

Chapter 8

Comparison of Spending and Investment Requirements

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Summary

This chapter compares the current spending for capital improvements described in Chapter 6 with the future investment requirement scenarios outlined in Chapter 7. **These comparisons are intended to be illustrative, rather than to endorse a specific level of future investment.** While the analysis identifies gaps between investment requirements and current spending levels, it does not take a position as to whether or not these gaps should be closed. The impacts of different levels of investment are discussed in Chapter 9.

The size of the gap between an investment requirement scenario and current spending is dependent on the investment requirement analysis and the underlying assumptions used to develop that analysis. Chapter 10 explores the impacts that varying some assumptions would have on the investment requirements.

Exhibit 8-1 compares the difference between investment requirements and spending in this report with the corresponding difference based on the data shown in the 1999 C&P report. The first column of figures contains values shown in the 1999 C&P report, which compared 1997 spending with the average annual investment requirements for 1998-2017.

Exhibit 8-1

Highway, Bridge and Transit Spending Versus Investment Requirements Compared With Data from the 1999 C&P Report

	BASED ON 1997 DATA	BASED ON 2000 DATA
Percent by which Investment Requirements Exceed Current Spending		
Cost to Improve		
Highways and Bridges	92.9%	65.3%
Transit	110.2%	127.5%
Cost to Maintain		
Highways and Bridges	16.3%	17.5%
Transit	41.0%	63.8%

Highways and Bridges

The average investment requirements estimated for the Cost to Improve Highways and Bridges scenario in the 1999 C&P report were 92.9 percent (\$45.3 billion) higher than highway capital expenditures in 1997. The estimated gap has been reduced to 65.3 percent (\$42.2 billion) in 2000, and is projected to further decline to an average of 56.6 percent (\$38.7 billion) annually from 2001 through 2003. The primary reason for the decrease in the gap between current spending and the cost to improve is the increased Federal funding under the Transportation Equity Act for the 21st Century (TEA-21) and larger highway capital outlays by State and local governments.

Direct comparisons between reports for the Cost to Maintain Highways and Bridges are misleading, because the definition of the scenario has changed between the two reports. As described in Chapter 7, the Cost to Maintain scenario in this edition utilizes a more ambitious goal of maintaining overall conditions and perfor-

mance as measured by their impact on average user costs, while the scenario in the 1999 edition focused on a more limited goal of maintaining only the physical conditions of the highway and bridge infrastructure. While the difference between the Maintain scenario and 2000 spending of 17.5 percent (\$11.2 billion), appears to be fairly consistent with the 16.3 percent (\$7.9 billion difference identified in the 1999 C&P report, the nature of the gap is distinctly different. The approach used in this edition of the C&P report is more consistent with the traditional definition of the Cost to Maintain scenario used in the 1997 edition and previous editions of the report.

Transit

From 1997 to 2000, the estimated gap between current spending on transit and required investments to improve or maintain transit conditions and performance widened. These additional investment requirements are reported in 2000 dollars. An additional investment of \$5.7 billion annually (63.4 percent above actual capital investment in transit infrastructure in 2000) is estimated to be required to Maintain Conditions and Performance. An additional annual investment of \$11.5 billion annually (127.5 percent above actual transit capital investment in 2000) is estimated to be required to “Improve” conditions and performance. The comparable ratios for 1997 reported in the 1999 Report were 41 percent to Maintain Conditions and Performance and 110.2 percent to Improve Conditions and Performance.

Required capital investment in vehicles, on an average annual basis, is estimated to be \$6.2 billion (117 percent more than actual expenditures in 2000) to maintain transit vehicle conditions and performance, and \$8.1 billion (184 percent more than actual expenditures) to improve conditions and performance. Required capital investment in non-vehicle transit infrastructure (on an average annual basis) is estimated to be \$8.7 billion (65 percent higher than it was in 2000) to maintain conditions and performance and \$12.5 (101 percent higher) to improve conditions and performance.

These comparisons, however, overestimate the gap between capital investment requirements and future funding for transit capital investment. This overestimation results because of the lags that occur between the authorization of capital funds, the obligation of these funds and actual capital spending. Since the enactment of TEA-21, annual obligations by FTA for capital investment have grown rapidly to \$7.2 billion in FY 2000 from \$4.1 billion in FY 1998. As these higher levels of authorized funds are obligated and spent, capital investment will rise and the gap between actual capital spending and estimated annual capital investment requirements will decrease.

