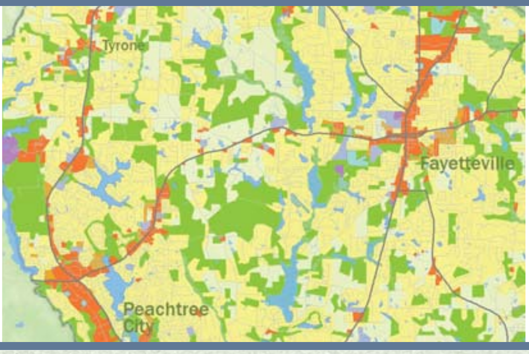
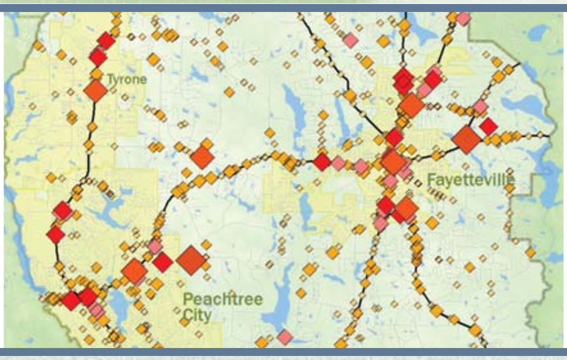
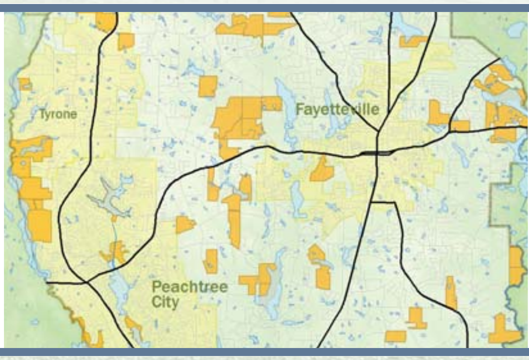
Evaluation & Assessment







Chapter 5

5.0 **Project Evaluation Introduction**

This chapter of the Fayette Forward plan report documents and describes the technical evaluation process by which the candidate project concepts in Chapter 4 were translated into a set of project priorities for future implementation throughout the plan.

The process of project selection began with development of candidate projects as described in Chapter 4 of this plan. As described in that chapter, the candidate projects were developed in one of four ways:

- Inclusion in the Regional Transportation Improvement Program and/or Envision6 Long-Range Transportation Plan;
- Inclusion in the 2007 Southern Regional Accessibility Study;
- Inclusion in Fayette County's (and its constituent municipalities') 2003 Transportation Plan and, by extension, the project list associated with its previous SPLOST program;
- Development during the March 2009 CTP project workshop; and
- Other public comment received over the course of the project.

The candidate projects constituted the raw input to the technical evaluation process described in this chapter. Before applying these criteria, the Fayette Forward project team evaluated feasibility or redundancy with other projects and considered when some candidate projects were to be eliminated for consideration altogether. However, with any projects that remained for subsequent evaluation, no priorities were given based on whether the concepts were already developed at the outset of the Fayette Forward process: all project candidates, whether existing or new, were to be reassessed for a potentially new priority list to come from Fayette Forward. Projects in design beyond the concept stage were not included in the evaluation process.

The evaluation was based on three primary types of assessment criteria, all discussed here, and followed a series of steps to arrive at a final set of recommendations for how project implementation should be organized and prioritized. These three types are:

- ***Technical Evaluation Criteria based on planning and engineering judgment and estimates of probable cost.*** The candidate projects were evaluated based on how well they responded to project goals, a layer of analysis that involves the use of spatial data and analysis to understand community and environmental impact as well a project's contribution to connectivity and mode choice opportunities in the overall Fayette County transportation system. These evaluation criteria also considered estimates of probable project cost developed using methodology and assumptions consistent with the ARC cost estimating tool, weighing a project's cost against its likely benefits.
- ***Technical evaluation criteria derived from the ARC regional travel demand model.*** Because Fayette Forward serves a role of contributing to future long-range transportation plans, it must determine conventional measures of effectiveness that are consistent with ARC's evaluation methods. This is largely accomplished via modeling future scenarios using the ARC's regional travel demand model and includes parameters such as volume to capacity ratio and travel time estimates.

- ***Assessment of community need and preference.*** Certain projects that appeared desirable or practical solely on technical merits remained unpopular, especially with the public or elected officials. While the application of these criteria do not follow a technical basis, they nonetheless represent a critical means of achieving community consensus on the priorities that project implementation would follow for Fayette Forward.

It is important to remember that during the course of the Fayette Forward planning process, the County continued to implement previously-identified projects from the 2003 Transportation Plan, thus obviating the need to evaluate these as projects to be implemented under the auspices of Fayette Forward. As a result, some projects described in Chapter 4 will not appear in a final list; their removal from the evaluation process by virtue of their being implemented is noted in the final project priority list that accompanies Chapter 6.

5.1 **Technical Evaluation Criteria**

The primary means of selecting and prioritizing projects for future implementation was based on a series of evaluation metrics that applied spatial analysis, travel demand model analysis, and technical and engineering judgment to determine how projects responded to the Fayette Forward community goals discussed in Chapters 2 and 3. Each of these metrics was used to identify a particular planning concern and to expand the general desires of each goal into a comprehensive array of topics for which the goal should be considered.

In general, evaluation on these criteria was based on a numeric score, assigning higher scores to projects that showed superior performance in a given metric. These different scores were aggregated into a composite score that allowed all projects to be ranked for an understanding of relative performance *on a technical basis*. As described in later sections of this chapter, these scores were simply the foundation for final prioritization, and were subject to review and reconsideration during the evaluation process. The scores by themselves did not indicate final prioritization, and as a result they do not appear in the final list of recommended project implementation.

The following subsections detail each of the goals and the technical metrics that supported them.

5.1.1 Goal 1 - Safe and Balanced Transportation Choices

This goal, as explained in Chapter 2, articulates a desire for a broader range of travel options in Fayette County and for residents, workers and visitors to feel that their system is responsive and accommodating to all users.

Metric 1.1 - Modal Options. This metric sought to score projects based on connectivity to other modes of travel and the increased options the proposed project offered. Projects were scored well if they were connected to an existing street network, if they facilitated bicycle, pedestrian and transit use, and if they enhanced the multi-modal potential of existing streets and roads. Projects that were scored poorly were those that did not promote a balance or were envisioned in concept to exclude certain travel modes (such as highway projects that would not offer sidewalks).

Metric 1.2 - Operational Safety. This metric used the number of accidents and accident rates (where available) as an indicator of safety deficiencies in the transportation system. GDOT and Fayette County accident data were used and adjusted for volume exposure. High crash rates and high concentrations of crashes overall identified problematic locations, and further review of accident causes helped to suggest a treatment to mitigate safety problems. Project candidates that offered high potential to mitigate these problems were given high scores.

Metric 1.3 - Design Issues. Projects were evaluated based on how they address critical design issues that have led to safety or traffic congestion problems. This includes roadway design characteristics such as narrow shoulders, unsafe curves or limited sight distance; it also includes insufficient roadway capacity (especially for turning movements) that has caused inefficiency and congestion.

Metric 1.4 - Reduction of Travel Time Index from baseline. This metric is derived from the regional travel demand model and seeks to recognize transportation system improvements that reduce roadway congestion, or that offer travel less likely to be in congested conditions.

Metric 1.5 - Qualitative assessment of parallel relievers available to drivers. This metric analyzed a project's context in the roadway network, giving a higher score to projects that begin to establish key network connections (namely, where parallel connections do not exist and where such connections could benefit the overall transportation system).

Metric 1.6 - Connectivity Index. This metric qualitatively assessed projects for the general connectivity to other roadways and bicycle facilities to promote vehicle travel alternatives and better bicycling and pedestrian opportunities. It pertained more to developed areas of the County and gave the highest scores to those projects that sought to increase connectivity appropriate to the scale and character of surrounding development.

Metric 1.7 - Potential to reduce car trips. Even though most candidate projects were vehicle-based street projects, those that helped to connect existing complementary land uses, especially in the more developed cities and towns of Fayette County, received high scores. Those projects receiving lower scores were those that added capacity to existing roads.

5.1.2 Goal 2 - Support Vision for Positive Growth

Fayette County citizens are familiar with the effects of rapid growth, citing traffic congestion, increased commercial development and loss of open space as characteristics of the Atlanta region's growth that they wish to avoid. This goal expresses a desire to ensure that growth can be appropriately accommodated by infrastructure and that the needs of the community do not necessitate actions or solutions that are directly counter to the County's desired future.

