College Avenue Safety Enhancement Project
Making the CASE for a Safer College Avenue

COMMENT FORM

The City of Columbia values your input! Please offer your thoughts about the CASE Project's goals, concerns you might have about the project, and the appearance of the project once complete. ***Please provide us your contact information below to receive CASE Project updates.*** We will be providing future updates about this project by email, including the announcement of the 2nd Interested Parties Meeting in early 2014. Please indicate below if you wish to receive hard copy mailings only.

As the project progresses, information will be posted to the project website at the following link:

www.MakeTheCASEProject.com

If you prefer to comment online, this form will be available on the project website. Send comments via email at PubW@GoColumbiaMo.com, or in regular mail to the attention of Mr. Cliff Jarvis, P.E., at:

City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Lauren Rutherford
ADDRESS: 704 S. College Ave.
CITY: Columbia **STATE:** MO **ZIP:** 65201
Preferred Email Address: LMRG38@mail.missouri.edu *(encouraged)* *Please do not contact me via email* ☐
Preferred Telephone #: 918-857-2293 *(optional)*

Tell us about yourself and your interest in the CASE Project. The information you provide will help the design team better understand the comments received and how the College Avenue corridor is used.

Check the one that most closely describes you:

- ☒ Resident in project area
- ☒ University of MO student
- ☐ MU Affiliated, but not student
- ☐ Business owner in project area
- ☒ Use route regularly
- ☐ Other Interested party

How did you find out about today's Interested Parties Meeting?

- ☐ Postcard invitation
- ☐ *Newspaper/Radio*
- ☐ Email media release
- ☒ *Other (explain in comments)*

Comments: Columbia Tribune

COMMENT FORM

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One of the CASE Project displays listed several items noted as "Known Concerns". Please comment on the concern that you believe most critical to be addressed by this project. If you find it difficult to select only one, please note which is the highest priority in the comments:

- [x] Safety of those crossing College Avenue
- [ ] Appearance of constructed improvements
- [ ] Loss of left turn access
- [ ] Cost of improvements vs. benefit
- [x] Changing pedestrian behavior
- [ ] Other *(explain in comments)*

Comments: As a student + East Campus, this is important to me. Pedestrian traffic across College is unsafe, coming from a driver + student. I'm all for a barrier to make crossing safer for both parties!

There is a strong desire to have the project improvements look attractive and appropriate to the area along College Avenue. Please give us your input about how the elements of the CASE Project might achieve this goal.

Comments: I think a landscape element would look really nice, especially as a vertical element. Make the barriers aren't low enough to climb over. Students will do whatever it takes to access the most ~~convenient~~ convenient route

Please provide any other comments you have about the CASE Project:

Comments:

I almost hit a student when I drove here. I was turning out of Bouchelle.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Kathy Love

ADDRESS: 1623 University Ave

CITY: Columbia STATE: MO ZIP: 65201

Preferred Email Address: lovekat68@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 875-7918 *(optional)*

Tell us about yourself and your interest in the CASE Project. The information you provide will help the design team better understand the comments received and how the College Avenue corridor is used.

Check the one that most closely describes you:

- ☒ Resident in project area
- ☐ University of MO student
- ☐ MU Affiliated, but not student
- ☐ Business owner in project area
- ☐ Use route regularly
- ☐ Other Interested party

How did you find out about today's Interested Parties Meeting?

- ☐ Postcard invitation
- ☐ *Newspaper/Radio*
- ☐ Email media release
- ☐ *Other (explain in comments)*

Comments: neighborhood assoc. message

One of the CASE Project displays listed several items noted as "Known Concerns". Please comment on the concern that you believe most critical to be addressed by this project. If you find it difficult to select only one, please note which is the highest priority in the comments:

- [ ] Safety of those crossing College Avenue
- [ ] Appearance of constructed improvements
- [ ] Loss of left turn access
- [ ] Cost of improvements vs. benefit
- [x] Changing pedestrian behavior
- [ ] Other *(explain in comments)*

Comments:

Safety is paramount, of course, but it is pedestrian behavior that is compromising safety. Behavior can be changed without expensive infrastructure changes! Build more crosswalks, calm traffic, and assess fines for jaywalking.

There is a strong desire to have the project improvements look attractive and appropriate to the area along College Avenue. Please give us your input about how the elements of the CASE Project might achieve this goal.

Comments:

I do not believe a central barrier can be made attractive.

Please provide any other comments you have about the CASE Project:

Comments: Eliminating left turns will drive more traffic to University. I do not live on the affected blocks, but ~~contend~~ ~~with~~ University already carries more traffic than it can safely accommodate. Deal with pedestrian behavior first, slow down traffic on College, discourage students from driving, use public transportation — these are the common sense solutions.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

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If you prefer to comment online, this form will be available on the project website. Send comments via email at PubW@GoColumbiaMo.com, or in regular mail to the attention of Mr. Cliff Jarvis, P.E., at:

City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Don Love

ADDRESS: 1623 University

CITY: STATE: ZIP: 65201

Preferred Email Address: almaclove1@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: *(optional)*

Tell us about yourself and your interest in the CASE Project. The information you provide will help the design team better understand the comments received and how the College Avenue corridor is used.

Check the one that most closely describes you:

- ☑ Resident in project area
- ☐ University of MO student
- ☐ MU Affiliated, but not student
- ☐ Business owner in project area
- ☐ Use route regularly
- ☐ Other Interested party

How did you find out about today's Interested Parties Meeting?

- ☐ Postcard invitation
- ☑ *Newspaper/Radio*
- ☑ Email media release
- ☐ *Other (explain in comments)*

Comments:

One of the CASE Project displays listed several items noted as "Known Concerns". Please comment on the concern that you believe most critical to be addressed by this project. If you find it difficult to select only one, please note which is the highest priority in the comments:

1 ☐ Safety of those crossing College Avenue
☐ Appearance of constructed improvements
2 ☐ Loss of left turn access
☐ Cost of improvements vs. benefit
☐ Changing pedestrian behavior
☐ Other *(explain in comments)*

Comments: leading to increased Traffic on University + Wilson

There is a strong desire to have the project improvements look attractive and appropriate to the area along College Avenue. Please give us your input about how the elements of the CASE Project might achieve this goal.

Comments:

Please provide any other comments you have about the CASE Project:

Comments:

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

APPENDIX 5

PLANNING LEVEL OPINIONS OF PROBABLE CONSTRUCTION COST

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative A Corral Rail and Fence

April 1, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes
1	Mobilization and Bonds	1.0	LS	$20,000.00	$20,000.00	3%
2	Removal of Asphalt	300.0	SY	$6.00	$1,800.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY
3	HAWK Traffic Signals	2.0	EA	$75,000.00	$150,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500
4	Traffic Signal Interconnect	1.0	LS	$30,000.00	$30,000.00	
5	8 Inch Curb and Gutter	0.0	LF	$34.00	$0.00	Not Used
6	Concrete Sidewalk	100.0	SY	$40.00	$4,000.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)
7	ADA Sidewalk Ramps	180.0	SY	$100.00	$18,000.00	Scott Blvd = 3.7/SF x 9 = $34/SY
8	ADA Truncated Domes	250.0	SF	$25.00	$6,250.00	Scott Blvd Phase 2 = $20 - $27 /SF
9	Stamped Concrete Median	650.0	SY	$50.00	$32,500.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY
10	Stamped Asphalt Cross Walks	280.0	SY	$120.00	$33,600.00	Broadway Fairview TDD 2006 = $78/SY
11	Corral Curb Foundations	165.0	CY	$600.00	$99,000.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)
12	Corral Curb	140.0	CY	$600.00	$84,000.00	Scott Blvd $85/LF x 1095 = $93,075
13	Concrete Form Liners	840.0	SY	$50.00	$42,000.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY
14	Corral Curb Fence	1,095.0	LF	$60.00	$65,700.00	Scott Blvd Phase 2 Sapp = $60
15	Pedestrian Fence	0.0	LF	$55.00	$0.00	Scott Blvd Phase 2 Sapp = $46/LF
16	Fence Columns	13.0	EA	$2,500.00	$32,500.00	
17	Traffic control signs	1.0	LS	$5,000.00	$5,000.00	
18	Pavement Markings	2,900.0	LF	$1.50	$4,350.00	$1.50 Scott Blvd Phase 2
19	Pavement Marking Removal	3,435.0	LF	$0.70	$2,404.50	
20	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00	
21	Erosion Control	1.0	LS	$5,000.00	$5,000.00	

Sub-Total	$651,104.50
15% Contingency	$97,665.68
TOTAL	**$748,770.18**

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative B - Raised Median with Pedestrian Fence

April 1, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes
1	Mobilization and Bonds	1.0	LS	$15,000.00	$15,000.00	3%
2	Removal of Asphalt	300.0	SY	$6.00	$1,800.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY
3	HAWK Traffic Signals	2.0	EA	$75,000.00	$150,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500
4	Traffic Signal Interconnect	1.0	LS	$30,000.00	$30,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500
5	8 Inch Curb and Gutter	0.0	LF	$34.00	$0.00	Not Used
6	Concrete Sidewalk	100.0	SY	$40.00	$4,000.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)
7	ADA Sidewalk Ramps	180.0	SY	$100.00	$18,000.00	Scott Blvd = 3.7/SF x 9 = $34/SY
8	ADA Truncated Domes	250.0	SF	$25.00	$6,250.00	Scott Blvd Phase 2 = $20 - $27 /SF
9	Stamped Concrete Median	650.0	SY	$50.00	$32,500.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY
10	Stamped Asphalt Cross Walks	280.0	SY	$120.00	$33,600.00	Broadway Fairview TDD 2006 = $78/SY
11	Corral Curb Foundations	0.0	CY	$600.00	$0.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)
12	Corral Curb	10.0	CY	$600.00	$6,000.00	Scott Blvd $85/LF x 1095 = $93,075
13	Concrete Form Liners	0.0	SY	$50.00	$0.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY
14	Corral Curb Fence	0.0	LF	$60.00	$0.00	Scott Blvd Phase 2 Sapp = $60
15	Pedestrian Fence	1,095.0	LF	$55.00	$60,225.00	Scott Blvd Phase 2 Sapp = $46/LF
16	Fence Columns	13.0	EA	$2,500.00	$32,500.00	100 foot spacing
17	Traffic control signs	1.0	LS	$5,000.00	$5,000.00	
18	Pavement Markings	2,900.0	LF	$1.50	$4,350.00	$1.50 Scott Blvd Phase 2
19	Pavement Marking Removal	3,435.0	LF	$0.70	$2,404.50	
20	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00	
21	Erosion Control	1.0	LS	$5,000.00	$5,000.00	

Sub-Total	$421,629.50
15% Contingency	$63,244.43
TOTAL	**$484,873.93**

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative C - "Jersey Barrier"

January 13, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes
1	Mobilization and Bonds	1.0	LS	$12,000.00	$12,000.00	3%
2	Removal of Asphalt	0.0	SY	$6.00	$0.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY
3	HAWK Traffic Signals	2.0	EA	$75,000.00	$150,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500
4	8 Inch Curb and Gutter	0.0	LF	$30.00	$0.00	MoDOT 2012 Type B = $34/LF; Clark Lane 8" Protection Curb Emery Sapp = $35/LF (small quantities)
5	Concrete Sidewalk	45.0	SY	$35.00	$1,575.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)
6	ADA Sidewalk Ramps	90.0	SY	$120.00	$10,800.00	MoDOT 2012 Average = $119/SY
7	ADA Truncated Domes	200.0	SF	$30.00	$6,000.00	MoDOT 2012 Average = $30/SF
8	Stamped Concrete Median	0.0	SY	$50.00	$0.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY
9	Stamped Asphalt Cross Walks	280.0	SY	$120.00	$33,600.00	Broadway Fairview TDD 2006 = $78/SY
10	Corral Curb Foundations	0.0	CY	$600.00	$0.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)
11	Corral Curb	0.0	CY	$600.00	$0.00	"
12	Concrete Form Liners	0.0	SY	$50.00	$0.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY
13	48" F Style Concrete Barrier (Armtec)	212.5	CY	$725.00	$154,062.50	Using Armtec Full F-Style 1200mm tall barrier, Product No 7-0074 (0.51 SY of concrete)
14	Pedestrian Handrail	0.0	LF	$70.00	$0.00	Rolling Hills Road Emery Sapp = $65/LF
15	Pedestrian Fence		LF	$80.00	$0.00	Rolling Hills Road Emery Sapp = $115/LF Boone Construction = $40 (371 LF quantity)
16	Traffic control signs	1.0	LS	$5,000.00	$5,000.00	
17	Pavement Markings	1.0	LS	$3,000.00	$3,000.00	
18	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00	
19	Erosion Control	1.0	LS	$5,000.00	$5,000.00	

Sub-Total	$396,037.50
15% Contingency	$59,405.63
TOTAL	**$455,443.13**

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative D - HAWK Signals Only

February 5, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes
1	Mobilization and Bonds	1.0	LS	$12,000.00	$10,000.00	3%
2	Removal of Asphalt	0.0	SY	$6.00	$0.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY
3	HAWK Traffic Signals	2.0	EA	$75,000.00	$150,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500
4	8 Inch Curb and Gutter	0.0	LF	$30.00	$0.00	MoDOT 2012 Type B = $34/LF; Clark Lane 8" Protection Curb Emery Sapp = $35/LF (small quantities)
5	Concrete Sidewalk	45.0	SY	$35.00	$1,575.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)
6	ADA Sidewalk Ramps	90.0	SY	$120.00	$10,800.00	MoDOT 2012 Average = $119/SY
7	ADA Truncated Domes	200.0	SF	$30.00	$6,000.00	MoDOT 2012 Average = $30/SF
8	Stamped Concrete Median	54.0	SY	$50.00	$2,700.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY
9	Stamped Asphalt Cross Walks	280.0	SY	$120.00	$33,600.00	Broadway Fairview TDD 2006 = $78/SY
10	Corral Curb Foundations	0.0	CY	$600.00	$0.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)
11	Corral Curb	0.0	CY	$600.00	$0.00	"
12	Concrete Form Liners	0.0	SY	$50.00	$0.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY
13	Pedestrian Handrail	0.0	LF	$70.00	$0.00	Rolling Hills Road Emery Sapp = $65/LF
14	Pedestrian Fence		LF	$80.00	$0.00	Rolling Hills Road Emery Sapp = $115/LF Boone Construction = $40 (371 LF quantity)
15	Traffic control signs	1.0	LS	$5,000.00	$5,000.00	
16	Pavement Markings	1.0	LS	$3,000.00	$3,000.00	
17	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00	
18	Erosion Control	1.0	LS	$5,000.00	$5,000.00	

Sub-Total	$242,675.00
15% Contingency	$36,401.25
TOTAL	**$279,076.25**

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative E - Full Length Raised Median (No Left Turns)

February 5, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes
1	Mobilization and Bonds	1.0	LS	$12,000.00	$10,000.00	3%
2	Removal of Asphalt	0.0	SY	$6.00	$0.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY
3	HAWK Traffic Signals	2.0	EA	$75,000.00	$150,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500
4	8 Inch Curb and Gutter	0.0	LF	$30.00	$0.00	MoDOT 2012 Type B = $34/LF; Clark Lane 8" Protection Curb Emery Sapp = $35/LF (small quantities)
5	Concrete Sidewalk	45.0	SY	$35.00	$1,575.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)
6	ADA Sidewalk Ramps	90.0	SY	$120.00	$10,800.00	MoDOT 2012 Average = $119/SY
7	ADA Truncated Domes	200.0	SF	$30.00	$6,000.00	MoDOT 2012 Average = $30/SF
8	Stamped Concrete Median	835.0	SY	$50.00	$41,750.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY
9	Stamped Asphalt Cross Walks	280.0	SY	$120.00	$33,600.00	Broadway Fairview TDD 2006 = $78/SY
10	Corral Curb Foundations	0.0	CY	$600.00	$0.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)
11	Corral Curb	0.0	CY	$600.00	$0.00	"
12	Concrete Form Liners	0.0	SY	$50.00	$0.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY
13	Pedestrian Handrail	0.0	LF	$70.00	$0.00	Rolling Hills Road Emery Sapp = $65/LF
14	Pedestrian Fence	0.0	LF	$80.00	$0.00	Rolling Hills Road Emery Sapp = $115/LF Boone Construction = $40 (371 LF quantity)
15	Traffic control signs	1.0	LS	$5,000.00	$5,000.00	
16	Pavement Markings	1.0	LS	$3,000.00	$3,000.00	
17	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00	
18	Erosion Control	1.0	LS	$5,000.00	$5,000.00	
			Sub-Total		$281,725.00	
			15% Contingency		$42,258.75	
			TOTAL		**$323,983.75**	

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative F - Partial Raised Island (Some Left Turns)