Highway and Bridge Spending Versus Investment Requirements

This section starts by comparing the average annual investment requirements estimated in Chapter 7 with the 2000 highway and bridge capital spending outlined in Chapter 6. A second analysis compares average annual investment requirements with projected spending for 2001-2003, since highway capital investment is expected to rise during this period as a result of the higher funding levels under the Transportation Equity Act for the 21st Century (TEA-21).

As was noted in Chapter 7, it is important to consider the relationship between the future funding gaps identified in this chapter and the parameters used in the Highway Economic Requirements System (HERS) and National Bridge Investment Analysis System (NBIAS) models. In particular, if highway travel were to increase at a faster rate than is projected in the Highway Performance Monitoring System (HPMS) sample data set (as affected by the elasticity procedures in HERS), then the funding gap would be larger; should the growth in vehicle miles be less than currently forecast, then the reverse would be true. The specific impacts that changes in the vehicle miles traveled (VMT) growth projections and other key parameters would have on the investment requirement estimates are discussed in Chapter 10.

Q. Does this report recommend any specific level of investment?

A. No. The analysis of investment requirements in this report is intended to estimate what the consequences may be of various levels of spending on highway system performance. The comparisons in this chapter between current spending and the highway and bridge investment requirement scenarios are intended to be illustrative only. They are not intended to endorse any of the investment requirement scenarios as the “correct” level of transportation investment.

Average Annual Investment Requirements Versus 2000 Spending

Exhibit 8-2 compares the average annual investment requirements under the **Cost to Maintain** and **Cost to Improve** scenarios (See Chapter 7) with 2000 highway and bridge capital expenditures. The average annual Cost to Maintain Highways and Bridges projected for the 2001-2020 period is \$11.3 billion (17.5 percent) higher than 2000 capital expenditures, while the estimated Cost to Improve Highways and Bridges exceeds current spending by \$42.2 billion (65.3 percent). Expenditures for bridge preservation in 2000 slightly exceeded the corresponding component of the Cost to Maintain scenario, which is drawn from the Maintain Backlog scenario in NBIAS (See Chapter 7).

Types of Improvements

Exhibit 8-3 compares the distribution of highway and bridge capital outlay by improvement type for the Cost to Improve Highways and Bridges and the Cost to Maintain Highways and Bridges with the actual pattern of capital expenditures in 2000. In 2000, 40.1 percent of highway and bridge capital outlays went for system expansion. The investment requirement scenarios developed using the HERS and NBIAS models suggest that it would be cost-beneficial to increase the share of capital investment devoted to system expansion in the future. For the Cost to Maintain Highways and Bridges, 43.3 percent of the projected 20-year investment requirements is for system expansion. If funding were to increase above this level, the analysis suggests that even more cost-beneficial system expansion expenditures would be found, so that for the Cost to Improve Highways and Bridges, 46.7 percent of the total investment requirements is for system expansion.

Exhibit 8-2

Average Annual Investment Requirements versus 2000 Capital Outlay

	2000 CAPITAL OUTLAY (\$BILLIONS)	INVESTMENT REQUIREMENTS (BILLIONS OF 2000 DOLLARS)			
		COST TO MAINTAIN	PERCENT DIFFERENCE	COST TO IMPROVE	PERCENT DIFFERENCE
Highway Preservation	\$25.9	\$29.7	14.6%	\$39.1	50.8%
Bridge Preservation	\$7.6	\$7.3	-4.0%	\$9.4	22.4%
System Expansion	\$26.0	\$32.9	26.7%	\$49.9	92.4%
System Enhancements	\$5.1	\$6.0	17.5%	\$8.4	65.3%
Total	\$64.6	\$75.9	17.5%	\$106.9	65.3%

As discussed in Chapter 7, investment requirements for non-modeled items were determined by assuming that any future increase in this type of investment would be proportional to increases in total capital spending. For system enhancements, the percentage for the Cost to Improve Highways and Bridges and for the Cost to Maintain Highways and Bridges were set at 7.9 percent, to match the percentage of expenditures in 2000.

