Commission Briefing Paper 6C-02
Scenario Findings: Funding Levels by Type of Improvement

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Date: August 16, 2007

Introduction

This document is intended to serve as a reference guide to a set of charts developed to provide a consolidated look across transportation modes at different capital investment levels by improvement type. In particular, these charts focus on investment in capacity expansion relative to investment in the rehabilitation of existing transportation assets. The highway and transit statistics provided are drawn from papers for the five individual scenarios discussed in Papers 6B-01 through 6B-05. The freight and passenger rail values are intended to serve as placeholders to give a relative sense of scale within the charts, as the scenario analyses for these modes has not yet been completed. These placeholders should not be treated as reliable data. (The plan is to substitute in actual statistics for these placeholder values, once they become available).

Base Case

Two pie charts are presented for the base case, one associated with the High funding level, and one associated with the Medium funding level. (The definitions of these funding levels can be found in Paper 6C-01.) Each pie chart represents the distribution of investments over the 30-year period from 2005 through 2035.

At the high funding level, base case capacity expansion expenditures for highways, transit, freight rail and intercity passenger rail combined would be approximately 54 percent of total capital expenditures. At the medium funding level, the share devoted to capacity expansion would be lower at a bit less that 51 percent. If projects are implemented in order of their relative cost-benefit ratios, one would generally expect the mix of investments to shift increasingly towards capacity expansion as funding levels increase. This shift occurs because many investments in system rehabilitation have relatively high benefit cost ratios, as the consequences of allowing existing assets to fall into disrepair can be relative severe. At lower funding levels, these rehabilitation projects will be funded first. Many capacity expansion projects are relatively costly, causing them to have relatively lower benefit cost ratios. More of these capacity expansion projects can be reached as funding levels increase.

Capacity expansion's share of total capital investment is significantly higher under both the Medium and High funding levels for the base case than the 41 percent capacity expansion share cited in Paper 6D-01 for current capital expenditures. This is not inconsistent with the discussion above, which suggests that the optimal share of capital investment devoted to capacity expansion would tend to be lower at lower investment levels.

Scenario 1

As the assumptions underlying Scenario 1 did not differ as significantly from the Base Case as did they did for the other scenarios, the percentages shown on the two pie charts are not significantly different from the Base Case. Note that the capital investments in operations facilities assumed in the scenario are reflected as capacity expansion in the charts, as their primary purpose is to increase the effective capacity of the existing infrastructure.

Scenario 2

The relative portion of Scenario 2 investments devoted to capacity expansion is lower than in the Base Case for both the High and Medium funding levels. For the High funding level, the percentage of capital investment devoted to highway capacity expansion is approximately 6 percentage points lower than in the Base Case (35.3 percent compared to 40.8 percent), while the percentage devoted to transit capacity expansion is approximately 4 percentage points higher (7.9 percent compared to 4.4 percent) than in the Base Case. Similar differences exist between Scenario 2 and the Base Case at the Medium funding level, as highway capacity expansion's share is approximately 7 percentage points lower (32.8 percent compared to 39.4 percent), and transit capacity expansion's share is approximately 4 percentage points higher (7.7 percent compared to 3.3 percent). These differences are in keeping with the underlying assumptions of Scenario 2, which includes a large shift of highway VMT to transit in response to the instituting of congestion pricing on a widespread basis.

