

Discussion-piece #18
Preservation and Analysis of Travel Forecasts for New Starts Projects
Federal Transit Administration
June 6, 2006

1. Motivations. SAFETEA-LU requires a Before-and-After study of projects built with New Starts funding – a requirement first introduced in 2001 by the New Starts regulation. One facet of these studies is the comparison of ridership forecasts for the project with actual ridership patterns two years after the project opens to service. To be effective, this analysis must be done with detailed records of the forecasts. Further, SAFETEA-LU introduces a requirement that FTA track the performance of contractors making ridership forecasts for New Starts projects in a way that recognizes the potential for errors and changes over time in the information used by contractors as inputs to ridership models. This new requirement – particularly its mandate that FTA identify sources of errors – also requires detailed records of the forecasts. Unfortunately, recent FTA experience demonstrates that the preservation of detailed records of forecasts is uncertain at best. FTA’s attempted case studies of ridership forecasts for recently completed New Starts projects (see Discussion-piece #6) found that detailed records were effectively absent. Consequently, effective response to provisions in SAFETEA-LU requires that FTA take steps to ensure the preservation of New Starts forecasts and timely analysis of changes in those forecasts when changes are made.
2. Milestones. Federal transit law has long mandated that FTA evaluate and rate proposed New Starts projects in preparation for decisions at key milestones: entry into preliminary engineering, entry into Final Design, and execution of a Full Funding Grant Agreement. Forecasts of ridership and mobility benefits play a significant role in the evaluation and rating. Consequently, an up-to-date set of best-available ridership forecasts is necessary at each milestone (at least in principle: evaluations at later milestones have often relied upon forecasts prepared much earlier in Alternatives Analysis – on the implicit premise that little has changed that would affect the forecasts). The need to preserve information therefore applies to the ridership forecasts – for both the build and baseline alternatives in both the horizon year (currently 2030) and for the opening year – used to evaluate and rate a project at each milestone.
3. Analysis of revisions to the forecasts. The purpose of the requirement to preserve forecasts is to enable a meaningful comparison of predicted ridership characteristics with actual outcomes two years after projects have opened to service. Obviously, that comparison can be completed only after the actual ridership patterns can be observed. However, postponing all of the analysis until two years after opening risks the loss of insights available in intermediate years on the impacts of changes the project scope, service plans, demographic forecasts, current ridership patterns, and other conditions that cause revisions to the forecasts. Therefore, to develop and preserve those insights, the requirement to preserve the forecasts includes a requirement to analyze any revisions to the forecasts and document the causes of those revisions.
4. Information to be preserved. At least two strategic options exist on the set of information to be preserved: one that would preserve only the forecasts and their key inputs, and a second

that would preserve the ability to reproduce the forecasts. The first numbers-only option would support detailed retrospective analyses comparing early project forecasts with later forecasts and eventual project ridership patterns. Careful analysis of the numbers would identify differences in predicted and actual development patterns, project scope, transit service levels, fares, ridership patterns, and ridership volumes on guideways and at stations. However, the numbers-only approach would limit analyses of the sources of differences between predicted and actual outcomes. The impact of higher-than-anticipated transit fares, for example, could be examined with various approximations (an incremental version of the local mode choice model or fare elasticities derived from national experience, perhaps). However, the approach would require invention of those devices for everything that changes, and would always be, at best, an approximation of the forecasts that would have been made had the revised inputs been known. The second option would also preserve the forecasts themselves but would overcome the analytical limitations of the first. The impacts of changes to inputs would be clear – individually and collectively – through reapplications of the same models that produced the forecasts in the first place. Given the mandate in SAFTEA-LU that FTA evaluate not only the accuracy of forecasts but also the causes of significant errors, the preservation of the travel models themselves is a necessary part of this requirement.

5. FTA role. Project sponsors will be responsible for preserving at each milestone the forecasts themselves, analyses of any changes in the forecasts, and the ability to reproduce the forecasts. (Presumably, copies would also be retained any contractor, metropolitan planning agency, or other entity external to the project sponsor who produced the forecasts.) As a backup to these efforts, FTA will take an active role in obtaining, archiving, and preserving both the forecasts and the ability to reproduce those forecasts. FTA will establish a preservation archive, verify the preserved forecasts, check the ability to reproduce the forecasts, and then archive the materials.
6. Likely elements of forthcoming guidance. Given all of this, FTA guidance on the preservation and ongoing analysis of ridership forecasts for New Starts projects is likely to include the following:
 - Preserve forecasts – and analysis of revisions in forecasts – at decision milestones:
 - Entry into preliminary engineering;
 - Entry into final design; and
 - Full Funding Grant Agreement (if any revisions have occurred).
 - At each milestone, identify and document the causes of any revisions in the ridership forecasts cause by changes in inputs to the forecasts, including:
 - Project scope, service levels, fares, and other service characteristics;
 - Demographic projections, parking costs and other external influences; and
 - Forecasting methods.
 - Preserve:
 - The current milestone forecasts;
 - The ability to replicate and report the forecasts; and
 - The ability to relate the current forecasts to previous forecasts.

7. Implementation. The requirement for Before-and-After Studies has been in effect since April, 2001. The 2006 Policy Guidance implemented the requirement that project sponsors preserve and revisit the status of the forecasts at major milestones, pending issuance of detailed guidance. The requirement applies to (1) all projects in the New Starts project development process that have not obtained Full Funding Grant Agreements by the effective date of the forthcoming guidance, and (2) all projects entering preliminary engineering after the effective date of that guidance.