Investment Requirements Versus Projected 2001-2003 Spending

The passage of TEA-21 has resulted in significant increases in Federal highway funding (See Chapter 6), which are projected to continue through 2003. This will help reduce the gap somewhat between the investment requirement scenarios and current spending levels identified earlier in this chapter. As

Q. How does the improvement mix for the investment scenarios in this report compare to those in the 1999 C&P?

A. The investment scenarios in this report suggest a shift from preservation to capacity improvements relative to the previous report. One reason for this is the inclusion of incident delay in HERS (See Appendix A). As a result, the model now finds an additional benefit to capacity improvements that was not previously considered. The change also reflects recent trends in physical conditions (which have improved) and operating performance (which has declined), resulting in a relatively larger backlog of cost-beneficial capacity improvements.

Exhibit 8-3

Highways and Bridges Investment Requirements and 2000 Capital Outlay, Percentage by Improvement Type

	SYSTEM PRESERVATION			SYSTEM EXPANSION	SYSTEM ENHANCE- MENTS	TOTAL
	HIGHWAY	BRIDGE	TOTAL			
Cost to Improve Highways and Bridges	36.6%	8.8%	45.4%	46.7%	7.9%	100.0%
Cost to Maintain Highways and Bridges	39.1%	9.7%	48.8%	43.3%	7.9%	100.0%
2000 Capital Outlay	40.1%	11.8%	52.0%	40.1%	7.9%	100.0%

indicated in Chapter 6, due to the nature of the Federal-aid Highway program as a multiple year reimbursable program, the impact of increases in obligation levels phases in gradually over a number of years. Federal cash outlays are projected to be fairly stable from 2001 to 2003.

State and Local Funding

State and local funding for highway capital outlay has increased in every year since 1981, and has grown in constant dollar terms over time. The model predicts that annual increases in State highway funding (in nominal dollars) will range from 4.4 percent to 6.0 percent during the period from 2000 to 2003. This would actually represent a slowdown in funding increases, since State funding for highways increased at an average annual rate of 11.1 percent from 1997 to 2000.

Q. How were future State and local highway funding levels projected?

A. In 1996, the FHWA commissioned the development of two State Highway Funding Models to forecast future State highway funding levels. These models are used in the development of supporting materials for the annual FHWA budget submission. State Highway Funding Model I forecasts total State receipts for highways based on estimates of future fuel consumption, State general fund revenues, and nominal Gross Domestic Product (GDP).

This report assumes that State and local government funding for highway capital expenditures will increase by approximately the same rates.

Projected Federal, State, and Local Expenditures

Exhibit 8-4 shows projected expenditures by all levels of government for highway capital projects in current dollars and constant 2000 dollars. As indicated in Chapter 6, historical capital expenditures are converted to constant dollars using the Federal Highway Administration (FHWA) Construction Bid Price Index. However, there are no projections available for future values for this index, so the expenditure projections were converted to constant dollars using forecasts of the Consumer Price Index (CPI) instead.

Q. How do the projected highway capital expenditures for 2000-2003 presented in this report compare to the projections made for the 1999 C&P report?

A. Total highway capital expenditures in 2000 and the projections for 2001-2003 are substantially higher than the projections made for those years in the previous report. The 1999 report projected nominal expenditures of \$57.3 billion in 2000, increasing to \$64.6 billion by 2003.

Stated in constant 2000 dollars, highway capital expenditures are expected to rise from \$64.6 billion in 2000 to \$69.3 billion in 2003, a 5.5 percent increase, with over half of the growth occurring in 2001.

