



Georgia Department of Transportation

SR 141/PEACHTREE ROAD CORRIDOR  
CSMSL-0006-00-(683), Fulton County  
P.I. No. 0006683

Value Engineering Study Report  
Final Design Stage

September 2007

*Design Consultant*



*Value Engineering Consultant*



**Lewis & Zimmerman Associates, Inc.**



**Lewis & Zimmerman Associates, Inc.**

*Taking the Chance out of Change*

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September 20, 2007

Ms. Lisa L. Myers  
Design Review Engineer Manager  
State of Georgia Department of Transportation, General Office  
No. 2 Capitol Square, Room 266  
Atlanta, Georgia 30334-1002

re: Project No. CSMSL-0006-00-(683), P. I. No. 0006683, SR 141/Peachtree Road Corridor  
Fulton County, Georgia  
Value Engineering Study Report

Dear Ms. Myers:

Lewis & Zimmerman Associates, Inc. is pleased to submit four hard copies and one electronic copy of the referenced value engineering report. The objective of the VE effort was to identify opportunities to improve safety and traffic flow within the Peachtree Road corridor, promote a diverse modal transportation system, and where possible and warranted, reduce capital cost.

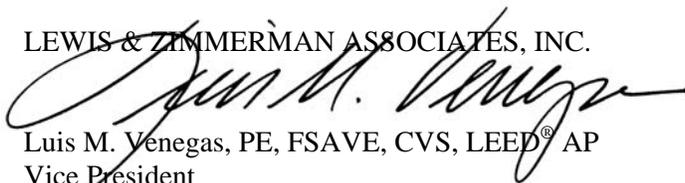
This project will enhance the use of alternative modes of transportation to relieve roadway network congestion and create viable options for travel within the community. As noted in the needs and purpose of the approved concept report, the Buckhead area is "...plagued by peak period and afternoon congestion resulting in increasing travel times, reduced accessibility for the surrounding commercial, office and residential development, and degraded air quality for the region." The need to provide a modal diversity environment is a highly sought-after commodity of the Buckhead Community Improvement District (CID). However, the proposed amenities will be costly in terms of dollars and road capacity/safety.

GDOT is under a heightened awareness of the lack of funds to construct the State's entire highway program and is implementing VE ideas that help reduce cost in order to afford other pressing needs. In a similar manner, representatives from the Buckhead CID expressed interest in pursuing VE alternatives that are feasible but do not jeopardize the intent or functionality of the Peachtree Road Corridor Improvements Program.

We thank you for your hospitality and for providing the information necessary for the VE team to generate creative, alternative solutions for this project. We are available to answer any questions you may have as you review this report and determine implementation.

Sincerely yours,

LEWIS & ZIMMERMAN ASSOCIATES, INC.



Luis M. Venegas, PE, FSAVE, CVS, LEED® AP  
Vice President

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## **EXECUTIVE SUMMARY**

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### **INTRODUCTION**

This value engineering (VE) study report summarizes the events and results of the VE study conducted by Lewis & Zimmerman Associates, Inc. (LZA) for the State of Georgia Department of Transportation (GDOT). The subject of the study was the SR 141/Peachtree Road Corridor Improvements, CSMSL-0006-00-(683), P. I. No. 0006683 422125 in Fulton County, Georgia. The project is being designed by URS Corporation.

### **PROJECT DESCRIPTION**

The project is 0.72 miles in length extending from north of the GA 400 Bridge to the Roxboro/ Peachtree-Dunwoody Road (MP 1.70) intersection. The facility comprises an 11-ft. sidewalk, 7.5-ft. landscape zone, 4-ft. bicycle lane, 10-ft. travel lane, 11-ft. travel lane, and varying median (normally a 6.5-ft. width) with turning lanes as needed, which mirrors itself beyond the median. The proposed right-of-way will be mitered at intersections to encompass signal equipment and Americans with Disabilities Act requirements. The remaining width of sidewalk will be in a permanent easement.

This project will enhance the use of alternative modes of transportation which will help relieve the roadway network congestion and create viable options for travel within the community.

### **CONSTRUCTION COSTS**

The probable cost of construction, based on URS' cost estimate, dated August 20, 2007, is \$28,291,210, which includes \$15,781,211 for construction and \$12,510,000 for right-of-way.

### **CONCERNS AND OBJECTIVES**

The most significant concern noted by the VE team was the high cost of construction, considering the bulk of the new roadway section is basically a mill and overlay project versus full-depth reconstruction. Converting the construction cost into a cost-per-mile number renders a unit cost of \$22,000,000/mile. This is a substantial cost, even for a high density area such as Buckhead.

As noted in the needs and purpose of the approved concept report, the Buckhead area is "...plagued by peak period and afternoon congestion resulting in increasing travel times, reduced accessibility for the surrounding commercial, office and residential development and degraded air quality for the region." Yet, the current solution reduces four of the proposed six travel lanes to 10-ft. widths while providing the facility with 11-ft. sidewalks, 4-ft. bicycle lanes and 7.5-ft. landscape buffer zones. The project is noted to have a design speed of 35 miles per hour (mph) for the entire length, most likely unattainable with the proposed typical section.

Providing a much-needed modal diversity environment is a highly sought-after commodity of the Buckhead Community Improvement District (CID). However, these amenities may be too costly in terms of dollars and road capacity/safety. Thus, from a Department viewpoint, the project may not be a roadway issue but one of enhancement/beautification of the Buckhead district.

GDOT is under a heightened awareness of the lack of funds to construct the State's entire highway program, and is implementing VE ideas that are technically feasible and help to reduce the cost of the project in order to afford other pressing needs. In a similar manner, representatives from the Buckhead CID expressed interest in pursuing those alternatives that are feasible without jeopardizing the intent or functionality of the Peachtree Road Corridor Improvements Program.

As such, the objective of the VE effort was to identify opportunities that would improve safety and traffic flow within the corridor, promote a diverse modal transportation system, and where possible and warranted, reduce capital cost. It is this last objective that drove most of the alternatives generated by the VE team.

## **HIGHLIGHTS OF THE STUDY**

Highlighted below are some of the ideas developed during the VE workshop.

In order to improve traffic flow while maintaining the desired modal diversity and attracting pedestrians and bicyclists, VE Alternative Numbers (Alt. Nos.) 1, 2 and 5 trade specific areas of the proposed facility typical section without increasing or decreasing the proposed right-of-way. Alt. No. 1 relocates the 4-ft. bicycle lanes to be part of the proposed 11-ft. sidewalk in a manner similar to the Department's multi-use paths, enabling the use of 12-ft. travel lanes where possible. The cost trade-off is the same. Alt. No. 2 uses 10-ft. sidewalks and redistributes the additional foot into the current 10-ft. travel lanes to create 11-ft. travel lanes. The improvement to traffic flow and increase in safety outweighs the cost increase of \$39,000. Alt. No. 5 eliminates one-ft. granite pavers and redistributes from the gained area to two of the 10-ft. lanes, allowing the use of two 11-ft. and one 10-ft. travel lanes. Initial savings of about \$170,000 are noted.

Numerous alternatives were developed to reduce granite curb and paver costs. The intent of these alternatives is to minimize the use of the granite curbing or show that concrete curbs can be made to look like granite at a reduced cost. Alt. No. 3 uses a single 18-in. granite curb in lieu of the as-designed composite dual curbing for initial savings of nearly \$415,000. If the granite pavers in the landscaped areas closest to the roadway are eliminated, as suggested in Alt. No. 4, not only would initial savings of about \$116,000 be attained, but the landscaped area could be extended, creating additional green space and be more environmentally friendly. Alt. No. 8 uses the 6-in. curb in lieu of the as-designed composite dual curbing, saving nearly \$641,000. Alt. Nos. 27 and 28 use monolithic concrete curb, emulating the shape and texture of the as-designed composite dual granite curbing. Alt. No. 27 uses monolithic concrete curbing at all medians, saving \$537,000. If the monolithic concrete curb were to be used for the curbs next to the bicycle lanes, additional \$266,000 in initial savings could be achieved in Alt. No. 28.

The drawings indicate that side streets and drives are to be reconstructed using full-depth pavement yet the mainline corridor is to be constructed using milling and overlaying only. Thus, Alt. No. 26 suggests using the same construction methodology as the mainline for the side streets and drives, i.e., milling and overlaying where feasible, resulting in approximately \$283,000 in savings.

Alt. Nos. 14, 15, 16, and 17 address the selection of planting materials for the landscaped areas. Specifically, Alt. No. 14 recommends younger trees for initial planting as they take up less room (root ball), are easier to transport and install, and are better suited for initial survivability. Acknowledging a long period of time to reach full maturity, perhaps an additional five to eight years, savings could be close to \$217,000. Alt. No. 15 uses a different species of tree than the proposed willow oak to improve safety due to a smaller trunk in the clear zones. Furthermore, small species trees will minimize pavement/sidewalk buckling/upheaval when the root system extends to the trees' drip line. Savings for this recommendation could be \$134,000. Although the current landscape plan uses xeriscape technology, increasing xeriscape could render an additional \$300,000 in initial savings as indicated in Alt. No. 16. Finally, Alt. No. 17 recommends perennials in lieu of seasonal color plantings for year-round greenery. Initial savings would be about \$121,000, and life cycle costs over a 25-year period could increase the savings by more than \$1,510,000, thus showing a present worth savings of about \$1,600,000.

The Summary of Results worksheet following this narrative outlines all of the alternatives and design suggestion developed by the VE team. Some of the alternatives are mutually exclusive or interrelated, so addition of all project cost savings does not equal total savings for the project. A full listing of all of the ideas considered by the VE team can be found on the Creative Idea Listing worksheets in the Value Analysis and Conclusions section of this report.



# SUMMARY OF RESULTS

PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683, SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS Fulton County						
PRESENT WORTH OF COST SAVINGS						
ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	INITIAL COST SAVINGS	RECURRING COST SAVINGS	TOTAL PW LCC SAVINGS
1	Relocate the bicycle lanes and use 12-ft. travel lanes					
<b>DESIGN SUGGESTION</b>						
2	Use 10-ft.-wide sidewalks and two 11-ft. and one 10-ft. travel lanes	\$ 37,213	\$ 75,807	\$ (38,594)		\$ (38,594)
3	Use a single 18-in. granite curb in the medians	\$ 452,432	\$ 37,004	\$ 415,428		\$ 415,428
4	Eliminate one-ft. granite pavers and continue landscaping	\$ 130,281	\$ 14,749	\$ 115,532		\$ 115,532
5	Eliminate one-ft. granite pavers and use two 11-ft. and one 10-ft. travel lanes	\$ 246,332	\$ 75,807	\$ 170,525		\$ 170,525
8	Use a single 6-in. granite curb in medians	\$ 673,660	\$ 32,448	\$ 641,212		\$ 641,212
10	Use normal colored concrete instead of one-ft. granite pavers at the curbs	\$ 119,972	\$ 96,927	\$ 23,045		\$ 23,045
14	Use younger trees for initial planting	\$ 353,087	\$ 136,271	\$ 216,816		\$ 216,816
15	Use smaller diameter trees at maturity in the clear zone	\$ 173,943	\$ 40,017	\$ 133,926		\$ 133,926
16	Use xeriscape and eliminate the drip irrigation system	\$ 353,087	\$ 55,000	\$ 298,087		\$ 298,087
17	Use perennials in lieu of seasonal color plantings	\$ 226,816	\$ 105,933	\$ 120,883	\$ 1,510,789	\$ 1,631,672
23	Use concrete pavers in lieu of granite pavers in sidewalks, medians, and islands areas	\$ 173,230	\$ 139,955	\$ 33,275		\$ 33,275
24	Eliminate median street lighting	\$ 278,014		\$ 278,014	\$ 102,475	\$ 380,489
25	Use stamped/colored asphalt at crosswalks only	\$ 24,061	\$ 36,838	\$ (12,777)		\$ (12,777)
26	Use leveling, milling and overlay at side streets and drives where possible	\$ 414,245	\$ 131,382	\$ 282,863		\$ 282,863
27	Use a monolithic concrete curb to emulate granite curbs at the medians	\$ 1,092,694	\$ 556,048	\$ 536,646		\$ 536,646
28	Use a monolithic concrete curb to emulate granite curbs next to the bicycle lanes	\$ 446,507	\$ 180,472	\$ 266,035		\$ 266,035

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## **STUDY RESULTS**

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### **INTRODUCTION**

The results are the major feature of a VE study since they represent the benefits that can be realized on the project by the owner, users and designer. The results will directly affect the project design and will require coordination among the designer, the user and the owner to determine the ultimate acceptance of each alternative.

### **RESULTS OF THE STUDY**

The VE team generated 28 ideas for improvement during the Function Analysis and Speculation Phases of the VE Workshop. The evaluation of these ideas was based upon their potential for capital cost savings, probability of acceptance, availability of information to properly develop an idea, compliance with perceived quality, adherence to universally accepted standards and procedures, life cycle cost efficiency, safety, maintainability, constructibility and soundness of the idea.

Of the 28 ideas generated, 18 were sufficiently rated to warrant further investigation. Continued research and development of these ideas yielded 16 alternatives for change with an impact on project costs, and one design suggestion. These alternatives and design suggestion are presented in detail following this narrative and on the Summary of Potential Cost Savings worksheets.

### **EVALUATION OF ALTERNATIVES**

It is important to consider each part of an individual alternative on its own merit. There may be a tendency to disregard an alternative because of concern about one portion of it. Separate consideration should be given to each of the areas within an alternative that are acceptable and those parts should be considered in the final design, even if the entire alternative is not implemented.

Cost is the primary basis of comparison for alternative designs. To ensure that costs are comparable within the alternatives proposed by the VE team, the designer's cost estimates, where possible, were used as the pricing basis. Where appropriate, the impact of energy costs, replacement costs, and effect on operations and maintenance are shown within each alternative.

Some of the alternatives are interrelated, so acceptance of one may preclude the acceptance of another. The reader should evaluate those alternatives carefully to select the ideas with the greatest beneficial impact to the project.



# SUMMARY OF RESULTS

PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683, SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS Fulton County						
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# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: **1**

DESCRIPTION: **ELIMINATE BICYCLE LANES AND USE 12-FT. TRAVEL LANES**

SHEET NO.: **1 of 3**

**ORIGINAL DESIGN:** (Sketch attached)

The present design indicates a typical facility section that is composed of an 11-ft. sidewalk, 7.5-ft. landscape zone, 4-ft. bicycle lane, 10-ft. travel lane, 11-ft. travel lane, 10-ft. travel lane, and varying median (normally a 6.5-ft. width), which mirrors itself beyond the median.

**ALTERNATIVE:** (Sketch attached)

Relocate the bicycle lanes to the 11-ft. sidewalks and redistribute the 4-ft. areas to enable the use of 12-ft. travel lanes on the "mainline." The typical section would comprise: an 11-ft. sidewalk, 7.5-ft. landscape zone, 12-ft. travel lane, 11-ft. travel lane, 12-ft. travel lane, and varying median (normally a 6.5-ft. width), which mirrors itself beyond the median.

From the Transportation Research Board Capacity Manual, the friction factors, i.e., a reduction in speed for a corresponding reduction in lanes widths, are noted as follows:

12-ft. lane width = 0 miles per hour (mph) reduction [this being the preferred standard];

11-ft. lane width = 1.9 mph reduction; and

10-ft. lane width = 6.6 mph reduction.

Therefore, the 35 mph design speed would actually operate at 28 mph, a 29% reduction in intended speed, and result in a potential capacity loss of 20,000 vehicles per day.

**ADVANTAGES:**

- Improves safety (basic function)
- Precludes vehicular encroachments from lane to lane
- Improves traffic flow (basic function)
- Reduces users' claustrophobic feeling
- Adheres to Department standards

**DISADVANTAGES:**

- Perceived loss of an amenity - the bicycle lane as a stand alone "lane"
- May not match Phase I theme

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	<b>DESIGN SUGGESTION</b>		
SAVINGS			

# VALUE ENGINEERING ALTERNATIVE



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
*Final Design Stage*

ALTERNATIVE NO.: 1

DESCRIPTION: ELIMINATE BICYCLE LANES AND USE 12-FT. TRAVEL  
LANES

SHEET NO.: 2 of 3

## DISCUSSION:

This section of Peachtree Road is very congested and not conducive to bicycle usage. Since 11-ft. sidewalks are already proposed on both sides of the corridor, they could easily be converted to multi-use paths, allowing bicyclists to use this zone.

Furthermore, encroachment lag due to the proposed, narrow 10-ft. travel lane and the 11-ft. travel lane will be very severe, especially when personal vehicles are adjacent to buses or large semis. Research studies have generally shown that adequate pavement width is necessary for safe driving operation and thus, by definition, inadequate pavement widths can seriously impair highway safety. Studies from the last 20 years have reported that for every 3.3-ft. increase in pavement width, a decrease in the accident rate of 0.25 per million vehicle miles can be expected. It has been shown that for two-lane rural roadways, lane widening of one foot; e.g., widening a 10-ft. lane to 11-ft., can be expected to reduce accidents such as run-off-the-road, head-on, and opposite- and same-direction sideswipes by 12 percent, and that 4 feet of widening; e.g., from 8-ft. to 12-ft. will result in a 40 percent reduction in these accident types. It has also been reported on before/after comparisons of accident risks, showing that accident ratios decrease with increasing pavement width, as depicted in the figure blow.

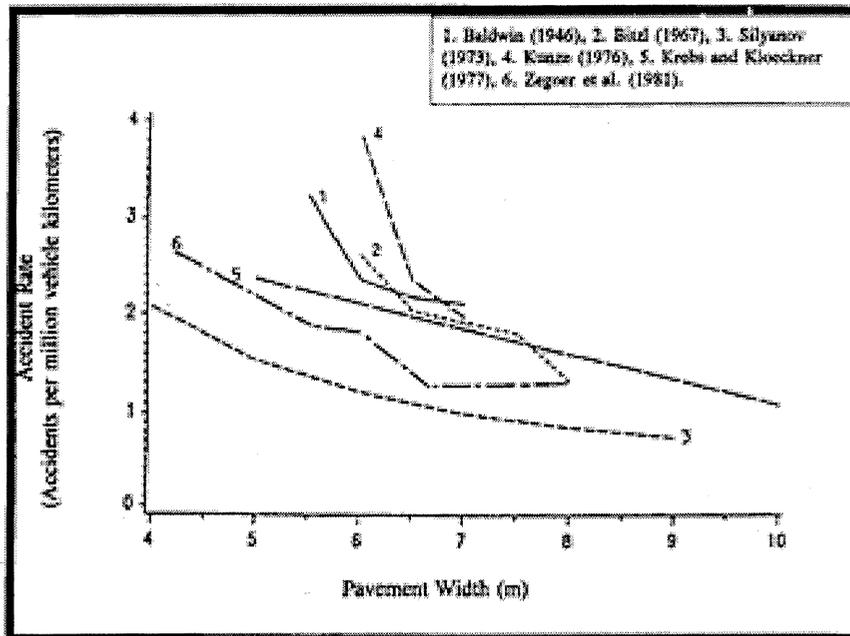


Figure 7. Related studies illustrating the relationship between accident rate and pavement width.



