

FINAL ENGINEERING REPORT

BANNERMAN ROAD (From North Meridian Road to Thomasville Road)

Project Number: BC-04-29-09-28

Prepared By: RS&H, Inc.



Prepared for: Leon County, Florida



The Bannerman Road Corridor Study is a Leon County Project

November 2012

PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Reynolds, Smith, and Hills, Inc., a Florida corporation authorized to operate as an engineering business (EB No. EB0005620) by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have supervised the preparation and approve the evaluation, findings, opinions, conclusions, and technical advice hereby reported for:

Project: Bannerman Road Corridor Study

Location: Leon County, Florida

Report: Final Engineering Report

Financial Project ID No.: 414132-3-32-01

This report includes a summary of data collection efforts, traffic analysis, signal warrant analysis, and summary of conclusions. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering and planning as applied through professional judgment and experience.

Name: Nicholi A. Arnio, PE

Florida PE Registration No.: A67530

Signature: _____

Date: _____

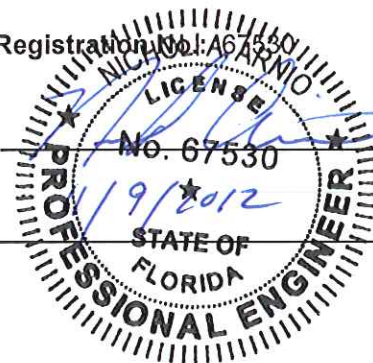




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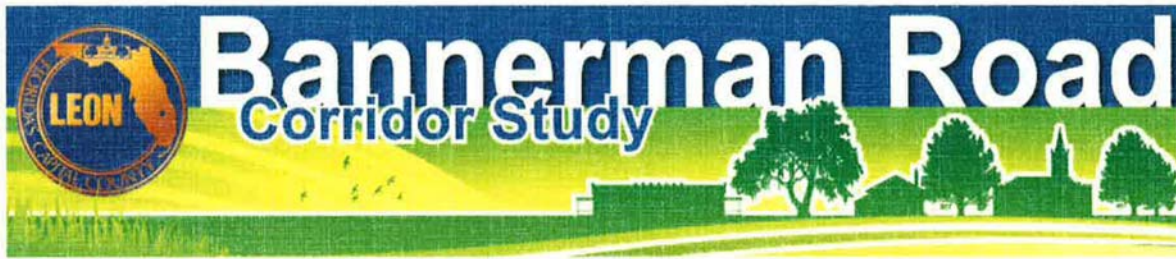
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CAC ACCEPTANCE LETTER



November 1, 2012

Reference: Bannerman Road Corridor Study
Citizen's Advisory Committee Final Report

Dear Honorable Leon County Commissioners:

In July 2010 the Citizen's Advisory Committee (CAC) first assembled to consider transportation enhancements to the Bannerman Road corridor. The first action of the CAC was to divide the corridor into three segments. The segment termini were developed based on existing signals that coincide with a change in the traffic volumes and overall feel of the corridor. The segments for the corridor study are:

Segment 1: North Meridian Road to Bull Headley Road

Segment 2: Bull Headley Road to Tekesta Drive

Segment 3: Tekesta Drive to Thomasville Road

A detailed traffic study showed that only Segment 3 would require widening to meet the adopted level of service for the year 2035. The CAC agreed that widening options should be considered for only Segment 3, whereas bicycle and pedestrian facilities should be considered for the entire length of the corridor.

Upon appointment to this committee, each of us had our own set of goals and expectations, and our own unique experiences along and near Bannerman Road from which to draw upon, but we remained open-minded and quickly established a positive working relationship with the County staff, the consultant team, and each other. As members of the CAC, we went into the process possessing some degree of expertise. A variation in experience level worked well because the overall CAC experience was part civic involvement, but even more about education, which came in the form of understanding large-scale transportation studies, which included stormwater treatment facilities, sidewalks and bicycle paths, and understanding roadway level of service calculations. This allowed all members to share bits of their expertise while absorbing the larger picture from County and consultant staff.