February 5, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes
1	Mobilization and Bonds	1.0	LS	$12,000.00	$10,000.00	3%
2	Removal of Asphalt	0.0	SY	$6.00	$0.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY
3	HAWK Traffic Signals	2.0	EA	$75,000.00	$150,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500
4	8 Inch Curb and Gutter	0.0	LF	$30.00	$0.00	MoDOT 2012 Type B = $34/LF; Clark Lane 8" Protection Curb Emery Sapp = $35/LF (small quantities)
5	Concrete Sidewalk	45.0	SY	$35.00	$1,575.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)
6	ADA Sidewalk Ramps	90.0	SY	$120.00	$10,800.00	MoDOT 2012 Average = $119/SY
7	ADA Truncated Domes	200.0	SF	$30.00	$6,000.00	MoDOT 2012 Average = $30/SF
8	Stamped Concrete Median	274.0	SY	$50.00	$13,700.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY
9	Stamped Asphalt Cross Walks	280.0	SY	$120.00	$33,600.00	Broadway Fairview TDD 2006 = $78/SY
10	Corral Curb Foundations	0.0	CY	$600.00	$0.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)
11	Corral Curb	0.0	CY	$600.00	$0.00	"
12	Concrete Form Liners	0.0	SY	$50.00	$0.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY
13	Pedestrian Handrail	0.0	LF	$70.00	$0.00	Rolling Hills Road Emery Sapp = $65/LF
14	Pedestrian Fence	0.0	LF	$80.00	$0.00	Rolling Hills Road Emery Sapp = $115/LF Boone Construction = $40 (371 LF quantity)
15	Traffic control signs	1.0	LS	$5,000.00	$5,000.00	
16	Pavement Markings	1.0	LS	$3,000.00	$3,000.00	
17	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00	
18	Erosion Control	1.0	LS	$5,000.00	$5,000.00	
			Sub-Total		$253,675.00	
			15% Contingency		$38,051.25	
			TOTAL		**$291,726.25**	

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative G - 30-Inch Raised Planter

February 5, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes	
1	Mobilization and Bonds	1.0	LS	$12,000.00	$20,000.00	3%	$20,532.15
2	Removal of Asphalt	0.0	SY	$6.00	$0.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY	
3	HAWK Traffic Signals	2.0	EA	$75,000.00	$150,000.00	Grindstone Plaza Drive 4 leg Oct 2010 Emery Sapp $146,500	
4	8 Inch Curb and Gutter	0.0	LF	$30.00	$0.00	MoDOT 2012 Type B = $34/LF; Clark Lane 8" Protection Curb Emery Sapp = $35/LF (small quantities)	
5	Concrete Sidewalk	45.0	SY	$35.00	$1,575.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)	
6	ADA Sidewalk Ramps	90.0	SY	$120.00	$10,800.00	MoDOT 2012 Average = $119/SY	
7	ADA Truncated Domes	200.0	SF	$30.00	$6,000.00	MoDOT 2012 Average = $30/SF	
8	Stamped Concrete Median	0.0	SY	$50.00	$0.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY	
9	Stamped Asphalt Cross Walks	280.0	SY	$120.00	$33,600.00	Broadway Fairview TDD 2006 = $78/SY	
10	Corral Curb Foundations	0.0	CY	$600.00	$0.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)	
11	Corral Curb	0.0	CY	$600.00	$0.00	"	
12	Concrete Form Liners	348.0	SY	$50.00	$17,400.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY	
13	Concrete Forming of Planter and Footing	525.0	CY	$600.00	$315,000.00		
14	In Place Soil for Planter	402.0	CY	$15.00	$6,030.00		
15	Pedestrian Handrail	0.0	LF	$70.00	$0.00	Rolling Hills Road Emery Sapp = $65/LF	
16	Pedestrian Fence	0.0	LF	$80.00	$0.00	Rolling Hills Road Emery Sapp = $115/LF Boone Construction = $40 (371 LF quantity)	
17	Landscaping	1.0	LS	$60,000.00	$60,000.00		
18	Yearly Maintenance of Plantings	480.0	HOUR	$75.00	$36,000.00	factor in 10 years of maintenance with maintenance once a month for 6 months every year (8 hours per visit)	
19	Traffic control signs	1.0	LS	$5,000.00	$5,000.00		
20	Pavement Markings	1.0	LS	$3,000.00	$3,000.00		
21	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00		
22	Erosion Control	1.0	LS	$5,000.00	$5,000.00		

Sub-Total	$684,405.00
15% Contingency	$102,660.75
TOTAL	**$787,065.75**

College Avenue Cross Walks
Preliminary Projection of Probable Construction Costs

Alternative H - Full Traffic Signal at Wilson

February 5, 2014

Length between existing median islands = 1,145 LF

Construction Budget = $670,000

Item No.	Description	Quantity	Unit	Unit Price	Extended Amount	Notes
1	Mobilization and Bonds	1.0	LS	$12,000.00	$30,000.00	3%
2	Removal of Asphalt	255.0	SY	$6.00	$1,530.00	Clark Lane Emery Sapp Bid PCC Pavement Removal Line 1.8 $6/SY
3	Removal of Concrete Sidewalk	346.0	SY	$25.00	$8,650.00	
4	Signalized Intersection	1.0	EA	$225,000.00	$225,000.00	
5	8 Inch Curb and Gutter	425.0	LF	$30.00	$12,750.00	MoDOT 2012 Type B = $34/LF; Clark Lane 8" Protection Curb Emery Sapp = $35/LF (small quantities)
6	Asphalt Pavement	2,276.0	SF	$100.00	$227,600.00	
7	Concrete Sidewalk	391.0	SY	$35.00	$13,685.00	Clark Lane Emery Sapp Bid $32.5/SY (very large quantity)
8	ADA Sidewalk Ramps	90.0	SY	$120.00	$10,800.00	MoDOT 2012 Average = $119/SY
9	ADA Truncated Domes	200.0	SF	$30.00	$6,000.00	MoDOT 2012 Average = $30/SF
10	Stamped Concrete Median	670.0	SY	$50.00	$33,500.00	Clark Lane Emery Sapp bid 4" Concrete Median Surface = $45/SY
11	Stamped Asphalt Cross Walks	180.0	SY	$120.00	$21,600.00	Broadway Fairview TDD 2006 = $78/SY
12	Corral Curb Foundations	175.0	CY	$600.00	$105,000.00	Clark Lane Emery Sapp - Cast in Place Retaining Walls = $660 (high bid for line item)
13	Corral Curb	135.0	CY	$600.00	$81,000.00	"
14	Concrete Form Liners	805.0	SY	$50.00	$40,250.00	2012 MoDOT Average for MSE walls = $3.67/SY on structures = $80/SY
15	Pedestrian Handrail	1,250.0	LF	$70.00	$87,500.00	Rolling Hills Road Emery Sapp = $65/LF
16	Pedestrian Fence	0.0	LF	$80.00	$0.00	Rolling Hills Road Emery Sapp = $115/LF Boone Construction = $40 (371 LF quantity)
17	Traffic control signs	1.0	LS	$5,000.00	$5,000.00	
18	Pavement Markings	1.0	LS	$3,000.00	$3,000.00	
19	Temporary Traffic Control	1.0	LS	$15,000.00	$15,000.00	
20	Erosion Control	1.0	LS	$5,000.00	$5,000.00	
			Sub-Total		$932,865.00	
			15% Contingency		$139,929.75	
			TOTAL		**$1,072,794.75**	

Engineering Surveys and Services
Consulting Engineers, Geologists, and Land Surveyors
Analytical and Material Laboratories
Telephone: 573-449-2646 | 1113 Fay Street | E-Mail: ess@ESS-Inc.com
Facsimile: 573-449-1499 | Columbia, Missouri 65201 | http://www.ESS-Inc.com

OPINION OF PROBABLE SITE CONSTRUCTION COSTS

Date: **April 2, 2014** **Revised Date:**
Project: **CASE Projct**
Description: **New left turn lane at College Ave And Rollins**
Project No.: **12398**
Notes:

Item	Description	*Quantity*	*Unit*	*Unit Price*	*Total*
1.00	***EARTHWORK***				
1.01	Site prep., clearing, grubbing, stump removal	0.2	Acres	$3,000.00	$450.00
1.02	Removal of Improvements	1.0	Lump Sump	$20,000.00	$20,000.00
2.00	***SEDIMENT & EROSION CONTROL***				
2.01	Construction Entrance/Exit	1	Each	$2,900.00	$2,900.00
2.02	Concrete Washout Pit (incl. Maintenance)	1	Each	$1,500.00	$1,500.00
2.03	Silt Fence - Reinforced (incl. Maintenance)	200	L.F.	$5.50	$1,100.00
2.04	Tree Protection Fence	70	L.F.	$7.00	$490.00
2.05	Inlet Protection (incl. maintenance)	3	Each	$250.00	$750.00
2.06	Temporary Seeding/Mulching	0.1	Acres	$1,740.00	$174.00
2.07	Permanent Seeding/Mulching	0.2	Acres	$2,100.00	$420.00
3.00	***STORM SEWER***				
3.01	15" HDPE	40	L.F.	$29.00	$1,160.00
4.00	***STORM SEWER STRUCTURES***				
4.01	Curb Inlet Type A 3'X2'	3	Each	$3,000.00	$9,000.00
4.02	Junction Box 4'X3'	1	Each	$2,510.00	$2,510.00
4.03	Junction Box 5'X4'	1	Each	$3,020.00	$3,020.00
5.00	***WATER SERVICE***				
5.01	Fire Hydrant Assembly (includes gate valve & box)	1	Each	$3,075.00	$3,075.00
6.00	***UTILITIES***				
6.01	Relocate Onsite All Onsite Utilities	1	Lump Sum	$15,000.00	$15,000.00
7.00	***PAVING***				
7.01	Standard duty concrete (incl base)	250	S.Y.	$40.00	$10,000.00
7.02	Concrete Sidewalk (4" thick & base)	190	S.Y.	$35.00	$6,650.00
7.03	Concrete Sidewalk ADA Ramp (with truncated domes)	2	Each	$1,000.00	$2,000.00
7.04	Roadway Marking 4" Single Solid White	340	L.F.	$1.19	$404.60
8.00	***PARKING LOT***				
8.01	24" White Stop Bar	2	Each	$82.00	$164.00
8.02	Crosswalk (8' Wide)	260	L.F.	$5.00	$1,300.00
8.03	Pavement Marking Text (ENTER, ONLY, EXIT, STOP, VAN, YIELD, etc)	2	Each	$100.00	$200.00
8.04	Road Signage (Stop, Yield, No Trucks, Ped. Crossing, Street Name, etc.)	2	Each	$190.00	$380.00
9.00	***MISCELLANEOUS***				
9.01	Site Layout (Construction Staking)	1	Lump Sum	$5,000.00	$5,000.00
9.02	Traffic Signal	1	Lump Sum	$80,000.00	$80,000.00
10.00	***OTHER***				
10.01	Mobilization and Bonds	1	Lump Sum	$10,000.00	$10,000.00

OPINION OF PROBABLE SITE CONSTRUCTION COSTS

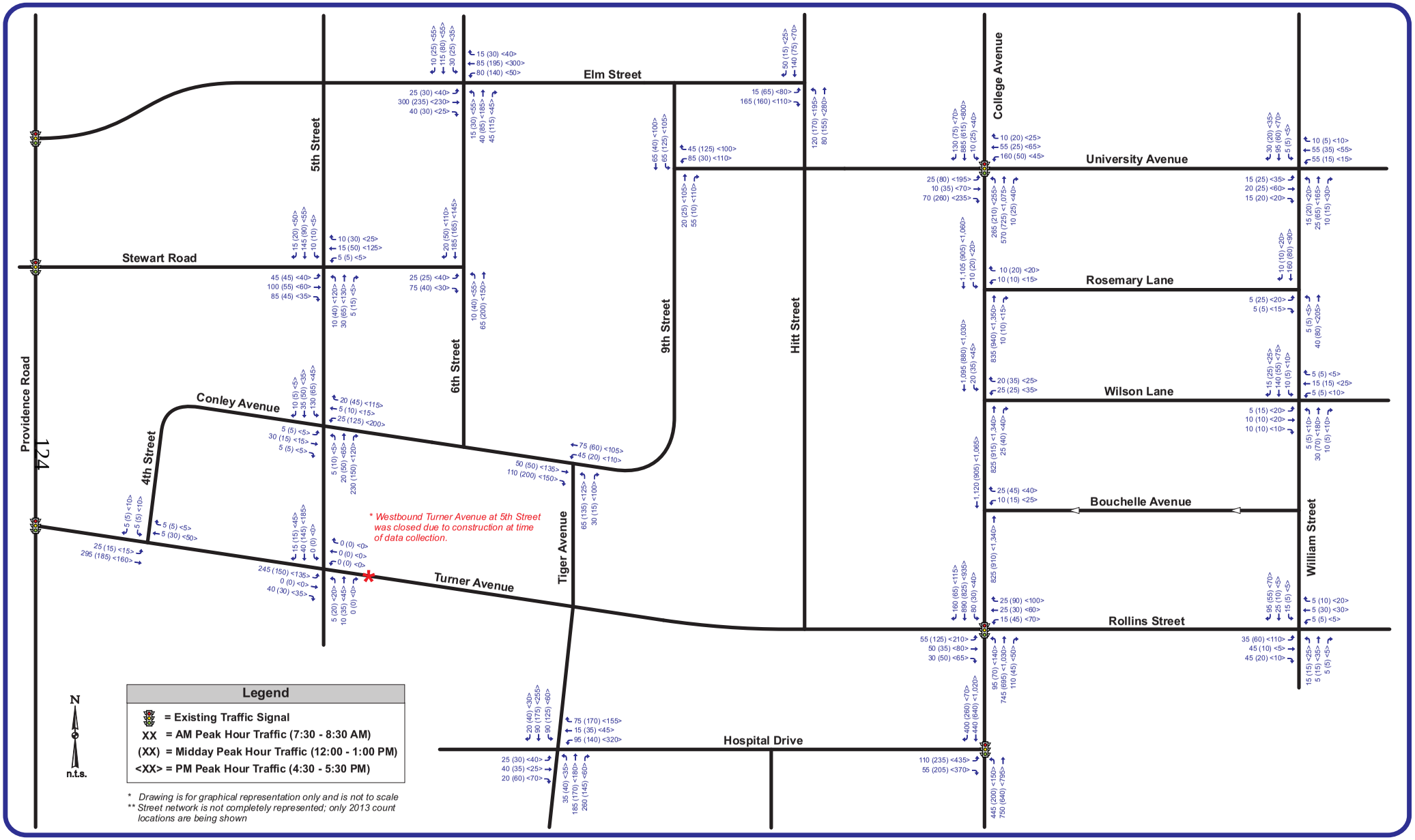
Date: **April 2, 2014** **Revised Date:**
Project: **CASE Projct**
Description: **New left turn lane at College Ave And Rollins**
Project No.: **12398**
Notes:

Item	Description	*Quantity*	*Unit*	*Unit Price*	*Total*
10.02	Traffic Control	1	Lump Sum	$8,000.00	$8,000.00
10.03	Engineering Fees	1	Lump Sum	$30,000.00	$30,000.00

Total Without Contingency: $215,647.60
Total Contingency: $53,911.90
GRAND TOTAL: $269,559.50