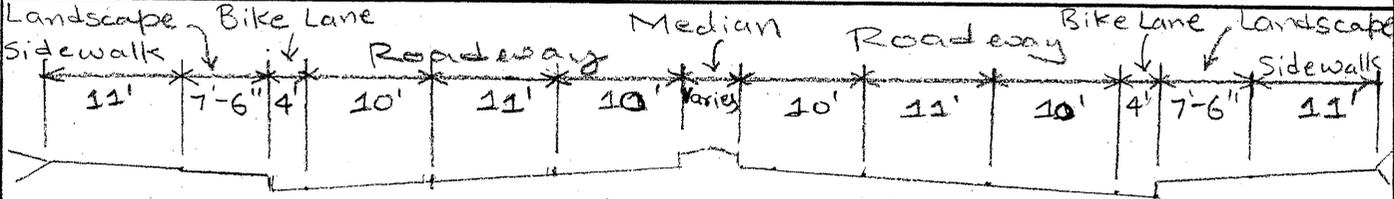
PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
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Fulton County, Georgia Department of Transportation, District 7  
Final Design Stage

ALTERNATIVE NO.:

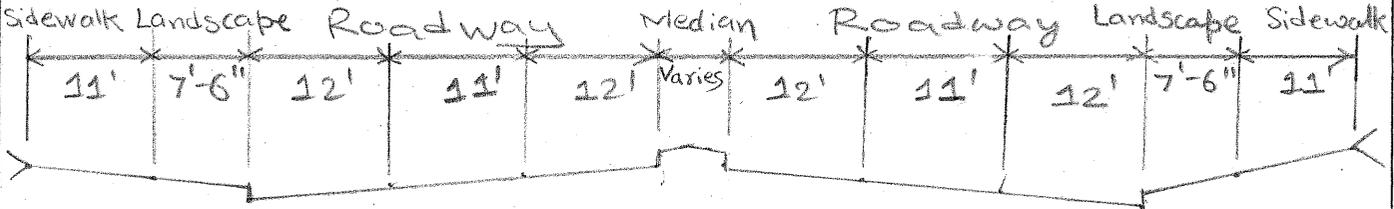
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AS DESIGNED     ALTERNATIVE

SHEET NO.: 3 of 3



As Proposed Typical Section



Alternative Typical Section

# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: **2**

DESCRIPTION: **USE 10-FT. WIDE SIDEWALKS AND TWO 11-FT. AND ONE**  
**10-FT. TRAVEL LANES**

SHEET NO.: **1 of 4**

**ORIGINAL DESIGN:** (Sketch attached)

The present design indicates a typical facility composed of an 11-ft. sidewalk, 7.5-ft. landscape zone, 4-ft. bicycle lane, 10-ft. travel lane, 11-ft. travel lane, and varying median (normally a 6.5-ft. width), which mirrors itself beyond the median.

**ALTERNATIVE:** (Sketch attached)

Use 10-ft. sidewalks, two 11-ft. and one 10-ft. travel lanes on the “mainline.” The typical section would include: a 10-ft. sidewalk, 7.5-ft. landscape zone, 4-ft. bicycle lane, 10-ft. travel lane, 11-ft. travel lane, and varying median (normally a 6.5-ft. width), which mirrors itself beyond the median.

**ADVANTAGES:**

- Improves safety (basic function)
- Minimizes vehicular encroachments from lane to lane
- Improves traffic flow (basic function)
- Reduces users’ claustrophobic feeling
- Adheres to Department standards

**DISADVANTAGES:**

- Loss of an amenity – narrower sidewalk (by one foot)
- May not match Phase I theme (would be imperceptible)
- Not as desirable as 12-ft. lanes

**DISCUSSION:**

The as-designed 10-ft. side lanes on both sides of the “mainline” are very narrow for buses and trucks. Providing the center lanes with a 10% increase in width will reduce traffic mishaps and increase operational efficiency. Vehicles traveling in the 10-ft. lane next to the 4-ft. bicycle lane have room to maneuver. Reducing the sidewalk widths from 11 ft. to 10 ft. will not affect the pedestrian mobility.

See discussion of related lane widening in Alt. No. 1.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 37,213	—	\$ 37,213
ALTERNATIVE	\$ 75,807	—	\$ 75,807
SAVINGS	\$ (38,594)	—	\$ (38,594)



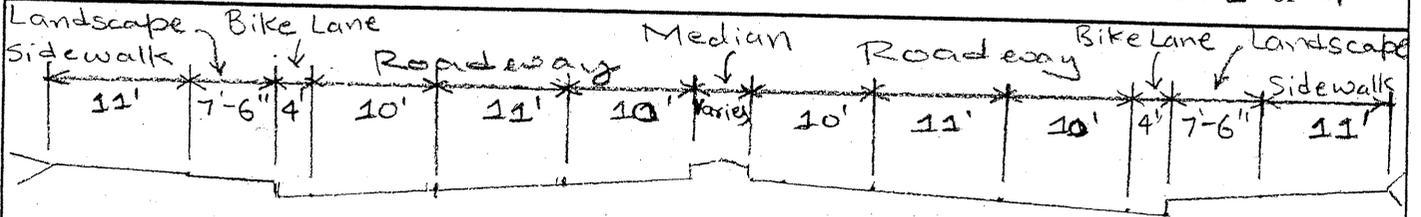
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SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
Fulton County, Georgia Department of Transportation, District 7  
Final Design Stage

ALTERNATIVE NO.:

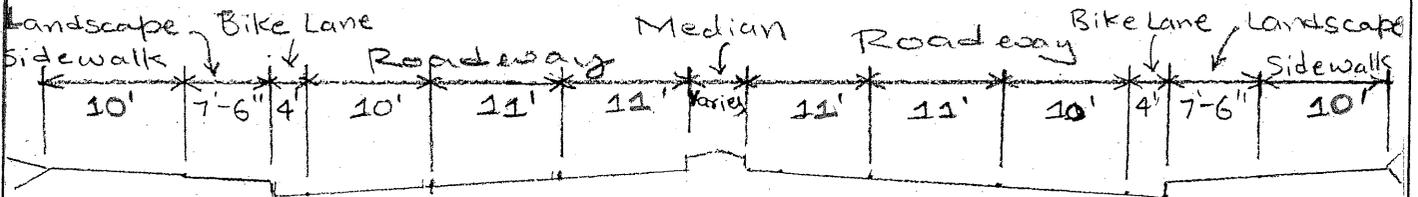
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AS DESIGNED     ALTERNATIVE

SHEET NO.: 2 of 4



As Proposed Typical Section



Alternative Typical Section

# CALCULATIONS



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
 SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
 Fulton County, Georgia Department of Transportation, District 7  
 Final Design Stage

ALTERNATIVE NO.:

2

SHEET NO.: 3 of 4

## Pavement:

Normal pavement width:  $10' + 11' + 10' + 11' + 10' + 11' + 10' = 73'$

To account for an additional turning lane at Lenox Road and some side roads, lets say that the normal pavement width is 80'

Pavement construction runs from STA 132+70 to 170+40 giving us a total length of 3,770'

The total square feet of pavement =  $3770 \times 80 = 301,600'$ <sup>2</sup>

## Pavement Construction includes:

Recycled A.C.	1,092,000
A.C.	624,000
Grading	390,874
Milling	390,655
G.A.B.	236,288
Tack coat	22,016
	<u>2,275,833</u>

Pavement cost per sf =  $\frac{2,275,833}{301,600} = \$9.14$



# VALUE ENGINEERING ALTERNATIVE



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
*Final Design Stage*

ALTERNATIVE NO.: 3

DESCRIPTION: USE A SINGLE 18-IN. GRANITE CURB IN THE MEDIANS

SHEET NO.: 1 of 4

**ORIGINAL DESIGN:** (Sketch attached)

The present design calls for the use of both 5-in. x 16-in. and 5-in. x 23-in. granite curbs in the medians.

**ALTERNATIVE:** (Sketch attached)

Use only 5-in. x 23-in. granite curbs in the medians.

**ADVANTAGES:**

- Improves safety (basic function) – wider lane
- Improves traffic flow (basic function) – wider lane

**DISADVANTAGES:**

- Loss of an amenity – a unique double curb section
- May not match Phase I theme (would be imperceptible)

**DISCUSSION:**

Having two granite curbs side-by-side throughout the project appears to be unnecessary with little or no benefit to the project other than aesthetics. By eliminating the smaller of the two curbs, 5 in. of additional pavement is gained in the travel lane next to the median, allowing drivers in these lanes more room to maneuver their vehicles.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 452,432	—	\$ 452,432
ALTERNATIVE	\$ 37,004	—	\$ 37,004
SAVINGS	\$ 415,428	—	\$ 415,428



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 Fulton County, Georgia Department of Transportation, District 7  
*Final Design Stage*

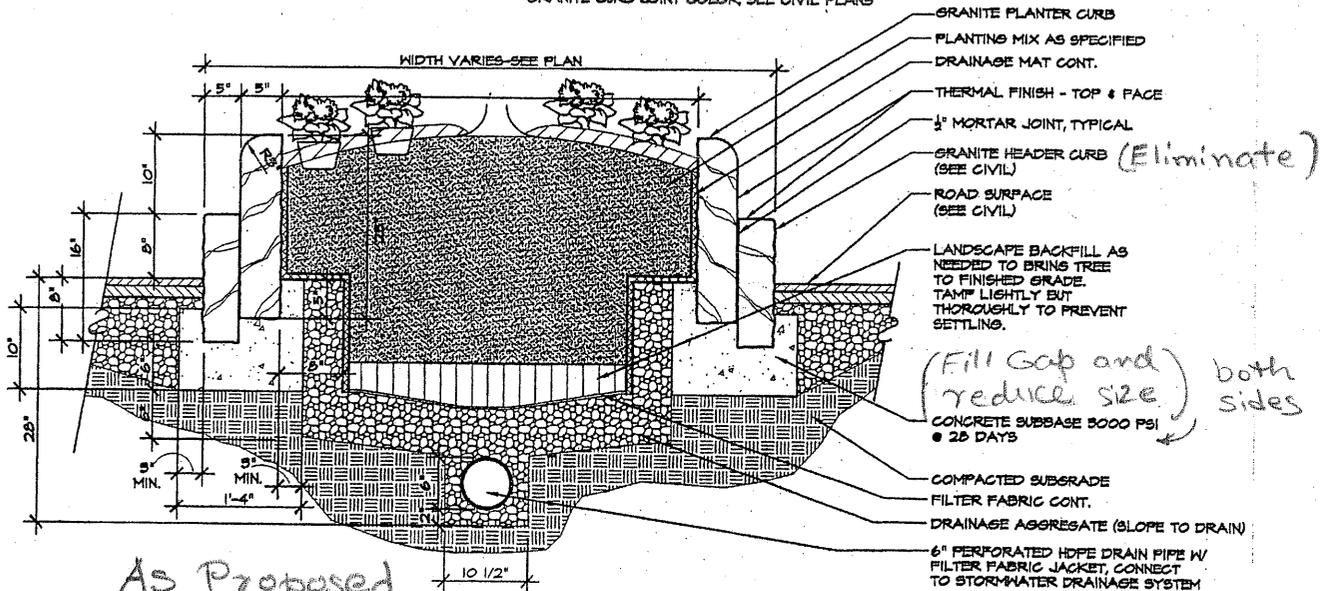
ALTERNATIVE NO.:

3

AS DESIGNED       ALTERNATIVE

SHEET NO.: 2 of 4

NOTES: 1) TYPICAL GRANITE CURB LENGTH AT  
 MEDIAN: 8'-0" NOMINAL  
 7'-11" ACTUAL  
 2) JOINT COLOR TO MATCH TYPICAL ROAD  
 GRANITE CURB JOINT COLOR, SEE CIVIL PLANS



*As Proposed*  
**B MEDIAN-SECTION 'B'**  
 29-15 SCALE: 1" = 1'-0"  
 FILE NO. 29-15-10-10



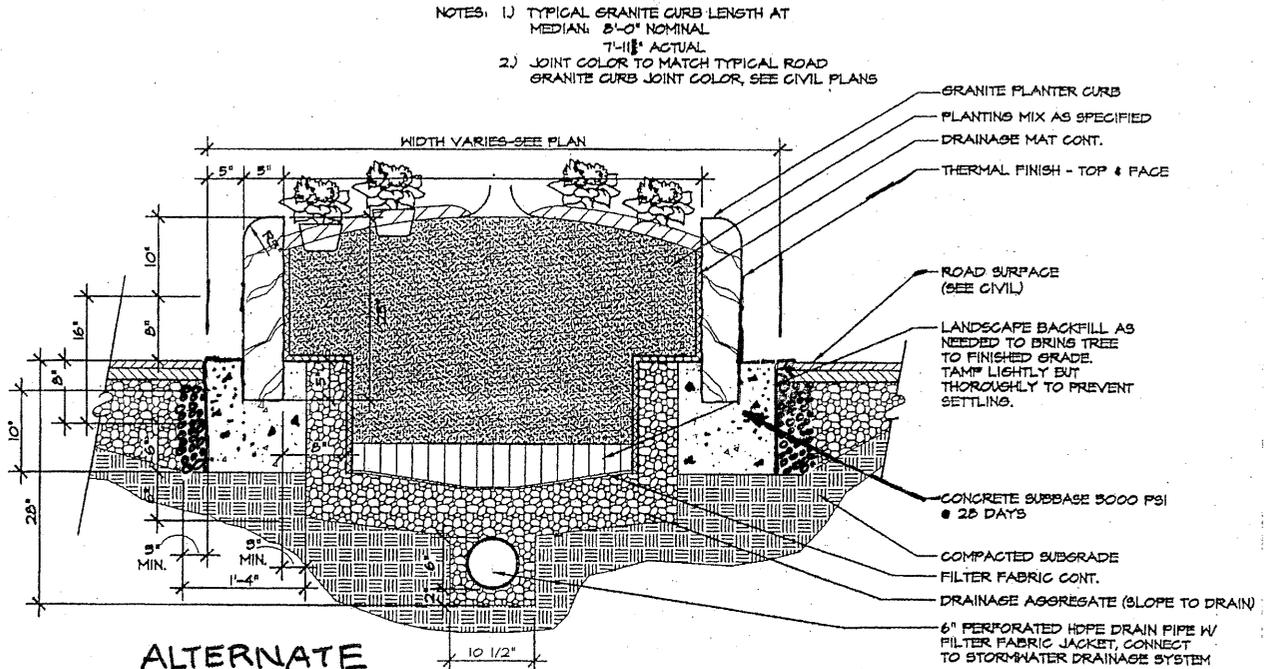
PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
 SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
 Fulton County, Georgia Department of Transportation, District 7  
 Final Design Stage

ALTERNATIVE NO.:

3

AS DESIGNED  ALTERNATIVE

SHEET NO.: 3 of 4



ALTERNATE

**B** MEDIAN-SECTION 'B'  
 29-15 SCALE: 1" = 1'-0"  
 FILE NAME: 29-15



# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: 4

DESCRIPTION: **ELIMINATE ONE-FT. GRANITE PAVERS AND CONTINUE**  
**LANDSCAPING**

SHEET NO.: 1 of 4

**ORIGINAL DESIGN:** (Sketch attached)

The present design calls for the use of 1-ft. x 1-ft. sloped granite pavers with a concrete setting bed on both sides of Peachtree Road between the edge of pavement/granite header curb and the landscaped areas.

**ALTERNATIVE:** (Sketch attached)

Eliminate the 1-ft. x 1-ft. sloped granite pavers with concrete setting beds and continue the landscaping area.

