



# PALMER STATION

PLANNING + DESIGN

## Conceptual Design Report

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Prepared For

**massDOT**  
Massachusetts Department of Transportation

Prepared By



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# 01

## Introduction

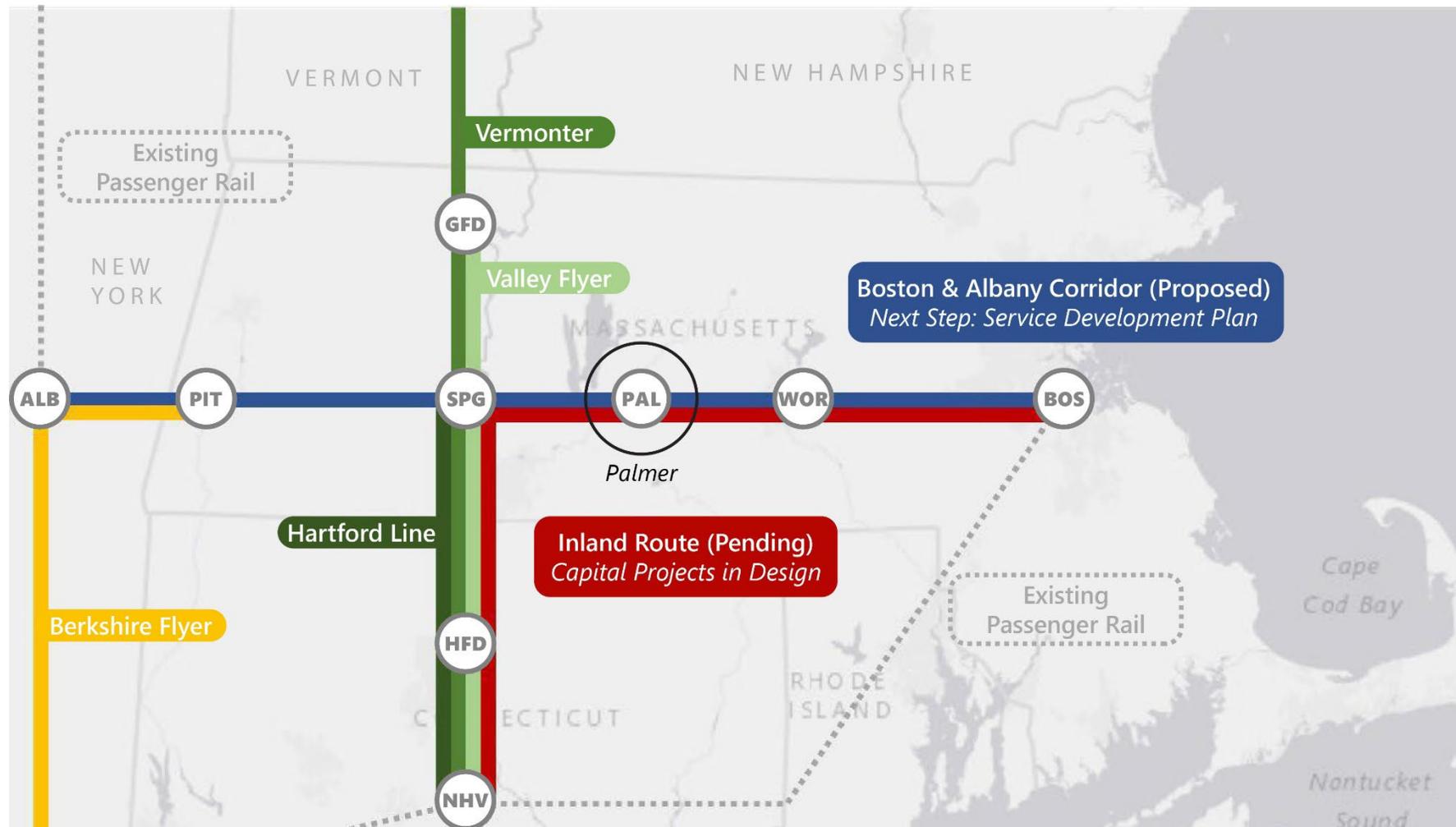
The Massachusetts Department of Transportation (MassDOT) has undertaken a planning and design effort for a future intercity passenger rail station serving the Town of Palmer and surrounding communities that will enhance mobility and connectivity, support local planning goals, and drive economic development. The potential station would be served by Compass Rail trains, namely the West-East Rail corridors of the Inland Route and the Boston & Albany Corridor. This Conceptual Design Report describes the criteria that guided the conceptual design and presents the conceptual design for the station.

Palmer, Massachusetts, nicknamed the “Town of Seven Railroads,” has a history of railroad activity dating back to the 1800’s. Both freight and passenger operations have served the town during this time, although passenger service was discontinued in 1971.

Recent studies conducted by MassDOT have proposed reintroducing passenger rail service to Palmer as part of the Compass Rail vision for intercity passenger rail in Massachusetts. Compass Rail is comprised of existing and proposed West-East and North-South services with a hub in Springfield (**Figure 1**). It is expected that the proposed West-East Rail routes would include future passenger service through Palmer. Amtrak would operate these routes, including an Inland Route between Boston and New Haven through Springfield and a Boston and Albany route. Both routes would use the Boston & Albany Line owned and operated by CSX Transportation (CSX).

The Palmer Station Planning and Design project identifies a proposed location for a new passenger rail station serving the Town of Palmer and surrounding communities as a step towards realizing the Compass Rail vision. This report presents the conceptual design for a potential station at that location.

Figure 1 Compass Rail



## Structure of this Report

This Conceptual Design Report includes the following contents:

- › The remainder of this chapter, **Chapter 1**, provides an overview of the Palmer Station Planning and Design project, including:
  - Background on the project, including a description of the project purpose and the project goals and objectives; and,
  - A summary of the alternatives analysis that resulted in the identification of the proposed site location advance in the conceptual design in this report.
- › **Chapter 2** summarizes key takeaways from the public and stakeholder outreach conducted throughout the project.
- › **Chapter 3** describes the existing conditions of the preferred site.
- › **Chapter 4** details the basis of the conceptual design.
- › **Chapter 5** summarizes the conceptual design and presents a conceptual site plan together with conceptual renderings of the proposed station.
- › **Chapter 6** presents a conceptual schedule for the proposed conceptual design.
- › **Chapter 7** provides an order-of-magnitude cost estimate for the conceptual design.
- › **Chapter 8** summarizes the conclusions of the Palmer Station Planning and Design project and identifies next steps to advance towards the construction of a station in Palmer. Construction funds are not yet identified.

In addition to this Conceptual Design Report, MassDOT has developed supporting documents evaluating the potential for a future station in Palmer, including a station site [Alternatives Analysis](#), an *Environmental Review Report* of the station location, a *Transportation Impact and Access Study*, and a *Market Analysis Report*.



*Rendering of the proposed Palmer Station platform*

## Project Background

Construction of a new rail station in Palmer was considered as part of the Northern New England Intercity Rail Initiative (NNEIRI), a 2016 conceptual planning study that examined the implementation and operation of more frequent, higher-speed intercity passenger rail service on the Inland Route and the Boston-to-Montreal route. Since the conclusion of the NNEIRI study, several additional studies have referenced a station in Palmer. **Figure 2** provides a timeline of selected relevant studies completed in advance of the current Palmer Station Planning and Design project.

**Figure 2** Timeline of Previous Work (2016-2023)



Common themes from previous studies supporting a station in Palmer were synthesized to develop a draft purpose and objectives for the current Palmer Station Planning and Design project. The draft purpose and objectives were reviewed with the Project Steering Committee consisting of Town and regional representatives (see **Chapter 2**) and further refined, resulting in the following.

### Project Purpose

The purpose of this project is to identify a new passenger rail station along the proposed Compass Rail Corridor serving the Town of Palmer and surrounding communities that will enhance mobility and connectivity, support local planning goals, and drive economic development.