The CAC acknowledged the challenge of expanding a roadway and its requisite needs in an area that has already undergone severely restrictive stormwater treatment criteria, which affects all impervious surfaces. The CAC agreed early on that stormwater requirements, safety, and meeting the needs of the traveling public would drive the design of the roadway and other improvements. *Because the stormwater issues are a major part of the existing conditions and treatment requirements set by the County are very strict compared to other*

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areas of the County, the CAC requests more and direct involvement by the County Department of Development Support and Environmental Management in the future studies.

For over two years, the CAC engaged in long discussions on numerous issues and topics. We worked cooperatively to agree on causes, methods, and outcomes. We were usually able to put differences of opinion aside to concentrate on the common goal of settling on a single overall transportation improvement plan.

Now, with the presentation of the 30 percent plans, the CAC brings its work to a close. We did not unanimously agree on the preferred alternative for each segment. The majority fully endorses the 30 percent plans as presented, and we hope it will be financially feasible to bring this plan to life for the betterment of the area residents and all the users of the Bannerman Road corridor. We had 13 CAC meetings throughout the entire study. At the end, one member did not agree with the widening recommendation of any portion of the roadway. For reference, the letter composed by this CAC Member is provided on page 17 of this document.

At all times, the CAC tried to be conscious about project cost while balancing the need for an environmentally pleasing and aesthetic transportation facility while minimizing the impacts to property owners along the corridor. There are several particular CAC concerns that were addressed at the time and are now illustrated in this plan. We list them here to caution future changes deviating from specific CAC intent.

Concerns that we addressed in the 30 percent plans reflecting the CAC's wishes are:

Segments 1 & 2:

- The CAC supports a 10' wide multi-use path on the north side of the roadway for segments 1 and 2.
- The CAC supports no improvements to the existing roadway due to the lack of significant growth in traffic and the added cost of stormwater treatment.

Segment 3:

- The CAC supports a four-lane, median divided roadway with a multi-use path, with the path being located on the north side of the road for Segment 3.
- The CAC supports minimizing cost to meet stormwater treatment requirements by utilizing the existing roadway as the westbound lanes.
- The CAC supports adding the eastbound lanes to the south of the existing roadway.
- The CAC supports the stormwater treatment within the swale to minimize acquisition of additional right-of-way for stormwater ponds.



- The CAC recommends delineation of the wild flowers just east of Quail Common Drive to Sable Chase Subdivision on the north side of the road. During final design, efforts should be made to preserve these wild flowers as much as possible.
- The CAC supports the construction of right and left turn lanes where they are warranted within Segment 3.

In conclusion, the CAC has enjoyed carrying out its mission and believes that County staff and the consultant team have assembled the best possible plan for this corridor. We congratulate everyone who was involved in the process, and we appreciate the County's foresight and adherence to a strict rule of citizen involvement by allowing the CAC to be a part of its public participation program for the Bannerman Road Corridor Study.

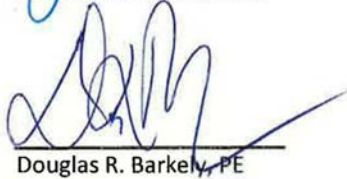
Sincerely,

The Bannerman Road Citizen's Advisory Committee

Approve:


Joanie D. Trotman, Chair


Fred Breeze, Vice Chair


Douglas R. Barkley, PE


Mark E. Reichert


Winifred Heggins


Stan Peacock

Dissent:


Michael Mendez



EXECUTIVE SUMMARY

This project is a Leon County Corridor Study to evaluate the need for widening of Bannerman Road between Thomasville Road (US 319) and North Meridian Road (CR 155). There are currently four (4) signalized intersections within the project limits, which include the intersections of Bannerman Road with North Meridian Road, Bull Headley Road, Tekesta Drive, and Thomasville Road. The project has been broken into three sections based on existing commuting patterns and traffic demand. Segment 1 begins at North Meridian Road and ends at Bull Headley Road. Segment 2 begins at Bull Headley Road and ends at Tekesta Drive. Segment 3 begins at Tekesta Drive and ends at Thomasville Road, a portion of which has recently been four-laned. The total project length is approximately 4.6 miles.

