PREFERRED ALTERNATIVE SUMMARY **FALL 2016**

The Federal Railroad Administration (FRA) and NJ TRANSIT are preparing an Environmental Impact Statement (EIS) to evaluate the Hudson Tunnel Project (the "Project"). The Project is intended to preserve the current functionality of the Northeast Corridor's (NEC) Hudson River rail crossing between New Jersey and New York and strengthen the resiliency of the NEC. The FRA and NJ TRANSIT have identified a Preferred Alternative that consists of a new rail tunnel under the Hudson River and rehabilitation of the existing NEC Hudson River crossing, the North River Tunnel. The new tunnel would be constructed first, so that upon completion of the construction, trains could be diverted from the existing tunnel to allow its rehabilitation. When the rehabilitation is complete, both the existing and new tunnels would be in service, providing redundant capacity and increased operational flexibility for Amtrak and NJ TRANSIT.

The purpose of the Project is to:

- Preserve the current functionality of Amtrak's NEC service and NJ TRANSIT's commuter rail service between New Jersey and Penn Station New York (PSNY) by repairing the deteriorating North River Tunnel; and
- To strengthen the NEC's resiliency to support reliable passenger rail service by providing redundant capability under the Hudson River for Amtrak and NJ TRANSIT NEC trains between New Jersey and PSNY.
- These improvements must be achieved while maintaining uninterrupted commuter and intercity rail service and by optimizing the use of existing infrastructure.

Preferred Alternative

The Preferred Alternative would include two new tracks extending from the NEC in Secaucus, New Jersey, continuing in a tunnel beneath the Palisades (North Bergen, Union City, and Hoboken), and beneath the Hudson River to connect to the existing approach tracks that lead into PSNY, as well as rehabilitation of the existing tunnel once the new tunnel is complete. As part of the Preferred Alternative, the new tunnel would follow the same route in New Jersey as the previous Access to the Region's Core (ARC) project, a tunnel alignment that was found to have the least potential for construction delays; minimal impacts to existing transit and other transportation services; and the least impact related to displacement of active uses, since NJ TRANSIT has already acquired a number of the needed properties.

Major components of the Preferred Alternative would include:

- Two new surface tracks parallel to the south side of the NEC beginning east of Secaucus Junction station in Secaucus, New Jersey.
- A new tunnel with two tracks in two separate tubes beneath the Palisades and continuing east of the Palisades beneath Hoboken, New Jersey, and beneath the Hudson River to Manhattan. In New Jersey, the tunnel would begin at a portal in the western slope of the Palisades near Tonnelle Avenue (US Routes 1 & 9), in North Bergen, New Jersey. The new portal would be approximately 600 feet south of the existing North River Tunnel portal.
- A new tunnel ventilation shaft and fan plant in Hoboken, New Jersey, on land NJ TRANSIT previously acquired for the ARC project. The vent shaft/building would provide fresh air to the tunnels and exhaust smoke during emergencies.
- Two new tracks continuing in Manhattan, New York, beneath Hudson River Park and NYS Route 9A (West Side Highway) to meet the underground right-of-way being preserved by Amtrak through the John D. Caemmerer Yard (Western and Eastern Rail Yards) in Manhattan.
- A new tunnel ventilation shaft and fan plant at Route 9A and West 30th Street in Manhattan.
- Two new tracks running through the right-of-way being preserved through the Western and Eastern Rail Yards, to connect to the existing approach tracks that serve PSNY.

- A new ventilation shaft through the Lerner Building at Tenth Avenue, which sits above the rail right-of-way.
- Track connections to the existing approach tracks that lead into PSNY.

The new tunnel would be constructed predominantly using Tunnel Boring Machine technology, with construction staging areas located at the tunnel portal and vent shaft site in New Jersey. The staging area at the tunnel portal in New Jersey would also be used for rehabilitation of the existing tunnel once the new tunnel is complete. A construction staging site would also be located at the vent shaft site in Manhattan. In-water construction activities would be required to modify river bottom soils in order to construct a segment of the tunnel that must be relatively shallow beneath the Hudson River; these activities would occur in a small area of the Hudson River near the Manhattan shoreline.

Alternatives Development

Because of the importance of the North River Tunnel to essential commuter and intercity rail service between New Jersey and New York, the Project needs to be accomplished as soon as possible. Therefore, this Project to address the need related to deterioration of the existing North River Tunnel is being advanced independently of any initiatives to expand rail capacity on the NEC. At the same time, the Project would not preclude other future projects to expand rail capacity in the area.

To meet the Project's purpose and need, any Build Alternative must satisfy certain key requirements. These include the following:

- The new tunnel must connect into the array of existing approach tracks that lead into PSNY.
- The alignment cannot be located north of the existing NEC, due to the need to connect to the approach tracks that lead into PSNY. Connecting to these tracks allows trains to reach existing PSNY platforms and is essential to maintaining the NEC's current capacity and functionality. This connection can only be made at the southwestern end of PSNY.
- Engineering design standards for the new tunnel require a shallow grade (not exceeding 2.1 percent) in order to safely and efficiently operate passenger trains.