APPENDIX 6

TRAFFIC STUDY DATA



2013 Existing Traffic Volumes

Job# 054-12
08/06/13

CBB Crawford, Bunte, Brammeier
Traffic and Transportation Engineers

CASE Project - Summary of Performance

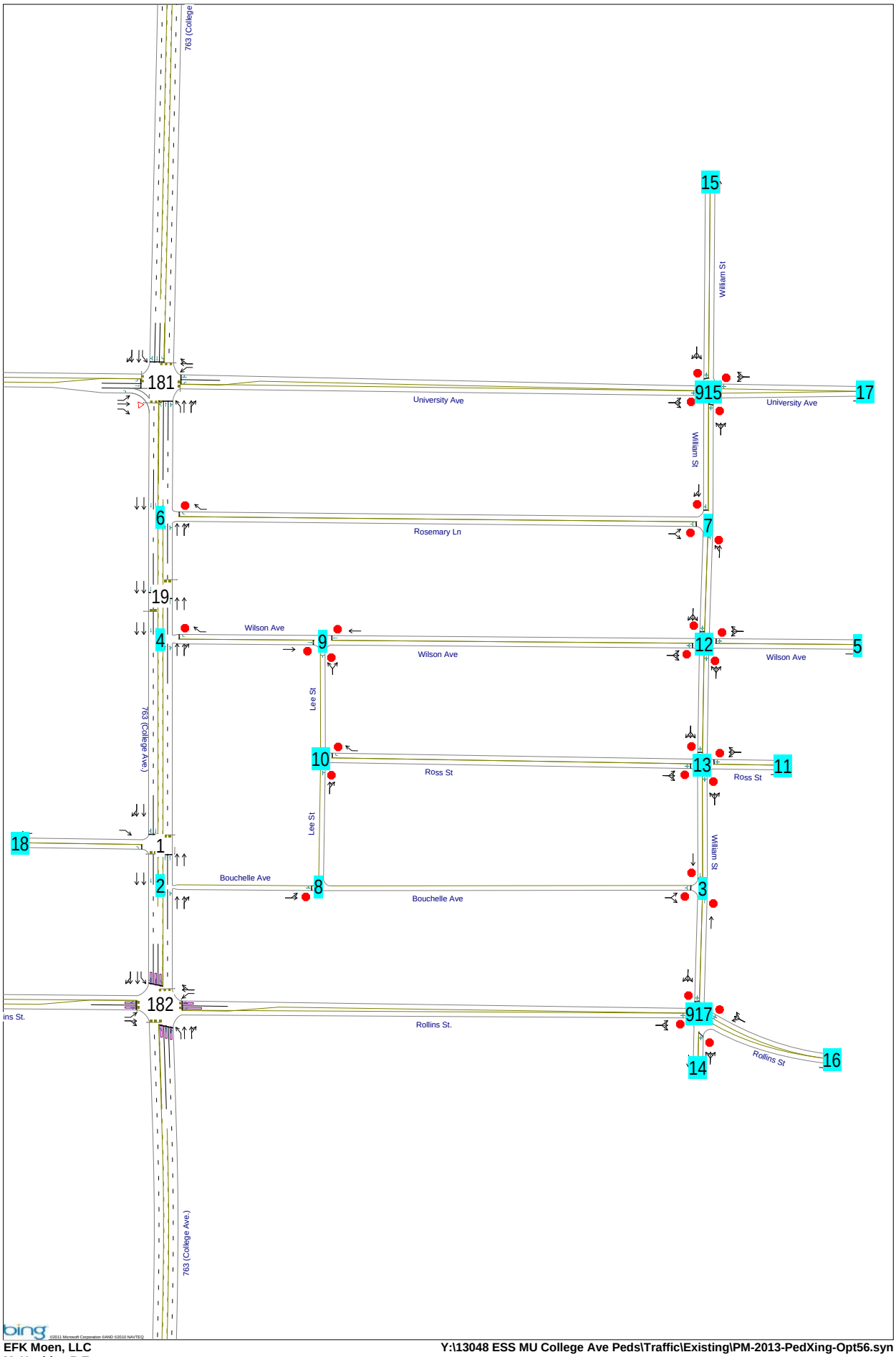
College Avenue Corridor Study

EFK Moen, LLC

2/7/2014

SimTraffic Summary Peak Hour *PM PEAK HOUR*		Existing		Hawk Signals	(+/-) FROM EXIST.		Hawk Signals with Rollins Lt Turn Bay Improvements	(+/-) FROM EXIST.		Full Traffic Signal at Wilson & Vertical Median Element	(+/-) FROM EXIST.	
NB	Corridor Delay (s/veh)	46.3		62.6	16.3		51.0	4.7		46.1	-0.2	
NB	Corridor Travel Time (s)	165.6		181.8	16.2		170.2	4.6		165.3	-0.3	
NB	Arterial Speed (mph)	25.0		23.0	-2.0		25.0	0.0		25.0	0.0	
SB	Corridor Delay (s/veh)	55.6		71.7	16.1		66.4	10.8		74.9	19.3	
SB	Corridor Travel Time (s)	162.6		178.8	16.2		173.6	11.0		182.2	19.6	
SB	Arterial Speed (mph)	23.0		21.0	-2.0		22.0	-1.0		21.0	-2.0	
Node #	Intersection	Delay (s)	LOS	Delay (s)		LOS	Delay (s)		LOS	Delay (s)		LOS
1	Physics Drive & College	1.8	A	3.3	1.5	A	3.6	1.8	A	1.9	0.1	A
2	Bouchelle & College	2.7	A	2.7	0.0	A	2.7	0.0	A	2.7	0.0	A
3	William & Bouchelle	4.6	A	4.5	-0.1	A	4.5	-0.1	A	4.6	0.0	A
4	Wilson & College	2.3	A	1.4	-0.9	A	1.7	-0.6	A	7.4	5.1	A
6	Rosemary & College	2.5	A	2.2	-0.3	A	2.1	-0.4	A	2.2	-0.3	A
7	William & Rosemary	4.7	A	4.8	0.1	A	4.7	0.0	A	4.5	-0.2	A
8	Bouchelle & Lee	3.6	A	2.6	-1.0	A	2.3	-1.3	A	3.6	0.0	A
9	Lee & Wilson	4.7	A	3.0	-1.7	A	3.1	-1.6	A	4.2	-0.5	A
10	Lee & Ross	3.2	A	1.8	-1.4	A	1.7	-1.5	A	3.0	-0.2	A
12	William & Wilson	3.6	A	5.0	1.4	A	4.9	1.3	A	5.0	1.4	A
13	William & Ross	4.9	A	4.5	-0.4	A	4.5	-0.4	A	4.7	-0.2	A
181	University & College	29.4	C	27.0	-2.4	C	28.9	-0.5	C	23.5	-5.9	C
182	Rollins & College	29.0	C	48.9	19.9	D	29.3	0.3	C	50.2	21.2	D
915	William & University	4.8	A	5.1	0.3	A	5.3	0.5	A	5.0	0.2	A
917	William & Rollins	4.1	A	4.0	-0.1	A	4.2	0.1	A	3.7	-0.4	A

PROPOSED


763 (College
15
William St
181
915
17
University Ave
University Ave
William St
6
7
Rosemary Ln
19
Wilson Ave
4
9
12
5
Wilson Ave
Wilson Ave
Lee St
763 (College Ave.)
10
13
11
Ross St
Ross St
Lee St
18
1
William St
2
8
3
Bouchelle Ave
Bouchelle Ave
182
917
ins St.
Rollins St.
Rollins St
14
16
763 (College Ave.)
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1: 763 (College Ave.) Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	40.6	19.1	8.5	0.3	2.2	1.6	1.8

2: 763 (College Ave.) & Bouchelle Ave Performance by movement

Movement	WBL	WBR	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	30.2	16.2	2.9	1.3	2.7

3: William St & Bouchelle Ave Performance by movement

Movement	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.5	4.7	4.7	3.7	4.6

4: 763 (College Ave.) & Wilson Ave Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	61.2	1.3	35.4	1.4	0.9	10.6	0.5	2.3

6: 763 (College Ave.) & Rosemary Ln Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	45.9	20.8	1.8	0.8	8.6	2.5	2.5

7: William St & Rosemary Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	3.5	4.8	4.9	4.8	3.6	4.7

8: Bouchelle Ave & Lee St Performance by movement

Movement	WBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.9	0.8	3.3	3.6

9: Lee St & Wilson Ave Performance by movement

Movement	EBT	EBR	WBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.0	3.3	5.5	4.7

10: Lee St & Ross St Performance by movement

Movement	WBL	WBT	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.6	0.4	3.6	3.6	3.2

12: William St & Wilson Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.7	6.2	4.0	4.4	4.8	3.1	4.9	5.0	4.2	4.5	4.8	3.6

12: William St & Wilson Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	4.9

13: William St & Ross St Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	3.4	3.1	2.7	5.2	5.0	3.8	5.6	4.7	3.7	4.6

181: 763 (College Ave.) & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.1	0.8	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	90.6	82.6	63.8	49.7	35.4	21.9	42.4	9.1	6.9	39.8	23.7	18.1

181: 763 (College Ave.) & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	29.4

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	0.7	0.8	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	37.7	25.3	19.5	73.3	79.5	65.4	60.9	24.3	20.0	29.9	19.7	18.3

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	29.0

915: William St & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	6.2	4.9	4.5	4.8	5.4	3.9	5.2	5.1	4.1	3.6	4.5	3.0

915: William St & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	4.8

917: William St & Rollins St./Rollins St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.5	1.4	4.1	4.6	6.2	2.1	3.5	3.9	2.5	4.0	4.5	3.8

917: William St & Rollins St./Rollins St Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	4.1

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	58.5

Arterial Level of Service: NB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	924	1.0	20.5	0.2	34
	183	0.6	10.8	0.1	34
Rollins St.	182	24.3	47.3	0.2	17
Bouchelle Ave	2	3.4	9.7	0.1	21
	1	0.3	2.4	0.0	29
Wilson Ave	4	1.4	11.3	0.1	31
Rosemary Ln	6	1.8	7.8	0.1	27
University Ave	181	9.1	15.4	0.1	15
	180	4.4	40.4	0.3	31
Total		46.3	165.6	1.2	25

Arterial Level of Service: SB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	180	0.2	7.5	0.1	36
University Ave	181	23.7	58.2	0.3	21
Rosemary Ln	6	3.1	10.3	0.1	23
Wilson Ave	4	0.5	6.6	0.1	32
	1	2.2	12.2	0.1	29
Bouchelle Ave	2	1.4	3.5	0.0	20
Rollins St.	182	19.3	24.7	0.1	8
	183	4.5	27.9	0.2	29
	924	0.8	11.7	0.1	31
Total		55.6	162.6	1.0	23

Intersection: 1: 763 (College Ave.)

Movement	EB	NB	NB	SB	SB
Directions Served	LR	L	T	T	TR
Maximum Queue (ft)	91	49	79	61	91
Average Queue (ft)	39	22	10	3	11
95th Queue (ft)	76	48	51	32	52
Link Distance (ft)	309		61	456	456
Upstream Blk Time (%)		0	0		
Queuing Penalty (veh)		0	2		
Storage Bay Dist (ft)		35			
Storage Blk Time (%)		7	0		
Queuing Penalty (veh)		50	0		

Intersection: 2: 763 (College Ave.) & Bouchelle Ave

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	T	T	T
Maximum Queue (ft)	95	51	8	52	75
Average Queue (ft)	41	3	0	4	16
95th Queue (ft)	80	24	5	27	61
Link Distance (ft)	326	229	229	61	61
Upstream Blk Time (%)				0	1
Queuing Penalty (veh)				1	5
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: William St & Bouchelle Ave

Movement	NB	SB
Directions Served	LT	TR
Maximum Queue (ft)	62	51
Average Queue (ft)	37	29
95th Queue (ft)	53	46
Link Distance (ft)	272	256
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: 763 (College Ave.) & Wilson Ave

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	135	16	64
Average Queue (ft)	49	1	22
95th Queue (ft)	103	7	51
Link Distance (ft)	335	456	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			140
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 763 (College Ave.) & Rosemary Ln

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	L	T
Maximum Queue (ft)	76	45	43	37	38
Average Queue (ft)	28	5	1	10	2
95th Queue (ft)	63	37	24	34	22
Link Distance (ft)	1310	254	254		270
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				25	
Storage Blk Time (%)				2	0
Queuing Penalty (veh)				13	0

Intersection: 7: William St & Rosemary Ln

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	43	66	77
Average Queue (ft)	23	36	33
95th Queue (ft)	47	54	53
Link Distance (ft)	1310	249	268
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Bouchelle Ave & Lee St

Movement	WB	SB
Directions Served	T	R
Maximum Queue (ft)	61	56
Average Queue (ft)	23	20
95th Queue (ft)	52	47
Link Distance (ft)	926	262
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Lee St & Wilson Ave

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	57	55
Average Queue (ft)	32	28
95th Queue (ft)	49	49
Link Distance (ft)	335	921
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Lee St & Ross St

Movement	WB	SB
Directions Served	L	LT
Maximum Queue (ft)	31	32
Average Queue (ft)	6	23
95th Queue (ft)	26	45
Link Distance (ft)	921	247
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: William St & Wilson Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	43	53	76	65
Average Queue (ft)	26	23	37	31
95th Queue (ft)	46	49	56	47
Link Distance (ft)	921	359	249	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: William St & Ross St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	37	57	57
Average Queue (ft)	19	14	33	30
95th Queue (ft)	47	40	45	47
Link Distance (ft)	921	176	256	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 181: 763 (College Ave.) & University Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	225	726	94	146	217	269	269	159	282	288
Average Queue (ft)	173	312	42	62	126	131	140	49	179	186
95th Queue (ft)	264	678	87	119	225	249	240	129	262	263
Link Distance (ft)		913		1307		270	270		1744	1744
Upstream Blk Time (%)		0				2	0			
Queuing Penalty (veh)		0				14	1			
Storage Bay Dist (ft)	100		100		200			100		
Storage Blk Time (%)	44	45	2	3	6	1		0	27	
Queuing Penalty (veh)	133	88	2	1	33	2		1	11	

Intersection: 182: 763 (College Ave.) & Rollins St.

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	222	247	352	254	364	360	159	245	244
Average Queue (ft)	119	85	187	138	220	229	36	158	177
95th Queue (ft)	201	180	331	247	328	328	107	245	256
Link Distance (ft)		653	1280		1113	1113		229	229
Upstream Blk Time (%)								1	2
Queuing Penalty (veh)								3	10
Storage Bay Dist (ft)	115			205			100		
Storage Blk Time (%)	16	3		1	9			20	
Queuing Penalty (veh)	24	7		7	13			8	

Intersection: 915: William St & University Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	66	60	73	61
Average Queue (ft)	39	31	39	33
95th Queue (ft)	60	52	58	54
Link Distance (ft)	1307	368	268	497
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 917: William St & Rollins St./Rollins St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	80	43	59	60
Average Queue (ft)	42	15	27	30
95th Queue (ft)	68	30	51	46
Link Distance (ft)	1280	307	87	272
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 429

1: 763 (College Ave.) Performance by movement

Movement	EBR	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	16.4	1.4	5.1	4.0	3.3

2: 763 (College Ave.) & Bouchelle Ave Performance by movement

Movement	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	1.7	2.7	2.7

3: William St & Bouchelle Ave Performance by movement

Movement	EBR	NBT	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.0	4.7	4.6	4.5

4: 763 (College Ave.) & Wilson Ave Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.7	1.9	1.2	0.4	1.4

6: 763 (College Ave.) & Rosemary Ln Performance by movement

Movement	WBT	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.3	13.8	1.5	0.3	2.5	2.0

7: William St & Rosemary Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.5	3.2	5.8	5.2	4.8	3.6	4.8

8: Bouchelle Ave & Lee St Performance by movement

Movement	EBT	All
Denied Del/Veh (s)	0.0	0.0
Total Del/Veh (s)	2.5	2.6

9: Lee St & Wilson Ave Performance by movement

Movement	EBT	WBT	NBL	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	2.0	3.9	3.0

10: Lee St & Ross St Performance by movement

Movement	WBT	WBR	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	0.3	2.7	3.5	2.7	1.8

12: William St & Wilson Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.5	6.2	4.0	4.7	5.1	2.9	4.9	5.1	4.1	4.8	5.0	3.6

12: William St & Wilson Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	5.0

13: William St & Ross St Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.9	3.1	4.2	3.0	5.0	5.0	3.5	5.0	4.6	3.6	4.5

19: 763 (College Ave.) Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.4	1.3	1.3

181: 763 (College Ave.) & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.1	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	65.2	69.4	51.3	49.4	31.8	23.4	24.8	12.8	9.4	34.1	23.6	19.1

181: 763 (College Ave.) & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	27.0

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	0.9	0.8	2.0	1.9	5.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	30.1	25.2	16.4	136.6	138.8	128.2	154.8	34.1	26.5	27.8	30.0	30.9

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	48.9

915: William St & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.2	0.1
Total Del/Veh (s)	7.6	4.9	5.4	4.7	5.7	3.4	5.6	5.4	4.2	4.4	4.4	3.2

915: William St & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	5.1

917: William St & Rollins St./Rollins St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.7	1.7	4.3	4.1	6.4	2.0	3.8	3.9	2.3	4.0	4.5	3.7

917: William St & Rollins St./Rollins St Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	4.0

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	72.2

Arterial Level of Service: NB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	924	1.0	20.6	0.2	33
	183	0.6	10.8	0.1	34
Rollins St.	182	34.1	57.0	0.2	14
Bouchelle Ave	2	3.1	9.6	0.1	21
	1	1.4	3.2	0.0	22
Wilson Ave	4	1.9	12.3	0.1	29
	19	1.2	3.5	0.0	21
Rosemary Ln	6	1.5	5.2	0.0	26
University Ave	181	12.8	18.8	0.1	12
	180	4.9	40.8	0.3	30
Total		62.6	181.8	1.2	23

Arterial Level of Service: SB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	180	0.2	7.5	0.1	37
University Ave	181	23.6	58.4	0.3	21
Rosemary Ln	6	3.2	10.5	0.1	22
	19	1.3	5.5	0.0	25
Wilson Ave	4	0.4	2.4	0.0	31
	1	5.1	15.1	0.1	24
Bouchelle Ave	2	2.6	5.1	0.0	14
Rollins St.	182	30.0	34.9	0.1	6
	183	4.4	27.9	0.2	29
	924	0.8	11.7	0.1	31
Total		71.7	178.8	1.0	21

Intersection: 1: 763 (College Ave.)

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	79	103	103	126	167
Average Queue (ft)	28	58	60	56	80
95th Queue (ft)	58	95	104	109	140
Link Distance (ft)	309	77	77	483	483
Upstream Blk Time (%)		2	2		
Queuing Penalty (veh)		11	16		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: 763 (College Ave.) & Bouchelle Ave

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	46	26	88	133
Average Queue (ft)	2	2	9	19
95th Queue (ft)	18	14	50	79
Link Distance (ft)	238	238	77	77
Upstream Blk Time (%)			1	3
Queuing Penalty (veh)			6	15
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: William St & Bouchelle Ave

Movement	EB	NB	SB
Directions Served	LR	T	T
Maximum Queue (ft)	60	59	50
Average Queue (ft)	23	38	30
95th Queue (ft)	51	57	45
Link Distance (ft)	914	266	262
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 763 (College Ave.) & Wilson Ave

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	57	27	13
Average Queue (ft)	26	1	0
95th Queue (ft)	52	12	6
Link Distance (ft)	342	483	483
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 763 (College Ave.) & Rosemary Ln

Movement	WB	NB	NB	SB
Directions Served	R	T	TR	T
Maximum Queue (ft)	41	55	76	4
Average Queue (ft)	15	4	7	0
95th Queue (ft)	41	26	40	3
Link Distance (ft)	1310	175	175	275
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: William St & Rosemary Ln

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	60	72	68
Average Queue (ft)	27	41	38
95th Queue (ft)	51	63	58
Link Distance (ft)	1310	249	268
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Bouchelle Ave & Lee St

Movement	EB
Directions Served	LT
Maximum Queue (ft)	32
Average Queue (ft)	9
95th Queue (ft)	33
Link Distance (ft)	338
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Lee St & Wilson Ave

Movement	EB	WB	NB
Directions Served	T	T	LR
Maximum Queue (ft)	45	38	31
Average Queue (ft)	26	16	16
95th Queue (ft)	47	44	41
Link Distance (ft)	342	915	241
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Lee St & Ross St

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (ft)	32	44
Average Queue (ft)	10	15
95th Queue (ft)	34	42
Link Distance (ft)	909	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: William St & Wilson Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	57	66	60
Average Queue (ft)	34	27	39	33
95th Queue (ft)	52	52	58	51
Link Distance (ft)	915	359	249	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: William St & Ross St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	66	53	57	60
Average Queue (ft)	27	13	34	31
95th Queue (ft)	56	41	48	49
Link Distance (ft)	909	176	262	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: 763 (College Ave.)