Comparison of Investment Requirements and Projected 2001-2003 Spending

When making multi-year comparisons of spending and investment requirements, it is important to note that the investment requirements shown in this report are cumulative. To achieve a given performance target at the

Exhibit 8-4
Projected Highway Capital Expenditures 2000-2003, All Levels of Government

YEAR	PROJECTED CAPITAL EXPENDITURES STATED IN BILLIONS OF NOMINAL DOLLARS		PROJECTED ANNUAL RATE OF INFLATION*	PROJECTED CAPITAL EXPENDITURES STATED IN BILLIONS OF CONSTANT 2000 DOLLARS	
	AMOUNT	INCREASE OVER PRIOR YEAR		AMOUNT	INCREASE OVER PRIOR YEAR
2001	68.9	6.6%	2.8%	67.0	3.7%
2002	71.6	3.9%	1.9%	68.4	2.0%
2003	74.2	3.6%	2.2%	69.3	1.3%

* Based on CPI projections from the Fiscal Year 2003 Budget.

end of 20 years, cumulative spending over the 20-year period would have to match the cumulative investment requirements specified for that target. For example, if spending in 2020 matched the average annual investment requirements identified as the Cost to Maintain Highways and Bridges, but spending in 2001 through 2019 fell below this threshold, highway and bridge conditions would be expected to decline. Highway and bridge conditions and performance would only be maintained under this scenario if the cumulative average annual spending for the 2001-2020 period reached \$75.9 billion (in constant 2000 dollars), the average annual Cost to Maintain Highways and Bridges.

Exhibit 8-5 compares the Cost to Maintain Highways and Bridges and the Cost to Improve Highways and Bridges with projected spending for the years 2001 through 2003. The row for 2000 is included to relate the table to Exhibit 8-2, but the 2000 values are not included in the cumulative capital expenditure figures shown. The “Average Annual” column shows the average annual capital expenditures corresponding to the years included in the “Cumulative” column, i.e., the \$68.2 billion average annual expenditures shown for the year 2003 represent the average expenditures for the 3-year period 2001 to 2003.

Exhibit 8-5
Average Annual Investment Required to Maintain and Improve Highways and Bridges Versus Projected 2001-2003 Capital Outlay

YEAR	PROJECTED CAPITAL EXPENDITURES STATED IN BILLIONS OF CONSTANT 2000 DOLLARS			COST TO MAINTAIN HIGHWAYS AND BRIDGES		COST TO IMPROVE HIGHWAYS AND BRIDGES	
	ANNUAL	CUMULATIVE	AVERAGE ANNUAL	PERCENT ABOVE PROJECTED SPENDING		AVERAGE ANNUAL	PERCENT ABOVE PROJECTED SPENDING
				AVERAGE ANNUAL	PROJECTED SPENDING		
2000	64.6			75.9	17.5%	106.9	65.3%
2001	67.0	67.0	67.0	75.9	13.3%	106.9	59.5%
2002	68.4	135.4	67.7	75.9	12.2%	106.9	57.9%
2003	69.3	204.6	68.2	75.9	11.3%	106.9	56.6%

Exhibit 8-5 shows the gap between projected cumulative average annual spending and the estimated average annual investment requirements closing slightly between 2000 and 2003, to 11.3 percent for the Cost to Maintain and 56.6 percent for the Cost to Improve.

Comparison with Previous Reports

The comparison between spending and investment requirements in this chapter matches the presentation in the 1999 report, but differs from earlier C&P reports. Exhibit 8-6 compares the estimated differences between current spending and average annual investment requirements for this and the 1995, 1997, and 1999 reports.

Exhibit 8-6

REPORT YEAR	RELEVANT COMPARISON	PERCENT ABOVE CURRENT SPENDING	
		COST TO MAINTAIN HIGHWAYS & BRIDGES (LOW SCENARIO*)	COST TO IMPROVE HIGHWAYS & BRIDGES (HIGH SCENARIO*)
1995	Average Annual investment requirements for 1994-2013 compared to 1993 spending	57.5%	112.6%
1997	Average Annual investment requirements for 1996-2015 compared to 1995 spending	21.0%	108.9%
1999	Average Annual investment requirements for 1998-2017 compared to 1997 spending	16.3%	92.9%
2002	Average Annual investment requirements for 2001-2020 compared to 2000 spending	17.5%	65.3%

* The investment requirement scenarios are not fully consistent between reports. See Chapter 7 and Appendix A.

The percentage difference between current spending and the Cost to Maintain Highways and Bridges is up only slightly from the 1999 report. Note, however, that the definition of the Maintain scenario has changed slightly in each report (See Chapter 7). As shown in Exhibit 8-6, the 1999 C&P report estimated that average annual investment requirements were 16.3 percent above current spending.