Metric 2.1 - Volume-to-Capacity. This metric calculated the volume of the existing roadway relative to capacity and used the information to identify areas of deficiency. Projects were awarded a higher score if they were designed to lower volume-to-capacity ratios that were significantly high.

Metric 2.2 - Truck traffic. This measured a project's ability to facilitate truck traffic along a corridor, giving higher scores to projects whose roadway design characteristics would support the movement of trucks.

Metric 2.3 - Appropriateness to density. Pertaining primarily to new roads, this indicator measured existing or proposed land use density and assessed whether proposed street network density corresponds. It was intended mainly to highlight projects that add fine-grain street network in more densely developed parts of the County (especially the cities).

Metric 2.4 - Review planned future densities around transit projects. Even during the development of candidate projects during the March 2009 design workshop, the Fayette Forward project team began to understand that the only true capital project for transit was a rail station to serve potential commuter rail operations from Peachtree City. In addition, certain express bus corridors that were also included in the Transit Planning Board's Concept 3 plan were evaluated. Thus, this metric only applied to these projects.

Metric 2.5 - Projected transit ridership based on location. As with Metric 2.4, this project applied only to the one candidate for a transit capital project (the Peachtree City commuter rail station) and for operationally-based projects such as express bus. It used the regional travel demand model to calculate ridership estimates.

Metric 2.6 - Congestion measures. This evaluated link-based daily congested hours, total vehicle delay, free-flow travel time and congested travel time on 2030 loaded networks and compared them to comparable volumes with no roadway improvement. Because this metric is derived from the regional travel demand model, it did not apply to intersections or small roadway projects whose functional classification precludes their ability to be coded in the model. Higher scores were given to those candidates that saw a general reduction in congestion and congestion-related vehicle delay.

5.1.3 Goal 3 - Maintain Fiscal Sustainability

One of the major objectives of the County and its residents is to provide services at the greatest possible value, meaning that funds spent on transportation infrastructure projects should be commensurate with the benefit they provide to the County, and that projects that are developed today can be maintained with available resources into the future.

Metric 3.1 - Funding Opportunities. This metric evaluated the potential to obtain funding from regional, state or federal sources, giving higher scores to those projects that would be eligible for a greater number of sources.

Metric 3.2 - Cost Outlay vs. Growth in Revenue Potential. This metric assessed capital costs of a project versus a qualitative assessment of the millage received from development activities pursuant to planned future land uses. The intent of this criterion was to recognize and reward candidate projects that represented a completion of the transportation system in order to more fully realize potential land use as governed by future land use policies of Fayette County and its municipalities.

Projects that added potential access to areas that could not sustain new development under land use policies were not given scores as high, as their associated capital costs were not seen to be offset by a potential increase in property tax revenue.

Metric 3.3 - Achievability through Local Funding. This metric assigned a score based on projects that may be implemented using available and local funding options only. A high score in Metric 3.3 does not necessarily mean that a project would receive a low score under Metric 3.1, or vice versa. This simply points out projects that, while eligible for funding from other sources, are of a scale that the County could fund itself.

Metric 3.4 - Transit operations cost. Applying only to transit projects, this metric sought to quantify 2008 annual operations and maintenance cost per technology and operations and maintenance cost per rider.

Metric 3.5 - Transit's effects on region-wide transit use. Applying only to transit projects, this metric sought to qualitatively assess transit ridership increases on remainder of regional transit systems with given improvement based on the regional travel demand model.

5.1.4 Goal 4 - Preserve Rural Character

As discussed in many instances throughout this plan report, Fayette County citizens expressed that the county's rural look and feel was one of its most valued characteristics, and they wished to retain this as much as possible through any public infrastructure investment. These metrics are intended to identify technical indicators that can be used to determine how well a candidate project responded to this wish.

Metric 4.1 - Air Quality. This is derived from the travel demand model and links air quality impacts to increased delay. Projects that could be recognized by the model were given higher scores for reductions in delay.

Metric 4.2 - Noise and light impacts. This metric used a qualitative correlation between increased traffic volumes and noise, and between larger roadways and the light pollution that would result from roadway lighting. Projects receiving higher scores were those where overall volumes were not projected to increase from implementing the project.

Metric 4.3 - Rural Roadway Design Potential. This metric recognized potential for cross-section to preserve or enhance rural character based on design elements

Metric 4.4 - Potential VMT reduction. This metric score projects based on vehicle miles traveled (VMT) reduction from their baseline, recognizing that much of the traffic on Fayette roads is due to limitations in the existing roadway network. Higher scores were given for higher reduction.

Metric 4.5 - Water Quality. This sought to identify whether or not a proposed project would improve or adversely impact water quality.

Metric 4.6 - Historic or Cultural Impact. This metric sought to recognize where projects may have an impact on historic sites, especially structures and cemeteries, and scored projects based on their proximity to these sites. It used a GIS-based buffer analysis of historic structures and potential impacts given the improvement being proposed.

5.1.5 Goal 5 - Desirable Places for All Citizens and Stages of Life

Fayette County's population reflects more than its perceived status as a bedroom community for working households: it also reflects the extent to which these households are families through a large number of children, and it reflects the appeal the county has for retirees as a community of relaxed pace and outstanding natural amenities. This suggests that the County's transportation system must accommodate these different groups.

Metric 5.1 - Place-making potential. This metric comprised a qualitative assessment of the extent to which the proposed improvement would create a public space, based on the notion that transportation infrastructure can also function as a community amenity (especially in traditional town-center environments).

Metric 5.2 - Service of Special Needs Populations (school age and elderly populations). This metric is intended to recognize projects that serve Fayette County's elderly and its children, particularly on the basis of these populations not wanting or not being able to drive. Several of the County's schools are located in areas that could feasibly be walkable; transportation projects that contribute to this walkability, including reconfigurations of intersections to improve pedestrian safety, thus received high scores. High scores were also given to projects that contributed to street network and a more connected transportation system in traditional town centers, as these are likely to be places where elderly residents in Fayette County's future will have the best access to commercial and recreational destinations.

Metric 5.3 - Access to parks and community facilities. Direct access to recreational facilities, intended to enhance quality of life, was measured by 1/4-mile buffer around the candidate project; higher scores were awarded for projects within a 1/4-mile distance as this represents a comfortable walking or bicycling distance.

As mentioned in the descriptions, certain of these metrics were determined from using the regional travel demand model to gauge performance of a particular project. This only applied to projects that could be coded into the model per its roadway classification requirements, but nonetheless several measurements for roadway projects relied on it to estimate a project's effects on the transportation system.

To calculate these metrics, the project team worked extensively with the ARC's travel demand model, first validating it to correspond more closely to actual counts and projections for Fayette County's population and employment growth and then coding new projects into the model in a way that would allow it to 'test' their performance in a future scenario. The different steps involving the model are described in the following sections.

5.2 **Travel Demand Model Enhancement and Validation**

The ARC travel demand model in its initial form reflected a series of projections and assumptions made for the entire region. To more closely align these assumptions with a policy-based understanding of Fayette County's planned growth and development, the Fayette Forward team completed several steps of model enhancement to revise these input projections and tailor them to the County's non-transportation planning expectations, such as the future growth and development patterns expected from current land use policies. The enhanced travel demand model served as an important tool during the analysis of potential Fayette County transportation system improvements.