The five goals and objectives of the project are to:

1. Provide and create an **intercity rail stop** on the proposed Compass Rail corridor while **meeting operational requirements** for Amtrak, CSX, and other freight operators and **minimizing freight operations impacts**;
2. **Enhance passenger mobility and connectivity** for local and regional growth and to support access to the Five College Consortium;
3. Improve local and regional **economy and livability**;
4. Support local and regional goals to **reduce dependency on auto transportation** by offering an alternative choice for travelers and providing opportunities for multimodal station access; and
5. **Avoid and minimize** social, cultural, and environmental impacts.

## Site Selection for Conceptual Design

Building off previous studies, a review of the corridor, and stakeholder feedback, a total of nine potential sites were identified and evaluated through an [Alternatives Analysis](#).<sup>1</sup>

The Alternatives Analysis used a two-level approach to compare and evaluate each of the station site locations identified. The Level 1 Fatal Flaw Screening evaluated the operational and engineering feasibility of constructing a station at each of the potential sites. High-level sketches on aerial imagery placed the essential rail infrastructure – such as turnouts to a station siding, a station siding, and a passenger platform – on the Compass Rail corridor where possible within the vicinity of each identified site. Each site was then evaluated against three fatal flaw criteria:

1. **Operational Compatibility:** Is the site on the Compass Rail Corridor?
2. **Track Geometry and Right-of-Way (ROW) Limits:** Does sufficient space exist to accommodate the station on a siding track with associated track and signal infrastructure meeting minimum standards?
3. **Freight Operations Impacts:** Does the site interfere with the diamond junction (CP-83, between CSX and the New England Central Railroad) or the CSX Palmer Yard?

Of the nine potential sites, six met all the Level 1 screening criteria and advanced to the Level 2 Comparative Evaluation, which assessed the remaining sites based on qualitative and quantitative criteria across five categories: Engineering and Operations, Environment, Mobility, Economic Development Potential, and Implementation Considerations.

Based on the Level 2 Comparative Evaluation and public input, Site B (South of Palmer Yard), located at 1199 South Main Street, resulted in the most favorable evaluation. Site B appeared likely to be the least costly and most straightforward to construct and was among the sites with the least anticipated permitting. Of the sites included in the Level 2 Comparative Evaluation, public feedback also favored Site B for its relative proximity to downtown and simplicity. The Level 2 Comparative Evaluation recommended that Site B advance to Conceptual Design. **Figure 3** depicts Site B in the context of its proximity to downtown Palmer. **Figure 4** shows an aerial of the site as it exists today.

Figure 3 Site Selected to Advance to Conceptual Design



Source: NearMap, September 2024

1 MassDOT, "MassDOT Palmer Station Planning & Design, Alternatives Analysis," <https://www.mass.gov/doc/massdot-palmer-station-planning-design-alternatives-analysis/download>.

Figure 4 Aerial Photo of Site B – 1199 South Main Street, Looking Northwest



Source: VHB, 2025



# 02

## Stakeholder Engagement

Early and frequent outreach was critical to the Palmer Station Planning and Design project. Stakeholder engagement informed the development of project goals and objectives, alternatives analysis, and conceptual design.

MassDOT began its stakeholder engagement by outlining the process for engaging a wide range of stakeholders throughout the project (**Figure 5**). Outreach included municipal stakeholders, railroad stakeholders, transit stakeholders, and the general public. Outreach efforts sought to provide information about the project, gather feedback on community priorities and concerns, and create an avenue for collaboration with local stakeholders.

Figure 5 Stakeholder Engagement Throughout the Project



## Steering Committee

To support the development of the project, MassDOT met frequently with a Steering Committee consisting of Town and regional representatives (**Table 1**). The Steering Committee provided input on a variety of topics, including:

- › **Project Purpose, Goals, and Objectives** – The Steering Committee helped refine the project purpose, goals, and objectives. Based on Steering Committee feedback, the project goals and objectives were adjusted to explicitly include the goal of minimizing freight impacts and to highlight the large student population within the vicinity of Palmer.
- › **Alternatives Analysis** – Steering Committee insights helped refine the site identification, highlight parking and site access considerations, and inform the development of the evaluation metrics used for site selection.
- › **Site Selection** – The Steering Committee concurred with the alternatives analysis results and the selection of Site B, while providing context on the development potential of nearby sites.
- › **Market Analysis** – The Steering Committee participated in an Economic Roundtable discussion, providing insights that could support a future potential station area plan and highlighting the potential for development in the station area.
- › **Conceptual Design** – The Steering Committee highlighted the importance of maintaining space for future development or expansion, preserving sightlines between the street and station area, providing sufficient pick-up and drop-off capacity, and reserving space for stormwater management. In terms of station aesthetics, Steering Committee members suggested maintaining a traditional design, incorporating brick features, and including landscaping elements into the design.

**Table 1** Steering Committee Members

Name	Affiliation
Brad Brothers	Town of Palmer <i>Town Manager</i>
Heidi Mannarino	Town of Palmer <i>Town Planner</i>
Michael Marciniec	Town of Palmer <i>Planning Board Chairman</i>
John Latour	Town of Palmer <i>Community Development Director</i>
Karl Williams	Town of Palmer <i>Town Councilor (District 3)</i>
Dave Golden	Town of Palmer <i>Master Plan Implementation Committee</i>
Matthew Morse <sup>1</sup>	Town of Palmer <i>Former Department of Public Works Director</i>
Gary Roux	Pioneer Valley Planning Commission <i>Director of Transportation Planning</i>
Dana Roscoe <sup>1</sup>	Pioneer Valley Planning Commission <i>Former Principal Planner / Transportation Manager</i>
Ben Hood	Palmer Redevelopment Authority <i>Board Member</i>

<sup>1</sup> Matthew Morse and Dana Roscoe served as Steering Committee members during the Alternatives Analysis phase.

In addition to providing guidance at meetings, the Steering Committee reviewed documentation and analyses as the project progressed, helped organize public meetings, and maintained consistent communication with the project team. Insights from the Steering Committee were instrumental in shaping the direction of the project.

## Public Outreach

MassDOT held two public meetings in Palmer to present the project's progress and solicit feedback on the development of the proposed station:

- › **Public Meeting #1 (December 2024)** presented the alternatives analysis and gathered input to inform the site selection. Following a presentation, two breakout sessions invited attendees to provide input on the alternatives analysis and station design. Many comments expressed desire for a station location close to the Palmer downtown and concern over accessibility. In terms of station design, participants expressed interest in using durable materials sympathetic to the local architectural character and integrating local art and history.
- › **Public Meeting #2 (October 2025)** presented the proposed conceptual design and invited participants to give public comment through a moderated question and answer session. While some attendees expressed concerns about the proposed station's distance from downtown and limited development potential, other attendees highlighted the long history of advocacy for a station in Palmer and expressed excitement over the progress being made.

Both public meetings offered attendees opportunities to provide verbal comments and submit written feedback. Individuals unable to attend the meetings were invited to submit comments and questions electronically.

MassDOT also provided additional information to individual members of the public who requested more detailed information about the project. This included meeting with members of the Central Corridor Passenger Railway Coalition (CCPRC) and the owners of the historic depot to discuss additional concepts that had been developed by the CCPRC for that location.



Photo of MassDOT West-East Rail Director Andy Koziol presenting at the first public meeting, held at the Palmer Public Library

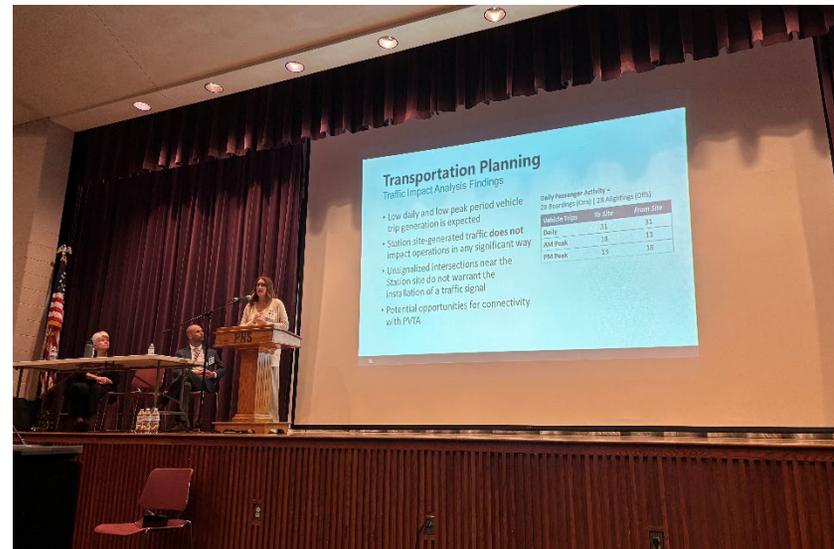


Photo of presentation during the second public meeting, held at the Palmer High School

## Additional Stakeholder Outreach

In addition to holding public outreach events and meetings with the Steering Committee, MassDOT coordinated with an array of regional, railroad, and transit stakeholders throughout the development of the project.