**ADVANTAGES:**

- Provides a “greener” sustainable design solution
- Softens edge of pavement
- Provides a more human scale
- Reduces initial cost
- Increases landscaping area

**DISADVANTAGES:**

- None apparent

**DISCUSSION:**

The 1-ft. x 1-ft. sloped granite pavers appear to improve the overall aesthetic quality of the corridor. A visit to the site to observe the Phase I work that employs this detail indicated a lack of quality in the placement and alignment of these granite pavers, leading to an “unkempt” appearance. This alternative allows for a softer edge that is in-keeping with a landscaping strip precluding such an appearance.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 130,281	—	\$ 130,281
ALTERNATIVE	\$ 14,749	—	\$ 14,749
SAVINGS	\$ 115,532	—	\$ 115,532



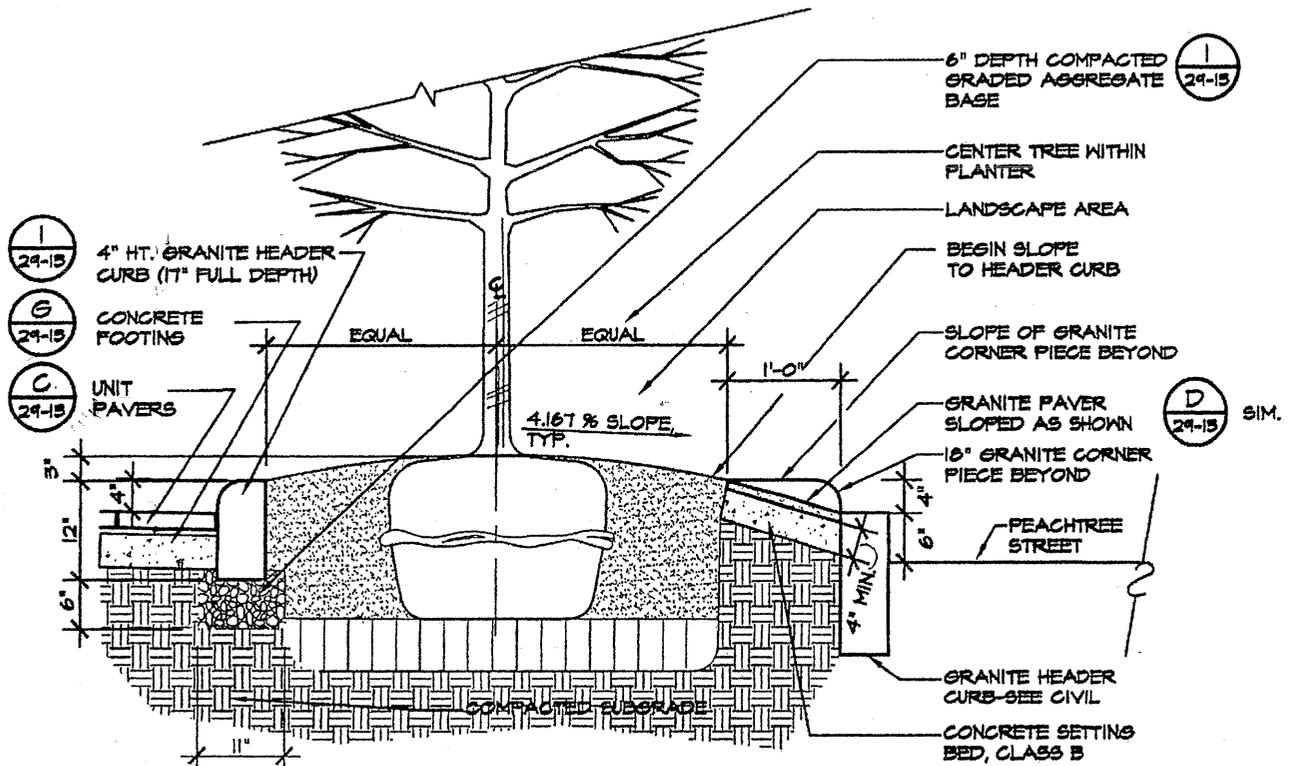
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ALTERNATIVE NO.:

4

AS DESIGNED     ALTERNATIVE

SHEET NO.: 2 of 4



**H** PLANTER-SECTION 'B'  
 29-13 SCALE: 3/4" = 1'-0"  
 FILE NAME: 0006-PLANTER-SECTION B



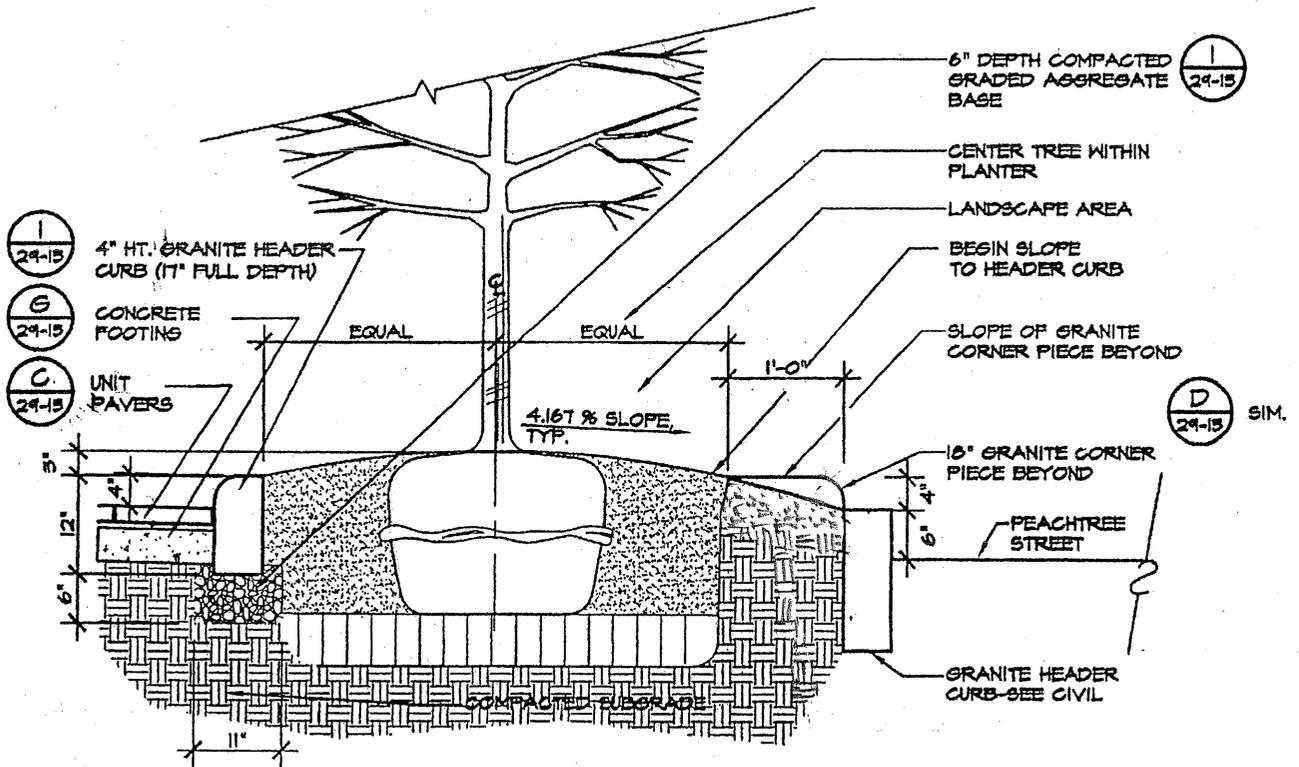
PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
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 Fulton County, Georgia Department of Transportation, District 7  
 Final Design Stage

ALTERNATIVE NO.:

4

AS DESIGNED     ALTERNATIVE

SHEET NO.: 3 of 4



**H** PLANTER-SECTION 'B'  
 29-13 SCALE: 3/4" = 1'-0"  
 FILE: 141-0006-00-PLANTER-SECTION B



# VALUE ENGINEERING ALTERNATIVE



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: 5

DESCRIPTION: **ELIMINATE ONE-FT. GRANITE PAVERS AND WIDEN THE  
 10 FT. TRAVEL LANE TO 11 FT.**

SHEET NO.: 1 of 3

**ORIGINAL DESIGN:** (Sketch attached)

The present design calls for the use of 1-ft. x 1-ft. sloped granite pavers with a concrete setting bed on both sides of Peachtree Road between the edge of pavement/granite header curb and the landscaped areas. These landscape areas are 7.5 ft. wide, and the travel lanes immediately adjacent to them are only 10 ft. wide. As such, the present typical facility section comprises an 11-ft. sidewalk, 7.5-ft. landscape zone, 4-ft. bicycle lane, 10-ft. travel lane, 11-ft. travel lane, 10-ft. travel lane, and varying median (normally a 6.5-ft. width), which mirrors itself beyond the median.

**ALTERNATIVE:** (Sketch attached)

Eliminate the 1-ft. x 1-ft. sloped granite pavers with concrete setting beds and the corresponding landscaped areas and increase the current 10 ft. travel lane to 11 ft. The typical section would include: an 11-ft. sidewalk, 6.5-ft. landscape zone, 4-ft. bicycle lane, 10-ft. travel lane, 11-ft. travel lane, 11-ft. travel lane, and varying median (normally a 6.5-ft. width), which mirrors itself beyond the median.

**ADVANTAGES:**

- Improves safety (basic function)
- Minimizes vehicular encroachments from lane to lane
- Improves traffic flow (basic function) – see Alternative No. 1
- Reduces users' claustrophobic feeling
- Adheres to Department standards

**DISADVANTAGES:**

- Loss of an amenity – narrower landscaping areas (by one foot)
- May not match Phase I theme (would imperceptible)
- Not as desirable as a 12-ft. lanes

**DISCUSSION:**

Eliminating the 1-ft. x 1-ft. sloped granite pavers frees up space that can be used to widen the pavement and improve both safety and traffic flow.

See discussion at Alternative No. 1.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 246,332	—	\$ 246,332
ALTERNATIVE	\$ 75,807	—	\$ 75,807
SAVINGS	\$ 170,525	—	\$ 170,525



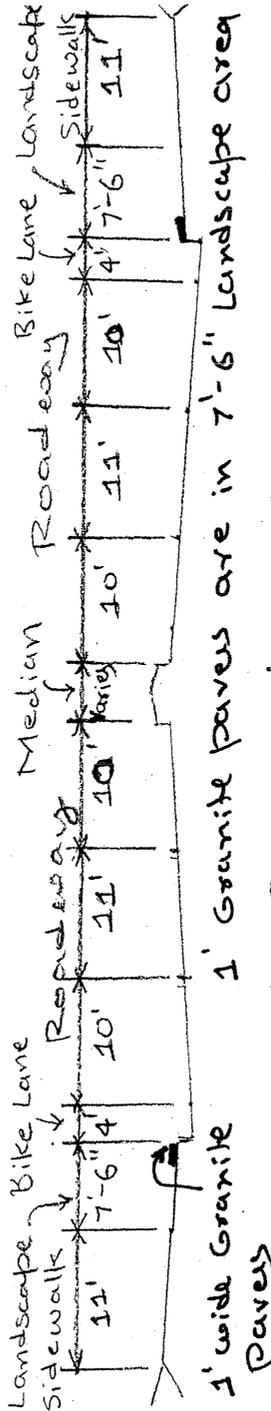
PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
Fulton County, Georgia Department of Transportation, District 7  
Final Design Stage

ALTERNATIVE NO.:

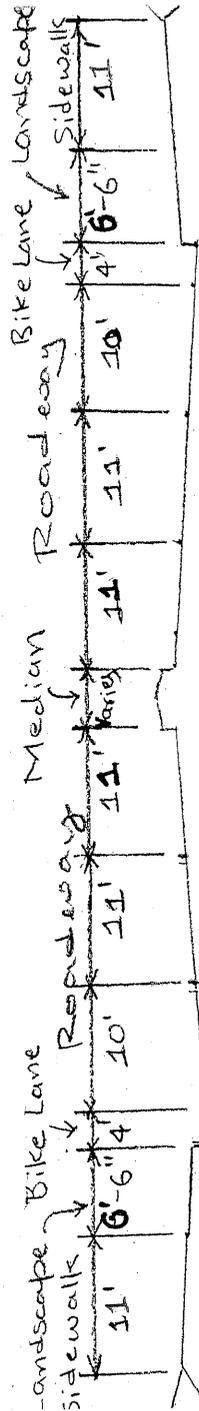
5

AS DESIGNED  ALTERNATIVE

SHEET NO.: 2 of 3



1' Granite pavers are in 7'-6" Landscape area  
As Proposed Typical Section



Alternate Typical Section  
Landscape area is made 6'-6" wide instead of 7'-6"  
10' lanes next to median is made 11' on both sides of the road.



# VALUE ENGINEERING ALTERNATIVE



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
 SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
*Final Design Stage*

ALTERNATIVE NO.: 8

DESCRIPTION: USE A SINGLE 6-IN. GRANITE CURB IN THE MEDIANS

SHEET NO.: 1 of 4

**ORIGINAL DESIGN:** (Sketch attached)

The present design calls for the use of both 5-in. x 16-in. and 5-in. x 23-in. granite curbs in the medians.

**ALTERNATIVE:** (Sketch attached)

Use only the 5-in. x 16-in. granite curbs in the medians.

**ADVANTAGES:**

- Improves safety (basic function) – reduces clear zone hazard
- Improves traffic flow (basic function) – wider median and lateral proximity

**DISADVANTAGES:**

- Loss of an amenity – a unique double curb section
- May not match Phase I theme (would be imperceptible)

**DISCUSSION:**

Having two granite curbs side-by-side throughout the project appears to be unnecessary with little or no benefit to the project other than aesthetics. By eliminating the larger of the two curbs, 10 in. of additional median is gained, allowing more room to supplement the current landscaping plan.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 673,660	—	\$ 673,660
ALTERNATIVE	\$ 32,448	—	\$ 32,448
SAVINGS	\$ 641,212	—	\$ 641,212



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
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 Final Design Stage

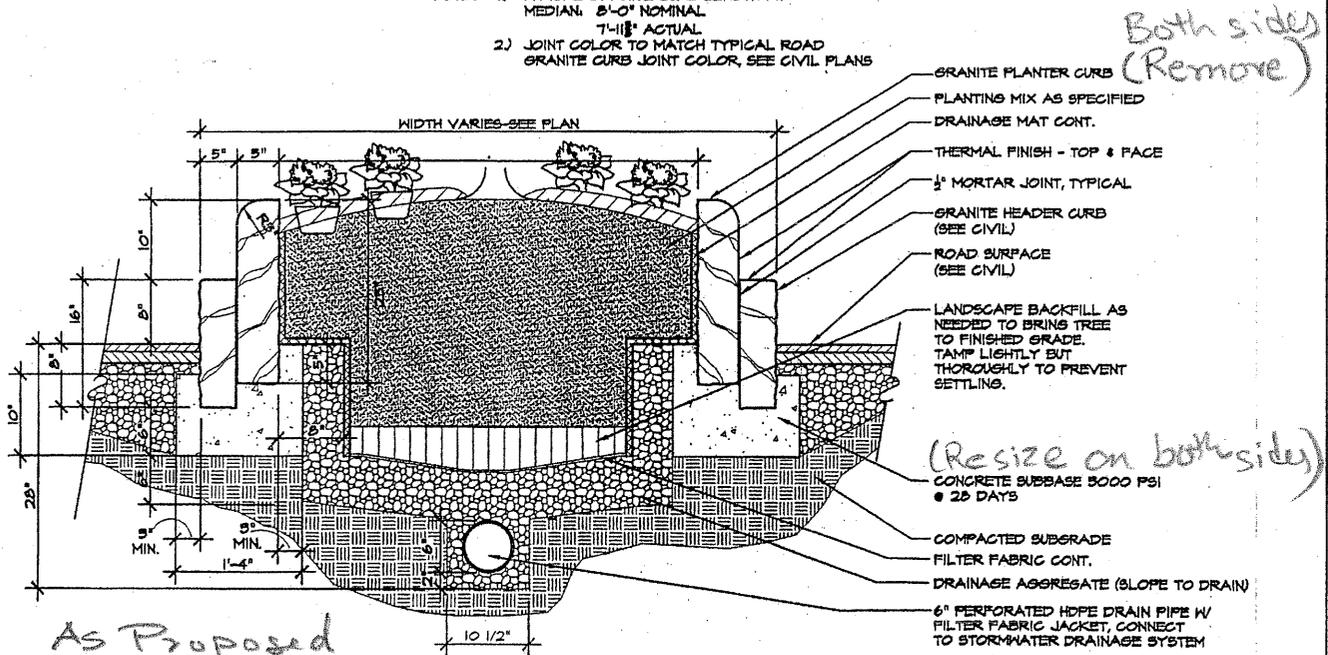
ALTERNATIVE NO.:

8

AS DESIGNED       ALTERNATIVE

SHEET NO.: 2 of 4

NOTES: 1) TYPICAL GRANITE CURB LENGTH AT  
 MEDIAN: 8'-0" NOMINAL  
 7'-11" ACTUAL  
 2) JOINT COLOR TO MATCH TYPICAL ROAD  
 GRANITE CURB JOINT COLOR, SEE CIVIL PLANS



As Proposed

**B** MEDIAN-SECTION 'B'  
 29-15 SCALE: 1" = 1'-0"  
 FILE NAME: MEDIAN.B

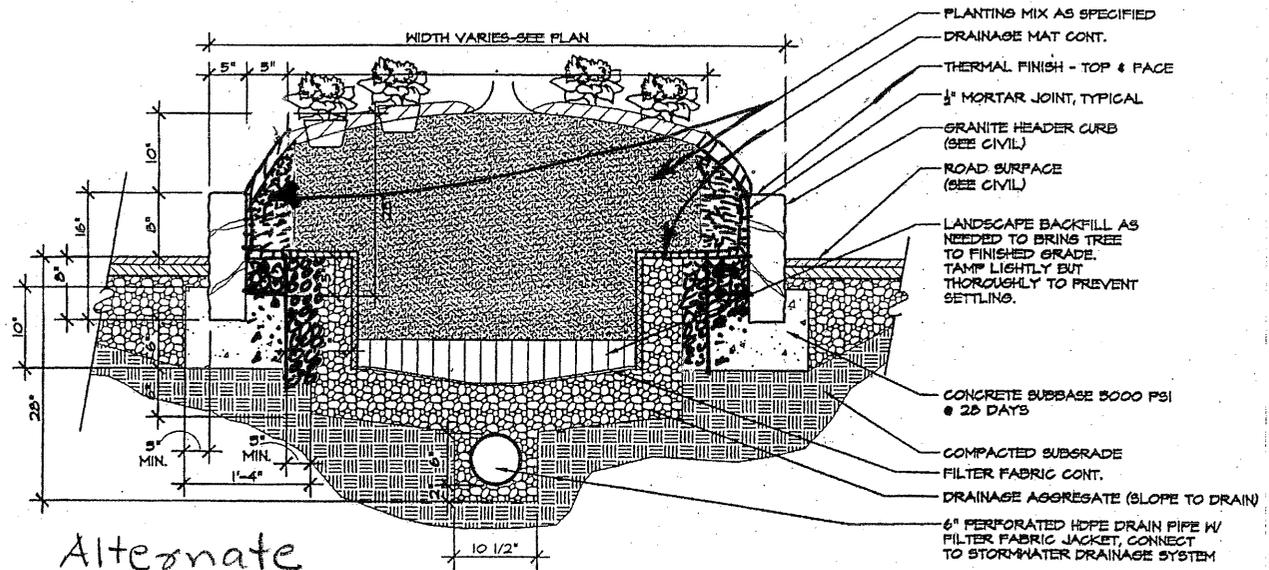
PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
**SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
 Fulton County, Georgia Department of Transportation, District 7  
*Final Design Stage*

ALTERNATIVE NO.:  
8

AS DESIGNED     ALTERNATIVE

SHEET NO.: 3 of 4

NOTES: 1) TYPICAL GRANITE CURB LENGTH AT  
 MEDIAN: 8'-0" NOMINAL  
 7'-11 1/2" ACTUAL  
 2) JOINT COLOR TO MATCH TYPICAL ROAD  
 GRANITE CURB JOINT COLOR, SEE CIVIL PLANS



- PLANTING MIX AS SPECIFIED
- DRAINAGE MAT CONT.
- THERMAL FINISH - TOP & FACE
- 3/4" MORTAR JOINT, TYPICAL
- GRANITE HEADER CURB (SEE CIVIL)
- ROAD SURFACE (SEE CIVIL)
- LANDSCAPE BACKFILL AS NEEDED TO BRING TREE TO FINISHED GRADE. TAMP LIGHTLY BUT THOROUGHLY TO PREVENT SETTLING.
- CONCRETE SUBBASE 5000 PSI @ 28 DAYS
- COMPACTED SUBGRADE
- FILTER FABRIC CONT.
- DRAINAGE AGGREGATE (SLOPE TO DRAIN)
- 6" PERFORATED HDPE DRAIN PIPE W/ FILTER FABRIC JACKET, CONNECT TO STORMWATER DRAINAGE SYSTEM

Alternate  
B MEDIAN-SECTION 'B'  
 29-15 SCALE: 1" = 1'-0"  
FILE NAME: 29-15-01



# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: **10**

DESCRIPTION: **USE NORMAL COLORED CONCRETE INSTEAD**  
**OF ONE-FT. GRANITE PAVERS AT THE CURBS**

SHEET NO.: **1 of 2**

**ORIGINAL DESIGN:**

The present design calls for the use of 1-ft. x 1-ft. sloped granite pavers with a concrete setting bed adjacent to the roadway curbing.