TRAFFIC

The substandard operating conditions within the Corridor Study Area by the 2035 Design Year warrant the widening of Bannerman Road between Tekesta Drive and Thomasville Road. This segment of the Corridor is currently operating at Level of Service (LOS) E and is expected to operate at LOS F in the year 2035. The Build alternatives, which include a 4-lane configuration, should replace the existing 2-lane configuration. Under Build conditions with the additional improvements at the Tekesta Drive intersection, the intersection is expected to operate at LOS C or better while Bannerman Road is expected to operate at LOS B or better by the 2035 Design Year.

Based on the forecasted traffic demand throughout the Bannerman Road corridor, the proposed future lane configuration is as follows:

- Segment 1 – Two Lane (existing)
- Segment 2 – Two Lane (existing)
- Segment 3 – Four Lane (widen)

The signalized intersection at Tekesta Drive will also require additional improvements which include dual southbound lefts and a westbound right lane drop. Additional information on lane geometries is provided in the complete report.

CORRIDOR ALTERNATIVES

Alternatives were developed based on the identified needs and features that the Citizen's Advisory Committee (CAC) felt were important to the character and function of the Bannerman Road corridor. Vehicular demand and the implementation of bicycle and pedestrian accommodations were high priorities when developing corridor alternatives. The corridor alternatives include:

Segment 1:

- Alternative A – Existing two-lane road with a multi-use path
- Alternative B – Existing two-lane road with a sidewalk on one side
- Alternative C – Existing two-lane road with sidewalks on both sides



Segment 2:

- Alternative A – Existing two-lane road with a multi-use path
- Alternative B – Existing two-lane road with a sidewalk on one side
- Alternative C – Existing two-lane road with sidewalks on both sides

Segment 3:

- Alternative A – Four-lane road with swales; widened to the south
- Alternative B – Four-lane road with curb and gutter; widened to the south
- Alternative C – Four-lane road with curb and gutter; widened to the north

DRAINAGE

Segments 1 & 2

The three build alternatives selected by the CAC for Segments 1 & 2 did not require off-site treatment Stormwater Management Facilities (SWMF's). Stormwater management would be provided using an aggregate storage zone under the trail or sidewalk area for all alternates. Although it requires 5' more right-of-way (ROW) and aggregate storage, Alternative A is preferred and recommended since it offers the greatest flexibility for recreational purposes.

Segment 3

The three build alternatives for Segment 3 required two significantly different stormwater management systems primarily due to the rural paved shoulder (Alternative A) and urban curb and gutter (Alternatives B & C) typical sections. Each Alternative provides a 10' recreational trail. There are 8 watershed basins in this segment.

- Alternative A consists of a 4-lane rural typical section and utilizes the roadway swale ditches for stormwater management. Except in Basin 3-1, the westbound roadway swale would provide the required Bradfordville Study Area (BSA) treatment for the roadway which would infiltrate initially into an underground storage system and then into the underlying strata. The eastbound roadway swale would provide attenuation and outfall into the existing drainageways. Basin 3-1 would utilize a pond to provide retention required to meet the Lake Jackson stormwater management requirements.
- Alternates B & C utilize a 4-lane urban curb and gutter typical section and an enclosed pipe collection system. A surface stormwater management facility was required for each basin for treatment and attenuation. Preliminary soils information, topography and land use were used to determine potentially suitable sites.

Estimates of the right-of-way and the cost to provide the required stormwater drainage and management facilities were developed and furnished to the CAC and presented to the public at the second public meeting.



The stormwater management recommendation for Segment 3 that is included in Alternative A has a significantly lower cost and requires only slightly more (0.4 acres) right-of-way.

THE PREFERRED ALTERNATIVE

The preferred alternative was taken before the Board of County Commissioners on October 11, 2011. The Board voted 7-0 to approve the CAC’s recommendation which consisted of Alternative A in Segments 1, 2, and 3.

The selection of preferred alternatives for detailed consideration was based on the stated objectives for this project and from input received at the public meetings. The primary objectives are to increase the traffic capacity to accommodate existing and future volumes, to accommodate pedestrian and bicyclists, and to minimize costs and environmental impacts.

The CAC voted to determine the preferred alternative by ranking each alternative in each Segment. Voting occurred at the June 6, 2011 CAC Meeting. The CAC Members were asked to rank each Alternative from 1 to 4, 1 being the most preferred and 4 being the least preferred. The Leon County Public Participation (p2) Policy states that the CAC must have a majority for a vote to count. Outlined below are the selection results from the June 6th CAC meeting.