### Railroad Stakeholders

To enhance the likelihood of success and anticipate concerns for the proposed station, MassDOT coordinated with both Amtrak, who would operate service through Palmer, and CSX, the owner of the railroad. Amtrak provided the ridership projections for the proposed station to inform the development of the conceptual design. CSX provided context on the freight operations within the vicinity of the station. It is anticipated that additional coordination with railroad stakeholders will continue as the development of Palmer Station advances into further stages of design.

### Transit Stakeholders

To prepare for potential transit connections at Palmer Station, MassDOT met with local transit providers, including the Pioneer Valley Transit Authority (PVTA)<sup>2</sup> and the Quaboag Valley Community Development Corporation (QVDC). PVTA identified potential bus routes that could serve Palmer Station based on existing routes and ridership patterns, as well as physical design requirements to accommodate the anticipated bus connections. QVDC, which established the Quaboag Connector demand-response service with the Town of Ware (see **Chapter 3**), provided context on the existing demand and operating capacity for the Quaboag Connector.

## Economic Development Roundtables

To inform the Market Analysis for Palmer Station, MassDOT conducted a series of roundtable discussions with key local and regional groups. These sessions provided valuable perspectives from a diverse array of participants across four distinct groups:

- › Regional Roundtable
- › Real Estate Development Roundtable
- › Small Business/Institutional Roundtable
- › Steering Committee Roundtable

The Regional Roundtable explored the broader real estate market challenges and opportunities within the Palmer area and its neighboring towns, opportunities to leverage outdoor assets for tourism and recreational growth, and the importance of regional collaboration.

The Real Estate/Development Roundtable highlighted critical trends and challenges surrounding the real estate market in the region and identified barriers to development.

The Small Business/Institutional Roundtable provided insights into challenges and opportunities for talent attraction and retention, commercial development gaps, and the potential impacts of the proposed station in improving connectivity and serving residential demand.

The Steering Committee Roundtable centered on development interest, zoning needs, and strategic planning to leverage the proposed train station's potential impact on Palmer.

These roundtable discussions (furthered detailed in the *Market Analysis Report*) shed light on community priorities and strategic considerations for the advancement of Palmer Station.

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2 A representative from the Pioneer Valley Planning Commission was also present at the meeting with PVTA.



# 03

## Existing and Planned Conditions

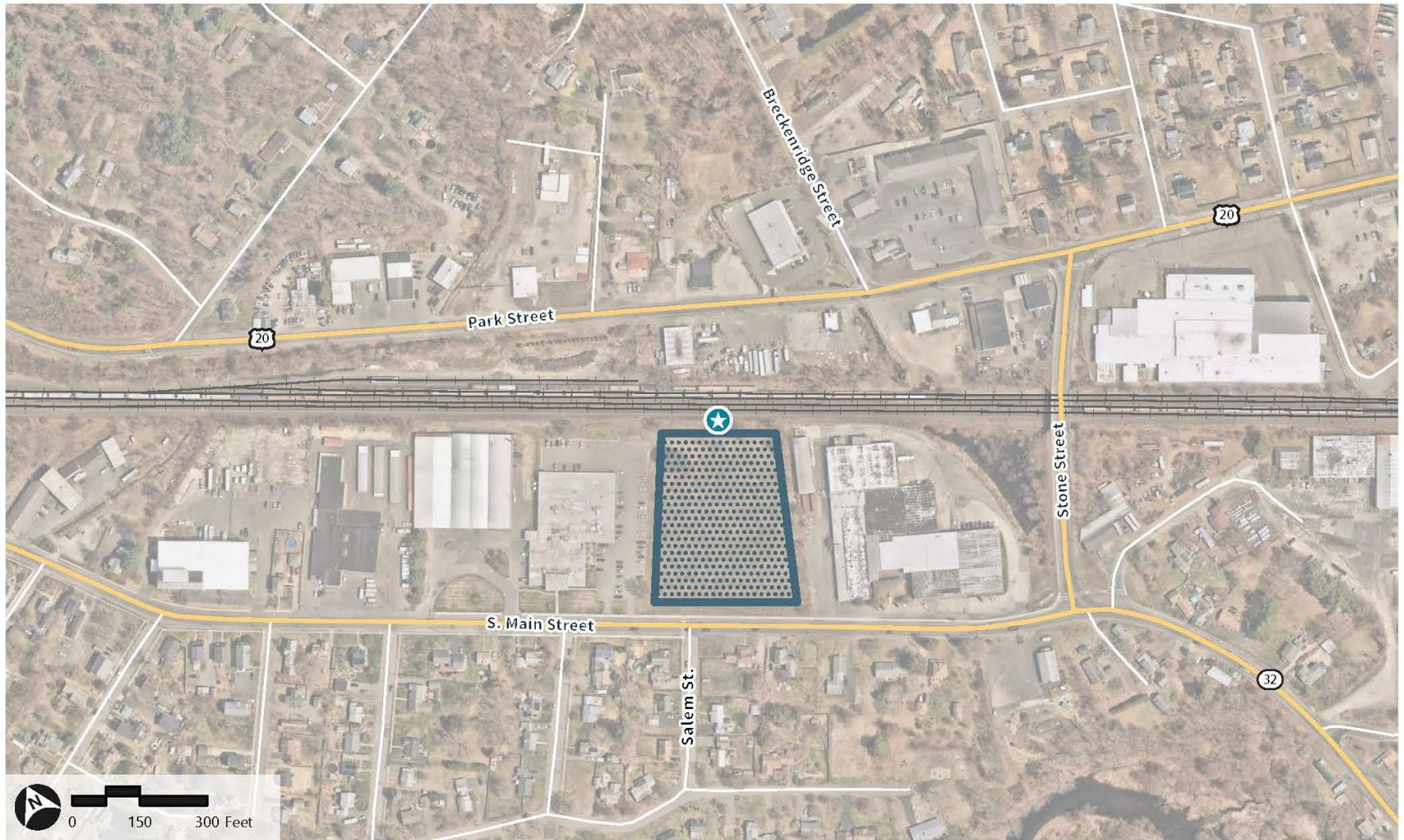
The proposed station location is on the eastern side of a parcel at **1199 South Main Street**, just over 0.5 miles from downtown Palmer. The proposed site is south of the existing Palmer Yard, between approximately Milepost (MP) 82.8 and MP 83.1 along the CSX mainline. This chapter describes the existing site, rail operations in the vicinity of the site, and the regional planning context.

### Existing Site

The proposed site at 1199 South Main Street in Palmer is on a parcel of land owned and partially occupied by Sanderson MacLeod Inc., a local twisted wire brush manufacturer. While there is a building and paved parking area on the parcel, a portion of the parcel on the eastern side is currently undeveloped, with grass and trees (**Figure 6**).

The proposed site is level and adjacent to the Compass Rail Corridor (CSX Boston & Albany Line). There is a 4-foot grade difference between top of rail and northern portion of the site. There is a perennial stream and existing culvert east of the proposed site. To the east of the proposed site, the Stone Street overhead bridge passes across the CSX mainline and yard tracks. There is also an existing vertical curve on the mainline under the Stone Street bridge.

