

6th Avenue Pedestrian Enhancements

City of Tallahassee, Florida

January 2013



URS

1625 Summit Lake Drive
Tallahassee, FL 32317

Capital Region
Transportation Planning Agency
CRTPA

6th Avenue Pedestrian Enhancements

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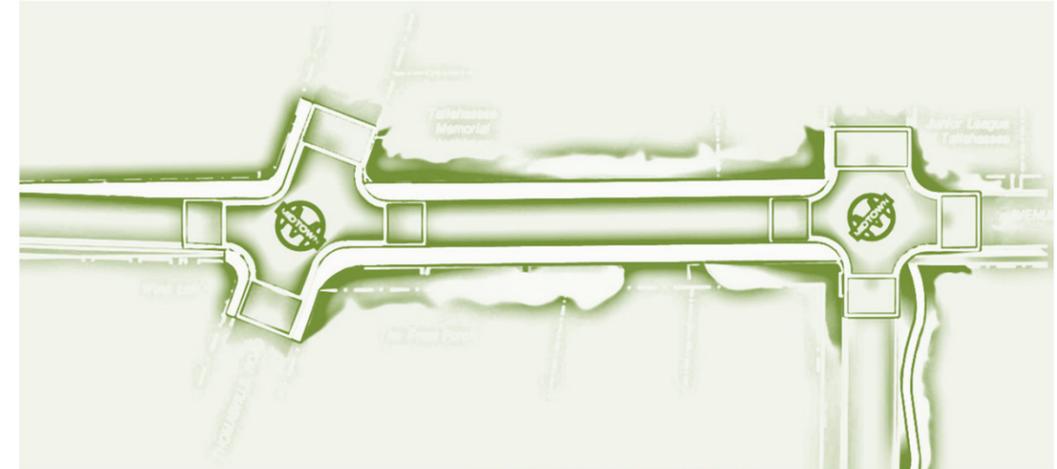
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Introduction to the Project & Project Goals and Objectives

6th Avenue Pedestrian Enhancements

The 6th Avenue Pedestrian Project is one of the first projects to be implemented from the Regional Mobility Plan (RMP) that was approved in November 2010. The project was initiated by the CRTPA and is being completed in conjunction with the “Sense of Place” effort by the City of Tallahassee. The project is being coordinated with the City of Tallahassee and Leon County to create an improved pedestrian environment that connects Monroe Street to Thomasville Road and Gadsden Street. This effort is intended to provide strategies for improving pedestrian circulation throughout areas of the downtown core, as well as recommendations for improving and enhancing the streetscape to make it more attractive, welcoming, and safe. The concepts for the 6th Avenue corridor are considerate of the unique characteristics and development conditions that exist within the Midtown area.

Based on meetings with the CRTPA staff, City and County staff, the Midtown Merchants Association, and stakeholders from the Midtown area, a concept was formulated that includes pedestrian enhancements along the 6th Avenue corridor and at key intersections within the corridor. The concept includes completing a connected sidewalk system along 6th Avenue from Monroe Street to Gadsden Street, and completing a pedestrian connection down Gadsden Street to the existing sidewalk at Ingleside Avenue. The concept includes new sidewalks and connections, widened sidewalks where practical, and raised intersections at Thomasville Road and Gadsden Street to create more of a welcoming pedestrian environment. Each of the sections in the report is designed to give the future designers and constructors an understanding of what this concept entails so their efforts will closely match the spirit of the concept.

Throughout this concept report there are two icons which appear with relevant notes about the concept as proposed. These concept notations help to clarify what the concept designers were intending for benefit of the future designers and constructors of the final project.



- Denotes specific design notes.



- Denotes specific issues that need to be considered.

Project Goals and Objectives

The goal of this project is *to examine existing pedestrian facilities along the 6th Avenue corridor and assess the feasibility of making specific changes that would enhance the pedestrian environment.* This goal reflects the City of Tallahassee's desire to create a “Sense of Place” in downtown urban areas such as Midtown. Some attributes to creating a “Sense of Place” include welcoming pedestrian environments and “Great Streets” design. Good pedestrian design is integral to “Great Streets” design and includes the following attributes*:

Provides orientation to its users, and connects well to the larger pattern of ways.

Balances the competing needs of the street — driving, transit, walking, cycling, servicing, parking, drop-offs, etc.

Fits the topography and capitalizes on natural features.

Is lined with a variety of interesting activities and uses that create a varied streetscape.

Has urban design or architectural features that are exemplary in design.

Relates well to its bordering uses — allows for continuous activity, does not displace pedestrians to provide access to bordering uses.

Encourages human contact and social activities.

Employs hardscape and/or landscape to great effect.

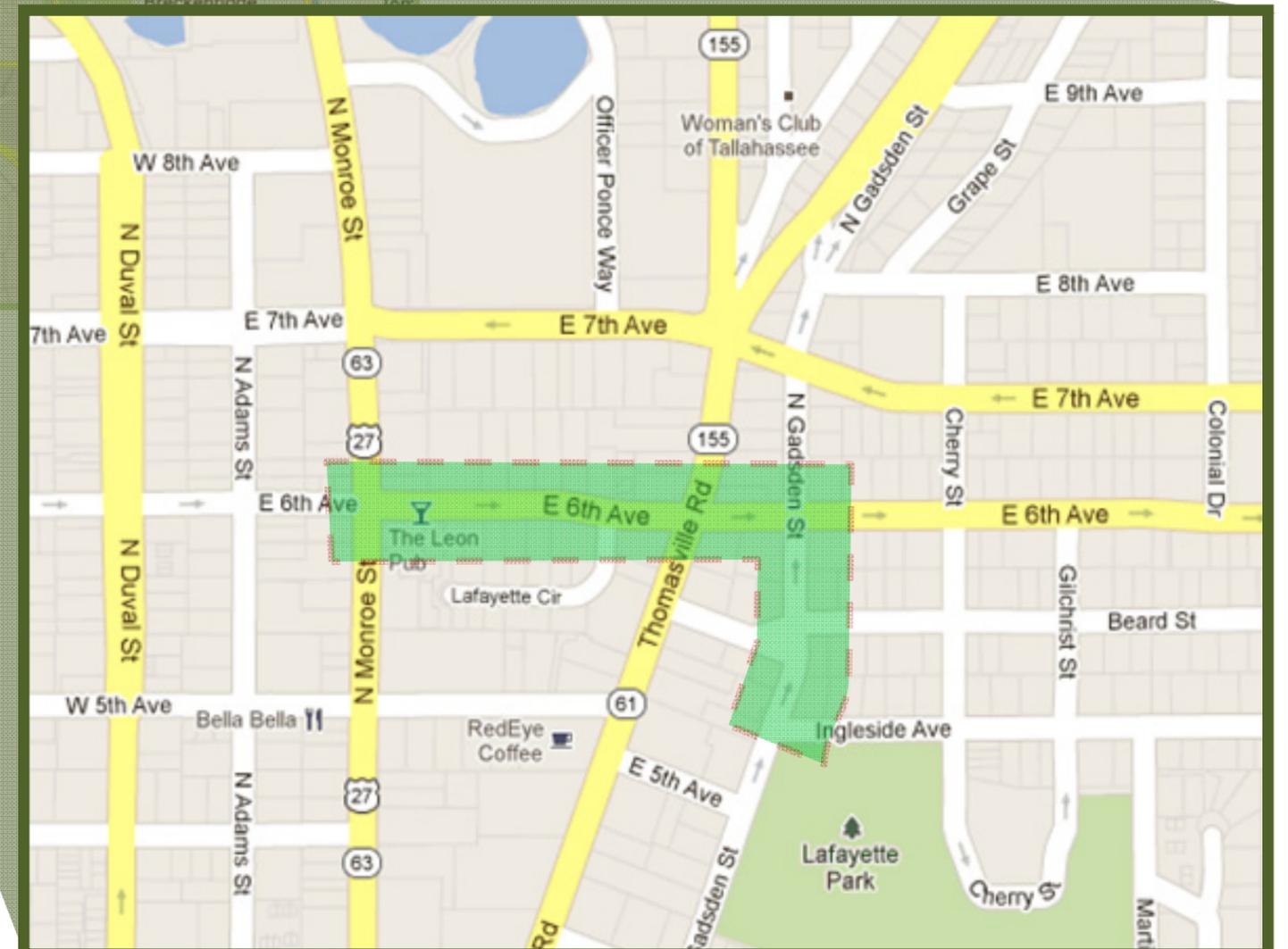
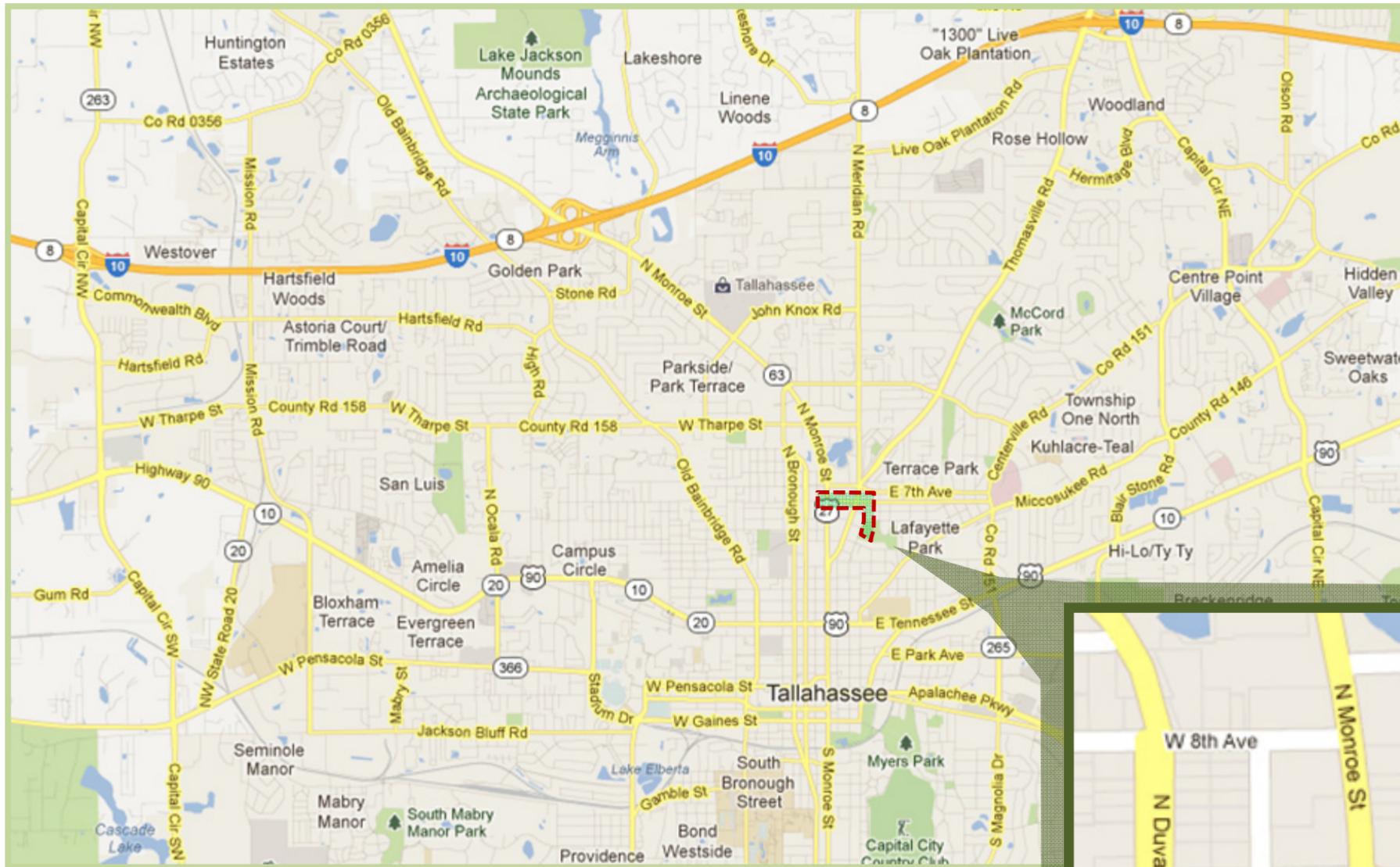
Promotes safety of pedestrians and vehicles and promotes use over the 24-hour day.

Promotes sustainability through minimizing runoff, reusing water, ensuring groundwater quality, minimizing heat islands, and responding to climatic demands.

* From American Planning Association “Great Streets — Characteristics and Guidelines for Designation”

The objective of this concept plan is to create functional, connected, accessible, aesthetically pleasing, and safe pedestrian environment along the 6th Avenue corridor. When people feel safe and are comfortable on a street and enjoy the experience of being there, increased pedestrian activity can in turn lead to opportunities for businesses, restaurants, and other urban land uses to flourish. Many great urban areas have continued to transform through good urban design that creates a sense of place that attracts interaction.

