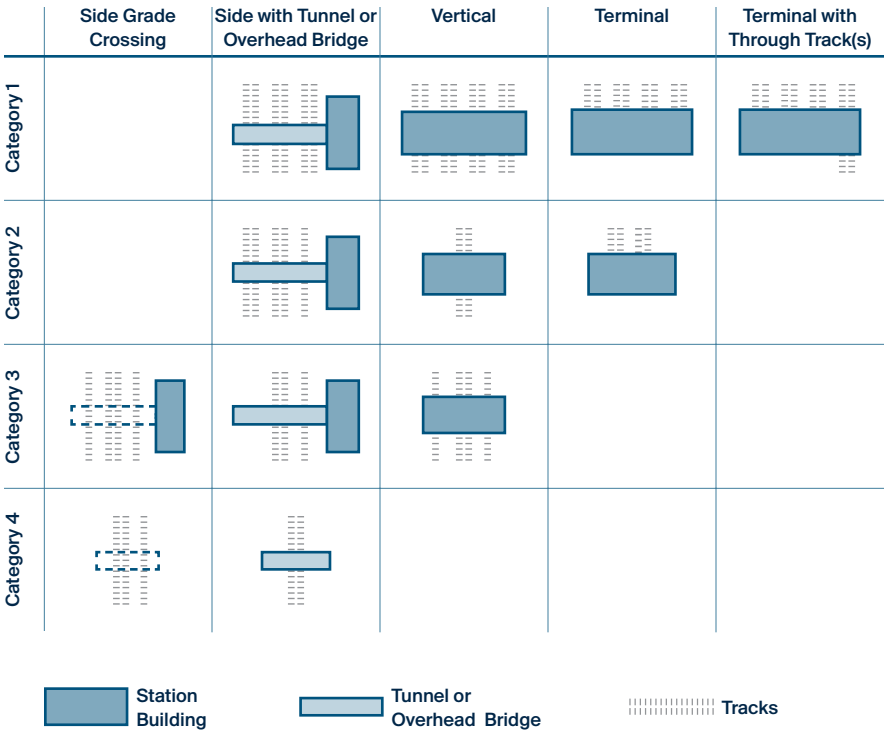
Vertical Typology is the second most common station configuration. Vertical Typologies feature the passenger concourse located either directly above or below the platforms and tracks. They provide for a compact site arrangement and an efficient connection between passengers and platforms.

Terminal Typology

Terminal Typology is the least common configuration, and is located only as needed in the system, where service ends or reverses direction, such as in Tampa, Fla., or Oklahoma City, Okla. The tracks at Terminal Typologies end at the station with the platform typically surrounding the track ends, providing access from the passenger concourse. This typology should be avoided because it prevents future service expansion.

Station Category and Typology Matrix

Figure 3.7.1



Grade level crossings are present at existing stations, but will not be permitted at new stations for safety reasons, except where integrated into an existing vehicular roadway grade crossing or due to special circumstances.

See Chapter 6, “Site,” for more information concerning stations as they relate to the tracks and their context, and see Chapter 8, “Platform,” for platform design considerations associated with these typologies.

3.8
Side Typology

The side typology is found at the majority of Amtrak stations. The station is located to the side of the tracks and platforms, and is linked to the platforms either at grade, or through a tunnel or overhead pedestrian bridge. This station typology, or configuration, is applicable across nearly the full range of station categories, from Category 1 to 4 (not applicable to Category 5 stations).

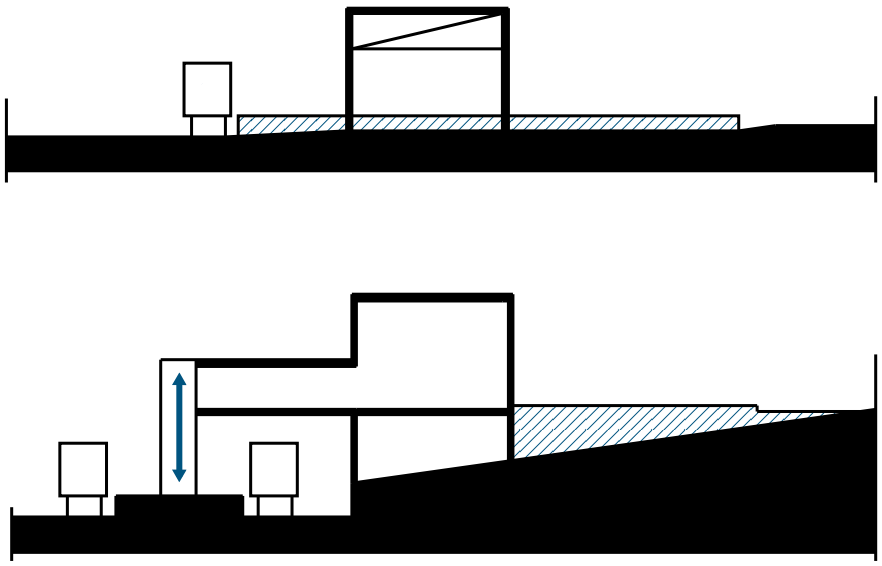
Figure 3.8.1 - Kemper Street Station, Lynchburg, Va. | Side Typology

Characteristics of the side typology include the following:

- Classic head-house and concourse configuration with station connection centered to the midpoint of the platforms.
- Station connection to platform either at-grade or through a single overhead pedestrian bridge or tunnel.
- The station and platform/tracks are physically independent from each other resulting in planning and design flexibility, and the ability to make future changes, such as station expansion, linearly and parallel to the tracks.
- Where site topography allows, tracks can be located above or below the floor level of the station, eliminating one set of vertical circulation elements.
- All locations with HSR or State Supported Corridor services should be planned to include an overhead pedestrian bridge or tunnel connection to the platform.
- At-grade pedestrian connections to platforms requiring passengers to cross active tracks are discouraged and will only be considered at locations dedicated to limited Long Distance service and with approval from the host railroad.

Side Typology: Diagrammatic Sections

Figure 3.8.2



3.9 Vertical Typology

The vertical typology, with the station located above or below the tracks and platforms, is an efficient station configuration that is well-suited to medium- and high-density sites. While Category 3 and 4 stations may use this typology when topography calls for it, it is more suited to Category 1 and 2 stations due to its relatively more intensive station infrastructure and development costs (not applicable to Category 5 stations).

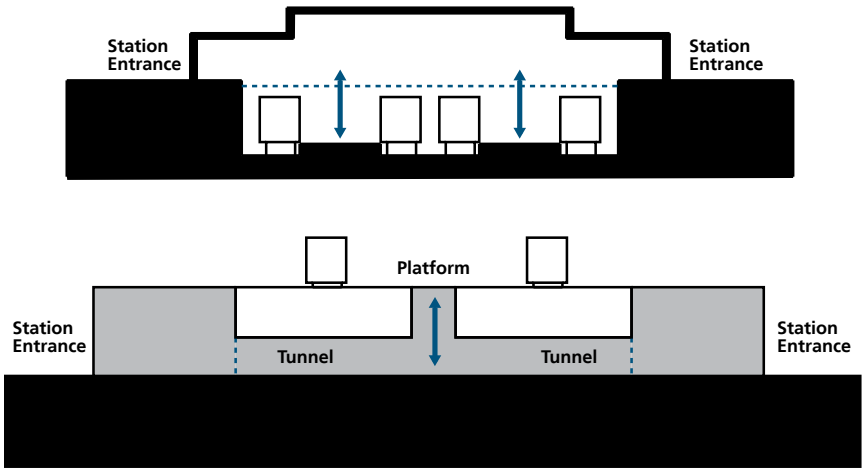
Figure 3.9.1 - New Carrollton Station, New Carrollton, Md. | Vertical Typology

Characteristics of the vertical station typology include the following:

- Configuration well suited to medium- and high-density urban and suburban locations.
- Requires that only a single vertical circulation movement is necessary for passengers to connect to platforms.
- Provides for a compact site arrangement and an efficient connection between passengers and trains.
- A station design that proposes to locate some or the entire passenger facilities above the tracks must comply with Amtrak's overbuild design policy or comparable standards from the host railroad, as applicable. Ask the project's FDM for more information on overbuild policies.

Vertical Typology: Diagrammatic Sections

Figure 3.9.2



3.10 Terminal Typology

The terminal typology, with the station located at the end of the tracks and platforms, is primarily the result of a station's position in the Amtrak network, and is typically found in large urban areas or at the geographic limit of Amtrak services. An important variation of the terminal is a station that includes both terminal and through tracks. The terminal typology can be found at Category 1 and 2 stations. Terminal stations can become a physical barrier to service expansion, and should be avoided.

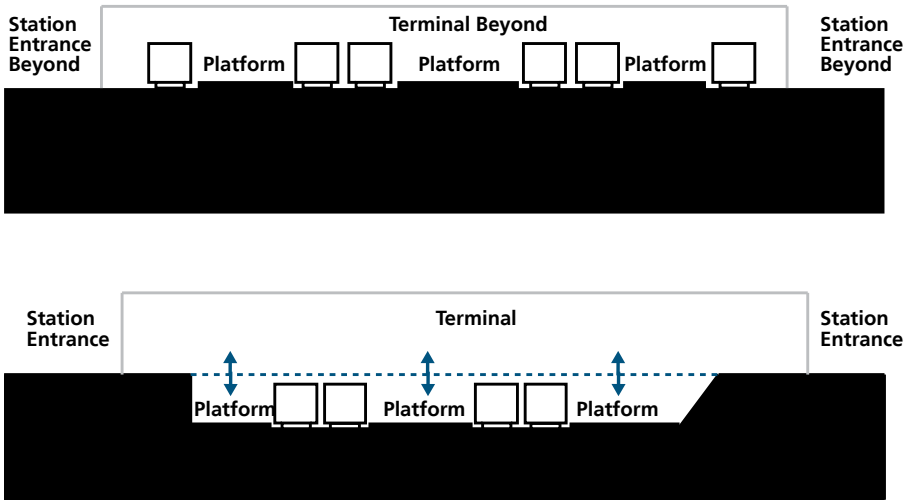
Figure 3.10.1 - South Station, Boston, Mass. | Terminal Typology

Characteristics of the terminal typology include the following:

- Least common station configuration.
- Requires greater land area as tracks and platforms are typically spread out laterally across the site.
- Trains frequently remain at the terminal for longer periods than at through-stations, occupying more track and platform space.
- Train movements are more cumbersome as trains must reverse direction coming in and out of the station.

Terminal Typology: Diagrammatic Sections

Figure 3.10.2



4.0 Program

Determining requirements for station functions and spaces is one of the first steps in designing a station. Programming requires understanding of station's operational and spatial needs in order to establish its size and functional layout.

4.1 Program Components Overview

Amtrak® organizes the architectural program into six components; the station program should support one or more of the following:

Entrance and Circulation

Integrating the station into public space and the public way.

Waiting and Boarding

Dedicated waiting areas can be physically separated from other areas of the station, include seating, with dedicated restrooms/other amenities for Amtrak passengers awaiting their departure.

Customer Services and Amtrak Support Spaces

Includes spaces where passengers obtain train information, purchase tickets, check baggage, and the back-of-house spaces that support Amtrak station functions including staff offices, common spaces, kitchens, lockers, police or security offices with holding areas, and baggage handling spaces.

Multimodal Transit Services

Connecting transportation uses including subway, streetcar, city bus systems, and commuter rail.

Amenities

Restrooms, retail, vending, restaurants, and/or other amenities.

Building Support Spaces

Mechanical, electrical, storage, information technology, and other support spaces.

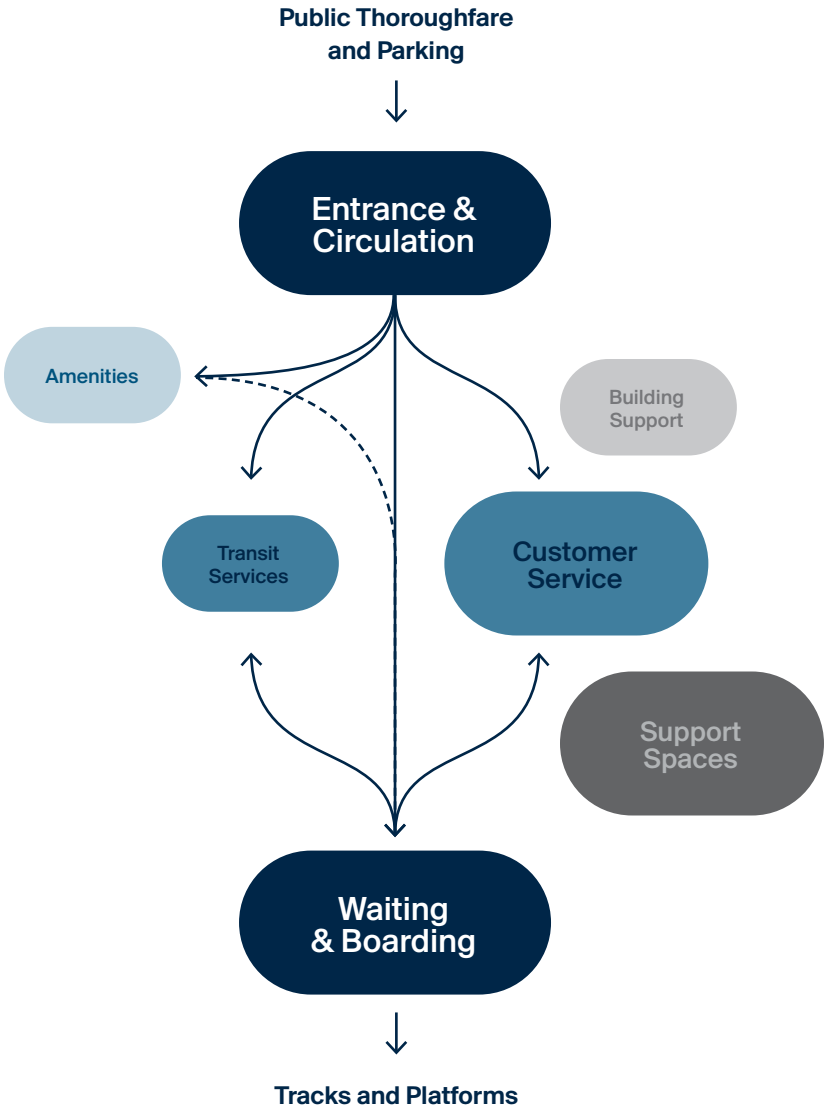
Less Common Program Components

Less common program components, not defined to the left may also be required, such as space for Amtrak crew bases, right-of-way and mechanical maintenance staff, non-Amtrak occupancies/office components, and program space for other transit functions.

Refer to the project's Program Detail for a list of functional components related to each specific project.

Station Program Components, Adjacency Diagram

Figure 4.1.1



Support Spaces

Staff Office/Break Room
Baggage Handling
Telecommunications
Police & Security

Customer Service

Ticket Office
Customer Service Office
Baggage Check/Claim
PIDS

Amenities

Restrooms
Retail, Food & Vending
Services
Info Desk

Transit Services

Bus
Commuter Rail
Streetcar
Subway

4.2 Station Classification and Features Matrix

Station Classification and Features Matrix

Table 4.2.1

		1 Large	2 Medium	3 Caretaker	4 Shelter	5 Thruway Service Connection℠
Facility Structure Elements	Projected Annual Ridership Thresholds	≥400,000	100,000 to 400,000	20,000 to 100,000	≤20,000	N/A
	Platform	●	●	●	●	
	Platform Canopy	●	●	●	○	
	Sheltered Waiting Area	○	○	○	●	○
	Station Building	●	●	●		
Access & Wayfinding	Taxi/Ride-Share Pick-Up & Drop-Off Lanes	●	●	●	○	
	Parking	○ 1	●	●	○	
	Rental Cars on Call	●	○	○		
	Rental Cars on Property	○	○			
	Transit and Bus Access	●	●	●	●	●
	Taxi Access	●	●	○	○	
	Staff Parking	○ 1	●	●		
	Bicycle Racks	●	●	●	○	
	Station Signage (Amtrak Standards)	●	●	●	●	●
	A11 Type Site Signage		○	●	●	
	Regulatory Signage (MUTCD)	●	●	●	●	●
Customer Service — Ticketing & Baggage	Self-Service Kiosks / e-Ticketing	○ 2	○ 2	○ 2	○ 2	
	Ticket Office	●	●			
	Passenger Boarding Assistance	●	○			
	Checked Baggage Handling	●	○			
Customer Service — Passenger Info	Passenger Information Display System	●	●	○ 2	○ 2	
	Information Counter	●				
	Customer Service Office	●				
Customer Service — Security	Emergency Platform Call box	○	○	○	○	
	Security Facilities on Site	●	○			
	Security on Call/Systems		●	○		
	Local Police Surveillance/Call Box			○	○	
	CCTV / Video Surveillance	●	○	○		
	Access Control / Card Reader	●	●	○		

Most Common Program Elements

Table 4.2.1 organizes the most common program elements in relation to station category.

Table Key

- ● Features included for given station
- ○ Evaluate based on the site condition
- 1 Evaluate based on transit access
- 2 Include at discretion of funding agency

Station Classification and Features Matrix, Cont.

Table 4.2.1

		1 Large	2 Medium	3 Caretaker	4 Shelter	5 Thruway Service Connection℠
Station Features & Functions	Restrooms	●	●	○		
	Drinking Fountains	●	●	○		
	Site Lighting	●	●	●	●	●
	Platform Benches	○	○	●	●	
	Trash and Recycling Receptacles	●	●	○	○	
	Trash Pick-up / Snow Removal	●	●	●	●	
Staff & Support Functions	Station Management Services	●	●			
	Passenger Baggage Assistance (Red Cap)	●	●			
	Ticket Agents	●	●			
	Package Express Handling	●	○			
	Staffed Information Counter and Ushers	●	○			
	Station Host / Volunteer / Caretaker			●	○	
	Janitorial Service / Dedicated Cleaning Staff	●				
Amenities	Restaurant / Food Service	●	○			
	Vending Machines	●	●	○		
	Shops (News, Books, Etc.)	○	○			
	Charging Stations	○	○	○		
	Metropolitan Lounge®	○				

Most Common Program Elements

Table 4.2.1 organizes the most common program elements in relation to station category.

Table Key

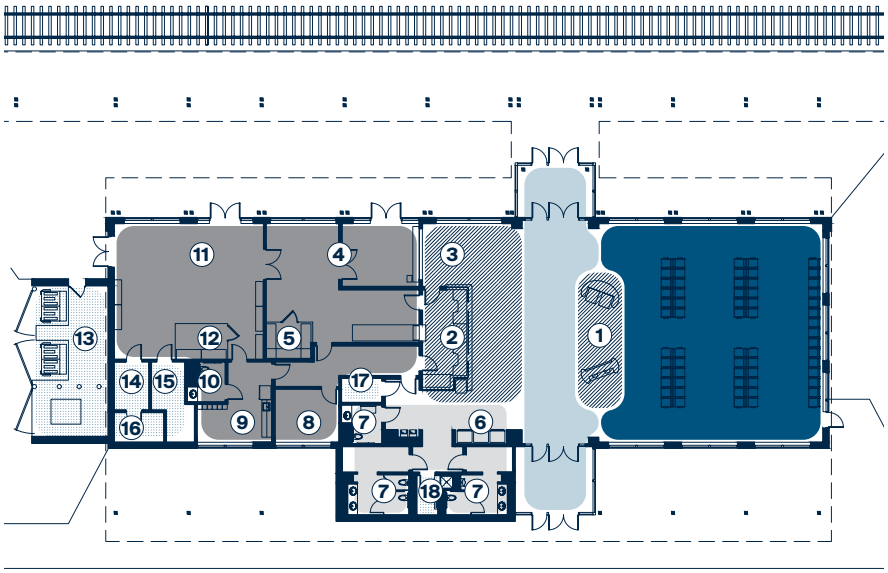
- ● Features included for given station
- ○ Evaluate based on the site condition

1 Evaluate based on transit access

2 Include at discretion of funding agency

Category 2 Prototype, Programmatic Plan Diagram

Figure 4.2.2



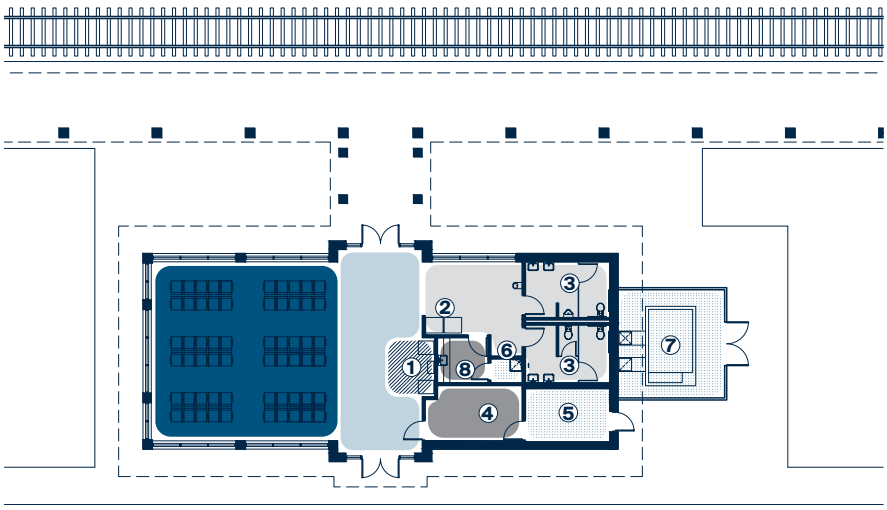
Map Key

- Waiting & Boarding
- Entrance & Circulation
- Customer Services
- Amtrak Support Spaces
- Amenities
- Building Support Spaces

1 Self-Service Kiosks, Signage
2 Ticket Office
3 Baggage Claim
4 Baggage Work Area & Room
5 Lost Baggage Holding
6 Vending
7 Public Restrooms
8 Amtrak Office
9 Amtrak Staff Break Room
10 Staff Restroom
11 Baggage Equipment Room
12 Secure Storage
13 Trash/Recycling
14 Electrical Room
15 Mechanical Room
16 PIDS Server Room
17 Revenue Server Room
18 Custodial Closet

Category 3 Prototype, Programmatic Plan Diagram

Figure 4.2.3



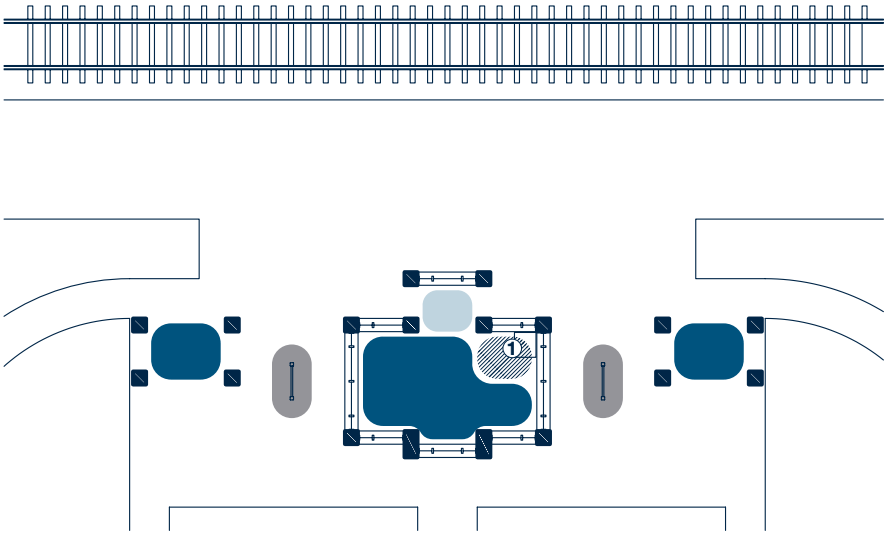
Map Key

- Waiting & Boarding
- Entrance & Circulation
- Customer Services
- Amtrak Support Spaces
- Amenities
- Building Support Spaces

1. Self-Service Kiosk
2. Vending
3. Public Restrooms
4. Caretaker's Office
5. Mechanical/Electrical Room
6. Custodial Closet
7. Mechanical Space
8. Community Room

Category 4 Station Prototype, Programmatic Plan Diagram

Figure 4.2.4



Map Key

- Waiting & Boarding
- Entrance & Circulation
- Ticket Services
- Signage

1. Self-Service Kiosk

4.3 Entrance and Circulation

The station building exists as a facility to process movement to and from trains, connecting the passenger with the city, suburb, or town. The station's design should consider entrances, wayfinding, spatial organization, and circulation.

Entrance and Spatial Organization

The entrance creates the first impression of traveling on Amtrak. Upon entering a new space, travelers immediately seek clues to assist with wayfinding. If they can orient themselves and intuitively navigate through the station, they'll have a better Amtrak experience. Thus, visibility of station program components from the main entrance should be a priority.

A station's clear spatial organization minimizes traveler confusion and assists passengers at decision points, reducing reliance on signage-assisted wayfinding. Creating gateways and focal points by using architectural elements, material transitions, or lighting to enhance the arrival sequence helps travelers recognize their arrival at a desired destination.

The public and circulatory spaces should be organized hierarchically. Primary circulation paths should be spatially emphasized and given generous ceiling heights where possible. Secondary paths and support spaces should have lower ceiling heights, reinforcing the spatial hierarchy of the more important routes or spaces. Where paths diverge or options are presented to travelers, spaces should be generously scaled to allow travelers to slow down and make decisions.

More Information

See section 7.4 of Chapter 7, Station, and the Amtrak Signage Manual for more information related to wayfinding.

Circulation

Public spaces in the building should be free of impediments that restrict movement. Eliminating potential obstacles helps to achieve compliance with ADA requirements, and improves circulation for all passengers. The circulation system should prioritize horizontal movement to the greatest extent possible with level paths and minimal elevation changes requiring vertical circulation elements.