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	95	96	37	79
Average Queue (ft)	24	34	6	27
95th Queue (ft)	73	82	26	68
Link Distance (ft)	92	92	175	175
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	2	3		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 181: 763 (College Ave.) & University Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	225	614	140	136	249	299	286	160	274	309
Average Queue (ft)	158	255	71	58	128	179	195	86	170	181
95th Queue (ft)	256	563	127	112	227	284	291	171	256	265
Link Distance (ft)		913		1307		275	275		1744	1744
Upstream Blk Time (%)		0				0	1			
Queuing Penalty (veh)		0				3	4			
Storage Bay Dist (ft)	100		100		200			100		
Storage Blk Time (%)	31	42	6	2	2	3		4	25	
Queuing Penalty (veh)	95	81	5	2	10	8		14	26	

Intersection: 182: 763 (College Ave.) & Rollins St.

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	213	235	669	255	611	581	194	270	288
Average Queue (ft)	119	81	333	217	344	315	37	187	208
95th Queue (ft)	197	165	655	310	604	559	109	284	306
Link Distance (ft)		653	1280		1113	1113		238	238
Upstream Blk Time (%)								6	12
Queuing Penalty (veh)								33	63
Storage Bay Dist (ft)	115			205			100		
Storage Blk Time (%)	13	3		50	10		0	40	
Queuing Penalty (veh)	19	8		254	19		0	16	

Intersection: 915: William St & University Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	84	62	84	60
Average Queue (ft)	47	32	44	33
95th Queue (ft)	72	53	69	55
Link Distance (ft)	1307	368	268	497
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 917: William St & Rollins St./Rollins St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	67	42	55	62
Average Queue (ft)	41	14	26	34
95th Queue (ft)	66	29	47	52
Link Distance (ft)	1280	307	87	266
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 712

1: 763 (College Ave.) Performance by movement

Movement	EBR	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.9	2.0	5.2	4.5	3.6

2: 763 (College Ave.) & Bouchelle Ave Performance by movement

Movement	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.9	2.2	2.4	2.7

3: William St & Bouchelle Ave Performance by movement

Movement	EBR	NBT	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.0	4.6	4.7	4.5

4: 763 (College Ave.) & Wilson Ave Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.6	2.0	1.5	0.9	1.7

6: 763 (College Ave.) & Rosemary Ln Performance by movement

Movement	WBT	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.4	10.5	1.5	0.2	2.8	2.1

7: William St & Rosemary Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	3.0	4.9	5.1	4.7	3.4	4.7

8: Bouchelle Ave & Lee St Performance by movement

Movement	EBT	All
Denied Del/Veh (s)	0.0	0.0
Total Del/Veh (s)	2.3	2.3

9: Lee St & Wilson Ave Performance by movement

Movement	EBT	WBT	NBL	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	2.2	4.2	3.1

10: Lee St & Ross St Performance by movement

Movement	WBT	WBR	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.3	2.8	3.8	2.6	1.7

12: William St & Wilson Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.2	5.7	3.9	4.5	5.4	3.6	4.7	5.1	4.0	5.5	5.0	3.8

12: William St & Wilson Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	4.9

13: William St & Ross St Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	3.0	3.9	3.1	5.0	5.0	3.4	4.7	4.7	3.7	4.5

19: 763 (College Ave.) Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.5	2.8	2.1

181: 763 (College Ave.) & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.2	0.7	0.7	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	73.7	81.9	61.7	78.7	30.2	19.8	34.2	11.2	10.2	33.0	21.6	15.4

181: 763 (College Ave.) & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	28.9

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	0.7	0.7	1.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	40.9	32.1	21.6	34.3	50.7	37.5	64.0	23.5	20.2	27.8	24.4	20.9

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	29.3

915: William St & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.2
Total Del/Veh (s)	7.1	5.7	5.6	5.1	5.5	3.4	5.4	5.2	4.4	4.7	4.7	3.2

915: William St & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	5.3

917: William St & Rollins St./Rollins St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.8	1.7	4.4	4.7	6.4	2.0	3.6	3.8	2.3	4.8	4.8	3.8

917: William St & Rollins St./Rollins St Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	4.2

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	59.7

Arterial Level of Service: NB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	924	1.1	20.6	0.2	33
	183	0.6	10.8	0.1	34
Rollins St.	182	23.5	46.2	0.2	18
Bouchelle Ave	2	3.2	10.0	0.1	20
	1	2.0	3.7	0.0	18
Wilson Ave	4	2.0	12.4	0.1	29
	19	1.3	3.6	0.0	21
Rosemary Ln	6	1.5	5.2	0.0	26
University Ave	181	11.2	17.2	0.1	14
	180	4.7	40.5	0.3	31
Total		51.0	170.2	1.2	25

Arterial Level of Service: SB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	180	0.2	7.5	0.1	37
University Ave	181	21.6	56.4	0.3	22
Rosemary Ln	6	3.7	11.0	0.1	21
	19	2.8	7.0	0.0	20
Wilson Ave	4	0.9	2.9	0.0	25
	1	5.2	15.2	0.1	23
Bouchelle Ave	2	2.4	4.9	0.0	14
Rollins St.	182	24.4	29.4	0.1	7
	183	4.4	27.8	0.2	29
	924	0.8	11.7	0.1	31
Total		66.4	173.6	1.0	22

Intersection: 1: 763 (College Ave.)

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	70	105	106	156	175
Average Queue (ft)	25	57	63	49	72
95th Queue (ft)	56	110	115	112	131
Link Distance (ft)	309	77	77	483	483
Upstream Blk Time (%)		4	5		
Queuing Penalty (veh)		25	34		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: 763 (College Ave.) & Bouchelle Ave

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	79	73	102	137
Average Queue (ft)	5	7	8	14
95th Queue (ft)	33	36	49	72
Link Distance (ft)	238	238	77	77
Upstream Blk Time (%)			1	2
Queuing Penalty (veh)			5	11
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: William St & Bouchelle Ave

Movement	EB	NB	SB
Directions Served	LR	T	T
Maximum Queue (ft)	59	70	64
Average Queue (ft)	22	36	32
95th Queue (ft)	51	54	48
Link Distance (ft)	914	264	262
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 763 (College Ave.) & Wilson Ave

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	62	17	8
Average Queue (ft)	28	1	0
95th Queue (ft)	54	8	5
Link Distance (ft)	342	483	483
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 763 (College Ave.) & Rosemary Ln

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	36	35	46
Average Queue (ft)	17	3	2
95th Queue (ft)	42	27	19
Link Distance (ft)	1310	175	175
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: William St & Rosemary Ln

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	60	66	73
Average Queue (ft)	28	40	40
95th Queue (ft)	52	59	62
Link Distance (ft)	1310	249	268
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Bouchelle Ave & Lee St

Movement	EB
Directions Served	LT
Maximum Queue (ft)	32
Average Queue (ft)	8
95th Queue (ft)	30
Link Distance (ft)	338
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Lee St & Wilson Ave

Movement	EB	WB	NB
Directions Served	T	T	LR
Maximum Queue (ft)	47	46	31
Average Queue (ft)	22	19	15
95th Queue (ft)	47	45	41
Link Distance (ft)	342	915	241
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Lee St & Ross St

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (ft)	32	37
Average Queue (ft)	10	17
95th Queue (ft)	33	42
Link Distance (ft)	909	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: William St & Wilson Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	55	49	68	69
Average Queue (ft)	33	23	38	35
95th Queue (ft)	47	51	57	53
Link Distance (ft)	915	359	249	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: William St & Ross St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	54	37	64	72
Average Queue (ft)	26	16	36	34
95th Queue (ft)	52	42	52	53
Link Distance (ft)	909	176	262	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: 763 (College Ave.)

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	91	89	102	119
Average Queue (ft)	25	34	36	51
95th Queue (ft)	68	80	68	94
Link Distance (ft)	92	92	175	175
Upstream Blk Time (%)	0	1	0	
Queuing Penalty (veh)	3	4	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 181: 763 (College Ave.) & University Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	225	712	168	216	248	279	278	160	323	294
Average Queue (ft)	169	308	78	63	123	150	165	75	158	166
95th Queue (ft)	264	647	153	149	222	256	263	153	253	259
Link Distance (ft)		913		1307		275	275		1744	1744
Upstream Blk Time (%)						0	0			
Queuing Penalty (veh)						2	1			
Storage Bay Dist (ft)	100		100		200			100		
Storage Blk Time (%)	33	47	16	1	3	1		3	21	
Queuing Penalty (veh)	101	92	14	1	15	3		11	22	

Intersection: 182: 763 (College Ave.) & Rollins St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	224	331	196	279	254	437	444	162	270	266
Average Queue (ft)	134	94	76	115	144	214	222	37	157	178
95th Queue (ft)	220	206	163	229	255	353	356	112	271	279
Link Distance (ft)		653		1275		1097	1097		238	238
Upstream Blk Time (%)									4	7
Queuing Penalty (veh)									21	39
Storage Bay Dist (ft)	115		115		205			100		
Storage Blk Time (%)	23	4	3	17	7	7			24	
Queuing Penalty (veh)	34	8	5	16	33	13			9	

Intersection: 915: William St & University Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	99	62	69	74
Average Queue (ft)	53	32	41	34
95th Queue (ft)	84	53	64	57
Link Distance (ft)	1307	368	268	497
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 917: William St & Rollins St./Rollins St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	77	36	58	69
Average Queue (ft)	43	9	26	36
95th Queue (ft)	73	23	49	55
Link Distance (ft)	1275	305	78	264
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 522

1: 763 (College Ave.) Performance by movement

Movement	EBR	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	14.0	0.3	3.7	3.3	1.9

2: 763 (College Ave.) & Bouchelle Ave Performance by movement

Movement	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.4	2.0	3.0	2.7

3: William St & Bouchelle Ave Performance by movement

Movement	EBR	NBT	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.1	4.7	4.9	4.6

4: 763 (College Ave.) & Wilson Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	42.5	26.5	5.0	3.8	16.6	7.5	7.4

6: 763 (College Ave.) & Rosemary Ln Performance by movement

Movement	WBT	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.3	9.4	1.8	1.0	2.4	2.2

7: William St & Rosemary Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	3.1	4.6	5.0	4.0	3.5	4.5

8: Bouchelle Ave & Lee St Performance by movement

Movement	EBT	All
Denied Del/Veh (s)	0.0	0.0
Total Del/Veh (s)	3.6	3.6

9: Lee St & Wilson Ave Performance by movement

Movement	EBT	WBT	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0
Total Del/Veh (s)	2.9	5.7	4.1		4.2

10: Lee St & Ross St Performance by movement

Movement	WBT	WBR	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1
Total Del/Veh (s)	0.4	2.8	3.6	3.0

12: William St & Wilson Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.9	6.0	4.5	4.6	5.5	3.0	5.4	5.1	4.0	4.9	4.8	3.6

12: William St & Wilson Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	5.0

13: William St & Ross St Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	2.8	3.8	2.7	4.6	5.0	4.2	4.6	4.9	3.6	4.7

181: 763 (College Ave.) & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.1	0.7	0.7	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	59.1	62.6	42.4	58.2	37.5	20.5	41.4	3.4	2.0	44.7	24.1	21.2

181: 763 (College Ave.) & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	23.5

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	0.9	0.8	8.4	3.7	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	42.8	24.1	18.9	184.2	183.4	164.4	127.8	30.3	22.8	25.6	28.5	28.1

182: 763 (College Ave.) & Rollins St. Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	50.2

915: William St & University Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	6.9	5.1	5.4	4.6	5.7	3.7	5.2	5.1	4.3	5.3	4.6	3.1

915: William St & University Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	5.0

917: William St & Rollins St./Rollins St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.4	1.2	3.8	3.9	6.3	2.3	3.8	3.9	2.6	4.6	1.2	3.6

917: William St & Rollins St./Rollins St Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.7

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	72.2

Arterial Level of Service: NB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	924	1.0	20.6	0.2	33
	183	0.6	10.8	0.1	34
Rollins St.	182	30.3	53.0	0.2	15
Bouchelle Ave	2	3.1	9.2	0.1	22
	1	0.3	2.3	0.0	29
Wilson Ave	4	5.0	15.0	0.1	24
Rosemary Ln	6	1.9	8.1	0.1	26
University Ave	181	3.3	9.5	0.1	24
	180	3.0	38.8	0.3	32
Total		48.4	167.3	1.2	25

Arterial Level of Service: SB 763 (College Ave.)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	180	0.2	7.5	0.1	37
University Ave	181	24.1	58.9	0.3	21
Rosemary Ln	6	3.0	10.1	0.1	23
Wilson Ave	4	7.5	13.7	0.1	15
	1	3.5	13.7	0.1	26
Bouchelle Ave	2	3.0	5.1	0.0	13
Rollins St.	182	28.5	33.7	0.1	6
	183	4.3	27.7	0.2	29
	924	0.8	11.7	0.1	31
Total		74.9	182.1	1.0	21

Intersection: 1: 763 (College Ave.)

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	66	129	132
Average Queue (ft)	25	18	28
95th Queue (ft)	53	75	93
Link Distance (ft)	309	462	462
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 763 (College Ave.) & Bouchelle Ave

Movement	NB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	10	76	98
Average Queue (ft)	0	37	58
95th Queue (ft)	6	91	102
Link Distance (ft)	222	61	61
Upstream Blk Time (%)		5	10
Queuing Penalty (veh)		26	55
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: William St & Bouchelle Ave

Movement	EB	NB	SB
Directions Served	LR	T	T
Maximum Queue (ft)	47	68	65
Average Queue (ft)	21	38	32
95th Queue (ft)	47	57	50
Link Distance (ft)	914	266	262
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 763 (College Ave.) & Wilson Ave

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	153	151	160	63	218	229
Average Queue (ft)	64	71	75	27	110	126
95th Queue (ft)	120	122	137	57	186	207
Link Distance (ft)	342	462	462		259	259
Upstream Blk Time (%)					0	0
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)				140		
Storage Blk Time (%)					3	
Queuing Penalty (veh)					1	

Intersection: 6: 763 (College Ave.) & Rosemary Ln

Movement	WB	NB	SB
Directions Served	R	T	T
Maximum Queue (ft)	42	32	8
Average Queue (ft)	15	1	0
95th Queue (ft)	41	17	5
Link Distance (ft)	1310	259	265
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: William St & Rosemary Ln

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	55	70	61
Average Queue (ft)	25	38	34
95th Queue (ft)	51	57	48
Link Distance (ft)	1310	249	268
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Bouchelle Ave & Lee St

Movement	EB
Directions Served	LT
Maximum Queue (ft)	32
Average Queue (ft)	13
95th Queue (ft)	38
Link Distance (ft)	338
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Lee St & Wilson Ave

Movement	EB	WB	NB
Directions Served	T	T	LR
Maximum Queue (ft)	54	58	54
Average Queue (ft)	26	31	23
95th Queue (ft)	49	53	50
Link Distance (ft)	342	915	241
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Lee St & Ross St

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (ft)	32	31
Average Queue (ft)	11	17
95th Queue (ft)	35	43
Link Distance (ft)	909	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: William St & Wilson Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	42	70	70	78
Average Queue (ft)	25	26	38	34
95th Queue (ft)	47	55	58	54
Link Distance (ft)	915	359	249	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: William St & Ross St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	58	37	67	67
Average Queue (ft)	22	16	35	31
95th Queue (ft)	50	41	51	51
Link Distance (ft)		176	262	249
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 181: 763 (College Ave.) & University Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	B180
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR	T
Maximum Queue (ft)	225	532	111	142	232	243	190	159	300	319	13
Average Queue (ft)	152	209	41	62	141	48	57	69	179	183	0
95th Queue (ft)	247	410	84	119	214	143	135	155	269	273	8
Link Distance (ft)		913		1307		265	265		1744	1744	358
Upstream Blk Time (%)					0	0	0				
Queuing Penalty (veh)					0	1	0				
Storage Bay Dist (ft)	100		100		200			100			
Storage Blk Time (%)	29	41	2	4	4	0		2	27		
Queuing Penalty (veh)	90	80	2	2	20	1		7	16		

Intersection: 182: 763 (College Ave.) & Rollins St.

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	233	277	662	255	561	542	194	250	263
Average Queue (ft)	138	90	407	204	310	295	60	217	225
95th Queue (ft)	224	201	765	300	620	587	179	251	247
Link Distance (ft)		653	1280		1113	1113		222	222
Upstream Blk Time (%)								8	14
Queuing Penalty (veh)								43	77
Storage Bay Dist (ft)	115			205			100		
Storage Blk Time (%)	25	4		33	9			33	
Queuing Penalty (veh)	36	8		169	16			13	

Intersection: 915: William St & University Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	81	64	78	63
Average Queue (ft)	46	32	40	33
95th Queue (ft)	72	56	63	53
Link Distance (ft)	1307	368	268	497
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 917: William St & Rollins St./Rollins St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	83	56	58	57
Average Queue (ft)	43	15	28	29
95th Queue (ft)	69	35	48	46
Link Distance (ft)	1280	307	87	266
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 666

APPENDIX 7

NEWSLETTER

City of Columbia
Public Works Department
701 E Broadway
PO Box 6015
Columbia, MO 65205

Help us make the CASE for a safer College Avenue!

Place Postage Here

PROJECT STATUS

Find out what's happening next on the:

College Avenue Safety Enhancement (CASE) Project

Having gained insight from the November 2013 Interested Parties Meeting, the design team has been busy working to develop and evaluate project alternatives. These will be brought forward for public input at *Interested Parties Meeting #2*, in the first quarter of 2014.