Figure 6 Proposed Station Site Location



- Proposed Station
- Principal Arterial/Minor Arterial/Major Collector/Minor Collector
- Local Roads
- Rail Lines
- Station Site

Source: MassGIS, ArcGIS Online

Path: \\whb.com\gis\proj\Boston\157900.02 TO2-Palmer Station Design\Project\Palmer.aprx (zcomer, 7/8/2025)

## Rail Operations

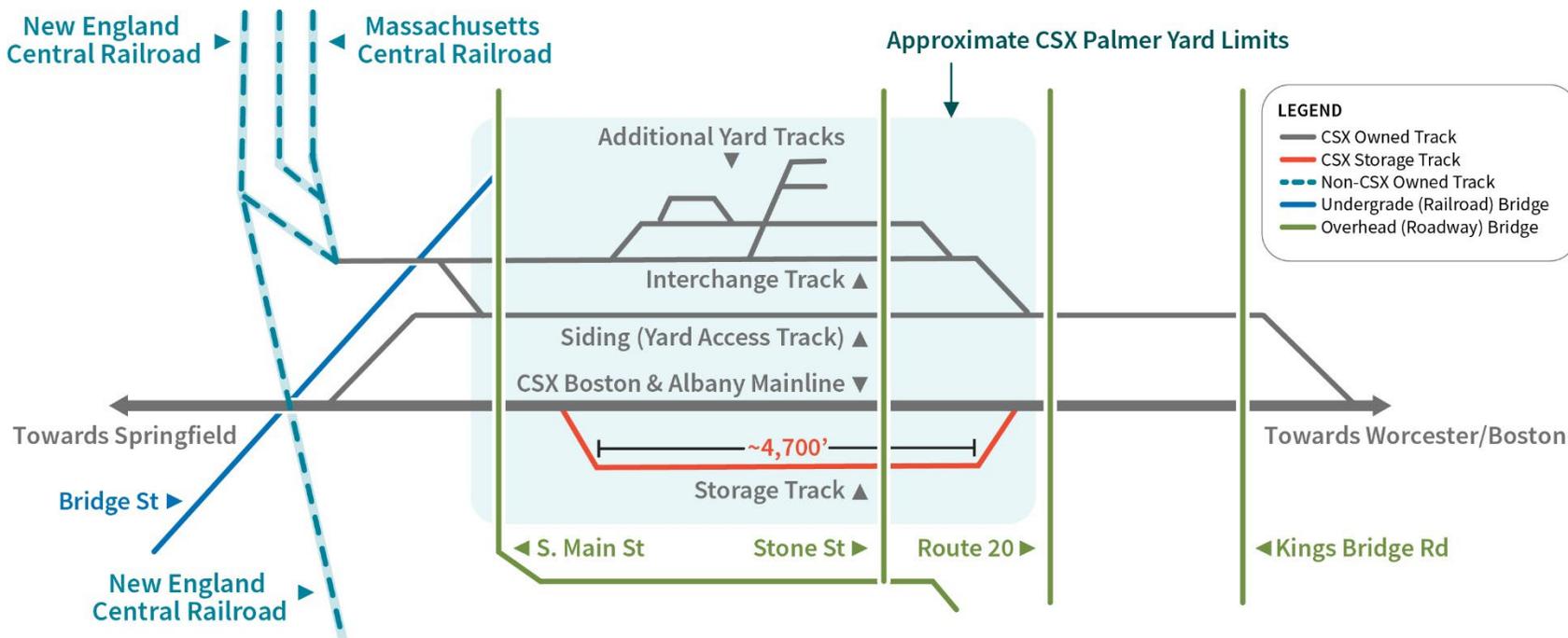
The proposed site is adjacent to the Compass Rail Corridor (**Figure 6**). It is south of the CSX mainline and the Palmer Yard, located approximately between STA 8240+00 and 8260+00. The CSX mainline runs along the south side of Palmer Yard with a horizontal clearance of approximately 13 feet to the nearest yard track and is tangent throughout the segment adjacent to the proposed site.

The CSX mainline has a slight grade within the segment. The design speed through the segment is 60 mph for passenger trains and 50 mph for freight trains.

South of the CSX mainline, there is an existing siding track with approximately 13 feet horizontal clearance from the CSX mainline. This track is currently used as part of the Palmer Yard operations (**Figure 7**).

To locate a station on the south side of the right-of-way, a new station siding track would need to be constructed off of the mainline. This new station siding track would replace the existing siding track, as it would need to meet the minimum clearance requirements for passenger platform track. The conceptual design included in this report assumes that the existing siding track south of the mainline could be relocated, although this would require further coordination with CSX.

Figure 7 Palmer Yard Operations



\*Figure Not to Scale

CSX operates up to fifteen daily trains on the CSX mainline through Palmer, which is anticipated to grow to 21 daily trains in the future, with many of these trains interchanging at the Palmer Yard. One of the eastbound merchandise trains traveling to Worcester makes a stop at Palmer Yard ranging from 30 minutes to two hours, during which the train remains on a siding north of the mainline while cars are picked up and set out from the yard. Trains operating in Palmer Yard are able to switch without occupying the mainline, but the yard frequently reaches capacity with cars overflowing onto the yard access track north of the mainline.

The merchandise trains that utilize Palmer Yard currently span up to 8,000 feet in length and are anticipated to grow to 9,000 feet in length to accommodate growing freight volumes. CSX sometimes stores and stages these trains outside of the yard on the yard access track, so the turnout to the station siding track must be off the mainline to avoid potential conflicts between station access and Palmer Yard operations, including freight staging outside of the yard.

Although no passenger services currently stop in Palmer, Amtrak's Lake Shore Limited route operates along the proposed Compass Rail corridor through Palmer. The Lake Shore Limited currently operates one trip in each direction daily between Boston/New York and Chicago, with stops at Worcester and Springfield, Massachusetts.

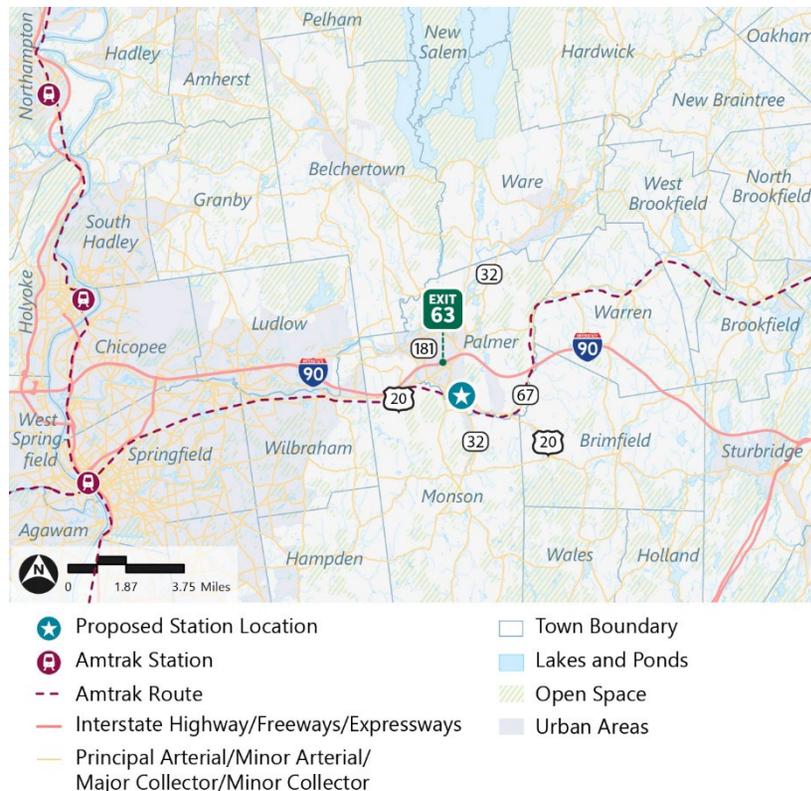


*Photo of Boston & Albany Mainline and Palmer Yard from Site Looking Northwest*

## Regional Context

Previous studies identified Palmer as a potential station location due to its regional centrality (**Figure 8**). Palmer is located between Springfield and Worcester, with regional access via I-90 and US-20. Palmer is also proximate to the educational opportunities of the Five College Consortium, including Amherst College, Hampshire College, Mount Holyoke, Smith College, and UMass Amherst. Palmer's regional context is important to understand in developing the conceptual design, both in transportation and market implications.

