

**Attachment B**  
**RTP/SCS - Needs Projections Approach**  
**Transit Capital Needs**

This memo provides an overview of the approach to developing transit capital needs projections for the 2013 RTP-SCS, which include the costs of replacement and rehabilitation of transit assets required to keep the current transit system in a state of good repair.

**Regional Transit Capital Inventory**

The cost projections will be based on the Regional Transit Capital Inventory (RTCI), a database of all of the region's transit capital assets, such as buses, railcars, ferries, track, bridges, tunnels, train control and traction power systems, stations, maintenance facilities, and communications systems. The objective of the RTCI is to collect consistent and comparable data on the region's transit capital assets and replacement/rehabilitation costs for each transit operator. The initial RTCI was developed for the transit capital needs projections for Transportation 2035, and was recently updated by the transit operators for use in the 2013 RTP-SCS. The overall capital needs during the RTP-SCS period will be calculated for individual operators and for the region as a whole.

In addition to an asset inventory, the RTCI includes replacement and rehabilitation cycles and costs for each type of asset. Asset data for the RTCI was developed by each operator using multiple sources, such as maintenance management systems, fleet plans, condition assessments, and accounting systems. For cases where cost data was not available, industry standard replacement and rehabilitation cycles and costs for each asset type were developed based on a national inventory maintained by the Federal Transit Administration (FTA) and other sources.

**Performance Measure: Average Asset Age**

In order to assess the state of good repair of the transit system, the age of capital assets relative to their useful lives is used as a proxy for the condition of the assets. The projected average age of the assets in 2040 compared with the average age in the base year will be used as a performance measure for the transit capital program in the RTP. The target is to reduce the average age to 50% of the useful life, which would be the average if all assets were replaced at the end of their useful life.

The transit capital need projections are closely tied to this performance measure. MTC proposes to produce projections under three alternative scenarios for the performance measure:

- The cost of replacing all assets at the end of their useful lives, and performing all capital rehabilitation work in accordance with the recommended rehabilitation cycle for the asset type, over the planning period. Under this scenario, the average age of the assets relative to their useful lives would decrease, i.e., the state of good repair would improve, and eventually reach the 50% target, which represents an ideal state of good repair.
- The cost of maintaining the current average age, i.e., maintaining the current state of good repair, over the planning period. Under this scenario, some assets would continue to be kept in service for longer than their standard life.
- The cost of achieving a specified reduction in the average age that falls between the current average and the 50% target, i.e., an intermediate scenario between the other two that results in an improvement in the state of good repair but does not reach the ideal state.

The cost and age projections will be performed using the Transit Economic Requirements Model (TERM), a capital planning tool developed by FTA for national transit need projections and state of good repair assessments.

### **Transit Capital Revenue Projections**

The projected costs under these three scenarios will be compared to the revenues projected to be available for transit capital replacement and rehabilitation. Transit revenues that in the past have been committed to this purpose include FTA Urbanized Area Formula (Section 5307) and Fixed Guideway Modernization (Section 5309 FG) funds, AB 664 and 2% bridge tolls, certain county transportation sales taxes, local and state bond proceeds for seismic work, and projected operating surpluses for the transit agencies, if any. However, in this RTP/SCS, some of these sources are proposed to be treated as “discretionary” and so will be the topic of a decision process later this year.

It is important to note that the funding assignments in the RTP/SCS will be based on projections of aggregate need over the plan period; actual programming will vary year to year and will take into account actual project eligibility and readiness.

### **Performance Indicator: Vehicle Reliability**

In addition to cost and age projections, TERM can project vehicle reliability, measured as the mean distance between failures. The projections are based on research by FTA on the statistical relationship between vehicle age, condition and failure rates using data reported by transit operators to the National Transit Database.

We plan to provide projected vehicle reliability figures for each of the transit capital need scenarios described above as a supplemental performance indicator for the transit capital program. This measure, which represents the current state of the art in system-level transit asset management, is a first step toward being able to better define the benefits of keeping transit systems in a state of good repair. The goal is to be able to quantify the relationships between investments in transit capital replacement and rehabilitation and service reliability and quality; and eventually the relationship to ridership, mode share and VMT, and greenhouse gas emissions.

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