The Segment 1 CAC Preferred Alternative is Alternative A – Existing two-lane road with a multi-use path.

Segment 1 Ranking							
CAC Member	Ms. Trotman	Mr. Mendez	Mr. Reichert	Mr. Breeze	Mr. Barkley	Mr. Peacock	Ms. Heggins
Alt. A	2	1	1	1	3	1	3
Alt. B	1	2	2	3	2	2	2
Alt. C	3	3	3	4	4	3	4
No-Build	4	4	4	2	1	4	1

The Segment 2 CAC Preferred Alternative is Alternative A – Existing two-lane road with a multi-use path. The CAC also recognizes the benefit of further study at the intersection of Bannerman Road and Reynolds Drive. This specific area is identified in the 30% Plans as an area in need of further engineering analysis in the final design phase.

Segment 2 Ranking							
CAC Member	Ms. Trotman	Mr. Mendez	Mr. Reichert	Mr. Breeze	Mr. Barkley	Mr. Peacock	Ms. Heggins
Alt. A	1	1	1	1	2	1	1
Alt. B	2	2	2	3	1	2	3
Alt. C	3	3	3	4	4	3	4
No-Build	4	4	4	2	3	4	2

The Segment 3 CAC Preferred Alternative is Alternative A – Four-lane road with swales; widened to the south.



Segment 3 Ranking							
CAC Member	Ms. Trotman	Mr. Mendez	Mr. Reichert	Mr. Breeze	Mr. Barkley	Mr. Peacock	Ms. Heggins
Alt. A	2	2	1	1	1	1	1
Alt. B	1	3	2	3	3	2	2
Alt. C	3	4	3	4	4	3	3
No-Build	4	1	4	2	2	4	4

The CAC’s recommended improvements will provide needed capacity improvements on Bannerman Road between Thomasville Road and Tekesta Drive, and provide needed bicycle and pedestrian facilities throughout the entire corridor.

The CAC recommends that between North Meridian Road and Tekesta Drive, a multi-use path be added to accommodate bicycles and pedestrians. The recommendation from Tekesta Drive to Thomasville Road includes widening from two lanes to four lanes with included improvements at intersection approaches where required by capacity analysis. A multi-use path is also recommended to accommodate bicyclists and pedestrians along Segment 3. The build alternatives considered include proposed minimum right of way of 156 feet. No interchanges or elevated structures are required.

The proposed project will include the construction of stormwater ponds, improvements at major intersections, and a multiuse path. Improvements between Thomasville Road and Tekesta Drive include additional left turn bays, which will address capacity issues.

PUBLIC INVOLVEMENT

The Public Involvement Process initiated by Leon County is a process that actively engages stakeholders in the decision making process. Known formally as the Transportation Corridor Study Public Participation (p2, pronounced “p-squared”) Program, the intent of the Public Participation Plan is designed to fully acknowledge the value of community engagement at all levels, as required by Leon County Policy No. 03-07. The Public Participation theme focused on community, and it is designed to: 1) educate the community about the project; 2) receive community input as the project progresses; and 3) provide feedback to the community about project decisions. In accordance with the p2 process, three pivotal components were facilitated by the project team. These components include:

- Public Outreach initiatives
- Formation of the CAC
- Multiple Open House public meetings

These meetings were held in order to give those interested the opportunity to express their views concerning the location, conceptual design, social, economic, and environmental effects of this project.



COMMITMENTS, RECOMMENDATIONS, AND DISSENT

COMMITMENTS

During the public involvement portion of the Corridor Study, it was clear that the citizens within the Killlearn Lakes Subdivision were concerned about the existing flooding issues within their neighborhood. Leon County intends to require the design engineer to address the existing flooding issues, to the maximum possible extent, in the Killlearn Lakes subdivision during the design phase of Bannerman Road. If the existing flooding problems cannot be improved with the final design of Bannerman Road widening project, Leon County will establish a separate stormwater drainage master plan to have a comprehensive approach to solve these flooding issues.