PROJECT STATUS

PROJECT STATUS

College Avenue Safety Enhancement Project

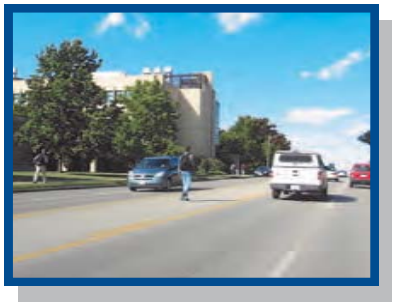
Making the CASE for a Safer College Avenue

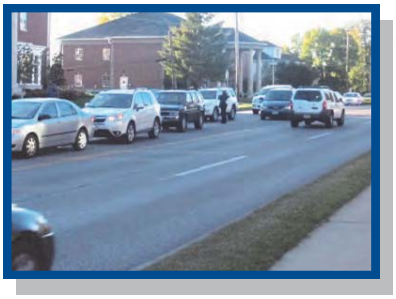
Project Newsletter—January 2014 **www.**MakeTheCASEProject.com

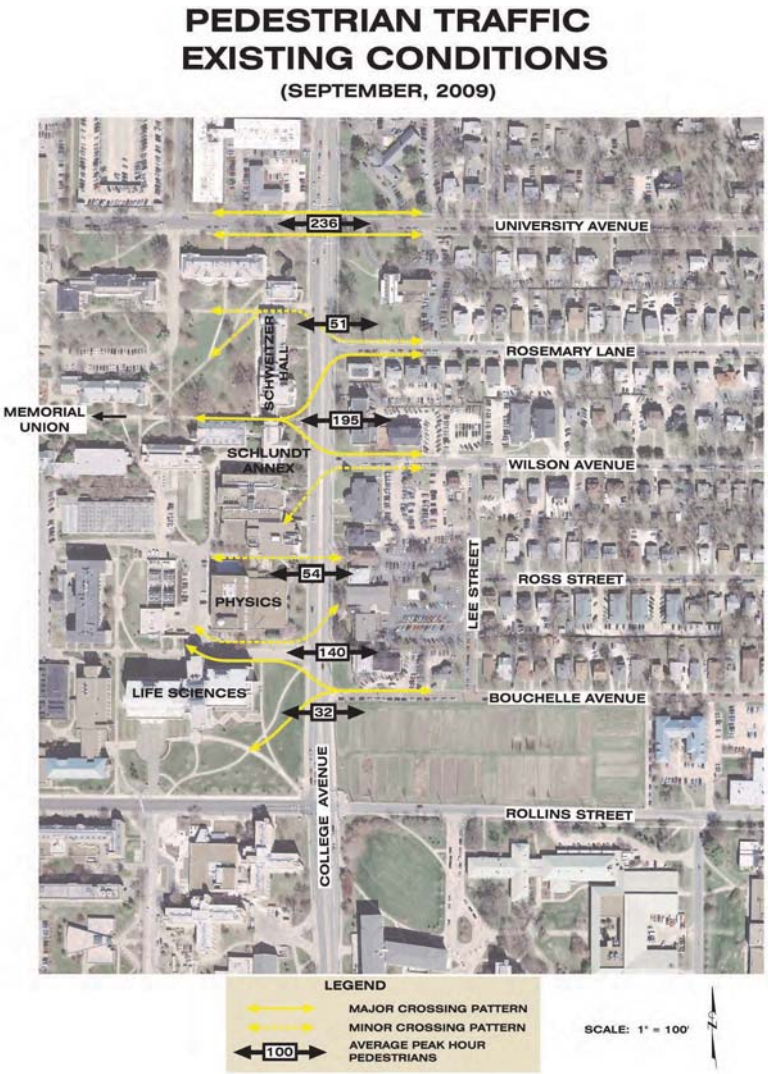
Project Summary

The **College Avenue Safety Enhancement (CASE) Project** corridor runs approximately 1500-linear feet, between University Avenue and Rollins Street. College Avenue, also MO Route 763, is a MoDOT roadway that borders the eastern edge of the University of Missouri's campus. Several University-recognized fraternity houses line the east side of College Avenue. Continuing to the east is the East Campus Neighborhood Association - an established Columbia neighborhood with a diverse mix of single-family residential homes, both owner-occupied and rental units, and multi-family dwellings serving primarily as student housing.

In a 2009 pedestrian traffic study completed for the University of Missouri, counts showing over 480 pedestrians crossing College Avenue along the study corridor, not including the intersections at University Avenue and Rollins Street. Pedestrians are often waiting in the center-turn lane in order for traffic to clear in either the north or south direction in order to complete the crossing of the street. This is a situation that has long been known to be dangerous for pedestrians and motorists.







Recent Project Activities

The public was invited to an Interested Parties Meeting on November 19, 2013, to be introduced to the CASE Project. Over fifty individuals attended. Members of the project design team were present to discuss a variety of project-related information that was provided, including displays describing the following:

- The *2009 Pedestrian Traffic Study* recommendations for mid-block pedestrian crossings and a center-lane median to channelize pedestrians, as well as previously identified project goals and concerns;
- Information describing the existing vehicle and pedestrian traffic patterns along this segment of College Avenue;
- Initial thoughts about the proposed project's appearance;
- Description of the process being followed in the CASE Project's design development.

The information displays presented at this first public meeting can be viewed on the CASE Project website:

www.MakeTheCASEProject.com—then click on "MEETINGS"

Keep reading to learn more about the comments generated from the November Interested Parties Meeting.

Interested Parties Meeting #1—November 19, 2013

Respondents were asked to provide an opinion on the greatest concerns they had regarding the proposed project. Preliminary outreach had confirmed a number of known concerns, such as:

- Safety of those crossing College Avenue
- Appearance of constructed improvements
- Maintaining left turn access
- Cost of improvements vs. benefit
- Changing pedestrian behavior

The results were spread fairly evenly, with many respondents selecting and ranking multiple options. The top three concerns, provided in order of priority were: (1) Safety of pedestrians crossing College Avenue; (2) Changing pedestrian behavior; (3) Maintenance of left turn access.

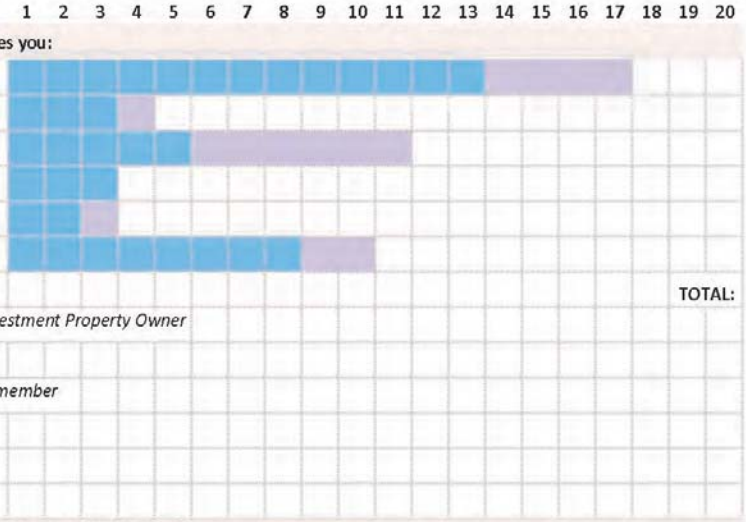
Comments received were evaluated and categorized, and tables identifying a summary description of the respondents and of the comments received are provided on the following page. Comment groupings that had the largest number of comments included:

- Concern about loss of left-turn access with associated traffic impacts to the East Campus Neighborhood (ECN);
- Preference to defer full-build out of center-lane median and barrier infrastructure and begin with defined crosswalks and pedestrian signals, then monitor the impacts on safety;
- Landscaped median as vertical element, or perhaps in lieu of vertical element, is widely preferred to a structural barrier

Below is a breakdown of the individuals who provided comments about the safety improvements being considered on the College Avenue corridor. Over half of those respondents were either residents in the area of the CASE Project or affiliated with the University of Missouri.

Summary of Written/Online Public Comments
RESPONDENT BREAKDOWN

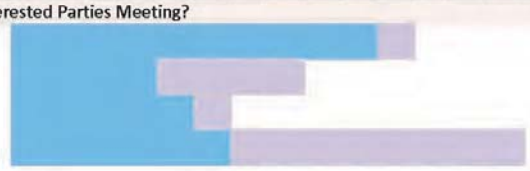
CASE Project - City of Columbia, Missouri
Interested Parties Meeting #1 - November 19, 2013



Check the one that most closely describes you:		Percentage Breakdown
1	Resident in project area	35.4%
2	University of MO student	8.3%
3	MU-affiliated, but not student	22.9%
4	Business owner in project area	6.3%
5	Use route regularly	6.3%
6	Other Interested party	20.8%
	TOTAL:	100.0%

Comments:

- *East Campus Neighborhood Investment Property Owner*
- *Lee School Parent*
- *Downtown Leadership Council member*



How did you find out about today's Interested Parties Meeting?	
1	Postcard invitation
2	Newspaper/Radio
3	Email media release
4	Other (explain in comments)

Comments:

- *East Campus Neighborhood Assoc. email / communication*
- *Public Transportation Advisory Commission*
- *Notified by City Council member*
- *PedNet communication (Facebook)*
- *Co-worker*

LEGEND
- Response from written comments
- Response from online comments
- Comments noted regarding specific categories of public comments

COMMENTS:

1 Some respondents provided more than one item characterizing their interest in the CASE Project; total comments received represented approximately 30 individuals.

Summary of Written/Online Public Comments
COMMENT BREAKDOWN

CASE Project - City of Columbia, Missouri
Interested Parties Meeting #1 - November 19, 2013

One of the CASE Project displays listed several items noted as "Known Concerns". Please comment on the concern that you believe is most critical to be addressed by this project. If you find it difficult to select only one, please note which is the highest priority in the comments:

Safety of those crossing College Avenue	1 1 1 2
Appearance of constructed improvements	1
Loss of left turn access	2 2 3
Cost of improvements vs. benefit	4
Changing pedestrian behavior	2 5
Other (explain in comments)	
student-centric, not neighborhood-centric	

NOTE: Several commenters provided more than one selection. For those that ranked them in order of importance, those rankings are reflected in the numbers shown above. All other selections were assumed to be equally of the highest priority.

The comment form asked for general comments to the following specific questions:

Q. There is a strong desire to have the project improvements look attractive and appropriate to the area along College Avenue. Please give us your input about how the elements of the CASE Project might achieve this goal.

Q. Please provide any other comments you have about the CASE Project:

This is the summary of written comments received to these questions, categorized:

1 **U-Turns at intersections;**
Give south-bound College Ave. vehicles a means to U-turn to get back into ECN

2 **Educational component for cyclists; Need for bike lanes**
"Dismount & Walk" signage; too many ride on sidewalks

3 **Channelization / barrier effective for student safety**
Must be high enough to deter jumping;

4 **Loss of left turns; Concern w/ increased traffic in ECN**
University & Wilson specifically noted by several; need access to turn south from ECN; need to address parking in ECN; Solution is "student-centric", not considering residents

5 **Behavior changes critical**
More crosswalks; enforce jaywalking; "social-norming" campaign; snow removal issues can be deterrent to getting to crosswalks;

6 **Barrier won't be attractive**
Frustration w/ other "barriers" in Columbia (flexible delineators); won't complement surrounding area (ECN; campus); concrete is ugly;

7 **Not infrastructure first; crosswalks only or w/ ped signals**
Try changes to enforcement, improve signalized intersections first; Rollins needs west-bound left turn-lane/signal;

8 **Landscape prefered to structure**
variety of options presented in the comment (see note 1 below)

9 **Ped tunnel under Rollins/College**

10 **GPS routing**
Work with major GPS companies to re-route away from College Ave.

11 **Unintended consequences**
Traffic shift to other ECN roads; dangerous behavior of students on barrier; loss of visibility w/ barrier; concern about ped capacity of sidewalks if more pedestrians shift to mid-block crossings;

12 **Solution in search of problem**
Problem only for students - few times a day, nine months a year; Abandon proposed project altogether; accidents rare, why spend money?;

13 **Reduce volume and speed on College Avenue**
"Not a highway"; allow more non-motorized use with bike lanes, encourage bike/transit use; traffic calming or lane reduction

14 **Extend safety measures to north**
Lee School safety issues; should be considering entire College Ave. corridor

Assuming a "vertical element" is constructed as part of the CASE Project, listed are specific aesthetic treatments of a proposed median barrier as noted in multiple comments:

1 Landscaped features; perhaps inclusive of a fence to provide for continuous barrier to crossing
2 Black wrought-iron fence; not stamped concrete
3 Review 2010 Charrette Report from Downtown Leadership Council
4 No reflective barriers or concrete
5 Short wall only, w/ fence on top to maintain visual across College Ave.
6 Black and Gold design theme

LEGEND
- Response from written comments
- Response from online comments
- Comments noted regarding specific categories of public comments

Project Timeline

Following the first Interested Parties (IP) Meeting, the CASE Project is now following a process structure similar to most City of Columbia infrastructure improvement projects. Alternatives are currently being evaluated in the preliminary design phase, and three alternatives will be brought forward to the public at the second Interested Parties Meeting in the next 1-2 months.

Pedestrian Traffic Study

- 2009 - initiated by University of Missouri
- Defined volumes of pedestrians and vehicles; identified safety concerns
- Suggested elements of project to improve safety

Interested Parties Meeting #1

- Introduce project to corridor residents & users
- Gather input to guide design

Preliminary Design

- Develop three alternatives for crossings/median
- Evaluate traffic impacts in project area

We Are Here - Jan 2014

Interested Parties Meeting #2

- Introduce and compare alternatives – features, trade-offs, costs
- Gather input to assist with development of Preferred Alternative

IP Meeting #2 Tentative Date: Feb. 25th

Public Hearing @ City Council

- Introduce Preferred Alternative to public
- Obtain support of City leadership to move forward with Final Design phase

APPENDIX 8

INTERESTED PARTIES MEETING #2 DOCUMENTS

Summary of Written Public Comments
PREFERRED ALTERNATE

CASE Project - City of Columbia, Missouri
Interested Parties Meeting #2 - February 25, 2014

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Comments indicating a Preferred Alternative															
Preferred Alternative A or B	■	■	■	■	■	■	■	■							
2 people preferred Alternate A; 3 people preferred Alternate B; 3 people preferred Alternate A or B															
Preferred Alternative D - HAWK Signal Only	■	■													
Preferred Alternative E - raised island with HAWK	■	■	■	■											
Preferred Alternative H - full traffic signal at Wilson Street	■														
Additional Comments															
Preferred a fence on the west side of College Avenue	■	■	■	■	■										
Prefer not to build anything	■	■	■												
Concern regarding loss of left turn; Spend money educating pedestrians; Consider "hefty fines" for jaywalking to change student behavior															
Prefer an option with trees and/or landscaping	■	■	■	■	■	■	■	■							

Notes:

24 written comments were received at the second Interested Parties Meeting.
1 additional comment was received by e-mail from a participant who also submitted a comment at the meeting.
No on-line comments were received.

Summary of Written Public Comments
DETAILED BREAKDOWN

CASE Project - City of Columbia, Missouri
Interested Parties Meeting #2 - February 25, 2014

Comment Number	Comment Page Number	Prefered Alternative	Comments
1	1	B	trees; fence on west side; maintenance
2	2	West Fence	trees; fence on west side; maintenance
3	3	A or B	"Safety First", small preference for Alternate B, Not E
4	4	A	approved of process
5	5	No Build	wants Left turn access; educate students
6	6	B	lower speed limit
7	7	D	graffiti on wall, fence is better
8	8	D	enforcement; Ashland Street u-turn
9	9	A or B	Pednet representative; landscaping
10	10	A or B	plants
11	11		no fence/wall; landscaping
12	12	No Build	left turn access
13	13	A or B	landscaping; break up cross section; left turns
14	14	E	B better than A
15	15	E	no barriers; likes Hickman H.S. fence
16	16	E or F	safety at College and University more important; fence on west side;
17	17	No Build	enforcement before barrier
18	18	West Fence	left turn access
19	19	West Fence	wall could increase speed; phase construction;
20	20	West Fence	plantings
21	21	H	fence on west
22	22	A	pedestrian safety most important and outweights fewer number of displaced left turns
23	24	West Fence	graffiti; trash; likes Hickman H.S. fence; do not change one-way street direction
24	26	E	Alternate A and B look very nice; hazardous center lane;

College Avenue Safety Enhancement Project

Making the CASE for a Safer College Avenue

COMMENT FORM ♦ Interested Parties Meeting #2—February 25, 2014

The College Avenue Safety Enhancement (CASE) Project design team is making a recommendation to move forward with one of two "preferred alternatives" that meet the majority of project goals identified in previous outreach efforts. Please provide input regarding what you have seen and heard about the project at tonight's meeting. ***Please provide us your contact information below to receive CASE Project updates.*** We will be providing future updates about this project by email. As the project progresses, information will be posted to the project website at the following link:

www.MakeTheCASEProject.com

If you prefer to comment online, this form will be available on the project website. Send comments via email to PubW@GoColumbiaMo.com, or in regular mail to the attention of Mr. Cliff Jarvis, P.E., to the following address:

City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Marta Welch

ADDRESS: 2808 Greenbriar Dr.

CITY: Columbia **STATE:** Mo **ZIP:** 65203

Preferred Email Address: _____ *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: _____ *(optional)*

Comments: MU build a fence on its property ⊕
If not this option then a fence down median ~~place~~ like Alternate Plan "B" WITH trees periodically with fence around the tree connecting to the regular fence.

MU teach a forestry class (treekeeper class) with a hands-on maintenance class on a Sunday morning once or twice a year to ~~see~~ safely maintain these trees

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

College Avenue Safety Enhancement Project

Making the CASE for a Safer College Avenue

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: MARK STEVENSON

ADDRESS: 3212 SHORESIDE DR.

CITY: COLUMBIA STATE: MO ZIP: 65203

Preferred Email Address: _____ *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573-999-0671 *(optional)*

Comments: Plant trees !!! Many, many benefits!

