Appendix C: Ridership Forecasting Approach

The ridership forecasting effort was performed using the Metropolitan Washington Council of Governments/Transportation Planning Board (MWCOG/TPB) Travel Forecasting Model Version 2.1D #50 and Round 7.2 Cooperative Land Use Forecasts. This model is an advanced four-step planning tool consisting of trip generation, trip distribution, mode choice, and traffic assignment procedures. At the end of the model application, total motorized person trips are apportioned among three different modes: auto driver, auto passenger and transit. Transit person trips, however, are not further divided among their different sub-modes (Bus, Metrorail, Commuter Rail, and other new fixed guideways). Consequently, it is not possible to forecast streetcar ridership by using the MWCOG/TPB Model alone.

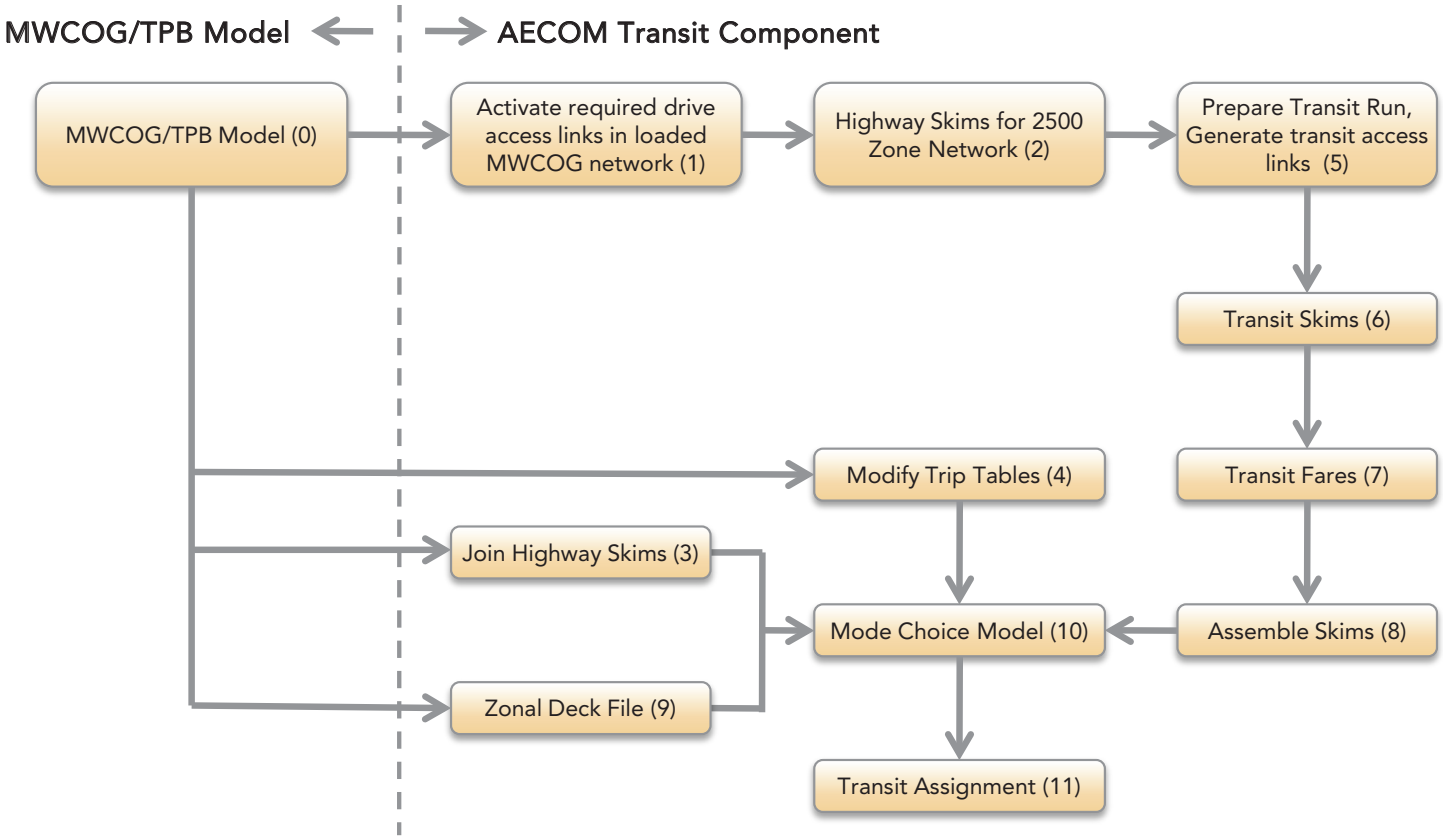
To that end, the Washington Regional Demand Forecasting Model, developed by AECOM as part of the District of Columbia Alternatives Analysis Study, was used to develop future-year ridership forecasts by transit sub-mode and access mode (walk, drive-and-park and kiss-and-ride). The starting point for this transit model was Round 50 of the 2.1D MWCOG/TPB Model. This model retains the highway networks, trip generation, trip distribution, and highway assignment results from the MWCOG/TPB Travel Forecasting Model. However, new transit paths by sub-mode are built and a more elaborate mode choice model – which apportions the total motorized person trips among the different auto and transit paths – is utilized. The mode choice model was calibrated using the 2000 Bus On-board Survey and 2002 Metrorail Survey.

The MWCOG 2030 network was modified before it was used for the analysis. Particularly, the MWCOG transportation analysis zone (TAZs) were split in many places along the build scenario alignments to allow for more thorough analysis and better understanding of the results. MWCOG's highway network was then modified to add details along the split TAZs in order to provide proper access to transit stations. Detailed transit access coding was added around the rail stations to accurately represent various access modes – bus, park-and-ride, and kiss-and-ride. Transit line files were also "cleaned" and updated to reflect these highway modifications.

- **2030 Baseline Network** – According to the Federal Transit Administration New Starts project guidelines, the baseline network alternative serves as a starting point for developing project alternatives. For 2010 DC Streetcar System Plan analysis, the Baseline scenario consisted of the existing highway and transit networks, plus any committed service improvements except for major capital investments as defined in the 2004 regional Financially Constrained Long-Range Transportation Plan. Any transportation related improvements that were committed to be in place by year 2030, whether physical or operational, were assumed to be part of this baseline scenario. The MWCOG/TPB model was run for the baseline scenario to produce base highway skims and person trip tables. The highway skims and person trip tables were fixed for the build alternative.
- **2030 Build Network** – For the 2010 DC Streetcar System Plan, the 2030 Build network consisted of approximately 37 miles of streetcar corridors in the District. The Streetcar System Plan is described in detail in Chapter 4 of this report. The background bus network was modified for the streetcar corridors to either remove duplicate and competitive bus service or to provide streamlined feeder bus service.

Figure C-1 graphically shows the structure of the transit component process.

Figure C-1: AECOM Transit Component Application Process



Note: The numbers in parenthesis are batch file step numbers