A field visit confirmed the existence of wild flowers on the north side of Bannerman Road, just east of Quail Common Drive to Sable Chase Subdivision. During final design, efforts should be made to preserve the wild flowers as much as feasible. These areas should be delineated at the time of final design to minimize disturbance.

RECOMMENDATIONS

Shown on the following pages are the Preferred Alternatives for each of the segments for the corridor study. The evaluation matrix for each of the segments is also shown.

The placement of right and left turn lanes should be fully considered in the Final Design of Segment 3. McClure Drive may require a left turn lane and it is recommended that a turn lane study be completed at this location during Final Design. Median locations throughout Segment 3 should be fully analyzed to ensure that access is adequate.

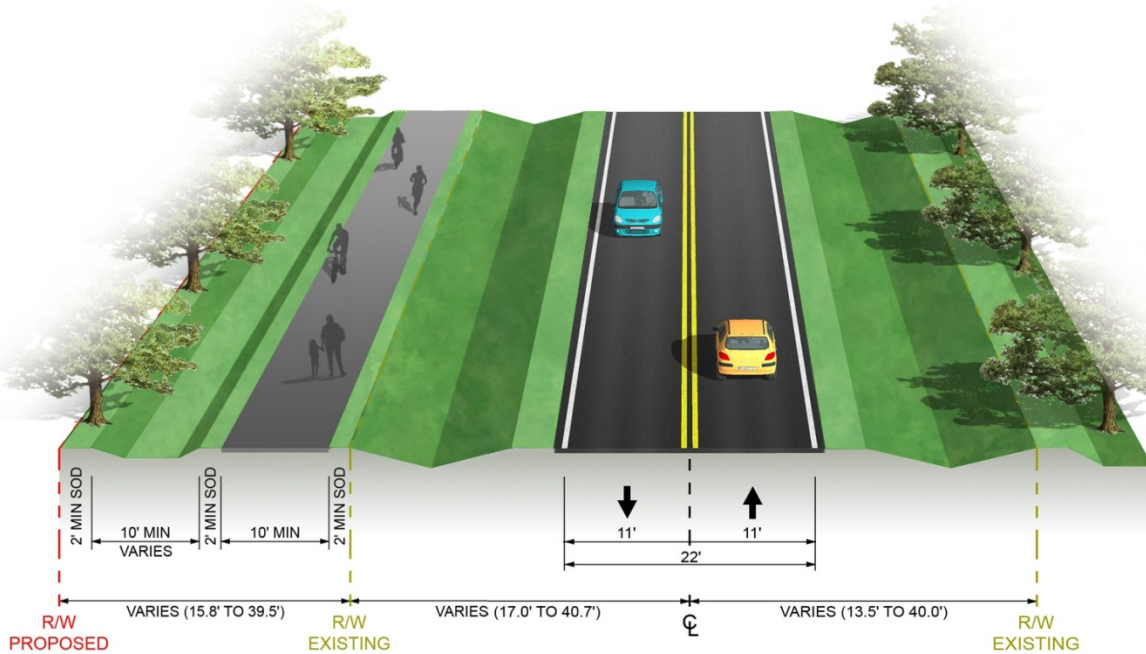
The traffic operations at the intersection of Reynolds Drive and Bannerman Road may benefit if this intersection were realigned with Tekesta Drive. There is approximately 230 feet separating Reynolds Drive and Tekesta Drive. Opposing left turn lanes are required and sufficient queue storage and deceleration lengths are not feasible in the current layout. Realignment of these roadways to make a four legged intersection should be considered. This was not addressed during the Corridor Study because Segment 2 did not require capacity improvements. The CAC recommends additional engineering analysis during the Final Engineering phase.

Stormwater management near Lantern Light Lane should be further investigated during Final Design, or through a separate project. Localized flooding has been reported just east of Lantern Light Lane, but was not fully addressed in this study.

DISSENT

One member of the CAC did not agree with widening Segment 3. A letter composed by this member can be found on pages 17 through 19 of this document.