Provision of adequate circulation space is important for both safety and convenience. To achieve efficiency of movement, the circulation system should provide the most direct paths between the trains, station concourse, and connecting transportation, allowing easy traveler movement during peak travel periods. The circulation capacity of the station should be based on the number of people utilizing the station at peak periods, taking into account that the building will have heavier use during certain days and time periods. Dimensions should accommodate passengers with baggage and baggage handling operations where applicable. Circulation spaces must also accommodate multimodal transit services and anticipated Amtrak ridership growth.

Amtrak does not recommend specific dimensions for circulation space, as there are many variables in individual stations. For Category 1 stations (and for some Category 2 stations), Amtrak recommends using computer modeling tools, simulating pedestrian movements and flow during the circulation design process. Computer modeling can account for specific architectural conditions in assessing the performance of the circulation system, including aisle and platform widths, and obstructions such as columns, doorways, stairs, elevators, escalators, ramps, seating areas, and other components of the building.

More Information:

See the Vertical Circulation section of Chapter 7, “Station” for more information related to elevators.

4.4 Waiting and Boarding

Space requirements for waiting and boarding functions vary widely depending on the station category, ridership, and type of service.

A range of waiting environments should be considered for each station, including general seating areas and standing areas for commuter activity. Cafe tables and chairs, or high-top tables and stools with access to power and Wi-Fi® for laptops and mobile devices may also be appropriate for some stations. All waiting areas should have convenient access to restrooms, adjacency to ticketing & train information (arrival and departure), direct access to platforms, and where possible, a view of the trains/platforms.

Waiting area type and capacity are dependent on the type of Amtrak service provided, and whether the station functions as a multimodal transportation center. Capacity requirements are determined by calculating standing versus seated passengers, and whether there will be seating for groups or space for luggage and carry-ons. Amtrak uses a standard methodology for calculating space requirements and provides them to the station sponsor during the Feasibility & Analysis phase of the station project.

Lounges for First class passengers, such as the Metropolitan Lounge, are often provided at Category 1 stations. They are separate spaces with controlled access and are staffed by Amtrak personnel. To be considered a Metropolitan Lounge, the lounge should include comfortable seating, business services (Wi-Fi® – often provided throughout the station, and computer stations), beverage service, baggage storage areas, restrooms, and conference rooms. Passengers who are ticketed in sleeping cars on Long Distance trains may also use these lounges. Ask the project's FDM for specific requirements.

Note:

Waiting area type and capacity are dependent on the type of Amtrak service provided, and whether the station functions as a multimodal transportation center.

Waiting and Boarding Sequences

Amtrak stations generally use either one, or a combination, of the following three waiting and boarding sequences:

Separated Waiting / Controlled Boarding

This sequence provides ticket-holding passengers the option of waiting at a separate passenger-only (ticketed) waiting area. To control boarding, departure track assignments are announced shortly before boarding to prevent passengers from waiting/ lingering on the platform.

Open Waiting / Controlled Boarding

In this sequence, any station user can access the waiting area whether they are ticket-holding passengers or not. To control boarding, a customer service agent may check tickets before allowing passengers access to the platform area. At stations using this method of controlled boarding, the waiting area needs adequate space for this security screening procedure, including passenger queuing.

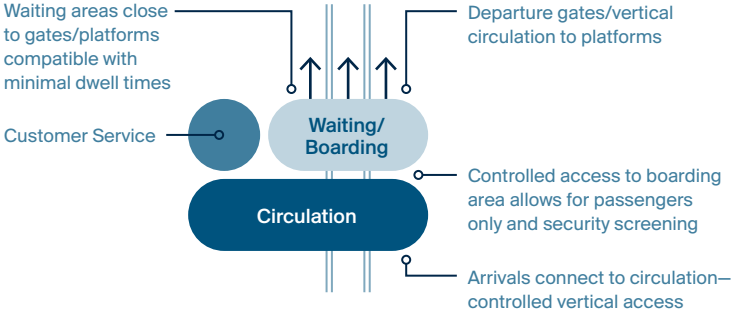
Open Waiting / Open Boarding

This waiting and boarding sequence is a fully open system. Any station user can access the waiting area and platform, with no security screening of Amtrak passengers prior to boarding.

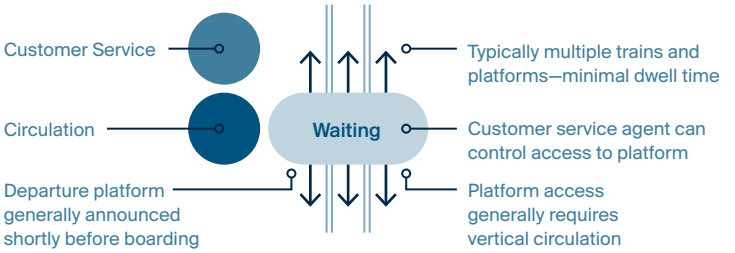
Waiting and Boarding Sequences

Figure 4.4.1

Separated and Controlled Waiting and Boarding
Category 1 and 2 Stations

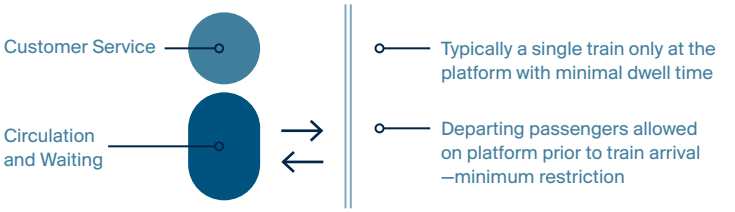


Open Waiting/Controlled Boarding
Category 2 Stations



Open Waiting/Boarding*
Typical to Category 3 and 4 Stations

*Open waiting/boarding typical to unstaffed or minimally staffed stations - Long Distance and commuter services.



4.5 Customer Services and Amtrak Support Spaces

Customer Services are the basic public-facing service functions of an Amtrak station, such as those provided at the ticket office, customer service office, and information desk. They may also include baggage services. Amtrak Support Spaces include the back-of-house support functions related to the customer services. Key factors defining the Amtrak support spaces include the scale of Amtrak staffing and the level of baggage operation at the station.

The range of customer service and Amtrak support spaces typical at Amtrak stations relate to the station categories as follows:

Category 1 Stations

These stations are fully staffed stations and often include a multi-position ticket office, full baggage services, and a separate customer service office. When baggage operation is included, back-of-house space is required for baggage handling and storage. These stations require a large program of staff support spaces including a ticket agent work area, break room, staff restroom, a cash accounting room, and storage.

In addition, separate offices may be required for the station manager and lead clerks or supervisors. At Category 1 stations, support spaces may also include Amtrak Police, commissary, and crew base functions.

The employee break room is a secure area where Amtrak agents can store their belongings and take breaks during their shift. The room should include a microwave, refrigerator, sink, and lunch table. Employee lockers and restrooms may be required near the employee break room.

Support Spaces

Category 1 stations require a large program of staff support spaces including a ticket agent work area, break room, staff restroom, a cash accounting room, and storage.

Category 2 Stations

These stations are minimally-staffed stations with a ticket counter—sometimes with limited hours—and basic baggage-handling capability. Since these stations are minimally-staffed, they require only a core program of staff support spaces including the ticket agent's work area/cash accounting space, break room with lockers and a kitchenette, staff restroom, private office for lead clerk, and district manager's office.

Category 3 & 4 Stations

These stations are unstaffed stations with limited or no services. Some stations in these categories may include self-service kiosks and/or provision of train arrival and departure information through Passenger Information Display Systems (PIDS).

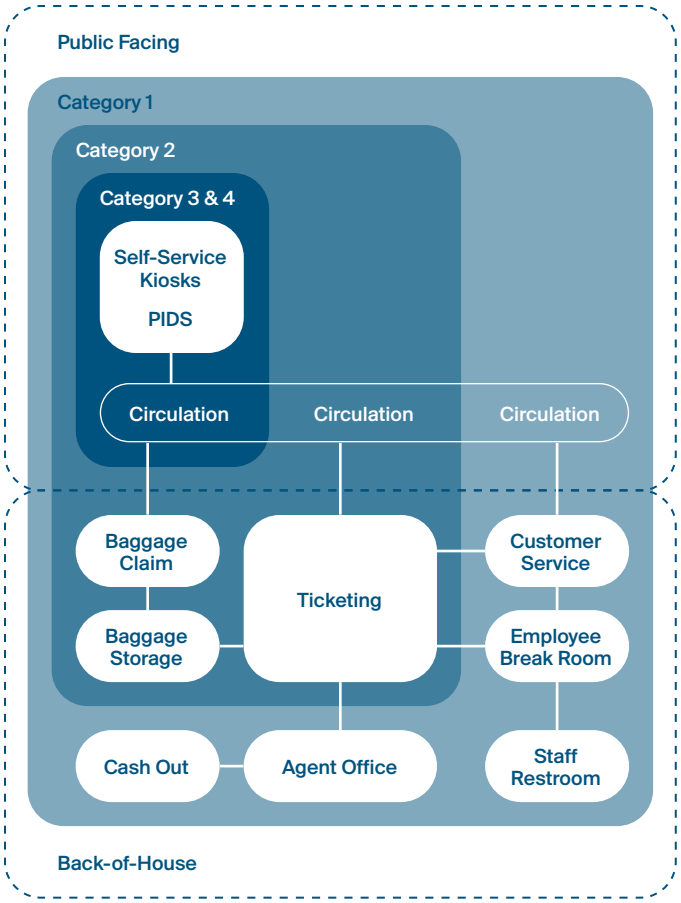
Category 5 Stations

These stations have no services and may only provide basic bus or train information using static signage.

Customer services and Amtrak support spaces often require close adjacencies. Their arrangement and location within the station varies, but are typically based on station category and staffing. The minimum staff levels at Category 2 stations—usually between one and three Amtrak staff during operating hours—require a compact and efficient organization of the customer services and Amtrak support spaces. At Category 1 stations, decentralized arrangement of these programmatic sub-components may be preferable due to the station size.

Levels of Customer Service & Support Spaces by Station Category

Figure 4.5.1



Ticket Office

The customer service counter or ticket office is the primary station interface between Amtrak staff and the customer. Customer service should be as accessible to passengers as possible, in a visible location, and designed such that the customer service agent can easily access the public areas of the station from the counter area. Visual connections from the ticket office to the waiting areas, platforms, restroom entrances, and other parts of the station are encouraged.

Ticket office space requirements depend on the number of agents needed, whether the station service includes checked baggage, and Amtrak IT standards. Programming the ticket office space correctly is critical to the efficiency of the customer service operation.

Category 1 stations should include multi-position ticket offices with significant Amtrak staff space nearby. The number of ticket windows required is determined by station-specific considerations of passenger volume, joint ticketing with commuter agencies, and queuing theory. In ticket offices with three or fewer ticket positions, each should be accessible, with ADA-compliant counters on both the employee and passenger side.

At many Category 2 stations, there is a single agent who manages the station operations and whose duties include selling tickets, providing baggage services, making announcements, and providing customer information. Amtrak recommends a minimum of two ticket windows, including two ticket agent spaces for shift overlap, equipment malfunction, etc., even where only one agent will be staffing the station.

When planning ticket offices, it's important to coordinate early on with the Amtrak Information Technology (IT) department, which maintains standards for the design of work areas. Due to continually changing technology, the most up-to-date criteria should be used when establishing new connections to the network and planning upgrades to existing locations. Amtrak's IT department will provide information regarding any planned upgrades that should be implemented as part of any ticket office renovation project.

Accessibility

Customer service should be as accessible to passengers as possible, in a visible location, and designed such that the customer service agent can easily access the public areas of the station from the counter area.

Customer Service Office

The customer service functions are typically addressed at the ticket office. However, Category 1 stations often include a separate customer service office located adjacent to the main waiting area. This office should be linked to the Amtrak staff spaces and ticket office functions to provide staffing flexibility. The office should include a small seating area and service counter.

Information Desk

The information desk is an additional customer service element provided at some Category 1 stations. This program function is staffed to provide travelers with information about Amtrak schedules and services, wayfinding within the station, and the locations of retail, food services, and other transit services in the building. The information desk is typically a freestanding element located within the circulation concourse, and relatively close to the ticket office.

Self-Service Kiosks

Automated ticketing using Amtrak's self-service kiosk system is a component of many Amtrak stations. Self-service kiosks are ADA-compliant and provide rapid access to tickets allowing passengers to bypass waiting in line at the ticket office.

Key planning considerations for self-service kiosks include the following:

- Integrate kiosk locations with the design and planning of the station, locating them within a niche or architectural space.
- If multiple units are present, group self-service kiosk units together in banks of two or more. Allow adequate area for queuing of passengers waiting to use the machines.
- Provide an accessible path and ADA-compliant clear floor space for all units.

Separate Customer Service Offices

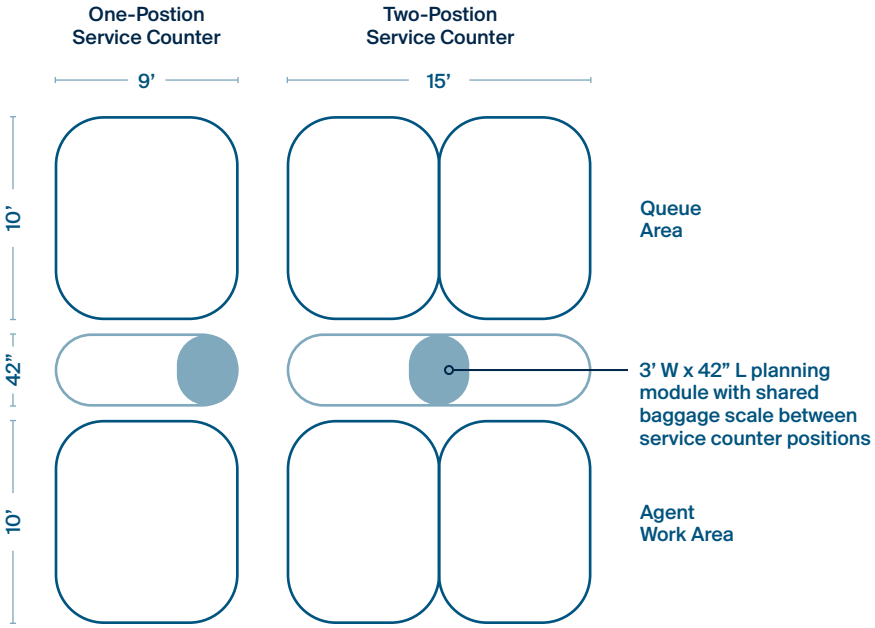
While customer service functions are typically addressed at the ticket office in most stations, Category 1 stations frequently include a separate customer service office to handle passengers who have special questions, problems, or difficulties with travel plans.

For Category 1 stations, self-service kiosks should be distributed near waiting areas, station entrances, and other public areas in addition to near the ticket office, to provide more ticketing options to frequent travelers. In Category 2 stations, a minimum of two self-service kiosks located adjacent to, or highly-visible to the ticket office is recommended. At Category 3 and 4 stations, which are unstaffed, kiosks may be included at the station depending on local needs and conditions. Self-service kiosks are typically not included in Category 5 stations.

Self-service kiosks account for as much as 60 percent of ticket sales at some staffed stations. Amtrak continues, though, to expand the use of self-serve eTicketing—with increased usage nationwide—at all station categories, which is expected to reduce the need for future self-service kiosks.

Ticket Office Space Requirements

Figure 4.5.2



Minimum Service Counters

A two-position service counter is recommended as the minimum module for any station.

Baggage Scale

For each two ticketing positions, only one baggage scale is needed.

Baggage Operation Overview

At stations accepting checked baggage, the baggage handling program includes public-facing functions and back-of-house support areas. The public-facing functions consist of the baggage check window—usually at the ticket office—and the baggage claim area. The back-of-house support spaces for the baggage operation include staging, storage, equipment, and handling spaces. Baggage rooms are sized to accommodate transfer and storage. They include baggage cart/vehicle storage, shelving, secure cabinets, and equipment.

The following special baggage handling operations should be considered:

- The requirements for handling checked firearms include a secure storage cabinet for storage of the firearm after it is checked in at the ticket office and prior to its placement on the train. Movement of the firearm to the train and its placement on the baggage car must also be accomplished with secure or locked equipment, which Amtrak provides and is not a special consideration in the programming or design of the station.
- Occasionally, some stations may handle the transportation of human remains. Remains should be received at separate loading docks from those accepting large pallets and goods.

Levels (Scales) of Baggage Operation

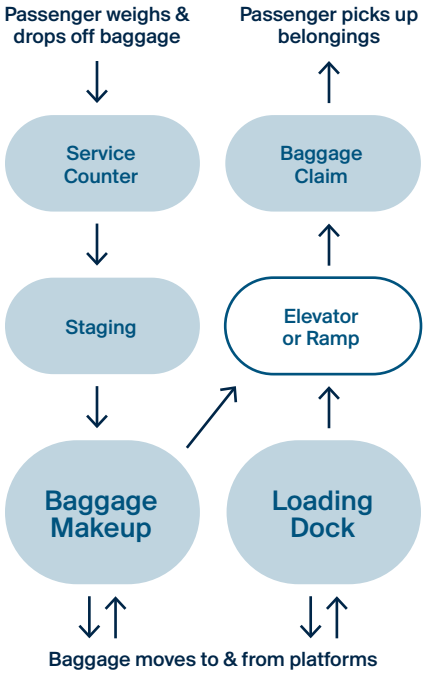
Figure 4.5.3

Full-Scale Baggage Operation

Typically includes a dedicated baggage claim area, and separate staging and baggage make-up rooms for baggage handling. These locations may also provide package express service.

In staging there is secure storage, firearms check, and lost and found. Baggage makeup has maneuvering space for baggage tugs and floats.

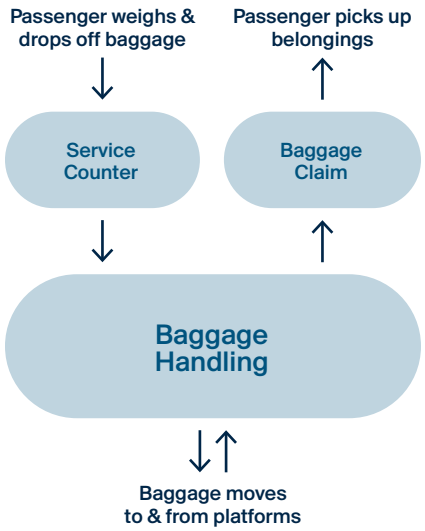
The baggage is delivered to the claim room with controlled access in and out. This allows customers to claim their baggage from a non-mechanical roller or a mechanical belt system, and have their claim check verified by an Amtrak customer service agent.



Limited Baggage Operation

All baggage handling operations are located in one space, which is seperate but adjacent to the service counter and has convenient access to the platforms and baggage claim area.

Baggage claim can be accomplished directly from a baggage cart rolled into the baggage claim area.



Three levels of baggage handling operations are utilized at Amtrak stations, depending on the station size and ridership:

Full-scale Baggage Operation

Baggage check services at Category 1 stations with multiple service types, frequent trains, and a larger staff typically include a full-scale operation with dedicated baggage claim area, and separate staging and baggage make-up rooms for baggage handling. These locations may also provide package express service.

Limited Baggage Operation

At Category 2 stations with baggage services, a small-scale baggage handling operation with a dedicated baggage claim area is organized around the limited staff in the station, and requires close adjacencies between the program elements to enable station staff to run the operation efficiently.

No Checked Baggage Service

Category 3, 4, and 5 stations are unstaffed and do not include checked baggage services in stations.

Baggage Check

Provision of checked baggage service is an important Amtrak amenity for Long Distance Service, and is offered for some of its State Supported Corridor trains. However, checked baggage is typically not a functional part of HSR, as the characteristics of the business traveler are less oriented to checked baggage and the operation is incompatible with the minimal dwell times required.

Amtrak's standard module for baggage check allows for one opening and weighing scale between each two counter positions. The opening and scale are sized to accommodate the largest piece of checked baggage Amtrak accepts, 36 x 36 inches. At some stations, an additional baggage check area, separate from the ticket office, should be programmed. This separate baggage check area can be useful at stations that accommodate large groups that check-in together, or at stations that regularly receive passengers with oversized baggage, including skis and bicycles. The relationship of the ticket office to the baggage handling area is an important consideration due to the program adjacencies required for baggage operation.

At Category 1 stations, the baggage handling area is often remote from the ticket office and connected by a mechanized conveyor. At Category 2 stations, a baggage holding area adjacent to the ticket office is recommended.

Baggage Handling and Related Spaces (Back-of-House)

The two effective levels of baggage operations found at Amtrak stations, limited or full-scale, determine the station's baggage handling program.

The baggage handling function typically includes a baggage handling room, secure storage for unclaimed bags, a separate secure storage area for general station supplies, a secure cabinet for checked firearms, storage and maneuvering space for floats and tugs, and sometimes storage space for a wheelchair lift. In addition, a janitor closet or mop room should be in close proximity. The size of the baggage handling area should be scaled to the size of the station and passenger capacity.

Category 1 stations may require multiple dedicated spaces related to the baggage handling functions. In Category 2 stations, the handling area may be able to operate within a single space, depending on station size and level of service provided.

The back-of-house space requirements for these two levels of baggage operations can vary significantly depending on the specific station size, ridership and services.

Full-Scale Baggage Operations:

For stations providing full-scale baggage operation, the baggage handling room can consist of either a single large space, or separate spaces including the following:

- Conditioned space adjacent to the ticket office.
- Unconditioned, large space to accommodate tugs, carts, forklifts, and other required equipment.
- Dedicated loading dock with fork lifts capable of handling large items at stations that regularly accept larger package express shipments.
- Baggage elevator or ramp to avoid crossing active tracks with baggage carts at stations that include more than one platform. If there is only one elevator to accommodate both passengers with disabilities and baggage vehicles, it must be sized appropriately.

Limited Baggage Operations:

The limited baggage operation should include one baggage handling room that is separate from, but adjacent to, the ticket office, and has convenient access to the platforms and baggage claim area.

Baggage Claim

The baggage claim process consists of travelers retrieving their baggage and having the claim checked by a customer service agent. While baggage claim is currently handled directly from a cart on the platform or within the station at many Category 2 stations, because of the requirements for baggage security, Amtrak prefers that all stations with baggage service be programmed with dedicated and controlled baggage claim areas. A dedicated baggage claim room is encouraged at Category 1 stations with checked baggage operations.

Full-Scale Baggage Operations:

The baggage is delivered to the claim room with controlled access in and out. This allows customers to claim their baggage from a non-mechanical roller or a mechanical belt system, and have their claim check verified by an Amtrak customer service agent.

Limited Baggage Operations:

Baggage claim can be accomplished directly from a baggage cart rolled into the baggage claim area.

Sizing the baggage claim area is dependent on the number of trains and passengers with baggage arriving at a station simultaneously. In most cases, a single baggage claim area is sufficient because only one train needs to be processed at a time. Even at its Category 1 stations, Amtrak operates with a single, rather than multiple, baggage claim areas.

4.6 Multimodal Transit Services

Designing the station to function as a multimodal transit center is central to the future of efficient public transportation. The integration of Amtrak's intercity passenger rail with commuter rail, subway, streetcar, and local bus systems is a key step in building ridership for all transit modes. Amtrak's highest levels of ridership are generated at heavily multimodal stations, and Amtrak encourages station design to accommodate existing and planned local transit services.

The Guidelines are oriented primarily to functional requirements specific to Amtrak. The integration of additional transit services within a station will require separate analysis of the programmatic and functional needs of those services, and their relationship to Amtrak's intercity passenger rail. Although the Guidelines are written from the perspective of an Amtrak station accommodating other transit services such as commuter rail or bus, the reverse is often true, where a station facility used primarily for commuter rail or transit operations is modified to accommodate Amtrak. Amtrak approaches both of these situations in a cooperative manner to serve the common interest of public transit.

In multimodal stations, individual transit agencies often need space for their own ticket offices, information counters, and/or ticket vending machines. Amtrak generally maintains ticketing and customer service operations separate from local and regional transit authorities. However, in some stations, local agencies can arrange to use Amtrak's ticket offices and self-service kiosks, requiring additional Amtrak agent counter positions. Waiting spaces and other amenities (restrooms, retail, etc.) are typically shared by multiple agencies.

If Amtrak also sells commuter tickets for regional transit systems at a station, additional ridership information and projections should be obtained from the participating commuter agency to determine adequate staffing. In addition to analyzing ticket functions for shared transit services, waiting and boarding areas and routines should also be understood, as these often require separate or additional program spaces within the station.

4.7 Amenities

Restrooms

Public restrooms are defined as a station amenity in these guidelines because they typically serve all station visitors, including Amtrak passengers and other transit users. For Category 1 and 2 stations, restrooms are an essential component. For Category 3 stations, restrooms may be a desirable component depending on staffing. Generally, Category 4 and 5 stations do not have restrooms.

Providing adequate space for restroom facilities in the station requires analysis of the station usage and occupancy.

The minimum number of fixtures should be determined by code, but additional fixtures may be required, based on station usage including supporting peak usage to avoid long queues. Amtrak recommends providing a separate, unisex/family restroom in the station to serve all station users, including those with disabilities and families with young children.

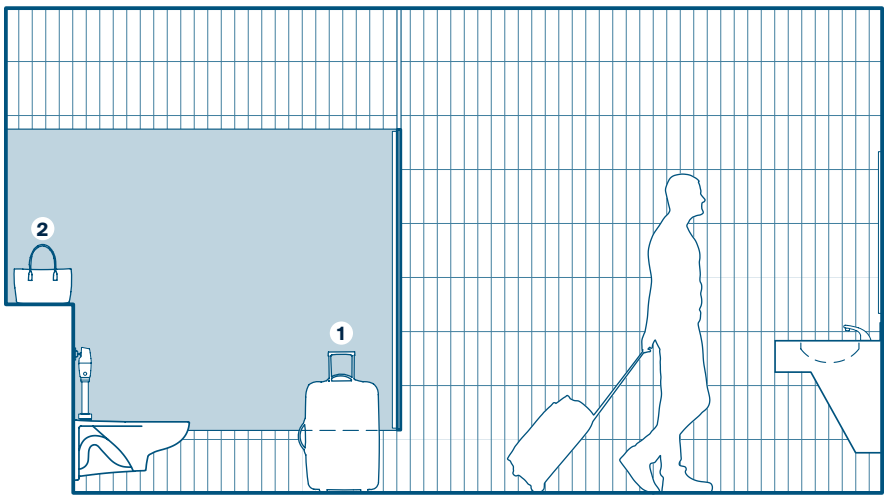
As with most other spaces and services, all newly constructed or newly renovated restrooms in Amtrak stations must be designed to be fully accessible to passengers with disabilities in compliance with ADA requirements.