Scenario 3

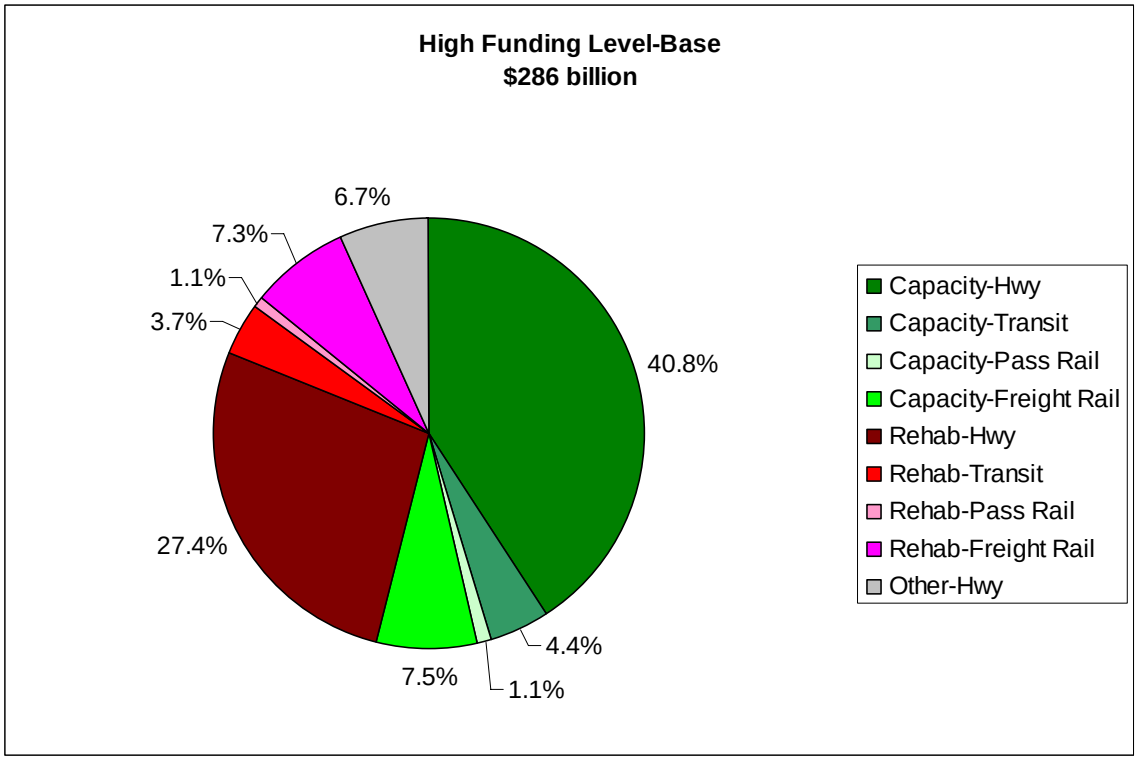
Scenario 3 is oriented around aggressive capacity expansion beyond that which is captured as part of the Base Case analysis, so it is not surprising that capacity expansion's share of total capital investment is higher under this scenario. As described in Paper 6B-03, Scenario 3 adds a significant number of new Interstate lane miles to improve the connectivity of the system, and would add significant new transit capacity to allow transit systems to achieve a more aggressive system performance targets.