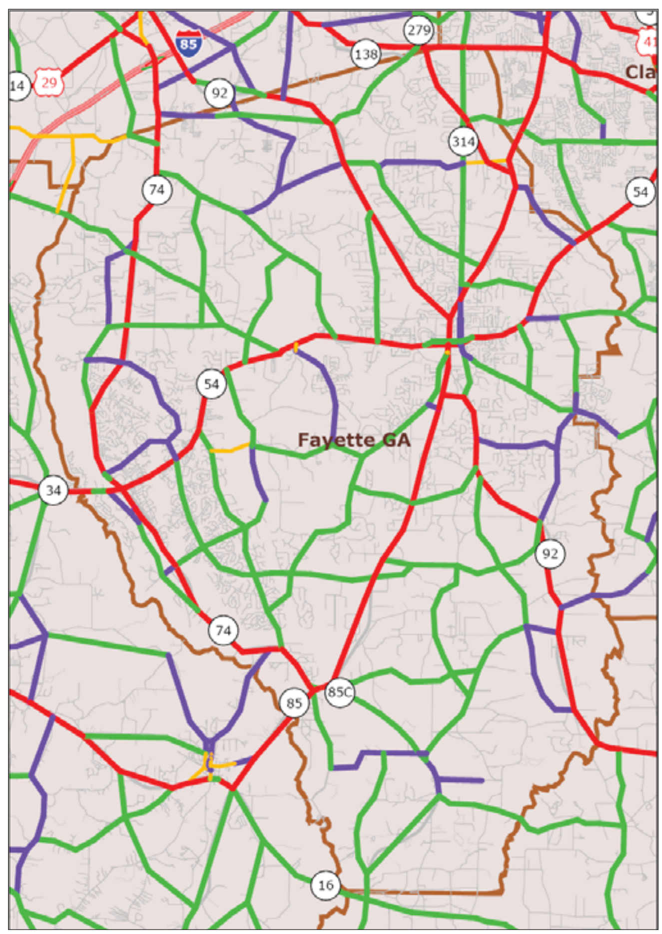
Model adaptation and validation steps are closely inter-linked during the model enhancement process, so they are presented together in the discussion below. To better explain how these changes to the model were carried out by the Fayette Forward team, the enhancement and validation work is described in the following sections in terms of roadway functional classification, refinement of the model's traffic analysis zones, and validation of roadway links against real-world traffic volumes.

5.2.1 Classification of Roadway Network

Before applying the ARC model to evaluate transportation in Fayette County, the Fayette Forward team conducted a review of the model's representation of the roadway network in Fayette. We began this review process by evaluating the facility type classification of ARC model network links. In the ARC model, a link's facility type and the surrounding area type determine its capacity and free-flow speed. The project team reviewed ARC's facility type classification and compared it against the Georgia Department of Transportation (GDOT) functional classification, the functional classification specified in the proprietary Navteq street and road database that is increasingly used in ARC planning applications, and a visual assessment of the characteristics of the roadways and surrounding areas (as determined from aerial photographs). For presentation consistency, the ARC highway network is color-coded in Figure 5.2.1A using the

Figure 5.2.1A to the right displays the current ARC functional classification system.

FIGURE 5.2.1A - ARC Functional Classification



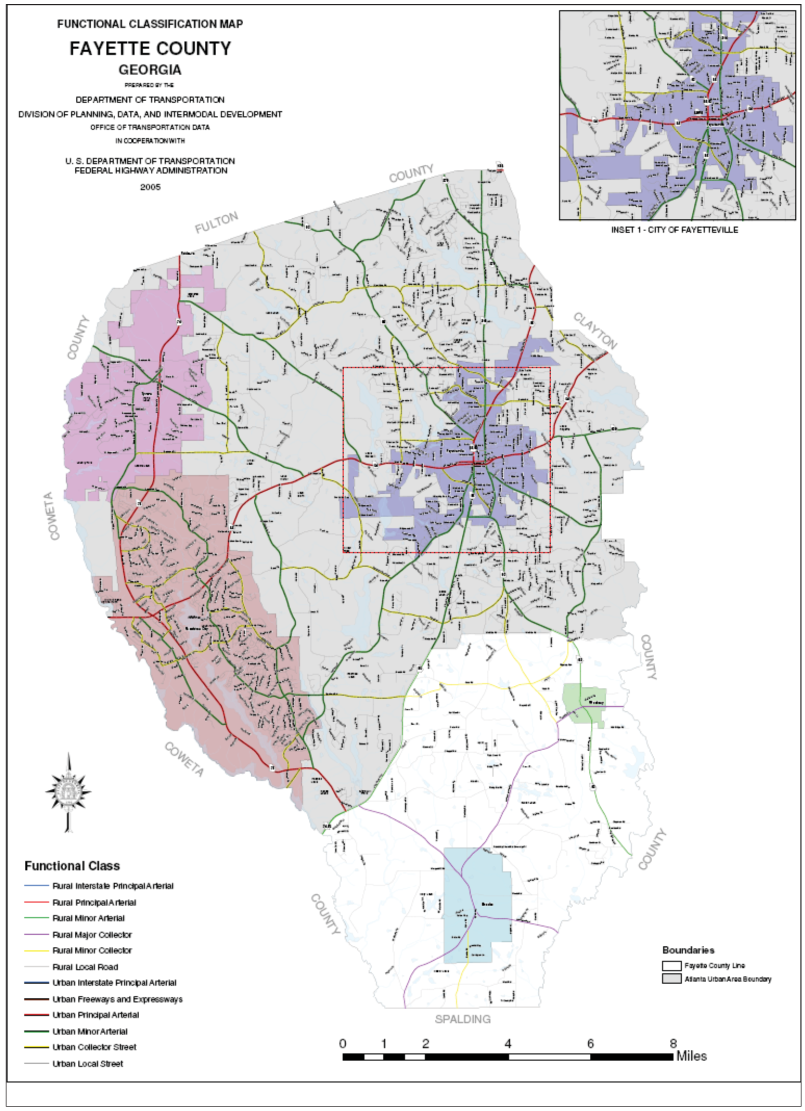
LEGEND

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

same color scheme used by the GDOT functional classification maps. For ease of comparison, Figure 5.2.1B displays the GDOT Functional Classification map for Fayette County.

Through the team's review, we identified 30 roadways which had different functional classifications between those used in the ARC model and those used by GDOT; these are presented in Table 5.2.1A on the next page. The team used Navteq information and aerial photography to carry out a detailed examination of roadway and surrounding area characteristics of these 30 facilities to resolve the discrepancies. Based on these observations, the team concluded that the ARC classification was more appropriate in 12 cases and the GDOT classification more appropriate in the other 18. Accordingly, we adjusted the ARC model facility type of the last 18 rows, as indicated in Table 5.2.1B (beginning on the opposite page).

FIGURE 5.2.1B - GDOT Functional Classification



5.2.2 Network Zone Refinement

The team also explored subdividing (or splitting) a number of ARC model traffic analysis zones (TAZ) in Fayette County. TAZs are geographic units for enumeration of residential population and employment that form the basis of how the travel demand model calculates expected traffic and distributes this traffic along the roadway network. Refining the existing ARC model TAZ structure by zone splitting has the potential to improve the model validation and to enhance its ability to represent significant existing or planned variations in land use characteristics. This technique must be used appropriately: excessive splitting would invalidate the basic model relationships that the travel forecasts rely on, so the number of zones to split must be limited.

Upon review of the TAZs utilized in the ARC travel demand model, the Fayette Forward team identified six (6) existing model zones as possible candidates for splitting. The team tested the impact of these splits and their effects on model validation, decided to split them all, and thus created six (6) new TAZs in the process. Figure 5.2.2 displays the subdivided TAZs in dark shading. In general, the boundaries of the TAZ splits were selected so that different land use activities were isolated in each new TAZ. For example, one TAZ was split