Other restroom guidelines include the following:

- Restrooms should be convenient to waiting areas or main public circulation areas.
- To enhance security, restroom entrances should be visible from the ticket counter at stations that do not have on-site Amtrak Police or security services.
- For Category 1 stations, separate Amtrak-only restrooms can be planned adjacent to controlled-access waiting areas to make them available to Amtrak customers only.
- Restrooms should generally be sized with larger circulation spaces than minimum standards, since many passengers are traveling with baggage or business carry-ons.
- Restroom entrances should be designed without doors, utilizing screening walls to provide privacy.
- Individual stalls should be sized to allow passengers to enter and set down their baggage. A 36” x 72” stall with an out-swinging door is recommended for ambulatory use. Include an 8”-12” built-in shelf for convenience.

Restroom Stall, Cross-Section Diagram

Figure 4.7.1



1 Enough space for setting down baggage

2 Shelf for convenience

Retail and Food Services

Retail and food services are important factors in contributing to a community's perception of its transit station, as the ability for passengers to eat, shop, and conduct business there is becoming increasingly valuable. Retail and restaurants have the potential to increase both station revenues and ridership. Accordingly, Category 1 and 2 stations in either medium- or high-density locations should either provide for retail within the stations, or plan for retail and food service amenities in the future in order to make the stations more attractive environments.

Retail can include food and beverage service, coffee shops, newsstands, gift shops, and kiosks. The amount of retail space should be based upon projected market demand and travel type. The use of retail kiosks and carts can be considered to augment or replace fixed retail spaces, and provide retail opportunities that are more flexible and require less initial infrastructure.

Where significant retail space is provided in a station, standards for retail tenants should be developed that maintain an aesthetic consistency with other public areas of the station. Operational standards should not only address hours of operation to meet passenger demand, but off-hour policies for lighting, such that dark areas of the station are not created during off-peak travel times.

Travelers Aid

Travelers Aid International is an organization with the mission "to aid people in transit who are in distress." The organization maintains a presence in many major transportation centers to provide information and arrange assistance to travelers. Amtrak supports Travelers Aid by providing dedicated space within select stations.

Car Rentals and Car Sharing

Conventional on-site rental car facilities or on-call rental cars should be considered where appropriate. Where on-call rental cars are provided, courtesy phones linked to the rental companies should be readily identifiable, and in a location convenient to arriving passengers, such as an information kiosk that can also provide city maps, promotional information, bus schedules, and information about local places and events. In addition, car-sharing services should be allocated an appropriate number of spaces on-site.

For Category 1 stations, consider including conventional on-site rental car facilities. On-call rental car services may be more appropriate for Category 2 stations.

Bike Sharing

Allocate space for bike sharing stations in urban or semi-urban locations where this means of local transport is viable.

Vending

In stations without retail or food service, vending machines should be provided and located in an area easily accessible to the main circulation. The vending machines should be organized into an alcove or similar area to avoid haphazard placement of the equipment.

Wireless Internet Access, Convenience Power Outlets, Charging Stations

Passenger use of computers, smartphones, and other electronic devices increases the need for electrical outlets or charging stations in waiting areas. Amtrak is expanding Wi-Fi® service to routes and stations throughout the country, with the goal to provide service throughout the network.

Public Lockers

Due to security concerns, public lockers are no longer an acceptable amenity in most Amtrak stations.

Pay Phones

Amtrak no longer requires pay phones in its stations. However, if pay phones are provided, they must be TTY-capable and located in an area visible from the waiting area and ticket office. Emergency phones should be considered for platforms or a station exterior as needed.

Other Amenities

Consider including amenities such as ATMs, postal service machines, and newspaper honor boxes. Amtrak is also exploring new amenities like self-service baggage tagging machines or cash-to-credit machines and other innovations for future implementation. Consider security issues when locating items such as ATMs and cash-to-credit machines so that they are not isolated or remote from other active areas.

4.8 Building Support Spaces

Communications and Data Rooms

All Category 1 and 2 stations, and many Category 3 stations, require a secure room or closet for installation of communications and data equipment. Category 3 and 4 stations with limited requirements may use secure cabinets for communications and data equipment.

Passenger Information Display System Equipment

The Passenger Information Display System (PIDS) provides dynamic signage that displays electronically updated train arrival and departure information. PIDS equipment is networked to Amtrak's data centers, allowing the provision of real- time information to the individual station. The equipment needs to be coordinated with Amtrak during station design and construction.

Revenue Equipment

Revenue equipment that processes credit card transactions is required at staffed stations with ticket sales, and must be secured in accordance with federal laws for Payment Card Industry (PCI) compliance. The revenue equipment is housed in a standard server cabinet, with clear space required on the front and back for access to the equipment. The equipment room must be independently accessible within the building without going through Amtrak support spaces.

CCTV and Security-Related Equipment

Equipment serving security monitoring systems may also require racks in secure rooms.

Amtrak Storage

Each staffed station in the Amtrak system is required to keep, on-site, a number of station and employee related records, for a period of not less than three years. This records storage usually requires an area of 40 square feet, and must be securable to maintain its privacy and integrity. In addition to records storage, general storage for station supplies is needed. This general storage can range from approximately 100 square feet at Category 2 stations, up to several hundred square feet or more at Category 1 stations.

Mechanical, Electrical, and Plumbing Equipment and Dedicated Spaces

The types of mechanical, electrical, and plumbing equipment, and dedicated spaces required at Amtrak stations, vary greatly and are largely dependent on the engineered systems being planned and the clearances for those systems that are required by code. See Appendix C for more information on building systems.

5.0 Design Considerations

This chapter identifies planning and design considerations and organizes them into an effective strategy for the development of station projects. The sequence of considerations should start with an understanding of guiding principles, then delve into large-scale systemic concerns, then to medium-scale planning considerations, and finally to finer-detailed design factors and specific elements.

All station projects are unique. Depending on the scope of the project, some of the considerations outlined here may not be applicable. Regardless of scope or other specific project factors, the general approach from macro to micro still holds true.

5.1 General Design Considerations

The following design considerations should be reviewed and evaluated during the station planning and design phases. Consult with the project's Facilities Development Manager (FDM) for additional site-specific requirements.

Universal Design / Accessibility

Amtrak® strives to serve everyone, including those who are use wheeled mobility devices (wheelchair, powerchair, etc.), those with difficulty walking, older adults, those with visual or hearing disabilities, children, those who are pregnant, and those temporarily restricted due to illness or injury.

Amtrak believes in barrier-free design principles, which allow the station, its site, and platforms, to achieve the following goals:

- Aid all travelers.
- Remove restrictions on circulation.
- Reduce injuries to station users.

Station as Community Asset

Integration of passenger rail stations into a local community is important to the success of the station and the furtherance of Amtrak goals. Designing it to serve surrounding communities will facilitate their access to Amtrak's transportation opportunities.

A new station can serve as a point of convergence with regard to the following:

- The integration of rail service into communities.
- Local transit service.
- Principles of smart growth and urban development.

Stations serve a secondary function as a community focal point. They are often linked to local identity and pride, as symbols for a town or city. This is especially true for historic stations.

Flexible Facilities

As Amtrak plans for the future, it is important to foresee the impact of system changes on the passenger rail station. Take the following significant planning issues in account:

- Design intercity passenger rail stations as intermodal transit hubs at the center of mixed-use urban districts.
- Eliminate at-grade pedestrian track crossing to platforms.
- Provide greater levels of controlled access to platforms for security as service levels are differentiated.
- Amtrak's goal to expand and improve its baggage operations.
- Future growth of High Speed Rail.

Historic or Existing Depots vs New Construction

When proposing a new station stop for a locality, consideration should be given to the costs and benefits of the reuse of any former facility with new construction.

- Feasibility of station program.
- Achievability of ADA compliance.
- Comparison of ongoing construction and maintenance costs.
- Community desire.

Safety and Security

Amtrak is continually striving to improve the safety and security of the railroad. This goal can be advanced through consideration of the following active and passive security measures:

- Separation of public and private spaces within the station and site.
- Providing visibility of public spaces to customers and employees, with good lighting and no "hidden corners."
- Providing for active control surveillance at station spaces in-person by Amtrak Police and by remote monitoring.
- Planning space for passenger and baggage screening at appropriate locations.
- Site design that controls vehicular access to spaces within and near the station and platforms.
- Placement of appropriate security and safety signage.

Sustainable Buildings and Operations

Amtrak organizes its sustainability efforts around the following strategies:

Energy Efficiency

Minimize energy consumption, produce power on-site, and replace energy produced by fossil-fuel based sources with renewably generated power.

Sustainable Materials and Resources

Utilize recycled and locally sourced energy. For historic stations, retain existing fabric wherever feasible.

Water Conservation

Utilize efficient fixtures and automatic controls, design to reduce water consumption and waste generation. Both stormwater and potable water management need to be examined.

Site Management

Consider the impacts of landscaping, paved surfaces, and building orientation.

Indoor Air Quality

Ensure good ventilation and choose materials that are selected to eliminate release of volatile organic compounds (VOCs).

Recycling

Provide collection at all stations and on trains.

Sustainable Operations and Maintenance Practices

Practices to ensure longevity and efficiency of a station's mechanical and electrical systems, lighting, and other systems.

5.2 Pre-Design

See below for the considerations involved in determining Amtrak Rail Service, Station Category, and Station Program.

Amtrak Rail Service Determination

Determining which passenger rail services can be offered at a particular station is a key initial step in shaping its development. During the Feasibility & Analysis Phase, Amtrak and, when appropriate, state DOTs, will conduct a station service determination and inform the station sponsor which train lines could potentially stop at their station. See Appendix B: Amtrak System for some of their individual characteristics, such as equipment used, and operations of Long Distance service, State Supported corridor service, Northeast Corridor (NEC), and other High Speed Rail (HSR) service.

Principal Characteristics Determining Station Category

Once the Amtrak Rail Service has been determined, the station category is established by analyzing the following considerations:

Type of Amtrak Rail Service

HSR, State Supported Corridor, or Long Distance services.

Geographic Location

Whether the environment is defined as urban (high density), suburban (medium density), town or rural (low density).

Supporting Transportation Infrastructure

The degree to which the station is served by other transit systems, such as commuter rail, subway, streetcar, local buses, and auto access.

Timeframe for Growth

The expected growth in ridership at a station given its trajectory within a regional transportation plan or planned transit expansion.

The development and design of an Amtrak station are impacted by the following core factors:

The train lines serving the station.

The station category & typology.

The station program.

Development of Program Components

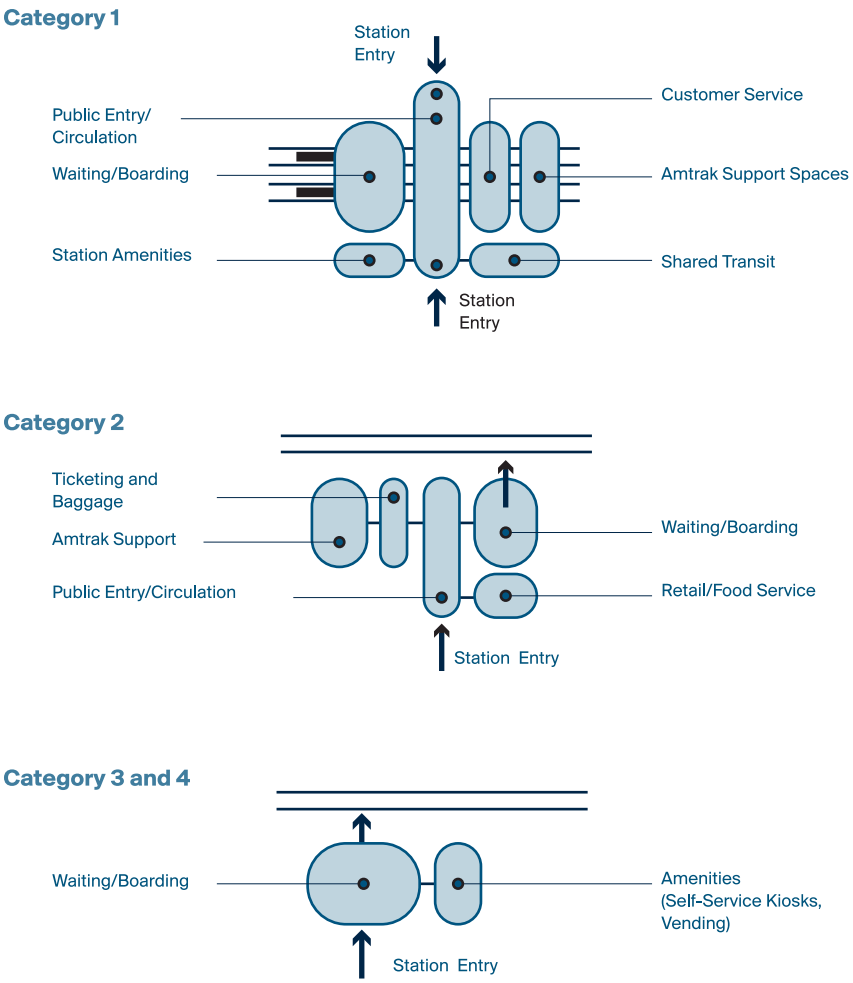
Station sizing and functional requirements are determined by Amtrak after the station category has been defined. The inclusion and scope of program components into Amtrak's Program Detail are predominately based on station category.

Additional considerations include the following:

- Specific operational needs, such as Crew Bases where train staff begin and end their shifts.
- The station's relative location along a service line. At some terminal stations, cleaning and trash removal are done at the station.
- The station's distance to Amtrak maintenance facilities for equipment servicing.
- The requirements of other transit operators if the station has multimodal transit services.
- Specific retail requirements.

Station Program Components by Category

Figure 5.2.1



5.3 Site Selection, Zoning, and Master Planning

The success of any rail or transportation project involves the effective coordination of local, regional, state, and federal public transit plans prior to the station design.

Local land use plans and zoning codes should consider the highest and best use of the land surrounding the station, recognizing the following:

- Potential for higher density, transit-oriented and/or multimodal development.
- Preservation of historic buildings.
- Economic benefits.
- Local community benefits.

Amtrak encourages station sponsors and their communities to develop a master plan based on the following considerations:

- Passenger ridership.
- The station category.
- The number of tracks necessary to serve the station.
- Platform locations.
- Overhead pedestrian bridges or tunnel connections to platforms.
- The urban context of the station's site.

The master plan should also assess the selection of station typology to address the possible evolution of the station vicinity: from low-density to medium-density locations, and from medium-density to high-density urban locations as they mature; or the preservation of rural or historic community adjacent to a station.

Since intercity passenger rail and transit is so beneficial to sustainable growth patterns and the nation's infrastructure, Amtrak prioritizes linking its stations to other transit modes. The development of intercity passenger rail stations as intermodal transit centers increases transportation options and makes Amtrak more available to potential riders. Station developments that connect local and commuter bus, light rail, commuter rail, heavy rail, bus rapid transit, or intercity bus together allow for more convenient trips, and a central transportation hub for communities.

Figure 5.3.1 - Chicago's Union Station

5.4 Relationship between Tracks, Site, and Platform

The track and platform arrangement is one of the most critical elements determining the operational efficiency and capacity of a station. The siting of new stations must carefully consider track and platform requirements related to potential future expansion.

Planning should include determining the number and lengths of platforms needed, platform spacing, and access, which are based on the following:

- The ridership at the station (the number of trains per day serving the station and daily passengers).
- The service type or types at the station – Long Distance, State Supported Corridor, HSR, or a combination of these types.
- The train consists associated with each service (which determines platform lengths).
- Whether the Right-of-Way (ROW) is dedicated to passenger rail only, or is shared with freight.
- The relative placement of the station on the train lines (whether the station has through-tracks and/or terminal tracks).

The track and platform layout is often predetermined by existing site conditions, as newly constructed passenger rail ROWs occur infrequently. Thus, careful consideration should be given to the site selection for new or modified stations, as the design may require additional tracks adjacent to the building.

Consider the following track and platform site planning guidelines:

- Plan to include an overhead or below-grade pedestrian connection from the station to the platforms at stations providing HSR and Corridor services, which have more frequent trains than Long Distance service.
- Consider using site topography to eliminate one vertical circulation move from the station to the platform where an overhead or below grade pedestrian connection is required - locating the main floor of the station at an elevation either above or below the track level.

- Center the station on the platforms wherever possible, with access to the platforms from within the station.
- Provide room for station and passenger waiting area expansion.
- Plan the station site where tangent (straight) tracks are available to accommodate the full required platform lengths.
- Select a site where platforms can be constructed at near-level along their length, with a maximum slope of two percent.
- Plan for possible use of a bypass track to allow passenger and freight traffic to be independent at the station, where passenger lines are located on freight railroad ROW.

5.5 Station and Platform Design

The following design considerations should be reviewed and evaluated during the station and platform design phase:

Quality Design and Architecture

The diversity in style and form of station buildings across Amtrak's network function as tangible reflections of America's history and heritage of passenger railroads. The overall building form should symbolize the station's civic presence within a community.

Historically, this has been done by incorporating the following architectural elements into the station design:

- Identifiable roof forms connoting sheltered space.
- Projecting bay for ticketing office.
- Broad eaves for shelter.
- Identifiable roof forms connoting sheltered space.
- Other functional elements that lent to the station aesthetic.

In addition, the design of new stations should reinforce the idea of passenger train travel being synonymous with

- Speed.
- Technology.
- Efficiency.
- Clean environments.

Operational Efficiency

The design of the station is a significant contributor to Amtrak's operational and economic efficiency.

Amtrak's values include the following:

- Durable and long-lasting materials that reduce maintenance costs and are chosen on a life-cycle basis.
- Building systems and design methods to reduce energy use and HVAC operating costs.
- Functional arrangement of program spaces, and provision of the correct types and sizes of spaces, to allow Amtrak staff to operate efficiently, and minimize staffing requirements.
- Efficient movement of passengers through the station, and especially on and off trains and platforms.

Historic Preservation

A significant number of Amtrak stations throughout the nation are eligible for or are listed in the National Register of Historic Places. Amtrak policy encourages flexibility and creativity in balancing preservation of historic structures with accommodation of the functional requirements of an operating 21st-century passenger rail station. Stakeholders are encouraged to investigate the historic status and listing eligibility of an existing structure being considered for renovation.

Note that projects that use federal funds or that have other federal involvement, such as permits, licenses, or other approvals, are subject to review under Section 106 of the National Historic Preservation Act, as amended (Section 106). See Appendix E: Historic Stations, for more information.

All alterations to historic stations must comply with The Secretary of the Interior's Standards for the Treatment of Historic Properties.

Figure 5.5.1 - Cincinnati's Historic Union Terminal

Under the Secretary of the Interior's Standards for the Treatment of Historic Properties, typically the standards for "rehabilitation" would apply to station renovations. Standards and guidelines established by the National Park Service are available online, as well as other tools for the sensitive treatment of historic fabric. Following these standards and guidelines will support regulatory reviews.

Regulatory Compliance

This manual is not intended to be a substitute for investigation of, nor to provide any waiver of compliance with, all regulations applicable to any proposed station improvements.

Users of this manual must comply with all applicable federal, state and local regulations, including but not limited to the following:

- Construction codes.
- Zoning and permitting requirements.
- Federal and state environmental approval processes.
- Federal, state, and/or local historic preservation and environmental laws and regulations, including Section 106 of the National Historic Preservation Act, the National Environmenta Policy Act (NEPA), or others.
- Fire protection codes and standards including NFPA 130.

Factors Specific to Platform Design

Platform design should account for the following factors and elements:

- Passenger car floor height.
- Availability of checked baggage service.
- Presence of freight operations (dimensional clearances).
- Number of trains and platforms.
- Site constraints.
- ADA requirements.
- Operational needs, such as access for equipment inspections.
- Length required for train consists.

The following design elements should also be kept in mind:

- Travel distance to exit and exit capacity to safely remove passengers from platform.
- Platform width in relation to its capacity, clearance at vertical circulation elements and baggage cart turnarounds (accessibility and operations).
- Platform to slope away from tracks for stormwater management and passenger safety.
- Separate service/baggage areas and access for heavy service vehicles at some stations.
- Weather protection by canopy, wind breaks or shelter, their associated length/height, and clearance for wheelchair lifts.
- Signage and PIDS.
- Lighting controls.
- Recycling and trash receptacles.
- Seating.

For additional design criteria, see Chapters 6, 7, and 8: “Site,” “Station,” and “Platform,” of the Guidelines.

For detailed design requirements see the Amtrak Platform Design Guidelines and Amtrak’s Standard Practices SP-2020. Ask your project’s FDM for access to these documents.

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6.0 Site

The station building and site are the link between Amtrak's rail services and the surrounding community. While the station size and the complexity of its site design vary significantly from location to location, the site design issues included here are consistent for stations regardless of categories, typologies, and locations. A healthy relationship between the station, the community, surrounding development, and other transportation modes is critical to its success. Site design must plan for the evolving interdependency of Amtrak® services and supporting transit modes, as well as the functional requirements of Amtrak's operations.

6.1 Context

The station location and the characteristics of the surrounding site play an important role in determining the station size, typology, and ridership.

Figure 6.1.1 - Alvarado Transportation Center, Albuquerque, N.M.

Amtrak's stations are generally located in one of three types of sites, each of which has a specific set of design considerations:

High density

Urban sites close to mixed-use development and integrated public transit.

Medium density

City or suburban sites with many of the characteristics of high-density sites, but generally less intense.

Low density

Town, suburban, or rural sites with less intensive adjacent development, and more reliance on automobile or bus access.

High Density Locations

Stations in high-density urban areas should be planned as grade-separated facilities with tracks and platforms below grade, allowing urban development to be adjacent to the station, which is frequently built over the tracks. With the city fabric surrounding the station on all sides, multiple entry points to the station for pedestrians and connections to multiple modes of transit are important. Pedestrian access to urban stations is critical, and planning for connections to subway, streetcars, buses, taxi and ride-share pick-up & drop-off points, and parking is an important step in the design process to minimize impacts on pedestrians, and to ensure that there is adequate transit capacity to move passengers to and from the intercity rail services.

Since stations located in urban, high-density areas will only increase in ridership over time, it is important to consider the station typology as it relates to its context. The typology should provide maximum capacity and flexibility, as future expansion will be difficult to accommodate without such provisions.

Figure 6.1.2 - New York Penn Station & Moynihan Train Hall, New York, N.Y. | High Density Location

Medium Density Locations

The medium-density site can be found in a variety of locations, including cities or town centers that have limited public transit, as well as in some suburban and urban edge locations. Because these sites are typically less well-served by public transit than high-density sites, a greater land area surrounding the site is generally required for vehicular circulation: buses, taxis, ride shares, and cars. With less readily available retail and food service in the areas surrounding the station, it is beneficial to provide space for retail and restaurants within the station building.

Regional development plans should be consulted for stations in medium-density locations to determine whether they will serve higher-density environments over time, with multimodal transit services improving, and mixed-use development surrounding the site increasing. For instance, surface parking can be converted to structured parking, and adjacent small-scale development can be replaced with larger mixed-use projects.

Figure 6.1.3 - Fullerton Transportation Center, Fullerton, Calif. | Medium Density Location

Low Density Locations

Low-density sites include small towns and exurbs that are served by little or no public transit. The typically open land area surrounding the station is often minimally developed or built with low density residential uses or office parks. Low-density sites are heavily oriented to vehicular circulation, primarily private cars, thus careful attention should be given to parking and traffic flow.

Stations in low-density locations should be planned to evolve as communities grow. Adjacent residential development may be replaced with higher density or mixed-use development over time.

Figure 6.1.4 - Montpelier-Berlin Station, Montpelier, Vt. | Low Density Location

Station Characteristics by Context (Density)

Table 6.1.5

	Urban	City-Suburban	Town-Suburban
Service Types	High Speed Rail (HSR) State Supported Corridor Long Distance	High Speed Rail (HSR) State Supported Corridor Long Distance	State Supported Corridor Long Distance
Station Categories[1]	1 (Large) 2 (Medium)	1 (Large) 2 (Medium) 3 (Caretaker)	2 (Medium) 3 (Caretaker) 4 (Shelter) 5 (Thruway Service Connection℠)
Typologies[1]	Vertical Side Terminal	Vertical Side (with overhead pedestrian bridge or tunnel)	Vertical Side
Multimodal[2]	Subway Commuter Rail Streetcar Pedestrian Bus/Auto	Commuter Rail Street Car Pedestrian Bus Auto	Commuter Rail Pedestrian Bus Auto
Mixed Use[3]	Retail, restaurants, office, residential, hotel, government, cultural and entertainment uses	Retail, restaurants, office, residential, and entertainment uses	Minimal supporting land use in areas adjacent to station – allow for provision of services within the building
Amtrak Program[3]	Service areas, loading, trash located internally, baggage service, Metropolitan Lounge®	Service areas, loading, trash located internally or adjacent to building in screened area, baggage service	Service areas, loading, trash located adjacent to building in screened area
Parking[4] (Parking space to passenger ratio)	Low ratios, structured	Medium ratio, structured or surface	High ratio, structured or surface

[1] See Chapter 3, "Station Categories and Typologies "

[2] See Chapter 5, "Design Considerations"

[3] See Chapter 4, "Program"

[4] See Chapter 6 "Site", Section 6.5

6.2 Vehicular Circulation

Vehicular circulation leading to and within the station site must be planned to balance the use of the private automobile with pedestrian and transit access to the station. Public transit should be prioritized over private vehicular access by providing connections to the local bus services and other transit as close to the main entrance of the station as possible.