Project Focus Area

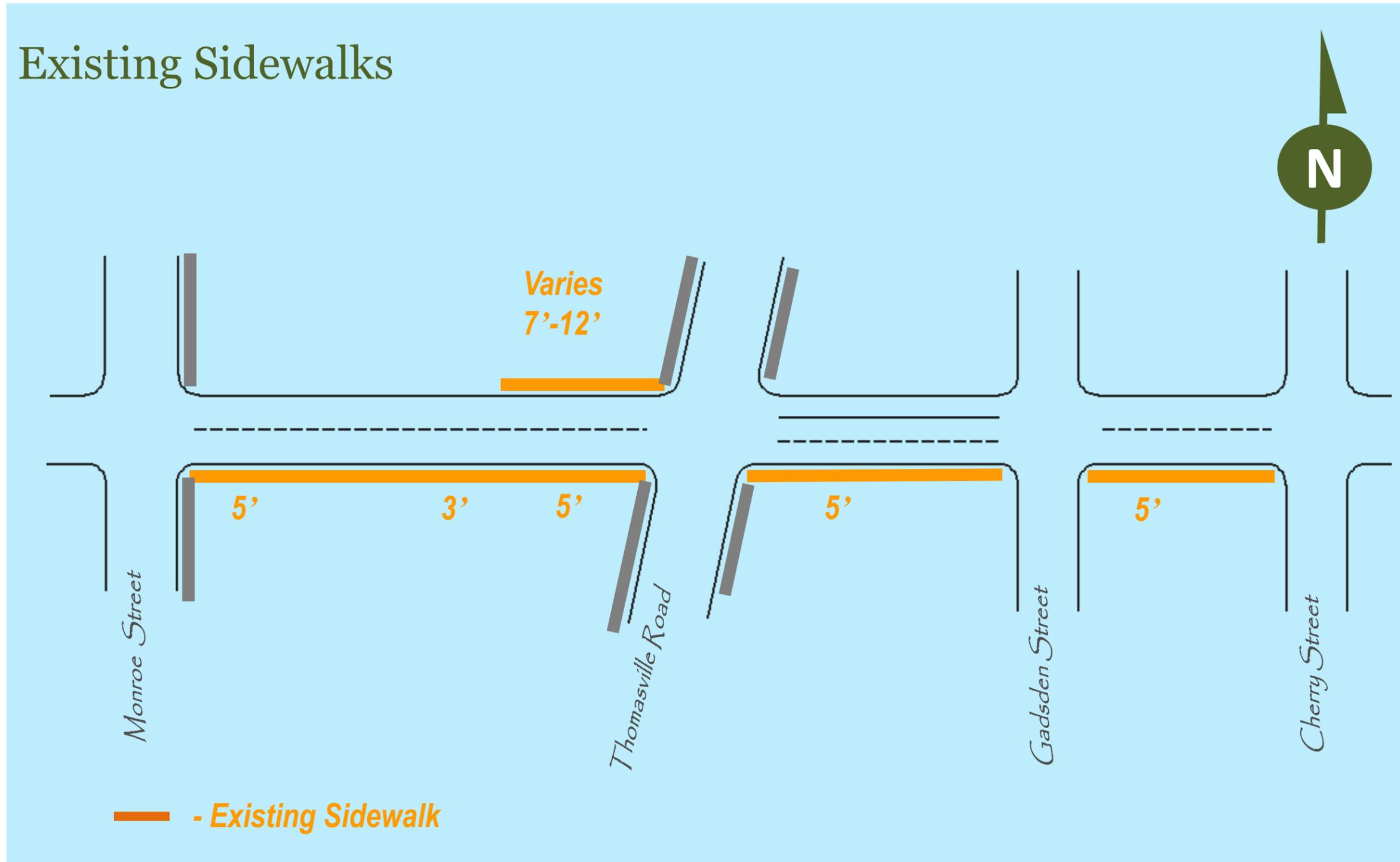


The project focus area begins at Monroe Street and 6th Avenue and progresses east to Gadsden Street and south down Gadsden Street to Ingleside Avenue. The area is located in the downtown city limits of Tallahassee, within an urban sub-area know as Midtown. It has characteristics unique to the Midtown area as described by the City of Tallahassee on its Place Making Initiative website:

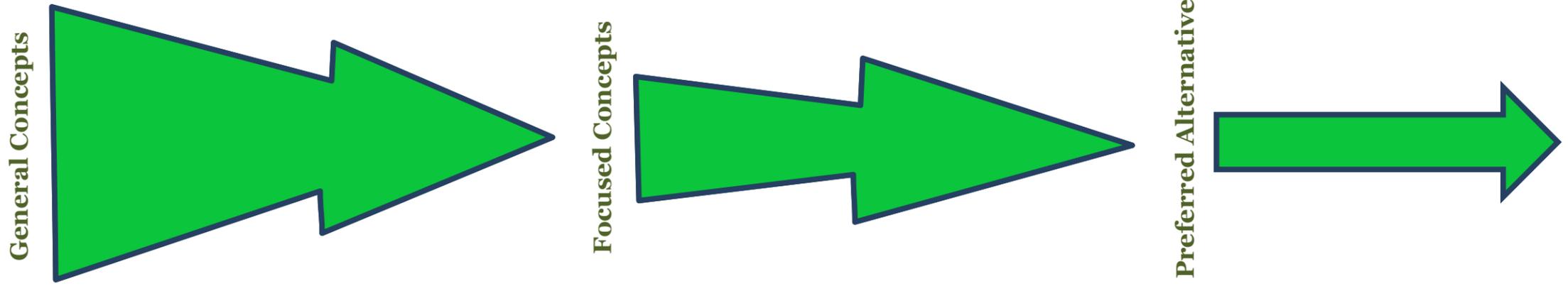
“If location is key, then Midtown is perfectly situated in the middle of it all, with Downtown a few blocks south, wonderful neighborhoods within walking distance, and well-connected transportation. Midtown is also home to Tallahassee landmarks, such as the Los Robles gates to Tallahassee’s first suburban neighborhood, the city’s first shopping center at Capital Plaza, and of course, Lake Ella, which has been a destination for decades. Recently, local investment had turned the area into a dining and entertainment destination. In addition to the physical characteristics, a strong Midtown merchants Association and several well-organized neighborhood associations have created a solid foundation on which to build.”

Initial field reviews revealed that the 6th Avenue corridor lacked sidewalk connectivity. field reviews also indicated that the right-of-way along the 6th Avenue corridor could not be easily determined. A full right-of-way survey was performed in March of 2012.

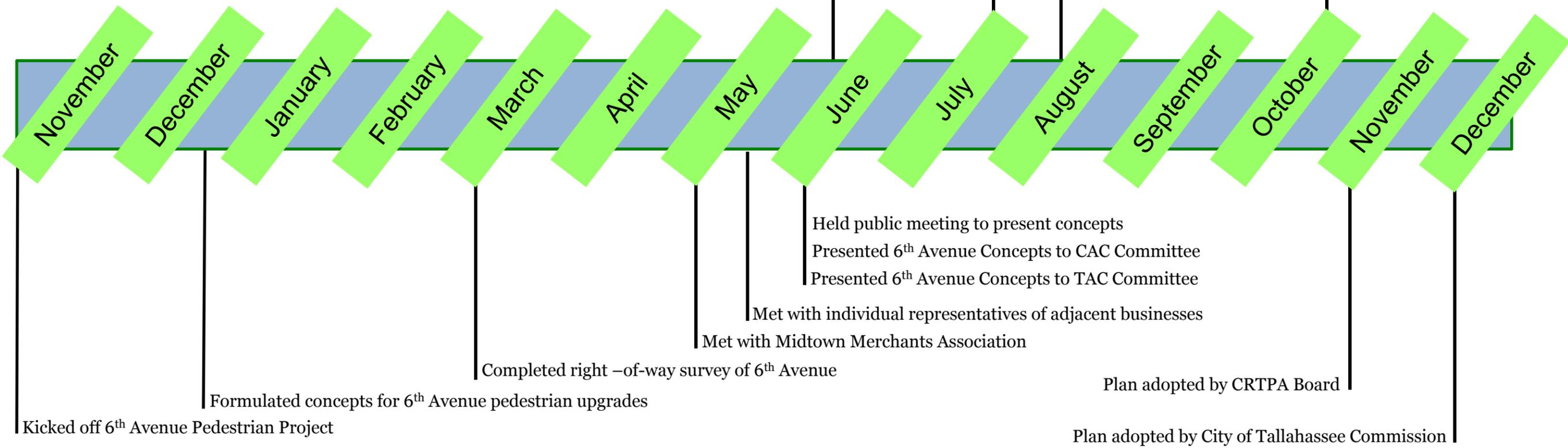
Existing Sidewalks



Timeline of Project Milestones



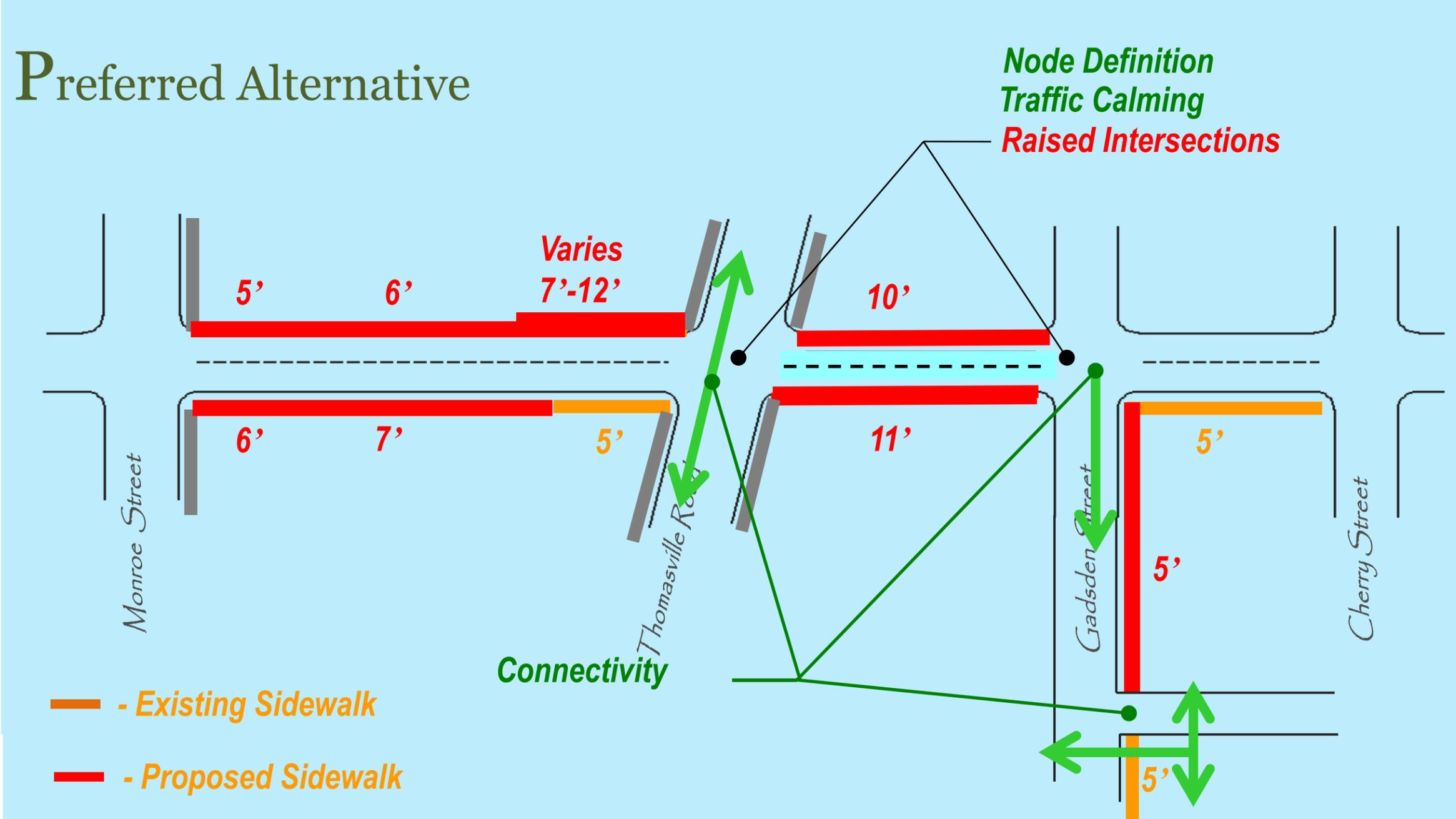
2011-2012 Project Milestones



The Public Involvement meeting was facilitated by Moore Consulting, a Tallahassee based public involvement firm. Appendix A includes information about the public involvement.

