EVALUATION FRAMEWORK & PERFORMANCE MEASURES

COBB COUNTY | UPDATE 2040
COMPREHENSIVE TRANSPORTATION PLAN

The Cobb County Comprehensive Transportation Plan (CTP) will be a blueprint for the county's transportation future. While there are many projects that would improve county transportation in various ways, the CTP must be financially constrained. This requires that the projects selected in the CTP are those most closely aligned with the county goals and guiding principles. This report outlines the methodology for selecting projects that will provide the greatest benefits to the county within the constrained budget.

EVALUATION FRAMEWORK

The evaluation of projects will fit within a framework that includes considering all potential projects, a process to filter out those projects that are unrealistic or not feasible for evaluation, evaluating projects with quantitative and qualitative measures, assessing deliverability, and ultimately developing the project recommendations and investment strategy.

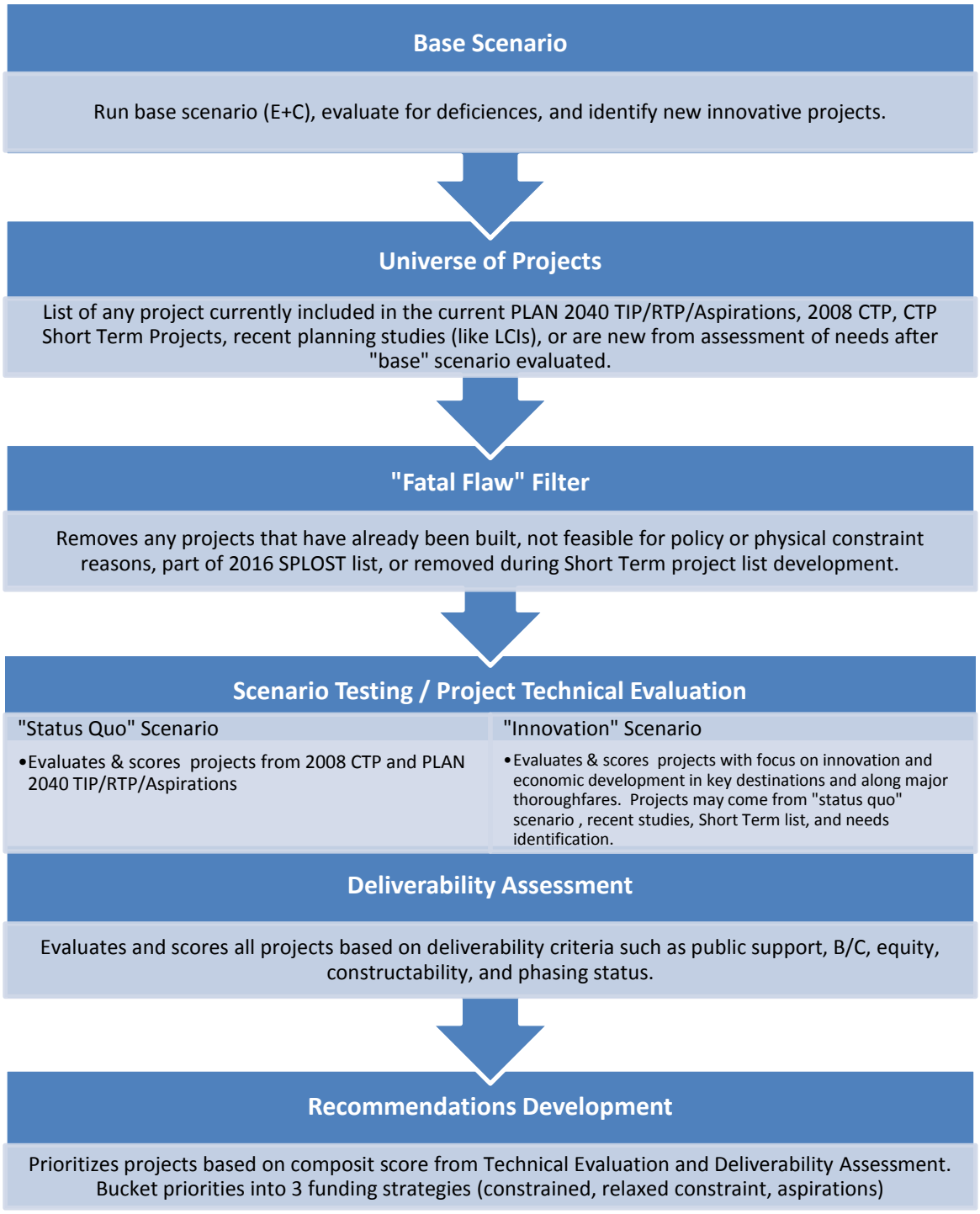
This framework is consistent with the key steps of the Strategy-Driven Approach used in the development of the Georgia Statewide Strategic Plan:

1. Set guiding principles based on what is important to our "customers" (the citizens and businesses that use and depend on our transportation network)
2. Identify how customer needs are likely to change in the future and how Georgia's competitors are positioned to respond.
3. Design an investment strategy that meets these needs and stays ahead of competitors, while delivering the highest return to taxpayers.
4. Financially constrain the strategy, to align it with available funds.
5. Relax the constraint and define the minimum funding required for competitiveness.

Projects that score well will be considered for inclusion in the overall investment strategy of the CTP. The strategy will then be financially constrained to align with expected available funds and include the highest scoring projects. Recognizing that the amount of expected available funds is not enough to fully meet the transportation needs of Cobb County, financial constraint will be relaxed to a level needed to accommodate the next scoring tier of projects that further meet identified needs and the guiding principals of the CTP.

FIGURE 1, on the next page, graphically describes the overall Cobb CTP evaluation framework and is followed with further narrative description of each component of the framework.

FIGURE 1: PROJECT EVALUATION FRAMEWORK



Base Scenario

To evaluate the change and effect of various transportation projects, a Base Scenario must be evaluated to understand what conditions would be without implementation of any new projects. The Base Scenario will be the 2040 Existing plus Committed (E+C) and is comprised of the existing transportation infrastructure along with any committed projects contained in the current FY 2014-2019 TIP, and any local capital improvement program projects expected to be completed by 2040. This scenario is also used to identify deficiencies and need for new or innovative projects to be tested in the build scenario.

Universe of Projects

All projects that have been identified throughout the CTP process will be included in this list and includes projects that are currently in PLAN 2040 TIP/RTP/Aspirations, 2008 Cobb CTP, CTP Short Term Projects, recent planning studies such as LCIs, feedback from the public involvement phases, or any projects identified from the assessment of needs as a result of the Base Scenario evaluation including innovative project concepts.

"Fatal Flaw" Filter

As a first filter for the universe of projects, it is necessary to identify those projects that are not necessary to carry forward to the modeling and evaluation steps. These include projects that have already been built, not feasible due to policy or physical constraint, already included as part of the 2016 SPLOST list, or were previously removed during the Short Term project list development.

Scenario Testing / Project Technical Evaluation

Two "build" scenarios will be tested within the CTP evaluation framework. Projects included in these two scenarios will be evaluated according to projected performance against the identified guiding principles and associated objectives using project-level performance measures. The scoring system developed in this process will help to categorize and, along with the deliverability assessment, ultimately prioritize the recommended projects to be included in the Cobb County CTP. Additionally, each of the two scenarios will be evaluated as a whole using to scenario-level measures that relate back to the identified guiding principles. The two scenarios are described below.

- **"Status Quo" Scenario** - This scenario will include all projects from the Base E+C scenario plus roadway capacity and transit projects that were included in the 2008 Cobb CTP as well as the most current PLAN 2040 TIP/RTP/Aspirations project lists.
- **"Innovation" Scenario** - This scenario will include the Base Scenario 2040 E+C projects plus an array of roadway capacity and transit projects that would focus on economic development and innovation in key destinations and along major thoroughfares. The

development of this scenario will begin with projects already identified in the "Status Quo" Scenario. That project list would then be modified to include other projects identified during the needs assessment, from recent plans and from input garnered from stakeholders during public involvement. Additionally, projects that do not support economic development or provide new innovative concepts would be removed. In some cases, newly identified projects will be replacements to projects found in the "Status Quo" Scenario.