**ALTERNATIVE:**

Substitute sloped, colored concrete pavers for the sloped 1-ft. x 1-ft. sloped granite pavers.

**ADVANTAGES:**

- Reduces initial cost
- Reduces construction time
- Imperceptible change in color/texture
- Easier to construct

**DISADVANTAGES:**

- May not match Phase I theme
- Less durable

**DISCUSSION:**

Colored concrete pavers can be installed the same time the sidewalk is constructed. A larger quantity of concrete pavers will reduce its unit price due to an economy of scale. The same function is achieved with concrete at a reduced cost.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 119,972	—	\$ 119,972
ALTERNATIVE	\$ 96,927	—	\$ 96,927
SAVINGS	\$ 23,045	—	\$ 23,045



# VALUE ENGINEERING ALTERNATIVE



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
 SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
*Final Design Stage*

ALTERNATIVE NO.: 14

DESCRIPTION: USE YOUNGER TREES FOR INITIAL PLANTINGS

SHEET NO.: 1 of 2

## ORIGINAL DESIGN:

The current landscape drawings indicate the use of large, mature trees for the initial planting including:  
 1) quercus phellos (willow oak), 20 ft. to 25 ft. in height with a root ball of 54 in. and a spread of 10 ft. to 12 ft.;  
 and 2) juniperus chinensis (Chinese juniper), 10 ft. to 11 ft. in height with a root ball of 18 in. and a spread of  
 5 ft. to 6 ft.

## ALTERNATIVE:

Use younger trees for the initial plantings, specifically (1) quercus phellos, 10 ft. to 15 ft. in height with a root  
 ball of 36 in. and a spread of 8 ft. to 10 ft.; and (2) juniperus chinensis, 5 ft. to 8 ft. in height with a root ball of  
 12 in. and a spread of 3 ft. to 5 ft.

## ADVANTAGES:

- Easier to erect
- Reduces planting time
- Common practice

## DISADVANTAGES:

- Perceived loss of amenity – larger trees/canopies
- May not match Phase I theme
- Will take longer to produce full canopies

## DISCUSSION:

The use of younger trees is a common practice as they tend to be more flexible and planting tolerant, and their  
 survival rate may exceed that of the older trees.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 353,087	—	\$ 353,087
ALTERNATIVE	\$ 136,271	—	\$ 136,271
SAVINGS	\$ 216,816	—	\$ 216,816



# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: **15**

DESCRIPTION: **USE SMALLER DIAMETER TREES AT MATURITY IN THE**  
**CLEAR ZONE**

SHEET NO.: **1 of 2**

**ORIGINAL DESIGN:**

The current design documents indicate the use of quercus phellos (willow oak) as the tree of choice for the landscaping scheme that are to be planted seven feet from the pavement. Initial planting calls for these trees to be 5 in. to 6 in. caliper, with a height between 20 ft. to 25 ft.

**ALTERNATIVE:**

Specify trees that have a trunk diameter less than 4 in. at maturity to reduce clear zone hazards. The trees should maintain a smaller, more compact drip zone to minimize upheaval of sidewalks and roadway.

**ADVANTAGES:**

- Precludes clear zone hazards
- Reduce canopy overhang
- Minimizes leaf cleanup
- Prevents root invasion that causes buckling
- Reduces overall maintenance
- Reduces initial cost
- Improves safety

**DISADVANTAGES:**

- Perceived loss of an amenity
- May not match Phase I theme

**DISCUSSION:**

Quercus phellos is a fast growing variety of oak that, at maturity, can be 60 ft. to 80 ft. tall and have a canopy of 30 ft. to 40 ft. in diameter. The trunk diameter of these trees could approach 18 in. and present a roadside hazard. The potential canopy diameter indicates these trees could pose a serious upheaval or buckling problem to the adjacent sidewalks and roadway.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 173,943	—	\$ 173,943
ALTERNATIVE	\$ 40,017	—	\$ 40,017
SAVINGS	\$ 133,926	—	\$ 133,926



# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: 16

DESCRIPTION: **USE XERISCAPE AND ELIMINATE THE DRIP IRRIGATION SYSTEM**

SHEET NO.: 1 of 3

## ORIGINAL DESIGN:

The current design documents indicate a comprehensive landscaping plan that includes seasonal, color plantings, large deciduous trees, ground cover, etc.

## ALTERNATIVE:

Use xeriscaping in lieu of the proposed, non-drought tolerant landscaping scheme.

## ADVANTAGES:

- Requires less water
- Requires less time and work needed for maintenance, making gardening more simple and stress-free
- Requires little or no lawn mowing (which saves gas)
- Xeriscape plants, along with proper bed design, tends to take full advantage of rainfall
- When water restrictions are implemented, xeriscape plants will tend to survive, while more traditional plants may not
- Increases habitat for native bees, butterflies, etc.
- Achieves sustainable design
- Reduces overall costs associated with landscaping
- Becoming an industry standard
- Precludes future unsightly landscaped areas when not properly maintained

## DISADVANTAGES:

- Loss of seasonal coloring
- Perceived loss of an amenity
- Perceived loss of quality
- May not match Phase I theme
- Requires more careful attention to detail and plant selection

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 353,087	—	\$ 353,087
ALTERNATIVE	\$ 55,000	—	\$ 55,000
SAVINGS	\$ 298,087	—	\$ 298,087

# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: 16

DESCRIPTION: **USE XERISCAPE AND ELIMINATE THE DRIP IRRIGATION**  
**SYSTEM**

SHEET NO.: 2 of 3

## DISCUSSION:

Implementation of xeriscaping includes:

- Appropriate choice and arrangement of a plant (or plants): where possible, plants that are native to the area or to similar climates, as well as other plants that tolerate or avoid water stress such as xerophytes, halophytes, summer-dormant bulbs, and very deeply rooted plants as ornamentals.
- Hydrozoning: grouping plants with similar watering requirements together is quite necessary. Plants that require more water are grouped together. These less water-efficient plants may also be sheltered from the wind and/or sun by planting them in the shade to decrease the amount of water they need.
- Minimal turf areas: using drought-tolerant turf-grass species where turf is needed at all. The landscape can be filled in with borders and islands of more water-efficient ornamental plants.
- Efficient application of water: drought-tolerant plants get no more water than they need to look good, and of course water is not allowed to splash onto concrete walkways or other areas where it is not needed.
- Conservation of water in the soil: soil with improved structure retains water better, and mulch cools the soil surface and hinders evaporation.

See related item at Alternative No. 17 that suggest some potential drought tolerate plantings. Additional plants could include: achillea (yarrow), campsis (trumpet creeper), coreopsis (tickseed), delosperma (ice plant), enchinacea (coneflower), hemerocallis (daylily), juniperus (juniper), ophiopogon (mondo grass/monkey grass), etc. Some tree suggestions would include: Zelcova serrata (Japanese Zelkova) elm like shape, Cercocarpus ledifolius (Curlleaf Mountain-mahogany); Crataegus phaenopyrum (Washington hawthorn).



# VALUE ENGINEERING ALTERNATIVE



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
 SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
*Final Design Stage*

ALTERNATIVE NO.: 17

DESCRIPTION: USE PERENNIAL PLANTINGS IN LIEU OF SEASONAL  
 COLOR PLANTINGS

SHEET NO.: 1 of 3

**ORIGINAL DESIGN:**

The current design documents indicate seasonal color plantings as part of the overall landscaping scheme.

**ALTERNATIVE:**

Use perennial plantings in lieu of seasonal color plantings.

**ADVANTAGES:**

- Precludes four plantings per year every year
- Reduces recurring costs
- Allows for more hardy-type plantings
- Common practice
- Precludes future unsightly landscaped areas when not properly maintained

**DISADVANTAGES:**

- Loss of seasonal coloring
- Perceived loss of an amenity
- Perceived loss of quality
- May not match Phase I theme

**DISCUSSION:**

The use of seasonal plantings to introduce variety and color throughout the year along the corridor is a costly enterprise that will incur perpetual maintenance costs. A minimum of four plantings must occur to achieve the desired results, and even if only three or two plantings were to be carried out, it still results in recurring annual costs normally not undertaken by the Department. The use of perennials can offset these costs by only having to replace those plantings that are damaged or do not survive the initial planting. Select hardy plantings such as *ficus pumila* (creeping fig), *hedera helix* (English ivy), *vinca minor* (periwinkle), *convallaria majalis* (lily of the valley) to name a few.

Should the Buckhead Community Improvement District opt to provide this service and incur the annual costs, the proposed landscaping plan should be retained as-designed.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 226,816	\$ 2,356,547	\$ 2,583,363
ALTERNATIVE	\$ 105,933	\$ 845,758	\$ 951,691
SAVINGS	\$ 120,883	\$ 1,510,789	\$ 1,631,672



# LIFE CYCLE COST WORKSHEET



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683, SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS Fulton County, Georgia Department of Transportation, District 7 <i>Final Design Stage</i>						ALTERNATIVE NO. <b>17</b>		
						SHEET NO. 3 of 3		
LIFE CYCLE PERIOD: <u>25</u> years								
INTEREST RATE: <u>2.50%</u> ESCALATION RATE:						ORIGINAL	PROPOSED	
<b>A. INITIAL COST</b>						226,816	105,933	
Useful Life (Years)						0.25	1.00	
<b>INITIAL COST SAVINGS</b>							120,883	
<b>B. RECURRENT COSTS (Annual Expenditures)</b>								
1. Maintenance: Assume 10.00% of initial cost of plantings per annum						22,682	10,593	
2. Seasonal Plantings: 4 times per year for seasonal color only (\$79,865 +10%) =						87,852		
3. Liriope replacements at 1/8 of initial plantings per year ((\$126,332+10%)/8)=						17,371		
4. Perennial replacements at 1/3 of initial plantings per year =							35,311	
5.								
6.								
<b>Total Annual Costs</b>						127,904	45,904	
<b>Present Worth Factor</b>						18.4244	18.4244	
<b>Present Worth of RECURRENT COSTS</b>						2,356,547	845,758	
<b>C. SINGLE EXPENDITURES</b>								
			Year	Amount	PW factor	Present Worth	Present Worth	
ORIG	PROP	< Put "x" in appropriate box (original design or proposed design)						
		1.			1.0000	-	-	
		2.			1.0000	-	-	
		3.			1.0000	-	-	
		4.			1.0000	-	-	
		5.			1.0000	-	-	
		6.			1.0000	-	-	
		7.			1.0000	-	-	
		8.			1.0000	-	-	
<b>D. SALVAGE VALUE</b>								
			Year	Amount	PW factor	Present Worth	Present Worth	
		1.			1.0000	-	-	
		2.			1.0000	-	-	
<b>Present Worth of SINGLE EXPENDITURES</b>						-	-	
<b>E. Total Recurrent Costs &amp; Single Expenditures (B + C)</b>						2,356,547	845,758	
<b>RECURRENT COSTS &amp; SINGLE EXPENDITURES SAVINGS</b>							1,510,789	
<b>TOTAL PRESENT WORTH COST (A + D)</b>						2,583,363	951,691	
<b>TOTAL LIFE CYCLE SAVINGS</b>							1,631,672	

# VALUE ENGINEERING ALTERNATIVE



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
 SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS  
*Final Design Stage*

ALTERNATIVE NO.: 23

DESCRIPTION: USE CONCRETE PAVERS INSTEAD OF GRANITE PAVERS  
 IN SIDEWALK, MEDIAN, AND ISLAND AREAS

SHEET NO.: 1 of 4

**ORIGINAL DESIGN:** (Sketch attached)

The present design calls for the use of granite unit pavers at median noses, in the crosswalk islands, and in the sidewalks.

**ALTERNATIVE:** (Sketch attached)

Substitute concrete pavers for granite pavers. Retain the 1-ft. x 1-ft. sloped granite pavers in the landscaping strips.

**ADVANTAGES:**

- Reduces initial cost
- Reduces construction time
- Imperceptible change in color/texture
- Easier to construct
- Quality control is easier to regulate
- Can be treated to look like granite

**DISADVANTAGES:**

- May not match Phase I theme
- Durability may be reduced
- Changes the appearance of the theme
- Perceived loss of amenity - aesthetics

**DISCUSSION:**

Concrete pavers can be installed the same time the sidewalk is constructed. Larger quantity of concrete pavers will further reduce its unit price due to an economy of scale. The same function is achieved with concrete at a reduced cost.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 173,230	—	\$ 173,230
ALTERNATIVE	\$ 139,955	—	\$ 139,955
SAVINGS	\$ 33,275	—	\$ 33,275



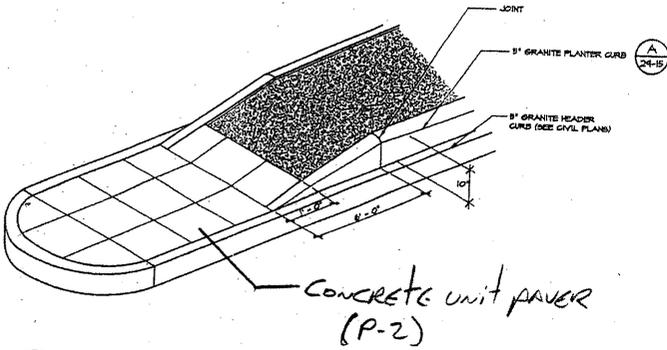
PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
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 Final Design Stage

ALTERNATIVE NO.:

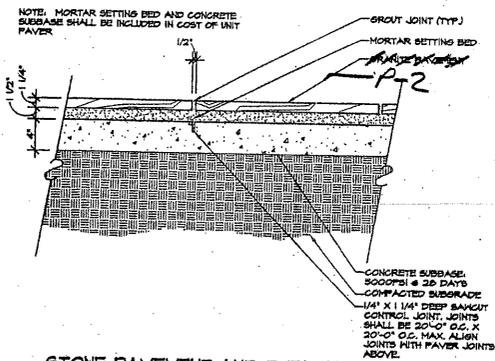
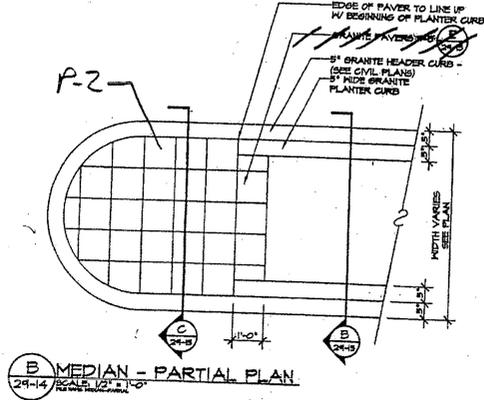
23

AS DESIGNED     ALTERNATIVE

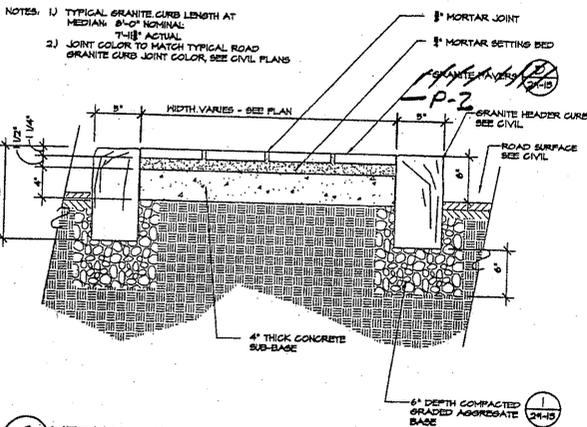
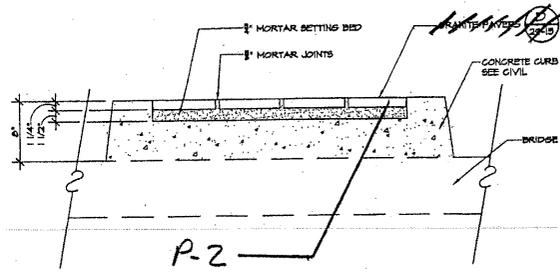
SHEET NO.: 2 of 4



**C** MEDIAN ISLAND - ISOMETRIC  
 24-14 SCALE: NTS



**D** STONE PAVEMENT AND TYPICAL CONTROL JOINT SECTION - PEDESTRIAN  
 24-15 SCALE: 1/2" = 1'-0"



**C** MEDIAN - SECTION 'C'  
 24-15 SCALE: 1/2" = 1'-0"

\* Typical: Replace granite pavers with concrete unit pavers

# CALCULATIONS



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ALTERNATIVE NO.:

23

SHEET NO.: 3 of 4

See Alt. No. 10 - 4190 sf of granite pavers in outside landscape strips (to be retained)

Total quantity of granite = 12,240 sf

\* Remove 6050 sf of granite, replace with concrete



# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
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*Final Design Stage*

ALTERNATIVE NO.: **24**

DESCRIPTION: **ELIMINATE THE DOUBLE BRACKET STREETLIGHTS**

SHEET NO. **1 of 5**

**ORIGINAL DESIGN:** (Sketch attached)

The present design calls for double bracket streetlights in the median areas.

**ALTERNATIVE:**

Remove the double bracket streetlights in the median and retain the streetlights and pedestrian lights proposed outside of the roadway.