Site circulation guidelines include the following:

- Provide a simple and clear visual approach to the station to reduce confusion to the arriving passenger.
- Plan the view of the station entrance to be across an open space or street, rather than across a parking lot.
- Prioritize pedestrian access to the station and the station's connection to public transit.
- Design for drop-off traffic, parking access, local buses, taxis, ride shares, and service vehicles, providing separated circulation at larger stations.
- Establish a clear separation between service access and public circulation, as well as controlled access to service yards and loading docks.
- If required, based on a risk assessment, determine requirements for vehicle separation from buildings according to site security needs, establishing a minimum stand-off distance for vehicular parking and drop-off from passenger facilities.

6.3 Parking

Bicycle racks are of particular importance, as it is not unusual for Amtrak passengers to commute to a station by bike.

Figure 6.3.1 - Bicycle Parking at Alton Regional Multimodal Transportation Center, Alton, Ill.

Across the U.S., the bicycle is growing as a mode of transportation to work, school, shopping, and for other errands. Bicycle parking at Amtrak stations can range from simple racks to elaborate facilities such as the “bikestation” at Washington Union Station. The design, placement, and quantity of bicycle racks for a given site should be based on recommendations from the Association of Pedestrian and Bicycle Professionals (APBP) and local cycling advocacy groups.

Bike Rack Types

Figure 6.3.2

Staple or Inverted U/Arc	D-Shaped/Swerve	Coat Hanger/Campus
		
Preferred	**Acceptable**	**Acceptable**

Important considerations include the following:

Racks should be securely anchored to the ground, and should resist cutting, rust, bending or deformation.

Bicycle parking should be located as close to station entrances and platform entrances as is practical; multiple locations on each side may be appropriate.

Access to the site and parking area should be provided from public cycling infrastructure such as bike lanes and bike paths in the vicinity (depends on location).

Bicycle parking should be sheltered from inclement weather if possible.

Bicycle parking should be well illuminated and included in CCTV field of vision if CCTV is installed.

Vehicular Parking

The overall design and arrangement of parking areas should relate to the location of station entrances and exits, drop-off circulation, station service access, and local streets.

While local codes and site conditions will play a large role in determining parking lot and vehicular circulation design standards, the following guidelines are recommended:

- Include a variety of parking types, such as long-term, short-term, pick-up/drop-off, taxi, and, where feasible, employee accommodations.
- Provide separate parking areas for Amtrak State Supported Corridor and Long Distance services where a station has significant ridership from both service types to permit long-term parking.
- Provide separate parking for Amtrak and non-Amtrak commuter services where possible, to ensure adequate spaces for both types of services.
- Locate parking spaces for Amtrak's Long Distance passengers as close to the station as possible to accommodate passengers carrying baggage. This must be balanced with the need to locate short-term and drop-off spaces close to the building as well.
- Distribute ADA-compliant spaces among all parking types.
- Determine the need for separate Amtrak employee parking at stations with larger staffing levels or a crew base.
- Consult with parking operators early in the project design to reduce the chance of redesign efforts later in the project.
- Fee systems must promote smooth entry into the facility and avoid back-ups to adjacent approach routes.
- Locate structured parking adjacent to the station building, rather than within, above, or below it.
- Arrange parking garage column spacing to provide clearance of aisles for easy vehicle maneuvering.
- Use standard 90-degree, 9' x 19' parking stalls for both long-and short-term parking.
- Allow for an average of 330-350 square feet of surface area including maneuver space, circulation space, and access / parking control for surface parking.
- Allow for an average of 350-400 square feet of gross floor area for structured parking.

Parking Garage

Reference standard guidelines for parking garage design.

Dimensional Considerations for Surface Parking — Nine-Foot Stalls

Table 6.3.3

90° Parking		Long Term	Short Term
Bay Width	Desired	64’	66’
	Minimum	60’	61’
Aisle Width	Desired	26’	28’
	Minimum	24’	25’
Stall Length	Desired	19’	19’
	Minimum	18’	18’

60° Parking			
Bay Width	Desired	59’	60’
	Minimum	58’	58’
Aisle Width	Desired	19’	20’
	Minimum	17’	18’
Stall Length	Desired	20’	20’
	Minimum	19.8’	19.8’

Determine the amount of parking to be provided at a site based on local zoning codes and Amtrak’s projected requirements. While almost all localities incorporate minimum requirements for parking into their zoning codes, it is critical to compare the minimum requirement with actual projected parking requirements as ridership can be adversely impacted by a lack of adequate parking. Amtrak recommends basing parking capacities at its stations on a minimum 20-year projection of ridership growth.

6.4 Amtrak Functional Requirements

When planning the site, meeting Amtrak's functional requirements primarily involves siting the station building, platforms, and tracks. However, vehicular service access to the station building, loading areas, and sometimes the platforms must also be considered.

Amtrak operations may require the following specific site provisions:

- Separate vehicular access to the building for shipping larger items where applicable. Amtrak provides shipping of large items at some locations and may require a dedicated loading dock with access to Amtrak baggage facilities.
- Loading areas for trash and recycling.
- Visual screening of service and loading areas and at-grade mechanical equipment.
- A secure perimeter around the service and loading areas to control and limit vehicular access.
- Separate access from the site directly to the platforms for snow removal, vehicular access to the tracks or platforms where trains are serviced or fueled (site maintenance, including snow removal, mowing, and landscaping is typically provided by outside contractors who bring their own equipment to the site).
- Additional site area for Amtrak service and official vehicles.
- Suitable bus berthing location for use when providing Thruway Service Connection℠ or a temporary "bus bridge".

6.5 Signage and Wayfinding within the Site

The site around the station should be designed to welcome passengers and provide clear and consistent wayfinding, utilizing visual landmarks, pathways, and sight lines to direct pedestrian and vehicle traffic to entrances and destinations. Building entrances and connections to local transit should be readily identifiable, with a consistent visual vocabulary that incorporates a system-wide approach to graphic signage and wayfinding.

Amtrak will often be one of several transit services located at a station, and Amtrak-specific signage may need to be integrated with other signage, in a coordinated and unified way that simplifies wayfinding for all transit services. The use of consistent environmental graphics provides both real and perceived reassurances at all phases of the passenger experience, particularly those new to train travel. Signage should reflect Amtrak's brand identity and be consistent from station to station.

Signage located on the non-platform, curbside, or street side of the station identifies and provides wayfinding to and from the station, vehicular direction, and curbside information.

Site Signage

Refer to the Amtrak Signage Manual for more detailed signage and wayfinding guidelines related to site signage.

6.6 Site Safety and Security

Design strategies should be used to enhance the safety and security of the station and its site. These address both personal safety and security achieved through crime prevention as well as counter-terrorism. Passive security design should be employed to the greatest extent possible, creating a station environment that is an active place, with good visibility between all public spaces. Amtrak's Corporate Security group, Information Technology, and Police departments provide input on station security and protection against terrorist threats.

Figure 6.6.1 - Bollards at Union Station, Raleigh, N.C.

The following design strategies contribute to passenger safety and security:

- Design vehicular circulation for low speeds near the station.
- Minimize widths of roads and cart-ways at pedestrian crosswalks and station entrances.
- Use pavement design to give priority to pedestrians over cars, including the use of speed tables and special pavers to slow vehicular traffic.
- Design for visibility of exterior public areas from within the station, and of public areas inside the station from the site.
- Design to maximize clear lines-of-sight within the station and in the surrounding site.
- Provide fencing to control access to the platforms.
- Provide site lighting to enhance security and safety, and to reinforce the station as a visual landmark.
- Determine appropriate setbacks for vehicles from passenger facilities including the station and platform based on a risk assessment of the facility.
- Utilize bollards, planters, or other security barriers to protect the station building and platforms from vehicles.
- Provide direct access routes for emergency responders and, to the extent feasible, for emergency vehicles.

Amtrak's Facilities Development Manager (FDM) will provide more detailed security requirements as development of the design progresses.

6.7
Site Accessibility

The technical requirements for site design for accessibility are well covered by building codes and the Department of Transportation Accessibility Standards (DOTAS), including requirements for accessible parking spaces and accessible routes from transit and parking to the station entrance. The Americans with Disabilities Act (ADA) requirements also influence the size, type, and location of site signage. Amtrak encourages station sponsors to take a comprehensive view of site design, using Universal Design principles in planning for accessibility at the station site, including careful consideration of the actual use patterns of passengers.

Examples of Universal Design principles include the following:

- Design spaces for drop-off of passengers with disabilities, with consideration given to covered waiting areas where they can wait for their companion to park and join them.
- Integrate the required ADA-compliant pedestrian pathways into the site's singular pedestrian circulation system, minimizing separate ramps, lifts, and elevators that are physically distant from main paths of travel.
- Make connections to the city or town sidewalk system and adjacent uses.
- Avoid pedestrian conflicts with vehicular routes.
- Minimize requiring passengers with disabilities to cross traffic lanes.
- Provide exterior locations for service animals to relieve themselves.
- Provide audio indicators at crosswalks.
- Incorporate audio induction loop systems at service counters.
- Provide tactile warning surface to indicate changes in elevation along the path of travel.

Accessibility Requirements

Refer to local building codes, DOTAS, and other ADA-related documents for detailed site accessibility requirements.

6.8 Site Relation to the Environment

A sustainable approach to site design is important to Amtrak's vision of rail travel as "safer, greener, healthier." Rail transportation has a comparatively small environmental footprint compared to other passenger transport modes. Accordingly, the primary site design consideration that contributes to sustainability is planning for transit use and making connections between Amtrak and local transit as efficient as possible. This does not diminish the importance of including "green design" considerations in the station design process.

As part of sustainable site design, Amtrak recommends consideration of the following issues:

- Plan for solar orientation and provide areas for photovoltaic cells, on building roofs or other site areas.
- Provide equal or better circulation from city buses and other forms of public transit to the station, compared to paths from parking lots.
- Prioritize bicycle parking, locating it close to the station entrance and in a secure area.
- Locate a bicycle sharing station at the site if the local jurisdiction has adopted a bike-sharing program.
- Minimize automobile parking and its attendant impervious, paved areas (consistent with ridership demand).
- Provide car sharing spaces (such as ZipCar).
- Provide for charging stations for electric vehicles.
- Reduce impervious surfaces to minimize stormwater runoff, and use native plants to assist in groundwater recharge.
- Provide rain water collection for site irrigation.
- Provide for trees along streets, access roads, and in parking lots to reduce the heat island effect of paved areas.
- Use drought-tolerant native plants to minimize irrigation requirements.
- Maximize daylight; minimize light pollution.

International Green Construction Code (IgCC)

Research the IgCC for specific guidance on sustainability and construction.

Environmental Contaminants

Both new and existing rail facilities have the potential to contain environmental contaminants, including hazardous materials in soils and ballast, lead paint, and asbestos-containing materials. Railroad's use of coal, diesel fuel, or electrical transformers containing polychlorinated biphenyls (PCBs) has sometimes resulted in residues of these materials being contained in the soils and ballast at a project site.

Amtrak's Safety, Health and Environmental (SH&E) group handles environmental issues at stations and other locations on Amtrak property. For any project on Amtrak property where environmental contaminants may be encountered, station sponsors should coordinate with the project's FDM so that the SH&E group can be contacted and involved early in the planning process. Environmental issues on sites not owned by Amtrak must be resolved through coordination with property owners and environmental agencies having jurisdiction.

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7.0 Station

This section is intended to aid development of the functional program of the station, and its relationship to the configuration of the building derived from the conditions of the site, tracks, and rail service provided. While Amtrak's station buildings range from large to small, and historic to contemporary, the functional components within all stations share many similarities.

7.1 Architectural Overview

The passenger rail station should be an open and inviting facility, maximizing transparency by using as much glass at ground level as possible. Transparency between and among the main building components will help enhance circulation and wayfinding, heighten a sense of activity, and enhance security in the station. Natural daylighting and exterior views are an essential aspect of achieving an open and engaging public space.

Figure 7.1.1 - Main Street Station, Richmond, Va.

Station design should incorporate contemporary elements appropriate to their use and function. Contemporary design is not at odds with Amtrak's historic stations. Amtrak® is committed to the preservation and rehabilitation of its historic properties, promoting improvements designed to be compatible with the station's historic character.

This does not dictate that historic styles are to be replicated in new construction. Rather, existing buildings or components of a building that are significant or contribute to its character can be restored and preserved, alongside newly added design elements of a contemporary nature that are distinguished from, but compatible with, the historic architecture, in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. Typically the standards for "rehabilitation" would apply.

The design character of the station should reflect the following primary functions of the building:

- A facility that processes movement of passengers between transportation modes.
- A building that plays an important civic role in the city - a gateway, a center, a focus to the community.
- A multi-use facility potentially serving not only rail transportation, but other transportation modes, and often retail, office, or hotel uses.

To fulfill these multiple roles, the station should be designed with an organizational clarity, using spatial hierarchy, lighting, and other architectural cues to provide a clear and understandable way of moving through the building and finding needed services.

Figure 7.1.2 Moynihan Train Hall's Light-Filled Concourse, New York, N.Y.

7.2 Materials and Finishes

The station environment requires high-quality materials and finishes that can withstand intense pedestrian traffic, baggage carts, and commercial maintenance equipment. Renovations and expansions of existing buildings should preserve existing high-quality materials and elements, while also creating architectural continuity with newer portions of the station.

The station's materials and finishes should reinforce the intended spatial hierarchy and design of the station. Primary spaces should be given greater emphasis through use of featured materials that are high-quality, durable, and easily maintained. Public spaces should enhance a sense of openness and visual engagement; this can be achieved through the use of extensive glazing and using primary interior materials and colors that are light in tone, to enhance natural lighting.

Flooring

Flooring materials should be durable and seamless. Terrazzo is the preferred flooring material for waiting areas. Although it has a higher initial cost than some other materials, it is recommended because of its performance relative to durability and maintenance. In smaller stations where the cost of terrazzo is deemed prohibitive, other seamless or roll-stock flooring should be considered.

Where retail space borders passenger circulation, the concourse floor should be designed with a border transition to allow greater flexibility in the future for a new retail tenant.

Additional considerations for selecting flooring materials:

- Selected flooring products should have high coefficients of friction. Polished marble or granite is unacceptable due to slip factors and safety issues.
- Carpet in waiting areas is unacceptable due to maintenance issues.
- Tile is discouraged. Where tile is used, large tiles are to be selected to limit the maintenance issue associated with grout joints.

Restrooms

Simple and neutral color schemes should be used in restrooms and other secondary spaces; reserve more important uses of color for the main waiting area. Color, pattern, and finish of the wall tile should maximize a clean-looking, well-lighted appearance. Use glossy or polished wall tiles that appear cleaner than matte finish.

Additional restroom material considerations include the following:

- Tiles with multiple colors, veining, mottling, or speckling appear cleaner than solid tiles. Very light or dark tones are hard to maintain with a clean appearance.
- Tiles should be large: with tight joints to facilitate a clean, sanitary look.
- Square edge tile should be used to minimize joint expression.
- Use cove base for ease of cleaning.
- Tile walls to full height or provide durable surface above the wainscot.

Refer to Amtrak's Standard Practices SP-2020 (SP-2020) for additional information on recommended materials and finishes.

7.3 Furniture, Fixtures, and Equipment

Furnishings in stations are important design considerations to maintain the character of the architecture and quality of the experience.

Seating

The use of benches is strongly discouraged within Amtrak waiting areas to avoid loitering. Wood benches should only be used where historic conditions mandate. Furniture and fixtures that can withstand vandalism and harsh station/site conditions are preferred when selecting a seating system. Intermediate arms should be provided to discourage the use of seats for reclining or lying down. Exterior seating on platforms is determined by the unique needs of the population served, and by the platform's spatial clearances, on a case-by-case basis. All seats should be of stable design and installation for the elderly or passengers with disabilities to hold onto for leverage.

Ticketing

The ticket offices and counters should incorporate Amtrak corporate and product identity marks where appropriate. See the Amtrak Signage Manual for more information related to ticket office graphics.

The lower portion of ticket office counters are to be made of durable materials, such as solid-core laminates, stone, or solid-surface material due to the high amount of wear and tear. A band of warmer material, such as wood patterned plastic laminate should be considered for the top portion of the counter. Transaction counter-tops are to be solid surface material. Real wood facings and counter-tops are not to be used, unless historic conditions mandate.

While ticket offices should look as open and accessible to passengers as possible, there may be instances that call for enclosing them with glass for security or other concerns. Where glass partitions are requested at ticket offices, a sliding glass panel is to be utilized, to allow the ticket office windows to be open during the day. Additionally, where even higher levels of security are required, more secure construction should be used to enclose the office.

Where self-service kiosks are used, they should be integrated into the design of the ticketing area.

Refer to the SP-2020 for additional information pertaining to the preferred Amtrak standard seating systems for interior and exterior use.

Figure 7.3.1 - Ticket Office, Moynihan Train Hall, New York, N.Y.

Retail

Retail services are a vital aspect of many station programs but should not interfere with general circulation or obstruct views to and from major station facilities. The use of kiosks or carts may also be considered, provided they are made using high-end materials that are consistent with other station components, and do not interfere with passenger flow through the primary functional areas of the station.

Where retail locations are left vacant, the area should be walled with a typical construction barricade-type painted plywood wall that can display Amtrak information, local information, or display windows promoting other retail offerings.

7.4 Signage and Wayfinding within the Station

Signage and wayfinding design will determine the ability of the traveler to navigate the station and find Amtrak services, station amenities, retail, local transit, or other needs. The use of consistent graphic signage systems is vital at all phases of the station experience to passengers, particularly those new to train travel.

Passengers' understanding of and orientation through the station can be enhanced by the design of the station's signage, the hierarchies of the spaces within the building, the use of lighting, and the use of prominent architectural elements or colors to demarcate entrances, paths, and destinations.

The Amtrak Signage Manual provides guidance for planning station signage. The signage standards found within the manual reflect a recognizable Amtrak brand at all stations, and are adaptable to a variety of site conditions. Wayfinding and signage system concepts must be incorporated into the design at the beginning of the process.

This includes strategically locating signage in relation to the building's spatial organization, such as at entrances, locations where circulation paths divide or meet, and at boundaries between transit and other functions. When planning the circulation through a station, note that floor-mounted signs and freestanding signs tend to become collection points for people, often creating bottlenecks.

Two types of information are typically required in a station: signage that is constant (static) and signage that changes frequently (dynamic). Static signage generally provides wayfinding to station services and platforms, and is fixed, altered only when required by operational change (for example, the relocation of a function). Dynamic signage changes frequently, and is typically displayed electronically. Dynamic information systems at stations are referred to as Passenger Information Display Systems (PIDS).

Refer to the Amtrak Signage Manual for guidance on the content of both static and dynamic signage, relating to Amtrak's "tone of voice" and the correct use of its brand identity assets (including logo, colors, etc.). The manual also provides detailed information and design criteria related to specific signage types within the station. Consider whether new signage can be integrated with historic signage locations or schemes, or otherwise be integrated at historic stations in a compatible manner.

Refer to the Amtrak Signage Manual for detailed guidance on planning station signage.

Historic station signage should remain in place to the extent feasible. If signage conflicts with current wayfinding and station identification systems, consider alternatives such as relocation, preservation for display, or donation.

Static Signage

Greeting Signage

Where possible, welcome signs should greet passengers to the station location. They can be posted at points of circulation, or on entrances to the station building.

Directional Signage

Adequate directional information needs to be provided to indicate station services (ticketing and baggage service, restrooms, etc), station exits, taxis / rideshare, and other passenger services. Where possible, location maps should be posted in a centralized location, allowing passengers to orient themselves to the area.

Connection Services

Information about commuter service, local or intercity bus and other connections should be available for continuing passengers. This should either be in a central location, or near the exits.

Regulatory Signage

Regulatory signage featuring braille–to comply with ADA requirements–includes safety information (identifiable with red cautionary colors), as well a supplemental directional information, as required.

Dynamic Signage

The Passenger Information Display System (PIDS) is a dynamic audio-visual information system conveying real-time train arrival and departure information as well as a public address system for announcements throughout the station and platform. In addition, the system should provide text to speech capability. Locate PIDS equipment at one or more points within a station depending on its size. In larger stations, additional variable message signage should be supplied at the boarding gates.

PIDS systems are used to convey the following:

- Current time.
- Train arrival and departure times.
- Gate and platform arrival and departure information.
- Car positions at the platform for First class, Quiet Car℠ and sleeping cars
- Destinations served by the arriving train.
- Informational messages.

The PIDS system must provide up-to-date information to all passengers, including those with hearing and visual disabilities. Amtrak has developed standard methods for public announcements related to trains and general information, as well as standard methods for emergency and security announcements to be made in a prompt and uniform manner. The building's fire and life safety systems and security video systems are separate, and generally do not use the same components as PIDS. If these systems use common equipment such as speakers, their programming must be designed to give priority to the fire-and life-safety announcements.

Figure 7.4.1 - PIDS Inside King Street Station, Seattle, Wash.

7.5 Station Safety and Security

Safety and security in Amtrak stations starts with the overall design of the station site, buildings, and platform, using principles of defensible space and providing a high degree of visibility and activity. The design of the building's egress system, its structural characteristics, and its material characteristics all play a major role in ensuring the station's safety and security. Active security systems, including Closed Circuit Television (CCTV), access control, and other methods can be used to augment passive security measures. Amtrak Police facilities are generally provided at Category 1 stations.

Safety and security design considerations include the following:

At all station categories:

- The waiting room and public circulation spaces are to be visible from the ticket window and easily surveyed by CCTV cameras with minimal hiding areas.
- The internal layout of restrooms should allow for a view of the overall space once inside, while providing privacy for the entrance doors opening and closing.
- Police facilities are not required, but CCTV may be appropriate for surveillance both in and around the building if monitoring and response is performed by local police.
- When CCTV is provided, locations and cameras must be coordinated with signage and other potential obstructions; equipment racks may be co-located with PIDS racks in communications and data spaces.
- The building's air intake and other mechanical equipment is to be sited in accordance with Amtrak's Engineering Standard Design Practice.

Providing detailed structural and life safety guidance is beyond the scope of these Guidelines. Ask the project's FDM for more information related to Amtrak's Security standards.

Additional considerations for Category 1 stations:

- A police podium may be provided (raised desk from which officers can observe the station).
- Police facilities at Category 1 stations generally include a ready room, holding area, locker and restrooms, reception/front desk, as well as a supervisor's office, and sometimes a K-9 facility.
- The police facilities can also provide space for video surveillance and monitoring equipment such as CCTV systems.
- Plan for controlled access to platforms, and where operationally desirable, waiting rooms.

7.6 Station Accessibility

The Americans with Disabilities Act (ADA) of 1990, extends civil rights protections to all individuals with disabilities. The ADA prohibits discrimination on the basis of disability in employment and in public services (including public transportation and public accommodations). Section 12162(e) of the ADA requires that intercity rail stations are accessible to persons with disabilities.

For purposes of the ADA, a station generally consists of property used by the general public and related to the provision of rail transportation, including passenger platforms, designated waiting areas, ticketing areas, and restrooms. The exception to this is flag stops, at which Amtrak stops only on passenger request.

The current edition of the U.S. Department of Transportation's (USDOT) ADA standards (DOTAS) was released in 2006. Amtrak has adopted DOTAS 2006, and is committed to adhering to its requirements for the accessibility of transportation vehicles (including rail cars), as well as for the accessibility of stations.

The Access Board is an independent federal agency devoted to accessibility for people with disabilities, created in 1973 to ensure access to federally funded facilities. The board has issued guidelines indicating how buildings, facilities, and transportation vehicles can be made accessible. USDOT regulations pertaining to stations are amended periodically to incorporate Access Board guidelines. These regulations can be found in the Code of Federal Regulations Title 49 (49 CFR) parts 37 and 38.

In the transit environment, barrier-free Universal Design is of particular importance. It facilitates access for all station users, including those who use a wheeled mobility device (wheelchair, powerchair, etc.), those with difficulty walking, older adults, those with visual or hearing disabilities, children, those who are pregnant, and those temporarily restricted due to illness or injury. Barrier-free Universal Design in transit stations aids all travelers, removes restrictions on circulation, and reduces injuries to station users. For these reasons, Amtrak places particular emphasis on barrier-free Universal Design in its stations.

Universal Design considerations must be fully integrated throughout the design process. They include all of the routine requirements of applicable codes, including accessible routes, waiting areas, ticket counters, restrooms, and other amenities.

When designing the station, carefully consider the specific circumstances of travelers with disabilities, including the following:

- People with disabilities may be traveling alone, with a companion, or with family. They may be parents/guardians with small children, or parents/guardians that have a child with a disability.
- People with disabilities may come to the station as drivers or passengers of private automobiles. They may have limited mobility, and thus may require a space to drop off passengers or bags before parking a car.
- Exiting for people with disabilities in case of emergency requires careful analysis. Areas of evacuation assistance and two-way communications, with both visible and audible signals, should be provided.
- When business traveler services are provided, these must also be in compliance with ADA Standards to provide equal service to all passengers.

Vertical Circulation

When conditions make it impossible to avoid bi-level or multi story stations, an accessible vertical circulation system, comprised of elements such as stairs, ramps, and elevators, will be required. Its capacity can be a critical factor in ensuring both accessibility and life safety for all.

Vertical circulation elements often become bottlenecks in a station's passenger flow, affecting the efficiency of train boarding and employee operations. Apart from the level changes required for accessing some platforms, floor level changes within a station should be minimized. Where they are required, vertical circulation between floor levels should be very open, enabling clear wayfinding, and offering opportunities for spatial drama and visual connectivity.

The following vertical circulation elements are listed in Amtrak's order of preference.