The difference between current spending and the Cost to Maintain Highways and Bridges is also smaller than comparable figures from recent C&P reports. While the 1995 C&P report did not directly compare average annual investment requirements for the Cost to Maintain Highways and Bridges with 1993 report-related capital outlay, the difference would have been 57.5 percent. An analysis of the data in the 1997

Q. How do changes in the “funding gap” since the 1995 report relate to changes in highway capital expenditures over that time?

A. The Cost to Maintain gap has decreased from 57.5 percent (based on 1993 data) to 17.5 percent (based on 2000 data), while the Cost to Improve gap has decreased from 112.6 percent to 65.3 percent. From 1993 to 2000, constant dollar highway capital outlays increased by 21.6 percent.

C&P report (not presented then, but created for the 1999 C&P) would have shown a 21.0 percent difference between the average investment requirements to Maintain User Costs, and 1995 spending.

Based on the information in the 1995 C&P report, the difference between the Cost to Improve Highways and Bridges would have been 112.6 percent, similar to the 108.9 percent gap based on the 1997 report. This difference fell to 92.9 percent in the 1999 C&P report and has shrunk considerably to 65.3 percent in this report.

Transit Capital Spending Compared with Investment Requirements

2000 Capital Spending and Estimated Average Annual Investment Requirements

Total Capital Spending

In 2000, combined capital investment in public transportation by Federal, State, and local governments was \$9.1 billion, below the requirements estimated by the Federal Transit Administration (FTA). FTA estimates that an additional investment of \$5.7 billion annually (63.8 percent above actual capital investment in 2000) would be required to Maintain Conditions and Performance and an additional annual investment of \$11.5 billion annually (127.5 percent above actual capital investment in 2000) would be required to Improve Conditions and Performance. [See Exhibit 8-7].

This comparison, however, overestimates the gap between capital investment requirements and future funding for transit capital investment. This overestimation results because of lag that occurs between the authorization of capital funds, the obligation of these funds and actual capital spending. Since TEA-21, annual obligations by FTA for capital investment have grown rapidly to \$7.2 billion in FY 2000 from \$4.1 billion in FY 1998. Higher levels of authorizations have not yet worked their way through the process into capital spending. As these higher levels of authorized funds are obligated and spent, capital investment will rise and the gap between actual capital spending and estimated annual capital investment requirements will decrease.

Exhibit 8-7

2000 Transit Capital Expenditures Versus Estimated Average Annual Investment Requirements (Billions of 2000 Dollars)

		ESTIMATED ANNUAL AVERAGE REQUIREMENTS MINUS EXPENDITURES IN 2000	PERCENT AVERAGE ANNUAL REQUIREMENTS ABOVE ACTUAL 2000 EXPENDITURES
Actual 2000 Capital Expenditures 2001-2020	\$9.1		
Estimated Annual Average Requirements			
Cost to:			
Maintain Conditions & Performance	\$14.8	\$5.8	63.8%
Improve Conditions & Maintain Performance	\$16.0	\$6.9	76.6%
Maintain Conditions & Improve Performance	\$19.5	\$10.4	115.2%
Improve Conditions & Performance	\$20.6	\$11.6	127.5%

Sources: National Transit Database (NTD), Transit Economic Requirements Model (TERM) and FTA staff estimates.

Capital Spending by Asset Type

In 2000, \$2.8 billion was invested in transit vehicles and \$6.2 billion in non-vehicle transit infrastructure, i.e., facilities, guideway elements, stations, and systems. Between 2001 and 2020, investment in transit vehicles

would need to grow more rapidly than investment in the non-vehicle transit infrastructure to both Maintain and Improve the transit infrastructure conditions and performance [See Exhibits 8-8 and 8-9].