TABLE 5.2.1A Recommended Changes to Travel Demand Model Classification

Road Name	Extents		Original Model Classification	GDOT Classification	Navteq Classification	Final Recommendation
	To	From				
Crosstown Rd	SR 74	Robinson Road	Minor Arterial	Minor Collector	Minor Arterial	Minor Arterial
SR 85c	SR 85	Brooks-Woolsey Rd	Minor Arterial	Major Collector	Minor Arterial	Minor Arterial
SR 85c	Fayette-Spalding County Line	Mcintosh Rd	Minor Arterial	Major Collector	Minor Arterial	Minor Arterial
West Macintosh Rd	Fayette-Spalding County Line	SR 85c	Minor Arterial	Major Collector	Minor Arterial	Minor Arterial
SR 54 (East Lanier Ave)	SR 54 Couplet Split (West)	SR 54 Couplet Split (East)	Minor Arterial	Principal Arterial	Minor Arterial	Minor Arterial
Goza Rd	SR 85	SR 92	Minor Arterial	Minor Collector	Minor Arterial	Minor Arterial
Antioch Rd	Brooks-Woolsey Rd	SR 92	Minor Arterial	Minor Collector	Minor Arterial	Minor Arterial
Crabapple Lane	Senoia Rd	SR 74	Major Collector	Minor Arterial	Major Collector	Major Collector
Huddleston Rd	SR 54	Paschall Rd	Major Collector	Minor Arterial	Major Collector	Major Collector
TDK Blvd	Dividend Drive	SR 74	Major Collector	Minor Collector	Major Collector	Major Collector
Paschall Rd	Huddleston Rd	SR 74	Major Collector	Minor Collector	Major Collector	Major Collector
Spear Rd	Robinson Rd	Ebenezer Rd	Minor Collector	Not Classified	Minor Collector	Minor Collector
Woolsey Brooks Rd	SR 85c	Antioch Rd	Minor Arterial	Major Collector	Major Collector	Major Collector
New Hope Rd	Kenwood Rd	SR 85	Minor Arterial	Minor Collector	Minor Collector	Major Collector
Banks Rd	SR 314	SR 54	Minor Arterial	Minor Collector	Major Collector	Major Collector
Ebenezer Church Rd	Ebenezer Rd	Redwine Rd	Minor Arterial	Minor Collector	Major Collector	Major Collector
Bernhard Rd	Redwine Rd	Goza Rd	Minor Arterial	Minor Collector	Minor Collector	Major Collector
S. Peachtree Pkwy	Robinson Rd	Redwine Rd	Minor Arterial	Minor Collector	Minor Collector	Major Collector
Harp Rd	Redwine Rd	SR 92	Minor Arterial	Minor Collector	Major Collector	Major Collector
Dogwood Trail	Senoia Rd	Tyrone Rd	Minor Arterial	Minor Collector	Major Collector	Major Collector
SR 314	Banks Rd	SR 85	Major Collector	Minor Arterial	Minor Arterial	Minor Arterial
N. Jeff Davis Drive	Banks Rd	SR 54	Major Collector	Minor Arterial	Minor Arterial	Minor Arterial
Peachtree Pkwy	SR 74	Flat Creek Rd	Major Collector	Minor Arterial	Minor Arterial	Minor Arterial
Peachtree Pkwy	Flat Creek Rd	SR 54	Major Collector	Minor Arterial	Minor Arterial	Minor Arterial
Inman Rd	SR 92	S. Jeff Davis Dr	Major Collector	Minor Arterial	Minor Arterial	Minor Arterial
McDonough Rd	SR 54	County Line Rd	Major Collector	Minor Arterial	Minor Arterial	Minor Arterial
Senoia Rd	SR 74	Dogwood Trail	Major Collector	Minor Arterial	Minor Arterial	Minor Arterial
SR 92 (Forrest Ave)	Fayette-Fulton County Line	SR 85	Principal Arterial	Minor Arterial	Minor Arterial	Minor Arterial
SR 279	SR 138	SR 85	Principal Arterial	Minor Arterial	Minor Arterial	Minor Arterial
SR 74 (Joel Cowan Pkwy)	Aberdeen Pkwy	SR 54	Minor Arterial	Principal Arterial	Principal Arterial	Principal Arterial

into eastern and western portions that separated the residential concentration in the east from the industrial concentration in the west.

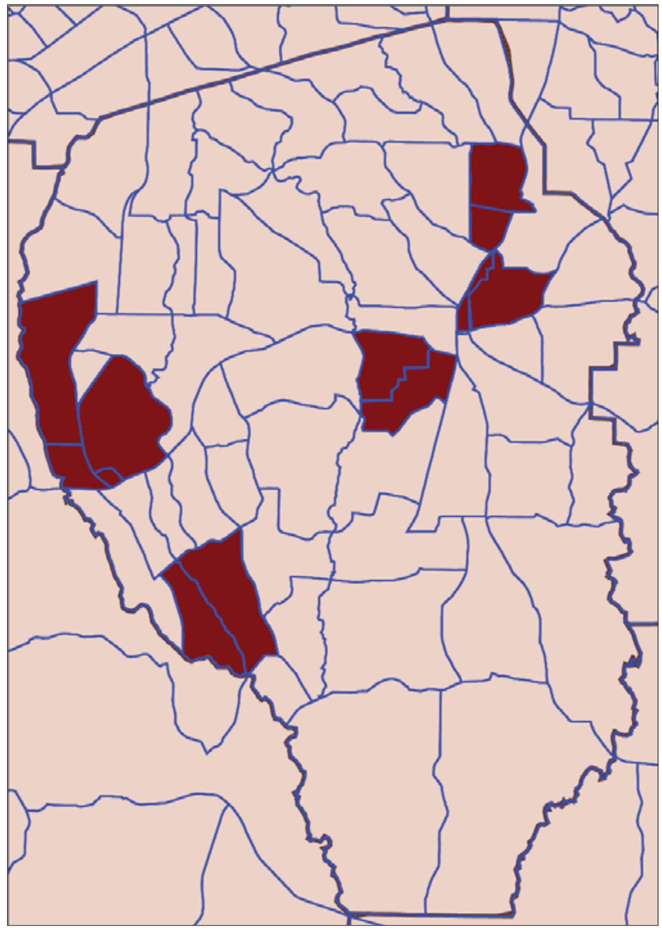
To accommodate the modified TAZ structure, it was necessary to update a number of ARC model input and parameter files, as follows:

Modifications to the highway network

- The project team added centroids with connectors for the new TAZ, and re-coded centroid connectors for the split TAZ;
- The project team added new highway links to provide better access to major roads from the new TAZ and to serve as TAZ boundaries
- The project team increased the numbering of all external TAZ by 6 to ensure that all the internal TAZ (including the new ones) are numbered before the external TAZ;

Modifications to socioeconomic data: Splits of population, employment, and household values between the portions of the split TAZ.

FIGURE 5.2.2 - TAZs for Modification



Other files: Adjustments made as required to support the updated TAZ numbering.

5.2.3 Socioeconomic Data Adjustment

In addition to the refinement of TAZ definition and roadway links, the Fayette Forward team also modified the socioeconomic data that drives the model's calculation of trip generation and distribution onto the roadway network. Based on Fayette County's future land use plan, the County does not expect to grow significantly in its southern portion, with development occurring primarily only on large sites that can be subdivided into smaller properties. Peachtree City is largely built according to its master plan, with only newly annexed portions of the City still having room for development. With these conditions in mind, the study team developed a likely buildout scenario for the County and its municipalities and translated it into residential population, households and employment, the three primary demographic indicators that the regional travel demand model uses as a basis for trip generation and attraction to and from each TAZ.

This process followed four principal steps:

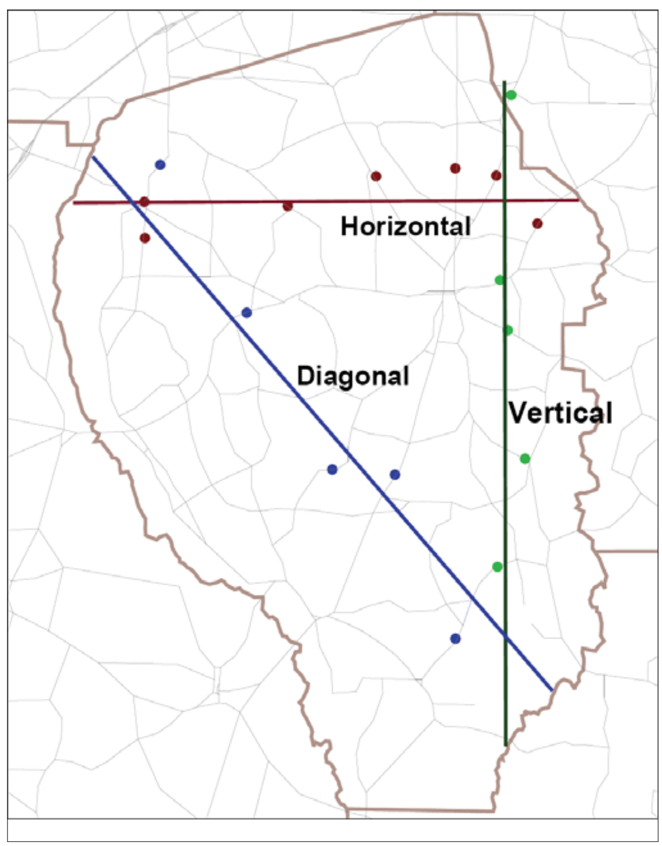
1. The planning team reviewed the County's current zoning and future land use plans and developed a series of potential intensities for each TAZ.
2. Using existing land use data, the team estimated currently built or entitled development in these TAZs and subtracted this from the buildout amount.
3. The difference between existing development and potential development was added to ARC's current year (2005) TAZ data to form a new 2030 socioeconomic dataset for Fayette County TAZs.
4. The overall (countywide) difference between ARC's pre-existing 2030 socioeconomic projections from the regional travel demand model and those calculated in Steps 1, 2 and 3 was transferred to other parts of the Atlanta region to maintain integrity of the travel demand model.