Investigate just a combination of landscaped fence on the west side of College Ave. This achieves the same goals with much lower cost, and keeps the existing traffic flow.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

College Avenue Safety Enhancement Project

Making the CASE for a Safer College Avenue

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: PHIL WARNKEN

ADDRESS: 2509 VISTAVIEW TER.

CITY: COLUMBIA **STATE:** MO **ZIP:** 65203

Preferred Email Address: CRO@agbrazil.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 256-4900 *(optional)*

Comments: LEFT TURN ISSUES NOT IMPORTANT

GO FOR SAFETY FIRST

OPTION A OR B IS GREAT!

SMALL PREFERENCE FOR B

- LOOKS GREAT
- VERY SAFE

DO NOT GO ALT E - IT WOULD CHANGE NOTHING - VERY DANGEROUS

NOTE: WE HAVE OWNED RENTAL PROPERTY IN E.C. FOR MORE THAN 40 YS

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

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If you prefer to comment online, this form will be available on the project website. Send comments via email to PubW@GoColumbiaMo.com, or in regular mail to the attention of Mr. Cliff Jarvis, P.E., to the following address:

City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Rachel Bacon

ADDRESS: 7302 Lichfield Drive

CITY: Columbia **STATE:** MO **ZIP:** 65202

Preferred Email Address: rlbacon@gocolumbiamo.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 817-5006 *(optional)*

Comments: I'm impressed with the level of detail in each presented alternative. The rendering really helps to tell the story of the before and after from a design perspective. The analysis of potential traffic improvements following this project is helpful, conceptually, to identify existing and potential ~~[illegible]~~ traffic concerns in the immediate area. This presentation seems very responsive to what I heard from residents at the first meeting, and I appreciate the hard work. I prefer alternative A, and look forward to the community discussions of all the pros & cons of each design.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

I will not miss the days I played frogger crossing College while attending MU!

College Avenue Safety Enhancement Project

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Joyce Snow

ADDRESS: 711 Morningside DR

CITY: Columbia **STATE:** MO **ZIP:** 65201

Preferred Email Address: Jjoycesnow@AOL.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573-443-8055 *(optional)*

Comments: I have lived in east campus for 47 years (same house) and need to turn left on Wilson. No left turns would just cause traffic problems in other areas. Whole project is money not well spent. It would be better used to educate the students!

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

COMMENT FORM ♦ Interested Parties Meeting #2—February 25, 2014

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If you prefer to comment online, this form will be available on the project website. Send comments via email to PubW@GoColumbiaMo.com, or in regular mail to the attention of Mr. Cliff Jarvis, P.E., to the following address:

City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Lawrence Simonson

ADDRESS: 2706 Hillshire Dr.

CITY: Columbia **STATE:** MO **ZIP:** 65203

Preferred Email Address: lawrence@PedNet.org *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 785-341-2878 *(optional)*

Comments: I love the process the city has taken to solve this problem. In my opinion Alt B is the best solution. The HAWK signals are a great idea as is the restricted left and no U-Turns. My only other recommendation would be to lower the speed limit along college blvd. There is no need for the speed to be so high, particularly when mixing vehicle traffic with such a high pedestrian use area.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

College Avenue Safety Enhancement Project

Making the CASE for a Safer College Avenue

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Deb Strid

ADDRESS: 606 S College Ave

CITY: Columbia **STATE:** MO **ZIP:** 65201

Preferred Email Address: stridd@missouri.edu *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573-356-4097 *(optional)*

Comments: Prefer Alt D plan. Traffic alternatives or rerouting through Univ Ave, Williams and maintenance of streets has not been addressed well. Putting up barricade and thinking about safety of driving through those streets later seems to be exchanging one safety issue for another. Stone barricade will allow for possibility of graffiti - the fence would be better option for visibility. U-turn a plus. Keep Bouchelle one way to West. Fix Bouchelle!!!

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

College Avenue Safety Enhancement Project

Making the CASE for a Safer College Avenue

COMMENT FORM ♦ Interested Parties Meeting #2—February 25, 2014

The College Avenue Safety Enhancement (CASE) Project design team is making a recommendation to move forward with one of two "preferred alternatives" that meet the majority of project goals identified in previous outreach efforts. Please provide input regarding what you have seen and heard about the project at tonight's meeting. ***Please provide us your contact information below to receive CASE Project updates.*** We will be providing future updates about this project by email. As the project progresses, information will be posted to the project website at the following link:

www.MakeTheCASEProject.com

If you prefer to comment online, this form will be available on the project website. Send comments via email to PubW@GoColumbiaMo.com, or in regular mail to the attention of Mr. Cliff Jarvis, P.E., to the following address:

City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Marc Strid

ADDRESS: 606 S. College Ave.

CITY: Columbia **STATE:** MO **ZIP:** 65201

Preferred Email Address: stridm@missouri.edu *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573-446-3004 *(optional)*

Comments: We prefer Alt. D with enforcement of pedestrians crossing illegally.

If a reasonable plan for redirecting traffic through east campus were available (we have yet to see one) we would favor alt. "B". Alt. "A" looks nice but we worry about gratfiti. "U" turn at Ashland would be a good idea if we accept the barricade idea.

We worry about a false sense of security for cars and pedestrians with the barricade mode!

If pedestrians ignore the cross walk lights they may be less visible to cars.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Annette Triplett

ADDRESS: ~~PO B~~ 104 Edgewood Ave

CITY: Columbia **STATE:** MO **ZIP:** 65203

Preferred Email Address: Annette@PedNet.org *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573.999.9894 *(optional)*

Comments:

PedNet Coalition supports the City's efforts to improve pedestrian safety along College Ave. We are generally in favor of the suggested proposal, especially the mid-block crossings with HAWK signals. Either of the wall or fence designs looked good – although I wondered if there was a way to integrate landscaping into the wall/fence to break it up visually. Overall, though, looks good!

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Karl Kruse

ADDRESS: 2405 Lynnwood

CITY: Columbia STATE: MO ZIP: 65203

Preferred Email Address: Karl.Kruse@mchsi.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573 421-7339 *(optional)*

Comments:

A + B looks fairly good. Would like to see some plantings —

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Carrie Gartner

ADDRESS: 11 S Tenth St.

CITY: Columbia **STATE:** MO **ZIP:** 65201

Preferred Email Address: cgartner@downtowndistrict.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 442-6816 *(optional)*

Comments: The wall/fence is well-branded (MU, white campus) but it looks like the university is building a huge barrier b/t them + the city. Douglass High looks so much better w/o the fence). Gym + Broadway is a wonderful intersection because the border is so porous. I'd rather have low-maintenance landscaping softening the boundaries b/t town + gown and greening the street.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: BILL TOALSON

ADDRESS: 4505 W. RT K

CITY: COLUMBIA **STATE:** MO **ZIP:** 65203

Preferred Email Address: BTOALSONBETA@GMAIL.COM *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573-864-2973 *(optional)*

Comments: SAME AS BEFORE. MY PREFERRED ACT IS TO DO NOTHING. LOSS OF LEFT TURNS ONTO AND OUT OF WILSON & ROSEMARY WILL CAUSE UNINTENDED CONSEQUENCES OF LOTS MORE TRAFFIC ON SMALL ROADS PEOPLE WANTING TO GO SOUTH WILL HAVE TO GO TO WILLIAM INSTEAD OF COLLEGE

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Dan Cullimore

ADDRESS: 715 Lyons Street

CITY: Columbia **STATE:** MO **ZIP:** 65201

Preferred Email Address: dancullimore55@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: *(optional)*

Comments: All of the options present a uniform structure the length of the project area. This uniformity will lead to driver-inattention and does not address or promote traffic calming nor pedestrian safety. Variety in the median, something that keeps drivers attentive, would help reduce speeds and, thusly, improve pedestrian safety. Aesthetically, options "A" or "B" are more pleasing, but left turns to the south should be less restricted. Add landscape plantings at the crossings and either end and you'd have a winner.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: KEN KVAM

ADDRESS: 2604 LVAN CT

CITY: COLUMBIA **STATE:** MO **ZIP:** 65203

Preferred Email Address: wendykvam@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: *(optional)*

Comments: B Alternative is the best of the fence options. Good visability through it.
E is the option I prefer, because it improves the safety of the pedestrians while still being visually low impact.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Lisa Goldschmidt

ADDRESS: 507 High St

CITY: Columbia STATE: MO ZIP: 65201

Preferred Email Address: lah34a@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: *(optional)*

Comments:

"Area of refuge" ideas appear to work best for all parties. I have received conflicting information about whether eliminating left turns meets the grant criteria.

Look to Hickman High School for an example of what works. The parking lot was fenced in an effort to funnel students to the crosswalk at the Business Loop – and they use it.

NO BARRIERS!

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: MICHAEL GOLDSCHMIDT

ADDRESS: 507 HIGH ST (east campus)

CITY: COLUMBIA **STATE:** MO **ZIP:** 65201

Preferred Email Address: goldschmidtm@missouri.edu *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 573 489-7126 *(optional)*

Comments:

Options E & F are probably the best solutions, as they ~~an~~ allow for area of refuge at center of street. Any fence/barrier will not create the results expected. The real issue is safety at College and University - especially ~~[illegible]~~ traffic turning right from University to College hitting pedestrians ~~traffic~~ ped... as they are looking up street. Another option is a fence along College on the University side.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Kathy Love

ADDRESS: 1623 University Ave

CITY: Columbia STATE: MO ZIP: 65201

Preferred Email Address: lovekat68@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 875-7918 *(optional)*

Comments:

Make college Ave a "no jay-walking" zone and enforce it. We enforce parking meters or other infractions so jay-walking can be a similar offense. A few hefty fines + word-of-mouth + campus education can change student behavior. Please seriously consider this before constructing a barrier.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Rosie Gerdiney

ADDRESS: 101 S. Fifth St #1

CITY: _____ STATE: _____ ZIP: 65201

Preferred Email Address: rosie@gkccpas.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: _____ *(optional)*

Comments: I appreciate that you made a great effort to depict an attractive barrier down the middle of the street. It looks a whole lot better than I had anticipated. I still am concerned for the residents who can no longer make left turns onto their streets.

Please further consider the placement of a fence on the west side of College along the sidewalk. Isn't this still MoDOT property? Mr. Jarvis indicated that MU didn't want a fence there, but I wonder if it is their property in the 1st place.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: SARA LOE

ADDRESS: 1900 VASSAR

CITY: COLUMBIA **STATE:** MO **ZIP:** 65203

Preferred Email Address: LOE.SARA7@GMAIL.COM *(encouraged)* *Please do not contact me via email* ☒

Preferred Telephone #: *(optional)*

Comments:

- CONCERNED option of wall WILL INCREASE TRAFFIC SPEED
- CLD project BE phased - STARTING w/ CROSS-WALKS, DEVELOPING MEDIANS later
- CLD. FENCE BE LOCATED ON UNIVERSITY PROPERTY VS. @ MEDIAN?

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Elizabeth Peters

ADDRESS: 305 McNab Dr.

CITY: Columbia STATE: MO ZIP: 65201

Preferred Email Address: BoPeters@AOL.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: *(optional)*

Comments:

Agree c moving William parking to the east side.

Would like to consider a wrist fence along ~~the~~ College ave. between the sidewalk & the University

~~If have to have A or B alone~~

Would like plantings along the barrier trees/plants.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Pat Fowler

ADDRESS: 606 N Sixth St

CITY: Columbia **STATE:** MO **ZIP:** 65201

Preferred Email Address: fowlerpatj@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: *(optional)*

Comments:

I prefer optim H because it supports our neighbors who live year round. Doesn't prevent left hand turns, the impacts of which we have not evaluated. We prefer that cross walks be placed at the "natural" locations where students would walk to get to their campus destination; I like the idea of a fence between College and sidewalk on the west side, despite the fact that Dave Nichols is not keen on it. That would keep our young people safe and discourage them from walking, at least more than once, on the wrong side of the fence. Neighborhood opinions should count for more than it does currently. Thank you.

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Rachel Ruhlen

ADDRESS: 103 Longfellow Ln

CITY: Columbia **STATE:** MO **ZIP:** 65203

Preferred Email Address: rachel@ruhlendavis.org *(encouraged)* *Please do not contact me via email* ☐

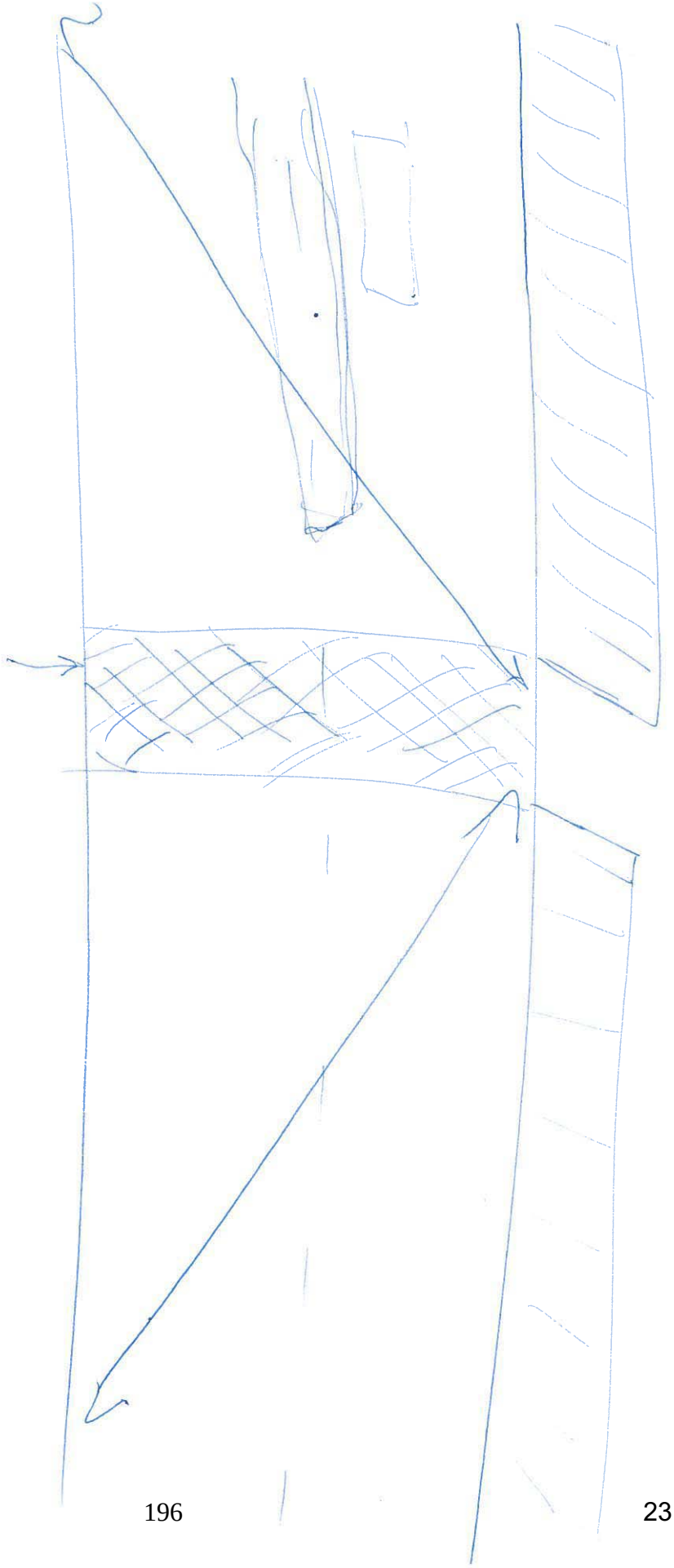
Preferred Telephone #: 573-268-8770 *(optional)*

Comments: Option A looks beautiful. It is clear from the graphic what the extra $ is giving us. Option B is also acceptable.

I realize landscaping is not feasible but some trees will have a traffic calming effect. And be extremely beautiful, encourage walking, create an environment that we want.

Pedestrian safety is the most important factor and the fewer # of left-turners inconvenienced is a reasonable trade for the large # of pedestrians made safer. A pedestrian fatality at this area would be extremely negative PR for MU, the city & MoDOT.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!



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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: RICK SHANKER

ADDRESS: 1829 Cliff

CITY: COLUMBIA STATE: MO ZIP: 65201

Preferred Email Address: *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 875-2035 *(optional)*

Comments: This is a project that will impact our whole city and traffic flow. If the university wants more safety, perhaps they should consider a fence on the west side, adjacent to their sidewalk. That would eliminate the traffic impairment, traffic flow problems, graffitti (sp), snow removal problems, trash accumulation problem and crossing problems.

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

Hickman High school has ~~ere~~ erected a fence that has virtually ~~ete~~ eliminated J walking.

None of the proposed plans A-a - appeal to me.

Last sunday, in our East Campus neighborhood association meeting, some members voice complete opposition to this plan. Furthermore we were suprised that some of these plans would involve more impact on neighborhood traffic flows, due to the fact of ~~revers~~ reversing some one way streets.

I am not in favor of CASE (A-H)

Thank you

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City of Columbia – Public Works Department; 701 E Broadway; PO Box 6015; Columbia, MO 65205

NAME: Wendy Warnken

ADDRESS: 2604 Luan Ct.

CITY: Columbia, MO **STATE:** MO **ZIP:** 65201

Preferred Email Address: wendykram@gmail.com *(encouraged)* *Please do not contact me via email* ☐

Preferred Telephone #: 446-4409 *(optional)*

Comments:

Alts A + B look very nice and would be effective. Alt E is a great option. It is a low-impact option, much less expensive, and effectively removes the hazards of the center lane issue. I would love to see any of these options, but I vote for Alt E. Northern Illinois University used Alt E rendition effectively while I worked there, and it slowed traffic, gave the street

On behalf of the City of Columbia and project design team, thank you for attending today's Interested Parties Meeting!

a different "feel," and the students crossed at the crosswalks.