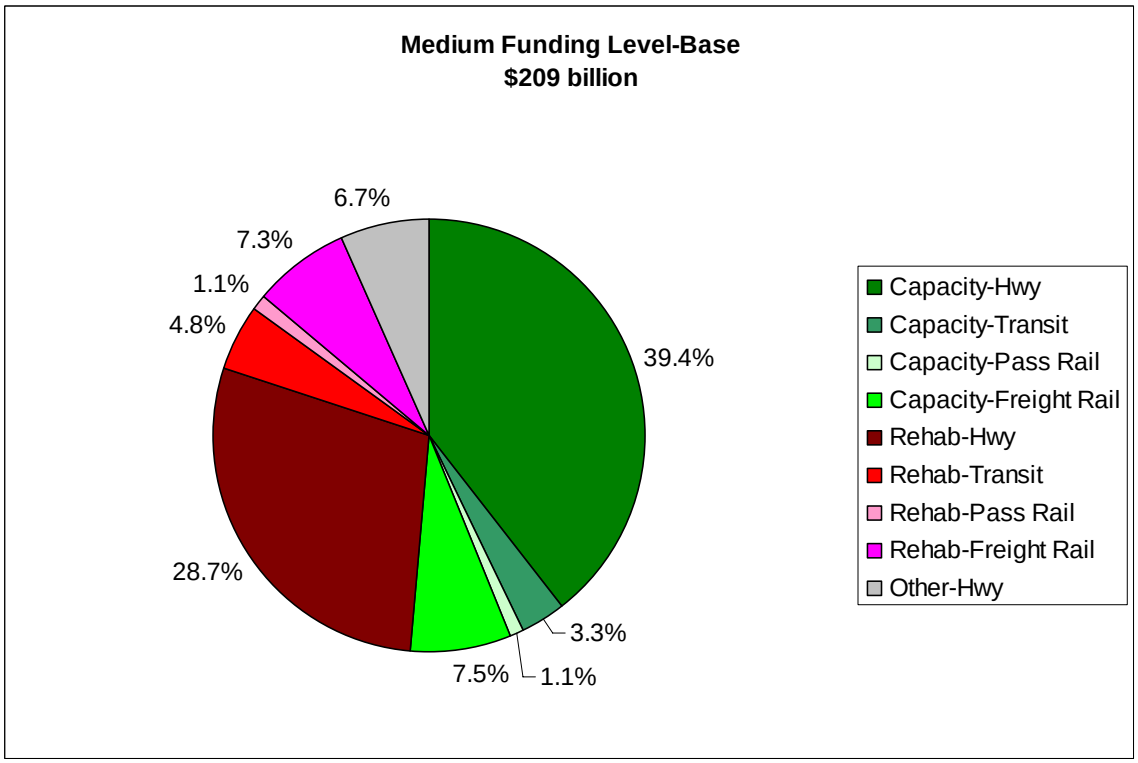
For the High funding level, the percentage of capital investment devoted to highway capacity expansion is approximately 1 percentage point higher than in the Base Case (41.9 percent compared to 40.8 percent), while the percentage devoted to transit capacity expansion is approximately 3 percentage points higher (7.4 percent compared to 4.4 percent).

For the Medium funding level, highway capacity expansion's share is approximately 0.5 percentage points higher (39.9 percent compared to 39.4 percent), and transit capacity expansion's share is approximately 6 percentage points higher (9.6 percent compared to 3.3 percent).