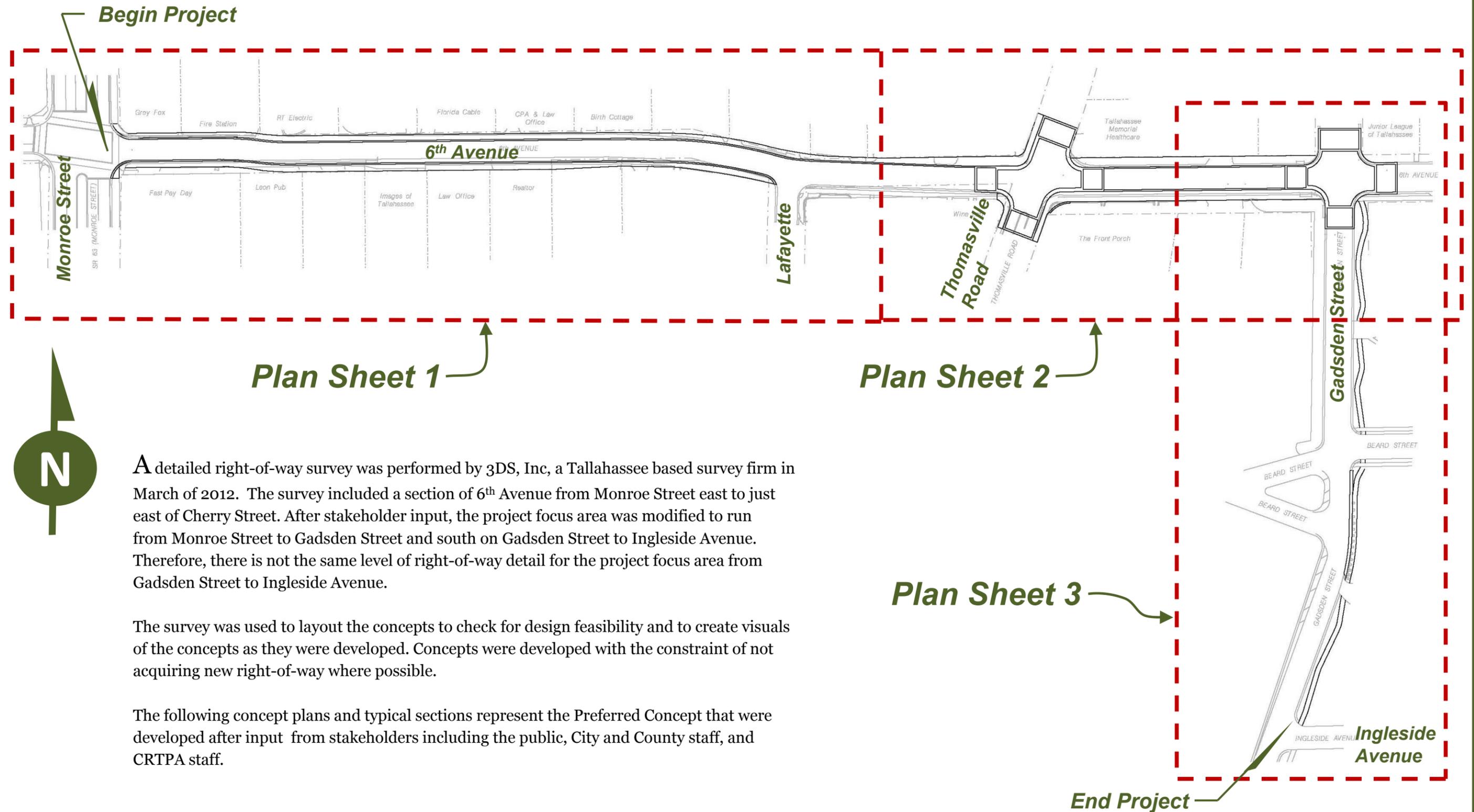
Preferred Alternative

- Lane reduction from Thomasville Road to Gadsden Street
- Sidewalks both sides of 6th Avenue
- Raised intersection at Thomasville Road
- Raised intersection at Gadsden Street
- Utilize existing wall between Thomasville Road and Gadsden Street
- Sidewalk along Gadsden Street down to Ingelside Avenue
- Mill & Resurface 6th Avenue from Monroe Street to Gadsden Street



Conceptual Plans and Typical Sections

Plan Sheet Key Map



A detailed right-of-way survey was performed by 3DS, Inc, a Tallahassee based survey firm in March of 2012. The survey included a section of 6th Avenue from Monroe Street east to just east of Cherry Street. After stakeholder input, the project focus area was modified to run from Monroe Street to Gadsden Street and south on Gadsden Street to Ingleside Avenue. Therefore, there is not the same level of right-of-way detail for the project focus area from Gadsden Street to Ingleside Avenue.

The survey was used to layout the concepts to check for design feasibility and to create visuals of the concepts as they were developed. Concepts were developed with the constraint of not acquiring new right-of-way where possible.

The following concept plans and typical sections represent the Preferred Concept that were developed after input from stakeholders including the public, City and County staff, and CRTPA staff.

Conceptual Plans and Typical Sections

Plan Sheet 1 of 3

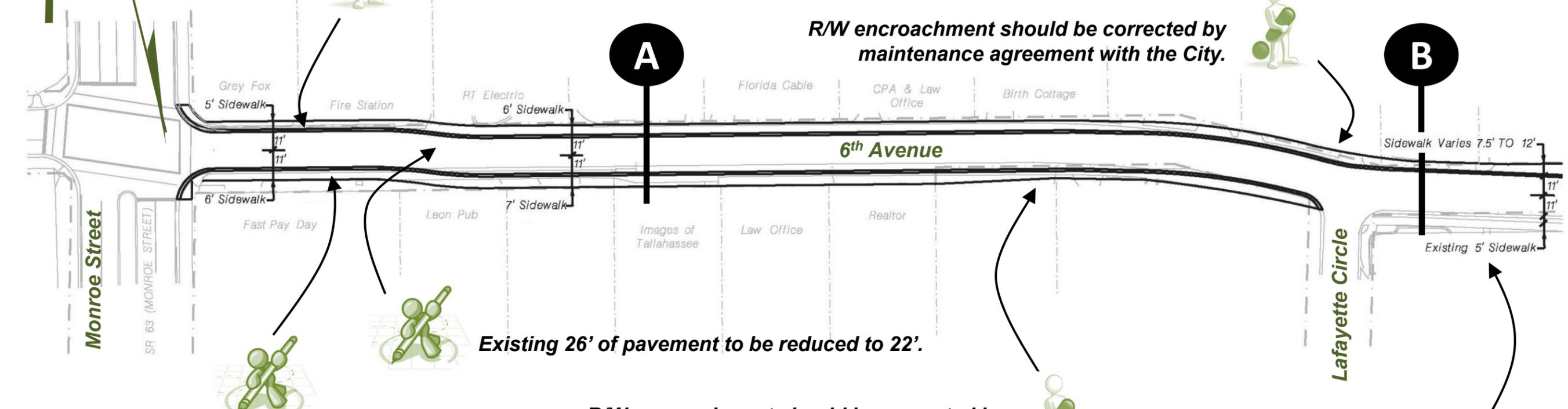


Begin Project

R/W encroachment can be corrected by road realignment and/or sidewalk width reduction.

R/W encroachment should be corrected by maintenance agreement with the City.

B



Existing 26' of pavement to be reduced to 22'.

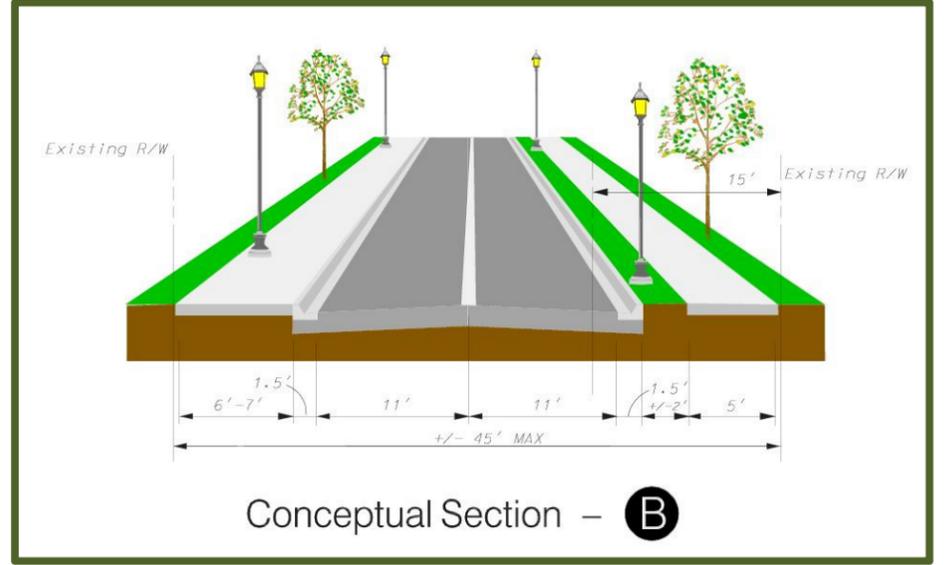
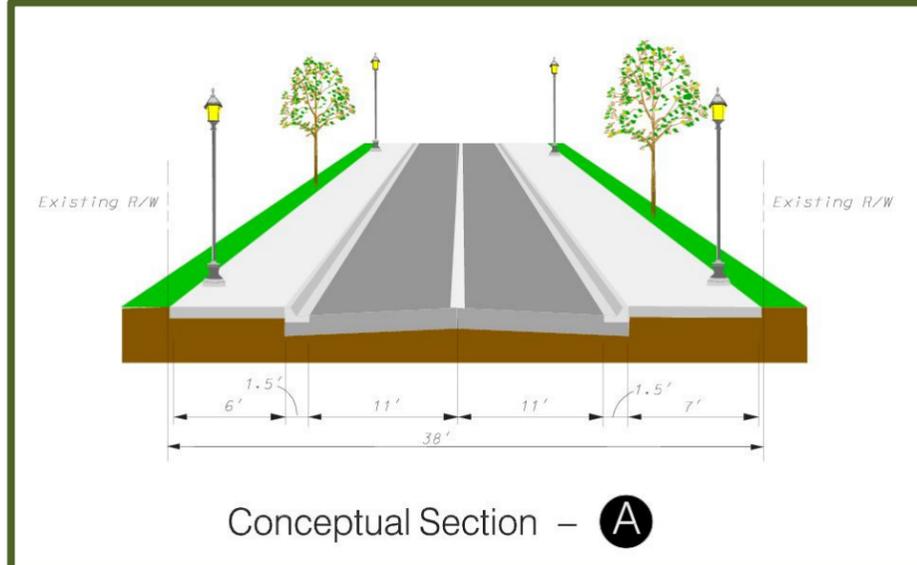
R/W encroachment should be corrected by maintenance agreement with the City.

Sidewalk adjacent to the Wine Loft Property was recently constructed.

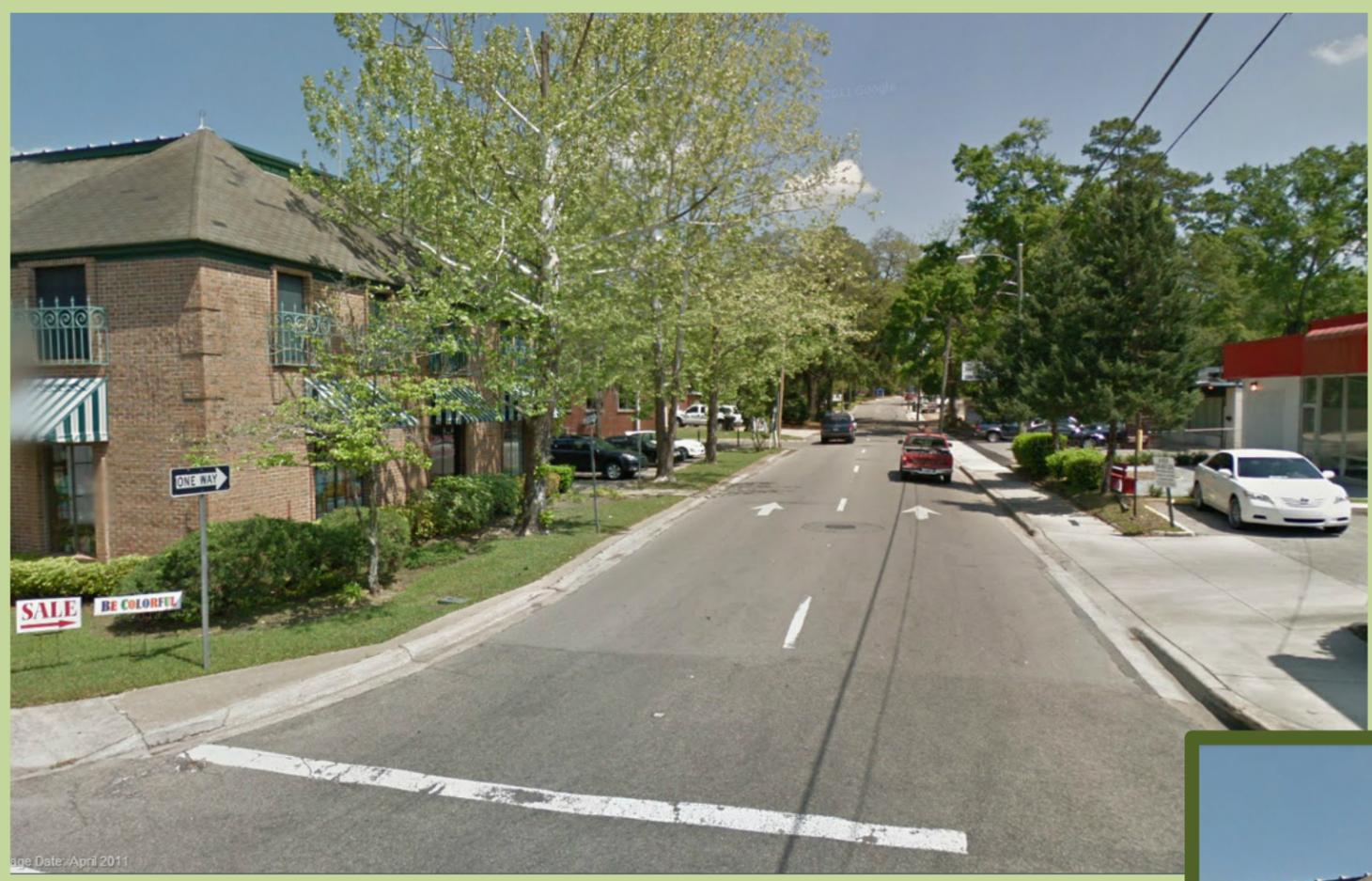
Use colored concrete in sidewalk to simulate meandering sidewalk effect



Colored concrete meandering example.