Modifying the socioeconomic data used for the travel demand model-based projections and analysis allowed the planning team to have greater confidence that the model would reflect the conditions forecast in Fayette County's past land use planning efforts. Based on this exercise, the predicted County population in 2030 is approximately 140,000, or approximately 19,000 fewer residents than projected under ARC's pre-existing socioeconomic data.

5.2.4 Model Validation

After updating highway network link attributes and splitting selected TAZs, the Fayette Forward team conducted a validation analysis. The purpose of the validation is to verify that the travel demand model reflects actual traffic conditions in the County. The traditional approach of application of the model after validation is for the base year of travel demand models to be validated against actual traffic data, and then the future year models are used for analysis. One common alternate approach is to apply *post-process factoring*. This factoring method identifies the absolute and percentage-based differences between base year forecasts and actual traffic, develops adjustment factors to align the forecasts with the actual traffic, and then applies the adjustment factors to future year forecasts. A weakness of this alternate approach is that the future year forecasts developed with the factoring do not ultimately respect capacity constraints, and thus, this type of adjustment is not part of the preferred ARC travel demand forecasting approach. Rather, the preference with the ARC model is to fine-tune the model so that the forecasts reflect actual con-

FIGURE 5.2.4 Screenline Locations



ditions without requiring post-processing adjustments. This is the approach the project team took, with the model adaptations described above used to fine-tune the ARC model.

Because it is impractical to expect regional travel demand models to match actual traffic levels for individual links, it is common to perform the comparison of forecasted traffic to actual traffic at the “screenline” level. For this validation analysis, the project team therefore compared the total daily volumes forecast for three major screenlines, using the unmodified ARC model’s forecasts and the updated model’s forecasts against the observed 2005 GDOT traffic count volumes passing through these screenlines. This comparison involved identifying the model network link that corresponded to the GDOT traffic count location and extracting the traffic volumes for that link. Figure 5.2.4 displays the location of the three screenlines used.

Table 5.2.4A displays the results of the screenline analysis results, displaying the observed traffic counts and forecast daily volumes for each screenline, as well as showing the percentage differences relative to the traffic counts. Overall, the adaptations to the model enhance its accuracy compared to the unmodified model, with all three screenlines having an absolute difference of less than 10 percent from the actual traffic levels. These percentage differences are well below the 25 percent maximum desirable deviation in screenline volumes recommended in federal guidance on travel demand model application for validating forecasts of screenlines with total traffic counts.

One factor that is important to understand about the adjustments presented in Table 5.2.4A is that they apply to the entire screenline at once. The 2005 traffic count volumes are the sum of all volumes on links that intersect with the screenline. Likewise, the daily volumes for each of the two iterations of the travel demand model represent the sum of all values for the screenline.

Table 5.2.4A: Screenline Validation Results

Screenline	2005 Traffic Count Volumes	Unmodified ARC Model, 2005		Updated Model, 2005	
		Daily Volume	% Difference	Daily Volume	% Difference
Horizontal Line	106,870	97,205	-9%	112,615	5%
Vertical Line	72,010	81,539	13%	77,311	7%
Diagonal Line	75,570	72,402	-4%	71,213	-6%

To better understand the effects of the functional classification changes made at a disaggregated level, the Fayette Forward team conducted a traffic review of the modified roads for which GDOT had corresponding traffic counts. Table 5.2.4B presents the comparison of the GDOT 2005 annualized average daily traffic (AADT) volumes to the model volumes, both before and after the recommended functional classification modifications. For eight of the twelve locations, the updated model’s forecast was closer to actual counts, while for the other four locations the forecasts were slightly less accurate. This emphasizes further that the adjustments made helped improve the forecast accuracy in Fayette County.

Table 5.2.4B: Facility Type Change Validation Results

Road Name	Extents		Classification		Traffic Count	Unmodified ARC Model	Updated Model
	To	From	Original Model	Final Recommendation			
Woolsey-Brooks Rd	SR 85c	Antioch Rd	Minor Arterial	Major Collector	1,990	2,932	3,035
New Hope Rd	Kenwood	SR 85	Minor Arterial	Major Collector	6,170	990	2,351
Bernhard Rd	Robinson Rd	Goza Rd	Minor Arterial	Major Collector	13,710	9,925	9,566
Harp Rd	Redwine Rd	SR 92	Minor Arterial	Major Collector	15,040	11,132	10,362
SR 314	Banks Rd	SR 85	Major Collector	Minor Arterial	19,340	9,191	12,088
N. Jeff Davis Drive	Banks Rd	SR 54	Major Collector	Minor Arterial	17,340	12,113	15,475
Peachtree Pkwy	SR 74	Flat Creek Rd	Major Collector	Minor Arterial	9,370	3,632	5,170
McDonough Rd	SR 54	County Line Rd	Major Collector	Minor Arterial	13,160	13,874	13,866
Senoia Rd	South of SR 74	Dogwood Trail	Major Collector	Minor Arterial	4,120	3,333	3,476
SR 92 (Forrest Ave)	Fayette Limits	SR 85	Principal Arterial	Minor Arterial	7,190	8,173	8,287
SR 279	SR 138	SR 85	Principal Arterial	Minor Arterial	17,970	22,869	18,870
SR 54 (W. Lanier Ave)	Fayette Limits	SR 74	Minor Arterial	Principal Arterial	25,610	33,789	32,232

5.3 **Evaluation Using the Travel Demand Model**

With the travel demand model adjusted and validated to more closely reflect actual traffic conditions, the team began to use the model to evaluate candidate projects. This involved modifying the model's construction in its software platform to include new projects (or code these projects into the model), assigning each of them physical characteristics.

5.3.1 Grouping Candidates into Model Scenarios

In order to complete the Fayette Forward process within a reasonable time frame and to make most efficient use of planning resources, it was not practical to evaluate each individual candidate project in the context of the regional travel demand model. Instead, the Fayette Forward project team used four scenarios, each comprising a particular point in time and set of travel and infrastructure assumptions to evaluate the effectiveness of projects. These scenarios proposed different possible futures based on different directions the County could follow in order to evaluate the impact of different transportation and land use alternatives on the Fayette transportation system. Travel modeling activities performed in this phase used the Atlanta Regional Commission (ARC) 20-county travel forecasting model system that was adapted to conditions in Fayette County per the description in Section 5.2.

The *existing and committed* (E+C) network served as the basis for the project team's analysis. It included the existing highway and transit network for Fayette County along with all committed future projects, or those in advanced stages of implementation or with committed resources for design and construction. The only assumed committed projects in Fayette County are McDuff Parkway, a connection from State Route 74 to State Route 54 which is to be built largely by private development, and the first two phases of the West Fayetteville Parkway. Phase I is an extension from Lester Road to Sandy Creek Road and Phase II is a continuation from Sandy Creek Road to State Route 92.

The project team conducted the analysis by evaluating the following four model scenarios:

> ***Scenario 1*** – the E+C network with the official 2030 ARC socioeconomic input data used as the land use input to the model.
>
> ***Scenario 2*** – the E+C network with a modified set of socioeconomic values used as the land use input to the model. This modified set of 2030 socioeconomic input data (see Section 5.2.3), which we refer to as Fayette County socioeconomic input data, were established by the project team to reflect Fayette County's view of future land use activity in Fayette.
>
> ***Scenario 3*** – is designed to improve Fayette County performance by including a less intrusive set of highway projects called "Tread Lightly" added to the E+C network and the application of Concept 3 transit projects in Fayette County, along with the 2030 Fayette County socioeconomic values. Transit projects were added to this scenario to evaluate their performance and assess feasibility using formal ARC-based modeling criteria and methods. This scenario is based on a potential political direction that Fayette County could choose to use its transportation resources on smaller roadway and multi-modal projects.

Scenario 4 – is designed to improve Fayette County performance by including a maximum capacity set of projects, called "Heavy Build", added to the E+C network, along with the 2030 Fayette County socioeconomic values. This scenario is based on an alternative political emphasis on using the County's transportation resources for projects more oriented to roadway capacity.

Beyond Fayette County, the project team assumed that the rest of the ARC region adds transportation infrastructure as planned in the RTP. Accordingly, the team developed its E+C network by beginning with the ARC 2030 highway and transit networks. They then compared the 2030 networks to the official ARC E+C network and identified the differences between these networks within Fayette County. The team then adjusted the Fayette County portion of the 2030 network so that it was consistent with the Fayette portion of the official ARC E+C network, using the resulting combined network as this study's E+C Network.