Deliverability Assessment

This stage will evaluate and score the projects qualitatively with respect to their ability to be implemented efficiently. Project deliverability is based on criteria such as public support, cost effectiveness, constructability (physical and environmental constraints), project phasing, equity, and financial availability.

Recommendations Development

Developing a composite score that takes into account the project performance evaluation as well as the deliverability assessment will help to prioritize projects into funding strategies within the CTP:

- **Aspirational Investment Strategy** – Those projects with a composit score of High, Medium, and Low would be included in the Aspirational Investment Strategy as they best meet identified needs and CTP guiding principles. The Aspirational Investment Strategy is not financially constrained.
- **Constrained Investment Strategy** – In order to align the Aspirtational Investment Strategy with expected available funds, it will be constrained based on the county funding level that will be available from SPLOST and general fund sources extrapolated out to 2040. Those projects with the highest composit score or are included on the 2016 SPLOST list will be part of the Constrained Investment Strategy and further broken down into short-, medium-, and long-term tiers.
- **Relaxed Constraint Strategy** – Recognizing that expected available funds will not be enough to adequately meet identified needs and guiding principles, financial constraint will be relaxed to allow for additional funds, such as up to 100% of SPLOST funds,, to be available for transportation improvements. The project composit scores will be used to prioritize projects into the Relaxed Constraint Strategy.

PERFORMANCE MEASURES

Performance measures that relate back to the identified guiding principles will be used to assess scenarios and individual projects. Scenario-level measures will be used to evaluate the Base and two "build" scenarios. Project-level scenarios will be used within the Scenario

Testing/Project Technical Evaluation step of the evaluation framework to evaluate individual projects contained within the two "build" scenarios. These measures are described below.

Scenario-Level Measures

The scenario-level performance measures shown in **TABLE 1** below will be used to evaluate the Base, Status Quo, and Innovation scenarios. Results from this evaluation will allow for comparisons of the two "build" scenarios against the Base scenario to show how those packages of project impact transportation performance in Cobb County. These scenario-level measures relate back to the identified guiding principles of the Cobb CTP.

TABLE 1: SCENARIO-LEVEL MEASURES

Performance Measure	Description
Congested Speed	PM peak period travel demand model expected speeds on Cobb County roadways.
Congestion Cost	Cobb County's average daily congestion cost per capita. The total daily congestion cost is calculated based on hours of delay in traffic and the wasted fuel associated with that delay.
Total Transit Trips	Total daily transit boardings in Cobb County.
Reliable Trips	Trips made on premium transit (BRT and express bus) or on managed lane facilities.
Vehicle Hours of Delay	Difference between estimated travel time under actual conditions and under uncongested conditions for each scenario and each hour of the day. Hourly delays per vehicle are multiplied by the annual average hourly traffic for each hour, and summed to get total daily vehicle hours of delay.
Accessibility	Population within a 30 minute automobile trip of employment centers in Cobb County (Town Center, Cumberland, Marietta).
	Population within a 45 minute transit trip of employment centers in Cobb County (Town Center, Cumberland, Marietta).
Crash Hotspots & Projects	Number of projects in crash hotspot locations/corridors.
ETA Areas & Projects	Number of projects in ETA areas
	Dollar amount of projects in ETA areas
Key Destinations & Projects	Number of projects in key destinations
	Dollar amount of projects in key destinations

In most cases, the scenario-level measures can be related to the Federal Planning Factors and MAP-21 Performance Goals.

Project-Level Measures

Performance measures at the project-level will only be applied to those projects that can be evaluated using the Regional Travel Demand Model. These project types include roadway

capacity and transit. Project-level performance measures will be used to technically evaluate roadway capacity and transit projects included in the Status Quo and Innovation scenarios. **TABLE 2** describes the roadway capacity performance measures and **TABLE 3** describes the transit performance measures.

Total technical evaluation scores will be calculated for each project and then organized into high, medium, and low tiers to be combined with the deliverability assessment score to inform project prioritization.