**Figure 8 Palmer within Regional Context**



Source: MassGIS, ArcGIS Online

## Transportation Context

Access to the site would occur from South Main Street. The station site is just over 0.5 miles from Palmer's Depot Village. The sidewalks along Main Street, South Main Street, and Park Street—and those on side streets that connect to them—are important connections to homes and businesses in the area. There are no existing designated bicycle lanes or paths in the area, but bicyclists may access the site using existing roads and their shoulders.

Existing transit services include local **PVTA** bus service and demand-response shuttle service with connections to neighboring towns. The **Quaboag Connector** provides demand-response shuttle service in Palmer, Belchertown, Brookfield, East Brookfield, Hardwick, Monson, North Brookfield, Ware, Warren, and West Brookfield. The PVTA operates three bus services that could potentially connect to the proposed Palmer Station:

- › The **Palmer Shuttle** operates between local Palmer destinations, with connections to Ware and to Springfield's Union Station where riders can access additional bus, train, and Amtrak services. The Palmer Shuttle operates seven days a week and currently runs along South Main Street, past the proposed station site.
- › The **Ware Shuttle** service connects Ware and Wilbraham via Palmer. The route travels on N. Main Street and Thorndike Street through Depot Village and stops at the Palmer Library and Palmer Big Y.
- › **PVTA Route B79** provides intercity bus service between UMass Amherst and Worcester, with connections to the Commuter Rail station in Worcester for Boston-bound service. Service is available on Mondays, Thursdays, Fridays, Saturdays, and Sundays.

Through coordination with PVTA, the conceptual design assumes that the proposed site could be served by these three routes. Thus, the design provides convenient and sizeable curbside access.

The *Transportation Impact and Access Study* (TIAS) provides more detail on the anticipated transportation conditions, and evaluates the Station’s estimated vehicle trip generation, trip activity on the local street network, and traffic operations at study area intersections.

To support the development of the conceptual design, MassDOT worked with Amtrak to estimate projected future ridership at Palmer Station. Amtrak estimated that approximately Palmer Station would generate approximately 9,200 boardings and alightings per year, assuming a base case of two daily round-trips serving Palmer Station. MassDOT extrapolated this projection to five daily round-trips using an elasticity-based approach, resulting in approximately 17,480 boardings and alightings per year.

Based on this daily activity, the TIAS estimates daily activity of 28 boardings and 28 alightings per day.<sup>3</sup> The projected vehicle trip generation used for the TIAS (**Table 2**) represents a conservative estimate of daily vehicle trip generation. It is anticipated that passengers will arrive by bus, walking, and bicycle.

**Table 2** Projected Daily Vehicle Trip Generation (Typical Weekday)

Vehicle Trips	To Site	From Site
Daily	31	31
AM Peak	18	13
PM Peak	13	18

<sup>3</sup> Projected daily activity is based on the passenger activity under a five round-trip service condition. The annual projection of passengers is divided by the equivalent of six days per week to generate an expected typical busy day.

## Market Context

Palmer’s housing supply shows clear signs of constraint, with a predominantly single-family and owner-occupied inventory and notable rental cost burdens indicating that current availability does not fully meet demand. Despite these pressures, Palmer remains significantly more affordable than major metropolitan markets such as Boston, Worcester, and Hartford, placing the town in a favorable position to attract households seeking lower-cost options, particularly if improved rail service strengthens commuting opportunities.

Household incomes in Palmer are lower than those in larger metro areas, so improved rail access could broaden opportunities for residents to reach higher-wage employment centers. The affordability gap is also likely to generate additional residential interest, especially for multi-family and mixed-use development that can diversify the existing housing stock. Commercial conditions reflect a similar trend. Palmer’s office and retail sectors are small but stable, with comparatively low lease rates and limited vacancy. A new station would increase visibility and access while generating foot traffic, supporting small firms, services, and retail seeking cost-effective space. Underutilized parcels in the station area provide a strong foundation for targeted reinvestment.

Realizing this potential will require zoning and policy changes that support higher-density and mixed-use development, enable a broader range of housing types, and reduce constraints such as minimum parking requirements. With these adjustments, Palmer would be well-positioned to accommodate emerging residential and commercial demand while leveraging its affordability and regional connectivity to establish the station area as an attractive location for future growth. The *Market Analysis Report* provides more detail on the existing and anticipated market conditions.



# 04

## Basis of Design

The conceptual design includes track, station, and site elements. This chapter documents the relevant design standards and guidelines that serve as the basis for the conceptual design.

## Design References

The conceptual design referenced the following design standards and guidelines documents. The list includes only the documents referenced during this stage of the design and is not exhaustive of every document that should be referenced for final design.

Where requirements and/or standards conflict, the most stringent requirement shall govern the design.

The following sections summarize the basis of design.

- › Amtrak Specification No. 63, Track Design Specification, June 1, 2015
- › Amtrak Standard Track Plans
- › Amtrak Station Program and Planning Guidelines
- › CSX Maintenance of Way Regulations and Instructions
- › CSX Standard Roadbed Drawings
- › CSX Standard Specifications for the Design and Construction of Private Sidetracks, September 15, 2016
- › National Fire Protection Association (NFPA) 130, Standard for Fixed Guideway Transit and Passenger Rail Systems
- › U.S. Access Board, Public Right-of-Way Accessibility Guidelines
- › Americans with Disabilities Act (ADA) Standards for Accessible Design
- › Massachusetts Architectural Access Board (MAAB), Code of Massachusetts Regulations (CMR) Title 521

## Track

Track design shall comply with design criteria of both the host railroad (CSX) and the operating railroad (Amtrak). Key track design criteria and considerations are listed below. The list is not exhaustive. Refer to the documents listed under the Design References section for additional information.

- › Special trackwork, including turnouts, crossovers, and diamonds, shall be located on horizontal and vertical tangents.
- › New trackwork shall provide for a minimum horizontal tangent length between a switch and the start or end of a curve or spiral of 200 feet or three times the speed through the divergent side of the turnout, whichever is greater.
- › New trackwork shall provide for 100-foot minimum vertical tangent length between a switch and the start or end of a vertical curve.
- › The design speed for the station track should be no less than the allowable speed through the divergent side of the turnouts that connect to the station track.
- › The station track siding shall provide a minimum 18-foot 6-inch horizontal clearance between the station track centerline and the CSX mainline track centerline.
- › New trackwork shall provide for a 9-foot minimum horizontal clearance between the centerline of track and the face of an obstruction on tangent track, with adjustments for curvature as necessary.
- › Standard horizontal clearance between tangent track centerline and high-level platform edge is 5-foot 7-inches.
- › Station track profile grade should be designed to be 0% or as close to 0% as possible to prevent rolling. The existing track profile does not allow for a 0% profile grade.
- › Station trackwork shall be designed to provide for a preferred minimum 100-foot (and an absolute minimum of a car's length) horizontal and vertical tangent beyond the ends of the platform.



*Photo of Existing CSX Tracks in Vicinity of Proposed Site*

## Platform

The station platform shall be located adjacent to horizontal and vertical tangent tracks. The site should ideally be flat. Platform design shall comply with NFPA 130, MAAB, and ADA standards.

- › The station platform shall be 800 feet long to accommodate the full length of trains anticipated to serve the station.
- › In accordance with Amtrak's *Station Program and Planning Guidelines*, the platform shall be designed for a preferred minimum width of 12 feet and an absolute minimum width of 10 feet.
- › To achieve level boarding with the anticipated Amtrak fleet, the station platform shall be high-level for its entire length, with a nominal platform height of 48 inches above the top of rail.
- › To achieve the required platform height for level boarding, the longitudinal slope of the platform will follow the track grade. To assure compliance with the ADA requirement that platform slope be 2% or less in any direction, the platform cross slope shall be designed to 1%-1.5%. The platform should pitch away from the track to help direct stormwater runoff away from the track and prevent wheelchairs, strollers, and other equipment with wheels from accidentally rolling toward the track.
- › The minimum clearance distance between the face of an obstruction on the platform and the platform edge shall be 6 feet. The minimum clear width on the platform for passage shall be the greater of what is required for ADA or NFPA 130, excluding the width of the detectable warning strip.
- › Station emergency egress provisions will be designed to comply with NFPA 130 standards.
- › The platform canopy will be designed to cover a minimum of two-thirds the length of the portion of the platform adjacent to the proposed multimodal accommodations.