Capital Spending on Vehicles

FTA estimates that capital investment in transit vehicles would need to be \$6.2 billion annually to Maintain Conditions and Performance (117 percent more than actual expenditures in 2000) and \$8.1 billion annually to Improve Conditions and Performance (184 percent more than actual expenditures in 2000). In 2000, there were estimated to be 6,770 overage rail vehicles and 16,000 overage buses, compared with 5,381 overage rail vehicles and 17,681 overage bus vehicles in 1997. (The decline in the number of overage buses has largely resulted from an estimated decline in the number of overage vans.) The entire bus fleet will need to be replaced at least once during the period of 2001 to 2020 since large and medium-sized buses have an expected life of 12 years and small buses and vans have an expected life of 7 years. Commuter rail self-propelled passenger coaches and heavy rail vehicles account for the largest percentage of overage rail vehicles—22 percent and 61 percent, respectively. Each of these modes will need to purchase a considerable number of new vehicles. These purchases will only need to be made once between 2001 and 2020, given an expected rail vehicle life of 25 years. Rail vehicle requirements to Improve Conditions are higher than in the 1999 C&P Report because, as discussed in Chapter 3, conditions for all rail vehicles except commuter rail have been revised downward from a “good” to an “adequate” level.

Exhibit 8-8

Average Annual Transit Investment Requirements Versus 2000 Capital Spending by Asset Type

	VEHICLES			NON-VEHICLE ASSETS		
	BILLIONS OF 2000 DOLLARS	PERCENT ABOVE ACTUAL SPENDING	PERCENT OF TOTAL CAPITAL SPENDING/ REQUIREMENTS 1/	BILLIONS OF 2000 DOLLARS	PERCENT ABOVE ACTUAL SPENDING	PERCENT OF TOTAL CAPITAL SPENDING/ REQUIREMENTS 1/
2000 Capital Spending 2/	\$2.8		31%	\$6.2		69%
Costs to:						
Maintain Conditions & Performance 2/	\$6.2	117%	42%	\$8.7	40%	58%
Improve Conditions & Performance	\$8.1	184%	39%	\$12.5	101%	61%

1/Percent of total 2000 capital spending/ percent of total investment requirements to Maintain and Improve Conditions and Performance.

2/Note: numbers do not add due to rounding.

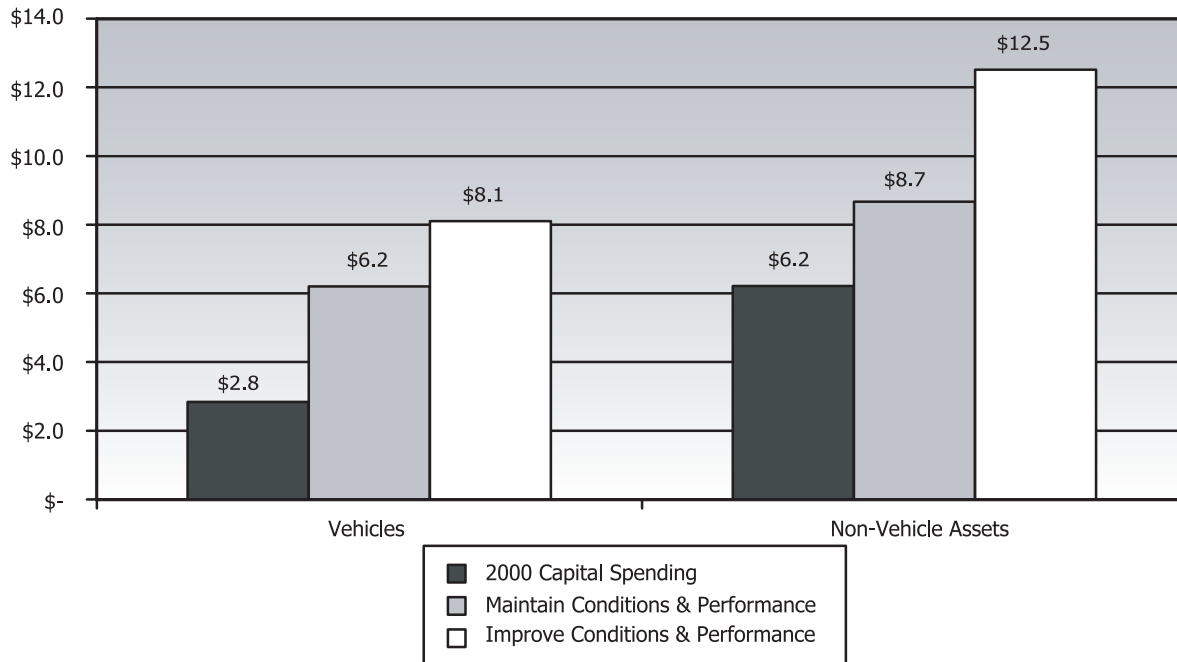
Source: Transit Economic Requirements Model and FTA staff estimates.