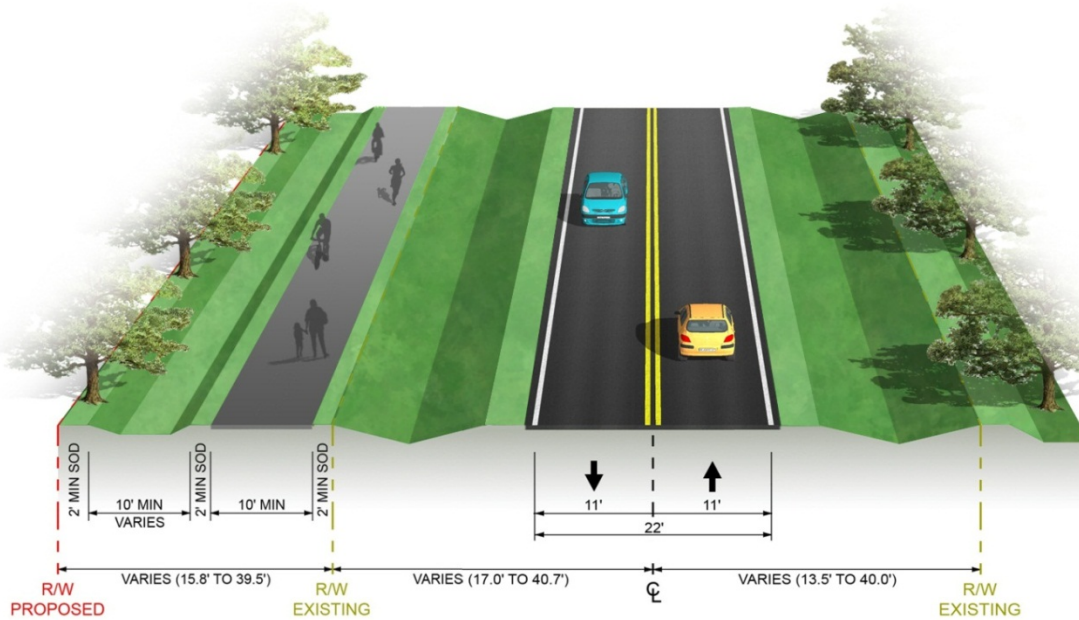
Segment 1: Alternative A



Segment 1	Alternative A
Meridian to Bull Headley	Multi-use Path, Swales
Social / Cultural Impacts	
Residential Impacts (parcels)	34
Residential Relocations (number)	5
Commercial Impacts (parcels)	1
Commercial Relocations (number)	0
Special Use (number)	0
Vacant / Unimproved (parcels)	12
Stormwater Pond Impacts (parcels)	0
Stormwater Pond Impacts (acres)	0.00
Pedestrian/Bicycle Facilities (PED/BIKE/BOTH)	BOTH
Maintenance of Traffic (\$, \$\$, \$\$\$)	\$
Environmental Impacts	
Wetlands Impacts (acres)	0.2
Floodplains (acres)	0.0
Threatened and Endangered Species (high, medium, low)	Low
Potential Contaminated Sites (number)	0
Noise Impacts (low, moderate, high)	Low
Estimated Costs	
Construction Cost (dollars)	\$ 1,960,000.00
Final Design and CEI (dollars)	\$ 390,000.00
ROW Cost (dollars)	\$ 4,325,800.00
Total Cost \$^{1, 2, 3}	\$ 6,700,000.00

1. All associated costs reflect 2012 dollars.
2. The total estimated project costs are rounded to the \$100,000.
3. The cost estimates are preliminary and are expected to change over time and as more detailed design is completed.

Segment 2: Alternative A



Segment 2	Alternative A
Bull Headley to Tekesta	Multi-use Path, Swales
Social / Cultural Impacts	
Residential Impacts (parcels)	0
Residential Relocations (number)	0
Commercial Impacts (parcels)	6
Commercial Relocations (number)	7
Special Use (number)	1
Vacant / Unimproved (parcels)	9
Stormwater Pond Impacts (parcels)	0
Stormwater Pond Impacts (acres)	0.00
Pedestrian/Bicycle Facilities (PED/BIKE/BOTH)	BOTH
Maintenance of Traffic (\$, \$\$, \$\$\$)	\$
Environmental Impacts	
Wetlands Impacts (acres)	0.2
Floodplains (acres)	0.0
Threatened and Endangered Species (high, medium, low)	Low
Potential Contaminated Sites (number)	1
Noise Impacts (low, moderate, high)	Low
Estimated Costs	
Construction Cost (dollars)	\$ 1,320,700.00
Final Design and CEI (dollars)	\$ 260,000.00
ROW Cost (dollars) ¹	\$ 7,229,300.00
Total Cost \$\$ ^{2, 3, 4}	\$ 8,800,000.00