**ADVANTAGES:**

- Reduces operations and maintenance costs
- Reduce clear zone encroachments
- Reduces electrical crossings underneath the roadway
- Eliminates electrical utility in the median
- Reduces initial cost

**DISADVANTAGES:**

- Reduces roadway lighting (not detrimental)
- May not match Phase I theme
- Loss of an amenity – special lighting fixtures

**DISCUSSION:**

The ambient lighting of the surrounding businesses and the proposed lighting along the outside edges of the roadway would appear to be sufficient for vehicular traffic. The present conditions along Peachtree Road do not have median mounted street lights. This does not appear to impede or hamper night operations in the corridor.

Consideration might also be given to removing the street lights on the outside of the roadway but retaining the pedestrian lighting.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 278,014	\$ 102,475	\$ 380,489
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 278,014	\$ 102,475	\$ 380,489



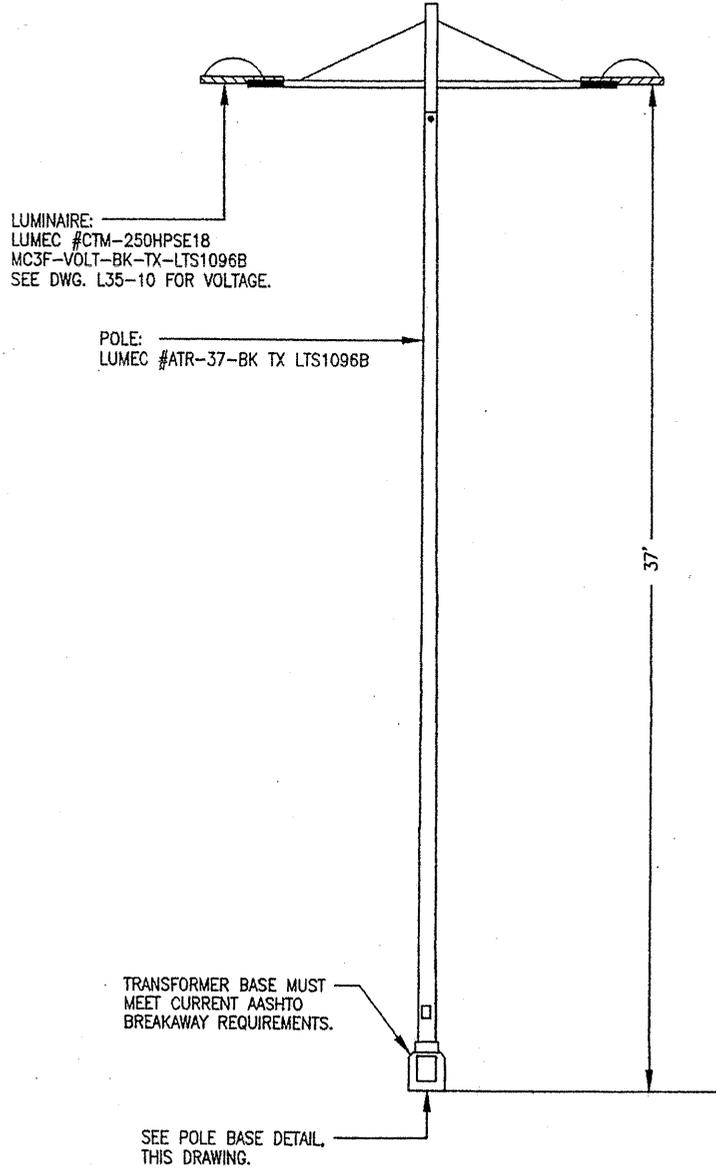
PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,  
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ALTERNATIVE NO.:

24

AS DESIGNED     ALTERNATIVE

SHEET NO.: 2 of 9



STREET LIGHT - DOUBLE BRACKET  
(N.T.S.)

# CALCULATIONS



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
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*Final Design Stage*

ALTERNATIVE NO.: **24**

DESCRIPTION: **ELIMINATE THE DOUBLE BRACKET STREETLIGHTS**

SHEET NO.

**3 of 5**

23 double bracket light masts @ \$4,047 EA.

46 luminaries @ \$1,120 EA (two per light mast).

Conduit:  $350+78+50+215+65+36+318+55+45+387+15+373+60+50+480+72+34+55 = 2,738$  LF.

Conduit Price:  $(\$36.27+\$38.15+\$14.70+\$15.95) \div 4 = 26.27/\text{LF}$ .

Cabling: 2,738 LF

Cabling Price:  $(\$4.38+\$4.75+\$5.13+\$5.63) \div 4 = \$4.97/\text{LF}$ .

Junction Box: 8 EA

250W HPS Lamps: 46 lamps (two per light mast).

250W HPS Lamps Longevity: 24,000 hours.

250W HPS Lamps Price: \$23.39 EA

Average burn time:  $365 \text{ days/year} \times 9 \text{ hours/day} = 3,285 \text{ hours/year}$ .

$\therefore$  Lamp replacement cycle =  $24,000 \text{ hours} / 3,285 \text{ hours/year} = 7.31 \text{ years}$ ; say every 7 years/Lamp.

Annual cost:  $(365 \text{ days/year} \times 9 \text{ hours/day} \times \$0.07/\text{kWhr} \times 250\text{W}) / 1000 \text{ kWhr} = \$57.49/\text{Lamp}$

$\therefore$  Total Annual cost to burn lamps:  $\$57.49/\text{Lamp} \times 46 \text{ Lamps} = \$2644.43/\text{year}$ .



# LIFE CYCLE COST WORKSHEET



PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683, SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS Fulton County, Georgia Department of Transportation, District 7 <i>Final Design Stage</i>	ALTERNATIVE NO. <span style="font-size: 24pt; font-weight: bold;">24</span>
	SHEET NO. 5 of 5

LIFE CYCLE PERIOD: <u>25</u> years INTEREST RATE: <u>2.50%</u> ESCALATION RATE:	ORIGINAL	PROPOSED
--	----------	----------

<b>A. INITIAL COST</b>	278,014	-
Useful Life (Years)	7.00	
<b>INITIAL COST SAVINGS</b>		278,014

<b>B. RECURRENT COSTS (Annual Expenditures)</b>		
1. Maintenance: Assume 3.00% of initial cost of Lighting System	2,780	-
2. Energy: See Calculation Sheet	2,644	
3.		
4.		-
5.		
6.		
<b>Total Annual Costs</b>	5,424	-
<b>Present Worth Factor</b>	18.4244	18.4244
<b>Present Worth of RECURRENT COSTS</b>	99,936	-

C. SINGLE EXPENDITURES			Year	Amount	PW factor	Present Worth	Present Worth
ORIG	PROP	< Put "x" in appropriate box (original design or proposed design)					
x		1. Replace lamps at year 7: (\$23.39 + 10%) x 46 Lamps	7	1,183.53	0.8413	996	-
x		2. Replace lamps at year 14: (\$23.39 + 10%) x 46 Lamps	14	1,183.53	0.7077	838	-
x		3. Replace lamps at year 21: (\$23.39 + 10%) x 46 Lamps	21	1,183.53	0.5954	705	-
		4.			1.0000	-	-
		5.			1.0000	-	-
		6.			1.0000	-	-
		7.			1.0000	-	-

<b>D. SALVAGE VALUE</b>			Year	Amount	PW factor	Present Worth	Present Worth
		1.			1.0000	-	-
		2.			1.0000	-	-
<b>Present Worth of SINGLE EXPENDITURES</b>						2,539	-

<b>E. Total Recurrent Costs &amp; Single Expenditures (B + C)</b>	102,475	-
<b>RECURRENT COSTS &amp; SINGLE EXPENDITURES SAVINGS</b>		102,475
<b>TOTAL PRESENT WORTH COST (A + D)</b>	380,489	-
<b>TOTAL LIFE CYCLE SAVINGS</b>		380,489

# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: **25**

DESCRIPTION: **USE STAMPED/COLORED ASPHALT AT CROSSWALKS**  
**ONLY**

SHEET NO.: **1 of 7**

**ORIGINAL DESIGN:**

The present design calls for the use of crosswalk markings in accordance with the Department's Detail T-11A.

**ALTERNATIVE:** (Sketch attached)

Use stamped/colored asphalt in the crosswalk areas only. See attached vendor example.

**ADVANTAGES:**

- Provides an aesthetically pleasing alternative to the typical crosswalk striping or pavers
- Could increase longevity of crosswalk demarcations

**DISADVANTAGES:**

- Increases initial cost
- May not match Phase I theme
- Non-standard process for the Department

**DISCUSSION:**

Stamped/colored asphalt provides an alternative to the standard striping or pavers that could be integrated into the overall theme of the Peachtree Road Corridor.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 24,061	—	\$ 24,061
ALTERNATIVE	\$ 36,838	—	\$ 36,838
SAVINGS	\$ (12,777)	—	\$ (12,777)

# CALCULATIONS



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ALTERNATIVE NO.:

25

SHEET NO.: 2 of 7

12' wide typical

48' long  $\rightarrow$   $\left. \begin{array}{l} \text{Side Striping} - 44' + 56' = 100' \\ \text{Center striping} - 18 \times 12 = 216' \end{array} \right\} \begin{array}{l} 316' \\ \text{OR} \end{array}$

79 striping / 12' road width

2791 LF of cross walk

LF striping =  $(2791 / 12) \times 79 = 18,374$  LF 8" white

minus side stripes =  $18,374 - 2(2791) = 12,792$  LF

Area of x-walk =  $2791(12) = 33,492$  SF = 3721 SY



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ALTERNATIVE NO.:

25

SHEET NO.: 3 of 7



create...



contractor distributor

Tuesday, September 04,

Home

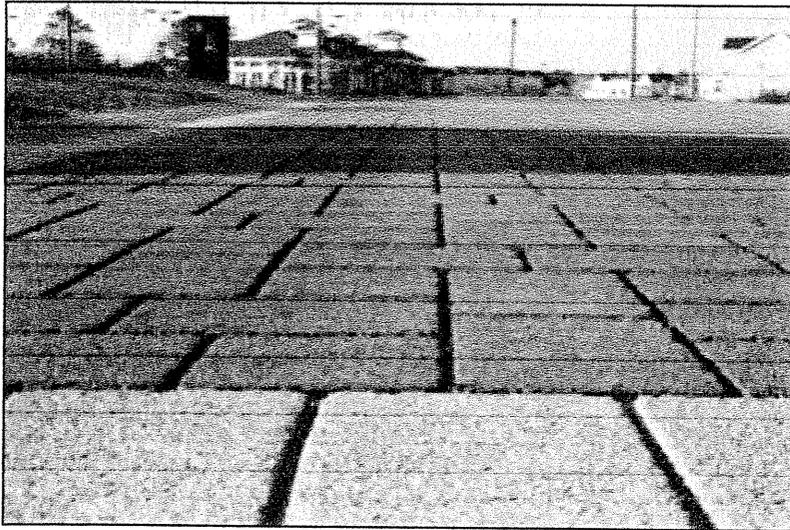
Surfacing Solutions

Project Profiles

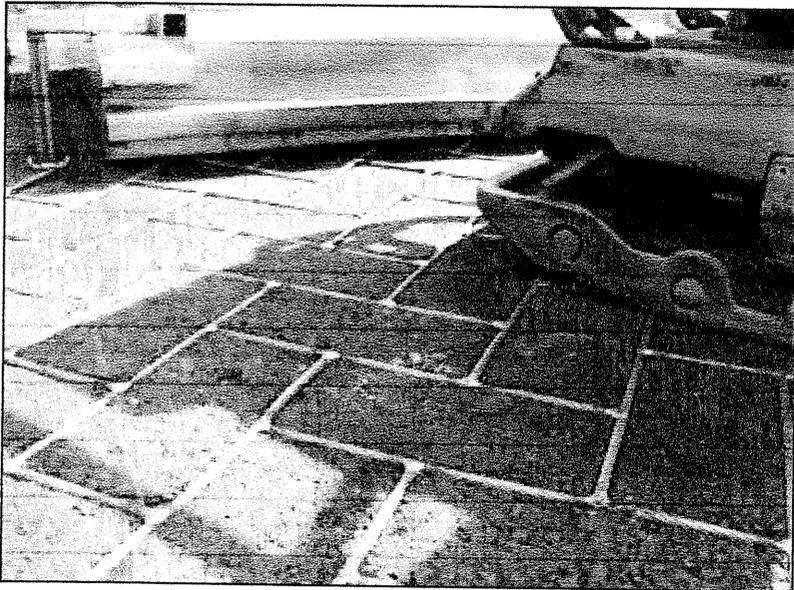
Product Specifications

Contact Us

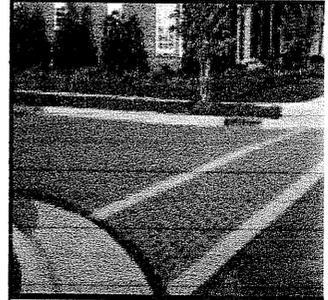
## Stamped Asphalt ... Surfacing Solution



Stamped asphalt entrance ...



Infrared heater... heating asphalt for stamping process ...



FrictionPave Entrance Featu

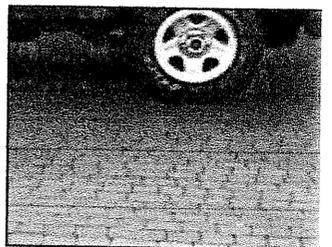
- Home
- Surfacing Solutions
- Product Specifications
- Contact Us
- Contractor Login
- Distributor Login

### Corporate Contact:

888-434-8611 phone  
215-893-4827 fax  
1750 Hwy 160 West  
Suite 101-222  
Fort Mill, SC 29708



Stamped asphalt entrance



Stamped asphalt driveway



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*Final Design Stage*

ALTERNATIVE NO.:

25

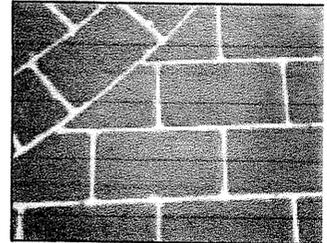
SHEET NO.: 4 of 7



Cable template stamped to full depth...



Coating being spray applied...



Stamped asphalt faux finish

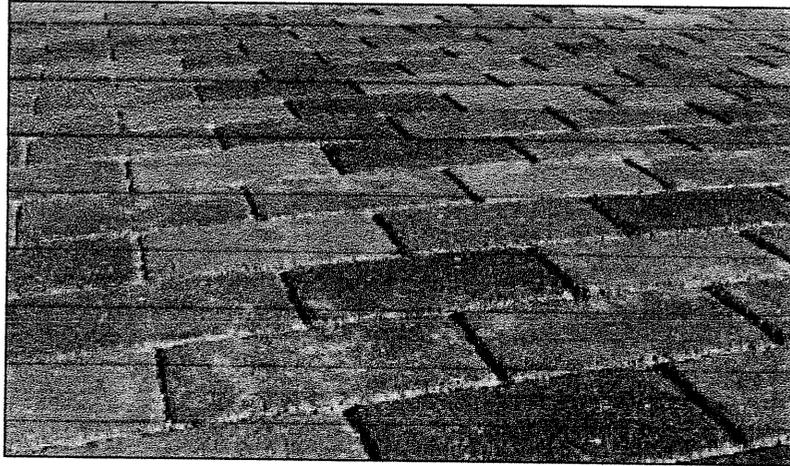


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Fulton County, Georgia Department of Transportation, District 7  
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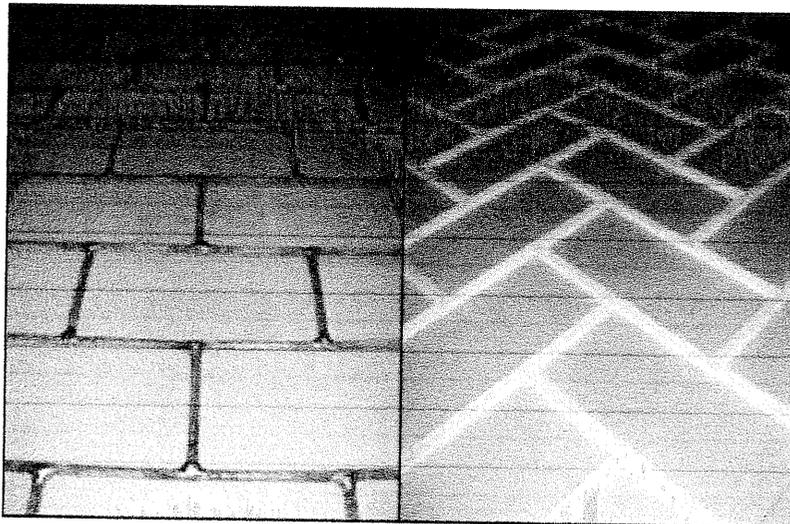
ALTERNATIVE NO.:

25

SHEET NO.: 5 of 7



Stamped asphalt coated with accented bricks...



We offer both cable and plastic stamping templates...



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**SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
**Fulton County, Georgia Department of Transportation, District 7**  
*Final Design Stage*

ALTERNATIVE NO.:

25

SHEET NO.: 6 of 7

### Features and Benefits

- Stamped into Asphalt...
  - Fast Installation.. little project downtime...
  - Handles nothern climate freeze thaw cycles...
  - Easily repaired... invisible seams...
  - Deicing salt resistant...
  - UV stable colors... maintain color for years
  - Simple to Complex Patterns
  - Custom Patterns and Logos
- Available Cable Patterns
  - Available Plastic Patterns
  - Available Colors
  - Stamped Asphalt Specs
  - Stamped Asphalt Project Profiles
  - Find an Installer
  - Become an Installer

 [Download PDF](#) cover sheet for Stamped Asphalt

The "Stamped Asphalt Surfacing System" consists of stamping a template into freshly placed or re-heated asphalt followed by the application of a polymer modified coating.

Stamped Asphalt Coatings have been developed with input from installers...

polymer chemists and the manufacturer to provide a durable, slip-resistant attractive user friendly coating.

The sytem is applied by installers trained in stamping and coating asphalt surfaces.

The owner or designer of the project can choose from several patterns and a combination of colors to create the desired look.

Stamped asphalt coatings are applied at a minimum of 30 dry mills and as thick as 75 dry mills... depending on the application.

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# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Final Design Stage*

ALTERNATIVE NO.: **26**

DESCRIPTION: **USE LEVELING , MILLING AND OVERLAY AT SIDE**  
**STREETS AND DRIVES WHERE POSSIBLE**

SHEET NO.: **1 of 3**

**ORIGINAL DESIGN:**

The current design reconstructs side streets and drives at full depth in most locations.