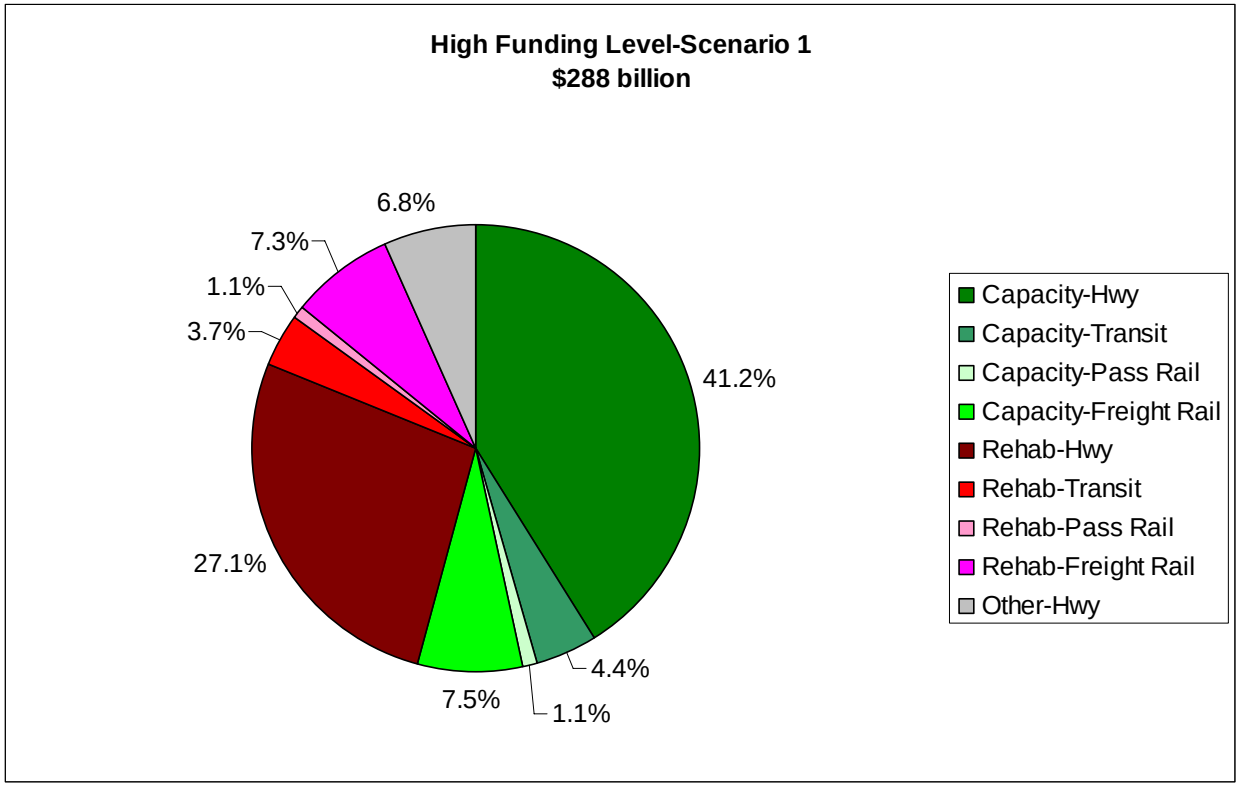
Note that the relative decline in the percentages for highway and transit rehabilitation at both the High and Medium funding levels are primarily a function of the increased investment in capacity expansion under Scenario 3, rather than changes in system rehabilitation investment. These relative shares would be tend to be reduced further if additional aggressive capacity expansion alternatives are added to Scenario 3 for other modes.

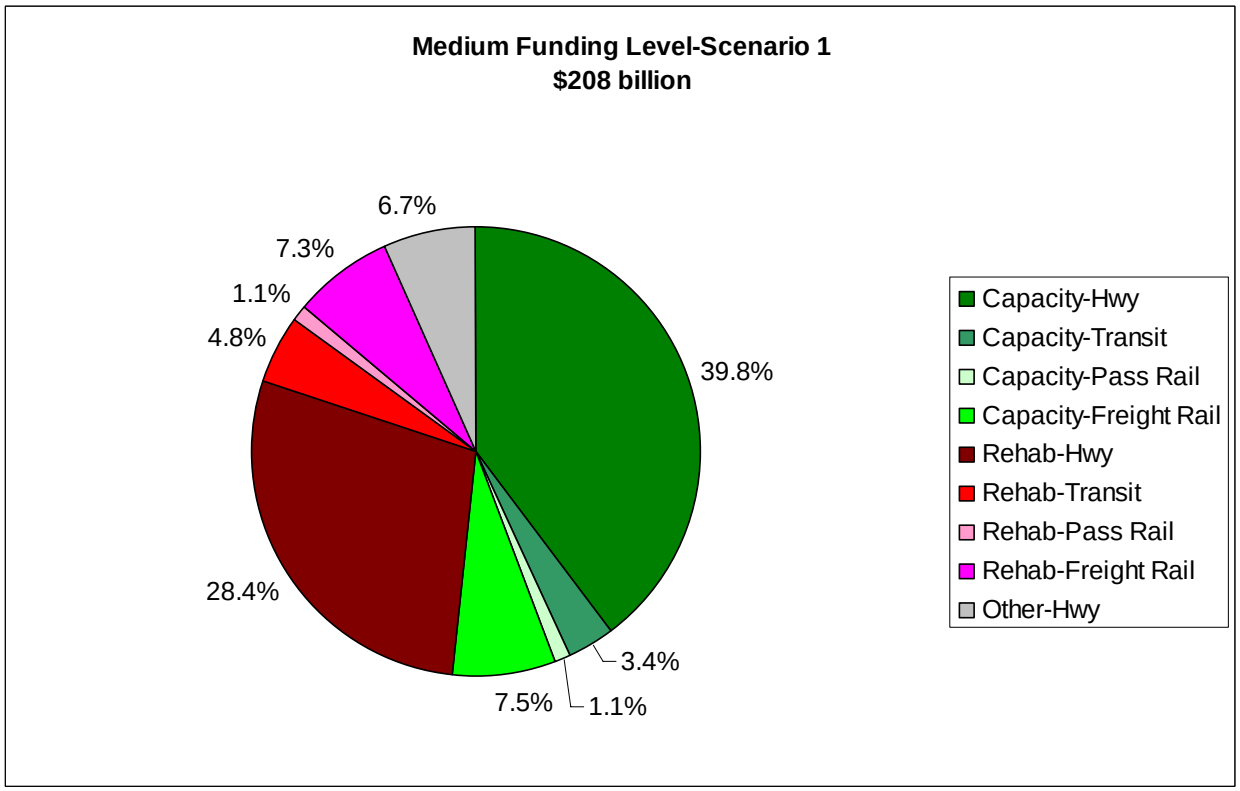
Average Annual Investment by Improvement Type
30-Year Analysis