Sloped Walks

Whenever possible, Amtrak recommends addressing small changes in floor level with the use of shallow ramps (less than 5% slope), also known as sloped walks. In most cases, they do not require railings, and everyone can use them.

Ramps

For greater changes in floor height, Amtrak recommends a combination of steps and ADA compliant ramps for accessibility. Ramps allow passengers with disabilities, older adults, those with rolling luggage or strollers/baby equipment, as well as service vehicles to equally benefit and share the same space. ADA compliant ramps are preferred wherever possible.

Accessibility Requirements

Refer to local building codes, DOTAS, and other ADA related documents for minimum accessibility requirements.

Stairs

The number of stairways must be sufficient to allow a trainload of alighting passengers to clear a platform before the next trainload arrives, and to provide evacuation of the platform safely in the minimum time, as required by life safety codes. Amtrak recommends a minimum stairway width of 5'-6" for the safety and convenience of passengers with baggage. Defer to local building codes for egress requirements if they require greater widths.

Elevators

Elevators are usually preferred at stations with limited space that cannot accommodate the large footprint required to install an accessible ramp. Elevators are typically required at bi- or multilevel stations to comply with ADA regulation, as well as to offer an amenity for older adults, passengers with baggage, and families traveling with children.

Additional considerations:

- The minimum elevator size should accommodate the use of a hospital gurney with a narrow but deep cab. If baggage carts are used to support checked baggage service, appropriately sized elevators must be incorporated into the design.
- Travel speed should be rated at between 125 fpm and 150 fpm, with a maximum waiting time of 30 seconds.
- One or more glass walls are preferred, making the interior of the cab visible from the station or platform to enhance a sense of security.
- If the design calls for the use of elevators, a minimum of two are required for redundancy at each location.
- Non-slip flooring should be used in all elevators. Vandal-resistant materials should be on the walls; wood paneling is prohibited.

Escalators

Escalators should only be considered if driven by capacity due to the expense to purchase, operate, and maintain. They should not be a substitute for the use of elevators. Escalators are not considered a means of egress.

Additional considerations:

- Escalators must comply with provisions specified in the ASME A17.1 Safety Code for Elevators and Escalators.
- The recommended width for escalators is 3'-4", usually referred to as a 48 inch escalator. With baggage, this results in a realistic flow of approximately 80 passengers per minute.
- Steps must be demarcated by 2 inch wide yellow lines along the back and sides of each step.
- At large stations where high peak-occupant loads occur, escalators should be used to ease the boarding process.
- Stations with a height difference between levels of more than 12 to 18 feet may include escalators in addition to stairs—particularly in the upward direction.

Elevator Requirements

Refer to the guidelines contained within Amtrak Standard Specifications for Elevators for additional elevator requirements.

Escalator Requirements

Refer to the guidelines contained within Amtrak Standard Specifications for Escalators for additional escalator selection criteria.

7.7 Sustainable Station Design

Sustainable design is widely accepted in the building industry, and the body of research and knowledge regarding this topic is expanding rapidly as discussed in Chapter 6, “Site”. Planning the station for efficient multimodal connections to public transportation is perhaps the most significant sustainable design feature of a station.

The United States Green Building Council’s Leadership in Energy and Environmental Design (LEED) guidelines provide a widely accepted method for scoring a project’s sustainability attributes. Amtrak supports the use of the LEED system in the design of its stations, and also encourages that station projects consider sustainability strategies holistically.

The following is an outline of key sustainable design strategies relevant to station planning, and roughly parallel to the LEED rating categories:

Energy

Orientation

Passive design techniques and thermal mass.

Monitoring

Sub-metering and real time monitorin.,

Daylighting

Minimal artificial lighting during the day.

Lighting systems

Low energy lighting sources and adjustable controls.

HVAC

Employ passive systems where possible and high-efficiency systems otherwise.

Equipment

Selection of energy efficient systems and appliances.

Commissioning

Balance and calibrate building systems for optimal performance.

These guidelines do not seek to summarize sustainable design practices—readers are encouraged to review the International Green Construction Code (IgCC) and Amtrak’s SP-2020.

Materials and Waste

Procurement

Specify for recycled content, and sustainable and local sources.

Operational waste

Collect and recycle waste materials.

Construction waste

Minimize waste and reuse spoil materials.

Material volumes

Design to minimize material volumes and minimize applied finishes.

Durability

Design to last incorporating life-cycle costing.

Water

Efficiency

Reduce water use through efficient appliances, fixtures, and fittings.

Monitoring

Sub-metering and real-time monitoring.

Capture

Rain water collection and gray water systems.

Figure 7.7.1 - Union Station's Green Roof, Raleigh, N.C.

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8.0 Platform

Serving as the passenger interface between the train and the station, the platform is an important design element, and represents a substantial percentage of a project's construction costs. Its design is critical to the success of passenger rail services at Amtrak®. The speed and safety at which passengers can move on and off the trains are determined by the platform dimensions, vertical circulation, and design details. The guidelines presented here provide necessary information for initial platform planning and design. Amtrak will provide more detailed engineering standards as design development progresses.

8.1 Platform Design Requirements

The platform design must incorporate specific requirements from Amtrak and the Federal Railroad Administration (FRA). If the platform is on a non-Amtrak host railroad, their standards must also be followed.

Review procedures include the following:

- Review initial planning, design criteria, and assumptions with Amtrak.
- Review the plans and specifications for new or renovated platforms with Amtrak to verify compliance with Amtrak's technical standards, which are consistent with the American Railway Engineering and Maintenance-of-Way Association (AREMA) standards.
- At platforms served by Amtrak that are located along a host railroad, bring any conflicts related to Amtrak's standards to the attention of the Amtrak Facilities Development Manager (FDM) so that they can be reconciled in coordination with the host railroad.

Amtrak will coordinate the review of plans, when necessary, with the FRA or other agencies in accordance with the provisions of any Amtrak-FRA grant agreement and will inform the entity designing the platform of the feedback from any agency consulted. Amtrak will coordinate internal reviews, as determined by agreements.

Figure 8.1.1 - Platforms at Union Station, Denver, Colo.

Platform Boarding Narrative

Current U.S. Department of Transportation (USDOT) regulations require passenger railroads to ensure that passengers with disabilities can board and alight any passenger rail car of the train at new and altered station platforms, through its Level Boarding Rule. Where level-entry boarding cannot be provided due to freight-clearance requirements or mixed equipment, the passenger railroad operator must submit to the FRA or Federal Transit Administration (FTA) a Platform Boarding Narrative (Narrative) that shows how they intend to meet the performance standard.

Grant agreements between Amtrak and the FRA require that for stations where Amtrak is determined to be the "responsible party" under the Americans with Disabilities Act (ADA), Amtrak must submit a Narrative to the FRA, for its review and comment; this will be required for all projects that cannot achieve full platform-length level boarding. For stations where Amtrak is not the ADA determined "responsible party" Amtrak, as the rail operator, will request the project sponsor to develop the Narrative for review. Amtrak will submit the Narrative to the FRA on behalf of the third party.

A Narrative is required whenever there is an alteration to a non-level boarding platform regardless of funding source, and is drafted by the ADA Stations Program with input provided by the group or department responsible for managing the project.

Input for the Narrative includes:

- scope of work with location (with mile markers).
- dimensions for the new platform(s).
- photographs of existing platform.
- drawings of the proposed platform(s).

Sections 8.4 and 8.7 within this chapter include additional information on dimensional requirements for platforms related to accessibility, equipment, and operations.

8.2 Platform Types

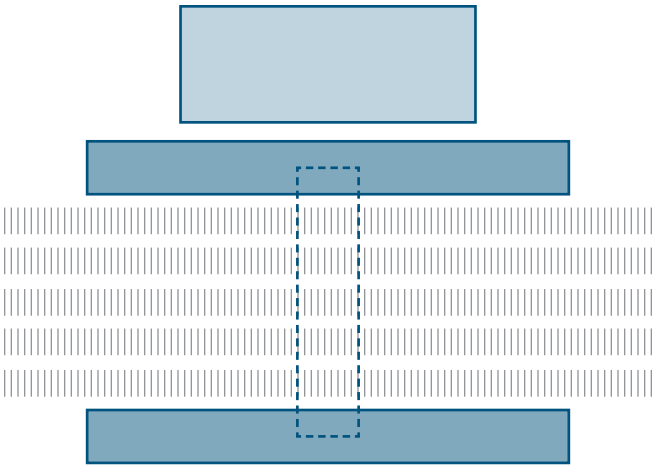
There are primarily two passenger boarding platform types found at Amtrak stations: side platforms and island platforms. Characteristics of these platform types, along with a third, less-common type, the service platform, are detailed as follows:

Side Platform

The side platform consists of one platform alongside a single track. The basic station design used for a two-track railway line has two side platforms, one for each direction of travel, with the tracks running between them. An advantage to the side platform is that the tracks can run straight and do not have to diverge outward as required for an island platform. However, where there is high-frequency service, High Speed Rail (HSR), or high-level platforms, the two side platforms must be connected by an overhead pedestrian bridge or tunnel. The side platform is well-suited to Long Distance service, providing a convenient arrangement for baggage operations when adjacent to the station building.

Side Platform with Overhead Pedestrian Bridge or Tunnel

Figure 8.2.1



Island Platform

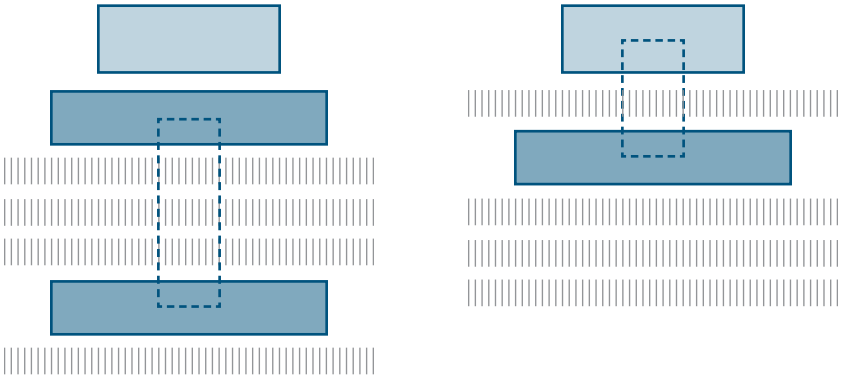
The island platform consists of a platform located between two tracks passing on either side. Stations with services that use three or more tracks require at least one island platform. While it is wider than the single side platform, the island platform requires less overall area than two side platforms. With a single set of elevators and escalators shared by both tracks rather than being duplicated or present on only one side, the island platform reduces the total amount of vertical circulation required, and hence may reduce maintenance and operation costs.

Island platforms are well-suited to commuter, corridor, or double track lines, where passengers tend to use trains in one direction in the morning and the other direction in the evening. At stations with two side platforms, one platform becomes crowded while the other is deserted. An island platform prevents this as the same large platform is used for trains in both directions. The use of island platforms is also well-suited to a track configuration raised on an embankment, as this makes it easier to provide access to the platform through a single movement of vertical circulation from an at-grade station building, without walking across the tracks.

However, while island platforms offer advantages in shared vertical circulation and boarding space, they also require extra width along the right-of-way as the tracks shift on approach to the station to accommodate the width of the platform.

Side and Island Platform Types

Figure 8.2.2



Service Platform

A third platform type providing only service functions, is used infrequently and not a predominant factor in station planning. Where operationally feasible, service platforms may be provided between tracks, so that passengers do not have to share space with baggage carts and other service vehicles. While uncommon, some stations may require a low platform to permit vehicle passage 8 inches above top of rail.

Platform Combinations

Depending on both the station typology and the right of way, there can be any number of platform type combinations.

Fundamentally, platforms can be distilled into 4 combinations:

One Side Platform
One or more tracks

Two Side Platforms
Two or more tracks

One or More Island Platforms
Two or more tracks

Side and/or Island Platforms
In Terminal Configuration - multiple tracks

8.3 Platform Access to and from the Station

Access and circulation to platforms from the station building will be determined by platform combinations, station categories and typologies, passenger volume, real traffic frequency, and baggage operations. Direct access to the platform from the station building is typically the most economical and preferred connection.

However, there are many instances in which direct access is impossible. In those cases, passengers will need to use a vertical connection to a grade-separated crossing, either below or above the tracks, to safely access platforms. This can be accomplished through vertical circulation elements previously discussed in Chapter 7, “Station”.

Where vertical circulation to the platform is required, the discharge location is preferred in the center of the platform, rather than at an end. The distance between platform exits is governed by NFPA 130 - Standard for Fixed Guideway Transit and Passenger Rail System.

Platform Access as it Relates to Station Category

Category 1 stations must generally plan for vertical circulation connections to multiple platforms. Due to the large number of passengers, it may be necessary to separate arriving and departing passengers to reduce congestion.

Category 2 and 3 stations located along a HSR line or busy commuter corridors with an island platform or two side platforms should also plan for vertical circulation to prevent pedestrians from crossing active tracks.

Platform Access as it Relates to Station Typology

Regardless of category, where multiple side and/or island platforms are used, vertical circulation connections to the platforms may be required. These connections can be accomplished by placing the station itself above or below the tracks and platforms (Vertical Typology), or by overhead pedestrian bridges or pedestrian tunnels from the station to the platforms (Side Typology).

Platform Access as it Relates to Rail Service

An important consideration in platform planning and design is that a significant number of Amtrak-served stations are located along designated HSR corridors. To prepare for HSR service, platforms must be designed with overhead or below-grade access that does not require the passenger to cross tracks at grade. For HSR service, a configuration utilizing a pair of island platforms allows local or corridor service to utilize one platform and HSR to utilize a second, independent platform.

At stations with HSR service, consideration should be given to bypass speed and potential impacts to the platforms. Independent island platforms allow slower trains to diverge from the main line, with the HSR tracks remaining straight. High speed trains can therefore pass right through the station, while slower trains pass around the platforms. This arrangement also allows the station to serve as a point where faster trains can pass slower trains. Where possible, Amtrak encourages minimizing existing at-grade crossings at stations not located along HSR lines as well.

Platform Access as it Relates to Program

At stations providing baggage handling services, special consideration should be given to platforms that are only accessible using vertical circulation. Carts used to transport baggage and express freight to and from the platform will also need to cross the tracks. The overhead pedestrian bridges, tunnels, and platforms will need to accommodate the clearances and turn-around space necessary for operating the carts. Freight elevators may also be required.

Overhead Pedestrian Bridges versus Tunnels

The use of tunnels versus overhead pedestrian bridges needs to be carefully considered. Some double-stack freight cars require 26 feet of vertical clearance, so tunnels usually require less height for ramps (one story for a tunnel instead of three stories for a bridge), which eliminates the need for elevators. Pedestrian tunnels should be carefully designed to avoid being claustrophobic, damp, or appearing unsafe due to lack of visibility from public areas. Discuss specific clearance requirements with your Amtrak Project Development Manager or inquire with the Host Railroad.

Figure 8.3.1 - Tunnel Connection to Platforms, Elizabethtown, Pa.

Platform Access by Station Typology

Side Typology

One Side Platform

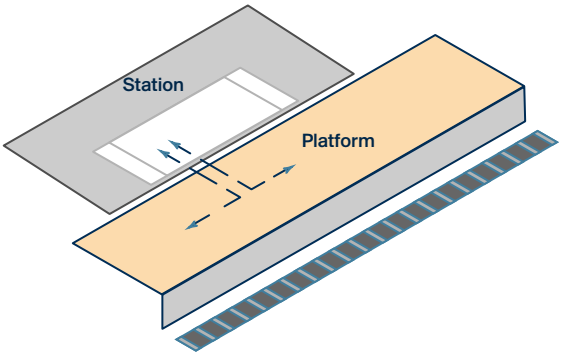
- Direct access to platform from station building.
- Plan for service growth and provision of an overhead pedestrian bridge or tunnel connection to future platforms.

Two Side Platforms

- Direct access to platform from station building on one side. Accessing platform on other side may require use of vertical circulation elements via overhead pedestrian bridge or tunnel.
- Connection issues include passenger flows, security screening, baggage handling, service types, and control and access of Amtrak staff.
- Plan for a second overhead pedestrian bridge if HSR is present to allow separation of arrivals and departures relative to passenger flows and security screening - or provide a separate HSR concourse and commuter/Long Distance/corridor concourse.
- Tunnel versus overhead pedestrian bridge can be dependent on topography, freight clearances, and platform heights.

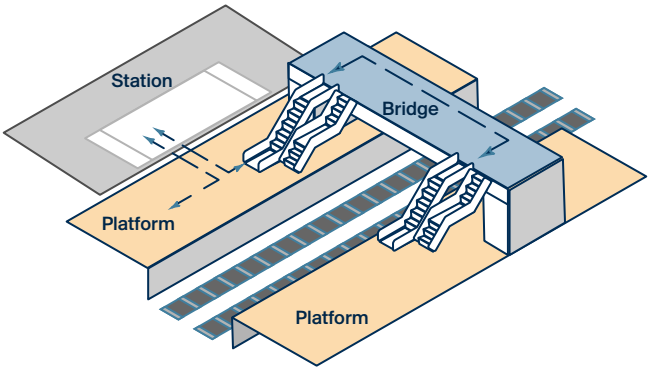
Single Platform | Side Typology

Figure 8.3.2



Two Platforms | Side Typology

Figure 8.3.3



Vertical Typology

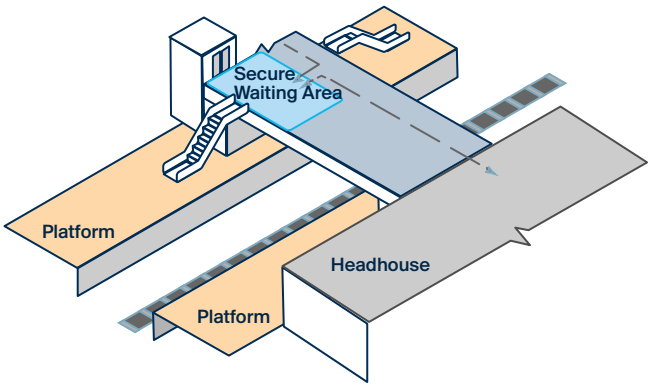
- Vertical circulation elements (stairs, elevators, escalators) required for access to all platforms from station building, above or below.
- Baggage typically hand-delivered on floats. If possible, include provisions for separate service elevators.

Terminal Typology

- Typically, direct access to all platforms from station building.
- Crossover of arriving and departing passengers can cause issues with passenger flow.
- Separate arriving and departing passengers vertically to eliminate the crossover.
- This configuration often creates a service/passenger conflict as both passengers and service vehicles use the head end of the tracks.

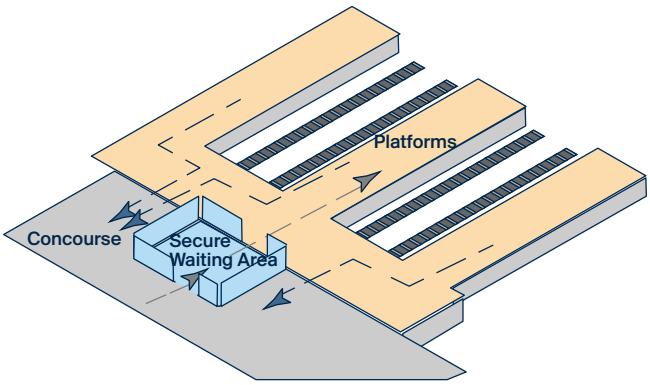
Platforms at Vertical Typology Stations

Figure 8.3.4



Platforms at Terminal Typology Stations

Figure 8.3.5



8.4 Critical Dimensions and Clearances

Think systemically when designing and planning platforms. Platform length and height are typically derived from equipment and consist dimensions serving the station. Platform width, on the other hand, is related to capacity or passenger volume. Hence, the lengths and heights of all platforms along the same service line, and providing the same rail service, should be uniform, as the equipment and consist will remain the same from station to station.

Platform Height

Amtrak operates equipment with three different floor heights, as illustrated below. East Coast services are based on high-floor equipment, while the rest of the country is planned for low-floor equipment. Level boarding standards can be significantly enhanced with ramps, lifts, or extensions integral to the rail car, rather than manual lift equipment provided at the platform.

- Standard platform heights include 8, 15 and 48 inches above the top of rail (ATR).
- Some stations can be served by multiple equipment types, and may require separate platforms of various heights.

To the greatest extent possible, platform heights should provide level boarding. This promotes compliance with accessibility requirements, and is also safer, more convenient, and moves passengers on and off trains more quickly – an important factor in reducing dwell times and speeding service. Level boarding platforms tend to reduce injuries due to the elimination of the steps that are required for boarding at low-level platforms. They are considered essential for HSR stations.

When determining the platform height during design, there are three primary criteria:

- Federal accessibility regulation.
- Floor height of the passenger trains that use or will use the station.
- Whether freight trains operate or will operate on the track adjacent to the platform.

Platform Height

Table 8.4.1

	8” Platform	15” Platform	48” Platform	
18” nom. floor				Bi-level Equipment
24” nom. floor				Single-level Equipment
48” nom. floor				Single-level Equipment

Passenger Train Floor Height and Level Boarding

Depending on which type of Amtrak equipment is used, or will be used, at a station, level boarding may be considered 48 inches or 15 inches above the top of rail (ATR). This allows the platform's floor height to be consistent with the floor height of the train. In some instances, platforms may serve passenger trains with different floor heights; in these cases, the platform design may combine two segments of different heights. Talgo equipment, currently used on the Amtrak Cascades® service, has a 24-inch floor height, but is equipped with a carborne wheelchair lift, permitting use of a 15-inch ATR platform to effectively achieve level boarding.

Freight Train Clearances

If freight trains use the track adjacent to the platform, level boarding is only feasible if excessive dimension freight cars (i.e., "high and wide") are prohibited. If such cars are permitted, the platform would interfere with clearances required for safe passage of these freight cars. In these cases, a maximum platform height of 8 inches ATR is typically used, with portable wheelchair lifts, setback (mini-high) platforms and other means permitted to be employed in lieu of level boarding for accessibility purposes. Though they may be cost prohibitive, ask the project's FDM about the use of gauntlet or siding tracks and whether their application may be appropriate.

Platform Length

The optimum platform design should accommodate the full length of a typical train consist and allow for maximum flexibility. While the minimum required platform length will vary depending on the type of rail service provided, platform lengths should be as standardized as possible, based on service provided, both within the individual station, and across multiple stations serving a corridor.

Platform lengths on the Northeast Corridor are driven by the frequency of service and service types provided by both Amtrak and commuter services.

The minimum platform length of 300 feet should only be used at stations with low ridership and short train consists with four or fewer passenger cars.

Amtrak may consider less than full-length boarding platforms based on individual conditions, and will make a determination on platform length after consultation with stakeholders.

If the preferred platform length is not initially accommodated or built, plan the station location and track layout to allow for future extension of the platform without reconfiguration of the building or platform.

The required platform length for Long Distance trains is derived from a need to eliminate doublestopping, while providing access to and from all car types in the train consist. Unless specific site constraints prohibit the minimum platform length or staffing levels preclude safe boardings and alightings at all train consist doors, minimum platform lengths for Long Distance service should always be met.

FRA or FTA must approve new and modified platforms that do not provide full-length level boarding from all cars, to ensure that performance standards are met.

Platform Length by Service Type - Average Consist Layout

Table 8.4.2

Service Type	Preferred - All Locations	Minimum - Off NEC	Minimum - NEC
Acela[1]	1050'	N/A	540'-625'
Northeast Regional℠	1050'	425'-455'	850'-880'
State Supported Corridor	700'-710'	285'-370'	700'-710'
Long Distance	1200'-1220'	540'-625'	850'-880'

Amtrak has identified preferred and minimum platform lengths, as shown in Table 8.4.2

1 Platform lengths for High Speed Rail services will be modified to accomodate full length boarding for lengthened Acela® and new HSR Fleets.

Platform Width

Platform width must meet FRA and ADA requirements; thereafter it is a balance between accommodating peak passenger load and physical constraints. Wider platforms are generally preferred over narrower ones as safer, better able to handle service baggage carts, and better able to provide for growth in passenger volume.

Platform Width

Figure 8.4.3

Platform	Preferred Width	Minimum Width	Live Loading
Center Island	24’	20’	250 psf
Side w/ Baggage Loading	15’	12’ - Low Level 10’ - High Level	250 psf
Side w/ Passenger Service only	12’	10’	150 psf

Consider the following when planning and designing platforms:

- When 12-foot-wide platforms are used with full baggage service, turnarounds for equipment need to be provided at the platform ends.
- The National Fire Protection Association (NFPA) has a larger minimum horizontal dimension (44 inches) for unobstructed passageway between obstruction and platform than the ADA’s (36 inches).
- Amtrak’s minimum clearance from obstruction to platform edge (72 inches) is larger than either the NFPA’s (44 inches) or ADA (36 inches).
- Minimum platform widths vary based on the presence of baggage carts. Generally, an additional 36-inch clearance is required, for a minimum of 108 inches (9 feet).
- Detectable Warning Strips should comply with ADA requirements (24 inches).

Additional Dimensions and Clearances

Platform Offset

Amtrak's standard offset for 15- and 48-inch ATR platforms is 67 inches from the centerline of the track.

Amtrak's standard offset for 8-inch ATR platforms is 61 inches from the centerline along the Amtrak-owned track, although other offset dimensions, determined by host railroads and states, may also be required for 8-inch ATR platforms. For example, a common offset for 8-inch ATR platform along freight-owned tracks is 64 inches from the centerline; however, this dimension may vary per host railroad.

Curved Platforms

The preferred type of platform is one that is straight and parallel with the tracks; it is referred to as being "tangent." When this is not feasible, a curved platform up to 1 degree 40 minutes and 1" superelevation is allowed, in accordance with Amtrak Standard Track Plan - Minimum Roadway Clearances. However, most host railroads only permit new platforms on tangent tracks.

Clearances

See the SP-2020 for platform clearance guidelines related to operations and egress. Host railroads may also have their own vertical and horizontal clearance envelope requirements.

