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7. Financial Analysis and Fiscal Constraint

The Monroe 2035 Metropolitan Transportation Plan is fiscally constrained in compliance with the requirements of SAFETEA-LU and the Metropolitan Planning Regulations. This chapter describes the process of fiscally constraining the project list described in previous chapters. By federal regulation, the final MTP project list must be fiscally constrained. This simply means that, after making projections about future costs and revenues, the anticipated amount of revenue that will be available for transportation projects will be equal to (or greater than) the anticipated cost of the MTP projects.

These costs and revenues also have to take into account the change in the value of the dollar due to inflation. Therefore, project costs are calculated in year-of-expenditure dollars. This means that the cost of the project is calculated based on the value of the dollar in the year that it is spent. For example, if a roadway is overlaid with a new surface in 2010, the work is anticipated to cost \$400,000 per mile to complete the project, but if the project is put off until 2011 the project cost is projected to increase to \$412,000 dollars. This 3% increase in the cost from one year to the next takes into account a 3% inflation rate. The 3% figure was calculated from historic Consumer Price Index (CPI) data for South Urban areas in the last twenty years.

The chapter will explain how the anticipated total program of highway and transit revenues was calculated to be \$857 million and the total program cost (in year-of-expenditure dollars) was calculated to be \$787 without nonrecurring costs thus making the Monroe 2035 MTP fiscally constrained.

In the Monroe Study Area, the amount of state and federal funding for transportation projects is determined by LaDOTD, in consultation with the MPO, on an annual basis. LaDOTD has a statewide pool of transportation funds that is used for doing all small urban transportation projects in the state. The money in this fund is not allocated by any formula; rather it is distributed to best address the unmet needs in any of the six small urban areas (under 200,000 in population) of the state, at the discretion of LaDOTD, in consultation with the small urban MPOs. This means that the actual amount of state and federal funds spent in any single small urban area can vary widely from year to year. For this reason, revenue forecasts are based on averages. First a historic average amount of funding is calculated, and then a future average amount of funding is projected based on these historical trends.

CALCULATING ROADWAY REVENUES

The following describes the step-by-step process by which future revenues for roadways were forecast for the Monroe Study Area.

Step 1 Gather historic data on the amount of money spent on transportation projects constructed in the Monroe MPO area over the last twenty eight years.

Data was obtained from LaDOTD on all of the transportation projects that were let in the Monroe Study Area over the last 19 years. This data included the type of project (overlay, reconstruction, new construction, etc.) and the actual dollar amount spent on the project. When the project list was summed by year, it gave the total amount of revenue that was expended in the Monroe Study Area for that year. This resulted in a list of transportation revenues by year (and funding category) for the last 19 years, but the amounts could not be accurately compared until all of the revenue figures were converted into a constant year dollar amount. For the purposes of this study, historical amounts were converted into equivalent 2008 dollars.

Step 2 Convert the dollar costs of the historic projects into 2008 dollars.

The revenue figures for each of the last 19 years were converted into 2008 dollars by applying the federal Consumer Price Index. This resulted in a list of annual revenue amounts, but the revenue figures included both recurring and non-recurring funds.

Step 3 Deduct non-recurring revenue.

Some transportation projects are funded through special programs or as a result of a competitive grant process, these funds are non-recurring funds. In order to accurately project the amount of revenues that can be expected in the future, these non-recurring (or one time) funds were subtracted for each year's total revenues. The results was a list of annual revenue amounts that included only fund sources that could be reasonably be expected to recur in the future.

Step 4 Determine an historic average amount of available revenue.

From this list of annual recurring revenues, an average was calculated in order to establish a baseline for projecting future revenues. The total revenues were summed and divided by the number of years to obtain an historic average of \$15 million per year of revenue that was available to the Monroe over the last 19 years. However, because of an anomaly in years 2001 and 2002 which saw very few projects implemented in the Study Area, only the last 6 years (2003-2008) were used to calculate the annual average of \$19 million per year.

Step 5 Project future revenues by year.

Based on this historic average of \$19 million dollars per year in available revenues, an inflation factor of 3% per year (compounded annually) was applied to each year out to the plan horizon year of 2035.