Average Annual Investment by Improvement Type
30-Year Analysis





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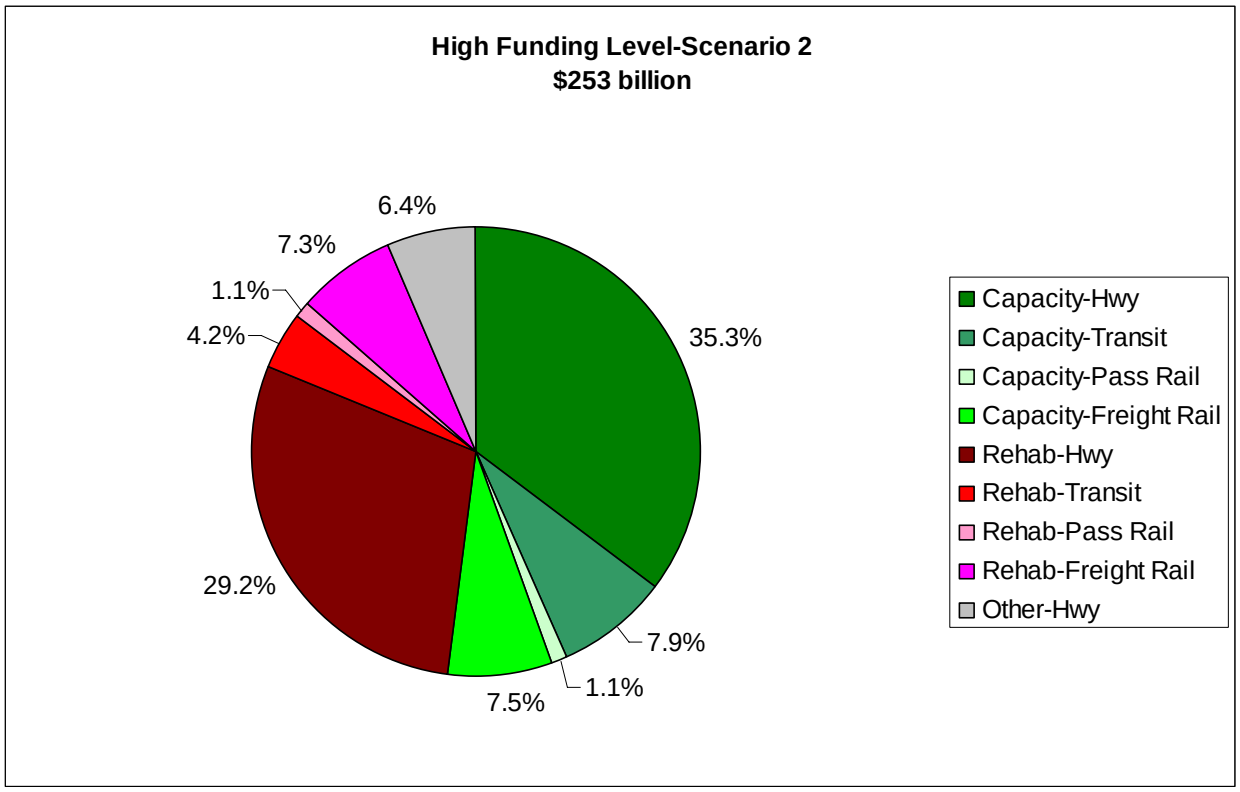

