Appendix E.20 - Construction Effects

NEC FUTURE
A Rail Investment Plan for the Northeast Corridor

Tier 1 EIS Construction Effects Approach

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1. Tier 1 EIS Construction Effects Approach

1.1 INTRODUCTION

This document presents the NEC FUTURE program's approach to describing construction methods, activities and effects for the Tier 1 EIS Alternatives. Construction effects are usually temporary in nature and associated with actual construction activities. This approach may be revised as the NEC FUTURE program advances and new information is available.

1.2 TIER 1 EIS APPROACH TO CONSIDERING CONSTRUCTION EFFECTS

1.2.1 Construction Methods and Activities

Construction methods and activities will be described in a separate Construction Effects chapter of the Tier 1 EIS and will be the basis for assessing and describing the potential environmental effects from likely construction activities associated with each of the Tier 1 EIS alternatives. Within the same Construction Effects chapter, construction effects for each of the resources will be described by Tier 1 EIS Alternative.

A number of construction methods could be used to build infrastructure associated with the Tier 1 EIS Alternatives, including: surface/at-grade; cut or trench; embankment; aerial structure (bridges and viaducts); and tunnel. The construction methods proposed for each Tier 1 EIS Alternative are based upon existing NEC construction types, as well as land use, topographic and other environmental features, and cost. Detailed project design and construction information will not be available for the Tier 1 analysis.[1] Therefore, construction methods and activities will be representative based on available conceptual information for each Tier 1 EIS Alternative. Project-specific construction methods and activities will be fully developed and analyzed during Tier 2 evaluations.

The Tier 1 EIS will present a description of likely construction methods and activities to qualitatively evaluate the potential temporary effects on each Tier 1 EIS resource. The Tier 1 EIS is not intended to describe the precise construction methods that may ultimately be used, nor is it intended to dictate or confine the construction process. Actual construction staging areas, construction methods, and materials may vary, depending in part on how the construction contractors choose to implement their work to be most cost effective, within the requirements set forth in bid, contract, and construction documents. In addition, permitting requirements and identified mitigation measures identified during Tier 2 will also dictate construction activities and procedures.

A general description of likely construction methods and activities will be described for each Tier 1 EIS Alternative within a separate Construction Effects chapter of the Tier 1 EIS. The proposed outline of the construction methods and activities sub-sections that will be included for each Tier 1

[1] For the Tier 1 EIS, FRA will develop concept-level engineering plans and prototypical cross-sections to generally identify construction types and methods.

EIS Alternative EIS is provided below. Potential construction effects for each of the resources will also be described by alternative in this separate Construction Effects chapter.

Construction Methods

This section will provide a general description of construction activities for each of the proposed construction types: common grade, aerial, and tunnel, stations and ancillary facilities including ventilation buildings, substations and storage and maintenance facilities.

Construction Equipment

This section will provide examples of typical construction equipment utilized for each construction method.

Typical Construction Sequencing

This section will describe typical construction sequencing and durations for the Tier 1 EIS Alternatives, including:

- Mobilizing and Site Preparation
- Heavy Civil Construction
- Railroad Systems Construction
- Finishes
- Testing and Start Up

Construction Staging/Laydown Areas

This section will include a description of typical requirements (e.g., size, access, use) for construction staging and laydown. The specific location of construction staging/laydown areas will not be known for the Tier 1 EIS, but would be identified in subsequent project-level assessments. Construction staging/laydown in urban areas, where space is limited, is often located within the street rights-of-way as permitted by local transportation departments. In suburban or rural areas, construction/laydown areas are typically included in the property requirements for the project. Staging/laydown areas vary in size with construction methods and facilities being constructed, but are typically one-half to one acre in size adjacent to the facility construction site. While site specific assessments of construction staging/laydown will not be included in the Tier 1 EIS, a map of environmentally sensitive areas that should be avoided for construction staging or access will be included for use in subsequent project-level evaluations.

1.2.2 Construction Effects Study Area

The limits of construction will be the horizontal and vertical footprint of each Tier 1 EIS Alternative inclusive of track, station and wayside facility right-of-way requirements. Representative Routes of the Tier 1 EIS Alternatives will be based on prototypical cross sections of track and station components, which will identify the right-of-way requirements by proposed construction type. The horizontal and vertical footprints will be conservatively estimated in order to accommodate multiple track and station configurations of varying widths.

The areas that may be most affected by construction activities generally comprise the area immediately bordering the construction activity. However, in some cases, effects from construction activities extend beyond the immediate area surrounding construction sites (e.g., truck haul routes). For these reasons, the Affected Environment and Context Areas for each of Tier 1 EIS resource areas as identified in the respective transportation and environmental resource methodologies are considered sufficient for purposes of assessing the potential environmental effects from construction activities for each of the Tier 1 EIS Alternatives.

1.2.3 Data Needs

Data on existing resources for the construction effects assessment will come from each of the technical resources areas within the Tier 1 EIS. Specific data for each technical resource area are identified within the respective Tier 1 EIS resource methodologies. General information regarding possible construction methods, durations of construction and examples of equipment needed will be developed by the NEC FUTURE JV team in coordination with the FRA.

1.2.4 Construction Effects Assessments

Construction effects of the Tier 1 EIS Alternatives on all Tier 1 EIS resource areas will be assessed based on the following assumptions:

- Resources potentially affected by construction-related activities will be identified, and impacts will be qualitatively described by location, duration and type of activity.
- Construction effects recommended for more detailed quantitative analyses in a Tier 2 document will be identified.

Examples of temporary construction-related effects associated with the Tier 1 EIS Alternatives that will be qualitatively described include:

- Transportation – potential for disruptions to operations of existing and intercity rail services on the NEC; potential for disruption to transit services and operations; changes in access to passenger rail stations as a result of roadway closures and detours; and roadway closures, detours and loss of parking and loading zones in the vicinity of construction sites.
- Air Quality – potential for increases in fugitive dust and emissions from mobile and stationary construction-related equipment
- Noise and Vibration – increased noise levels and potential for structural damage from vibration related to equipment and trucks or construction operations such as blasting.
- Water Resources – potential for erosion, sedimentation, increase in flooding and wetland disturbance due to construction activities
- Ecology - temporary displacement of species as result of construction noise.
- Land Cover – potential for changes in land cover and temporary easements needed for construction staging areas or access
- Safety and Security – potential impacts to construction workers, the general public and emergency services from construction activities

- Hazardous Materials – general discussion of state requirements for transport and disposal of hazardous materials, as well as health and safety plans
- Visual and Aesthetics – temporary changes to the visual environmental in the vicinity of construction sites due to the introduction of trucks, fencing, equipment, lighting, etc.
- Environmental Justice – potential for disproportionate and adverse impacts to EJ populations based on the results of other Tier 1 EIS resource area construction assessments
- Cultural Resource and Historic Properties – potential for direct physical effects to built historic properties and archaeological resources from construction activities
- Parklands – potential for conversion of park property for construction purposes and proximity effects from construction activities (i.e. noise, visual, etc.)
- Energy – potential for increased energy usage from construction-equipment
- Economic Effects – potential for effects to business in the vicinity of construction sites and employment opportunities

1.2.5 Mitigation Strategies

A menu of potential mitigation measures for temporary construction-related effects will be developed on a programmatic scale for further consideration in Tier 2 evaluations.