Step 6 Combine the revenue projections into three stages.

As stated earlier, annual transportation revenues in the small urban areas of the state can vary widely. Therefore, revenue projections were calculated



for three time periods, or stages. The following table contains the revenue projections for state and federal recurring funds calculated for this MTP.

Table 7-1: Revenue Projections for State and Federal Recurring Funds

Stage	Years	Revenue Projection
I	2010 - 2015	\$129,000,000
II	2016 - 2025	\$273,000,000
III	2026 – 2035	\$366,000,000
Total	2010 - 2035	\$768,000,000

Step 7 Adding in Future non-recurring revenues.

The figures in the table above represent recurring revenues. In the case of projects with special dedications of non-recurring funds (such as American Recovery and Reinvestment Act funds) the amount of funding dedicated to individual projects is added on top of the recurring revenue forecast on a case-by-case basis.

CALCULATING TRANSIT REVENUE

Transit revenues were calculated using a process similar to the process described above. Historic funding revenues were obtained from LaDOTD Public Transportation Section. The historic funding in actual year dollars for the two public transit systems is listed below:



Table 7-2: Transit Systems Historic Funding

	Monroe Transit	West Ouachita Senior Center	West Ouachita Council on Aging	ARCO
2006-2007	\$1,147,923	\$173,156	\$0	37,816
2007-2008	\$1,623,712	\$122,874	\$44,752	\$0
2008-2009	\$1,639,919	\$167,261	\$92,706	\$82,814
2009-2010	\$2,445,616	\$101,204	\$0	\$0
2010-2011*	\$3,298,186	\$189,330	\$0	\$0
Annual Average	\$2,031,071	\$141,124	\$27,492	\$24,126

These revenue figures were then converted into 2008 dollars by applying the CPI inflation factor,

When these revenues are averaged over the five-year period, they produce an estimate of annualized transit revenues in 2008 dollars. The results of this calculation are shown below.

Annual average historic transit funding

- Monroe Transit: \$2,031,071
- West Ouachita Senior Center: \$141,124
- West Ouachita Council on Aging: \$27,492
- ARCO: \$24,126

These two baseline figures were then used to calculate the anticipated transit revenues over the 25-year life of the MTP. The results are listed below.

Table 7-3: Projected Transit Revenues

	Monroe Transit	West Ouachita Senior Center	West Ouachita Council on Aging	ARCO
2010-2015	\$13,531,935	\$1,004,466	\$183,162	\$160,739
2016-2025	\$28,636,328	\$2,125,654	\$387,608	\$340,156
2026-2034	\$38,484,830	\$2,856,701	\$520,912	\$457,141
Total	\$80,653,093	\$5,986,820	\$1,091,681	\$958,035

CALCULATING THE COST OF ROADWAY PROJECTS

In keeping with SAFETEA-LU guidelines, Cost is defined as the total project cost, which includes: planning elements (e.g. environmental studies and functional studies); engineering costs (e.g. preliminary engineering and design); preconstruction activities (e.g. line and grade studies, right-of-way acquisition and corridor preservation); construction activities, and contingencies.

The following describes the step-by-step process by which the cost of the roadway projects included in the MTP was determined. Transit project costs were calculated in a similar manner, however there is less historic data available. The description of the process for calculating transit costs follows the roadway discussion.

Step 1 Gather historic project costs by type of project.

As stated earlier, data was obtained from LaDOTD on all of the transportation projects that were let in southern Louisiana urban areas over the last 28 years. This data included the type of project (overlay, reconstruction, new construction, etc.) and the actual dollar amount spent on the project. This data was then sorted by project type so that costs could be calculated based on project type.

Step 2 Using 2008 dollars; determine a unit cost per project.

Using the historic cost for each project, translated into 2008 dollars, a unit cost was calculated for each project. The total project cost was divided by the number of units completed in that project, e.g the number of miles of roadway overlaid or reconstructed, or the number of intersections reconfigured. This calculation resulted in a unit cost per project in 2008 dollars.

Step 3 Determine the average cost per unit in 2008 dollars.