Comment Submitted by e-mail

From: Karl Kruse <karl.kruse@mchsi.com>
Date: March 4, 2014 at 7:07:50 PM CST
To: City Of Columbia Ward6 <ward6@gocolumbiamo.com>

Cc: John Glascock <JDGLASCO@gocolumbiamo.com>, Mike Snyder <MTS@gocolumbiamo.com>, Tim Teddy <TTTeddy@gocolumbiamo.com>, Carrie Gartner <cgartner@discoverthedistrict.com>, Bill Ruppert <billr@nnpstl.com>
Subject: Re: safety enhancement project on College

All,

I had another thought. Let's call it the "Ray Beck incremental approach." Given the high cost of a barrier of some kind, the push back from various constituent groups, etc, might we start with the brick-like mid block crossings and some signage advising that jay walking is prohibited by ordinance and pointing pedestrians to the crossings? Then we can see if behavior changes. My bet is that it will. Thanks for your consideration. KK

Sent from my iPhone

On Feb 26, 2014, at 3:31 PM, City Of Columbia Ward6 <ward6@gocolumbiamo.com> wrote:

> Thanks karl. That info. is very helpful as another vegetative option to be considered.
>
> Barbara Hoppe
> 6th Ward City Council
> 424-9668
>
> On Feb 26, 2014, at 1:42 PM, "karl.kruse@mchsi.com" <karl.kruse@mchsi.com> wrote:
>
> Barbara,
>
> Good to see you at the open house yesterday. As I told you, options A and B looked fairly good to me. We agreed it would be nice to add some plantings somehow and at the time I couldn't think of how to do that. But on my way home an idea popped into my head:
>
> Using the option (can't remember if it was A or B) that had the wrought iron fence in the middle of the raised median (not the

limestone looking wall), replace the concrete between the curbs with soil and plant low (12"-18") ornamental grasses on either side of the fence. I checked with my friend Bill Ruppert, MU horticulture grad, and he suggested either Blue Lyme grass or Tollway Sedge (I think he said it was a MO native). Tollway Sedge is drought resistant and tolerates salt. This is why it is often used on highways and tollways. It requires no watering other than normal rainfall. Once a year it needs to be cut down to promote healthy new spring growth.

Anyway, thought I'd put this idea into the mix.

Karl

--

Karl Kruse
2405 Lynnwood Dr.
Columbia, MO 65203
Cell: 573-424-7339

College Avenue Safety Enhancement Project

Making the CASE for a Safer College Avenue

Open House Sign In

IP Meeting #2: February 25, 2014

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City of Columbia
Public Works Department
701 E Broadway
PO Box 6015
Columbia, MO 65205

Help us make the CASE for a safer College Avenue!

JOIN US!

Join us at the second **Interested Parties Open House** meeting on **February 25** for the :

College Avenue Safety Enhancement (CASE) Project

Having gained insight from the November 2013 Interested Parties Meeting #1, the design team will present the options evaluated and a Preferred Alternative recommendation.

JOIN US!

JOIN US!

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OPEN HOUSE / INTERESTED PARTIES MEETING

COLLEGE AVENUE SAFETY ENHANCEMENT PROJECT

WHEN: February 25, 2014
4:00 - 6:00 p.m.

WHERE: City Hall—701 E Broadway
Mezzanine Conference Room

PROJECT SPONSORS

The goal of the CASE Project's initial public meeting last November was to introduce the project to residents and users of the College Avenue corridor and ask for input to guide design of alternatives.

College Avenue work the topic of meeting

College Avenue work the topic of meeting

Thursday, November 14, 2013 at 2:00 pm Comments *(5)*

The Columbia Public Works Department will host an open house meeting about the College Avenue Safety Enhancement project, a proposal to provide for safer travel for pedestrians and vehicles on College between University Avenue and Rollins Street.

The meeting is scheduled for 4 to 7 p.m. Tuesday in the mezzanine conference room at City Hall, 701 E Broadway, the city said in a news [redacted]

The City of Columbia Public Works Department will host a second informal Open House/ Interested Parties meeting for the *College Avenue Safety Enhancement (CASE) Project*. This meeting follows a November 2013 Interested Parties (IP) meeting to gain input used in the development of alternatives during the preliminary design phase.

This second IP meeting will present information about the public comments received, the preliminary design options that were developed and evaluated, and the screening process used to bring forward alternatives recommended to move into final design.

Staff members from the City's Engineering Division and the project design team will be present to ask and answer questions. Information about the CASE Project, including materials from IP Meeting #1, is available online at: **www.MakeTheCASEProject.com**.

If you are unable to attend the meeting and wish to provide comments, or simply have questions about the CASE Project, contact Cliff Jarvis at (573) 874-7250 or email at: **PubW@GoColumbiaMo.com**.

Project Process

What are the next steps?

Pedestrian Traffic Study

- Defined volumes of pedestrians and vehicles ; identified safety concerns
- Suggested elements of project to improve safety
- 2009 - initiated by University of Missouri

Interested Parties Meeting #1

Nov 19, 2013

- Introduce project to corridor residents & users
- Gather input to guide design

Preliminary Design

- Develop three alternatives for crossings/median
- Evaluate traffic impacts in project area

Interested Parties Meeting #2

- Introduce and compare alternatives – features, trade-offs, costs
- Gather input to assist with development of Preferred Alternative

We Are Here - Feb 2014

Public Hearing @ City Council

- Introduce Preferred Alternative to public
- Obtain support of City leadership to move forward with Final Design phase

DIRECTION FOR FINAL DESIGN

Confirm Preferred Alternative

Proposed Land Acquisition

Recommend Future Improv.

Once the project is approved by the City Council, final design will begin, with construction scheduled for Summer 2015.

Final Design → **Advertise & Bid** → **Construction**

What Did We Hear You Tell Us?

How public & stakeholder input affected alternative development

The CASE Project design team actively sought input from residents nearby and users of College Avenue. Comments received, as well as input received from project stakeholders, were used to develop alternatives that addressed the concerns expressed about the proposed project. Here is some of what we heard:

Greatest concerns regarding project

- Improving safety of pedestrians crossing College Avenue is critical
- Changing pedestrian behavior is necessary to improve safety
- Maintaining left turn access is very important to residents in the study area
- Project aesthetics must fit into the neighborhood surrounding the corridor

Greatest number of comments

1) *What will the impacts be of losing the left-turns in/out of the East Campus Neighborhood (ECN).*
2) *Consider option to start with just the pedestrian crosswalks and signals. Build out center-lane median and barrier infrastructure if safety demands.*
3) *Provide landscaped-median option instead of a structural (i.e., concrete, "ugly") barrier.*

Other comments that influenced the development of alternatives:

- Allow U-turns at the signalized intersections
- Project must include a change in pedestrian behavior to be successful

There were some additional comments received that resulted in options that were considered too challenging to carry into the alternatives screening process, such as:

- Reducing a lane of traffic on College Avenue (regional impact too severe)
- Pedestrian tunnels vs. crossing on surface (too costly; stand-alone it may not result in behavior change)

Who Did We Hear From?

Over half of those respondents were either residents in the area of the CASE Project or affiliated with the University of Missouri

How Did We Compare Alternatives?

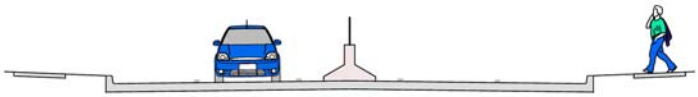
Ultimately, eight alternatives were developed and evaluated based on screening criteria (right). Options were given scores based on how each compared to the others relative to each screening criteria.

Screening Criteria Description
♦ Pedestrian Safety
♦ Change Pedestrian Behavior
♦ Left Turn Access Maintained
♦ Total Project Cost
♦ Appearance Matches Corridor
♦ Ease of Maintenance
♦ Corridor Vehicle Travel Time
♦ Emergency Vehicle Access
♦ Meets Grant Applic. Description
♦ Regional Traffic Impact

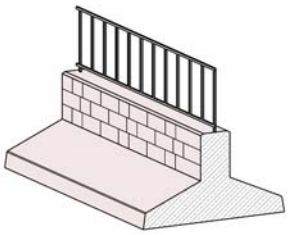
Screening Criteria Score		
Responsiveness to Criteria	Score	Rank
Non-Responsive	0	●
Poor	1	●
Fair	3	●
Excellent	5	●

Alternatives Evaluation

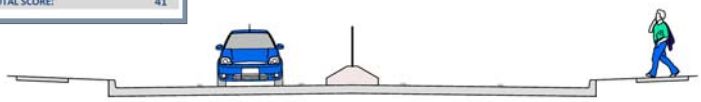
ALTERNATE A ♦ ALTERNATE B ♦ ALTERNATE C



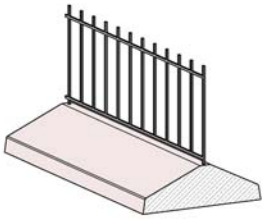
	ALT #:	A
		Center-Lane Median w/ "Corral Rail" Barrier & Short Fence
Screening Criteria Description	Criteria Weight	Score / Total
Pedestrian Safety	1	5
Change Pedestrian Behavior	1	5
Left Turn Access Maintained	1	0
Total Project Cost	1	3
Appearance Matches Corridor	1	5
Ease of Maintenance	1	5
Corridor Vehicle Travel Time	1	5
Emergency Vehicle Access	1	3
Meets Grant Applic. Description	1	5
Regional Traffic Impact	1	5
TOTAL SCORE:		41



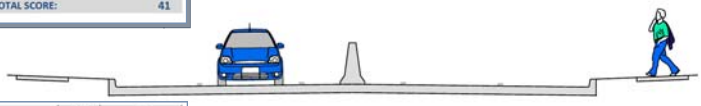
ALT A



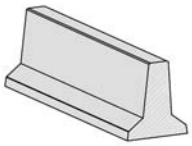
	ALT #:	B
		Center-Lane Median w/ Metal Fence & Stone Columns Vertical Element
Screening Criteria Description	Criteria Weight	Score / Total
Pedestrian Safety	1	5
Change Pedestrian Behavior	1	5
Left Turn Access Maintained	1	0
Total Project Cost	1	5
Appearance Matches Corridor	1	5
Ease of Maintenance	1	3
Corridor Vehicle Travel Time	1	5
Emergency Vehicle Access	1	3
Meets Grant Applic. Description	1	5
Regional Traffic Impact	1	5
TOTAL SCORE:		41



ALT B



	ALT #:	C
		Center-Lane Median w/ Concrete "Jersey" Barrier Vertical Element
Screening Criteria Description	Criteria Weight	Score / Total
Pedestrian Safety	1	5
Change Pedestrian Behavior	1	5
Left Turn Access Maintained	1	0
Total Project Cost	1	5
Appearance Matches Corridor	1	0
Ease of Maintenance	1	5
Corridor Vehicle Travel Time	1	5
Emergency Vehicle Access	1	3
Meets Grant Applic. Description	1	5
Regional Traffic Impact	1	5
TOTAL SCORE:		38



ALT C

SCALE: 1" = 50'

Each of these alternatives share a continuous vertical element along the full corridor, maximizing the channelizing of pedestrians to the mid-block crosswalks. Cost of aesthetic treatments to be in context with the surroundings is the major difference between these options.

Alternatives Evaluation

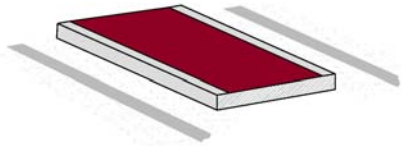
ALTERNATE D ♦ ALTERNATE F

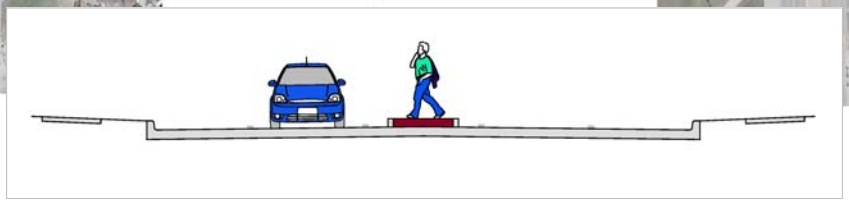
	ALT #:	D
		HAWK Signals & Mid-Block Ped Crossings Only
Screening Criteria Description	Criteria Weight	Score / Total
Pedestrian Safety	1	1
Change Pedestrian Behavior	1	1
Left Turn Access Maintained	1	5
Total Project Cost	1	5
Appearance Matches Corridor	1	3
Ease of Maintenance	1	5
Corridor Vehicle Travel Time	1	3
Emergency Vehicle Access	1	5
Meets Grant Applic. Description	1	0
Regional Traffic Impact	1	5
TOTAL SCORE:		33

ALT D

ALT F

	ALT #:	F
		Raised Island Hardscape, No Vertical Element, Left Turns Allowed
Screening Criteria Description	Criteria Weight	Score / Total
Pedestrian Safety	1	1
Change Pedestrian Behavior	1	1
Left Turn Access Maintained	1	3
Total Project Cost	1	5
Appearance Matches Corridor	1	3
Ease of Maintenance	1	5
Corridor Vehicle Travel Time	1	3
Emergency Vehicle Access	1	5
Meets Grant Applic. Description	1	0
Regional Traffic Impact	1	5
TOTAL SCORE:		31



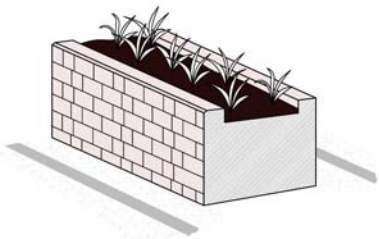


Each of these alternatives offers mid-block crosswalks. ALT D provides no median, allowing all current left-turn movements, though the ability of vehicles in the center-turn lane to drive through the pedestrian crosswalks is not a preferred option. Due to the proximity of Wilson Street to the north pedestrian crossing, the median for ALT F is proposed to eliminate the left-turn at Wilson, though it may be possible to maintain a left-turn out for vehicles traveling south on College Avenue.

Alternatives Evaluation

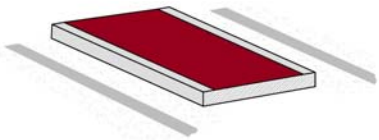
ALTERNATE G ♦ ALTERNATE E

	ALT #:	G
		30-Inch High Raised Median Available for Landscape Features
Screening Criteria Description	Criteria Weight	Score / Total
Pedestrian Safety	1	3
Change Pedestrian Behavior	1	3
Left Turn Access Maintained	1	0
Total Project Cost	1	1
Appearance Matches Corridor	1	5
Ease of Maintenance	1	0
Corridor Vehicle Travel Time	1	5
Emergency Vehicle Access	1	3
Meets Grant Applic. Description	1	5
Regional Traffic Impact	1	5
TOTAL SCORE:		30



ALT G

	ALT #:	E
		Raised Island Hardscape, No Vertical Element, Restricted Left Turns
Screening Criteria Description	Criteria Weight	Score / Total
Pedestrian Safety	1	3
Change Pedestrian Behavior	1	1
Left Turn Access Maintained	1	0
Total Project Cost	1	5
Appearance Matches Corridor	1	3
Ease of Maintenance	1	5
Corridor Vehicle Travel Time	1	5
Emergency Vehicle Access	1	3
Meets Grant Applic. Description	1	1
Regional Traffic Impact	1	5
TOTAL SCORE:		31



ALT E

Each of these alternatives share a continuous median along the full corridor, restricting left-turn access, lowering potential conflicts between vehicles and pedestrians. ALT G offers a vertical element with landscape opportunities, similar to the description provided in the University-sponsored ***2009 Pedestrian Traffic Study****, though there are significant long-term maintenance costs associated with this option. ALT E provides a pedestrian haven in the center-turn lane, improving safety but reducing pedestrian behavior change .*

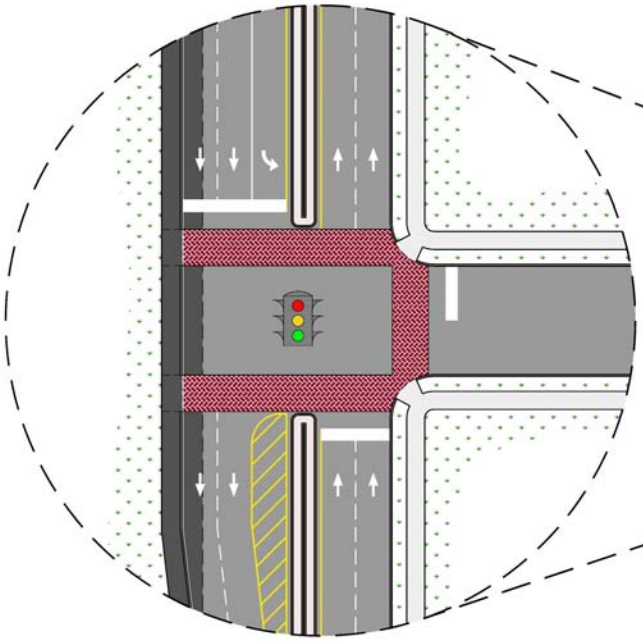
Alternatives Evaluation

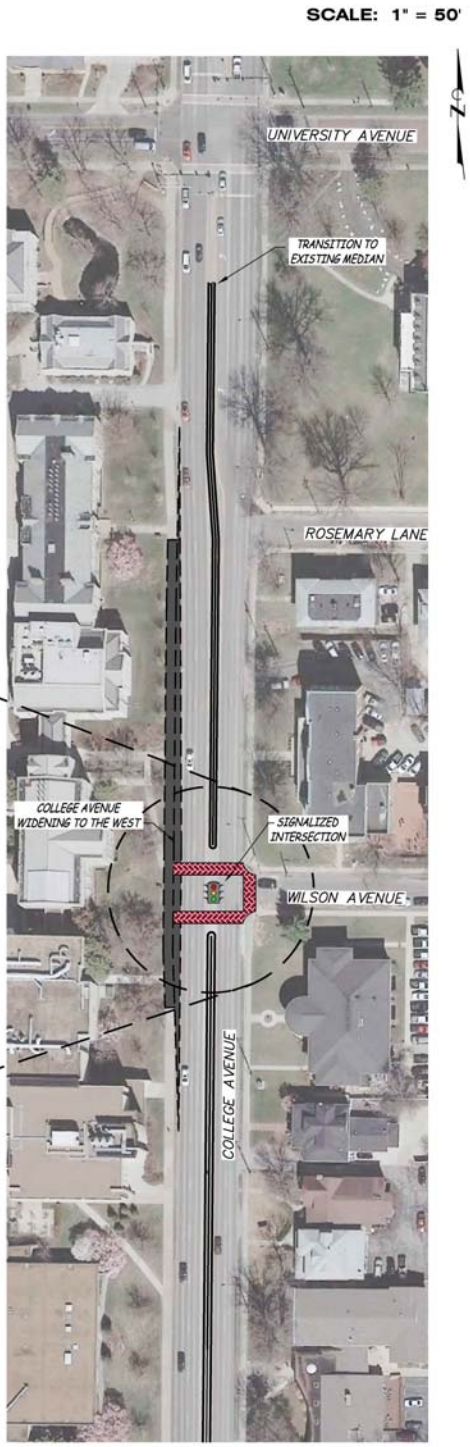
ALTERNATE H

	ALT #:	H
		Full Traffic Signal at Wilson with Median & Vertical Element to North and South; No mid-block crossings & signals
Screening Criteria Description	**Criteria Weight**	**Score**	**Total**
Pedestrian Safety	1	🔴	1
Change Pedestrian Behavior	1	🟢	5
Left Turn Access Maintained	1	🟡	3
Total Project Cost	1	🔴	1
Appearance Matches Corridor	1	🟡	3
Ease of Maintenance	1	🟡	3
Corridor Vehicle Travel Time	1	🟡	3
Emergency Vehicle Access	1	🟡	3
Meets Grant Applic. Description	1	⚫	0
Regional Traffic Impact	1	🟡	3
TOTAL SCORE:			25

ALT H

To channelize pedestrians to the new signalized intersection at Wilson Avenue, ALT H requires several hundred feet of College Avenue to be widened to the west from 5-feet to 7-feet. This has significant impact to the overall cost to construct this option.