Alternatives Evaluation

To identify the Preferred Alternative for the Project, a variety of alternatives that were identified in previous studies and suggested during the Project's scoping process were evaluated. These included use of a bridge rather than a tunnel, a tunnel alignment farther south, and the addition of other project elements to expand capacity on the NEC. These alternatives were dismissed because they did not meet the Project's purpose and need due to either (1) constraints of connecting from the NEC into the existing tracks at PSNY; (2) constraints related to the need to complete the Project quickly; or (3) constraints related to maintaining existing train capacity through the Hudson River crossing. The alternatives evaluation concluded that the only Build Alternative concept that meets the Project purpose and need is a new two-track tunnel near the existing North River Tunnel, with rehabilitation of the existing tunnel.

Multiple different alignment options are possible for the Build Alternative's new tunnel between its portal at Tonnelle Avenue and the Manhattan shoreline. In order to identify the routing that best meets the Project's purpose and need, four conceptual alignment options were identified based on potential locations where the New Jersey vent shaft / fan plant could be sited. The vent shaft must be located directly above the tunnel and east of the Palisades, and therefore the location of the vent shaft determines the tunnel alignment. The vent shaft site would also be used as a construction staging site.

The four alignment options were evaluated in terms of how well they meet the Project's purpose and need. Based on the alternatives evaluation, the tunnel routing that follows the former ARC project's alignment in New Jersey best meets the Project's purpose and need and was identified as the Preferred Alternative. This alignment option has:

- The least potential for delays to the Project schedule, because of the property acquisition, investigation, and remediation already conducted for the ARC project;
- Minimal impacts to existing transit and other transportation services; and
- Least impact related to displacement of active uses (residential, business, and future residential), since NJ TRANSIT has already acquired the properties needed for the New Jersey vent shaft site and staging areas.

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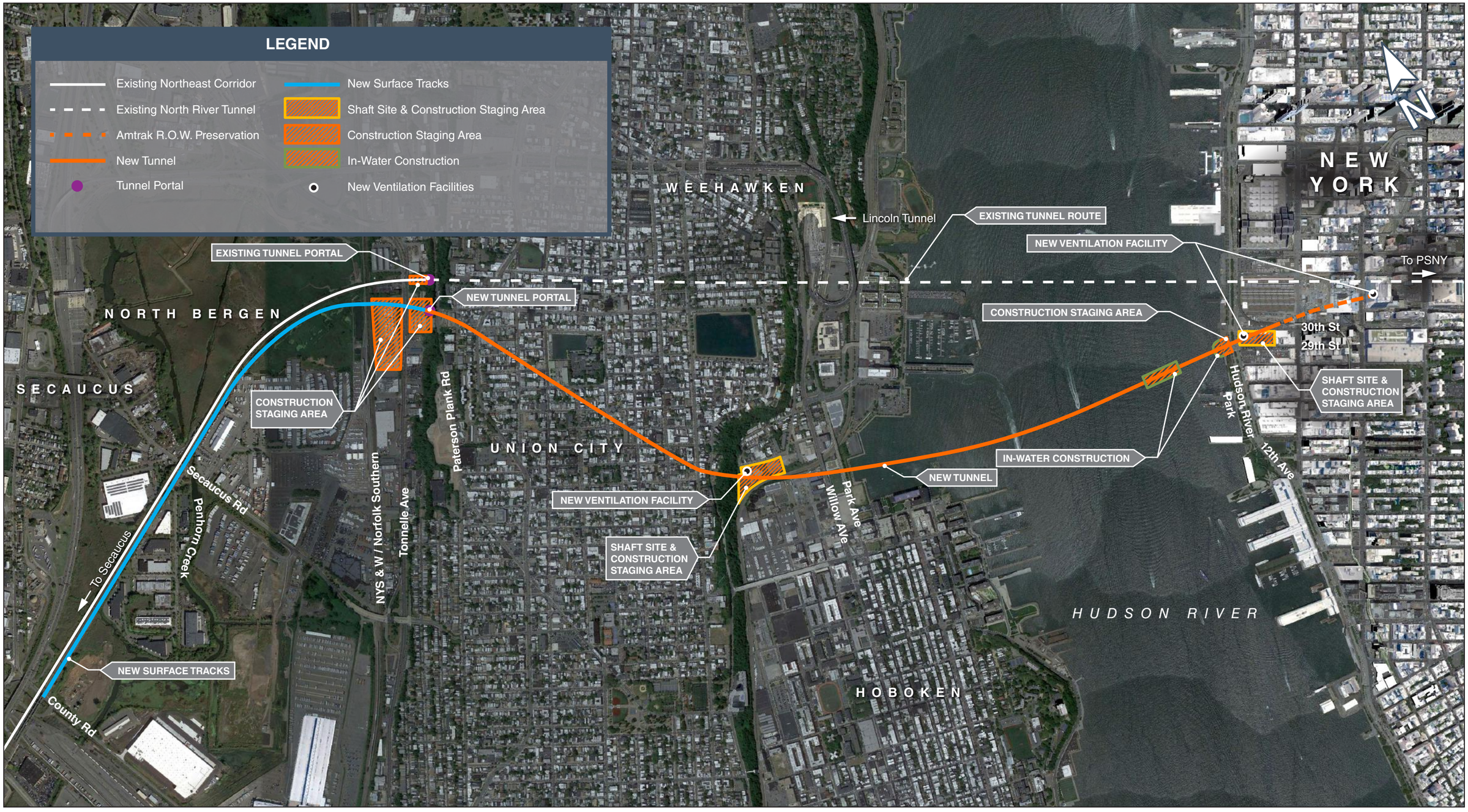

Preferred Alternative