5.3.2 Project Coding in the Travel Demand Model

The transportation system improvements included in the scenarios were primarily made to the highway network. In all, the Fayette Forward team analyzed a total of 41 highway projects, in addition to an extension of the commuter rail into Fayette. The highway projects under evaluation were identified as belonging to one of three major project types: Roadway Widening (RW), New Street (NS and NW), and Operational (OP). Table 5.3.2A provides a description of each type of project. Because of its configuration and the parameters it uses for gauging travel demand, the ARC model cannot accurately estimate effects for bicycle and pedestrian projects. For these reasons, these types of projects could not be included in the travel demand model-based analysis.

Table 5.3.2A Highway Network Project Types Descriptions

Project Type	*Description of Highway Network Coding*
Roadway Widening	Capacity addition represented by increasing the number of lanes
New Street	New streets, street extensions and new street connections (mostly from redevelopment) represented by new links added to the network
Operational	Intersection redesign and new traffic signals represented by improving the street's facility type

Projects of these types were added to the E+C Network to form Scenarios 3 and 4. Table 5.3.2B lists the projects and the scenarios in which they were included. As its 'Tread Lightly' name implies, Scenario 3 contains fewer large construction projects of the Roadway Widening and New Street type and instead emphasizes more small-scale operational improvements. These are the types of project candidates described in Chapter 4. It also includes the extension of the proposed Concept 3 Atlanta-Senoia commuter rail line to include two stops in western Fayette County (one at Peachtree City and another at Tyrone) and to terminate at Senoia. Scenario 4's 'Heavy Build' option consists of a number of Roadway Widening and New Street projects. This scenario examines the maximum build-out situation which are accompanied by higher costs associated with these types of projects.

Table 5.3.2B List of Highway Projects Included in Scenarios 3 and 4

Project ID	Project Name	Project Limits		In Scenario 3	In Scenario 4
		Start	Finish		
IR-001	Corinth Road/SR 85	-	-	X	X
IR-002	Corinth Road/SR 54	-	-	X	X
IR-008	Antioch Rd/ SR 92/ Seay Rd/ Harp Rd	-	-	X	X
IR-022	SR 54/SR 74	-	-	X	X
NW-011	Sandy Creek Rd Extension	SR 74	Palmetto Rd	X	X
NW-020	McDonough Rd- Banks Rd Connector	SR 54	Banks Rd	X	X
OP-010	Kenwood Operational Corridor	SR 279	New Hope Rd	X	
OP-011	New Hope Operational Corridor	Kenwood Rd	SR 92	X	
OP-012	Lee's Mill Operational Corridor	SR 92	West Fayetteville Bypass	X	
OP-004	Brooks-Woolsey Rd	SR 85c	Antioch Rd	X	
OP-005	Goza Rd	SR 85	SR 92	X	
OP-006	Antioch Rd	Woolsey-Brooks Rd	SR 92	X	
OP-007	Tyrone Rd	SR 54	SR 74	X	
IR-004	Bernhard Rd/SR 85	-	-	X	
IS-003	Harp Rd/SR 85	-	-	X	
IR-005	Harp Rd/SR 85	-	-	X	
OP-009	Tyrone-Palmetto Rd	SR 74	Coweta County Line	X	
OP-013	SR 85 Operational Improvements	Harp Rd	Bernhard Rd	X	
IR-032	Ebenezer Rd @ Spears Rd	-	-	X	
IR-006	Ebenezer Rd/SR 54	-	-	X	
IS-005	Gingercake Rd/SR 92	-	-	X	
IR-021	SR 54/Gingercake Rd	-	-	X	
IS-007	Peachtree Pkwy @ Crosstown Rd	-	-	X	
RC-001	SR 92	Mc Bride Rd	Jimmy Mayfield Dr.		X
IR-020	SR 85/Jeff Davis/SR 314	-	-		X

Table 5.3.2B List of Highway Projects Included in Scenarios 3 and 4 *(continued)*

Project ID	Project Name	Project Limits		In Scenario 3	In Scenario 4
		Start	Finish		
RC-002	SR 74 (Joel Cowan Pkwy)	SR 85	South of Crosstown Dr		X
RC-003	SR 85	SR 74 (Joel Cowan)	Bernhard Rd		X
RC-004	SR 85	Bernhard Rd	Grady Ave		X
RC-005	Crosstown Drive	SR 74 (Joel Cowan)	Peachtree Parkway		X
RC-006	SR 54 (Fayetteville Rd / Jonesboro Rd)	McDonough Rd	US 19/41 in Clayton County		X
RC-009	SR 920 (McDonough Rd)	SR 54 (Jonesboro Rd)	US 19/41 (Tara Blvd) in Clayton Co		X
RC-016	SR 279 Widening	SR 85	County Line		X
RC-017	SR 92 Widening (North)	SR 85	North of County Line		X
RC-018	Inman Rd Widening	Jeff Davis Dr.	SR 92		X
IR-025	Stonewall Ave/SR 85	-	-		X
NW-006	W. Fayetteville Bypass - Phase III	Lester Rd	Redwine Rd		X
NW-007	E. Fayetteville Bypass - Phase I	South Jeff Davis Dr.	SR 54		X
NW-008	E. Fayetteville Bypass - Phase II	SR 54	SR 85		X
RC-015	SR 20 Extension	US 41 (Hampton Rd)	SR 54 in Peachtree City		X

5.3.3 Performance Measures of Effectiveness

To gauge the transportation system performance, measures of effectiveness (MOEs) were computed at the levels of the Atlanta metropolitan region as a whole, the Fayette County study area, and the individual project corridors. While the specific MOEs used to evaluate the performance may vary by geographic levels, the basic performance measures were computed from outputs of the enhanced Fayette CTP travel demand forecasting model. Except for the transit-specific measure, all study area-level MOEs are calculated using only network links located within the study area. Further information on the transit-specific performance measure is included with the descriptions below.

At the regional and Fayette levels, the performance of the transportation system was evaluated with a set of MOEs that included the following:

- ***Vehicle Hours of Travel (VHT)*** – used as an indication of system travel efficiency and level of congestion.
- ***Regional Travel time index (TTI)*** – the ratio of forecasted travel times including congestion to free-flow travel times. ARC has designated TTI as one of its preferred MOEs.
- ***Annual Congestion Cost and Daily Delay Hours*** – measures of travel that indicate the degree of congestion present. Daily Delay indicates the amount of congestion in hours while Annual Congestion Cost converts the delay into monetary units. Because TTI (described above) is the ratio of congested travel time to free-flow travel time, Daily Delay can be thought of as a building block of TTI since it indicates the difference between congested and free-flow travel times.
- ***Annual Congestion Cost per Person*** – the total annual congestion cost divided by total population.
- ***Vehicle Miles of Travel (VMT)*** – used as a measure of utilization of roadway system denoting the level of travel consumption.
- ***Average Speed*** – the average speed on highway links computed by dividing VMT by VHT.
- ***Total Unlinked Transit Trips*** – the total number of transit boardings. A transit trip involving a single transfer counts as two unlinked trips. For the study area, this calculation includes all trips on transit routes that operate in or pass through the study area.

In order to evaluate the impact of a project on the specific corridor in which it is located, we defined and computed a number of corridor performance measures. The calculation of highway corridor performance measures required the identification of all highway network links contained in each corridor. Once all links belonging to each corridor were identified, we generated the following performance measures:

- ***PM peak period volume-to-capacity (V/C) ratio*** – used to provide an indication of the roadway's level of service during the hour-long peak travel period. V/C ratios for each link were combined together using a weighted average of VMT.
- ***PM peak period average volume*** – indicates the usage level of a corridor during the hour-long peak period, and is particularly beneficial in identifying when a scenario results in more or less corridor use. It is calculated by dividing the total corridor PM peak period VMT by the total corridor length.
- ***Daily average volume*** – indicates the usage level of a corridor throughout the day, and is a useful measure to indicate when a scenario results in more or less corridor use. It is calculated by dividing the total corridor VMT by the total corridor length.
- ***Daily Delay*** – a measure of travel under congested conditions, indicating the degree of congestion. Because TTI is a ratio of congested to free-flow travel times, Daily Delay can be considered a building block of TTI since it indicates the difference between congested and free-flow travel times.
- ***Travel Time Index (TTI)*** – a comparison between the forecasted travel conditions and free-flow conditions. The ARC has designated TTI as one of its preferred measures of effec-

tiveness, and therefore we review it at the corridor level in addition to at the county and regional levels. An increase in a corridor TTI does not necessarily indicate poor performance of a corridor project, since some improvements may improve free-flow travel speeds and attract more traffic, which may result in more delay and a higher TTI. Such a situation highlights the “network effects” of a transportation project, where corridor performance may appear worse but performance at the county or regional level may be improved due to the project.

