Introduction and Glossary

I. Introduction

A. Engineering Practices

1. The Amtrak Engineering Services Department has established a system of uniform instructions, or Practices, as part of an overall framework of engineering directives and standards for the purpose of supporting the National Passenger Rail Corporation's overall mission to provide high quality service in a safe, efficient, and effective manner.

a. These Engineering Practices, commonly referred to as EPs (E.P.'s), are regularly reviewed and revised as part of the Amtrak Engineering Departments continued commitment to meeting the Organization's growing and ever-changing operational and capital needs.

b. Engineering Practices are formally issued as official Amtrak documents and are distributed company wide.

c. The Engineering Practices serve to coordinate and support the activities of in-house Amtrak employees as well as those of A/E firms, Amtrak Consultants, Contractors, Sub-Contractors, etc. who provide services to National Passenger Rail Corporation directly and indirectly.

d. An Amtrak-internal link to the full Engineering Practices library can be found here: https://amtrak.sharepoint.com/sites/engr/design/Engineering%20Practices/Forms/AllItems.aspx.

i. Access or copies to Amtrak-internal EP's will be provided as appropriate and applicable in support of the scope of the project.

e. **External facing Engineering Practices** can be located here: **<external Amtrak EP Library pending>**

B. Engineering Practice 4000 (EP4000)

1. EP 4000 defines certain technical requirements, responsibilities, and procedures expected of a Design Consultant (interchangeable with "Design Contractor," but not to be confused with a Construction or General Contractor) in providing professional Design and Construction Phase technical services for Amtrak Engineering Services – Structures in compliance with their agreement or contract for professional architectural/engineering design and engineering services.

2. Amtrak Engineering Services has authored and maintains this document.

3. This document is separated into distinct Sections and Chapters which may be implemented individually or together to suit the needs of the project or asset class.

4. Where this document refers to the Design Consultant, it shall include all subcontractors / subconsultants to the Design Consultant, as well as the subcontractor's respective representatives, employees, and any manufacturers, suppliers, or other entities that may be providing services to the Design Consultant.

5. Suggestions or reports of potential errors, omissions, redundancies or oversights are welcome at this address: **EngDesign.Review** EngDesign.Review@Amtrak.com

C. Compliance

1. Acknowledgement: The Design Consultant shall acknowledge compliance of produced Deliverables with this document and companion Amtrak standards by asserting as such either within the Project Definition Report and/or on milestone transmittals.

2. Amtrak expects that the Design Consultant will use professional judgement, experience and expertise in their work. It is the Design Consultant's responsibility to exercise common sense analyses and present Amtrak with potential conflicts, inconsistencies, and associated recommended solutions.

a. When/if such situations arise during the design process where it is impractical, unreasonable, or otherwise not in Amtrak's best interest to follow the requirement(s) of EP4000, the Design Consultant shall communicate these concerns and seek clarification and/or a Design Exception Request; the process of which is covered herein.

3. Where Section 3 of EP4000 and the applicable local codes and standards appear to create a conflict or otherwise appear to indicate non-conservative direction due to evolving code, the Design Consultant shall provide an evaluation of the relative stringency of the requirements and request direction from the DM.

a. No information herein absolves the Design Consultant from performing and executing a thorough code review either within the Project Definition Report (PDR) as directed in EP4000 - Section 1, as a stand-alone Code Analysis document, or as part of standard professional A/E design due diligence.

4. This document is **not** intended to be communicated to the General Contractor, so it is incumbent upon the Design Consultant to incorporate all pertinent requirements within the design package drawings, specifications and associated calculations.

D. Project Requirements

1. In addition to this EP4000's Sections and References, the following documents also serve to establish the minimum expectations and requirements for a Project:

a. Requests for Proposal / Scope of Work (SOW) as issued by Amtrak for a Project

i. These documents are project-specific and may modify or augment the core requirements dictated herein.

b. Conditions of any Contract or Agreement established between Amtrak and the Design Contractor

i. See Section 1.00 for additional information on the standard Design Contract Technical Delivery Requirements.

(i) OPTION Tasks of the Contract between Amtrak and the Design Contractor

1. Options that are documented within the Scope of Work and activated in writing by the Amtrak Contracting Officer's Technical Representative (COTR) and granted combined or independent Notice to Proceed by Amtrak Procurement define the additional optional tasks and particular deliverables expected from the Design Contractor.
2. These Option tasks are generally required for more complex projects or projects with an undetermined delivery, design, or regulatory path.

c. Amtrak's Adopted Codes and Standards

i. See Section 2 for the list of currently adopted Codes and Standards and additional detail on jurisdictional conditions.

d. Amtrak Structures – Minimum Technical Requirements

i. See Section 3 for Amtrak "Minimum Technical Requirements."