The unit costs within each category of projects was then summed and divided by the number of projects. This calculation resulted in the average historic unit cost per category, as displayed in the table below.

Table 7-4: Typical Improvement Costs by Type

Type	Cost (\$)	Per unit
New 4 Lane Freeway	\$15,000,000	Mile
New 2 Lane Roadway	\$2,500,000	Mile
New 4 Lane Arterial	\$4,250,000	Mile
Interstate Widening	\$8,500,000	Mile
Interstate Rehab	\$1,750,000	Mile
Arterial Widening	\$4,000,000	Mile
One Way Couplet	\$3,500,000	Mile
Center Turn Lane	\$2,300,000	Mile
Reconstruction	\$2,000,000	Mile
Overlay	\$400,000	Mile
ITS	\$700,000	Mile
Intersection Improvement	\$750,000	Each
Interchange Improvement	\$5,250,000	Each
New Interchange	\$20,500,000	Each
Underpass	\$10,000,000	Each
RR Overpass	\$5,750,000	Each

Step 4 Apply historic unit costs to MTP project list to determine construction costs.

A base construction cost was calculated for each project in the MTP project list by multiplying the appropriate average cost per unit by the number of units to be completed in each project. For example, a project that called for overlaying 3 miles of roadway would cost \$1,200,000 (\$400,000 unit cost * 3 units).

Step 5 Calculate the total project cost for each MTP project.

As stated above, SAFETEA-LU requires that the MTP contain a ‘total project cost’ for each project. In addition to actual construction costs, the following costs were added in order to determine the total cost of each project: planning elements (e.g. environmental studies and functional studies); engineering costs (e.g. preliminary engineering and design); preconstruction activities (e.g. line and grade studies, right-of-way acquisition and corridor preservation); construction activities, and contingencies. Although not all of these costs were appropriate for every project (e.g., right-of-way acquisition may not be necessary for an overlay project). Estimates of these costs for each project were added to the construction cost to determine the total project cost.

Step 6 Calculate Project Costs in Year-of-Expenditure Dollars.

The projects in the Monroe 2035 MTP are scheduled to be completed over the 25-year life of the plan. Many of these projects will take multiple years to complete. Therefore, the total cost for each project was calculated based on the year in which funds were anticipated to be spent to complete that project. The costs calculated in 2008 dollars must be adjusted to account for inflation. Therefore, as projects were assigned to stages of the plan, the total project cost was inflated to the implementation year accordingly. As noted earlier, a 3% annual compounded inflation rate was used.

A project implementation schedule was determined by the Study Team in consultation with LaDOTD and the MPO Policy Committee. This schedule



placed projects in one of three stages in correlation with the three stages for which revenues were calculated.

- Stage I : 2010 to 2015
- Stage II: 2016 to 2025
- Stage III: 2026 to 2035
- MTP Life: 2010 to 2035

Projects in the Transportation Improvement Program are reported in total cost and are identified for implementation in specific years. The 3% inflation factor was applied to the current cost to calculate the probable cost of the project in that year.

Because of the uncertainty regarding a projects exact year of implementation within stages II and III, an average cost per unit was calculated for each of the two out year stages (using the mid stage year). This resulted in one set of unit costs for each of those two stages. The unit cost schedule was then applied to projects depending on which stage the project was anticipated for implementation.

Based on this schedule, a total project cost for all roadway projects was calculated for each project in year-of-expenditure dollars. (See table of projects in Appendix C) The cost of all projects was then summed, and the result was \$443,824,180, which are the anticipated expenditures for all identified roadway projects over the 25-year life of the MTP.

CALCULATING TRANSIT COSTS

Transit total project costs were developed in consultation with the transit providers in 2008 dollars. These costs were then inflated to year-of-expenditure dollars using the same 3% compounded inflation rate, as was done for roadway projects. Those total costs equaled \$88,689,629.

The anticipated total program (highway and transit) revenues was calculated to be \$857 million and the total program costs (in year-of-expenditure dollars) was calculated to be \$787 - thus making the Monroe 2035 MTP fiscally constrained.