**ALTERNATIVE:**

Reduce the amount of full depth asphalt paving where milling, leveling and overlay is feasible.

**ADVANTAGES:**

- Reduces initial cost
- Reduces construction time
- Easier to stage construction
- Reduces impacts to businesses

**DISADVANTAGES:**

- Removes the opportunity to improve/upgrade the existing paving thickness

**DISCUSSION:**

Unless side street coring samples specifically indicate a deficient paving depth, leveling and overlay should be used to reconstruct side streets.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 414,245	—	\$ 414,245
ALTERNATIVE	\$ 131,382	—	\$ 131,382
SAVINGS	\$ 282,863	—	\$ 282,863

# CALCULATIONS



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ALTERNATIVE NO.:

26

SHEET NO.: 2 of 3

See alternate #2: Pavement Full depth = \$9.14 / sf = \$82.26/sy

411 Around Lenox Drive -  $67 \times 80 = 5360 \text{ sf} = \underline{596 \text{ sy}}$

45 Lenox Road North -  $70 \times \left(\frac{210+128}{2}\right) = 11,830 \text{ sf} = \underline{1314 \text{ sy}}$

46 " " South up to 458+60 -  $\left(\frac{67+90}{2}\right) \times 50 = 3925 \text{ sf} = \underline{436 \text{ sy}}$

48 Oak Valley Road -  $\left(\frac{44+84}{2}\right) \times 80 = 5120 \text{ sf} = \underline{569 \text{ sy}}$

59 Wieuca Road N (91+40 to 92+40) -  $110' \times 68' = 7480 \text{ sf} = \underline{831 \text{ sy}}$

" " S. (88+60 to 89+00) -  $\left(\frac{80+68}{2}\right) \times 44 = 3256 \text{ sf} = \underline{362 \text{ sy}}$

DRIVEWAY 136+60 RT -  $\left(\frac{36+94}{2}\right) \times 80 = 5200 \text{ sf} = \underline{578 \text{ sy}}$

Woodvale - OK

Total = 4686 sy

Lenox Mall Entrance - OK

Exceptions }  
 Lenox South  $\Rightarrow \frac{14 \cdot 90}{2} = 630 \text{ sf} = 70 \text{ sy}$   
 Oak Valley  $\Rightarrow \frac{12 \cdot 70}{2} = 420 \text{ sf} = 20 \text{ sy}$   
 Wieuca South  $\Rightarrow \frac{30 \cdot 11}{2} = 165 \text{ sf} = 18 \text{ sy}$   
 Total = 4578 sy

\*Assume 2" leveling throughout

$\frac{(110 \text{ lb/sy}) \cdot 2 \cdot 4578}{2000} = \underline{504 \text{ ton leveling}}$

$165 \text{ lb/sy } 9.5 \text{ mm SMA} \Rightarrow \frac{165 \cdot 4578}{2000} = \underline{378 \text{ ton } 9.5 \text{ mm SMA}}$



# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
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*Final Design Stage*

ALTERNATIVE NO.: 27

DESCRIPTION: **USE A MONOLITHIC CONCRETE CURB TO EMULATE**  
**GRANITE CURBS AT THE MEDIANS**

SHEET NO.: 1 of 4

**ORIGINAL DESIGN:** (Sketch attached)

The current design calls for two granite curbs, one with the dimensions of 5-in. x 23-in. and the other 5-in. x 18-in., next to each other in a concrete base on both sides of the median.

**ALTERNATIVE:** (Sketch attached)

Use one monolithic concrete header curb that is polished on the visible side and made to emulate granite.

**ADVANTAGES:**

- Reduces initial cost
- Reduces construction time
- Still looks like granite

**DISADVANTAGES:**

- Would be slightly less durable
- Concrete not as strong as granite but less brittle
- Perceived loss of amenity

**DISCUSSION:**

Installing a monolithic concrete header curb constructed to emulate granite maintains the anticipated image and continues to enhance the Buckhead image at a reduced cost.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,092,694	—	\$ 1,092,694
ALTERNATIVE	\$ 556,048	—	\$ 556,048
SAVINGS	\$ 536,646	—	\$ 536,646



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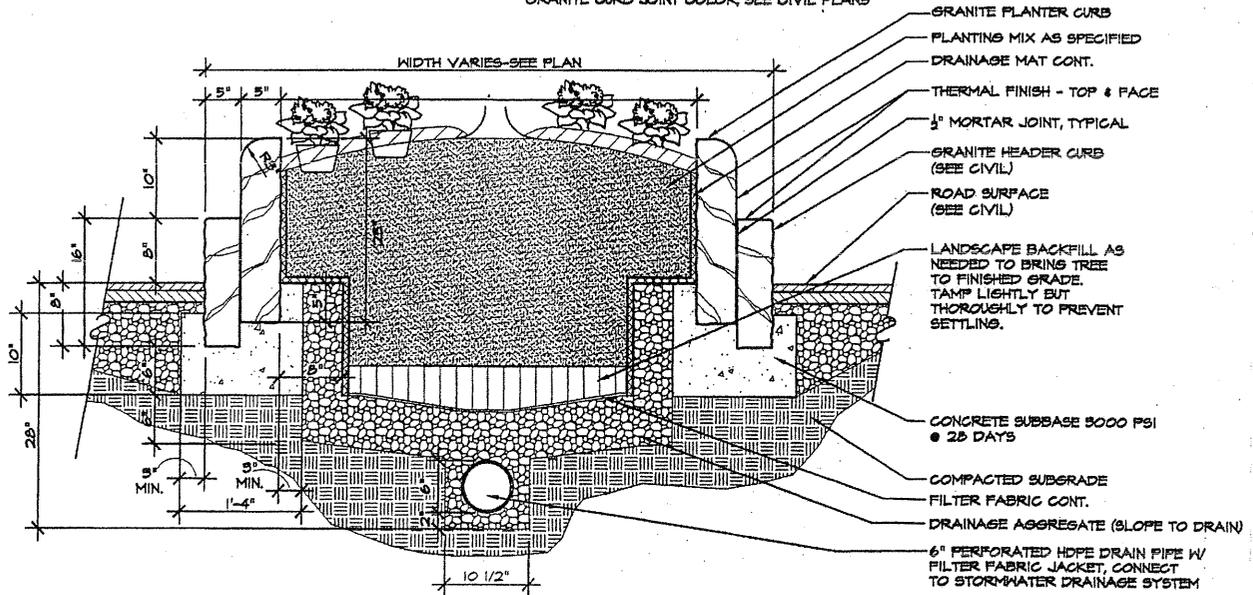
ALTERNATIVE NO.:

27

AS DESIGNED       ALTERNATIVE

SHEET NO.: 2 of 4

NOTES: 1) TYPICAL GRANITE CURB LENGTH AT  
 MEDIAN: 5'-0" NOMINAL  
 7'-11 1/2" ACTUAL  
 2) JOINT COLOR TO MATCH TYPICAL ROAD  
 GRANITE CURB JOINT COLOR, SEE CIVIL PLANS



**B** MEDIAN-SECTION 'B'  
 29-15 SCALE: 1" = 1'-0"  
 FILE NO. 29-15-000-00

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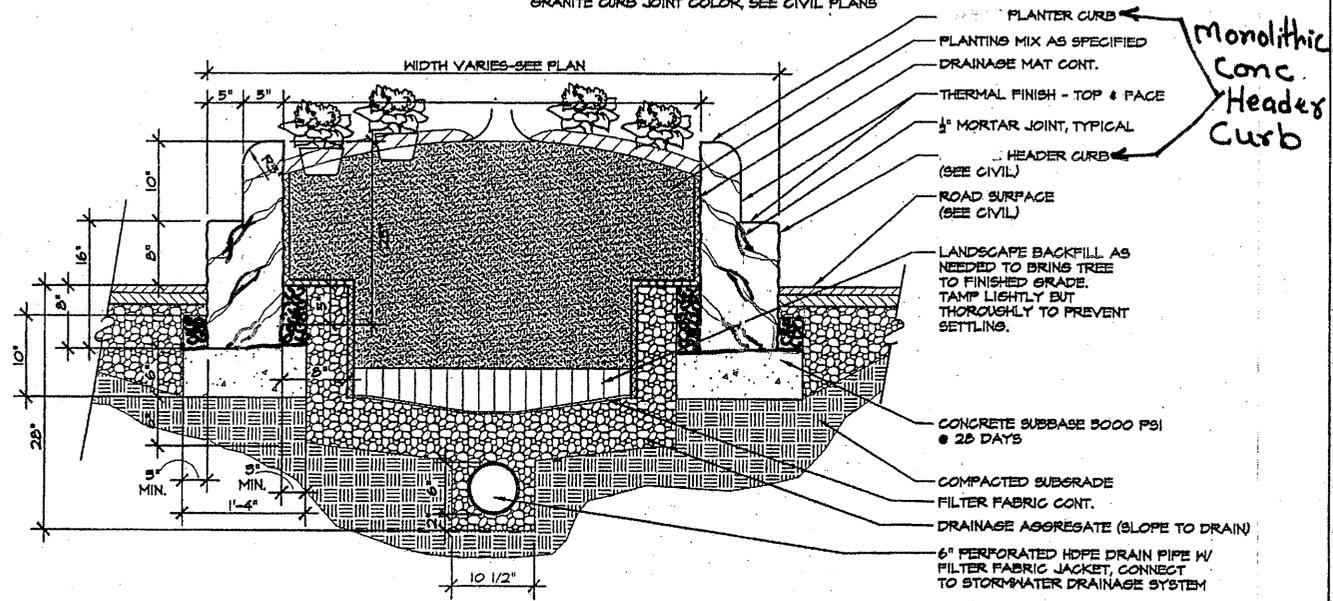
ALTERNATIVE NO.:

27

AS DESIGNED  ALTERNATIVE

SHEET NO.: 3 of 4

NOTES: 1) TYPICAL GRANITE CURB LENGTH AT  
 MEDIAN: 8'-0" NOMINAL  
 7'-11" ACTUAL  
 2) JOINT COLOR TO MATCH TYPICAL ROAD  
 GRANITE CURB JOINT COLOR, SEE CIVIL PLANS



**B** MEDIAN-SECTION 'B'  
 29-15 SCALE: 1" = 1'-0"  
 FILE NAME: MEDIAN

x-sec Area of median curb =  $\frac{(5 \cdot 16) + (5 \cdot 26)}{144} = 1.458 \text{ sf}$   
 Volume =  $(1.458 \cdot 12,192) / 27 = 658 \text{ cy}$   
 Face Area =  $\frac{(8+10)}{12} \cdot 12,192 = 18,288 \text{ sf} = 2032 \text{ sy}$   
 Reduce Footing =  $\frac{(4 \cdot 5) + (8 \cdot 5)}{144} \cdot 12,192 \cdot 2 = 10,160 \text{ CF} = 376 \text{ cy}$



# VALUE ENGINEERING ALTERNATIVE



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
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*Final Design Stage*

ALTERNATIVE NO.: **28**

DESCRIPTION: **USE A MONOLITHIC CONCRETE CURB TO EMULATE**  
**GRANITE CURBS NEXT TO THE BICYCLE LANES**

SHEET NO.: **1 of 2**

**ORIGINAL DESIGN:**

The current design calls for a 5-in. x 17-in. granite curb adjacent to the bicycle lanes.

**ALTERNATIVE:**

Use a monolithic concrete header curb that is polished on the visible side and made to emulate granite.

**ADVANTAGES:**

- Reduces initial cost
- Reduces construction time
- Easier to stage construction
- Reduces impacts to businesses

**DISADVANTAGES:**

- Would be slightly less durable
- Concrete not as strong as granite but certainly less brittle

**DISCUSSION:**

Installing a monolithic concrete header curb constructed to emulate granite maintains the anticipated image and continues to enhance the Buckhead image at a far lesser cost. A visit to the site to observe the Phase I work that employs this detail indicated that numerous granite curbs have already been smeared and marred with black tire marks and scrapings. It is highly unlikely that anyone will clean or improve the appearance of these curbs once marred as noted. As such, a less costly material may very well be better suited for the intended function.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 446,507	—	\$ 446,507
ALTERNATIVE	\$ 180,472	—	\$ 180,472
SAVINGS	\$ 266,035	—	\$ 266,035



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## **PROJECT DESCRIPTION**

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### **INTRODUCTION**

The southern portion of the corridor from Shadowlawn Drive to Lenox Parkway has been included in the current (FY 2002-2004) Transportation Improvement Program (TIP)/Regional Transportation Plan (RTP) as three separate intersection improvement projects. On January 23, 2003, a request was made by the Buckhead CID to Atlanta Regional Commission (ARC) to amend the 2002-2004 TIP and RTP to include the \$6,000,000 appropriated by Congress for the Peachtree Corridor Project. These funds were made available from the Transportation and Community System Preservation Program.

In the first draft of the 2003-2005 TIP currently being circulated, the intersection projects listed in the 2002-2004 TIP have been consolidated into a single project that incorporates the entire corridor from Shadowlawn Drive to Peachtree-Dunwoody Road.

### **NEED AND PURPOSE**

The roadway network in Buckhead is currently plagued by peak period and afternoon congestion resulting in increasing travel times, reduced accessibility for the surrounding commercial, office and residential development, and degraded air quality for the region. These factors, combined with an underused Metropolitan Atlanta Rapid Transit Authority (MARTA) station, an inadequate pedestrian network, and the absence of bicycle facilities, result in an unbalanced transportation system that operates inefficiently, serving neither local nor through traffic adequately. Modal diversity is a key element in the transformation of Peachtree Road into a truly modern roadway.

The project will enhance the use of alternative modes of transportation that will help relieve the roadway network and create a host of viable options for travel to, from and within the community. These efforts, combined with the efforts underway to balance development by adding high density housing and multi-use, community-friendly developments, will create new demand and enhance latent demand for pedestrian connections and other choices for internal and external travel. Residents will be able to access transit for commutes to and from employment centers in the region and will be able to reach shopping, entertainment and office destinations by foot or bicycle. Commuters coming to the retail, hotel and service jobs from MARTA will be better able to reach work destinations by foot, shuttle and bicycle, and will be better able to eliminate midday automobile trips as well. Convention traffic will be able to use transit for connections to downtown and will be more comfortable traveling in the community due to the wayfinding signage. Visitors and shoppers arriving by car will be able to park and use other modes for internal circulation within the district.

The addition of a landscaped median improves safety for both pedestrians and motorists by eliminating points of conflict for automobiles, limiting turning movements which block the flow of traffic, and providing refuge for pedestrians at the major intersections. An analysis of accidents in the corridor indicates a reduction in mid-block accidents of more than 30% can be expected due to the addition of a median.

The combination of elements in this project will allow Peachtree Road to serve the two purposes which typically put it at odds with itself: through traffic and local circulation. The combination of improved efficiency and enhanced modal alternatives will allow Peachtree Road to more adequately serve all transportation modes.

## **PROJECT DESCRIPTION**

The proposed project is located within the Buckhead Community Improvement District (CID) of Atlanta, measuring 0.72 miles in length extending from north of the GA 400 bridge to the Roxboro/Peachtree-Dunwoody Road (MP 1.70) intersection. The facility section comprises of: an 11-ft. sidewalk, 7.5-ft. landscape zone, 4-ft. bicycle lane, 10-ft. travel lane, 11-ft. travel lane, and varying median (normally a 6.5-ft. width) with turning lanes as needed, and mirrors itself beyond the median. The proposed right-of-way will be mitered at intersections to encompass signal equipment and Americans with Disabilities Act requirements. The remaining width of sidewalk will be in a permanent easement. This project will enhance the use of alternative modes of transportation which will help relieve the roadway network and create a host of viable options for travel within the community.

The addition of a landscaped median improves safety for both pedestrians and motorists by eliminating points of conflict for automobiles, limiting turning movements which block the flow of traffic, and providing refuge for pedestrians at the major intersections.

Modification to the existing structure will be limited to installation of a median island and relocation/replacement of existing utilities. Retaining walls may be required due to grades at Lenox Mall and Phipps Plaza. Minor retaining walls may also be required due to localized site conditions. There are major intersections at Piedmont Road, Tower Place, Stratford Road, Lenox Parkway, Lenox Road, and Peachtree-Dunwoody Road. Traffic control during construction will include shoulder closures and/or lane closures during the re-striping, milling and resurfacing, median island construction/modification, curb and gutter, drainage, sidewalk, and signal improvements. It is proposed to perform this work at night and during off-peak hours. Roadway and pedestrian lighting is a proposed feature of this project. Roadway lighting standards will be located in the median and spaced based on illumination requirements; approximate spacing is 100 ft. Pedestrian lighting will be located in the landscaped strip adjacent to the bicycle lane and is to be spaced based on illumination requirements at approximate 40 ft apart. The illumination of the corridor will provide safety enhancements for nighttime driving and pedestrians with increased security at night. Lighting standards shall be of a standard "off the shelf" item; the precise fixture style has not been selected. Lighting will be powered and maintained by Georgia Power.

## **ENVIRONMENTAL CONCERNS**

Two sites within the corridor, Quintessence and the Bright House, have been found to be eligible for inclusion on the National Register of Historic Places. The State Historic Preservation Officer (SHPO) has concurred the sites are eligible and in the proposed boundaries for the sites. Property from the sites will be required for the project. A Historic Resources Survey Report has been prepared.

The SHPO has also determined the eligible National Register boundary of the Bright House should only include the remaining significant landscape features, i.e., the mature trees on the grassed front yard of the property that contribute to the National Register eligibility of the property. In making this

determination consideration was given to the fact that Peachtree Road has already been widened in the vicinity of the property; significant and overwhelming changes in the character of the setting of the property have occurred in the form of modern multi-story residential, office and commercial buildings and the introduction of signage, asphalt parking lots, drives and utilities within the front yard of the property has affected the property setting.

The SHPO has requested that a series of low-growing shrubs be planted along the back edge of the proposed sidewalk to better define the edge of the yard of the Quintessence Property, and thus the landscape plan also take into account the spacing of the trees in front of the Quintessence Property to help define the yard by staggering the placement of the trees. A finding of Conditional No Adverse Effect is also anticipated for the Quintessence Property. The character of the setting has been completely degraded as noted above along Peachtree Road. The SHPO will be afforded the opportunity to review and comment on the landscaping plan to be implemented in the vicinity of the Quintessence Property. The proposed project will require a Programmatic Section 4(f), for the minor taking of land from within the National Register eligible boundary of the Quintessence Property. No other significant environmental concerns have been identified.

