Memorandum

To: Patricia Quinn, Executive Director
Northern New England Passenger Rail Authority
75 W Commercial Street, Suite 104
Portland, Maine 04101

Date: January 15, 2026

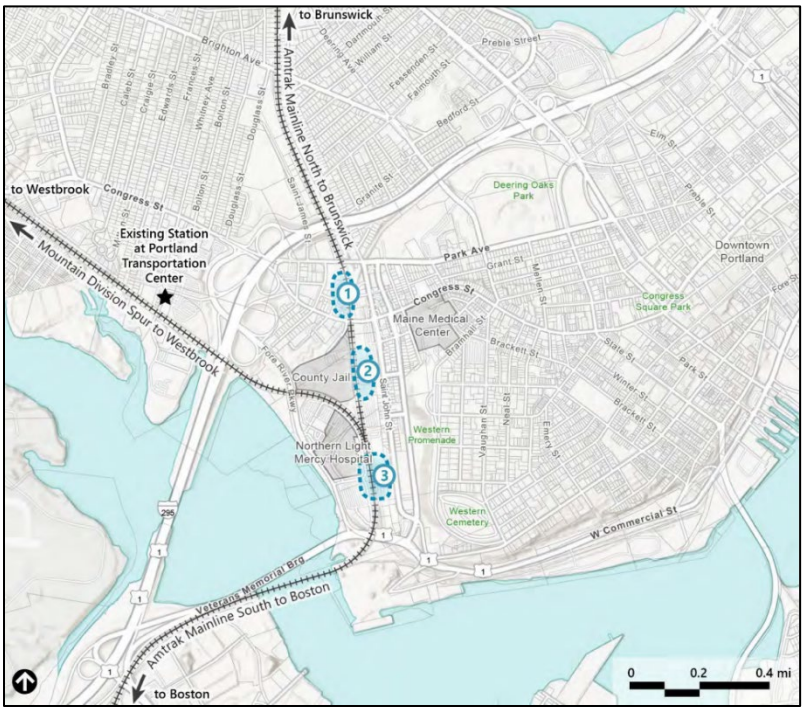
Project #: 55095.21

Re: Considerations when Locating a Station in Proximity to Congress Street Grade Crossing

Background

As part of the Portland Station Relocation project, the Northern New England Passenger Rail Authority (NNEPRA) reviewed three potential sites for relocating the Portland Station.

- Site 1, located north of the Congress Street grade crossing, was removed from further consideration due to significant operational and safety challenges associated with that location.
- Site 2 is located approximately 1,000 feet south of the Congress Street grade crossing, immediately north of the existing MaineHealth parking garage on St. John Street.
- Site 3 is located approximately 2,300 feet south of the Congress Street grade crossing, between St. John Street and the Mercy Hospital campus, and south of the railroad switch to the Mountain Division.



The map above shows the locations of the three sites. NNEPRA's preferred alternative is Site 3, as documented in the Portland Train Station Relocation Planning Report (December 2024), which is available at https://www.nnepra.com/wp-content/uploads/2025/08/2024-12-5-NNEPRA-PTS-Relocation-Site-Alternatives-Analysis-Summary-Report.FINAL_.pdf.

This memorandum outlines the potential hazards, risks, and operational challenges associated with locating the Amtrak Downeaster station near the Congress Street grade crossing in Portland, Maine. The analysis draws on federal data, peer-reviewed research, and national case studies to provide stakeholders with a clear understanding of the issues involved.

Existing Conditions

In Portland, both passenger and freight trains operate on the CSX Portland Subdivision (former Pan Am Railways Mainline) through Congress Street. Freight and passenger trains differ significantly in length, speed, and stopping patterns. The Congress Street grade crossing currently consists of two tracks.

Within the vicinity of the study area, there are two railroad interlockings which control the movement of trains at the switches between tracks: one at the Mountain Division switch south of Congress Street, and one immediately north of Congress Street where the Portland Subdivision converges from two tracks to one. The south approach crossing circuit, which controls the signal and gate operations at the Congress Street grade crossing, begins approximately 1,540 feet south of the crossing.

Impacts on Congress Street Grade Crossing

Locating a station at Site 2 would result in significant impacts to vehicular traffic at the Congress Street grade crossing. As noted above, Site 2 is located approximately 1,000 feet south of the crossing, placing it within the existing railroad crossing circuit that controls the Congress Street grade crossing signals and gates. Siting a station within the crossing circuit would introduce additional complexity to the crossing safety systems and require changes to railroad signaling and the pre-emption tie-in with vehicular traffic signals on Congress Street. In addition, CSX has indicated that a station at Site 2 would require construction of a third station track extending through the Congress Street grade crossing, further increasing operational and signaling complexity and associated safety concerns.