Slope

Slopes along the length of a platform (running slopes) and slopes across the width of the platform (cross slopes) should be minimized to comply with ADA standards. A platform that is level along its length is Amtrak's preferred standard, although site conditions can require some slope, such as to maintain consistent height relative to the track. Platforms should slope away from the tracks to prevent wheelchairs, strollers, baggage carts and other items from rolling towards the train or onto the right-of-way in front of an oncoming train. Island platforms will slope to the middle of the structure, and require internal drainage. See the SP-2020 for slope tolerances.

Canopies

Host railroads' clearances and setback requirements prevent canopies from being flush with the platform edge. Amtrak recommends that a canopy length be at least two thirds the length of the platform, centered on the primary entrance point and providing cover for any portable wheelchair lifts.

Sacrificial Edges

At 48-inch and 15-inch ATR platforms, a sacrificial edge shall be applied to increase the platform width by 5 inches and to reduce the gap between platform and train car. Sacrificial edges consist of wood or composite boards, and may vary in size depending on the gap. Refer to SP-2020 for additional information.

8.5 Signage and Wayfinding for Platforms

Passenger Information Display System (PIDS)

Where PIDS are installed, information displays must be visible in all weather conditions as some electronic displays are difficult to see in bright sunlight. Also, they must take into account vertical clearances associated with any equipment that may use the tracks.

Canopy Mounted Signage

Canopy height should take into account the horizontal and vertical clearances of platform signage systems and other overhead elements such as CCTV.

Figure 8.5.1 - PIDS on a platform in Union Station, Washington

8.6 Platform Safety and Security

Some general design considerations intended to enhance passenger safety and security are outlined in this section.

Exiting and Other Code Requirements

Providing code-required exits from a platform is a significant design consideration, especially from island platforms that require an overhead or tunnel escape route to avoid exit across live tracks.

Lighting

Platform lighting is an important safety and security concern. See Appendix C: Building Systems for design criteria for platform lighting. Lighting levels must also meet the values set forth in the SP-2020.

Inter-track and Platform Fencing

Where clearances allow, inter-track fencing is to be installed to prohibit unsafe crossing of track areas at a station. Access to the platforms should be controlled using either fencing or other means. Host railroads may have additional fencing requirements.

Emergency Call Boxes

Amtrak requires one emergency call box with a direct connection to Amtrak or local emergency providers, depending on station location. The FDM together with the project sponsor should determine who will respond to the calls by working with Amtrak Police and/or the local police department. Emergency call boxes should be located on the platform or immediately adjacent to the platform. Call boxes should be easily accessible from both ends of the platform.

Security

Amtrak will provide detailed security requirements as development of the station design progresses.

Exiting

Reference National Fire Protection Association 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, for more information.

Track Crossings

The preferred method for customers to cross the tracks is via an overhead pedestrian bridge or tunnel for safety reasons. When this is not feasible, an ADA-compliant, at-grade track crossing may be permitted. The preferred location for such crossings is adjacent to and as part of a highway grade crossing. Where a pedestrian crossing must be located remote from a highway crossing, host railroads require an active warning system (similar to road crossings) to be installed to warn pedestrians of oncoming trains.

Emergency Responders and Emergency Vehicles

Wherever possible, platform design should permit emergency responders and emergency vehicles to reach platforms directly. If direct vehicle access is not feasible, access to a location in immediate proximity combined with unimpeded access on foot and for a wheeled ambulance stretcher or gurney may suffice.

8.7 Platform Accessibility Considerations

Amtrak's accessibility guidelines for platform design are based on two sets of considerations:

1) The statutory provisions and current regulations promulgated under the Americans with Disabilities Act (ADA).

2) The best engineering practices of track and platform design at railroad stations, to the extent consistent with the ADA.

The ADA statutory requirements and the U.S. Department of Transportation Accessibility Standards (DOTAS) regulations require that all Amtrak-served stations within the United States (other than flag stops) be made accessible to passengers with disabilities. In addition to the *Level Boarding Rule,* previously discussed within this chapter, the ADA and implementing regulations generally require the following:

- Platforms must be "readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs."
- At stations with raised platforms, there may be a dimensional gap of no more than 3 inches horizontal and 5/8 inch vertical between the platform edge and the entrance to the rail car (recognizing however, that it is unlikely that commuter and intercity rail operators can meet this requirement).
- Where it is not operationally or structurally feasible to meet the gap requirements, assistive boarding devices such as ramps or bridge plates, or carborne or platform mounted lifts are a permissible means to accommodate passengers with disabilities.

Wheelchair Lifts

At low-level platforms that cannot accommodate level boarding, Amtrak utilizes portable wheelchair lifts supplied by Adaptive Engineering, Inc. to provide ADA access. The wheelchair lift should be kept on or near the platform, where it can be retrieved by the conductor and taken to the rail car. The lift is manually operated and does not require any batteries or power. Amtrak recommends keeping the lift in an enclosed shed, accessible to the train crew when needed.

Tactile Warning Edges

Platform edges must have a detectable warning surface (also known as truncated domes or tactile edging), consistent with ADA requirements, which shall contrast visually with adjacent surfaces, be 24 inches deep, and run the full length of the platform edge. Amtrak's standard color requirement is federal yellow. Acceptable materials for tactile warning edges include cast-iron, precast concrete, poured-in-place concrete, ceramic, porcelain, or plastic tiles. Additional details, including standard detail drawings, are provided in the SP-2020. Depending on the climate, Amtrak may have site-specific requirements.

Setback Platforms

Where host railroads' freight usage of adjacent track will not permit 15- or 48-inch ATR platforms, setback (mini-high) platforms may be used with a means to span the gap between the car and platform. Currently, bridge plates deployed by on-board or station personnel are used to span the gap.

Bridge Plates and Superliner Ramps

Bridge plates and bi-level Superliner® ramps allow passengers in wheelchairs and other wheeled mobility devices to pass over the gap between the platform edge and passenger rail car threshold. Similar to wheelchair lifts, the bridge plates should be kept on or near the platform in a storage device, to be retrieved by the conductor and taken to the rail car. Superliner ramps are stored onboard the train.

8.8 Unique Design Solutions for Platforms

Ask the project's FDM for more information related to the following specialized platform solutions.

Flip-Top Edges

At some stations providing level boarding, 15- and 48-inch ATR platforms may be fit with a flip-top edge that folds 90 degrees to allow passage of freight cars. The flip-top edge features a tactile warning edge and appears like any other platform when in the horizontal position, allowing for accessible boarding and alighting. By hinging into a vertical position, it can effectively decrease the platform width by two feet or more, providing the required freight car clearance.

Figure 8.8.1 - A Flip-Top Edge used at John D. Dingell Transit Center, Dearborn, Mich.

Shuttle Platforms

The shuttle platform design solution was developed as a pilot program to provide passengers with level boarding while still maintaining freight railroad clearance requirements. To mitigate the gap that the freight equipment may require, a “shuttle” section of the 15 or 48 inch ATR platform can extend out by four feet or more.

Snow Melting Systems

Snow melting systems may be installed at stations in colder climates as a means by which to assure safe snow and ice removal without incurring costs of watchman or flagman protection during manual snow removal procedures. Two different systems are available:

- Hydronic, in which hot liquid is circulated in pipes within the platform.
- Electric resistance, in which heating wires are embedded in the platform.

Historic Platforms

Where historic platforms remain in place, often surfaced in brick, evaluate alternatives for retaining, relocating or replacing the historic platform to meet the Secretary of the Interior's Standards and regulatory reviews while complying with DOTAS. Potential tools include but are not limited to targeted in-kind replacement, shift the functional platform to leave brick in place adjacent to the station building, and replacement with colored stamped concrete for a compatible appearance. Sensitive treatment of historic canopies is also critical to the design.

Appendix A: Resources

A.1
Contact List

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A.2
Amtrak Resources

Amtrak Manuals, Guidelines, and Other Resources

Great American Stations Project:
www.GreatAmericanStations.com

Amtrak Stations Development Process Checklist

Amtrak Standard Practices SP-2020

Amtrak Platform Design Guidelines

Amtrak Signage Manual

Amtrak Brand Book

Amtrak Corporate Security Standard Design Practices

Amtrak Environmental Engineering Guidance and Policy

Amtrak Information Technology Premises Distribution Standards

Amtrak State Fact Sheets
www.amtrak.com/state-fact-sheets

A.3
External Resources

Rail Related Resources

National Fire Protection Association (NFPA)

» Standard for Fixed Guideway Transit and Passenger Rail Systems

U.S. Department of Transportation

» Station Area Planning for High-Speed and Intercity Passenger Rail

Federal Railroad Administration environmental regulations

Accessibility Resources

Americans with Disabilities Act (ADA) of 1990

Code of Federal Regulations (CFR) Title 49 Part 37 Transportation Services for Individuals with Disabilities (ADA)

U.S. Department of Justice

» 2010 ADA Standards for Accessible Design
» Guidance on the 2010 ADA Standards for Accessible Design

U.S. Department of Transportation

» ADA Standards for Transportation Facilities (DOTAS)
» Level Boarding Final Rule

Historic Preservation

National Historic Preservation Act of 1966 (NHPA)

Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings

Advisory Council on Historic Preservation

» Program Comment To Exempt Consideration of Effects to Rail Properties Within Rail Rights-of-Way

Sustainability Resources

American Society of Heating, Refrigeration and Air Conditioning Engineers (www.ashrae.org)

- ASHRAE Standards
  - ASHRAE/IESNA 62.1-2007 Users Manual: Ventilation for Acceptable Indoor Air Quality
  - ASHRAE/IESNA 90.1-2007 Users Manual: Energy Standards for Buildings Except Low-Rise

Energy Star (www.energystar.gov)

- Guidelines for Energy Management
- Energy Star Specifications

Federal Emergency Management Agency (www.fema.gov)

- Disaster Aid Program - Hazard Mitigation Assistance

International Code Council (www.iccsafe)

- International Energy Conservation Code
- International Green Construction Code (IgCC)

National Park Service (www.nps.gov)

- The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings
- Guidelines on Flood Adaptation for Rehabilitating Historic Buildings

Occupational Safety and Health Administration (www.osha.gov)

- Occupational and Safety Health Standards
- Directives

U.S. Green Building Council (www.usgbc.org)

- LEED Reference Documents by Rating System
- LEED for Neighborhood Development
- USGBC Publications

U.S. Department of Energy (Energy Efficiency and Renewable Energy) (www.doe.gov)

- Department of Energy Technical Standards
- State / City Energy Building Codes
- Building Energy Modeling

U.S. Environmental Protection Agency (www.epa.gov)

- National Environmental Policy Act (NEPA)
- Regulatory Agendas & Regulatory Plans

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Appendix B: Amtrak System

The characteristics of the Amtrak® passenger rail system are important factors in station, site, and platform design.

This appendix introduces some of the technical dimensions and basic functions of the Amtrak system including the following:

» Service Type
» Equipment Dimensions
» Train Consists
» Operations

B.1 Introduction

While rail operations and system planning are beyond the scope of these guidelines, an understanding of some of the characteristics of the Amtrak system and railroad operations in general are useful for understanding the functional needs of a station. The trains themselves also establish important dimensional requirements for station and platform design.

The variety of passenger and freight train operations in the U.S. has a significant impact on the development of Amtrak passenger rail stations, from design considerations such as clearances, to safety considerations during construction, to a variety of safety and functional considerations during ongoing operations. At stations where not all passenger trains stop, such trains may pass a station platform at speeds as high as 150 MPH.

The combination of speed, platform configuration, and visibility of approaching trains may require devices on platforms to warn passengers of an approaching train. Similarly, freight trains may pass a passenger platform at speeds from as slow as a walk to as high as 70 MPH. In addition, the proximity of a freight yard or freight customer side track may affect the design of a station, or even the viability of its proposed location.

Consequently, it is important to understand the character of railroad operations, both passenger and freight early in the station development process. Amtrak, through its Host Railroads Group, can provide initial insight, and the affected host railroad(s) will necessarily become involved soon thereafter.

In planning a station, required circulation space, waiting areas, baggage handling and storage, ticketing, platform heights and length, parking, and other design elements are all linked to the specific service and equipment operated at the particular station location.

Amtrak Service Corridors Map

Figure B.1.1

B.2
Service Types

Northeast Corridor

The Northeast Corridor (NEC), a high speed railroad, is the centerpiece of the Amtrak System. The NEC and connecting network supports a daily schedule of more than 2,200 trains, including more than 150 Amtrak trains. Northeast Regional℠ trains operate on the NEC main line between Washington, Boston, and connecting corridors to Springfield, Mass. and Virginia. The NEC is serviced by Amfleet® single level equipment, including Coach and Business class service, with a cafe car. Checked baggage service is typically not provided on Northeast Regional℠ service.

Acela®

Amtrak's Acela offers premium, limited stop service between Boston, New York, and Washington, featuring Amtrak's highest speed trains. Acela service includes both Business class and First class, with a cafe car. Checked baggage service is not provided on the Acela.

High Speed Rail (HSR)

While Amtrak's Acela trains currently achieve speeds as high as 150 mph, future "next generation" HSR trains are anticipated to achieve speeds as high as 220 mph. Relevant considerations include the following:

- Planned HSR systems in the U.S., such as in California, will operate on dedicated HSR-only track. The next generation HSR in the Northeast Corridor may, at least during the incremental implementation period, share track with other trains.
- Even HSR with dedicated right-of-way will still need to connect with existing conventional intercity passenger rail, commuter rail, and local streetcar and transit systems. As a result, HSR systems are expected to share existing stations or new stations with existing intercity services.

State Supported Corridor Service

Passengers on the Northeast Corridor or State Supported Corridor routes are usually frequent travelers who arrive at the station closer to their departure time, with few or no checked bags, and park for the day. The trains do not include sleeping cars, and typically do not have checked baggage service. Amtrak corridor services trains operating in the Northeast use Amfleet® equipment, while trains in the mid-west generally use Horizon Fleet cars. Amtrak corridor services in California use California Cars or Surfliner® equipment, and the Amtrak Cascades® Corridor service in the Pacific Northwest uses Talgo and Horizon equipment. Some corridor services use Superliner® equipment seasonally, while the Heartland Flyer® uses them year-round.

Long Distance Service

Amtrak currently operates 15 Long Distance trains, covering 18,500 route miles and serving 41 states, providing an important transportation link for many rural communities across the country. Sleeping car service is provided, as well as checked baggage (at select stations). Amtrak Long Distance Services use Superliner® or Viewliner® / Amfleet® equipment. The East Coast Long Distance services (Lake Shore Limited®, Cardinal®, Crescent®, Palmetto®, Silver Meteor®, and the Silver Star®), utilize Viewliner and Amfleet single-level equipment. All other Long Distance trains use Superliner bi-level equipment. Long Distance train consists are Amtrak's longest, with anywhere from seven to 14 cars comprising trains up to 1,200 feet long.

Auto Train®

The Auto Train is a unique service that allows travelers to take their personal vehicles with them. The train utilizes Superliner equipment and travels non-stop between Northern Virginia and Central Florida daily.

B.3 Equipment

Passenger Car Types

The Amtrak system currently operates with equipment types that are a result of the different types of rights-of-way (ROW) that Amtrak shares with other railroads across the country. Amtrak passenger cars consist of either a bi-level design, with a low-level entry floor height, or a single-level design, with a high-level entry floor height. Both single-level and bi-level equipment will continue to be used into the future.

Important characteristics include the following:

- Bi-level equipment has a nominal floor height of 18 inches above top of rail (ATR) that works well on shared passenger/ freight routes where the freights have clearance requirements limiting platform heights to 8 inches ATR.
- Bi-level equipment has one or two sets of doors per side on the lower level of each car.
- Single-level high-floor equipment has a nominal floor height of 51 inches ATR and is primarily used on the East Coast where tunnels limit vehicle heights.
- Single-level equipment allows more efficient movement between cars and boarding/deboarding at 48 inch platforms.
- Single-level equipment has steps at each exit door that may be used to serve low-level platforms.

The equipment variations can be important factors for platform design and planning. For instance, stations that serve both Superliner and Acela or Amfleet equipment, which require different platform heights, should ideally be constructed with separate platforms or, if necessary, with two platform sections of different heights, to achieve level boarding for each equipment type.

Equipment operated by Amtrak is subject to change and current information should be requested from the Amtrak Facilities Development Manager.

Passenger Car Types

Table B.3.1

Name	Deck Height	Dimensions	Occupancy Per Car	Location Used	Other	Elevation
BI-LEVEL PASSENGER CARS						
Superliner®	18" ATR	85'L 16'H 10'W	74 coach 40 sleeper	Long Distance Routes not out of New York or Boston	Variations include sleeper, diner, lounge, baggage, coach	
California Car/ Surfliner®	18" ATR	85'L 16'H 10'W	70-90	California	Variations include sleeper, diner, lounge, baggage, coach	
SINGLE-LEVEL PASSENGER CARS						
Amfleet®	51" ATR	85'L 13'H 10'W	60-70	East Coast	Traps in vestibule enables car to serve low-level platforms	
Horizon	51" ATR	85'L 13'H 10'W	60-70	Michigan, Missouri, Wisconsin, Illinois	Traps in vestibule enables car to serve low-level platforms	
North Carolina Coach	51" ATR	85'L 13'H 10'W	55-65	North Carolina	Traps in vestibule enables car to serve low-level platforms	
Viewliner® Sleeper, Diner, and Baggage	51" ATR	85'L 14'H 10'W	30	East Coast	Traps in vestibule enables car to serve low-level platforms	
Acela®	51" ATR	85'L 14'H 10'W	299 (per trainset)	Northeast Corridor	Traps in vestibule enables car to serve low-level platforms	
Talgo	24" ATR	43'L 11'H 10'W	269 (per trainset)	Pacific Northwest	Tilts to go around curves faster. Provides extendable wheelchair lift and extendable step. Owned by the State of Washington.	

Locomotive Types

Although they do not carry passengers, locomotives are relevant to platform design in the context of platform length, to provide for safe and easy access from the locomotive cab to the platform and vice-versa, where crew changes are scheduled to take place. Similarly, baggage cars must be safely and easily accessible from the platform at stations where checked baggage service is offered.

Equipment operated by Amtrak is subject to change and current information should be requested from Amtrak Facilities Development Manager.

Train Consists

The arrangement of passenger coaches, sleeping, dining and lounge cars, baggage cars, and locomotives that make up a train is defined as the "consist". Special trains, like the Acela and the Amtrak Cascades, are made up of semi-permanently attached cars, called a "trainset". Understanding Amtrak's equipment and consists is important in developing a station's site and platform design. Specific service types, equipment types, and consists should be determined for each station project, and it should be understood that train consists can change over time to accommodate changes in service types and demand. Ask the project's Facilities Development Manager (FDM) for more information on the specific consists and trainsets relevant to your station project.

Locomotive Types

Table B.3.2

Name	Type	Dimensions	Top Speed	Location Used	Other	Elevation
Acela Power Car	Electric	69'L 14'H 10'W	150 mph	Northeast Corridor	Fastest locomotives in the country	
ACS-64	Electric	65'L 14'H 10'W	125 mph	Northeast Corridor		
P-42	Diesel	69'L 14'H 10'W	110 mph	Nationwide	Variation used in New York utilizes electric 3rd rail	
F59	Diesel	58'L 15'H 10'W	110 mph	California, Oregon, Washington, North Carolina	Owned by California, Washington, and North Carolina, which use specific paint schemes	

Sample Long Distance Train Consists

Table B.3.3

Long Distance Routes	Locomotives	Baggage	Diner	Lounge	Coaches/Sleepers	Length (ft.)
Auto Train®	2 Diesel	0	3	2	12 Superliner 34 Autocarrier	4303
California Zephyr®	2 Diesel	1	1	1	5 Superliner	818
Capitol Limited®	2 Diesel	1	1	1	6 Superliner	903
Cardinal®	1 Electric 1 Diesel	1	1	0	3 Amfleet 1 Viewliner	575 / 579
City of New Orleans®	1 Diesel	0	1	1	5 Superliner	664
Coast Starlight®	2 Diesel	1	1	2	8 Superliner	1158
Crescent®	1 Electric 2 Diesel	1	1	1	4 Amfleet 2 Viewliner	830 / 903
Empire Builder®	2 Diesel	1	1	1	9 Superliner	1158
Lake Shore Limited®	2 Diesel	2	1	1	6 Amfleet 3 Viewliner	1243
Palmetto®	1 Electric 1 Diesel	1	1	0	4 Amfleet	575 / 579
Silver Meteor®	1 Electric 2 Diesel	1	1	1	4 Amfleet 3 Viewliner	915 / 988
Silver Star®	1 Electric 2 Diesel	1	1	1	4 Amfleet 2 Viewliner	830 / 905
Southwest Chief®	2 Diesel	1	1	1	6 Superliner	903
Sunset Limited®	2 Diesel	1	1	1	6 Superliner	903
Texas Eagle®	1 Diesel	0	1	1	6 Superliner	919

Sample State Supported Routes Train Consists (Northeast)

Table B.3.4

Routes	Locomotives	Baggage	Diner	Lounge	Coaches/Sleepers	Length (ft.)
Downeaster℠	1 Diesel	0	1	0	1 Amfleet 1 NPCU	580
Empire Service®	1 Dual Mode	0	1	0	4-5 Amfleet	495 or 580
Ethan Allen Express®	1 Dual Mode	0	1	0	1 Amfleet	495
Keystone Service®	1 Electric	0	0	0	2 Amfleet	495
Maple Leaf®	1 Diesel or 1 Dual Mode	0	1	0	4-5 Amfleet	495 or 580
Pennsylvanian®	1 Electric or 1 Diesel	1	1	0	2 Amfleet	665
Hartford Line℠	1 Diesel	0	0	0	1-2 Amfleet 1 cab car	325 or 410
Vermonter®	1 Electric or 1 Diesel	0	1	0	4 Amfleet	495

Sample State Supported Routes Train Consists (Southeast)

Table B.3.5

Routes	Locomotives	Baggage	Diner	Lounge	Coaches/Sleepers	Length (ft.)
Carolinian®	1 Electric or 1 Diesel	0	1	0	5 Amfleet	580
Heartland Flyer®	1 Diesel	0	0	0	3 Superliner 1 NPCU	410
Piedmont®	2 NC	0	1	0	2-3 NC Coaches	325 or 410

Sample State Supported Routes Train Consists (Midwest)

Table B.3.6

Routes	Locomotives	Baggage	Diner	Lounge	Coaches/Sleepers	Length (ft.)
Blue Water℠	2 Diesel	0	1	0	5 Horizon	650
Hiawatha®	1 Diesel	0	0	0	3 Horizon 1 NPCU	325 (665 Pre-Covid)
Illini®	1 Diesel	0	0	1	6 Superliner	580
Illinois Zephyr®	1 Diesel	0	1	0	3 Amfleet or 3 Horizon	410
Lincoln Service®	1 Diesel	0	1	0	4 Horizon / Amfleet	580
Missouri River Runner®	1 Diesel	2 or 3	1	0	3 Horizon or 3 Horizon + 1 Amfleet	495
Pere Marquette®	1 Diesel	0	0	0	3 Superliner	325
Wolverine®	1 Diesel	0	1	0	4 Horizon	495

Sample State Supported Routes Train Consists (West)

Table B.3.7

Routes	Locomotives	Baggage	Diner	Lounge	Coaches/Sleepers	Length (ft.)
Capitol Corridor®	1 Diesel-Electric or 1 Caltrans	0	1	0	3 Caltrans	410
Amtrak Cascades®	1 Diesel-Electric	1	2	0	9 Talgo	586
Amtrak Cascades®	1 Diesel-Electric	0	1	0	3 Horizon + 1 NPCU	410
Pacific Surfliner®	1 Diesel-Electric	0	1	0	4 Surfliner + 1 Superliner	580
San Joaquins℠	1 Caltrans	0	1	0	4 Caltrans + 1 Axle Count Car	580

B.4 Operations

Crew Bases and Service and Inspection

Amtrak trains operate under demanding conditions and there are a number of servicing requirements for the equipment, as well as routine operational activities that are accommodated in the system. While the vast majority of Amtrak-served stations are not impacted by these operational considerations, as passenger rail traffic grows, and in order to provide a safe and efficient system, operations issues will have greater impacts on station design. Operations considerations include the following:

Crew Change

There are more than 50 crew bases around the country where engineers or conductors begin and/or end their shift.

Crew Bases

Include locker and shower facilities. In most locations the crew base is inside or in close proximity to the station.

Dwell Times

When a train stops at a station with a crew base, the train may dwell there for 10-30 minutes.

Commissary

Amtrak has 10 commissaries, eight of which are located at major terminals. These are large facilities which stock trains' dining and cafe cars. Food is loaded well in advance of departure.

Cleaning and Trash Removal

At some terminal stations, trains are serviced on the platform after the passengers have left the train. At other stations, trains are brought from the station to a nearby yard for servicing.

Trash

At designated trash stop stations, the conductor will off-load trash and recycling bags and take on empty ones.

Designated Smoke Break Stations

Passengers may be allowed to deboard trains for a short smoke break at stations with extended dwell times for crew changes and safety inspections.

Safety Inspections

The Amtrak fleet is required to undergo routine safety inspections every 1,500 miles. Some Amtrak stations include inspection pits to accomplish these inspections. Service platforms cannot exceed 8 inches ATR at intermittent segments, to permit maintenance access to the passenger car "trucks" (aka "bogies" or "wheel and suspension assemblies").

Maintenance

Fleet maintenance occurs at Amtrak maintenance facilities, rather than at stations. Amtrak's major maintenance facilities are located at Wilmington and Bear, Del., and Beech Grove, Ind.

Amtrak Express Shipping®

Amtrak provides express shipping service at some stations, with design implications for loading areas, storage, and equipment.

