



PART

V



Appendices

Appendix A: Highway Investment Analysis Methodology A-1
Appendix B: Bridge Investment Analysis Methodology B-1
Appendix C: Transit Investment Analysis Methodology C-1

Introduction

Appendices A, B, and C describe the modeling techniques used to generate the investment/performance analyses and selected capital investment scenario estimates highlighted in Chapters 7 through 10, focusing on changes in methodology since the previous edition of the 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 analyze potential future investments for highway resurfacing and reconstruction and highway and bridge capacity expansion. Significant changes to HERS include revised procedures for linking investment levels and highway user charges including congestion pricing, improved estimates for the potential impacts of operations strategies and Intelligent Transportation Systems, and updated capital improvement cost estimates.

The **National Bridge Investment Analysis System (NBIAS)** is the primary tool for analyzing potential future bridge rehabilitation and replacement investments. For this report, the unit costs for varying types of bridge improvements were updated, the number of alternative climate zones analyzed by the NBIAS model was increased, and the assessment of the relative benefits of different types of investments was updated to take into account current assumptions being made by States for analyses using similar procedures. These changes are described in **Appendix B**.

Appendix C presents technical information on the **Transit Economic Requirements Model (TERM)**, which is used to analyze potential future transit investments 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.