One consequence of these changes would be longer gate-down times at the grade crossing compared to existing conditions. Factors influencing gate-down duration include reduced train speeds over the crossing, the intermixing of passenger and freight operations with variable train speed, direction, and scheduling for freight traffic, and the proximity of the station to the crossing within the approach signal limits. In addition, since the passenger trains will activate the crossing circuit while servicing the station, the crossing gates will remain closed and cause delays to the vehicular traffic. The additional gate-down time at the Congress Street grade crossing would range from seconds (because of the reduced passenger train speeds) to minutes (when the passenger train is serving the passenger station) over the present-day condition, with an inherently variable range reflective of the many different scenarios by which passenger and freight trains could operate within the signal limits.

Conversely, locating the station at Site 3 would not affect existing operations of the Congress Street grade crossing. Because Site 3 is located south of the Mountain Division switch and the crossing circuit controlling the Congress Street grade crossing, the gate-down timing would remain unchanged.

Although technologies exist that could potentially mitigate some operational impacts, those solutions would not eliminate all impacts. A comparable condition exists at NNEPRA's Saco Station, which is located adjacent to the Main Street grade crossing near the Saco/Biddeford municipal boundary. When the Downeaster stops at this station, there is the potential for extended gate-down times while passengers board and alight. To mitigate these impacts, crossing technology was installed that allows the grade crossing gates to remain raised while the Downeaster is stopped at the station. Under this configuration, the gates activate as the train approaches the station, rise once the train has come to a complete stop, and then activate again when the train is ready to depart and proceed through the crossing. While this technology reduces continuous gate-down time during station dwell, it routinely results in lengthy vehicular queues due to the repeated opening and closing of the gates as the train approaches, stops, and departs. Cars also back up on the crossing during busy periods when the train is at station, then when the train leaves the station, the

[1] Chadwick, Zhou, Saat, "Highway-Rail Grade Crossing Safety Challenges for Shared Operations of High-Speed Passenger and Heavy Freight Rail in the U.S." Safety Science, Vol. 68 (2014)
[2] VHB "NNEPRA Portland Station: Station Siting Near At-Grade Crossings: Case Studies". November 2025.

gates activate again potentially trapping motorists on the crossing in between closed gates. In addition, when train crews are required to spot the train closer to the crossing to accommodate ADA boarding requirements or other operational needs, the gates may remain down for approximately two to four minutes while the train is stopped at the station, resulting in substantial vehicular queuing. This is a frequent source of complaints from motorists, municipal officials, and emergency services in the area and demonstrates that while crossing technology can mitigate some impacts associated with stations located near grade crossings, extended gate-down times remain. Notably, the Saco Main Street crossing consists of a single active track, making it operationally less complex than the multi-track conditions present at Congress Street. As a result, similar or greater impacts would be expected at Congress Street if a station were located at Site 2.

Safety Considerations

Locating a station at Site 2 would introduce additional safety risks at the Congress Street grade crossing. In addition to the longer gate-down times noted above, the multi-track environment at Site 2 would also lead to reduced visibility of incoming train traffic for motorists and pedestrians while a train is stopped at the station. Motorists and pedestrians may ignore the active warning systems that protect the rail crossing which increases the likelihood that they may engage in unsafe behaviors.

In a mixed-traffic environment, multiple trains may approach the crossing from different directions simultaneously. For example, if a passenger train is stopped at the station located at Site 2 and the crossing gates remain down, a motorist or pedestrian at Congress Street may assume that the gate activation is solely attributable to the stopped passenger train. This assumption could result in an individual driving or walking around the gates, believing it is safe to cross. At the same time, another train could be approaching on the other track, which would be not visible because of the stopped passenger train, creating the potential for a collision involving a train and vehicle or pedestrian .

Incidents at multi-track grade crossings are frequently associated with obstructed sightlines, variable train stopping patterns, and complex signaling systems, all conditions that are directly relevant to a station located near Congress Street. Research by Chadwick et al.[1] indicates that corridors with mixed passenger and freight traffic carry elevated operational and technical risk, and that stations located near grade crossings further amplify these risks by increasing pedestrian exposure.

National case studies reinforce these findings. In Berwyn, Illinois, a pedestrian was killed at a grade crossing located approximately 515 feet from a station in 2021, and a vehicle was struck approximately 235 feet from a station in 2023. In Elmwood Park, Illinois, vehicles were struck at a crossing approximately 980 feet from a station, resulting in multiple injuries. Similar incidents have occurred in Garfield, New Jersey; San Mateo, California; and Wyandanch, New York, demonstrating that urban, multi-track grade crossings located near stations experience higher rates of collisions and injuries.[2]

Conclusion

In summary, selecting Site 2 would require building a passenger rail station within the signal limits of the Congress Street grade crossing which would introduce substantial operational and safety challenges and risks. Multi-track infrastructure, mixed passenger and freight traffic, prolonged and less predictable gate-down times would elevate the risk of collisions at the crossing. These considerations should be carefully weighed in station planning and clearly communicated to all stakeholders to support informed decision-making and effective risk mitigation.

[1] Chadwick, Zhou, Saat, "Highway-Rail Grade Crossing Safety Challenges for Shared Operations of High-Speed Passenger and Heavy Freight Rail in the U.S." Safety Science, Vol. 68 (2014)
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