The essential pattern for train servicing is that servicing functions typically occur at terminal points in the route rather than at mid-route stations. These functions include stocking the dining and cafe cars, cleaning the train, emptying the restroom waste holding tanks, refilling potable water tanks, and removing trash and recyclables. Most Amtrak corridor service originates or terminates at Amtrak's Large Stations, which are also origin or terminal points for Amtrak's Long Distance routes.

Thus, State Supported Corridor and Long Distance services typically share Amtrak commissaries, crew bases, and service yards. State Supported Corridor routes are short enough that no en-route servicing of the train is required. On those routes that do not begin or end at a station with an Amtrak commissary, the train is able to complete a full round trip before servicing.

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Appendix C: Building Systems

This appendix is introductory in nature. Please refer to applicable code(s) and Amtrak's Standard Practices SP-2020 (SP-2020), for more detailed information.

C.1 Heating, Ventilating and Air Conditioning (HVAC)

Temperature / HVAC

Station interiors should be designed to maintain temperatures as detailed in the SP-2020. Natural gas heating should be utilized where possible. The use of electricity for heat should only be considered in circumstances where no other options are feasible. Consideration should be given to zoning that accommodates the numerous spatial characteristics of the station. Special attention is required at the ticket office, where equipment produces heat, and open counters or sliding windows allow the transmission of hot or cold air from opening and closing waiting room doors.

Interior Ventilation

Positive building pressurization should be maintained at all times. The pressurization is highest in the ticketing area and slightly lower in the public waiting areas. Positive building pressurization will keep dirt, dust, and diesel or automobile smoke exhaust from entering the building.

Platform Ventilation

In instances where the development of property results in a closed or partially enclosed overbuild, the project design is to include a ventilation system designed and constructed to accommodate normal operations as well as life safety requirements. The system criteria are to be determined by engineering analyses. Accommodations are to be made to the above-grade structure and will account for the design, construction, and maintenance of the mechanical, electrical, and structural systems for the ventilation systems as described below.

Overbuild - General

The development of facilities that result in a closed or partially enclosed overbuild structure over tracks, must include design features to ensure adequate ventilation, illumination, emergency egress, and fire protection to provide a safe environment for Amtrak passengers and employees during normal and emergency operations.

Overbuild – Locomotive Exhaust

An engineering analysis is to be conducted to model the specific railroad operating scenarios of diesel locomotives within the overbuild. The result of the analysis is to be a schematic design of a mechanical system with appropriate controls to provide recommended air change rates to ventilate the space beneath the overbuild to maintain safe, acceptable concentrations of diesel exhaust gases.

These levels are to be as defined by OSHA and approved by the Amtrak® Environmental department.

The overbuild ventilation system is to be designed to inhibit the exhaust gases of the diesel locomotives anticipated to be utilized within the limits of the overbuild. Amtrak will provide information regarding the diesel exhaust constituents for the locomotives operating within the overbuild, as well as the operating scenarios regarding train movement within the overbuild. Stopped locomotives with head-end power, work train movements, and baggage switching are to be specifically addressed in the engineering analysis.

Overbuild – Emergency Ventilation

Where an overbuild condition is proposed, the designer is to provide an engineering analysis to model the effect of a fire within the limits of the overbuild. The result of the analysis is to be a schematic design of a mechanical system with appropriate controls to provide recommended air change rates to meet the requirements of the National Fire Protection Association, including NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems. These requirements are intended:

- To provide a stream of non-contaminated air to passengers in a path of egress away from a train fire.
- To produce air-flow rates to prevent back layering of smoke in a path of egress away from a train fire.
- To limit the air temperature in a path of egress away from a train fire to 140°F.

After the engineering analysis is completed with approved criteria and schematic design, the designer can progress the ventilation designs to finished construction documents. The engineering firm that performed the analysis is to remain under contract to the designer of record, at a minimum, to review and approve the final design of the ventilation systems and certify that it complies with, and is capable of satisfying, the previously developed criteria.

Restroom Ventilation

Sizing of a ventilation system serving restrooms should consider the impact of peak period occupancy, as the usage immediately prior and after train arrival may overwhelm the system. Restrooms are a key performance indicator for customer satisfaction, and removal of odors, in addition to frequent cleaning, is a prime factor in improving customer satisfaction.

Retail Areas—HVAC Requirements

Any cooking tenants must maintain the tenant space in 20% negative pressure. This requirement is to limit odor migration onto the concourse. Hoods over cooking equipment are to be directly vented to the exterior.

C.2 Electrical

Electrical Requirements

Power, lighting, and communications requirements are to comply with codes and regulations and be sized as appropriate for the facility. Emergency and backup systems are recommended to allow orderly shutdown of critical systems. Additional conduit to allow for future installations of communications and data cabling should be provided.

Conduit Locations

Provide separate conduits for:

- Lighting.
- Power.
- Public address system.
- Telecommunications system.

Run conduit inconspicuously under roof or canopy structures, under platform structures (space permitting), concealed or buried. Abandoned conduit should be removed.

Conduits that are run on the exterior or interior of the station buildings must be concealed at all times. When there is no practical solution to achieve this, surface mounted conduits must be installed as inconspicuously as possible. At historic stations surface mounted conduits must be avoided completely.

High and low-level platforms must be constructed with underground signal and communications cables running through the length of the platform and pull boxes. These are installed parallel to the track(s), 10 feet from center of track, at a depth of approximately 30 inches. In multiple-track territory, the conduits need to be installed under only one platform. Specific requirements will be provided by Amtrak Engineering or the host railroad.

Separate conduits are to be installed under platforms for a public address system, telephones, signs, TVMs, and platform lighting as required. All telecommunications conduits are to be home run to the telecommunications room or pull boxes.

Conduits run under tracks are to conform to Amtrak's EP 3005 – Pipeline Occupancy – Specification 02081A or host railroad standards.

Grounding in Electrified Territory

All metal structures and fixtures, including such items as lighting posts, at stations in electrified territory are to be grounded to grounding rods and catenary structures in accordance with Amtrak standards.

Receptacles Requirements

Electrical circuits for passenger functions should be separate from circuits for other areas of the station building. Power and lighting circuits are to be separate for all areas. Panels and controls are to be located in a secure area and accessible only to authorized personnel. Ticket agent office lighting is to be controlled by wall-mounted switches within the office, accessible only to the agent.

Grounded duplex convenience receptacles should be provided throughout the station building as required by International Building and other local codes. Dedicated grounded receptacles are to be provided for ticket agent office equipment, including ticket machines and other specialized equipment.

Individual power circuits should be provided for all hard-wired equipment. Receptacles are to be located based on equipment and furniture layout for the ticket agent office, with a maximum 6 feet spacing between receptacles. Space receptacles as required for housekeeping and maintenance purposes in other station areas. Receptacles in public areas are not intended for public use and should have covers.

Exterior receptacles are to be provided as required for specific site usage.

Exterior Lighting

Exterior lighting design and implementation must consider the style and age of the station building. The use of floodlighting can serve to highlight specific ornate architectural features and details on historic facades. While newer and more modern stations may be illuminated from within, through internal light planes that can be viewed from the outside creating a lantern effect.

The stations should be illuminated in such a way as to minimize impact on surrounding developments. Care must be taken to avoid astronomic light pollution and the direct view of the floodlighting luminaires from adjacent developments.

Integrate lighting into the landscape to accent plantings and to provide general illumination for pedestrian circulation. All specified fixtures are to be low maintenance, energy efficient, and vandal resistant.

Pedestrian entry portals should be brightly illuminated for clear identification. Entry portals serve as the ceremonial entrances to the station domain and should also be seen as safe havens at night.

When entering from exterior in the day, the interior lighting at the entrances should assist in the transition from the bright exterior to the relatively less bright interior.

Similar attention should be given to the vehicular entries as is given to pedestrian entries. Although passengers arriving at the station do not have as close a look at the light fixtures, all fixtures should be arranged in a careful architectural manner. If vehicular entries are from exterior to interior spaces, additional lighting must be used in the first 65 to 165 feet to alleviate the transition from outside to inside.

In parking garages, lighting should assist in the differentiation between vehicular and pedestrian circulation. For reasons of security and passenger comfort, dark corners are not acceptable.

Ticketing Area Lighting

Relatively high vertical illumination on ticketing machines and at attended ticket windows is required to adequately light the faces of Amtrak employees and passengers. The rear wall behind the ticket counter should thus be illuminated with wall washers to provide adequate lighting for corporate identity graphics and brand signatures. Fluorescent downlights over the ticket counter are to provide focal task lighting where appropriate. The addition of larger or empty conduit for phone and data cabling should be included in the design to allow flexibility for future communications installation. Empty conduit should always include pull strings.

Platform Lighting

The use of LED fixtures is encouraged for general and platform edge lighting, and for ceiling uplighting. At high-speed rail stations, Amtrak has implemented a system-wide lighting solution that consists of custom designed continuous pendant LED fixtures that utilizes uplighting and downlighting components. These lights are mounted in 48-foot segments along the platform edge, within the proper right of way clearances. This illumination approach increases brightness and improves the overall safety and lighting conditions in common areas prone to passenger injuries, such as the gap between the train and the platform edge.

Other LED fixtures can be utilized where more economical solutions are required, but any installed fixture should be able to withstand a high degree of abuse.

The use of light colored materials is encouraged to maximize the number of luminous surfaces. Exterior areas with no canopies are to utilize pole-mounted LED fixtures.

As with other areas, the addition of larger or empty conduit for phone and data cabling should be included to allow flexibility for future communications installation. This should always include pull strings.

Elevator and Escalator Lighting

The area immediately in front of the elevator doors should be illuminated to a higher level than the surrounding area. This may be accomplished by a lighting strip in the elevator door header or by increased frequency or intensity of fixtures in the adjacent ceiling. Elevator cab details should pay particular attention to maintenance as one can see the details from a close distance. The lighting should look as good on day 1,000 as on day one. Reasonable re-lamping and cleaning are therefore crucial to ensure quality elevator cab lighting. As long as the minimum illuminance criteria are met on the elevator cab floor, there is wide latitude in the lighting treatment inside the cab. Both direct and indirect solutions may be proposed.

As escalators may be areas of high passenger injury, it is crucial that lighting adequately illuminates these areas. Escalators are similar to elevators in that the lighting solution may be viewed from close-up; similarly, ease of maintenance is critical. Attention must be given to achieving minimum standard service illuminances on the escalator steps. Selection of surface materials and the use of wall washing should be considered to alleviate the “dark hole” effect as one looks down into escalators. Proper lighting should be provided to ensure that safety issues at the top and bottom of escalators are addressed.

Retail Areas

Electrical Requirements

The maximum electrical load that is permitted for each type of tenant should be identified. It is imperative that capacity always be available for Amtrak operations and services.

Storefront Lighting

Lighting should follow the guidelines listed in this section. Lighting sources for retail should not be directed at the concourse or waiting area.

Concourse Lighting

To facilitate sign identification and the rapid circulation of pedestrians, Amtrak recommends that the lighting systems provide relatively high vertical illuminances. Illumination of selected walls, columns, and other vertical elements is encouraged to create a luminous perimeter. This will enhance the sense of spaciousness in the concourses. This is an area that affords a wider selection of sources than the platforms depending on the ceiling heights and spacing to mounting conditions.

The designer should consider the following criteria to select the most appropriate lighting:

- Application.
- Architectural condition.
- Historic character.
- Surrounding conditions.
- Type of fixture.
- Color rendering.
- Energy efficiency.

To facilitate building operations, the designer should minimize the different fixture types. Energy efficient LED light sources should be utilized in all applications where possible. The addition of larger or empty conduit (with pull strings) for phone and data cabling should be included to allow flexibility for future communications installation.

C.3 Plumbing

The minimum number of fixtures is to be determined by code, but additional fixtures may be required based upon peak-hour traffic and Amtrak recommendations.

All fixtures and accessories are to be vandal-resistant and are to be mounted and have clearances per code and ADA requirements. Water closets are to be commercial grade, wall-mounted and without a tank.

Provide fire suppression systems in all areas required by code and as outlined in the SP-2020

Appendix D: Funding Sources

Although Amtrak® dedicates a portion of its annual capital spending to station-related projects, funding needs routinely exceed the amount of money available. In addition, Amtrak is limited by statute regarding spending on assets that it does not own. Consequently, Amtrak's ability to contribute to station projects around the country is limited. Fortunately, there are multiple potential sources of funding for such projects, and a funding plan that relies on several sources typically has the best chance of succeeding.

The following list describes programs that can potentially provide funding for station projects. These programs are subject to change, and the latest information should be consulted from agency websites and/or by contacting the agencies directly.

D.1 Funding Types

The funding for a project may consist of different types of capital, depending on the project's characteristics and types of partners involved. Funding types include:

Capital Funds

The basic funding for station projects will come from capital funds. The sources of these funds may be Amtrak, or another government entity such as a state or municipality. Capital funds may be derived from legislative appropriations (for instance, by Congress), from tax revenues collected by the government entity, from bonds backed by the general taxing power of the entity, or by a dedicated stream of revenue (taxes, tolls, or other revenue) raised under the authority of that entity.

Revenue Bonds

Municipal entities, public authorities, and development corporations can raise funds for projects by selling bonds directly to outside investors, who receive a stream of interest payments over the life of the bond (usually 10 to 20 years). As with loans, bond interest must be paid from some form of income such as local tax revenue or lease payments, and the value of the bonds (principal) must be paid off at the end of the term. The risk of nonpayment determines the interest rate on the bonds. The cost of interest to the project can be lowered by means of credit enhancement techniques, which include bond insurance or guarantees from entities (such as municipalities) with broader-based revenues and lower risk of nonpayment.

Grants

Both the federal government and the states sponsor a wide variety of grant programs for which different kinds of station work may be eligible (grants typically can't be used for the private portions of projects). Grants need not be paid back, nor must interest be paid, making them the lowest-cost form of funding. Depending on the program, grants may be awarded directly to the agency or to other partners in the station project (such as the municipality or local development corporation). Grant programs vary widely in public purpose and eligibility requirements. See below for more detail.

Loans

Government programs also provide loans (at subsidized interest rates) which can be used to reduce the cost of borrowing funds for the station project overall. The borrower is responsible for paying back the funds, from local tax revenues, from leasing arrangements, or from future government appropriations. The total amount paid for the project is less than it would have been had the funds been borrowed privately, and this represents a benefit for the public purpose of the project.

Tax Incentives

Station projects with the right characteristics can make use of tax incentives, in which a state or local government agrees to forego tax revenue that would normally be collected from the project. Tax incentives come in different forms, with a typical form of local tax incentive being used to reduce or eliminate property or sales taxes on the for-profit portion of a project for some years after construction, allowing the savings to be used for bond interest. Another type of tax incentive is channeled through eligible non-profit entities which accept funds for the project from for-profit investors in return for certificates that reduce their taxes.

Public-Private Partnership (PPP) Funding

These generally long-term collaborations involve participation by a government entity, such as a municipality or state authority, and one or more private enterprises. In exchange for funding to finance and build infrastructure, the private enterprise receives a guarantee of future income through operating revenue such as user fees or taxes. The use of private capital may make a project feasible, and private enterprise can bring expertise to complex projects while taking advantage of new technology and processes for greater efficiency. The terms of a PPP should be carefully considered to spread risk among the partners, ensure that future operating revenues will be sufficient to repay the private enterprise, and keep the private enterprise accountable to taxpayers, among other factors.

D.2 Federal Funding Sources

A description of the array of federal grant and loan programs that could be applicable to Amtrak station projects is shown in Exhibit B.1. These include the following categories:

Transportation Grants

Grants and loans administered by the U.S. Department of Transportation and its subsidiary agencies: the Federal Railroad Administration (FRA), the Federal Transit Administration (FTA), and the Federal Highway Administration (FHWA). FRA and FTA grants are usable for station infrastructure directly; FHWA grants may be usable for pedestrian and intermodal aspects of station projects.

ADA Specific Grants

Grants and loans administered by the FTA that are awarded for the specific purpose of upgrading facilities to be accessible for persons with disabilities. These grants may be used to fund the accessibility components of a station project.

Community Development Grants

Grants and loans administered by the Department of Housing and Urban Development for the purpose of economic development and employment for low- and moderate-income individuals. These grants are potential components of public-private partnerships or joint development projects.

Energy Efficiency Grants

Grants and loans administered by the Department of Energy to promote energy-efficient rehabilitation and upgrade of facilities.

Historic Preservation Grants

Grants and tax credits administered by the National Park Service, Internal Revenue Service, Federal Highway Administration, and other agencies to promote conservation and rehabilitation of historic structures, including rail stations.

Planning and Demonstration Programs

These programs are administered by a variety of agencies, and are closely targeted at particular goals (for instance, pedestrian transportation). Though of small size, and often limited to a small number of eligible communities, they can be considered to add features valued by local partners to small station projects.

Federal Tax Incentives

A number of tax incentive programs (which provide tax credits or deductions related to the value of specific types of investments) have been established for a number of purposes (such as historic preservation and community redevelopment). Tax incentive programs are administered through various agencies (for example, the Rehabilitation Tax Credit for historic buildings is administered through the National Park Service), but awarded by the Internal Revenue Service. Although government agencies do not pay taxes, tax incentives are of value in public-private arrangements where the incentives are awarded to a for-profit entity in return for capital funds.

Matching and Compliance Requirements

Federal grant programs have matching requirements, which require that the project include a certain minimum percentage of local funding for each dollar of federal funding. The minimum required match varies by program, and can be up to 100% of the amount of federal funding sought. Federal funds are also subject to a number of compliance and reporting requirements, which can limit the development or contracting strategies used, and so should be taken into account when determining if a project is suitable for federal funding.

State and Local Funding Sources

State and local funding is important not only as a significant resource for completing station development projects, but also as a measure of the level of support and buy-in from local stakeholders. Such funds are available for a variety of purposes, including economic and community development, historic preservation, and energy efficiency, as well as for general transportation purposes. State and local funds are often used to meet matching requirements for federal funds provided for similar purposes.

Depending on the agreement with local stakeholders, they may be used for basic rehabilitation, or to add features (such as pedestrian or intermodal facilities) that enhance the quality of the project. Funding from states and localities is diverse and location-specific. It covers a full range of the funding types previously discussed, including capital funds from states, municipalities, and public authorities, and various kinds of grant, loan, and tax incentive programs. Special tax districts and tax increment financing are also widely used at the local level to support debt financing for individual projects within a specific area.

D.3
Funding Partners

The following table provides an overview of funding opportunities that may be useful for those pursuing a station development project. However, it is not meant to be comprehensive, and project sponsors should consult the FTA, FRA, and FHWA, as well as state agencies focused on transportation, economic development, and historic preservation, for the most up-to-date funding opportunities.

Funding Opportunities

Table D.3.1

Program	Primary Purpose	Relevant Eligible Projects	Key Requirements	Reference
Transportation Grants				
Transportation Alternatives Program (TA)	Surface transportation	Preservation of historic facilities; pedestrian facilities.	Project must be related to surface transportation and serve a current or past transportation purpose.	Transportation Enhancement Activities https://www.fhwa.dot.gov/environment/transportation_alternatives
Bus and Bus Facilities Grants (sec. 5339)	Funding for capital projects to construct bus-related facilities and to replace, rehabilitate, and purchase buses.	Construction or rehabilitation of multimodal centers directly served by a fixed-route bus network and passenger rail.	Project should be consistent with the transit priorities identified in local/regional long-range plan or the locally developed human services public transportation coordinated plan.	https://www.transit.dot.gov/funding/grants/busprogram
ADA Specific Programs				
Section 5310 Public Transportation Capital Projects to Meet the Special Needs of Elderly Individuals and Individuals with Disabilities	Improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding transportation mobility options.	Rehabilitation or upgrade of station accessibility elements.	Projects must be included in a locally-developed, coordinated public transit-human services transportation plan.	https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310
New Freedom Program Grants	To encourage services and facility improvements to address the transportation needs of persons with disabilities that go beyond those required by the Americans with Disabilities Act.	Rehabilitation or upgrade of station accessibility elements.	Projects must be included in a locally-developed human service transportation coordinated plan.	New Freedom Program (5317); 49 U.S.C. 5310.

Funding Opportunities Continued

Table D.3.1

Program	Primary Purpose	Relevant Eligible Projects	Key Requirements	Reference
Community and economic				
Community Development Block Grant (CDBG) – US HUD	Annual grants on a formula basis to entitled cities, urban counties, and states to develop viable urban communities and expand economic opportunities for low- and moderate-income persons.	Station projects that can address the employment and economic development goals of the program.	CDBG funds are allocated to states, counties, and cities on a formula basis. Local governments administer the program and determine which local projects receive funding.	Community Development Block Grant Program. https://www.hudexchange.info/programs/cdbg/
Section 108 Loan Guarantee Program (part of CDBG)	To provide communities with a source of financing for economic development, housing rehabilitation, public facilities, and large-scale physical development projects.	All projects.	Projects must principally benefit low- and moderate-income persons, aid in the elimination or prevention of slums and blight, or meet urgent needs of the community.	https://www.hudexchange.info/programs/section-108/
Brownfield Grant Funding	To assist cities in redevelopment of abandoned, idled, and underused facilities burdened by environmental contamination.	Joint development projects on industrial or commercial sites with real or potential environmental contamination.	Emphasis on near-term results and demonstrable economic benefits; projects must increase economic opportunity for persons of low- and moderate-income, or stimulate economic revitalization.	https://www.epa.gov/brownfields
Community Renewal Initiative	To encourage businesses to open, expand, and to hire local residents.	Joint development projects in Renewal Communities and Urban Empowerment Zones.		

Funding Opportunities Continued

Table D.3.1

Program	Primary Purpose	Relevant Eligible Projects	Key Requirements	Reference
Historic Preservation				
National Trust Community Investment Corporation	To make equity investments in real estate projects that qualify for federal and state historic preservation, new markets, and renewable energy tax credits.	Joint development projects at historic stations.	(See requirements for federal tax credits).	National Trust Community Investment Corporation. https://ntcic.com/
Rehabilitation Tax Credit	To encourage the preservation and reuse of the nation's built environment by offering federal tax credits to the owners of historic properties.	Rehabilitation of historic buildings.	Historic buildings must be certified historic for full tax credit value; the rehabilitation work must be done according to the Secretary of the Interior's Standards for Rehabilitation.	Federal Rehabilitation Tax Credit. https://www.nps.gov/tps/tax-incentives.htm (Note: some states also offer state-level historic rehabilitation tax credits, as well.)

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Appendix E: Historic Stations

E.1
Historic Stations

States, municipalities, and the federal government all regulate the rehabilitation of historic buildings in different ways. While historic preservation reviews may occur at the local, state, or federal level depending on the project and associated regulatory triggers, this appendix primarily provides more detail on the federal review under Section 106 of the National Historic Preservation Act of 1966, as amended (Section 106).

Users should check the latest Section 106 regulations, codified under 36 CFR Part 800, to ensure that the guidance provided here is accurate and up to date.

Section 106

Section 106 requires that federal agencies consider the potential effects of their projects on historic properties, and provide the Advisory Council on Historic Preservation (ACHP) with a reasonable opportunity to comment. Historic properties are those buildings, sites (including archaeological sites), objects, districts, and structures that are listed in or eligible for listing in the National Register of Historic Places (NRHP). Federal projects are those that a federal agency funds, permits, or licenses, that occur on federal property, or that the federal agency otherwise approves. Section 106 is a procedural, consultative process, typically involving the project sponsor, federal agency, State Historic Preservation Office (SHPO) and other consulting parties that may have an interest in the project or its effect on historic properties.

The ACHP's implementing regulations under 36 CFR Part 800 outline the Section 106 consultation process, and define roles and responsibilities, as well as documentation standards, review periods, and related information.

Amtrak-owned property is not considered federal property; however, Amtrak® funding contributions to third-party projects may come from a federal source, which would trigger compliance with Section 106 and other federal regulations. Verify the source of Amtrak's contribution as early as possible to determine whether it requires compliance.

It is important to be aware of state or local regulations and statutes that may apply in addition to or instead of the federal regulations. The SHPO should be consulted for state-specific regulations, guidelines, and procedures. The municipality should be contacted to determine whether local historic preservation regulations may apply to the project and, if so, the procedures to follow.

The U.S. Secretary of the Interior (SOI) has published Standards for the Treatment of Historic Properties and associated guidance documents (https://www.nps.gov/tps/standards.htm); the standards for "rehabilitation" would apply to the renovation of historic stations and related property. Other federal, state, and local historic preservation processes, including rehabilitation tax credit programs, also typically rely on these standards; however, interpretation may vary.

Section 106 is essentially a four-step process, and is summarized below. More about the Section 106 process can be found on the ACHP's website. An introduction to Section 106 can be found here: https://www.achp.gov/protecting-historic-properties/section-106-process/introduction-section-106.

1. Initiate Section 106

This first stage of the process is intended to determine whether Section 106 applies to the project and identify some of the parameters for consultation.

Project Description

Developing a good understanding of the project in its entirety is essential to determining its potential to affect historic properties. It is important that the project description be clear and describe all actions that will be undertaken throughout the duration of the project.

The description should answer the following questions.

- What is the purpose of the project?
- What is the problem the project will solve, and why is it needed?
- Who is responsible for what work, and is there a federal agency involved?
- What tasks are to be completed?
- When is each task to be completed?
- Where is the location of the project?
- How will each task be completed?

Area of Potential Effects Delineation

The Area of Potential Effects, or APE, is the geographic area where the project could affect historic properties if any are present. The APE will depend on the scope of the project, its potential for effects, and the nature of the surrounding built and natural environment (e.g. surrounding buildings or vegetation). For example, the APE for a restroom renovation would be limited to the station interior, while the APE for a new station could encompass the adjacent properties.

Identify Potential Consulting Parties

Throughout the Section 106 process, the federal agency, or project sponsor if delegated such responsibility, engages with consulting parties, seeking and considering their views on the project and its potential effects on historic properties. The following parties may actively participate as consulting parties during Section 106 review:

- State (or Tribal) Historic Preservation Officers (SHPO/THPO).
- Local governments.
- Federally recognized Indian tribes or Native Hawaiian organizations.
- Project proponents/sponsors.
- Organizations or individuals with an interest in preservation outcomes or with a legal or economic interest in the project, as approved by the federal agency.
- Members of the public.