## Site

Amtrak groups stations into four categories: large, medium, caretaker and shelter. Expected station amenities vary depending on the category of station. Based on the projected annual ridership of less than 20,000 riders (see **Chapter 3**), Palmer Station shall be designed as an Amtrak Category 4 Shelter Station, although elements of the design may reflect Category 3 Caretaker Station characteristics.

### Transition Plaza Area

The conceptual design will include a transition plaza area that provides sufficient area to further define station elements as the design progresses, including areas for station signage and information.

Within the transition plaza area, the design will identify a location for a potential future building, which could include a restroom block; mechanical, electrical, and information technology equipment; a custodial closet; secure storage; and a trash/recycling room. Stakeholders expressed interest in the inclusion of a restroom to better serve travelers arriving to the station via various modes, including passengers transferring between bus and train services, by reducing the need for longer walks to neighboring businesses. However, Category 4 Shelter Stations are unstaffed and typically do not include a restroom, and Category 3 Caretaker Stations may include restrooms based on site conditions. MassDOT would not operate or maintain a restroom, nor fund the operations and maintenance of a future restroom, so additional agreements would need to be in place prior to the inclusion of a restroom in further phases of design.

## Multimodal Access

To enhance regional access to the station, the design will support multimodal access (evaluated in the *Transportation Impact and Access Study*).

- › The design shall accommodate pedestrian and bicycle access in the form of sidewalks and multi-use paths. Access to the site should be from South Main Street and separated from vehicles.
- › Bicycle parking should be located as close to station entrances and platform entrances as is practical. Bike racks should be securely anchored to the ground. Ideally, they should also be sheltered, well illuminated, and visible.
- › To promote efficient transportation, Amtrak encourages station design to accommodate existing and planned local transit services. In multimodal stations, waiting spaces and other amenities may be shared by multiple agencies. Based on coordination with PVRTA, the design shall provide an area dedicated for bus passenger loading and unloading, concurrently accommodating a minimum of one 60-foot bus and two 28-foot buses.
- › To comply with ADA standards, bus stop boarding and alighting areas shall provide a minimum clear length of 96 inches (8 feet), measured perpendicular to the curb or vehicle roadway edge, and a minimum clear width of 60 inches (5 feet), measured parallel to the vehicle roadway.

## Vehicular Access

Access to Palmer Station is anticipated to primarily occur via vehicles, because of its function as a regional station, as noted in the *Transportation Impact and Access Study*.

- › Although parking is not a required element for Amtrak Category 4 stations, it may be incorporated based on site conditions. Because of the station's anticipated vehicular access, a parking area will be provided. It shall be designed to accommodate a variety of parking types (short-term and long-term parking) and vehicular access (pick-up/drop-off, accessible spaces).
- › Amtrak prefers 90-degree parking spaces, where provided. Amtrak guidelines suggest allowing for an average of 330-350 square feet of surface area including maneuver space, circulation space, and access / parking control for surface parking.
- › Amtrak recommends basing parking capacities at its stations on a minimum 20-year projection of ridership growth. The parking lot capacity for Palmer Station is designed for a target of approximately 50-60 spaces based on the estimated daily passenger activity and traveler characteristics.<sup>4</sup> These account for parking by daily users and for longer duration trips. The parking lot layout is designed to allow for further parking lot expansion, if warranted by demand.
- › In accordance with 521 CMR 23, a minimum of three accessible spaces, including at least one van space, shall be provided for a parking lot of 51-75 spaces. Accessible parking spaces shall be located on the shortest accessible route of travel from the parking lot to an accessible entrance.
- › The design will include a target minimum of 150 feet for passenger pick-up and drop-off to accommodate six vehicles.

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<sup>4</sup> The target parking spaces is calculated based on the estimated daily boardings divided by an average vehicle occupancy of 1.16 rail passengers and multiplied by a typical round-trip duration of 2.25 days for the train travel.



# 05

## Proposed Conceptual Design

Based on input from public and stakeholder engagement, the conceptual design aims to enhance the user experience, support sustainability and durability, provide local information, highlight the Town of Palmer's history, preserve developable space, and maintain the view and sightlines. This chapter details the key elements of the proposed conceptual design (Figure 9).

Figure 9 Aerial Rendering of the Proposed Conceptual Design



## Track

Due to the frequency of freight services through the area, the station platform must be sited on a siding track separate from the CSX mainline to avoid interfering with mainline and yard operations.

The station track is laid out parallel to the mainline track and connected to the mainline track via two No. 15 turnouts, which allow for a maximum authorized speed (MAS) of 30 mph for trains entering the platform track. The placement of the station track is constrained by the existing vertical curve under the Stone Street overhead bridge; the eastern turnout is placed to maintain a 100-foot minimum distance between the switch point and the end of the vertical curve. Where possible, trackwork has been conceptually designed to be as far from the wetland resource area as feasible to avoid direct impacts to the bordering vegetated wetland and perennial stream.

An approximately 1,760-foot section of the existing CSX storage track located south of the mainline track is proposed to be removed and relocated. The proposed station track would be located at the approximate location of the existing storage track. The conceptual design includes approximately 1,680 feet of new station track, including the two No. 15 turnouts and 100 feet of tangent track on either side of the 800-foot-long platform (**Figure 10**).

## Platform

The conceptual design proposes an 800-foot-long, 10-foot-wide high-level platform with 5-inch rub rail. The proposed platform is fully contained within the CSX right-of-way. Since the existing grade differential between the top of rail and the proposed site is approximately 4 feet, the eastern half of the platform will be level with the transition plaza toward the south. A sloped walkway is proposed from the western side of the platform to serve as the additional path of egress required by NFPA 130 (**Figure 10**).

Figure 10 Proposed Conceptual Design



## Site

The conceptual design includes a transition plaza between the eastern side of the platform and the proposed parking area (**Figure 11**). Access to the site is provided from South Main Street, with pedestrian access from both sides of the site and vehicular access from the eastern side. The conceptual design limited the parking area to the northern portion of the site and located the access paths along the sides of the site to preserve space for potential station area development. Sustainable design elements include proposed tree plantings and landscaping within and surrounding the parking area. The conceptual design also delineates areas for snow removal and stormwater detention south of the parking lot, around the northern and western edges of the undisturbed area of the parcel.

### Transition Plaza Area

The main entrance to the transition plaza area is marked by a central pergola aligned with the pedestrian crossing through the center of the parking area (**Figure 12**). The conceptual design includes space for a potential restroom and maintenance building with a gross square footage of approximately 400 square feet. The building would be part of the station access plaza, at the northwestern corner of the parking area (**Figure 11**). The building could include two single-user restrooms (subject to additional maintenance agreements), and support spaces such as a mechanical, electrical, and IT room, a custodial closet, secure storage, and a trash and recycling room.

MassDOT would not fund, operate, or maintain a restroom, so additional agreements would need to be in place prior to the inclusion of a restroom in further phases of design. Some of the renderings on the following pages are shown both with and without the potential building for context.