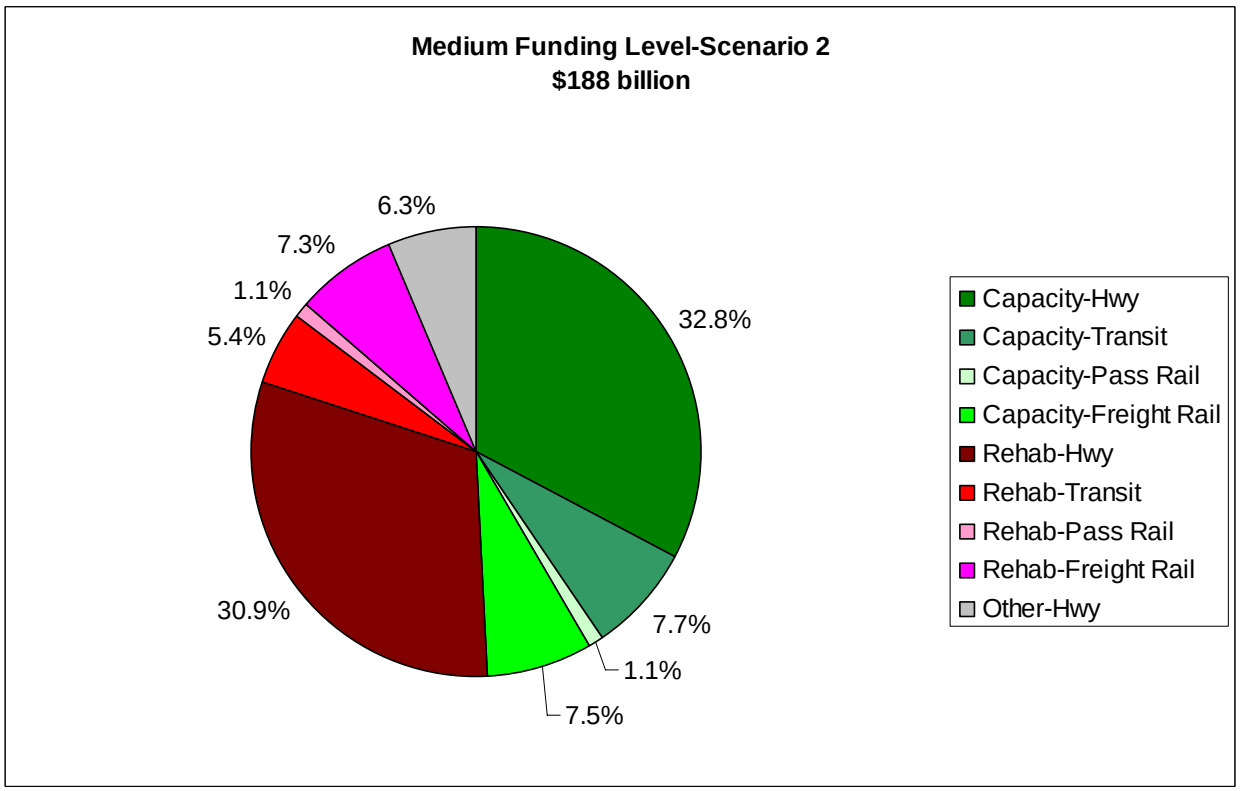

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