### **CONSTRUCTION COSTS**

The probable cost of construction, based on URS' cost estimate dated August 20, 2007, is \$28,291,210. This figure includes: \$15,781,211 for construction and \$12,510,000 for right-of-way.

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## VALUE ANALYSIS AND CONCLUSIONS

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### INTRODUCTION

This section describes the value analysis procedures used during the value engineering study. It is followed by separate narratives and conclusions concerning:

- Value Engineering Study Agenda
- Value Engineering Workshop Participants
- Economic Data
- Cost Estimate Summary and Cost Histograms
- Function Analysis
- Creative Idea Listing and Judgment of Ideas

A systematic approach was used in the VE study and the key procedures involved were organized into three distinct parts: 1) preparation; 2) VE workshop; and 3) post-study. A Task Flow Diagram that outlines each of the procedures included in the VE study is attached for reference.

### PREPARATION EFFORT

Pre-study preparation for the VE effort consisted of scheduling study participants and tasks; gathering necessary background information on the facility; and compiling project data into a cost model and graphic cost histogram. Information relating to the design, construction, and operation of the facility is important as it forms the basis of comparison for the study effort. Information relating to funding, project planning operating needs, systems evaluations, basis of cost, soil conditions, and construction of the facility was also a part of the analysis.

### VALUE ENGINEERING WORKSHOP EFFORT

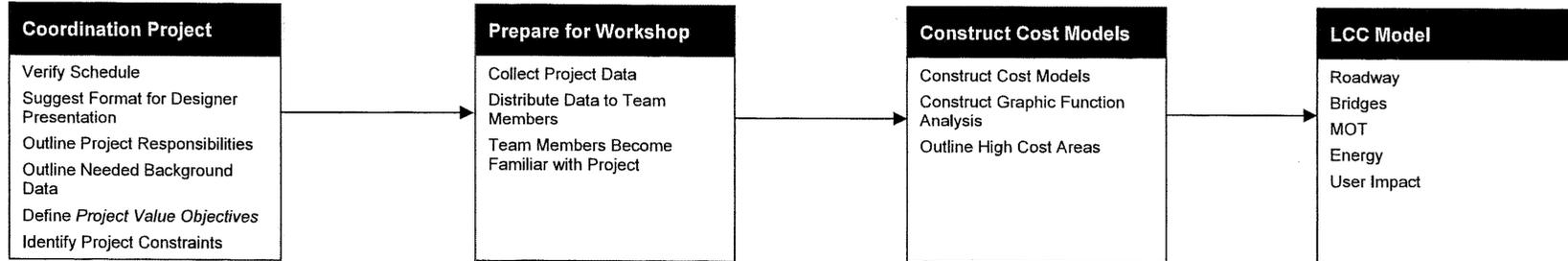
The VE workshop was a three and a half-day effort (see attached agenda). During the workshop, the VE job plan was followed. The job plan guided the search for high cost areas in the project and included procedures for developing alternative solutions for consideration. It includes six phases:

- Information Phase
- Function Identification and Analysis Phase
- Speculation Phase
- Evaluation Phase
- Development Phase
- Presentation Phase

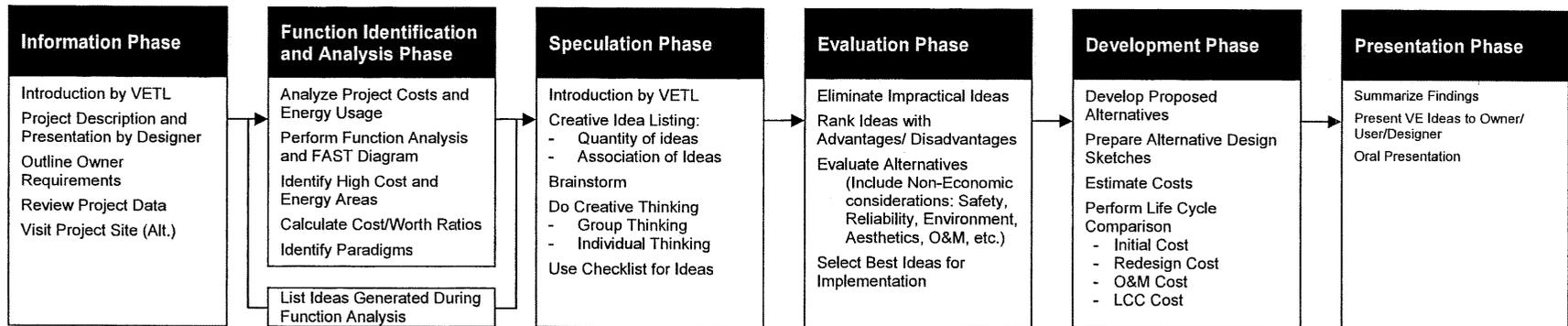


# Value Engineering Study Task Flow Diagram

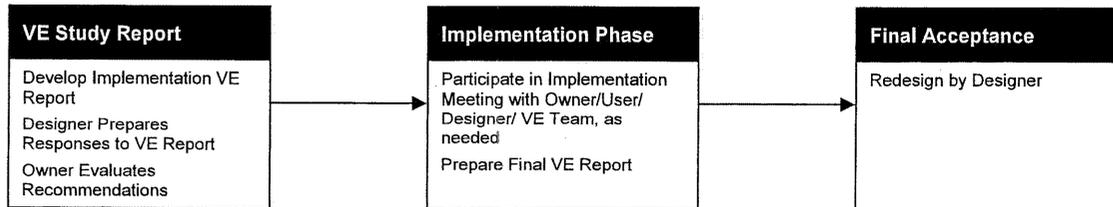
## Preparation Effort



## Workshop Effort



## Post-Workshop Effort



## Information Phase

At the beginning of the study, the conditions and decisions that have influenced the development of the project must be reviewed and understood. For this reason, the development manager presented information about the project to the VE team on first day of the session. Following the presentation, the VE team discussed the project using the following documents:

- Project Concept Report Approval, Department of Transportation, State of Georgia, Interdepartmental Correspondence, Office of Preconstruction for STP-104-1(41,42,43), Fulton County, P. I. Nos. 731560, 731570, 735180; dated May 9, 2002;
- Revised Project Concept Report Approval, Department of Transportation, State of Georgia, Interdepartmental Correspondence, Office of Preconstruction for MSL-0004-00(689), Fulton County, P. I. No. 0004689; dated August 19, 2003;
- Revised Project Concept Report Approval, Department of Transportation, State of Georgia, Interdepartmental Correspondence, Office of Urban Design for MSL-0004-00(689), Fulton County, P. I. No. 0004689; dated May 25, 2004;
- Half Size “Markup Set” Drawings entitled Plan and Profile of Proposed Peachtree Road Corridor Improvements, .R. 53/Mars Hill Rd/Oconee Connector; Fulton County; Federal Aid Project; CSMSL-0006-00-(683); P. I. No. 0006683; Federal Route No. NA; Statue Route No.: 141; prepared by URS Corporation for the State of Georgia Department of Transportation; dated August 8, 2007;
- Estimate Report for File “0006683\_060620” for project CSMSL-0006-00-(683); P. I. No. 0006683; prepared by URS Corporation for the State of Georgia Department of Transportation; dated August 20, 2007;
- Traffic Count Map, Fulton County, Georgia, prepared by the Department of Transportation, Division of Planning and Programming, Planning Data Services in cooperation with the U.S. Department of Transportation, Federal Highway Administration, dated 1983, revised October 12, 1994;
- Cost Estimate Breakdown for CSMSL-0006-00(683); prepared by URS Corporation; dated July 6, 2006;
- Amenity Upgrade Comparison to Standard Items for CSMSL-0006-00(683); prepared by URS Corporation; dated June 22, 2006; and
- Cost Estimate Breakdown for PI#: 0006683; Proj. Acctng. Cd.: CSMSL-0006-00(683), County: Fulton; prepared by State of Georgia Department of Transportation; undated.

## Function Identification and Analysis Phase

Based on historical and background data, a cost model and graphic function analysis were developed for this project by major construction elements. They were used to distribute costs by project element; serve as a basis for alternative functional categorization; and assign worth to the categories, where worth is the least cost to provide the required function, as determined by the VE team. The VE team identified the functions of the various project elements and subsystems by using random function generation techniques resulting in the attached Random Function Analysis worksheet and Function Analysis Systems Technique (F.A.S.T.) diagram.

## **Speculation Phase**

This phase involved the creation and listing of ideas. Creative idea worksheets were organized by project element. During this phase, the VE team developed as many ideas as possible to provide the necessary functions within the project at a lower cost to the owner, or to improve the quality of the project. Judgment of the ideas was restricted at this point. The VE team was looking for a large quantity of ideas and association of ideas.

GDOT and URS representatives may wish to review the creative list since it may contain ideas that can be further evaluated for potential use in the design.

## **Evaluation Phase**

During this phase of the workshop, the VE team judged the ideas generated during the speculation phase. Advantages and disadvantages of each idea were discussed to find the best ideas for development. Ideas that represented the greatest potential for cost savings or improvement to the project were developed further.

The VE team would like to develop all ideas, but time constraints usually limit the number that can be developed. Therefore, each idea was compared with the present schematic design concepts in terms of how well it met the design intent. Advantages and disadvantages were discussed, and each team member rated the ideas on a scale of 1 to 5, with the best ideas rated 5. Total scores were summed for each idea and only highly-rated ideas were developed into alternatives. In cases where there was little cost impact, but an improvement to the project was anticipated, the designation DS, for design suggestion, was used.

The creative listing was re-evaluated frequently during the development of alternatives. As the relationship between creative ideas became more clearly defined, their importance and ratings may have changed, or they may have been combined into a single alternative. For these reasons, some of the originally high-rated items may not have been developed into alternatives.

## **Development Phase**

During the development phase, each highly rated idea was expanded into a workable solution. The development consisted of a description of the alternative, life cycle cost comparisons, where applicable, and evaluation of the advantages and disadvantages of the proposed alternative. Each alternative was written with a brief narrative to compare the original design to the proposed change. Sketches and design calculations, where appropriate, were also prepared in this part of the study. The VE alternatives are included in the Study Results section of the report.

## **Presentation Phase**

The last phase of the VE study was the presentation of the findings. The VE alternatives were screened by the VE team before draft copies of the Summary of Potential Cost Savings worksheets were provided to GDOT and URS representatives during a presentation on the last day of the workshop. The VE alternatives were arranged in the same order as the idea listing sheets to facilitate cross-referencing.

## **POST-WORKSHOP EFFORT**

The post-study portion of the VE study includes the preparation of this Value Engineering Study Report. Personnel from GDOT and URS will analyze each alternative and prepare a short response, recommending either incorporating the alternative into the project, offering modifications before implementation, or presenting reasons for rejection. Lewis & Zimmerman Associates, Inc. is available at your convenience as you review the alternatives. Please do not hesitate to call on us for clarification or further information as you consider an implementation approach.

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## VALUE ENGINEERING STUDY AGENDA

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Lewis & Zimmerman Associates, Inc. (LZA) will conduct a 28-hour Value Engineering (VE) study on the following project: CSMSL-0006-00-(693), P. I. No. 0006683, STATE ROUTE 141 (SR 141)/ PEACHTREE ROAD CORRIDOR IMPROVEMENTS from SR 400 to Roxboro Road/Peachtree Dunwoody. The project is located in Fulton County, Georgia. It is expected the owner, the Georgia Department of Transportation (GDOT) and the design consultant, URS Corporation (URS), will be available to make a formal presentation concerning the project at the beginning of the workshop and be available to answer questions during the VE study effort.

### VE Study Agenda

The VE study will follow the outline described below and be conducted September 4 - 7, 2007. The study will be conducted in the Engineering Services' Conference Room, Room 264 of GDOT's General Office located at No. 2 Capitol Square Street, Atlanta, Georgia 30334. The point-of-contact is Ms. Lisa L. Myers, Design Review Engineer Manager, and Value Engineering Coordinator, who can be reached at 404-651-7468.

### Tuesday, September 4<sup>th</sup>

9:00 am – 9:15 am                      **General Introduction of all Parties and review of the VE Process**

9:15 am - 11:15 am                      **Owner's/ Designer's Presentation**

GDOT and URS are to present information concerning the projects including, but not necessarily limited to: rationale for design, criteria for specific areas of study, project constraints, and the reasons for design decisions.

11:15 am - 12:00 noon                      **Commence Function Analysis Phase**

The VE team will continue their familiarization with the cost models and project data for each area of study. The cost model(s) will be refined, as necessary; define the function of each project element or system in the cost model, select the primary or basic functions, and determine the worth, or least cost, to provide the function. Cost/ worth or value index ratios will be calculated, and high cost/ low worth areas for study identified. In addition, the VE team will continue defining the function of each element/ system to gain a thorough understanding of the project's needs and requirements.

12:00 noon - 1:00 pm                      **Lunch**

1:00 pm - 5:00 pm                      **Conclude the Function Analysis Phase and Commence the Creative Phase**

The VE team will conduct a brainstorming session and list as many ideas as possible for consideration. The aim is to obtain a large quantity of ideas through free association, by eliminating roadblocks to creativity and deferring judgment.



## **VALUE ENGINEERING WORKSHOP PARTICIPANTS**

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The VE team was organized to provide specific expertise on the unique project elements involved. Team members consisted of a multidisciplinary group with professional design experience and a working knowledge of VE procedures. The VE team included the following professionals:

Tyler Denning, PE	Highway Engineer	ARCADIS U.S., Inc.
Paresh J. Parikh, PE	Construction Specialist/ Transportation Engineer	Delon Hampton and Associates
Luis M. Venegas, PE, LEED® AP, FSAVE	Value Engineer Facilitator/ Team Leader	Lewis & Zimmerman Associates

### **OWNER'S/DESIGNER'S PRESENTATION**

GDOT and URS presented an overview of the project on Tuesday, September 4, 2007. The purpose of this meeting, in addition to being an integral part of the Information Gathering Phase of the VE Study, was to bring the VE team “up-to-speed” regarding the overall project. Additionally, the meeting afforded the design team the opportunity to highlight in greater detail, those areas of the project requiring additional or special attention.

### **VALUE ENGINEERING TEAM'S FINAL PRESENTATION**

The VE team conducted an informal presentation on Friday, September 7, 2007 to GDOT and URS representatives. Copies of the draft Summary of Potential Cost Savings worksheets were provided for interim use by GDOT and URS personnel.

A copy of the meeting participants is attached for reference.

# VALUE ENGINEERING ATTENDEES

## MEETING PARTICIPANTS



<b>PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,</b> <b>SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS</b> <i>Fulton County, Georgia Department of Transportation, District 7</i> <i>Final Design Stage</i>		Date: <b>September</b> <b>4 -7, 2007</b>
NAME & E-MAIL (PLEASE PRINT)	ORGANIZATION/TITLE	PHONE/FAX
Name: Steve Carter GDOT Employee No.:  em: steve.carter@dot.stat.ga.us	Organization: Georgia Department of Transportation (GDOT), Engineering Services  Title: Design Review Engineer Manager	ph: 404-651-7569 cell:  fx: 404-463-6131
Name: Marcela Coll GDOT Employee No.:  em: marcela.coll@dot.stat.ga.us	Organization: GDOT, Office of Urban Design  Title: Assistant Design Group Manager	ph: 404-656-5447 cell:  fx:
Name: Paul F. Conduit GDOT Employee No.:  em: paul.condit@dot.stat.ga.us	Organization: GDOT, Office of Environmental / Location (OEL)  Title: Transportation Environmental Planner	ph: 404-699-4413 cell: 678-656-9440  fx: 404-699-4440
Name: Todd Long, PE GDOT Employee No.:  em: todd.long@dot.state.ga.us	Organization: GDOT, Preconstruction Division  Title: Preconstruction Division Director	ph: 404-656-5187 cell:  fx: 404-463-7071
Name: Gerald (Jerry) A. Milligan GDOT Employee No.:  em: jerry.milligan@dot.state.ga.us	Organization: GDOT, Office of Right of Way  Title: Supervisor Appraisal Estimator	ph: 770-986-1541 cell:  fx: 770-986-1558
Name: Lisa L. Myers GDOT Employee No.:  em: lisa.myers@dot.state.ga.us	Organization: GDOT, Engineering Services  Title: Design Review Engineer Manager, Value Engineering Coordinator	ph: 404-651-7468 cell:  fx: 404-463-6131
Name: Nabil Raad GDOT Employee No.:  em: nabil.raad@dot.state.ga.us	Organization: GDOT, Office of Traffic Safety and Design  Title: Traffic Design Engineer II	ph: 404-635-8126 cell:  fx: 404-635-8116
Name: Darrell M. Richardson, PE GDOT Employee No.:  em: darrell.richardson@dot.state.ga.us	Organization: GDOT, Office of Urban Design  Title: Assistant State Urban Design Engineer	ph: 404-657-9872 cell:  fx: 404-657-7921
Name: Larry Smith, PE GDOT Employee No.:  em: larry.smith@dot.state.ga.us	Organization: GDOT, Office of Urban Design  Title: Assistant Group Manager	ph: 404-656-5447 cell:  fx: 404-657-7921
Name: Brian K. Summers, PE GDOT Employee No.:  em: brian.summers@dot.state.ga.us	Organization: GDOT, Engineering Services  Title: Project Review Engineer	ph: 404-656-6846 cell:  fx: 404-463-6131

