



## **Appendices**

<b>Appendix A: Changes in Highway Investment</b>	
<b>Requirements Methodology .....</b>	<b>A-1</b>
<b>Appendix B: Bridge Investment/Performance Methodology .....</b>	<b>B-1</b>
<b>Appendix C: Transit Investment Condition and Investment</b>	
<b>Requirements Methodology .....</b>	<b>C-1</b>

## Introduction

Appendices A, B, and C describe the modeling techniques used to generate the estimates of future investment requirements highlighted in Chapters 7 through 10, focusing on changes in methodology since the previous C&P report. All three models incorporate benefit-cost analysis in their selection of transportation capital improvements.

- **Appendix A** describes changes in the **Highway Economic Requirements System (HERS)**, which is used to generate estimates of investment requirements for highway preservation and highway and bridge capacity expansion. Significant changes to HERS include the addition of incident delay to the calculations of congestion levels; updating the routines for estimating vehicle emissions costs; and refinements to procedures incorporating travel demand elasticity in the model.
- The **National Bridge Investment Analysis System (NBIAS)** is used for the first time in this report as the primary tool for estimating bridge preservation investment requirements. The model, which is described in **Appendix B**, includes routines for estimating investment for both bridge replacement and bridge repair and rehabilitation.
- **Appendix C** presents the **Transit Economic Requirements Model (TERM)**, which is used to estimate transit investment requirements in urbanized areas. TERM includes modules which estimate the funding that will be required to replace and rehabilitate transit vehicles and other assets; to invest in new assets to accommodate future transit ridership growth; and to improve operating performance to targeted levels. The results in this report reflect revisions in estimated depreciation schedules for rail vehicles, facilities and stations.