The federal agency may tailor its outreach to reflect the nature and complexity of the project, its potential for effects, and likely interest of the public.

2. Identify Historic Properties

Conduct investigations to determine whether there are historic properties present in the APE. Historic properties must be at least 50 years of age, unless they have extraordinary significance; if the project has a long implementation schedule, research should consider an age threshold that is less than 50 years and appropriate to the project. Often, research involves a review of SHPO or National Park Service (NPS) data on NRHP-listed and -eligible properties, or other sources. This information is increasingly available online and each SHPO has its own system for online or in-person research. If the historic status of a property is unknown, the property may be treated as NRHP eligible for the purpose of the project or a new evaluation by cultural resources professionals meeting the SOI Professional Qualifications Standards may be required. Similarly, if the project involves ground disturbing activities, such as a stormwater management system, utility trenching, or grading, and it is unclear whether the ground was previously disturbed, a study by a qualified archaeologist may be required to determine if archaeological resources may be present. The SOI Professional Qualification Standards are available online here: https://www.ncptt.nps.gov/articles/c2a/soi-professional-qualification-standards/.

Consulting parties must be notified of the findings and provided an opportunity to express their views. If there are no historic properties present or the project will have no effect per 36 CFR 800.16(i), and SHPO/THPO does not object to the federal agency findings within 30 days, no further consultation is required.

3. Assess Effects

If historic properties are present and could be affected by the project, the federal agency or project sponsor must assess whether the project could have adverse effects on historic properties. Adverse effects could be physical, visual (such as effects to a property's historic setting), auditory, a change in the use or character of a property, sale or transfer without historic preservation provisions, work that is not in keeping with the SOI Standards, or a project that results in the neglect and deterioration of a historic property. Consulting parties must be notified of the findings and provided an opportunity to express their views.

- If it is found that no historic properties are adversely affected, and there are no objections to the federal agency findings within 30 days, no further consultation is required.
- If adverse effects are found, further consultation is required.

4. Resolve Adverse Effects

If the project could have an adverse effect, the parties continue consulting to determine whether adverse effects can be avoided or minimized. This may involve preparation of an alternatives analysis. If they cannot be avoided, the parties consult to determine mitigation measures appropriate to the adverse effects. An agreement document is then developed that describes the mitigation measures and/or procedures, roles and responsibilities, and administrative provisions, and generally records the Section 106 process. The consulting parties and ACHP are given an opportunity to comment, and the executed agreement is filed with ACHP. ACHP may participate in consultation and join the process at any time.

5. Section 106 Streamlining

In 2018 (and amended in 2019), ACHP adopted the "Program Comment to Exempt Consideration of Effects to Rail Properties Within Rail Rights-of-Way" (Program Comment). This is an important Section 106 streamlining tool for projects at current or former rail properties. Under the activities-based approach, many rehabilitation elements may be exempt from full Section 106 review, assuming that applicable conditions are met and the work meets SOI Standards. Project sponsors should discuss the use of the Program Comment for their projects with the involved federal agency; any federal agency can use the Program Comment. If activities are not fully exempt under this Program Comment, determine whether other ACHP Section 106 program alternatives would apply to the project, or otherwise how to proceed with Section 106 consultation.

Section 106 is an iterative process. Depending on the complexity of the project and the nature of historic properties and effects, the Section 106 steps may proceed incrementally or be bundled together. Consider Section 106 from the earliest stages of the project, as it may have implications for the project schedule and budget. Discuss the project with the federal agency involved to determine the best approach to completing Section 106 consultation, and the potential involvement of other federal regulations such as the National Environmental Policy Act or Section 4(f) of the U.S. Department of Transportation Act, among others.

Adaptive Reuse Considerations

Even if no historic preservation regulations apply, stewardship of historic properties is important to preserve community character, support sustainability goals, and maintain the viability of valued historic places. When historic stations or portions of them are partially or completely renovated for another use, preserving the building elements, design features, and character related to the station's operational railroad origins is of great importance.

The use of station name, directional, and informational signs throughout the exterior and interior help retain the rail station identity. Certain architectural features, including ticket windows and baggage room doors are important station features, and should be preserved wherever possible. In general, SOI Standards require that modifications for new uses be compatible and reversible, and that new elements should not copy the station's historic design; rather, they should be subordinate and allow the historic character to remain prominent. The National Park Service and SHPOs provide detailed guidance documents and case studies to inform and guide the approach to renovations and the treatment of specific elements. These documents are largely available online.

Figure E.1.1 - The Historic Depot, Tucson Station, Tucson, Ariz.

Appendix F: Transit Arts Programs

This Appendix provides a more detailed description of the Transit Arts Program that may be a component of a station's development.

F.1
Transit Arts Committee (TAC)

The TAC is headed by the project sponsor and chaired by the Transit Arts Program Manager. Its purpose is to identity opportunities for art to be integrated in the design, and oversee the artist selection process.

Membership of the TAC varies with each project. However, each TAC is comprised of “core” members, including project management and key stakeholder representations, and “noncore” members, including the architectural and engineering (A/E) design consultant and a representative(s) from the community.

In some instances, an advisory group of arts experts is assembled to guide and make recommendations to the TAC regarding local talent and/or opportunities. The TAC can then make its final decision based upon the advice received from the arts advisors, in addition to the criteria mentioned above (see “Artist Selection”, below).

F.2
Artist Selection

To maximize the potential of artists' contributions, it is important to involve the artists as early as possible in the A/E design process. Early involvement also ensures the best match between artists' skills and experience with appropriate opportunities. Criteria for selection of artists are described below, based on the situation, which, for purposes of program implementation, are classified into two broad categories: integrated art opportunities and art projects.

Integrated Art Opportunities

Art opportunities requiring collaboration between artists and other designers/ engineers involved in the preliminary engineering phase (up to 30% complete design) are included in this category. It is expected that artists involved in this manner will be able to improve the character of the built elements and spaces, and will add a positive image to the transit environment. In collaboration with architects, landscape architects, and engineers, artists are expected to infuse familiar forms, such as columns, walls, ceilings, platforms, stairways, landscapes, and even light rail vehicles, with special qualities and references to communities in which they are being built.

Integrated art opportunities are for design team artists. They should be selected and included in design teams at the beginning of the preliminary engineering phase to provide design consultation to the architects, landscape architects, and engineers responsible for designing system elements that have been identified for artist-assisted design.

The role of the design team artist will be to inject creative ideas into the design process, develop criteria for additional artwork, and/or propose artwork. These artists will work directly with the project managers, project architects, and engineers, and are integral to the design process. Their work will be included in the preliminary engineering documents. Selection of design team artists should be based on the primary criteria of artistic excellence as demonstrated by examples of past work, and applicants' ability to provide the following services to the projects' designers:

- Coordinate with the project design architect during the programming, conceptual development and final definition of design phases, and/or develop distinct artwork.
- Develop proposals for incorporating other artists' work into the project.

- Research the social and physical context of the project and consider its relevance to design, offering conceptual direction that supports the community, site, and goals of the project.
- Identify opportunities for art projects and assist in the preliminary engineering effort by identifying the size/location of the artwork and the integrated and art project costs for the art projects identified. Integrated costs include cost of design, documentation, fabrication and installation that can be carried out by the architect, engineer and/or general contractor.
- Develop criteria for selection of project artist and subsequent development of art projects in the final engineering phase. Art project costs include cost of artist fees, commissioned free-standing art objects, and/or fabrication/installation by the artist or other specialized labor.

Art Projects

These are special opportunities for artists to design artworks and/or artistic elements in and around transit facilities to enrich the day-to-day experience of riders and to improve the overall quality of the public environment. In such projects, artists will have the opportunity to engage in their creative process without the constraints of intensive and extensive collaboration with other designers. Opportunities include murals on or adjacent to facilities, and free-standing sculpture in pedestrian spaces.

Project artists should be selected after completion of preliminary engineering in order to be involved during the final phase of design. The artists will design and develop their work and execute the piece upon completion of final engineering. The selection of these artists should be based on the primary criteria of artistic excellence (as demonstrated by examples of past work) and applicants' ability to provide the following services in the final engineering phase of the project.

- Design artworks that relate to and complement the project (based on criteria developed by design team artists during the preliminary engineering phase).
- Coordinate with the architect, TAC, and transit arts program manager on the technical requirements and details of proposals.
- Submit proposals independent of the design team for review by TAC.

F.3 Method for Selection of Artists

Artists can be invited to participate by any one of the following methods:

Open Competition

Requests for artists' slides, resumes, and letters of interest are advertised through arts publications, the local media, and direct mailings to artists. The TAC reviews all submissions and selects an artist(s) or requests short-listed artists to further compete by making specific proposals.

Limited entry

The TAC invites a number of artists to submit slides and resumes and/or proposals. From this more limited pool, the TAC makes its selection.

Direct selection

The TAC directly selects an artist or team of artists using the resources of state and local agencies.

F.4 Criteria for Artwork Selection

Although a large number of people need to be consulted during the selection process, the final decision should be made by the TAC. Good art has rarely been selected by general public consensus.

The following principles and criteria are suggested as the basis for the selection of artwork:

- Artistic quality of proposed artwork(s).
- Appropriateness of the proposed artwork(s) to the site(s) and to the objectives of the project.
- Permanence, durability, maintainability, and use of high-quality materials.
- Absence of hazards to the public.
- Recommended measures to protect against vandalism.
- Innovation in use of materials and techniques.
- Willingness of the artist to carry out the project in coordination with the project team or any ongoing/pending construction by Amtrak®.
- Ability of the artist to create and install the artwork(s) within the established time frame.
- Price within budget constraints.

Appendix G: Stations Development Checklist

G.1 Stations Development Checklist

1. Initial Contact	Responsible Parties
1.a Interested party completes an intake form on the Great American Stations website	☐ Project Sponsor
1.b They Contact Amtrak	☐ Project Sponsor
2. Feasibility & Analysis	
2.a The Gov't Affairs group or State Supported Services groups are notified and a manager is assigned as initial contact.	☐ Gov't Affairs OR ☐ State Supported Services
2.b Assessments made (by Amtrak and the State / Sponsor)	☐ Gov't Affairs and Long Distance (LD) OR ☐ Gov't Affairs and Northeast Corridor* (NEC) OR ☐ State Supported Services and LD/NEC With possible participation from: - Scheduling & Consist Planning - Facilities Development - Pricing and Revenue - Host Railroads Group - Finance - Real Estate - Operations - Engineering - SHPO
2.c A Facilities Development Manager (FDM) is assigned to manage the project through completion.	☐ Facilities Development
2.d *Program Detail* developed and facility sizing established.	☐ Facilities Development With possible participation from: - Corporate Planning - Transportation - Mechanical - Operations - Engineering

*See Northeast Corridor Planning Practices Manual for more information.

3. Responsibility	Responsible Parties
3.a *Term Sheet* developed to determine project funding, ownership, operational responsibilities	☐ Real Estate ☐ Facilities Development With possible participation from: - Gov't Affairs - Law - State Supported Services - Corporate Planning
4. Requirements	
4.a Amtrak's functional requirements defined.	☐ Facilities Development With possible participation from: - Corporate Planning - Finance - Operations - Engineering - Corporate Security - I.T.
4.b Host Railroad's requirements defined.	☐ Host Railroad Group
4.c Requirements from funding sources defined.	☐ Project Sponsor
4.d FRA, State, and local government requirements defined.	☐ Project Sponsor ☐ Gov't Affairs ☐ State Sponsored Services With possible participation from: - Law - Grant Administration
5. Concept Development	
5.a Procurement of professional services.	☐ Project Sponsor With possible participation from: - Facilities Development
5.b Funding sources secured.	☐ Project Sponsor With possible participation from: - Facilities Development
5.c Project Delivery Method selected.	☐ Project Sponsor With possible participation from: - Facilities Development

5. Concept Development (Continued)	Responsible Parties
5.d Site constraints identified.	☐ Project Sponsor (DOR) With possible participation from: - Facilities Development
5.e Design concepts created.	☐ Project Sponsor (DOR) With possible participation from: - Facilities Development
5.f High level definition of: scope, budget, and schedule.	☐ Project Sponsor (DOR) With possible participation from: - Facilities Development
6. Agreements	
6.a Stakeholder agreements developed, issued, and signed.	☐ Project Sponsor ☐ Real Estate ☐ State Sponsored Services ☐ Facilities Development With possible participation from: - Law - Corporate Planning - Gov't Affairs - Finance - Host Railroads Group
7. Concept Development	
7.a A/E team develops 15% design documents (project definition report).	☐ Project Sponsor (DOR)
7.b Amtrak may review the following: » Fixed building size » Program » General project direction » Conceptual level material selection**	☐ Facilities Development with possible participation from: - ADA Stations Program - Corporate Planning** - Operations**

**Depending on the responsibilities established in the *Term Sheet*:

If the third party station sponsor assumes full responsibility, then Amtrak will only review for form, fit, & function.

If Amtrak is contributing, or will be the ultimate party responsible for aspects of the station, the review process will be more extensive (and may involve more parties from within Amtrak).

8. Detailed Design	Responsible Parties
8.a A/E Team develops design.	☐ Project Sponsor (DOR)
8.b Amtrak Reviews at key milestones, which may include the following: » Schematic Design (30%). » Design Development (60%). » Construction Documents (95%). » Bid Documents (100%).	☐ Facilities Development With possible participation from: - ADA Stations Program - Stations Design** - Corporate Planning** - Operations** - Engineering** - I.T.** - Corporate Security** - Finance** - Host Railroads Group** - Funding Sources**
9. Construction	
9.a Construction Schedules and Meetings: » Project sponsor develops construction schedule which may include weekly or biweekly construction meetings. » Amtrak establishes key progress checkpoints and schedules coordination meetings with sponsor, contactor, and internal Amtrak stakeholders.	☐ Project Sponsor (DOR) ☐ Facilities Development With possible participation from: - I.T. - Corporate Security - Amtrak Police - Operations - Engineering - Transportation - Mechanical
9.b Inspections through construction period.	☐ Facilities Development With possible participation from: - ADA Stations Program
10. Commissioning	
10.a Inspections at Substantial Completion	☐ Project Sponsor ☐ Local Jurisdictions ☐ Facilities Development
10.b Certificate of Occupancy	☐ Project Sponsor ☐ Local Jurisdictions
10.c Certificate of ADA Compliance	☐ Project Sponsor and Local Jurisdictions OR ☐ Facilities Development

**Depending on the responsibilities established in the *Term Sheet*:

If the third party station sponsor assumes full responsibility, then Amtrak will only review for form, fit, & function.

If Amtrak is contributing, or will be the ultimate party responsible for aspects of the station, the review process will be more extensive (and may involve more parties from within Amtrak).

10. Commissioning (Continued)	Responsible Parties
10.d Amtrak's Facility Acceptance	☐ Facilities Development
10.e Lease Execution	☐ Real Estate
11. Station Opening	
11.a Station Fit-Out	☐ Facilities Development
11.b Update Train Schedule	☐ Facilities Development With possible participation from: - Engineering - Operations
11.c Activate Systems	☐ Operations ☐ Engineering
11.d Notify Stakeholders	☐ Project Sponsor ☐ Marketing ☐ Operations

**Depending on the responsibilities established in the *Term Sheet*:

If the third party station sponsor assumes full responsibility, then Amtrak will only review for form, fit, & function.

If Amtrak is contributing, or will be the ultimate party responsible for aspects of the station, the review process will be more extensive (and may involve more parties from within Amtrak).

G.2 Case Studies: Variations in Stakeholder Responsibilities/ Relationships

Typical Responsibilities of each station development stakeholder regardless of particulars:

1. Amtrak serves as intermediary between station sponsor and host railroad (unless Amtrak is the host railroad, ie: tracks are owned by Amtrak).
2. Station sponsor secures most if not all of the funding for the station development (either through tax revenue, federal or state grants, capital from private developers or other entities).
3. Amtrak reviews design submissions at key milestones to ensure that the proposed station design meets Amtrak, host railroad, FRA, State DOT, and other operational requirements.
4. Amtrak develops and issues new timetables accounting for the new or expanded services.

For State Supported Service – initiated through State DOT:

1. State DOT conduct's ridership analysis, issues transportation plan with new stations or services, and informs Amtrak of the new or expanded services.
2. If State is subsidizing the proposed new State Corridor service associated with the new station, Amtrak reviews proposal.
3. If State owns the land, they'll take lead in: organizing the local community and stakeholders, hiring professional A/E services, and moving the project forward.
4. Amtrak still provides design reviews at key milestones paying attention to operational requirements.
5. Amtrak develops and issues new timetables.

For Long Distance Service:

1. Station sponsor reaches out to Amtrak.
2. Amtrak conducts feasibility study for payment and conducts financial revenue analysis to determine if revenue will reach threshold for Amtrak to offer the service. Amtrak provides direction to either move forward with planning and development, or not to proceed.
3. Amtrak notifies State DOT, FRA, and host railroad of intent, and develops terms of relationships and requirements.
4. Station sponsor secures funding.
5. Station sponsor secures land or partners with developer for land use.
6. Station sponsor hires A/E for design of the station.
7. Amtrak reviews design submissions at key milestones to ensure that the proposed station design meets Amtrak, host railroad, FRA, State DOT, and other operational requirements.
8. Amtrak develops and issues new timetables accounting for the new or expanded services.

For Amtrak's future proactive role in Long Distance routes:

1. Amtrak's Corporate Planning or Facilities Development group conducts a strategic analysis, identifying underserved populations, ridership, and revenue opportunities.
2. Amtrak approaches community as a development partner.
3. Amtrak and Community secure funding via private developers, and Amtrak takes ownership of key real estate.
4. Amtrak, acting as development partner and on behalf of community, notifies host railroad and develops terms of relationship / responsibilities.
5. Amtrak and partners secure A/E services.
6. Amtrak provides project management services and construction administration services (either in-house or contracting out).
7. Amtrak develops and issues new timetables.

Community intends to renovate an existing station (regardless of the kind of service offered):

1. Station sponsor secures funding for station repairs, renovations, preservation.
2. Station sponsor reaches out to Amtrak.
3. Amtrak conducts a study to see how the work might affect the train service, in turn how it might affect revenue and ridership. Amtrak establishes requirements for work to minimize service disruption.
4. Station sponsor notifies host railroad, State DOT, FRA, State Historic Preservation Office (if required), developing terms and establishing requirements, using Amtrak as intermediary.
5. Station sponsor ensures that passengers are made aware of any disruption to service.
6. Station sponsor hires A/E professional to design the station rehabilitation and manages the project themselves.
7. Amtrak reviews design submissions at key milestones to ensure that the proposed station rehabs meets Amtrak, host railroad, FRA, State DOT, SHPO, ADA, and other operational requirements.

Stations on NEC and other Amtrak owned Infrastructure:

1. See NEC Planning Practices Manual.

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Appendix H: List of Figures

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Appendix I: Glossary

Above top of Rail (ATR)

The height of the station's platform above the top of the rail. Can be 8, 15, or 48 inches.

Access Board

An independent federal agency devoted to accessibility for people with disabilities, created in 1973 to ensure access to federally funded facilities.

Acela®

Amtrak's premier, high speed train service, travelling from Boston to Washington at speeds of up to 150 mph.

American Railway Engineering and Maintenance-of-Way Association (AREMA) standards

The manual for railway engineering contains principles, data, specifications, plans and economics pertaining to the engineering, design & construction of railways.

Americans with Disabilities Act (ADA)

A law passed in 1990 that extends civil rights protections to individuals with disabilities.

Americans with Disabilities Act Architectural Guidelines (ADAAG)

A document containing scoping and technical requirements for accessibility to buildings and facilities by individuals with disabilities under the ADA, published by the Access Board.

Amfleet®

A type of single-level passenger coach and cafe cars.

Architectural Engineering firm (A/E)

A firm that provides both design and engineering services.

Auto Train®

Amtrak's service for passengers and their personal vehicles between Northern Virginia and Central Florida.

Basis of Design (BOD)

For Amtrak®, a step in the station planning process consisting of documentation of the principles, assumptions, rationale, criteria, and considerations used for decisions required during the design process.

California Car

Bi-level passenger coaches owned by the State of California which feature two sets of automatic doors and a wheelchair lift.

Caretaker

A person, who may or may not be an Amtrak employee, who opens and closes the station for passengers before and after trains. They cannot sell tickets or handle baggage.

Catenary

The system of overhead wires that powers electric locomotives on Amtrak's Northeast Corridor (Washington-New York-Boston) and Harrisburg Line (Philadelphia-Harrisburg, Pa.).

Consist

A lineup or sequence of railroad cars that form a unit (trainset).

Department of Transportation Accessibility Standards (DOTAS)

The ADA Standards that were adopted by the U.S. Department of Transportation in 2006 for public transportation facilities covered by the ADA in new constructions and alterations.

Designer of Record (DOR)

The member(s) of a design team responsible for completing and sealing a project's construction documents.

Doublestopping

When a train is longer than the platform, it may stop once to allow passengers at the front on and off, then move forward to allow the passengers at the back on and off.

Facilities Development Manager (FDM)

The Amtrak stakeholder responsible for shepherding a station project from the Feasibility & Analysis phase through commissioning and station opening. The FDM will typically be a member of the Facilities Development Group.

Federal Highway Administration (FHWA)

A federal agency under the Department of Transportation that funds and oversees safety for state and federal roads across the country.

Federal Railroad Administration (FRA)

A federal agency under the Department of Transportation that promulgates and enforces rail safety regulations, oversees grant programs, and conducts research and development in support of improved safety and national rail policy.

Federal Transit Administration (FTA)

A federal agency under the Department of Transportation that funds and oversees safety for transit systems across the country.

Heating, ventilation, and air conditioning (HVAC)

Systems for temperature and air circulation control in buildings.

High Speed Rail (HSR)

Passenger train services running significantly faster than conventional passenger trains. There are several HSR passenger lines planned, which will expand Amtrak's current HSR offerings.

Historic property

A building, structure, district, object, or site that is listed in or eligible for listing in the National Register of Historic Places. This includes archaeological sites.

Horizon Fleet

A type of single-level passenger coach and cafe cars.

Host railroad

A company, usually a freight or commuter railroad, who owns the tracks over which an Amtrak train runs.

Indefinite delivery indefinite quantity (IDIQ)

A simplified job order contracting system.

Leadership in Energy and Environmental Design (LEED)

A system from the United States Green Building Council that scores new buildings based on sustainability attributes.

LED

Light Emitting Diode. Lighting products that use up to 90% less energy than standard incandescent bulbs.

Level boarding

The preferred method of boarding, where the height of the station platform and the deck height of the rail car are the same so there is no need to climb to enter the rail car, and a passenger in a wheelchair or other wheeled mobility device can board without assistance.

Long-Distance Service

Train service over 750 miles.

Metropolitan Lounge®

First class lounges found in some stations offering accommodations for passengers.

Multimodal

The ability to transfer between different modes of transport. ie. bus to ferry, Amtrak to commuter rail or bus.

National Fire Protection Association (NFPA)

A global self-funded nonprofit organization, established in 1896, devoted to eliminating death, injury, property and economic loss due to fire, electrical, and related hazards.

National Historic Preservation Act of 1966 as amended

A law whose section 106 requires that federal agencies consider the effect of their projects on historic properties prior to approvals. Implementing regulations are codified at 36 CFR Part 800.

Northeast Corridor (NEC)

The main line between Boston and Washington, most of which is owned by Amtrak.

Passenger Information Display Systems (PIDS)

A system of video monitors and audio announcements to convey train arrival and departure information to passengers.

Polychlorinated biphenyls (PCBs)

Organic compounds that are extremely hazardous, historically found in oils used in electric transformers.

Ridership

A statistic showing how many passengers have been carried during a certain time frame.

Right of Way (ROW)

The land a rail line sits on, as well as land immediately adjacent to it, that can be used for maintenance or expansion of that line.

Self-Service Kiosk

Amtrak's self-service ticketing machines.

State Historic Preservation Office (SHPO)

A state agency that consults under Section 106 and has other roles to encourage the preservation, use, and interpretation of historic properties and protect their state's cultural heritage.

State Supported Corridor

Amtrak train service under 750 miles for which states and other entities provide funding.

State Transportation Improvement Plan (STIP)

Multi-year capital improvement fund for state transportation projects.

Superliner®

A type of bi-level intercity railcars including coaches, dining cars, lounges and sleeping cars.

Surfliner®

A family of bi-level intercity railcars owned by Amtrak and California Department of Transportation. The official train/route name is Pacific Surfliner®.

Sustainable Design

Designing structures to minimize adverse effects to the environment.

Tactile Warnings (also known as truncated domes or detectable warnings)

A system of contrasting colored, textured ground surface indicators that alert a person who is blind or has loss of vision of danger, such as in the edge of a rail platform.

Telecommunications Device for the Deaf also known as Teletypewriter (TTY/TTD)

An electronic device that allows text communication over a telephone line. Required by law when four or more pay phones are provided.

Trainset

A set of semi-permanently attached locomotives and passenger cars.

Transit Oriented Development (TOD)

An area within walking distance of a rail or transit station that has incentives for high density residential and commercial development.

Transportation Security Administration (TSA)

An agency of the U.S. Department of Homeland Security that has authority over the security of the traveling public.

The United States Department of Transportation (USDOT or DOT)

A federal agency that oversees transportation matters.

Universal Design

An approach to designing spaces, products, and environments to make them fully accessible to all people regardless of age, ability, or other factors.

Viewliner®

A single-level railroad car type operated on most long-distance routes.

Volatile Organic Compounds (VOCs)

Organic compounds that can emit hazardous fumes.

Wayfinding

A system of signs that allows passengers to find their way through a rail station.

Wheelchair lift

A device that allows a passenger in a wheelchair or other wheeled mobility device to enter a rail car when the platform and rail car deck are a different heights. It can be portable or a part of the rail car.

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