# VALUE ENGINEERING ATTENDEES

## MEETING PARTICIPANTS



<b>PROJECT: CSMSL-0006-00-(683), P. I. No. 0006683,</b> <b>SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS</b> <i>Fulton County, Georgia Department of Transportation, District 7</i> <i>Final Design Stage</i>		Date: <b>September</b> <b>4 -7, 2007</b>
NAME & E-MAIL (PLEASE PRINT)	ORGANIZATION/TITLE	PHONE/FAX
Name: Albert (Butch) S. Welch, Jr. GDOT Employee No.: em: albert.welch@dot.state.ga.us	Organization: GDOT, Office of Urban Design Title: Design Group Manager	ph: 404-656-5447 cell: fx: 404-657-7921
Name: Scotty Greene GDOT Employee No.: em: sgreene@buckheadcid.com	Organization: Buckhead Community Improvement District (CID) Title: Executive Director	ph: 404-842-2686 cell: fx: 404-842-2681
Name: Brian McHugh GDOT Employee No.: em: bmchugh@buckheadcid.com	Organization: Buckhead CID Title: Project Manager	ph: 404-842-2693 cell: 404-514-4882 fx: 404-842-2681
Name: Donald (Don) C. Harris, PE GDOT Employee No.: em: don_harris@urscorp.com	Organization: URS Corporation (URS) Title: Vice President / Coordinator Regional Transportation Services	ph: 678-808-8804 cell: 404-431-4673 fx: 678-808-8400
Name: Sean Pharr, PE GDOT Employee No.: em: sean_pharr@urscorp.com	Organization: URS Title: Project Manager	ph: 678-808-8839 cell: 404-783-01232 fx: 678-808-8400
Name: Tyler (Ty) Denning, PE GDOT Employee No.: em: tyler.denning@arcadis-us.com	Organization: ARCADIS Title: Roadway Engineer	ph: 770-431-8666 cell: 404-245-7272 fx: 770-435-2666
Name: Paresh J. Parikh, PE GDOT Employee No.: em: pparikh@delonhampton.com	Organization: Delon Hampton & Associates, Chartered Title: Manager of Engineering Services	ph: 404-419-8434 cell: fx: 404-524-2575
Name: Luis M. Venegas, PE, CVS-Life, LEED® AP, FSAVE GDOT Employee No.: em: lvenegas@lza.com	Organization: Lewis & Zimmerman Associates, Inc. Title: Value Engineering Facilitator	ph: 770-992-3032 cell: 678-488-4287 fx: 770-432-2666
Name: GDOT Employee No.: em:	Organization: Title:	ph: cell: fx:
Name: GDOT Employee No.: em:	Organization: Title:	ph: cell: fx:

## ECONOMIC DATA

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The VE team developed economic criteria used for evaluation with information gathered from the State of Georgia Department of Transportation and URS Corporation. To express costs in a meaningful manner, the VE team alternatives are presented on the basis of discounted present worth. Criteria for planning project period interest rates are based on the following parameters:

Year of Analysis:	2007
Construction Start Up:	±2008 (January)
Construction Duration:	±18 Months (June 2010)
Economic Planning Life for Pavement:	35 years
Economic Planning Life for Bridges:	50 years
Discount Rate/Interest:	2.50% (Extrapolated from latest United States Office of Management and Budget Circular A-94, Appendix C – January 2007)
Inflation/Escalation Rate:	8.00% (Per GDOT)
Uniform Present Worth (UPW) Factor:	23.1452 for 35 years 28.3623 for 50 years
Cost of Power:	\$0.07/kWhr (kilowatt hour) (assumed)
Operation and Maintenance Costs (Industry Norms):	
Equipment - With Many Moving Parts	5.00%-5.50%+ of Capital Cost
Equipment - With Minimal Moving Parts	3.50%-4.00% of Capital Cost
Equipment - Electronic	3.00% of Capital Cost
Structural	1.00%-2.00% (or less) of Capital Cost
Composite Mark-Up for Construction: (Composed of: Engineering and Construction at 10%.)	10.00% (1.1000)
Composite Mark-Up (Right-of-Way): (Composed of: Scheduling Contingency at 55%; Administration/Court Costs at 60%; and Inflation Factor at 40%.)	247.20% (3.4720)

## **COST ESTIMATE SUMMARY AND COST HISTOGRAMS**

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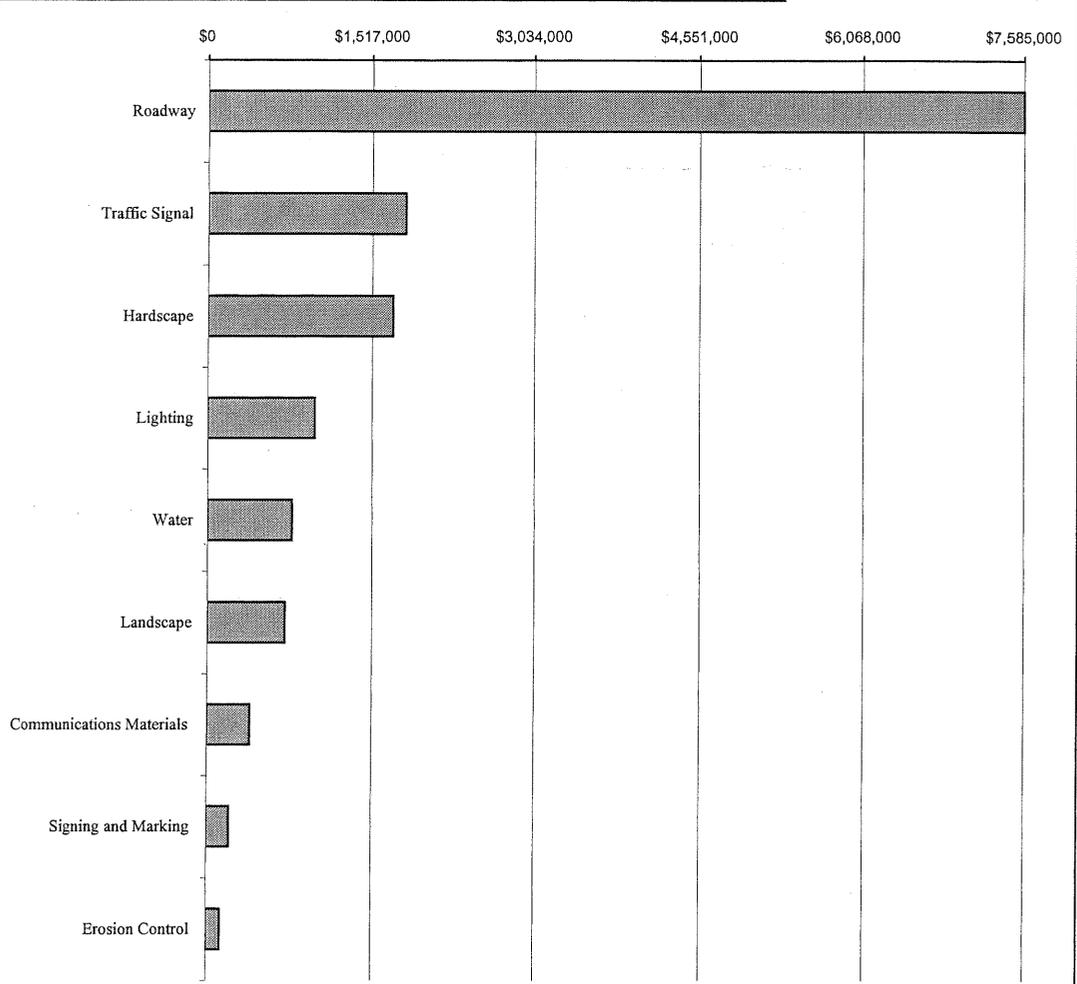
The VE team leader prepared a cost model for the project that follows this page. The cost model is arranged in the Pareto Charting/Cost Histogram format to aid in identifying high cost areas and is based on the Estimate Report for file “0006683\_060620” construction cost estimate which was prepared by URS Corporation dated August 20, 2007. As can be expected, judgments at this stage of the study are based on experience and intuition rather than facts, which are not uncovered until well along in the analysis of function. As a result of these qualified hypotheses, there appears to be a potential for initial savings in the following areas:

- Roadway
  - Granite Curb
  - Class B Concrete
  - Recycled Asphaltic Concrete
- Traffic Signal
  - Installation
  - Strain Poles
  - Intersection Video Detection System Assembly
- Hardscape
  - Concrete Pavers
  - Granite Pavers and Corner Pieces
  - Granite Curbs
- Lighting

# COST HISTOGRAM

Project: CSMSL-0006-00-(683), P. I. No. 0006683,  
**SR 141 / PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
 Fulton County, Georgia Department of Transportation, District 7  
 Final Design Stage

TOTAL PROJECT - SR 141 / PEACHTREE ROAD IMPROVEMENTS	COST	PERCENT	CUM. PERCENT
Roadway	7,584,260	52.86%	52.86%
Traffic Signal	1,832,465	12.77%	65.64%
Hardscape	1,712,097	11.93%	77.57%
Lighting	986,756	6.88%	84.45%
Water	778,275	5.42%	89.87%
Landscape	716,080	4.99%	94.87%
Communications Materials	395,765	2.76%	97.62%
Signing and Marking	210,198	1.47%	99.09%
Erosion Control	130,659	0.91%	100.00%
<b>Construction Subtotal</b>	<b>\$ 14,346,555</b>	<b>100.00%</b>	
Engineering and Construction at 10.00%	\$ 1,434,656		
Inflation Based on 0.00% per annum for 0 Years 0.00%	\$ -		
<b>Construction Total</b>	<b>\$ 15,781,211</b>		
Right-of-Way Costs; MSL-0004-00(689)	\$ 3,603,111		<b>Construction Mark-Up: 10.00%</b>
<b>Right-of-Way Subtotal</b>	<b>\$ 3,603,111</b>		
Scheduling Contingency 55.00%	\$ 1,981,711		
Administration / Court Costs 60.00%	\$ 3,350,893		
Inflation Factor 40.00%	\$ 3,574,286		
<b>Right-of-Way Total</b>	<b>\$ 12,510,000</b>		<b>ROW Mark-Up: 247.20%</b>
<b>GRAND TOTAL</b>	<b>\$ 28,291,210</b>		



**Costs in graph are not marked-up.**  
 \*\* Escalation rate as provided by URS' Cost Estimate.

## **FUNCTION ANALYSIS**

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Function Analysis was performed to define the requirements for each project element and ensure a complete and thorough understanding by the VE team of the basic function(s) needed to attain a given requirement. A Random Function Analysis worksheet for the project is attached. This part of the function analysis stimulated the VE team members to think in terms of the areas in which to channel their creative idea development.

Function Analysis is a means of evaluating a project to see if the expenditures actually perform the requirements of the project, or if there are disproportionate amounts of money spent on support functions. These elements add cost to the final product, but have a relatively low worth to the basic function.

In addition to the random function analysis, the VE team leader worked with members of the study team to develop a Function Analysis System Technique (F.A.S.T.) diagram for each phase. The F.A.S.T. diagram was used to show the flow of function within the phases. It helps to confirm the project is addressing those issues that have been voiced by the owner as being important. The diagram was generated by asking the key question: "What is the most important function to be accomplished by this phase?" The answer is characterized by a verb/noun pair. In turn, another question is asked: "Why?" The answer is again listed in a verb/noun pair, and the process continued from left to right. If the result is a true F.A.S.T. diagram, the flow of functions from right to left will answer the question "Why?" No F.A.S.T. diagram is ever completed. The readers of this report may wish to challenge themselves to see how far they can carry the construction of the F.A.S.T. diagram.

This F.A.S.T. diagram notes the critical function paths and identifies the project's basic functions as IMPROVING TRAFFIC FLOW by Managing/Access, and IMPROVING/SAFETY by Managing/Access and Accommodating/Pedestrians and Bicyclists. The F.A.S.T. diagram follows the attached Random Function Analysis worksheet.

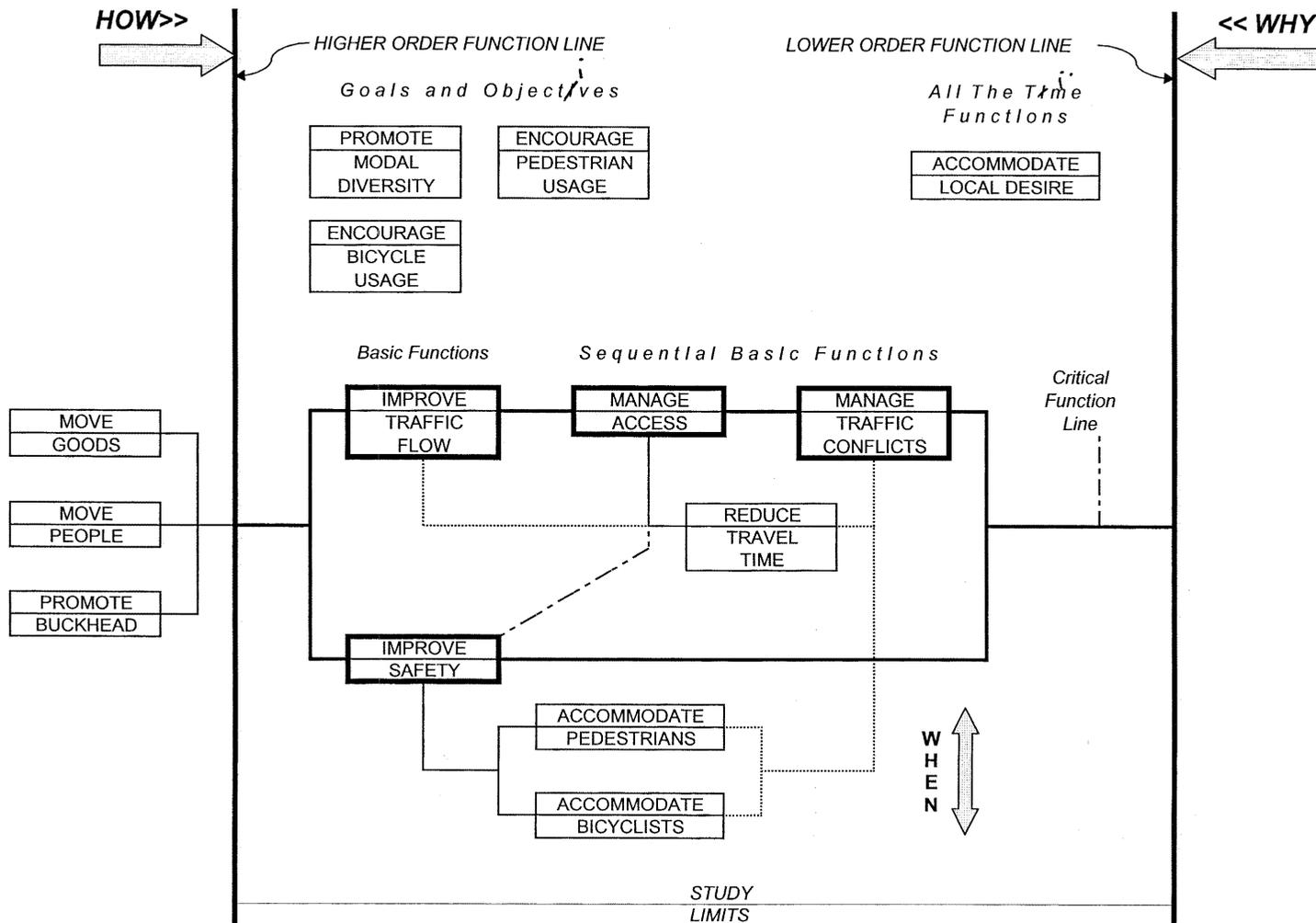


# FUNCTION ANALYSIS SYSTEMS TECHNIQUE (F. A. S. T.)

## SR 141 / Peachtree Road Corridor Improvements



CSMSL 0006-00(683); P. I. No. 0006683  
 Georgia Department of Transportation, District 7  
 Fulton County, Georgia



## **CREATIVE IDEA LISTING AND JUDGMENT OF IDEAS**

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During the speculation phase, numerous ideas, alternative proposals and/or recommendations were generated using conventional brainstorming techniques as recorded on the following pages.

These ideas were discussed and the advantages/disadvantages of each listed. The VE team compared each of the ideas with the concept solution determining whether it improved value, was equal in value, or lessened the value of the solution.

The ideas were ranked on a scale of 1 to 5 on how well the VE team believed the idea met necessary criteria and program needs. The higher rated ideas were then developed into formal alternatives and included in the VE report. Some ideas were judged to have minimal cost impacts on the project but provided enhancements in the form of improved operations, efficiency, constructibility or potential to save unknown or hidden costs. These were given the designation "DS" which indicates a design suggestion. This designation is also used when an idea is difficult to price but improves the functionality of the project or system, and is deemed to be of significant value to the owner, user, operator or designer.

Typically, all ideas rated 4 or 5 are included in the Study Report. When this is not the case, an idea was combined with another related idea or discarded as a result of additional research that indicated the concept as not being cost-effective or technically feasible.

All readers are encouraged to review the attached Creative Idea Listing worksheet since it may suggest additional ideas that can be applied to the design.

# CREATIVE IDEA LISTING



PROJECT: **CSMSL-0006-00-(683), P. I. No. 0006683,**  
**SR 141/PEACHTREE ROAD CORRIDOR IMPROVEMENTS**  
*Fulton County*

SHEET NO.: **1 of 1**

NO.	IDEA DESCRIPTION	RATING
1	Eliminate bicycle lane and use 12-ft. travel lanes	5
2	Use 10-ft. wide sidewalks and two 11-ft. and one 10-ft. travel lanes	4
3	Use single 18-in. granite curbs in median	4
4	Eliminate 1-ft. granite pavers – continue landscaping	5
5	Eliminate 1-ft. granite pavers and use two 11-ft. and one 10-ft. travel lanes	4
6	Use concrete in lieu of granite curbs throughout	2
7	Close the corridor and convert to a pedestrian mall	1
8	Use single 6-in. granite curbs in median	4
9	Use 3-in. thick granite curbs	2
10	Use normal (perhaps colored) concrete in lieu of granite pavers at the curbs	5
11	Use stamped concrete in lieu of granite pavers	2
12	Use asphalt sidewalks	2
13	Use stamped/colored asphalt in lieu of granite pavers	3
14	Use younger species of trees	4
15	Use smaller diameter trees (at maturity less than 4-in. diameter)	5
16	Use xeriscape (combine with Alt. No. 18)	4
17	Use perennials in lieu of seasonal color plantings	4
18	Eliminate drip irrigation system (combine with Alt. No. 16)	See No. 16
19	Use grass and crepe myrtles in lieu of extensive landscaping	3
20	Eliminate landscaping	1
21	Do not improve Lenox Mall entrance	4
22	Use a standard 6-in. curb and gutter median and eliminate median landscaping	3
23	Use colored concrete in lieu of granite pavers	4
24	Eliminate median street lighting	4
25	Use stamped/colored asphalt at cross walks only	4
26	Use milling and overlay in lieu of full depth pavement at side streets and driveways	4
27	Use monolithic concrete curb at median to emulate granite curb	4
28	Use monolithic concrete curbs next to the bicycle lanes	4

Rating: 1 → 2 = Not to be Developed; 3 – 4 = Varying Degree of Development Potential; 5 = Most Likely to be Developed;  
 DS = Design Suggestion; ABD = Already Being Done; N/A = Not Applicable