Conceptual Plans and Typical Sections



Existing Entrance from Monroe 6th Avenue Looking East



Final design & coloring to be determined by the City.

Proposed Entrance from Monroe 6th Avenue Looking East



Use colored concrete in sidewalk to simulate meandering sidewalk effect

Meandering Color

Conceptual Plans and Typical Sections



R/W encroachment should be corrected by maintenance agreement with the City.



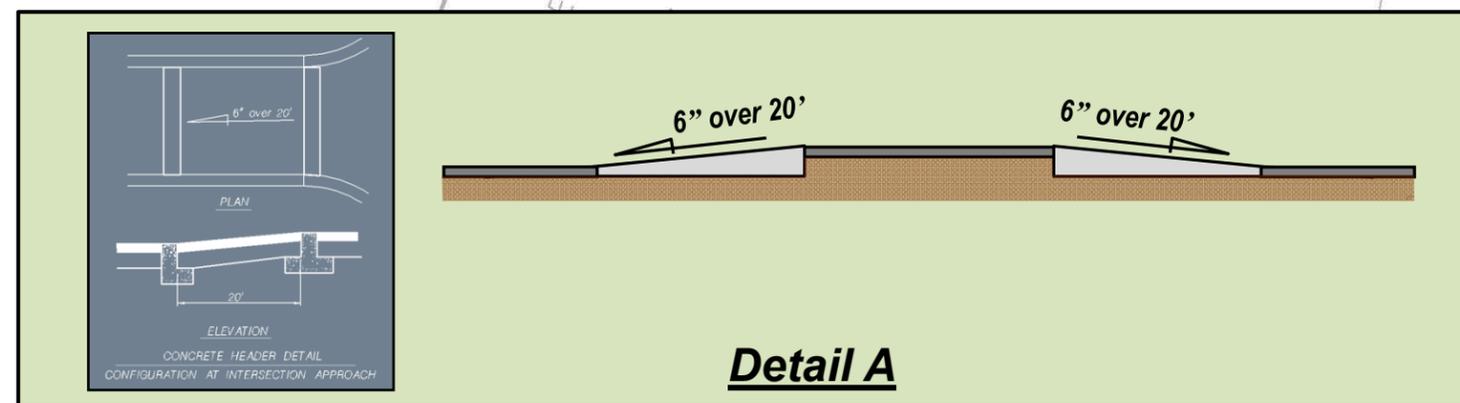
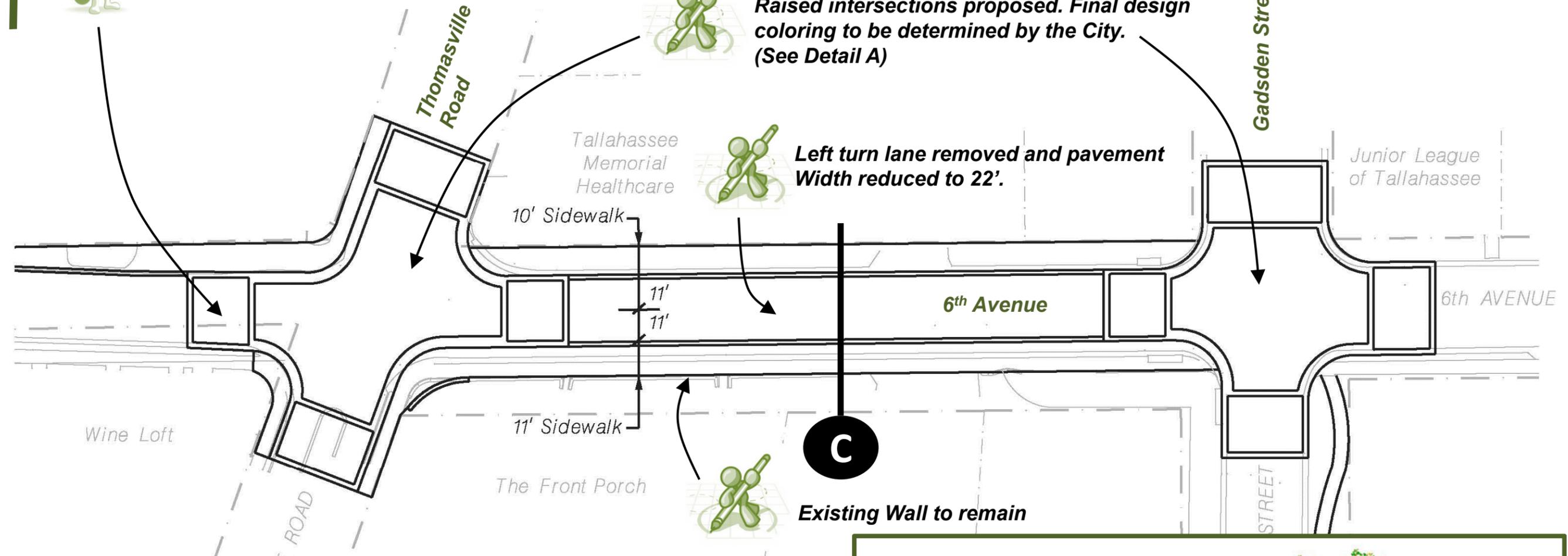
Raised intersections proposed. Final design coloring to be determined by the City. (See Detail A)



Left turn lane removed and pavement Width reduced to 22'.



Existing Wall to remain

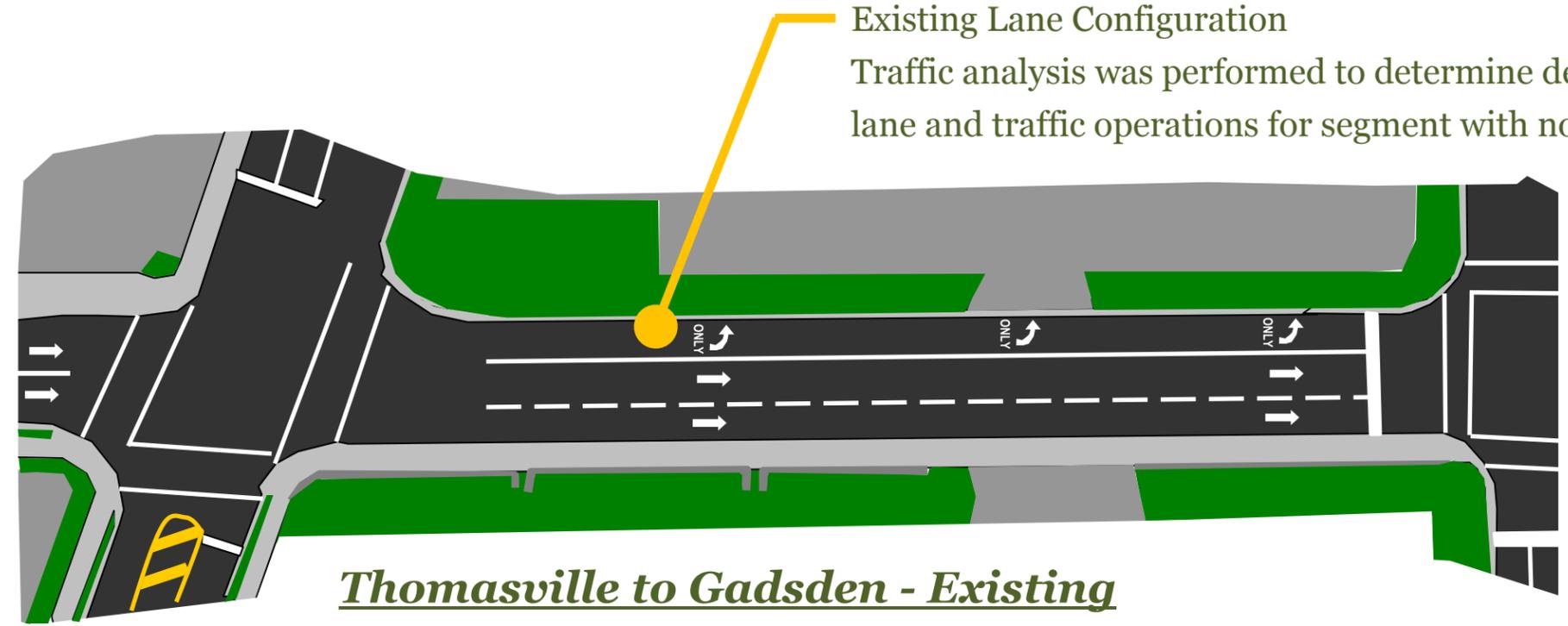


Conceptual Section - C



Raised intersections could benefit from a 'Pedestrian Scramble' signal phasing Scheme.

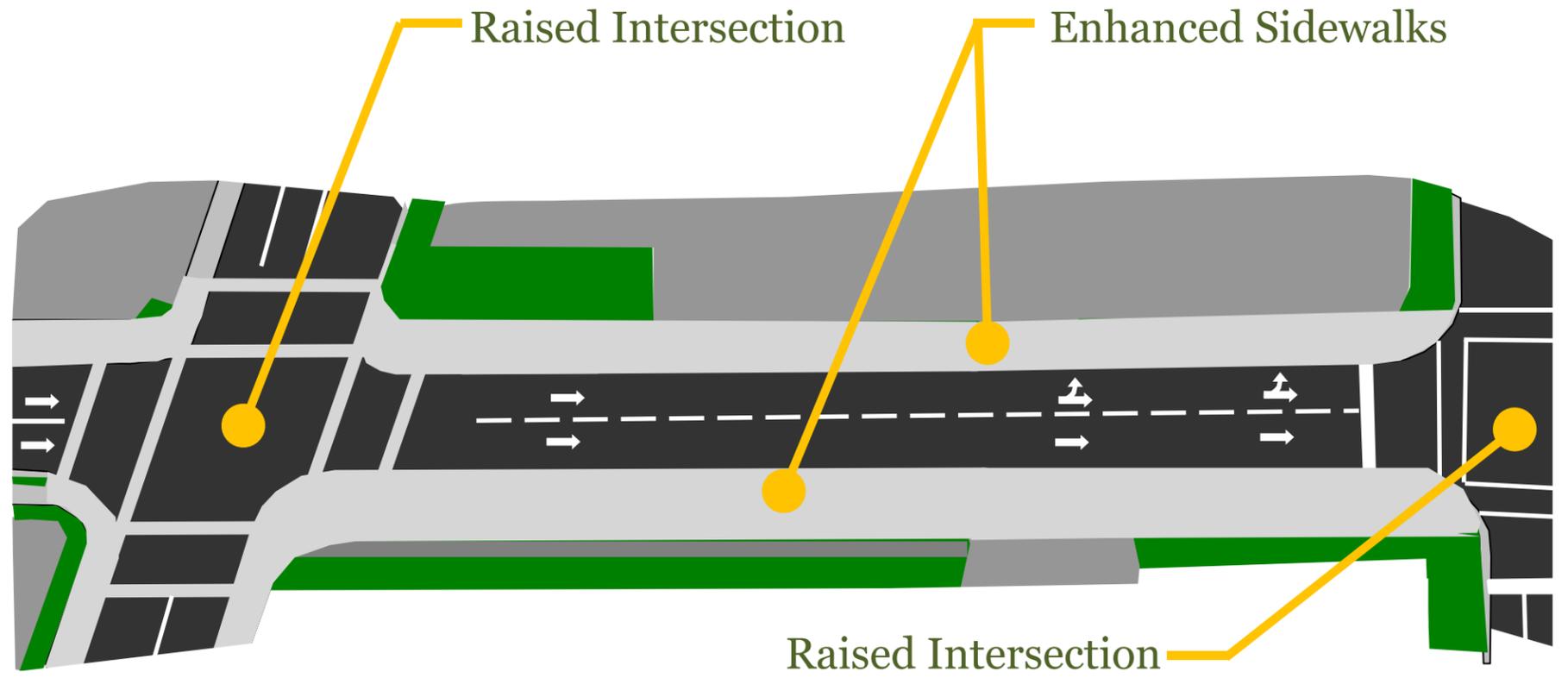
Conceptual Plans and Typical Sections



Existing Lane Configuration
Traffic analysis was performed to determine demand for current turn lane and traffic operations for segment with no dedicated turn lane.