- ***PM peak period average speed*** – used to indicate the average speed of travel during the peak period. The average speed is calculated by dividing the total corridor VMT by total corridor VHT for the PM peak period.
- ***Daily average speed*** – used to indicate the average speed of travel over the course of the day. The average speed is calculated by dividing the total daily corridor VMT by total daily corridor VHT.
- ***PM peak period corridor travel time*** – represents the average travel time of the entire corridor during the PM peak period.
- ***Daily corridor travel time*** – represents the average daily travel time of the entire corridor.

The above measures were calculated for the major corridors that included highway projects, and the changes in these measures between each scenario and Scenario 2 were used as an indication of the performance of the individual projects.

Delay is an important measurement of congestion. For this project we computed delay on the regional level, study area level, and project level. The typical calculation of delay by ARC model evaluation scripts is to subtract the free flow travel time from the congested travel time. However, for a number of roadway improvement projects we found that delay increased despite a decrease in total vehicle hours traveled (VHT). An example of this is shown below.

	Before Improvement	After Improvement
Free Flow Travel Time	5.0 min	4.0 min
Congested Travel Time	7.0 min	6.2 min
Delay	2.0 min	2.2 min

In this example, delay increases by 0.2 minutes, despite the actual travel time decreasing from 7 minutes to 6.2 minutes. These results give the appearance that the overall travel conditions on the example link are worsening while in reality link travel speed is improving.

To avoid this type of misrepresentation, we calculated the delay by subtracting the pre-improvement free flow travel time (rather than post-improvement free flow travel time) from the post-improvement congested travel time. This allows us to compare pre and post improvement congested conditions using the pre improvement free flow conditions as a common base.

For some projects this modified method of delay calculation results in a negative delay value, due to significant roadway improvements that cause the post-improvement congested travel time to be less than the pre-improvement free flow travel time. An example of this is shown below.

	Before Improvement	After Improvement
Free Flow Travel Time	5.0 min	4.0 min
Congested Travel Time	7.0 min	4.5 min

In this example, when we subtract the pre-improvement free flow travel time, 5 minutes, from the post-improvement congested travel time, 4.5 minutes, the resulting delay is -0.5 minutes, which is obviously misleading since delay cannot be negative. To mitigate this issue we set delay to zero in cases where the post-improvement congested travel time is less than the pre-improvement free flow travel time.

5.3.4 Scenario Performance

In this section, we present the year 2030 transportation system performance for the four scenarios, progressing through the geographic levels from the regional level to the individual project level. Table 5.3.4A displays the scenario performance at the regional level. When reviewing this table, it is important to consider certain scenario comparisons. The comparison between the results of Scenarios 1 and 2 provides an indication of the regional impact from the change in Fayette County socioeconomic forecasts. The table indicates that the Fayette County socioeconomic forecasts improve the regional performance with a decrease in delay and its associated congestion cost, and a slight increase in the average highway speed, all due primarily to the fact that revised socioeconomic data reflect a more modest growth in households, population and employment than that which the ARC model assumed prior to enhancement. Both Scenarios 3 and 4 should be compared to Scenario 2 since all scenarios with the exception of Scenario 1 use the same socioeconomic data. At the regional level, both Scenario 3 and 4 appear to experience a very slight deterioration in performance. However, the increases in VMT, VHT and delay are caused by the additional travel forecasted through the ARC regional model.

It is at the level of Fayette County itself that the aggregate impact of the transportation improvements is best assessed and that the general improvements of each scenario are best understood. Table 5.3.4B displays the transportation performance at the county level. Both Scenario 3 and Scenario 4 improve the study area level performance relative to Scenario 2. For example, Scenario 3 increases the average speed to 24.50 mph and Scenario 4 to 25.17 mph (from 24.17 mph in Scenario2). These minor changes in average speed may seem insignificant, but they can cause considerable delay when incorporating the volume of vehicles that experience the change in speed or the length of time that increased or decreased speeds are experienced. Scenario 3 and Scenario 4 also show a decrease in delay (from 16,081 hours in Scenario 2 to 15,573 hours in Scenario 3 and 12,190 hours in Scenario 4). Of these two scenarios, the impact of the Scenario 4 improvements is more pronounced as exhibited in the reduction of TTI from 1.20 in Scenario 2 to 1.15 in Scenario 4 (Scenario 3 reduced TTI to 1.19). The other measure that stands out on Table 4 is the large number of unlinked transit trips for

Scenario 3. The additional transit trips are a result of the commuter rail extension found only in scenario 3: the presence of new transit service will affect the application of trips to the transit mode in the model.

Table 5.3.4A: Regional (Entire Metro Area) Performance Measures, Year 2030 Scenarios

Performance Measure	*Scenario 1*	*Scenario 2*	*Scenario 3*	*Scenario 4*
VHT (hours)	8,885,199	8,876,152	8,910,803	8,924,136
Daily delay hours	2,149,126	2,140,223	2,168,082	2,173,350
Annual congestion cost	$16,203,296,063	$16,135,015,459	$16,344,233,408	$16,384,535,352
TTI	1.47	1.47	1.47	1.47
Annual congestion cost per person	$2,377	$2,367	$2,397	$2,403
VMT	213,560,496	213,493,122	213,780,859	214,010,707
Average Speed (mph)	24.04	24.05	23.99	23.98
Unlinked transit trips	717,950	717,413	719,551	716,336

Table 5.3.4B: Study Area (Fayette Only) Performance Measures, Year 2030 Scenarios

Performance Measure	*Scenario 1*	*Scenario 2*	*Scenario 3*	*Scenario 4*
VHT (hours)	157,833	144,687	144,681	144,219
Daily delay hours	19,320	16,081	15,573	12,190
Annual congestion cost	$145,089,551	$120,937,520	$117,080,349	$91,697,631
TTI	1.22	1.20	1.19	1.14
Annual congestion cost per person	$948	$914	$885	$693
VMT	3,708,541	3,496,806	3,545,193	3,630,597
Average Speed (mph)	23.50	24.17	24.50	25.17
Unlinked transit trips	116 (transit projects not included in model)	113 (transit projects not included in model)	2,479	112 (transit projects not included in model)

As noted in Section 5.3.2, the Fayette Forward team considered 41 individual highway projects in the coding of Scenarios 3 and 4. When reviewing the model results, a few projects from Scenario 3 stand out as top performers.

- The Kenwood Operational Corridor provides the greatest reduction in daily delay (101.7 minutes), increase in PM travel speed (7.0 mph), and decrease in PM travel time (1.3 minutes).
- Jeff Davis Drive has the top decrease in TTI (drop of 0.23 percentage-points) and a large increase in PM peak period speed (6 mph increase).
- Other projects with large PM peak speed increases include Lee's Mill Operational Corridor (6.6 mph) and Bernhard Rd. (5.6 mph).
- Other projects with large PM peak period travel time improvements include Goza Rd. (1.3 minutes) and Brooks-Woolsey Rd. (1.1 minutes).

The top performers of Scenario 4 include:

- SR 920 (McDonough Rd.), which had the largest TTI decrease (0.51 percentage-points) and PM peak period travel time improvement (4.5 minutes);
- SR 54 (east of McDonough Rd. to the Fayette-Clayton line), which had the largest reduction in delay (672.3 minutes) and second largest reduction in PM peak period travel time (3.3 minutes);
- SR 85 from SR 74 to Bernhard Rd. had the largest increase in PM peak period speed (12.8 mph); and
- other projects with strong performance,. including SR 92 (10.6 mph PM peak period speed increase), Crosstown Drive (11.7 mph PM peak period speed increase), SR 279 Widening (2.3 minute PM peak travel time improvement) and SR 92 Widening (2.5 minute PM peak travel time improvement).

5.4 Incorporating Community Preference and Need

While the technical performance measures described in Sections 5.1 and 5.3 weigh significantly in determining the final priority tiers for project implementation, Fayette County elected officials, stakeholders and members of the community at large expressed an interest in 'validating' these results themselves, or applying a final review to preliminary recommendations for prioritization to see which priority placements were consistent with community sentiment and need and which projects needed to be prioritized differently to respond to these factors.