Capital Spending on Non-vehicle Infrastructure

TERM estimates that an annual capital investment in non-vehicle transit infrastructure of \$8.7 billion (40 percent above 2000 capital spending) would be needed to Maintain Conditions and Performance of these assets and \$12.5 billion (101 percent above 2000 capital spending) would be needed to Improve them. As discussed in Chapter 7, the bulk of this investment would be needed for guideway elements—elevated structures (bridges), tunnels, and track—and rail systems.

Exhibit 8-9

A Comparison of 2000 Transit Capital Spending with Average Annual Investment Requirements (Billions of 2000 Dollars)



Source: Transit Economic Requirements Model and FTA staff estimates. Note: Numbers may not add due to rounding.

Investment Requirements versus Projected 2001-2003 Spending

Exhibit 8-10 provides estimated total (Federal, State, and local) capital funding available from 2000 to 2003 in current and constant 2000 dollars. Note that estimated capital funding available in 2000 is \$12.4 billion, \$3.4 billion higher than actual capital spending. In the case of formula funding this difference reflects a lag between authorizations and spending and in the case of flexible funding a lag between the obligations and spending. Exhibit 8-10 compares Federal capital funding levels from 2000-2003 in current and constant 2000 dollars.

Exhibit 8-10

Transit Capital Funding Levels, 2000-2003 (Millions of Dollars)

YEAR	AVAILABLE CAPITAL FUNDING LEVELS IN CURRENT DOLLARS	AVAILABLE CAPITAL FUNDING LEVELS IN CONSTANT 2000 DOLLARS	GDP DEFLATOR*
2000	\$12,484	\$12,484	100.0%
2001	\$13,319	\$13,018	102.3%
2002	\$14,150	\$13,533	104.6%
2003	\$14,985	\$14,079	106.4%

*Chained price index. Converted from a 1996 to 2000 base.

Sources: Transit Economic Requirements Model and Budget of the United States FY2003.

Q. How were capital funding levels from 2000-2003 derived?

A. Total capital funding is calculated as the sum of capital funding allocated through the five FTA formula programs and through flexible funding, Title 23 (FHWA), plus a State and local matching amount. Funds authorized under Section 5308, 5309, and 5310 programs are used exclusively for capital needs. Based on recent grant obligations trends, it has been assumed that 93 percent of the Section 5307 authorizations and 46 percent of the Section 5311 authorization levels will be allocated to capital investment. The percentage of Section 5307 authorizations assumed to be for capital investment was increased to 93 percent from 84 percent, which was used in the last edition of this report. This revision reflects the fact that since TEA-21, Section 5307 funds have been precluded from being used for most operating expenditures and hence a larger percentage of these funds has been spent on capital investment. The amount of flexible funding used for transit is assumed to equal \$1.0 billion per year, the average annual amount of these funds obligated by FTA since TEA-21. Earlier editions of this report did not include flexible funds in estimates of total funding levels. The amount of flexible funds used for transit was considerably lower in those years. State and local governments are assumed to match federal funding levels, in line with the split between “Federal” and “State and local funding” in recent years. In 2000, State and local governments provided 47 percent of all capital funding and, in 1997, 54 percent. Authorized funding levels for 2001 to 2003 are deflated to a 2000 constant dollar using the chained GDP price index reported in the 2003 Budget of the United States for comparison with estimated transit investment requirements, which are in 2000 dollars.

A Comparison of Authorized Capital Expenditures with Estimated Investment Requirements (2000-2003)

Projected available funding levels for the duration of TEA-21 are lower than estimated investment requirements, with the gap declining over the period. *[See Exhibit 8-11]*. In 2003, investment requirements to Maintain Conditions and Performance are estimated to exceed available authorized funding levels by 9.6 percent, and those to Improve Conditions and Performance by 52.2 percent.