Thomasville to Gadsden - Existing

A planning level traffic analysis was performed to look at possible traffic operations impacts created by removing the left turn lane at Gadsden Street and 6th Avenue. More detail on the traffic analysis can be found in Appendix B.



Thomasville to Gadsden - Proposed

Conceptual Plans and Typical Sections



Existing Intersection
6th Avenue Looking East at Thomasville Road



Bollards could be added to provide more delineation between pedestrian and vehicle areas.



Final design & coloring to be determined by the City. Midtown Logo shown as an example of possible branding.



Proposed Raised Intersection
6th Avenue Looking East at Thomasville Road

Conceptual Plans and Typical Sections



*Existing Intersection
6th Avenue Looking West at Gadsden Street*



Bollards could be added to provide more delineation between pedestrian and vehicle areas.



Final design & coloring to be determined by the City. Midtown Logo shown as an example of possible branding.

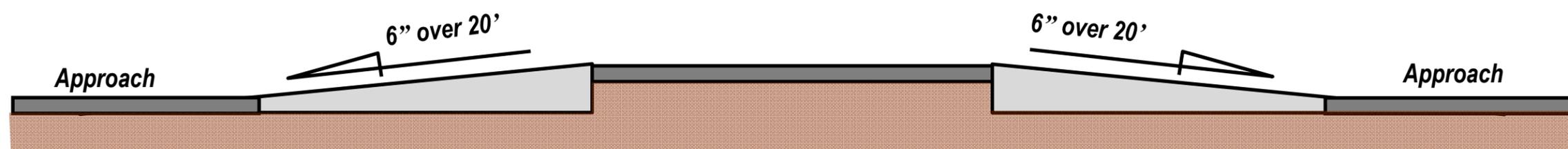
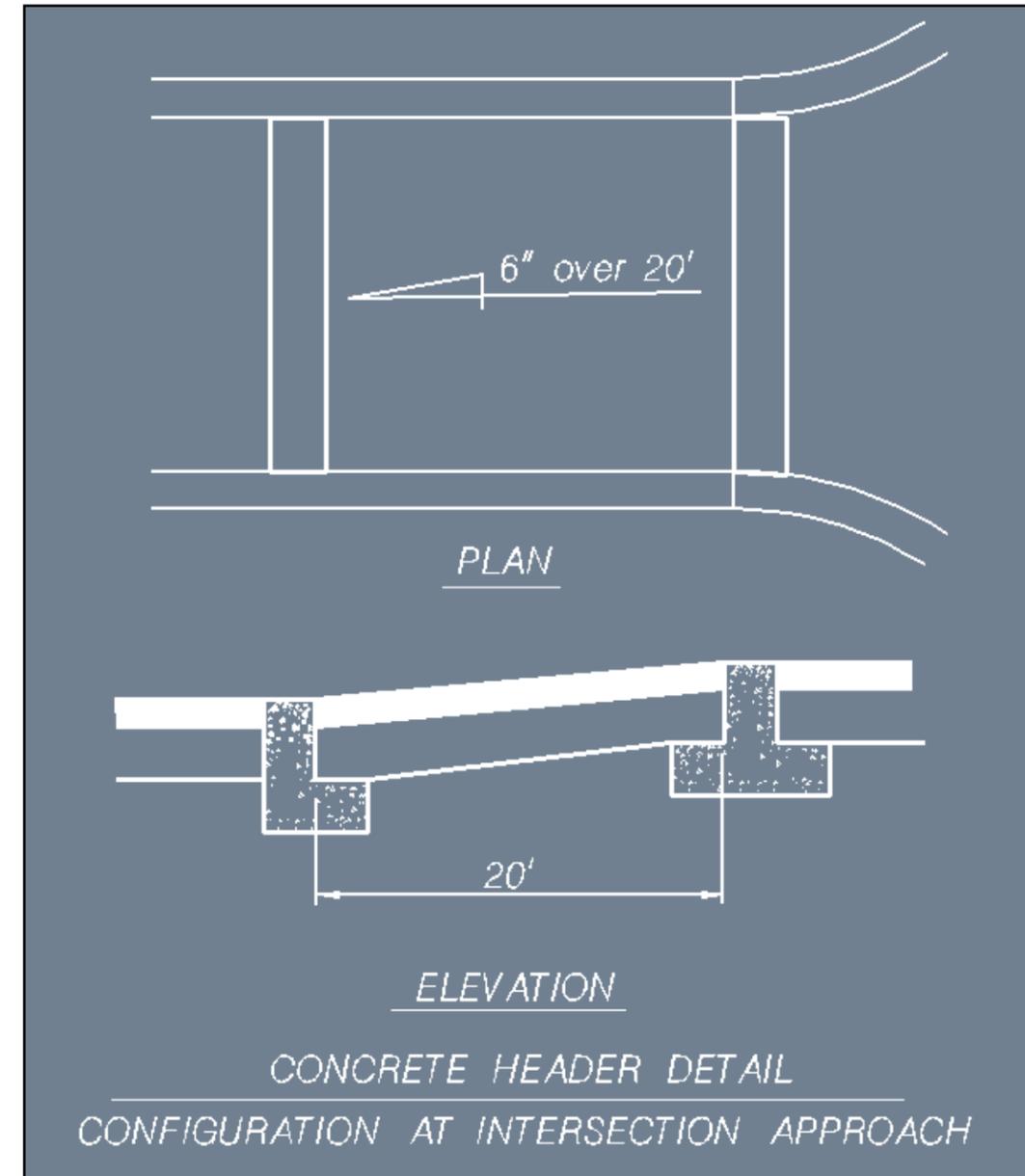
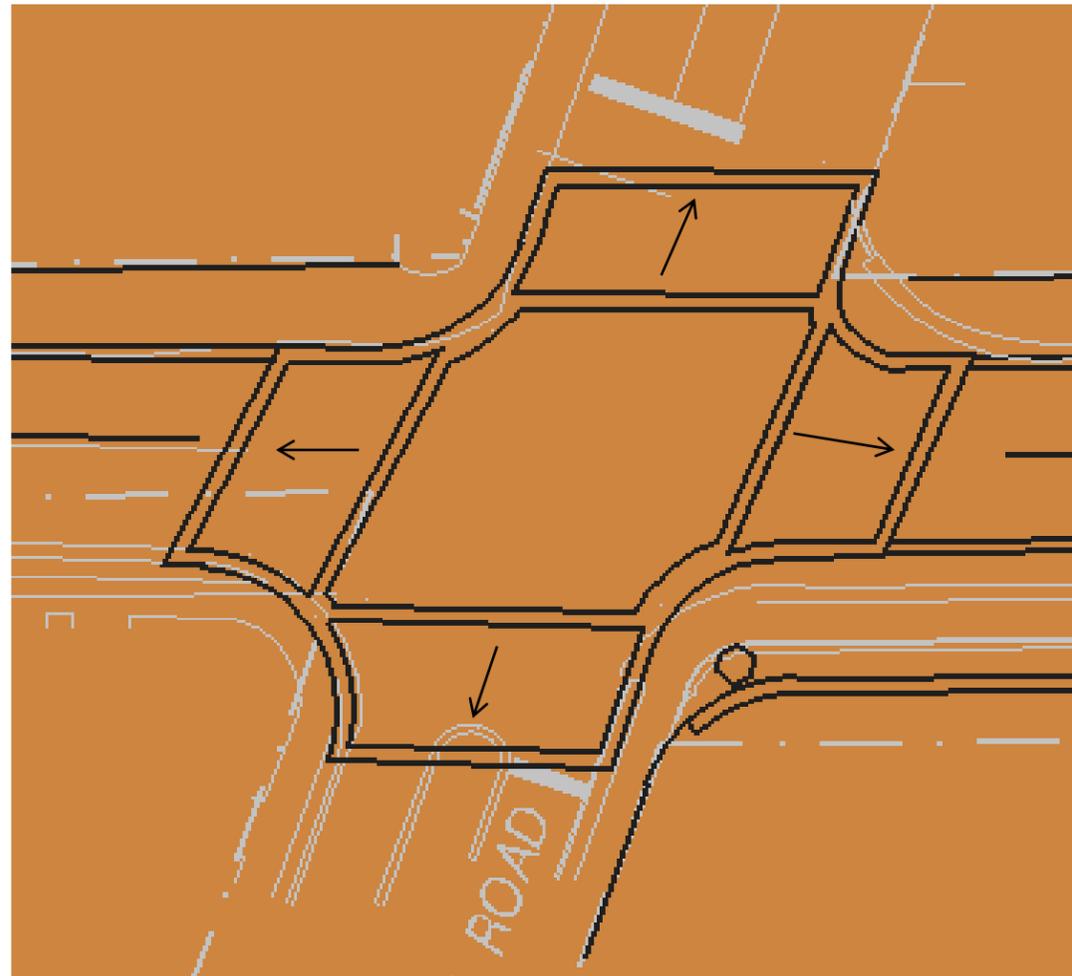


*Proposed Raised Intersection
6th Avenue Looking West at Gadsden Street*

Conceptual Plans and Typical Sections

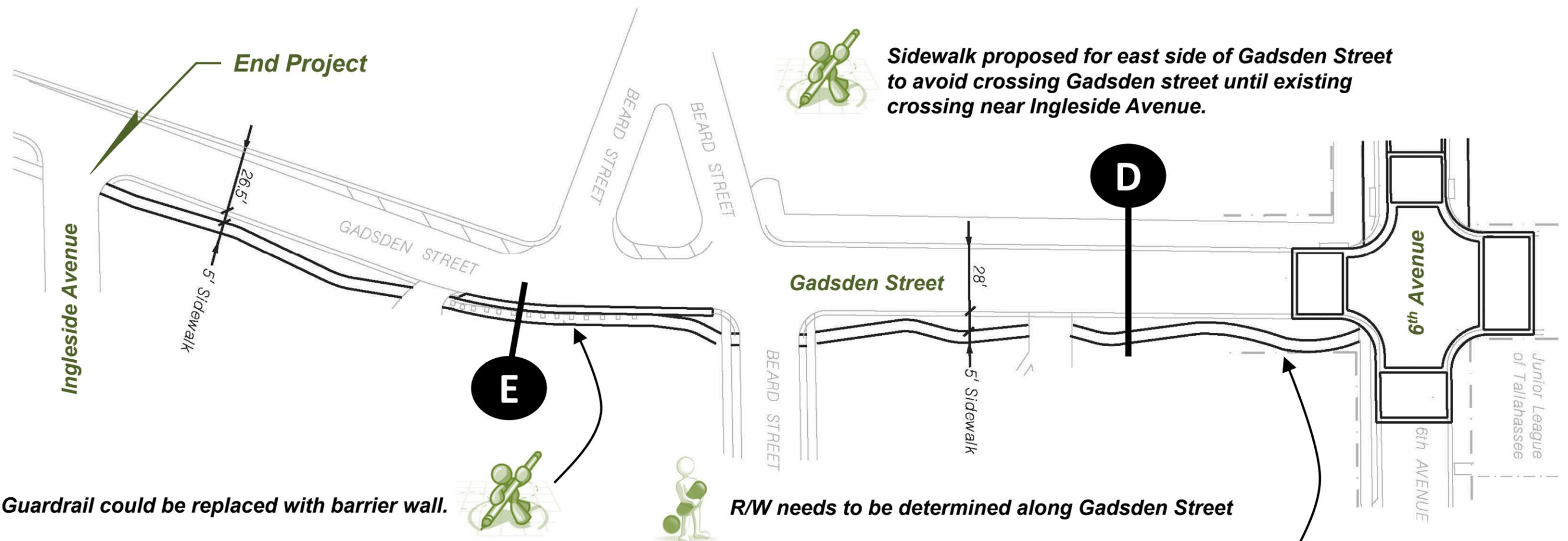
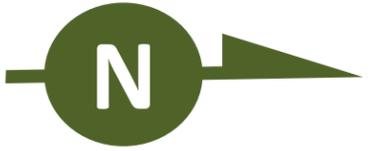
Raised Intersection Detail

- Enhances pedestrian environment
- Defines pedestrian area
- Reduces speeds at intersection
- Can improve drainage options