To address this public concern, the first-round technical rankings were followed by an assessment of the following factors:

1. ***Congestion and Community Character.*** Projects that responded to the commuting function of Fayette County's transportation system were understood to be beneficial, and smaller projects that could help to mitigate challenges along major commuting corridors were considered for their overall benefit to the County.
2. ***Community Impact.*** Certain projects that demonstrated a benefit to transportation system effectiveness and addressed the broad set of community goals may still have carried public opposition for particular reasons. These include bridge replacement projects where single-family neighborhoods have been developed since the last period of the bridge's operability.

3. ***Long-Term Political Investment.*** Many projects that had been defined in the long-range transportation plan also carried particular community and political expectations that could not be entirely captured through the technical evaluation process. This is especially true for projects whose concepts predated the Fayette Forward process and on which substantial public debate had occurred. At least one of these project candidates, the East Fayetteville Parkway, was recommended as a high-priority project in the 2003 Transportation Plan and had begun environmental review and planning work by the time Fayette Forward had advanced to evaluating candidate projects.

These factors were reviewed along with the preliminary results for projects that resulted from application of the metrics and related scores as described in Section 5.1. Projects that generally performed well and that had broad community support were strong contenders for high-priority projects, although projects with a less obvious benefit from the perspective of technical criteria that nonetheless had strong technical support were considered more closely, especially in conjunction with other projects and the system-wide effects that multiple projects would have together.

The final priority list in Chapter 6 provides explanation of each candidate project's performance based on the five goals and their component metrics and notes any particular community-based or political concerns that would cause projects to be prioritized differently than the technical criteria would suggest.

5.5 **Guidelines for Project Prioritization**

The metrics described above allowed the project team to understand benefits and drawbacks of candidate projects from a variety of sources, including their effects on traffic and circulation, their environmental and community impacts, their contribution to quality of life, and the commitment of resources required to implement them. This section explains how the evaluation steps described in this chapter were carried out in a systematic way to begin determining how candidate projects would take priority for future implementation.

The prioritization process essentially follows three steps:

1. The computation of a composite score on the basis of the technical criteria described in Section 5.1,
2. The application of the community preference considerations described in Section 5.4, and
3. The comparison of available resources to determine feasible levels of overall project commitment within a given time frame.

Table 5.5.1 on the next page illustrates a simplified version of the first of these steps. Each candidate project was reviewed against the technical criteria and assigned a numeric score that expressed its performance on a given criterion. Scores of 2 indicated a strong performance or a positive relationship to meet the overall intent of the goal under which a metric was included. Scores of 1 indicate a neutral relationship, or that a project only partially meets the intent of a goal. Scores of 0 suggested that the project did not meet the intent of a goal or that its performance under a particular metric was potentially unsatisfactory. On many of these metrics, an actual numeric indicator could be used to derive a score (such as whether or not delay time from traffic congestion decreased). However, on other metrics, the project team employed its professional judgment and expertise to assign scores.

Within a particular goal, a mean value of each of the scores from individual metrics was calculated, and the sum total of these five mean values is the overall composite score. Thus, the maximum possible composite score was ten (10) and the minimum possible score was zero (0). These composites were used to rank the projects, allowing one way of understanding how well they meet the general goals of the Fayette Forward plan as established through community and stakeholder discussions. It is important to emphasize that this is only one way of reviewing relative performance or desirability of a project. It points out where projects are responsive to community goals, but in so doing may suggest that a candidate project performing well under the metrics of one goal but not another is not a project that serves the community as well as another candidate project that is desired less or perceived as less important. The more nuanced community understanding of trade-offs is not captured in this scoring methodology, but is factored into the overall process (and discussed in Section 5.4).

Because some of the metrics were specifically derived from the travel demand model, they could not apply to all projects: as explained in Section 5.3.2, the primary projects used in the model were roadway projects. Intersection projects could be emulated using a different roadway coding and classification on roadway links that represented the intersection approach, but nearly all other projects added were roadway capacity, operational improvements and a select set of new street projects.

Table 5.5.1 Sample Scoring Methodology Matrix for Technical Criteria

	GOAL 1				GOAL 2					GOAL 3					
PROJECT	Metric 1.1	Metric 1.2	Metric 1.3	Total	Metric 2.1	Metric 2.2	Metric 2.3	Metric 2.4	Total	Metric 3.1	Metric 3.2	Metric 3.3	Metric 3.4	Total	COMPOSITE
Street Project A	1	0	1	0.67	1	1	1	0	0.75	0	1	0	1	0.5	1.92
Street Project B	1	1	1	1.0	1	1	1	0	0.75	1	0	1	1	0.75	2.50
Street Project C	2	1	2	1.67	2	1	1	2	1.5	2	1	2	1	1.5	4.67
Street Project D	0	0	0	0.0	1	1	0	1	0.75	0	2	1	1	1.0	1.75
Street Project E	0	1	1	0.67	0	2	1	1	1.0	1	2	1	1	1.25	2.92
Street Project F	1	2	2	1.67	1	2	0	1	1.0	2	1	1	1	1.25	3.92

The second step of prioritizing projects, the application of the community preference and need factors, involves organizing projects on a balance of projects in the unincorporated county and in its cities, addressing site-specific issues such as congestion and operational complication around school sites, and responding to commuting patterns and long-term need for access to the regional transportation system, particularly to Hartsfield-Jackson Atlanta International Airport to the north.

The third step is based on annual estimates of local funding. At a local level, Fayette County's Capital Budget is part of the County's overall annual budget and serves as a guide for planning and financing the construction or improvement of infrastructure and public facilities, including transportation projects. As part of the Capital Budget, Fayette County prepares a Capital Improvements Program (CIP) Plan. This is a five-year schedule of major capital projects and specifies the funds required for the completion of the projects, identifies the sources for funding these projects, and the impact of these projects on future operating budgets.

The first year of the CIP is part of the Capital Budget and the approved appropriation for each capital project is retained, from fiscal year to fiscal year, until the appropriation is expended, the project is completed, or the Board of Commissioners amends the appropriation. Projects in the remaining four years of the five-year CIP are for planning purposes only and are authorized, but not budgeted, until included in an adopted Capital Budget. The CIP plan is revised annually to add new projects and revise existing ones.

Transportation projects are typically programmed as a CIP because of their cost (which the County defines as at least $50,000) and long useful life. Traditionally, Fayette County has used CIP projects for large culvert/bridge repairs and paving gravel roads, and these were funded primary via transfer from the general operating fund. Although this has been effective for implementing one or two relatively small transportation projects per year, it is not fiscally sustainable for CTP implementation without a dedicated funding source such as a SPLOST. The County will need to consider which projects from the prioritized list can be included in a given year's CIP when making annual updates and whether certain projects can be accommodated in a single year.

This evaluation framework is intended as a tool to measure candidate projects within Fayette County relative to their ability to advance the five project goals. Since the overall characteristics of different project types lend themselves better to different goals (for example, roadway widening projects better reflect a goal of accommodating growth than they do preserving rural landscape, where trails and paths add to the options in the transportation system but do not provide a widely accessible option for commuting), the project team evaluated three distinct project types against other projects in their own categories: roadway-related projects, bicycle and pedestrian projects, and transit projects and service recommendations.

Table 5.5.2 Comparison of Prioritization and Funding Sources for Project Types

Project Type	*Funding*	*Prioritization*
Streets and Intersections	Ongoing 2004 SPLOST and State/Federal (through LRTP/ TIP Process)	Evaluation Criteria Performance + Community Preference Factors + Available Funding
Transit	Transit-operating partner agencies (GRTA, GDOT)	Evaluation Criteria Performance
Multi-Use Paths and Pedestrian Improvements	Ongoing 2004 SPLOST and State/Federal	Evaluation Criteria Performance + Community Preference Factors

Instead of a final ranked list, the prioritization process followed a system of tiers consisting of high, moderate and low-priority projects. Using the example from Table 5.5.1, a high-priority tier would consist of projects C and F, a moderate-priority tier of B and E, and a low-priority tier of A and D. Projects with strong community or political support could be moved into a higher tier after reaching consensus with stakeholders and the public. The ranking process was primarily oriented to roadway projects, as they were most applicable to use in the travel demand model. A similar set of priority tiers were developed for trail/multi-use path projects as well. Based on the discussions with stakeholders, the public and elected officials, the project team followed a general assumption that transit recommendations will be based on policies and that no actual capital projects, save for a commuter rail station in Peachtree City, would be evaluated.