

Chapter 1:

Purpose and Need

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PURPOSE AND NEED

This chapter describes the purpose, need, and project objectives for the Sakonnet River Bridge Project. Also discussed is the project study area, public safety concerns regarding the bridge structure, and the importance of the Sakonnet River Bridge in the Rhode Island and Massachusetts transportation systems.

1.1 PROJECT OVERVIEW AND BACKGROUND

The Federal Highway Administration (FHWA) and the Rhode Island Department of Transportation (RIDOT) jointly prepared this Final Environmental Impact Statement (FEIS) for the Sakonnet River Bridge Project. Since the technical evaluations in the Draft EIS (DEIS) for the project, dated July 2001, remain valid, the DEIS is incorporated by reference. Moreover, the evaluations in the DEIS that remain valid are not repeated in this FEIS. Necessary revisions to the DEIS are identified in the FEIS, and new information that became available since the release of the DEIS is included. In addition, the FEIS includes responses to comments on the DEIS that have been received by FHWA and RIDOT.

The following new additional information (reports and/or studies) is included in this FEIS. The *Preliminary Site Investigation Report* (PSI, Phase II) included in the DEIS, contained a summary of findings of the Initial Site Assessment (ISA). The Initial Site Assessment Report is now included in the FEIS as supporting back-up information. The *Draft Sakonnet River Bridge Marine Intensive Remote Sensing Survey* was completed after publication of the DEIS. The results and associated impacts have been included in this FEIS. The Management Summary for the *Marine Intensive Remote Sensing Survey* stated that none of the areas examined is considered to contain submerged cultural resources that could be considered significant. Also included are the following; *Sakonnet River Bridge Circulation Study* (Refer to Section 4.5.9 of this FEIS), *Aquidneck Island Passenger Rail/Bicycle Path Project* (Executive Summary only), *DRAFT Arsenic Background Evaluation*, *RIDOT Relocation Plan*, and the *Power Line Relocation Study*.

This FEIS presents evaluations of alternatives for RIDOT to rehabilitate or replace the Sakonnet River Bridge, which carries Rhode Island State Route 24 (RI 24) over the Sakonnet River. The regional location of the bridge, as well as the study area, is shown in Figure 1-1 (Refer to Figure 1-1 of the DEIS, page 1-2).

Based on the strongest ability to address the project purpose and needs, FHWA and RIDOT have jointly decided to identify Alternative 5 (New Bridge on South Alignment) as the Recommended Alternative in this FEIS. Alternative 5 fulfills the project purpose and needs with the least cumulative environmental impacts.

Refer to Chapter 2, Project Alternatives, for further information.

The project study area centers on the Sakonnet River Bridge and the RI 24 approaches. The potential traffic impacts of the alternatives on the State Routes within the following traffic analysis area have been studied, as shown in Figure 1-2 (Refer to Figure 1-2 of the DEIS, page 1-3):

<i>North:</i>	The intersection of RI 24 and Interstate Route 195 (I-195) in Fall River, Massachusetts
<i>Northwest:</i>	RI 114 across the Mt. Hope Bridge to Bristol continuing through Warren, and along RI 136 to I-195
<i>South:</i>	RI 114 and RI 138 through Portsmouth and Middletown to Newport to the Claiborne Pell Bridge.

The Sakonnet River Bridge (RI Bridge Number 250) was originally constructed between 1954-1956. The bridge carries RI 24 over the Sakonnet River, a tidal passage separating the Town of Portsmouth on Aquidneck Island to the west and the Town of Tiverton on the mainland to the east. The bridge is located just to the south of where the Sakonnet River opens into Mount Hope Bay to the north. The setting consists of neighborhoods of 19th and early 20th century homes, pleasure boat marinas, and commercial fishing wharves. RI 24 is a key link in the transportation system connecting Massachusetts to Rhode Island and the Aquidneck Island communities.

The bridge is comprised of 27 main line spans with a total length of approximately 2,983 feet (910 meters (m)). The main spans of the bridge are trussed, while the approach spans are comprised of both built-up girder spans as well as rolled stringer spans. In addition to the main line, there is a 7-span on-ramp, and a 10-span off-ramp on the Tiverton (east) side of the bridge. These ramps link the bridge with the Central Avenue Interchange. The bridge is oriented in an east-west alignment across the Sakonnet River; however, RI 24 is designated as north south in this location. The structure was designed in accordance with the 1944 American Association of State Highway Officials (AASHO) Specifications. The predominant feature of the bridge is the three-span trussed main section. The center section of the trussed main section is the main span of the bridge and is a 375-foot (114.3 m) long through-truss (arched) span that provides a minimum of 65-foot (19.8 m) vertical clearance over the navigation channel. The truss spans and girder spans of the bridge are “non-redundant fracture critical,” which by definition means that structural failure of a fracture critical member could result in collapse of a portion of the bridge.

1.2 PROJECT PURPOSE AND OBJECTIVES

The proposed action evaluated in the DEIS was to either rehabilitate or replace the Sakonnet River Bridge which carries RI 24 over the Sakonnet River between Portsmouth and Tiverton in Newport County, Rhode Island (Figure 1-1 of the DEIS, page 1-2). The extensive rehabilitation work required to address the existing deteriorated condition of the bridge structure, as well as to address the bridge’s deficiencies in terms of present seismic (earthquake) requirements, would result in high costs and adverse traffic impacts during construction. FHWA guidelines encourage that if it is determined that the cost to fully rehabilitate an existing bridge would exceed 50% of the cost of a new bridge, then bridge replacement alternatives should be investigated. Accordingly, the Rhode Island Department of Transportation (RIDOT), the project proponent, considered alternatives to replace the bridge.

This FEIS has been prepared by RIDOT and FHWA to meet FHWA environmental guidance which implement the National Environmental Policy Act (NEPA). The objective of this environmental review process for the Sakonnet River Bridge Rehabilitation or Replacement Project (hereinafter referred to as ‘the Project’) is to evaluate the environmental impacts of potential alternatives and to identify an alternative that would maintain this essential component of the regional transportation network. The Recommended South Alignment Alternative (Alternative 5) identified in this FEIS satisfies the following project needs:

1. Improve or replace the existing bridge that is structurally deficient, fracture critical, as well as substandard. The bridge does not meet current highway design standards for shoulder widths, structural capacity and seismic requirements.
2. Maintain the critical north/south transportation system link between Massachusetts and Rhode Island that is provided by the existing bridge.
3. Provide adequate seismic protection for the vital transportation link provided by the bridge.
4. Support existing and future traffic volumes, with the least disruption during construction.
5. Improve overall public safety.

1.3 PROJECT NEEDS

Refer to Section 1.3 of the DEIS (page 1-5).

1.3.1 Safety

Refer to Section 1.3.1 of the DEIS (pages 1-6, 1-7).

1.3.2 System Linkage

Refer to Section 1.3.2 of the DEIS (page 1-7).

1.3.3 Transportation Demand and Capacity

Refer to Section 1.3.3. of the DEIS (pages 1-7, 1-8).

1.3.4 Intermodal Relationships

Refer to Section 1.3.4 in the DEIS (pages 1-8, 1-9)

1.3.5 Social Demands and Economic Development

Refer to Section 1.3.5 in the DEIS (page 1-9)

REFERENCES

Refer to DEIS page 1-10.