TABLE 2: ROADWAY CAPACITY MEASURES

Performance Measure	Description	Scoring
V/C Ratio	Volume to Capacity ratio gives an indication of the level of demand along a particular corridor and how sufficiently the capacity is available to meet that demand. The change in V/C ratio from the Base will be measured.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
Vehicle Hours of Delay	Difference between estimated travel time under actual conditions and under uncongested conditions, for each segment and each hour of the day. Hourly delays per vehicle are multiplied by the annual average hourly traffic for each hour, and summed to get total daily vehicle hours of delay.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
Annual Cost per User	Represents the total cost to each roadway user based on overall travel time (free-flow or congested). Travel time value is computed from travel demand model and multiplied by value of time. This cost is then annualized by using a factor of 250.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
Is project located on regional top 10% congested corridor?	Prioritizes projects on Cobb County's most congested corridors.	Yes=3 No=0
Is project located in corridor with crash hotspots?	Prioritizes projects that have potential to improve crash rates at Cobb County crash hotspot locations.	Yes=3 No=0
Is project located in or connect to a key destination?	Key destinations include major employments centers, key resource, redevelopment area, EDGE cluster area, LCI community, etc.).	Yes=3 No=0

TABLE 3: TRANSIT MEASURES

Performance Measure	Description	Scoring
Daily Boardings	Will quantify average number of transit riders using transit in Cobb County. Higher ridership is prioritized.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
Vehicle Hours of Delay	Difference between estimated travel time under actual conditions and under uncongested conditions, for each segment and each hour of the day. Hourly delays per vehicle are multiplied by the annual average hourly traffic for each hour, and summed to get total daily vehicle hours of delay.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
Population within ¼ mile of transit route	Locations with higher population are prioritized.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
Employment within ¼ mile of transit reoute	Locations with higher employment are prioritized.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
EJ population within ¼ mile of transit route	Location with higher EJ populations are prioritized.	Top 25%=3 50-75%=2 25-50%=1 Bottom 25%=0
Is project located on regional top 10% congested corridor?	Prioritizes projects on Cobb County's most congested corridors.	Yes=3 No=0
Is project located in or conect to a key destination?	Key destinations include major employments centers, key resource, redevelopment area, EDGE cluster area, LCI community, etc.).	Yes=3 No=0

DELIVERABILITY ASSESSMENT SCORING

The scoring system to be applied to the deliverability assessment will be based on a qualitative examination of the elements such as public support, cost effectiveness, constructability, project phasing, and financial availability. Each project can be categorized into one of three levels of deliverability: high, medium, and low. A project with high deliverability, will tend to be a low risk project with little to no obstacles that would impede its implementation. Similarly, a project with low deliverability will tend to have a high risk associated with it due to significant delivery obstacles as detailed below.

High Deliverability

- Public support – project holds positive support from community
- Cost effectiveness – high benefit-cost ratio, low-cost project with good user benefits
- Constructability – no significant physical or environmental constraints to construction
- Project phasing – ROW has been acquired, design is in final stages
- Financial availability – Significant funding available for project implementation

Moderate Deliverability

- Public support – project holds neutral support from community and local politicians
- Cost effectiveness – moderate benefit-cost ratio, user benefits come at higher cost
- Constructability – minor physical or environmental constraints to construct, may require additional coordination
- Project phasing – preliminary design, environmental documentation underway
- Financial availability – some funding available for project implementation

Low Deliverability

- Public support – project has negative support from community and local politicians
- Cost effectiveness – low benefit-cost ratio, high-cost project with minimal user benefits
- Constructability – significant physical or environmental constraints to construction
- Project phasing – conceptual planning stages
- Financial availability – little to no funding available for project implementation

COMPOSITE SCORING

After individual performance and deliverability scoring is complete for each project, the highest ranking projects will be included in the CTP project list. A stratification of those projects is performed to categorize each project into a high, medium, or low priority program list. Those projects that do not score high enough will not be included in the CTP project list. The composite scoring method to determine project prioritization is shown in **TABLE 4**.

TABLE 4: COMPOSITE SCORING AND PROJECT PRIORITIZATION

Technical Analysis Score	Deliverability Score	Priority
High	Top 30%	High
Moderate	Top 10%	
Low	Top 5%	
High	Top 50%	Medium
Moderate	Top 20%	
Low	Top 10%	
High	Top 75%	Low
Medium	Top 50%	
Low	Top 20%	
High	Outside Top 75%	Not recommended for CTP
Medium	Outside Top 50%	
Low	Outside Top 20%	