Figure 11 Proposed Site Plan

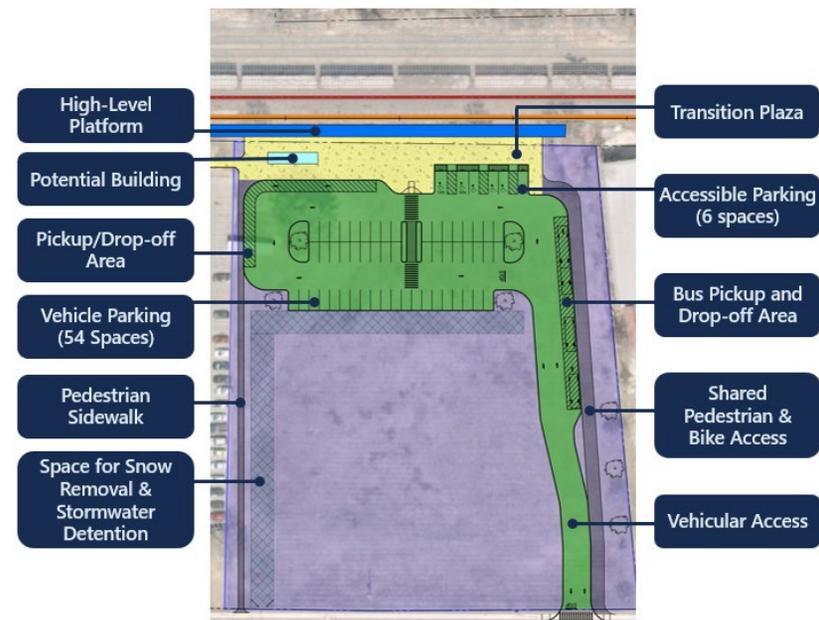


Figure 12 Rendering of the Transition Plaza Area



### Station Amenities and Architecture

Although not detailed as part of the site plan, the proposed station would include several amenities to enhance the user experience, some of which are illustrated in the station renderings.

The proposed station may include:

- › A glue-laminated timber (glulam) canopy covering more than two-thirds of the length of the portion of the platform that is adjacent to the transition plaza and main station entrance;
- › Mobile ticketing and self-service kiosks;
- › Passenger information display systems at strategic locations on the platform to provide passengers with up-to-date information on train arrivals, delays, and schedule changes;
- › Fixed benches designed to withstand heavy use and weather exposure under the canopy to provide seating for passengers;
- › Lighting, emergency call boxes, and trash and recycling receptacles for passenger safety and security; and
- › Improved bicycle storage that repels inclement weather.

Station amenities will be further defined in subsequent phases of design and will be responsive to public and stakeholder feedback. During a public meeting held in December 2024, attendees suggested including historical and present-day information about the Town in the station. The Town's history as the Town of Seven Railroads may be highlighted through elements of the design such as station signage, and present-day information may be displayed via notice boards in the transition plaza area. Other suggestions included using dark-sky lighting and materials that reflect the local architectural character, providing information on local attractions, incorporating local artists and designers, and integrating native landscaping.

## Parking Area

The proposed conceptual design locates the parking area adjacent to the platform within the northern half of the site (**Figures 13** and **14**). The proposed conceptual design includes a total of 60 parking spaces: 54 standard, 90-degree parking spaces and six accessible parking spaces, two of which are sized for vans.

The accessible parking spaces are located closest to the platform, directly adjacent to the station access plaza, with adjacent access aisles. The other parking spaces are proposed toward the south side of the parking lot and in a two-row parking bay across the center of the lot. The location of the lot within the site allows for future expansion of the parking lot, should the need arise, without impacting the other access features of the station.

To avoid interference with vehicular traffic at the intersection of South Main Street and Salem Street, the conceptual design proposes vehicular access along the eastern side of the parcel. The vehicular access road from South Main Street consists of a 12-foot-wide lane in each direction.

Vehicular circulation throughout the parking lot is one-way, counterclockwise around the center parking area. Passenger pick-up/drop-off space is provided along the northwestern corner of the parking lot, with sufficient space for six vehicles (**Figure 15** and **16**).

Figure 13 Rendering of the Parking Area with a Building



Figure 14 Rendering of the Parking Area without a Building



Figure 15 Rendering of the Passenger Pick-Up/Drop-Off Area with the Potential Building



Figure 17 View of the Transition Plaza Area towards Passenger Pick-Up/Drop-Off Area without the Potential Building

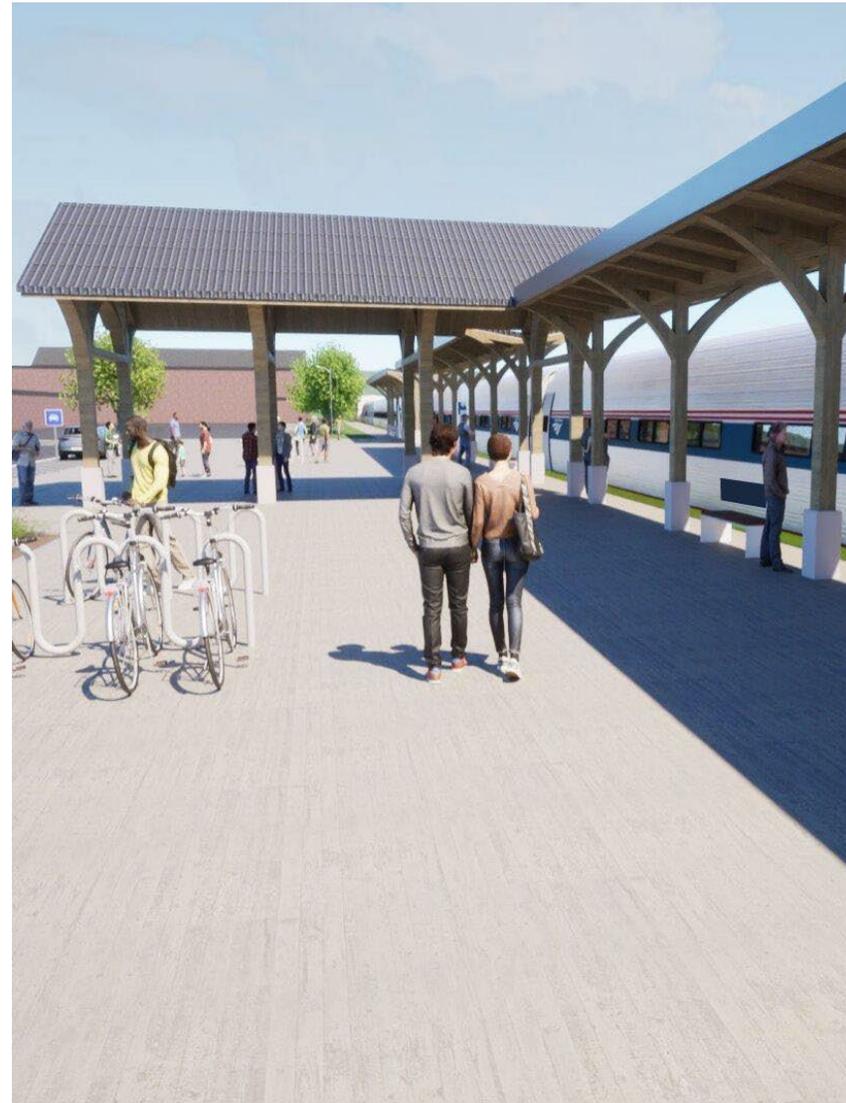


Figure 16 Rendering of the Passenger Pick-Up/Drop-Off Area without the Potential Building



Figure 18 Rendering of the Western Sidewalk and Stormwater Detention Space



Figure 19 Rendering of the Vehicular Access Road and Entrance to Palmer Station



## Multimodal Access

The conceptual design includes accommodations for pedestrian access to the station from both sides of the parking area (**Figure 11**). On the western side of the lot, the conceptual design proposes a 5-foot-wide sidewalk connecting the station access plaza and the existing sidewalk along South Main Street (**Figure 18**). On the eastern side of the site, a 12-foot-wide shared use path is proposed adjacent to the vehicular access driveway to accommodate both pedestrian and bicycle access (**Figure 19**). A crosswalk will be provided across the station's driveway at the South Main Street entrance/exit.

Pedestrian elements within the parking lot include crosswalks between the parking rows and the station access plaza; a protected median in the center of the central parking bay; and a curb ramp onto the station access plaza.

The proposed conceptual design includes an approximately 170-foot-long bus stop along the eastern side of the parking lot to accommodate a 60-foot bus and two 28-foot buses, in accordance with PVRTA's anticipated bus connections (**Figure 20**).