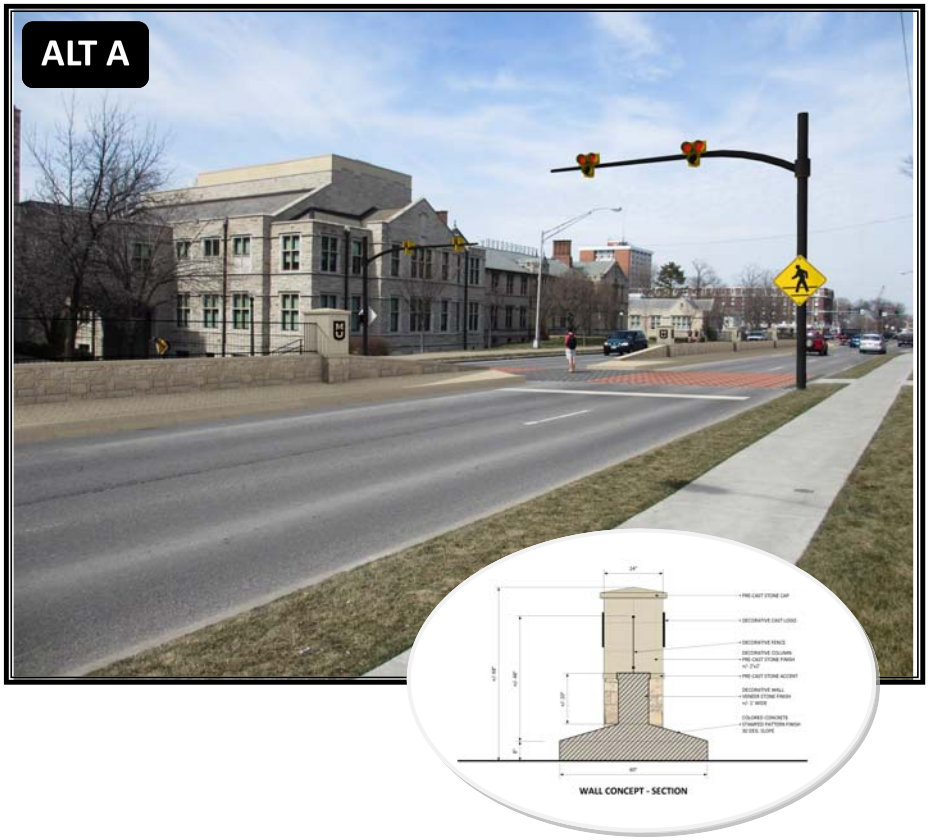


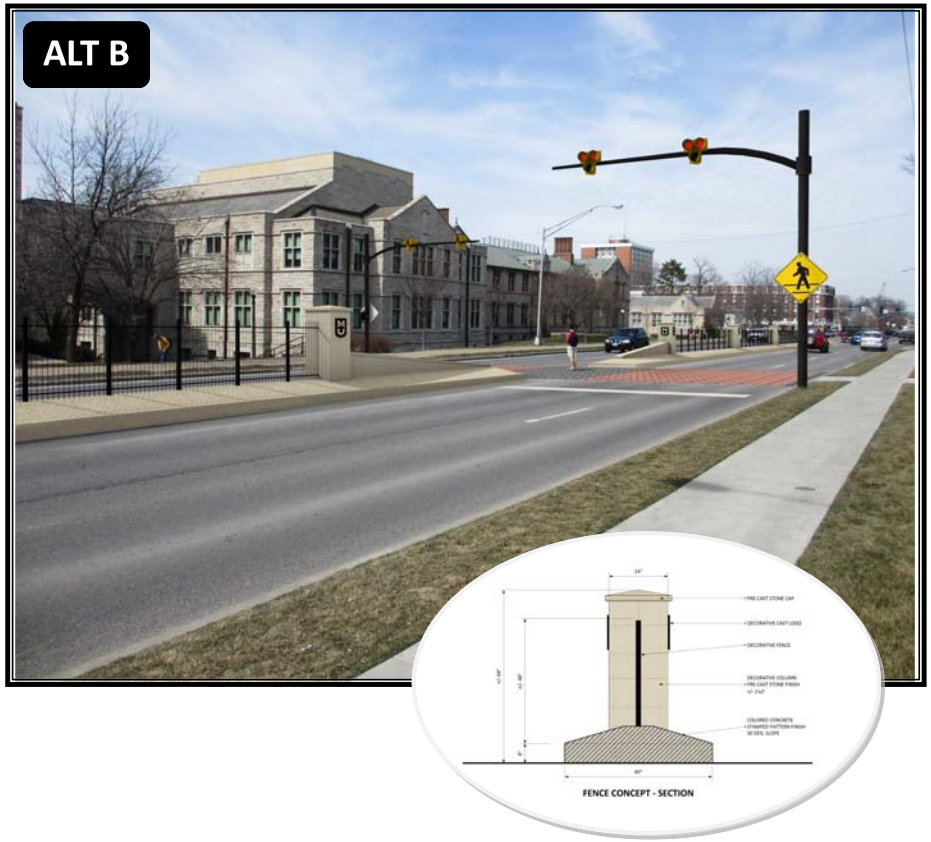


Cost constraints will likely result in limiting the aesthetic treatments that could be provided in constructing the median / vertical element in the center-lane of College Avenue.

Design Team "Preferred Alternative" Recommendation

ALTERNATE A / ALTERNATE B—same functionality, but with different look and visual experience

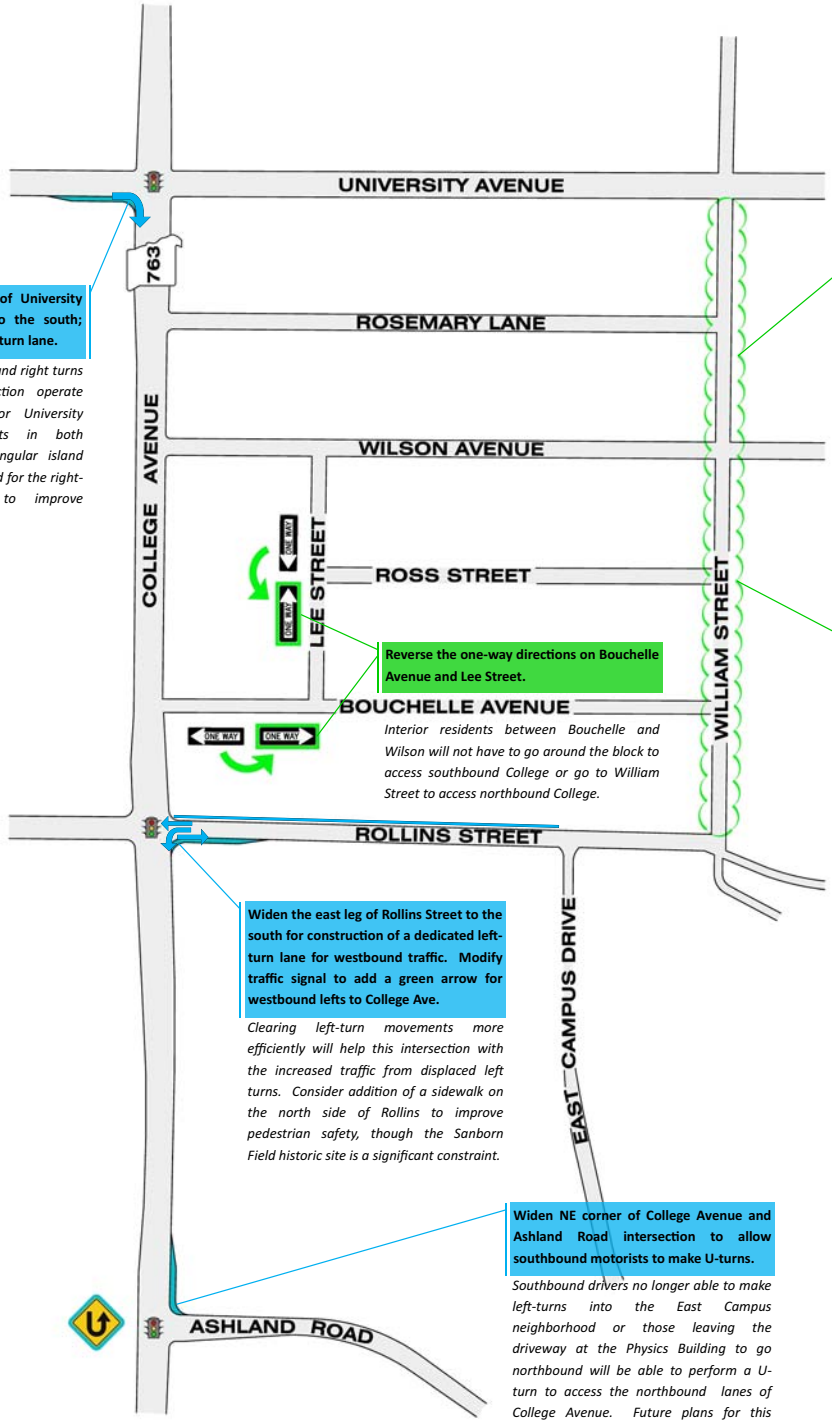




1. *Alternative A or B provides equally for changes in pedestrian behavior and greater enhancement to pedestrian & vehicle safety.*
2. *Both options offer visual connection & identity to University setting*
   a) *ALT A: Connection to "White Campus"*
   b) *ALT B: Better through-visibility of vertical element*

Proposed Traffic Changes in Corridor

Suggested current and future projects to reduce impact of displaced left turns



NOT TO SCALE

Widen SW corner of University Ave. intersection to the south; add dedicated right-turn lane.

Clearing the eastbound right turns helps this intersection operate more efficiently for University Avenue movements in both directions. A triangular island should be considered for the right-turn movement to improve pedestrian safety.

On William Street, University to Ross, change parking from the west side to the east side.

This will allow displaced traffic due to left-turn restrictions easier westbound turns and better visibility when entering William Street from the west.

Reverse the one-way directions on Bouchelle Avenue and Lee Street.

Interior residents between Bouchelle and Wilson will not have to go around the block to access southbound College or go to William Street to access northbound College.

No parking on William Street, south of Ross Street.

No homes front William Street south of Ross, reducing inconvenience to residents, and will improve safety and capacity on William Street for vehicles affected by displaced left-turns.

Widen the east leg of Rollins Street to the south for construction of a dedicated left-turn lane for westbound traffic. Modify traffic signal to add a green arrow for westbound lefts to College Ave.

Clearing left-turn movements more efficiently will help this intersection with the increased traffic from displaced left turns. Consider addition of a sidewalk on the north side of Rollins to improve pedestrian safety, though the Sanborn Field historic site is a significant constraint.

Widen NE corner of College Avenue and Ashland Road intersection to allow southbound motorists to make U-turns.

Southbound drivers no longer able to make left-turns into the East Campus neighborhood or those leaving the driveway at the Physics Building to go northbound will be able to perform a U-turn to access the northbound lanes of College Avenue. Future plans for this improvement will need to consider ROW acquisition from the University and relocation of the traffic signal base and mast arm.

LEGEND

These recommendations for changes in traffic operations could be implemented with little cost and concurrent with the CASE Project improvements.

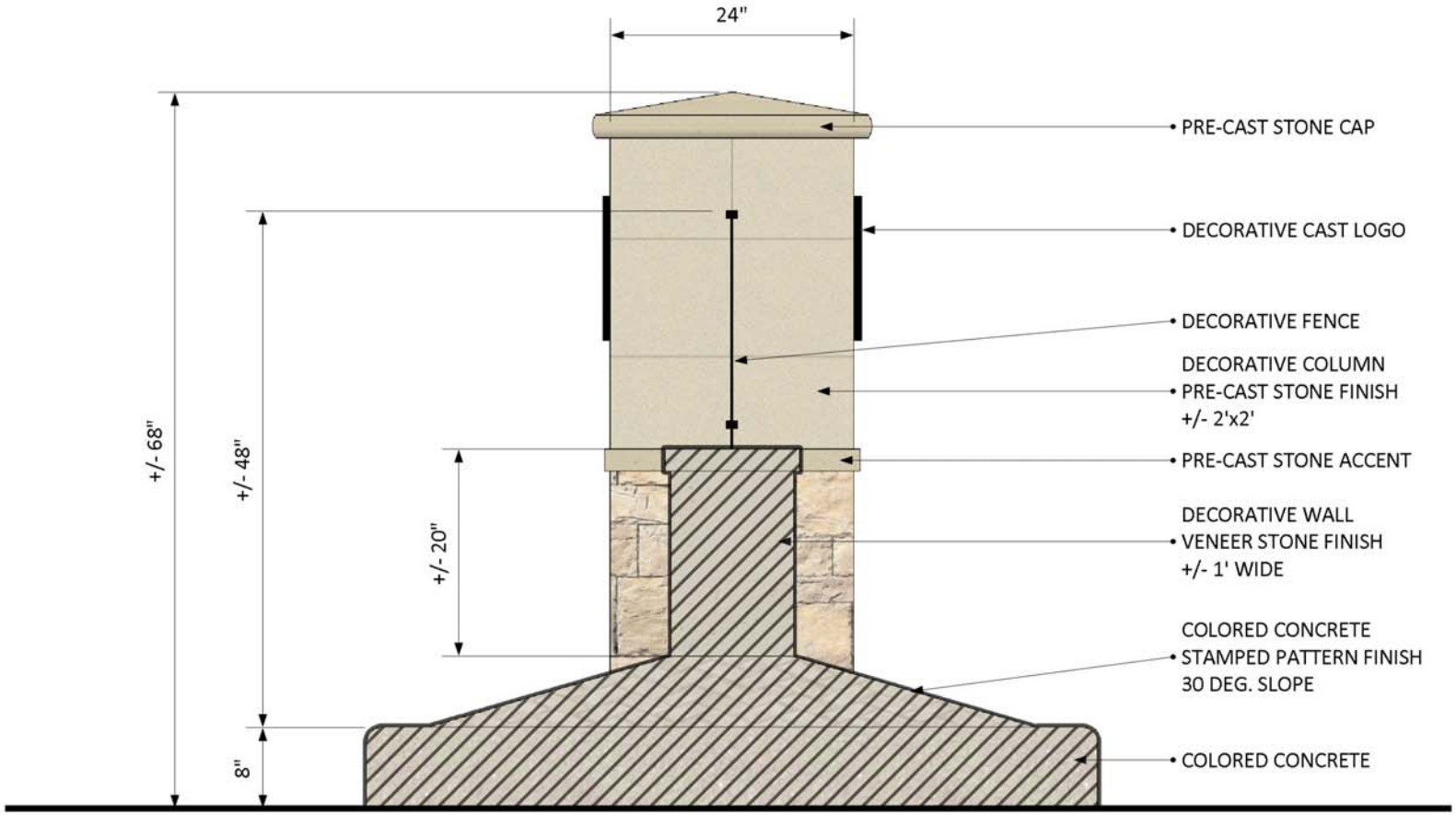
These recommendations for changes in traffic operations are suggested as future improvements to be considered in the regular transportation planning process and as funding is identified.

College Avenue Safety Enhancement Project

Making the CASE for a Safer College Avenue

APPENDIX 9

ALTERNATIVE A COLOR RENDERINGS



WALL CONCEPT - SECTION