Elevation View

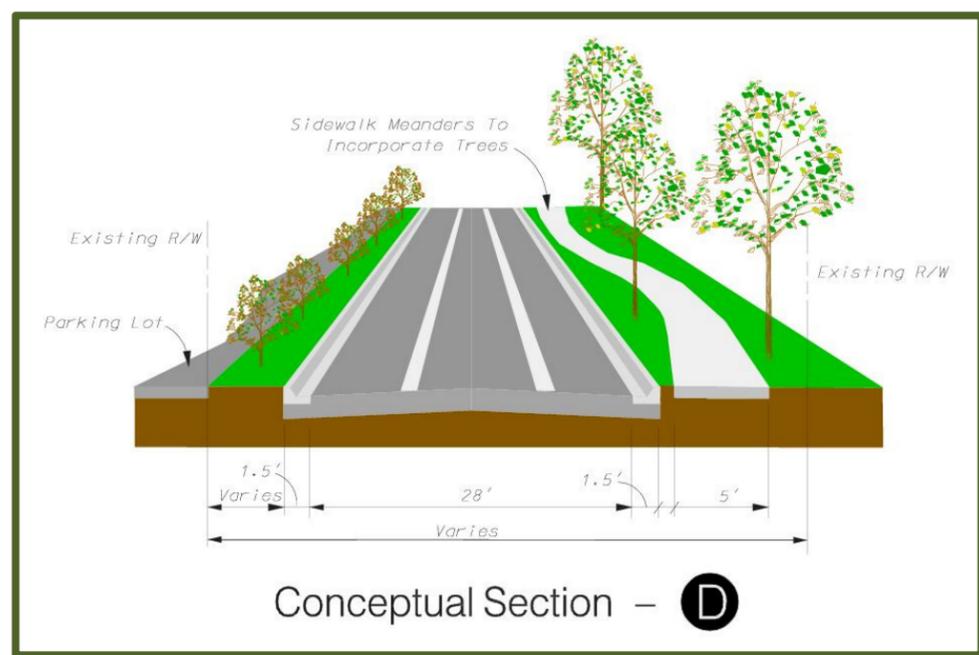
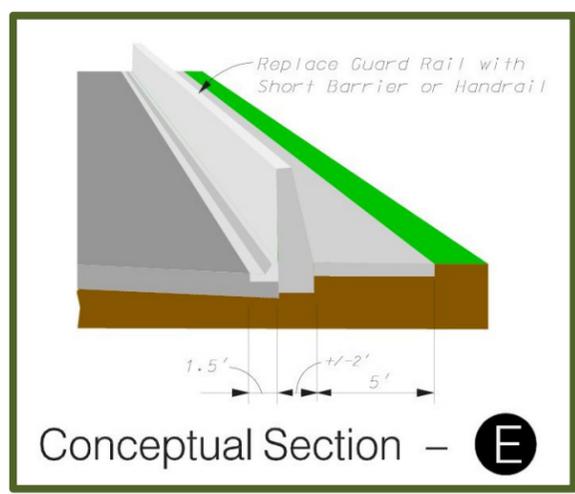
Conceptual Plans and Typical Sections



Guardrail could be replaced with barrier wall.

R/W needs to be determined along Gadsden Street

Sidewalk to meander to minimize removing trees.



Project Cost Estimates & Recommendations

Cost Estimate

A planning level cost estimate was performed and is detailed in the table below. The cost estimates include the resurfacing of 6th Avenue along with resurfacing 20' aprons on Thomasville Road and Gadsden Street at 6th Avenue. Corridor themed lighting should be considered but was not included in this project or cost estimate. While utility relocation estimate should cover relocation of drainage inlets in the project focus area, city staff has indicated that the current conditions of utilities in the corridor can not be assessed until excavation occurs.

Estimate Costs for 6th Avenue and Gadsden Street Pedestrian Projects

	Unit	6th Ave. - Preferred Concept Alternative		
		Number	Cost Per	Total Item Cost
Remove Asphalt Pavement	SQ YD	1,100	14.00	\$15,400.00
Remove Concrete	SQ YD	1,000	12.00	\$12,000.00
Remove Dispose C&G	LF	2,000	12.00	\$24,000.00
Saw cut Exist Pavement	LF	1,200	4.00	\$4,800.00
Concrete Sidewalk (6")	SQ YD	1,700	52.00	\$88,400.00
Type F C & G	LF	2,000	22.00	\$44,000.00
Raised Intersection	per	2	80,000.00	\$160,000.00
Mast Arm Signals	per	2	100,000.00	\$200,000.00
Replace retaining Wall	LF	30	100.00	\$3,000.00
Single Pole removal	per	2	800.00	\$1,600.00
Utility Relocation	LS	1.00	80,000.00	\$80,000.00
Standard Milling (3")	SQ YD	3,300.00	3.00	\$9,900.00
Resurface 3" Asphalt *	Ton	550.00	100.00	\$55,000.00
Miscellaneous Pavement Marking	LF	1,500.00	6.00	\$9,000.00
Miscellaneous Sodding	SQ YD	1,000.00	7.00	\$7,000.00
Sub-Total				\$714,100.00
Design (15%)				\$107,115.00
Contingency (20%)				\$142,820.00
Total Estimated Costs				\$964,035.00

*-Based on 110 lbs per sq yd

	Unit	Gadsden Street Sidewalk		
		Number	Cost Per	Total Item Cost
Right of Way Survey	per	1	2,500.00	\$2,500.00
Concrete Sidewalk (6")	SQ YD	300	52.00	\$15,600.00
Utility Relocation	LS	1.00	6,000.00	\$6,000.00
Remove Guardrail	LF	85.00	15.00	\$1,275.00
Retaining Wall	LF	100	100.00	\$10,000.00
Miscellaneous Sodding	SQ YD	500.00	7.00	\$3,500.00
Sub-Total				\$38,875.00
Design (15%)				\$5,831.25
Contingency (20%)				\$7,775.00
Total Estimated Costs				\$52,481.25

Total Estimated Costs for 6th Ave. and Gadsden Street Projects	\$1,016,516.25
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Recommendation

Based on this feasibility study, pedestrian enhancements can be incorporated along 6th Avenue and Gadsden Street. The improvements will provide a connected pedestrian network, help to promote a "Sense of Place", and offer more branding opportunities for the Midtown area.



Appendix A
Public Involvement



Public Meeting: *6th Avenue Pedestrian Path*

You are invited to attend an important public meeting to discuss pedestrian enhancements along 6th Avenue. Your input will give decision makers the information required to determine the feasibility of constructing the project. The meeting will consist of a brief presentation of the project and open house format to receive input.

At this meeting you will have the opportunity to:

- View concept maps
- Ask questions
- Offer feedback

THURSDAY, JUNE 14, 2012
5:30-7:30 p.m.

Tallahassee Board of REALTORS®
1029 Thomasville Road *(directly across the street from Manor @ Midtown)*

QUESTIONS? Please contact Jack Kostrzewa, Planning Manager, City of Tallahassee at 850-891-6809 or jack.kostrzewa@talgov.com.

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. Persons with disabilities who require special accommodations under the Americans with Disabilities Act or persons who require translation services (free of charge) should contact Lynn Barr at (850) 891-8600 or via e-mail at lynn.barr@talgov.com. Requests for special accommodations should be made at least seven (7) days prior to the public meeting.

This event is sponsored by CRTPA and is not sponsored or endorsed or in any way affiliated with the Tallahassee Board of REALTORS®.



6th Avenue Pedestrian Enhancements

Please tell us your thoughts on the concepts presented.

1. Concept Alternative 1 & 2 - Circle whether you like or dislike the following concept elements.

- Lane Reduction from Monroe to Lafayette I like this element I do not like this element
(Part of Concept Alternative 1 only)

Comments: _____

- Lane Reduction from Thomasville to Gadsden I like this element I do not like this element
(Part of Concept Alternatives 1 & 2)

Comments: _____

- Sidewalks on Both Sides of 6th Avenue I like this element I do not like this element
(Part of Concept Alternatives 1 & 2)

Comments: _____

- Raised Intersection at Thomasville Road I like this element I do not like this element
(Part of Concept Alternatives 1 & 2)

Comments: _____

2. Tell us what you think about Concept 1.

3. Tell us what you think about Concept 2.

4. Tell us your ideas about enhancing the pedestrian path along this corridor.

5. Are there other pedestrian issues in your neighborhood or near your business location?

6. Please share anything else we should consider for this project or other general comments on the information presented tonight.

Contact information (optional)

Name: _____

Business or Organization (if applicable): _____

Address: _____

City, State, Zip: _____

Email address: _____

Thank you for your time and participation.

Please leave completed survey following tonight's meeting.

Additional comments can be submitted:

Email to jack.kostrzewa@talgov.com

Capital Region Transportation Planning Agency (CRTPA)

300 S. Adams Street, A-19

Tallahassee, FL 32301

Sign In Sheets

Thank you for attending the 6th Avenue Pedestrian Enhancement Meeting.

Please sign in.

NAME	ORGANIZATION (if applicable)	ADDRESS	EMAIL ADDRESS	Would you like to be contacted about future meetings and/or projects?
John C Kenny		241 E. 6 th Ave	john@johnkennylaw.com	Yes
Walter Jones	TMH	1300 McCoskey Rd	walter.jones@tmh.com	Yes
Greg Burke	CRT PA			
John Cross	Visual Solutions	1105 N. Monroe	John.Cross@VisualEliteDisplay.com	Yes
John Harvard	John Harvard CPA	254 E. 6 th Ave	john@harvard-cpa.com	Yes
Julian Marks	WMA	1123 THOMASVILLE RD	MATHSPRESS@aol.com	Yes

Thank you for attending the 6th Avenue Pedestrian Enhancement Meeting.

Please sign in.

NAME	ORGANIZATION (if applicable)	ADDRESS	EMAIL ADDRESS	Would you like to be contacted about future meetings and/or projects?
Craig Ketcham		1203 Thomasville Rd	CKetcham@Ketchamgroup.com	
Katie Goram	SWEAT Therapy	Namor @ Midtown	Katie@Sweattherapyfitness.com	Yes
RYAN CHAVERS		219 E. 6 th Ave.	ELHTFIFTYRYAN@GMAIL.COM	Yes
Bill Hasselbick	The Leon Pub, Inc	213, 215 E. 6 th		
Bethany Buzges		1004 N. Duval St.		
Scott Thornton	Apogee Signs	1105 N. Monroe	Scott.Thornton@apogeesigns.com	Yes

Thank you for attending the 6th Avenue Pedestrian Enhancement Meeting.

Please sign in.

NAME	ORGANIZATION (if applicable)	ADDRESS	EMAIL ADDRESS	Would you like to be contacted about future meetings and/or projects?
Trish Utomchik	The Hair Lounge at Mid-Town	410 EAST 6 th Ave.	trishandj@ yahoo.com	Yes
Karen Loewen	Lake Ella CCCyclists	1651 B N Monroe	RememberWhen@Supernet.net	Yes
Paula Lucas	LUCY & LEOS WPCAKERY	1123 Thomasville Rd.	plucas73@gmail.com	yes please
PETE CURRAN		641 E. 6 th Ave	peterc@ngsbw.com	YES
Rachel Heffner	The Leon Pub	215 E. 6 th	heffner4@yahoo.com	yes
Jamie Christoff	Wine Loft		christoffp7@gmail.com	Yes

Thank you for attending the 6th Avenue Pedestrian Enhancement Meeting.

Please sign in.

NAME	ORGANIZATION (if applicable)	ADDRESS	EMAIL ADDRESS	Would you like to be contacted about future meetings and/or projects?
Ginny Garzaniti		413 East 6 th Ave	ginnygarzaniti@gmail.com	Yes
Rob MONTGOMERY	CCCyclists	1625 #18 CENTERVILLE RD	notes_2000@yahoo.com	No
Hans van Tol	Capital City Cyclists	1215 Buckingham Dr	johavantol@yahoo.com	Y

6th Avenue Pedestrian Enhancement Public Meeting Summary June 14, 2012 5:30-7:30 p.m.

Attendance: 25 (21 signed in)

Questions and comments from the audience in response to the presentation

Questions

What is the big picture purpose and overall goals of the project?
Will the bollards be added to the design? It adds an element to the intersection.
Why did the study area go to Cherry and into the residential area of 6th Ave?
How is the project being funded?
How long would the area be under construction?
How long will you receive input before action?
Is there any consideration in the budget for the utilities to be placed underground?
What would the speed limit be? Any planned reductions?
Has a two lane to one lane reduction been successful in town? Where? What was the outcome?
How would a one lane impact ambulance traffic?

Comments

The improvements are awesome and I would like to see the one lane design. (Comment from a 6th Ave business owner.)

In physician recruiting, we tour Tallahassee and Midtown. Younger physicians, in particular, like the walkability of the area and increasingly more people want to live here. We see these developments as a way for students/residents to access the Midtown area from TMH/TCC campus. In the long term, if the pathway extended to TMH it would help the medical community.

If you want pedestrians, you will have to slow traffic and diagonal parking would help. The road currently has uneven intersection and debris and is not feasible for people to ride bikes. To make it more pedestrian friendly, you must do something about the speed of traffic on Thomasville Rd.