Figure 20 Rendering of the Proposed Bus Stop





*Rendering of Palmer Station from within the parking area*



# 06

## Conceptual Schedule

The Palmer Station Planning and Design project is the first phase of the Palmer Station project. The full implementation of the proposed Palmer Station is estimated to take approximately 5 years. This chapter presents a conceptual schedule for the implementation of Palmer Station, from the completion of conceptual design through construction and start of service.

The next steps for the implementation of the proposed Palmer Station can be categorized into six major phases:

- › Preliminary engineering and environmental documentation
- › Force account and third-party agreements
- › Design and permitting
- › Procurement
- › Construction
- › Commissioning

Further development of Palmer Station will be advanced through the Boston and Albany Corridor Service Development Plan (SDP), which is federally funded as part of a multi-step program (see **Chapter 8**). Since preliminary engineering and environmental documentation for Palmer Station is expected to begin following the completion of the SDP, the conceptual schedule focuses on the anticipated durations and relative timing for each phase of implementation (**Figure 21**).

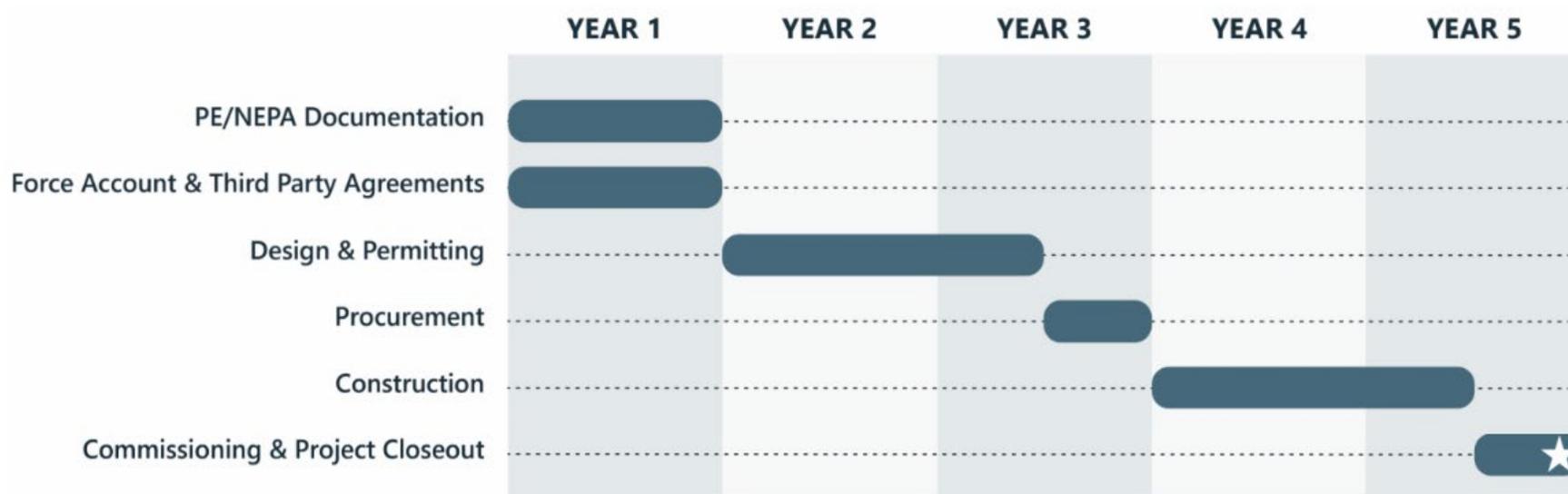
The conceptual schedule includes the following assumed durations following completion of the SDP and identification of funding:

- › **One year to prepare engineering and design submittals for 30% design** and conclude National Environmental Policy Act (NEPA) documentation.
- › **One year to reach design force account agreements with Amtrak and CSX**, as well as additional third-party agreements with Amtrak, CSX, and the Town of Palmer.
- › **Eighteen months for final design and permitting**, including long lead item identification, property acquisitions, and easements.
- › **Six months for contractor procurement.**

- › **Eighteen months for construction**, including materials procurement.
- › **Six months for testing and commissioning** by CSX, Amtrak, and MassDOT, followed by project closeout.

The conceptual schedule was developed based on the conceptual design, and the implementation schedule should be refined as the project advances into the next stages of design. Multiple factors, including the approach to design and construction, permitting requirements, and available funding, will influence the actual implementation schedule.

Figure 21 Conceptual Schedule





# 07

## Conceptual Design Cost Estimate

The order-of-magnitude cost for the implementation of the proposed Palmer Station is estimated to total approximately \$25M-\$35M. This chapter summarizes the main assumptions and components of the estimate.

The proposed Palmer Station would include the following major elements:

- › Installation of two No. 15 turnouts, including signals and switches;
- › Demolition of the existing siding track;
- › Construction of the new station siding track;
- › Construction of the station platform;
- › Installation of paved parking, access roads, and sidewalks; and
- › Construction of the potential maintenance building.

The order-of-magnitude cost estimate includes direct construction costs for the proposed station elements and indirect costs associated with a general contractor. Other soft costs such as professional services, force account costs, real estate procurement, and agency administrative costs are also included. Since this estimate is based on the early conceptual design developed as part of this project, the estimate includes contingencies for potential scope changes identified during the engineering and construction phases.

Due to the uncertainty around the implementation timeline, the cost estimate is presented in present day (2025) dollars and does not account for escalation. This order-of-magnitude cost estimate serves an initial target for investment to further advance Palmer Station, but the total cost may differ as the design progresses and the implementation schedule becomes more defined.



*Aerial photo of the proposed site (facing south)*



# 08

## Conclusions and Next Steps

The Palmer Station Planning and Design project identified a location and developed a conceptual design for an intercity rail stop at Palmer Station along the proposed Compass Rail corridor.

The conceptual design includes a new station siding track, a platform, a transition plaza, a parking area, multimodal accommodations, and a potential building. The full implementation of the proposed station is estimated to take approximately 5 years and cost on the order of approximately \$25M-\$35M.

The proposed Palmer Station would support the project goals of:

- › Meeting **operational requirements** and **minimizing freight operations impacts** by locating the platform on a new station siding track;
- › **Enhancing passenger mobility and connectivity** by incorporating multimodal accommodations, including bus connections to support access for the Five College Consortium;
- › Improving local and regional **economy and livability** by unlocking ridership demand, improving job access, and attracting employers;
- › Supporting local and regional goals to **reduce dependency on auto transportation** by offering an alternative choice for travelers in close proximity to downtown Palmer and providing opportunities for multimodal station access, including vehicular, transit, bicycle, and pedestrian options;
- › **Avoiding and minimizing environmental impacts** by locating the station infrastructure away from social, cultural, and natural resources.

The Palmer Station Planning and Design project is the first phase within the overall development of Palmer Station (**Figure 22**). While the project has made significant progress, there are several additional phases to making the station a reality, including final design and permitting and construction. Next steps to advance the implementation of Palmer Station include engaging with private property owners and strategizing to identify and secure funding.

As part of its ongoing efforts to advance the Compass Rail vision, MassDOT is developing a Boston and Albany Corridor SDP to outline the implementation plan for intercity passenger rail service expansion along the corridor. The SDP will further refine the service levels along the route, define the recommended capital projects to enable services, and include an operating plan. The proposed Palmer Station is anticipated to be included in the SDP.

The SDP will be funded through the Federal Railroad Administration’s (FRA) Corridor Identification and Development (Corridor ID) Program as the second step in the multi-step program to create a pipeline of intercity passenger rail projects ready for implementation. If the FRA accepts the SDP, the multi-step program anticipates subsequent federal funding for project development, including preliminary engineering and environmental documentation for the identified capital projects, which will position the projects to seek construction funding. The SDP and project development steps of the program require state funding to match a percentage of the federal funds. Following the completion of the multi-step program, the identified capital projects will be eligible for a dedicated pool of federal funds.

Figure 22 Palmer Station Next Steps