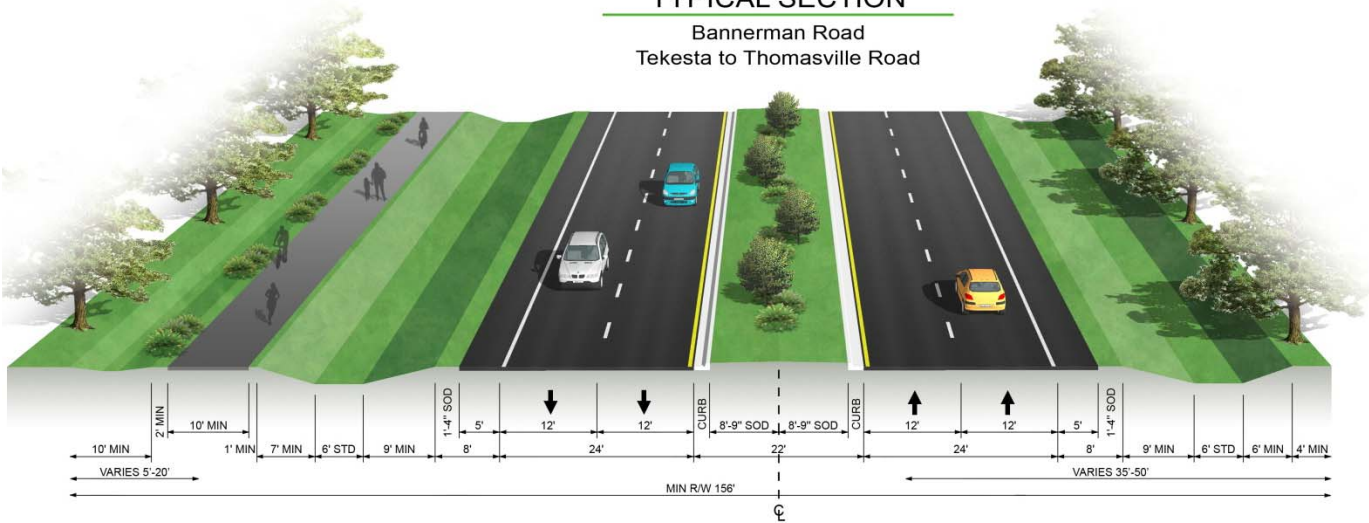
1. Minimizing or avoiding a take on the gas station (parcel 546), and on the Bannerman Office Condominium units (parcels 548, 28, 542, 421, 479, 472) may reduce the Segment 2 estimate to approximately \$2.4M.
2. All associated costs reflect 2012 dollars.
3. The total estimated project costs are rounded to the \$100,000.
4. The cost estimates are preliminary and are expected to change over time and as more detailed design is completed.



Segment 3: Alternative A – Widen to the south

TYPICAL SECTION

Bannerman Road
Tekesta to Thomasville Road



Segment 3	Alternative A
Tekesta to Thomasville	Swales, Widen South
Social / Cultural Impacts	
Residential Impacts (parcels)	16
Residential Relocations (number)	0
Commercial Impacts (parcels)	0
Commercial Relocations (number)	0
Special Use (number)	4
Vacant / Unimproved (parcels)	6
Stormwater Pond Impacts (parcels)	1
Stormwater Pond Impacts (acres)	1.00
Pedestrian/Bicycle Facilities (PED/BIKE/BOTH)	BOTH
Maintenance of Traffic (\$, \$\$, \$\$\$)	\$
Environmental Impacts	
Wetlands Impacts (acres)	0.3
Floodplains (acres)	0.0
Threatened and Endangered Species (high, medium, low)	Low
Potential Contaminated Sites (number)	0
Noise Impacts (low, moderate, high)	Low
Estimated Costs	
Construction Cost (dollars)	\$ 9,382,000.00
Final Design and CEI (dollars)	\$ 1,880,000.00
ROW Cost (dollars)	\$ 4,518,600.00
Total Cost \$^{1, 2, 3}	\$ 15,800,000.00

1. All associated costs reflect 2012 dollars.
2. The total estimated project costs are rounded to the \$100,000.
3. The cost estimates are preliminary and are expected to change over time and as more detailed design is completed.