Comment/suggestion to widen pedestrian space and add diagonal parking to slow traffic.

I don't understand the practicality of the project, the sidewalks were redone in past years and there is no point or reason for this project.

Comment/suggestion to do a study on Thomasville Rd. and the practice of it being used as a fast way to fly through the area when they could use Monroe St.

Survey Summary

Design Elements

- 1) Lane Reduction from Monroe to Lafayette
7 – Positive 7 – Negative
- 2) Lane Reduction from Thomasville to Gadsden
8 – Positive 4 – Negative
- 3) Sidewalks Both Sides of 6th Avenue
9 – Positive 4 – Negative
- 4) Raised Intersection at Thomasville Road
12 – Positive 2 – Negative

Concepts

Written Comments on Concept 1

- I like this one the best.
- Fear for length of construction and the effects on business.
- I prefer Concept 1 over Concept 2.
- I would prefer Concept 1, primarily to slow traffic.
- Need to consider bicycles. Prefer over Concept 2.
- More research into effect on emergency vehicles.
- Horrible Idea – Adequate pedestrian amenities today.
- Totally against single lane from Monroe to Lafayette, pointless sidewalk expansion.

Written Comments on Concept 2

- I like the idea of going all the way to Cherry Street. I like the idea of connecting it all.
- I prefer Concept 1 over Concept 2.
- Concept 1 is better.
- I think Concept 2 would have more continuity.

Horrible Idea (see comments about Concept 1)

Still do not think any additional sidewalks are necessary. Not opposed to the improvements at Thomasville.

Other Written Comments

Safety is of great importance and this would benefit the area.

Thomasville corridor between Williams and 7th is dangerous as traffic moves so quickly... would like to see more pedestrian crossings.

Restrict or eliminate traffic on Thomasville Road.

This area needs wide sidewalks with aesthetic appeal, good lighting, and landscaping.

Can be a real attractive pedestrian area. Need to think about public parking.

Need to slow traffic.

I think the 5th Ave. concept needs to be continued. Should be easier access to Lafayette Park.

Fine as is – may hinder ambulances.

Move utility poles from middle of sidewalk.

Throw in some benches and lamps if you want, but the area is already pedestrian friendly. Make cosmetic improvements that will not require serious construction.

I like the idea of color washing to make the area unique and catch the eye.

Appendix B

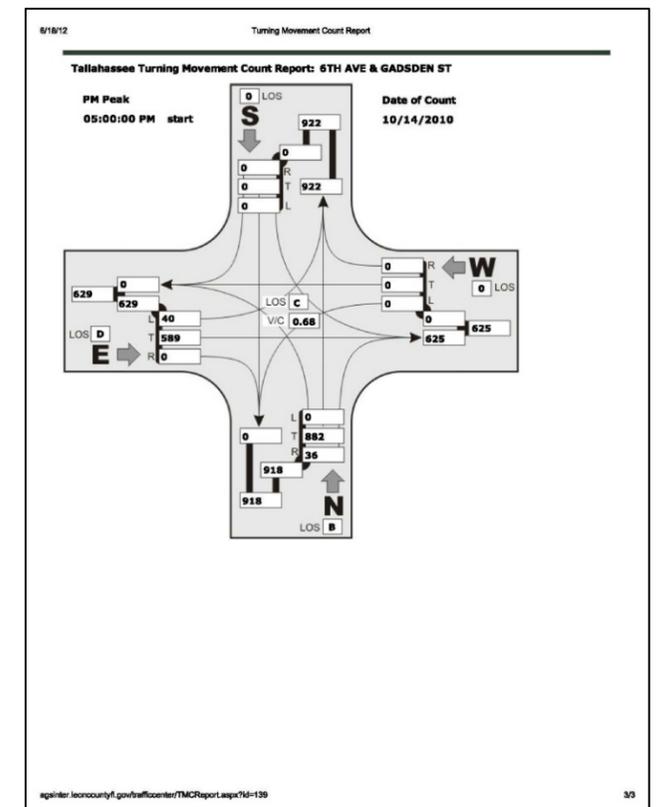
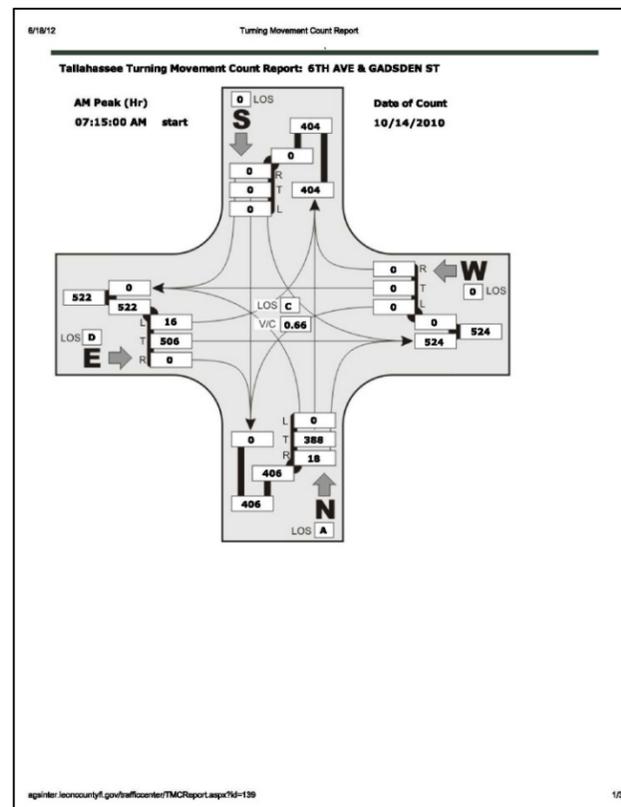
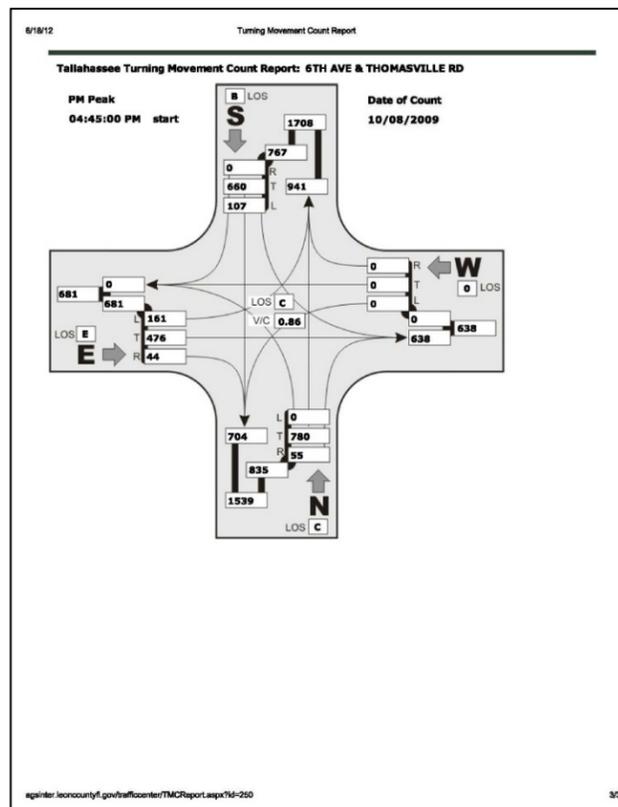
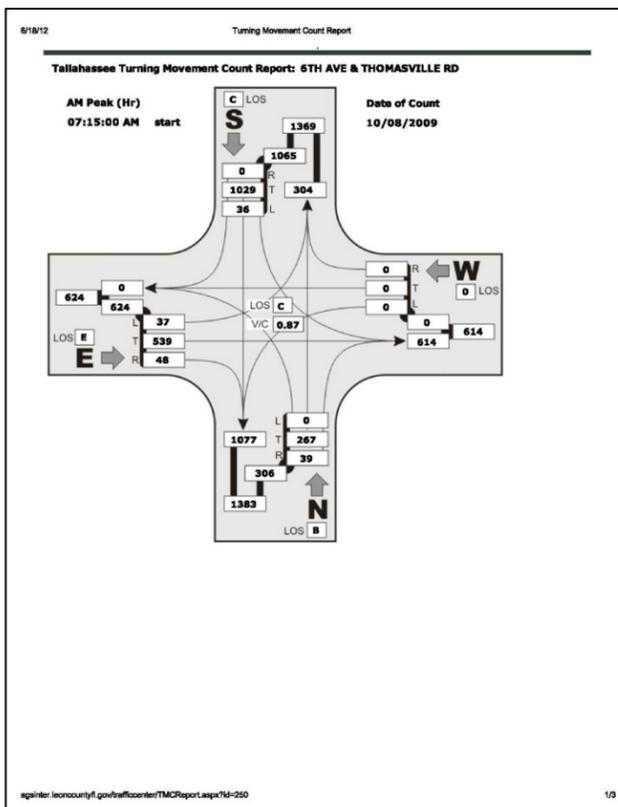
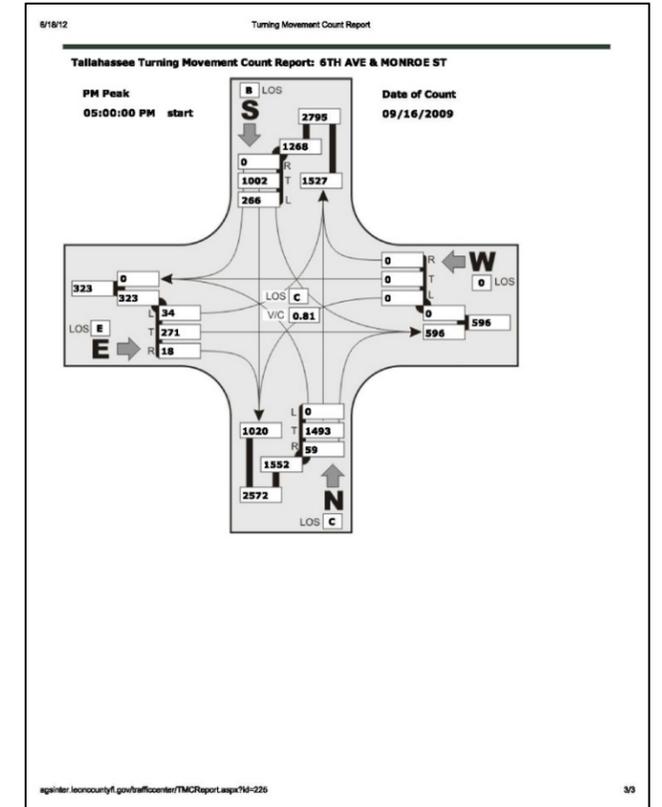
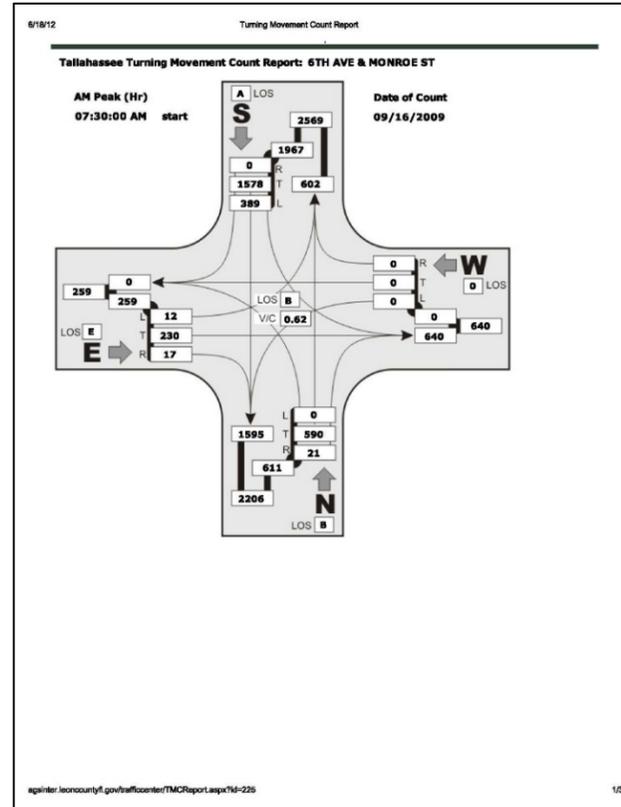
Traffic Analysis