(i) These criteria are organized by typical CSI Technical Specification Chapter notation to facilitate understanding of applicability and are intended to represent Amtrak-unique code interpretation, deviation, or augmentation.

(ii) These Chapters are **not** organized as, or intended to be, full or partial replacements for final design and/or technical specifications. The Design Consultant is responsible for developing final design specifications to the extent required as outlined in other Sections of this document and the Scope of Work.

e. Other Engineering Practices

i. Other categories of Engineering Practices include General, Structures, Track, Communications and Signals, or Electric Traction and are produced and maintained by their respective departments as noted within each document.

ii. Compliance with, application of, and exceptions to those Engineering Practices are at the direction of the Amtrak designated technical Subject Matter Expert(s) providing project input on behalf their department.

iii. Applicable EP's will be provided to the Design Consultant by the Amtrak Project Manager or Design Manager as appropriate, or can be found at the link above.

f. Template Specifications

i. Select Amtrak-specific specifications templates have been developed where appropriate to accommodate unique railroad conditions, safety requirements, or provide a starting point for performance specifications of railroad maintenance machinery or other non-standard requirements.

ii. Structures Template Specifications

(i) Certain railroad-specific technical master specifications are included in sub-sections of referenced EPs or otherwise provided within the Structures Template Specification Library located here (or provided by the DM): https://amtrak.sharepoint.com/sites/ENGStructures-Facilities-Tunnels/Specification%20Templates/Forms/AllItems.aspx (Internal Amtrak link, DM to provide)

iii. Division 1 Template Specifications

(i) Division 1 Template Specifications (Amtrak Internal Link, PM to provide) and other "up front" but non-commercial and non-technical requirements are maintained by Amtrak's Capital Delivery Project Services group. The Design Consultant will tailor these templates to the anticipated delivery strategy and project-specific requirements.

II. Terms and Definitions

- **Amtrak Contract Officer (CO):** Designated Procurement representative with approval authority for a given contract.
- **Amtrak Design Manager (DM):** The Engineering Services representative who leads the scope development, coordinates all technical aspects of the Project, and provides technical direction to the Design Consultant. Note: Commercial aspects of the contract should be coordinated through the Amtrak Project Manager and Amtrak Procurement Contracting Officer.
- **Amtrak Engineering Services:** Department within Amtrak Capital Delivery that defines and approves Project technical scope, design standards and design decisions. Amtrak Engineering Services is Amtrak's ultimate technical authority for assets managed by Amtrak's Capital Delivery (CAPD) and Infrastructure Maintenance and Construction Services (IMCS) departments, including Major Stations and Structures.
- **Amtrak Major Stations:** Includes Station building and supporting buildings/infrastructure at the following locations: New York Pennsylvania Station/Moynihan Train Hall, Newark (New Jersey) Pennsylvania Station, William Gray Philadelphia 30th Street Station, Baltimore Pennsylvania Station, Washington Union Station, and Chicago Union Station.
- **Amtrak Project Manager (PM):** The individual employed by Amtrak to oversee and have ultimate responsibility for the scope, schedule, and budget of a Project. The Amtrak Project Manager will consult with Amtrak Engineering Services on behalf of a Project.
- **Amtrak Structures:** Department within Engineering Services responsible for the technical direction on structural infrastructure assets (e.g. stations, tunnels, bridges, culverts, retaining walls, etc.) as well as structures and stationary equipment that support Maintenance of Equipment (MoE) and Maintenance of Way (MoW) yard facilities. Note: MoW and MoE facilities are occasionally co-located with stations.
- **Deliverable:** Any of the specific services such as construction drawings, specifications, construction budgets, construction timelines, or other documents which the Design Consultant will provide to Amtrak as identified and described herein and in Requests for Proposal and Scope of Work (SOW) documents.
- **Design Consultant (Designer of Record, DOR, DC, "Design Contractor"):** Contractor engaged by Amtrak to provide professional services for a Project or other initiative. Definition extends to all outsourced consultants and sub-contractors as well as all respective representatives and employees. The entity awarded the Contract shall be responsible for fulfillment of all Project requirements.
- **Project:** As described in Requests for Proposals and Scope of Work (SOW) Documents. This includes any other enterprise or initiatives for which Amtrak may engage a Design Consultant.
- **Project Definition Report (PDR):** Deliverable document which includes, but is not necessarily limited to; scope description, code analyses / summaries, potential design issues, all pre-design scopes (geotechnical, utility surveys, topographical surveys), NEPA/SHPO/Section 106 summaries, and further due diligence. See Section 1.00 Deliverables for more information.
- **Scope of Work (SOW)** / **Request for Proposal:** Documents issued by Amtrak to a Design Consultant which are Project specific and define the work a Design Consultant will complete for Amtrak. Also: "Scope of Services".