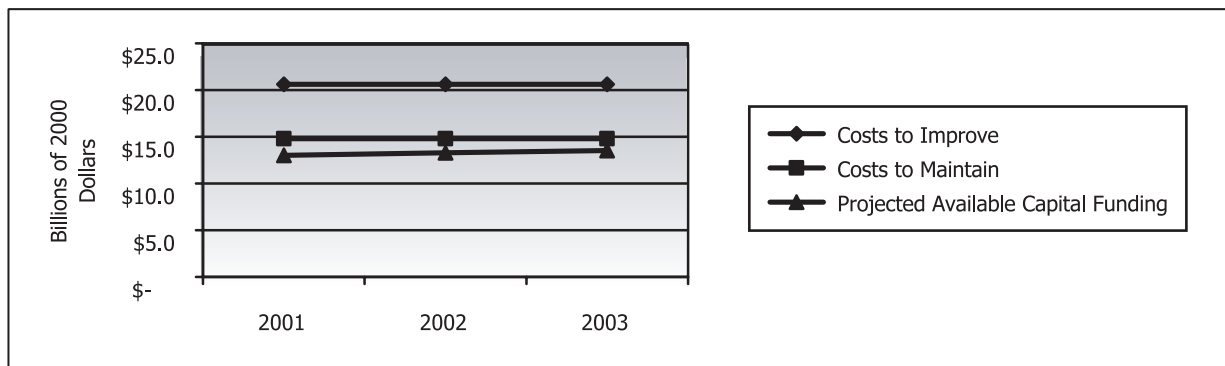
Comparison with Previous Reports

Exhibit 8-12 compares the percentage difference between current spending levels and investment requirements in 2000 to the same percentage differences provided in the 1995, 1997, and 1999 Conditions and Performance Reports. As a result of methodological changes, estimated investment requirements are not directly comparable from year to year. The ratio of investment requirements to actual spending to Maintain Conditions and Performance increased to approximately 60 percent in the present report from approximately 40 percent in earlier reports. The increase in this ratio between 1997 and 2000 reflects increases in vehicle acquisition costs and increased purchases in general as a result of expansion in infrastructure size. The increase in the ratio of investment requirements to actual expenditures under the Improve Conditions and Performance scenario resulted in part from the downward revision in the average condition of rail vehicle conditions based on re-estimated decay curves. Again these differences will narrow in the future as obligated funds are invested.

Exhibit 8-11

**Projected Transit Available Capital Funding Versus Investment Requirements, 2000-2003
(Billions of 2000 Dollars)**

YEAR	PROJECTED AVERAGE ANNUAL AVAILABLE CAPITAL FUNDING		COST TO MAINTAIN CONDITIONS AND PERFORMANCE		COST TO IMPROVE CONDITIONS AND PERFORMANCE	
	ANNUAL	AVERAGE ANNUAL	AVERAGE ANNUAL	PERCENT ABOVE PROJECTED AVERAGE ANNUAL AVAILABLE CAPITAL FUNDING	AVERAGE ANNUAL	PERCENT ABOVE PROJECTED AVERAGE ANNUAL AVAILABLE CAPITAL FUNDING
Actual Capital Expenditures						
2000	\$9.06		\$14.84	63.9%	\$20.62	127.7%
Projected Available Capital Funding						
2001	\$13.02	\$13.02	\$14.84	14.0%	\$20.62	58.3%
2002	\$13.53	\$13.28	\$14.84	11.8%	\$20.62	55.3%
2003	\$14.08	\$13.54	\$14.84	9.6%	\$20.62	52.2%



Sources: Transit Economic Requirements Model, TEA-21, and FTA staff estimates.

Exhibit 8-12

**Average Annual Transit Investment Requirements versus Current Spending
1995, 1997, 1999 and 2000 Conditions and Performance Reports**

REPORT YEAR	SPENDING YEAR	INVESTMENT REQUIREMENT FORECAST YEARS	Percent Above Current Spending	
			COST TO MAINTAIN CONDITIONS AND PERFORMANCE	COST TO IMPROVE CONDITIONS AND PERFORMANCE
1995	1993	1994-2013	37.6%	124.4%
1997	1995	1996-2015	38.3%	102.9%
1999	1997	1998-2017	41.0%	110.2%
2002	2000	2001-2020	63.8%	127.7%

Source: Transit Economic Requirements Model and FTA staff estimates.