Dear Honorable Leon County Commissioners,

My name is Michael Mendez, 8901 Winged Foot Dr, Tallahassee Fl and I have had the pleasure of serving on the Citizens Advisory Committee for the Bannerman Road Corridor study. Thank you for chairing the Citizens Advisory Committee. I think you will agree that the staff has been very helpful and professional throughout the entire process. The firm hired to do the study has done a very thorough job on what they were tasked to accomplish.

I found the experience to be very educational and enlightening in a number of areas. The process by which road projects are decided, the environmental impact of building a road, the group dynamics and the general lack of participation by the public were all real eye openers. The lack of participation is not the fault of staff or the firm hired to do the study, they both advertised and publicized the meetings above and beyond the call of duty. My concern for this particular study stems from a couple of different areas; the results of earlier studies, the growth rate used to calculate the need, actual commuter time saved, storm water retention and the cost to build and maintain a four lane road now and in the future.

After reading the Capital Regional Transportation Planning Agency Year 2030 Long Range Transportation Plan, prepared by "Cambridge Systems, Inc", in April of 2006 I was surprised to find the Bannerman Road project listed very low on the priority list. It scored a 4 out of a possible 20 and was ranked in the extreme bottom of the road project list. If you consider that 2 of those points were awarded for connecting the extreme end of Bannerman, the part closest to Meridian Rd, with Thomasville Road, which is not included in the proposal for widening the ranking should be even lower. This study was



an independent study of the transportation needs of the entire county not just residents in the north east as the case in the CAC review.

The recommendations made to the Board to widen Bannerman road assume a 1% a year growth in traffic on Bannerman Road. I can find no verifiable data to back up this assumption. All national trends and goals seem to be contrary to this growth assumption. Highway trust funds are underfunded because of less driving and lighter vehicles. A growth rate used in this assessment would assume some sort of major jump in traffic into the NW corridor. Certainly development is not going to increase, there are not enough vacant lots approved for development to suggest this level of growth is possible. Schools in that area are already at capacity with more temporary housing units being added every year.

My interpretation of the responses that I received from the consulting firm doing the traffic analysis for Bannerman Road leads me to believe this project is not justified. Commute time will be affected for two hours 5 days a week, from roughly 7:30AM until 8:30 AM, then from 5:00 PM until 6:00 PM. The commute from Thomasville to Tekesta would be improved by an estimated 8 minutes in the year 2020, if we go with the 1% a year growth rate. This doesn't take into account the increased traffic on Deerlake and the possibility of slower commute times on that road. Deerlake was recently narrowed to slow traffic down. So how much time this would save the average commuter in getting to their front door is not clear.

The storm water run-off is another issue of concern. The Bradfordville standards are already half of what the Lake Jackson standards call for and Lake Jackson certainly has its problems. Since the recommendation of the committee will be dealing with only widening Bannerman from Thomasville to Tekesta those are the salient standards that I have a



concern with. First of all I'm not sure there adequate to protect Lake McBride. The Lakes/Ponds in Killearn Lakes are already over stressed with the small amount of rainfall we've had over the last ten years. Recently Pine Hill Lake has suffered a severe algae bloom.

The plan as I understand it will require the road to have storm water standards for only the new pavement being put down. That means a lot of the area that previously was used to percolate Bannerman Road will now have pavement, which doesn't percolate. This is really a net loss in storm water treatment. I realize that the Lakes in the Killearn Lakes chain are considered storm water ponds or lakes that are used for storm water, but the residents that live there view them quite differently. I'm not a storm water engineer but building another two lanes of road does not bode well for the Lakes in our area.

I'm having a hard time justifying the building of an additional two lanes of traffic on Bannerman for the small benefits that will be gained. I appreciate the staff and the County Commission for inviting the public to participate in this process.

Sincerely,

Michael Mendez
8901 Winged Foot Drive
Tallahassee, FL 32312