Level of Service Analysis

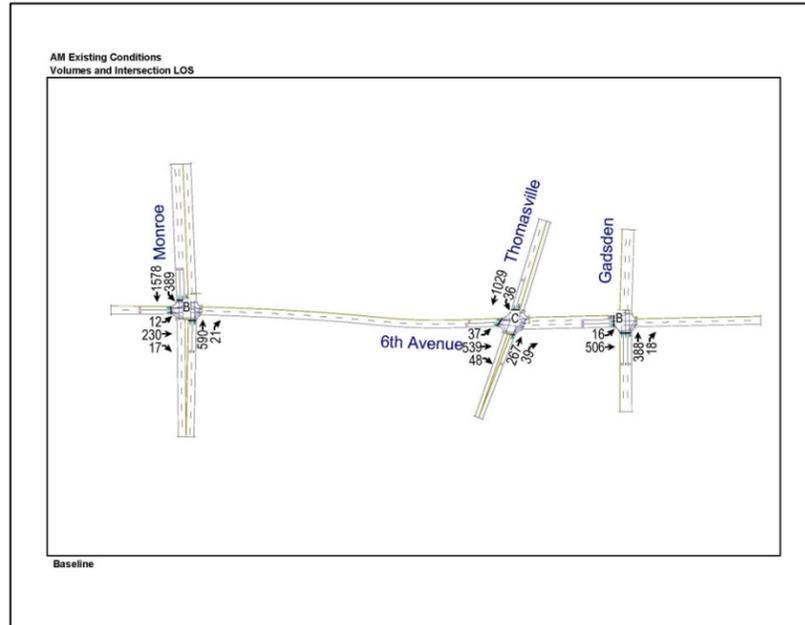
**Level of Service Analysis – 6th Avenue
At Monroe, Thomasville, and Gadsden
For
Existing Conditions
Feasibility Concept 1**

**AM & PM Existing Conditions
Level of Service Analysis**

- Included:**
- 1) Existing Turning Movement Counts from the City of Tallahassee (AM and PM)
 - 2) Synchro Network Map (AM and PM)
 - 3) Synchro HCS Analysis Printouts (AM and PM)
 - 4) Capacity Level of Service



Level of Service Analysis



HCM Signalized Intersection Capacity Analysis
1: 6th Avenue & Thomasville 6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	4	4	4	0	0	0	0	0	0	4	4	4	
Volume (vph)	37	539	48	0	0	0	0	267	39	36	1629	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
FI	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
FI Protected	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
Satd. Flow (prot)	3483	3483	3483	1831	1770	1863	1770	1863	1770	1863	1770	1863	
FI Permitted	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3483	3483	3483	1831	1770	1863	1770	1863	1770	1863	1770	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	40	596	52	0	0	0	0	290	42	39	1118	0	
RTOR Reduction (vph)	0	5	0	0	0	0	0	5	0	0	0	0	
Lane Group Flow (vph)	0	673	0	0	0	0	0	327	0	39	1118	0	
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	
Protected Phases	4	4	4	2	2	2	2	2	2	2	2	2	
Permitted Phases	4	4	4	2	2	2	2	2	2	2	2	2	
Actuated Green, G (s)	24.0	24.0	24.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	
Effective Green, g (s)	24.0	24.0	24.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	
Actuated g/C Ratio	0.22	0.22	0.22	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	761	1298	1298	710	1321	1321	710	1321	1321	710	1321	1321	
v/c Ratio Prot	0.19	0.18	0.18	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
v/c Ratio Perm	0.01	0.01	0.01	0.25	0.05	0.05	0.25	0.05	0.05	0.25	0.05	0.05	
v/c Ratio	0.01	0.01	0.01	0.25	0.05	0.05	0.25	0.05	0.05	0.25	0.05	0.05	
Uniform Delay, d1	41.6	5.7	4.8	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.2	0.6	0.1	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	
Delay (s)	55.8	6.1	5.0	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	
Level of Service	E	A	A	A	A	A	A	A	A	A	A	A	
Approach Delay (s)	55.8	0.0	6.1	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	
Approach LOS	E	A	A	A	A	A	A	A	A	A	A	A	
Intersection Summary													
HCM Average Control Delay	25.0						HCM Level of Service						C
HCM Volume to Capacity ratio	0.36						HCM Volume to Capacity ratio						B
Actuated Cycle Length (s)	110.0						Sum of lost time (s)						8.0
Intersection Capacity Utilization	78.2%						ICU Level of Service						D
Analysis Period (min)	15												
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
3: Gadsden & 6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	4	4	4	0	0	0	0	0	0	4	4	4	
Volume (vph)	16	506	0	0	0	0	0	344	18	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
FI	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
FI Protected	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
Satd. Flow (prot)	1770	3539	1770	1863	1770	1863	1770	1863	1770	1863	1770	1863	
FI Permitted	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
Satd. Flow (perm)	1770	3539	1770	1863	1770	1863	1770	1863	1770	1863	1770	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	17	550	0	0	0	0	0	422	20	0	0	0	
RTOR Reduction (vph)	7	0	0	0	0	0	0	4	0	0	0	0	
Lane Group Flow (vph)	10	550	0	0	0	0	0	433	0	0	0	0	
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	
Protected Phases	4	4	4	2	2	2	2	2	2	2	2	2	
Permitted Phases	4	4	4	2	2	2	2	2	2	2	2	2	
Actuated Green, G (s)	62.0	62.0	62.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	
Effective Green, g (s)	62.0	62.0	62.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	
Actuated g/C Ratio	0.56	0.56	0.56	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	998	1996	1996	1837	1837	1837	1837	1837	1837	1837	1837	1837	
v/c Ratio Prot	0.01	0.01	0.01	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	
v/c Ratio Perm	0.01	0.01	0.01	0.28	0.04	0.04	0.28	0.04	0.04	0.28	0.04	0.04	
v/c Ratio	0.01	0.01	0.01	0.28	0.04	0.04	0.28	0.04	0.04	0.28	0.04	0.04	
Uniform Delay, d1	10.5	12.8	12.8	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.2	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Delay (s)	10.5	13.0	12.8	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	
Level of Service	A	A	A	C	C	C	C	C	C	C	C	C	
Approach Delay (s)	10.5	0.0	13.0	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	
Approach LOS	A	A	A	C	C	C	C	C	C	C	C	C	
Intersection Summary													
HCM Average Control Delay	11.7						HCM Level of Service						B
HCM Volume to Capacity ratio	0.26						HCM Volume to Capacity ratio						B
Actuated Cycle Length (s)	110.0						Sum of lost time (s)						8.0
Intersection Capacity Utilization	28.6%						ICU Level of Service						A
Analysis Period (min)	15												
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
10: 6th Avenue & 6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	0	0	0	0	0	0	4	4	4
Volume (vph)	12	250	17	0	0	0	0	590	21	253	1573	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
FI	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95
FI Protected	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95
Satd. Flow (prot)	2497	2497	2497	1351	1351	1351	1351	1351	1351	1351	1351	1351
FI Permitted	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95
Satd. Flow (perm)	2497	2497	2497	1351	1351	1351	1351	1351	1351	1351	1351	1351
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	250	18	0	0	0	0	641	23	423	1716	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	273	0	0	0	0	0	660	0	423	1716	0
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	4	4	4	2	2	2	2	2	2	2	2	2
Permitted Phases	4	4	4	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	16.0	16.0	16.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
Effective Green, g (s)	16.0	16.0	16.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
Actuated g/C Ratio	0.27	0.27	0.27	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	933	933	933	596	2123	2123	596	2123	2123	596	2123	2123
v/c Ratio Prot	0.08	0.08	0.08	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio Perm	0.29	0.29	0.29	0.71	0.31	0.31	0.71	0.31	0.31	0.71	0.31	0.31
v/c Ratio	0.29	0.29	0.29	0.71	0.31	0.31</						

Level of Service Analysis

TABLE 7 Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas¹ 10/9/10

STATE SIGNALIZED ARTERIALS					FREEWAYS						
Class I (1-0.00 to 1.99 signalized intersections per mile)					Class II (2.00 to 4.50 signalized intersections per mile)						
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
1	Undivided	**	510	820	880	***	2	2,200	3,020	3,720	4,020
2	Divided	**	1,560	1,890	1,960	***	3	3,300	4,580	5,580	6,200
3	Divided	**	2,400	2,860	2,940	***	4	4,400	6,080	7,420	8,400
4	Divided	**	3,240	3,830	3,940	***	5	5,500	7,680	9,220	10,580
							6	7,560	10,220	12,080	12,780

UNINTERRUPTED FLOW HIGHWAYS						
Lanes	Median	B	C	D	E	
1	Undivided	**	400	800	1,140	1,440
2	Divided	**	1,770	2,560	3,320	3,760
3	Divided	**	2,660	3,840	4,980	5,650

PEDESTRIAN MODE ²						
Lanes	Median	B	C	D	E	
1	Undivided	**	130	200	>200	***
2	Divided	**	170	650	>650	***
3	Divided	**	1,050	2,330	2,370	***
4	Divided	**	1,440	3,170	3,450	***

BUS MODE (Scheduled Fixed Route) ³						
Lanes	Median	B	C	D	E	
1	Undivided	**	270	630	790	***
2	Divided	**	470	1,500	1,700	***
3	Divided	**	1,050	2,330	2,370	***
4	Divided	**	1,440	3,170	3,450	***

¹ Values shown are presented as hourly directional volumes for level of service and are for the automobile mode unless specifically stated. To convert to annual average daily traffic volumes, these volumes must be divided by appropriate D and K factors. This table does not contain a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and drawing computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile, bicycle, pedestrian and bus modes.

² Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicycles or pedestrians using the facility.

³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

Source: Florida Department of Transportation Systems Planning Office, 405 Swannam Street, MS 19 Tallahassee, FL 32399-0450

Roadway Link Capacity Analysis

Existing Conditions

6th Avenue Link analysis - Monroe to Thomasville Road

Values from Table 7 - FDOT Level of Service, Generalized Tables.

Class II/IV Roadway link - 2 lanes - one way

LOS D 1,500 Veh. - Peak Hour Directional

Adjustment for City/County Roads 1,500 - 10% = 150

Adjustment for undivided Roads 1,500 - 20% = 300

Adjustment for One-Way Facility 1,500 + 1.20% = 300

Adjustments 1,500-150-300+300 = 1,350 in the peak hour

Result

6th Avenue between Monroe and Thomasville has capacity for 1,350 veh. in the peak hour.

Existing conditions are less than 650 veh.

Concept 1

6th Avenue Link analysis - Monroe to Thomasville Road - One Lane

Values from Table 7 - FDOT Level of Service, Generalized Tables.

Class III/IV Roadway link - 1 lane - one way

LOS D 630 Veh. - Peak Hour Directional

Adjustment for City/County Roads 630 - 10% = 63

Adjustment for One-Way Facility 630 + 1.20% = 126

Adjustments 630-63+126 = 693 veh. in the peak hour

Result

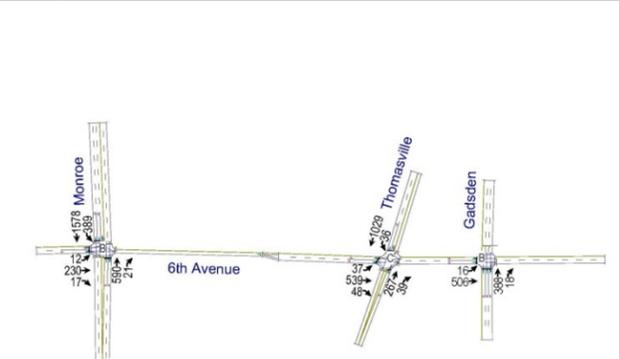
A one-lane section of 6th Avenue between Monroe and Thomasville has capacity for 693 veh. in the peak hour. Existing conditions are less than 650 veh.

Concept 1 Level of Service Analysis

Included:

- 1) Synchro Network Map (AM and PM)
- 2) Synchro HCS Analysis Printouts (AM and PM)
- 3) Capacity Level of Service

AM Concept 1
Volumes and Intersection LOS



Baseline

HCM Signalized Intersection Capacity Analysis
1. 6th Avenue & Thomasville 6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4T			0			0			4T		
Volumes (vph)	27	502	48	0	0	0	0	207	39	36	1022	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	596	52	0	0	0	0	230	42	39	1118	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	672	0	0	0	0	0	327	0	39	1118	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	4			2			6			6		
Permitted Phases	4			6			6			6		
Actual Green, G (s)	24.0			78.0			78.0			78.0		
Effective Green, g (s)	24.0			78.0			78.0			78.0		
Actual g/C Ratio	0.22			0.71			0.71			0.71		
Clearance Time (s)	4.0			4.0			4.0			4.0		
Lane Grp Cap (vph)	761			1298			710			1321		
v/s Ratio Prot	0.19			0.18			0.60			0.60		
v/c Ratio Perm	0.19			0.25			0.05			0.85		
Uniform Delay, d1	41.6			5.7			4.8			11.6		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	14.2			0.1			6.8			0.2		
Delay (s)	55.8			6.1			6.0			18.5		
Level of Service	E			A			A			B		
Approach Delay (s)	55.8			0.0			6.1			18.0		
Approach LOS	E			A			A			B		
Intersection Summary	29.0			HCM Level of Service			C			0.86		
HCM Average Control Delay	0.86			HCM Volume to Capacity ratio			110.0			Sum of lost time (s)		
Actual Cycle Length (s)	78.3%			ICU Level of Service			D			15		
Intersection Capacity Utilization	15			Analysis Period (min)			c			Critical Lane Group		

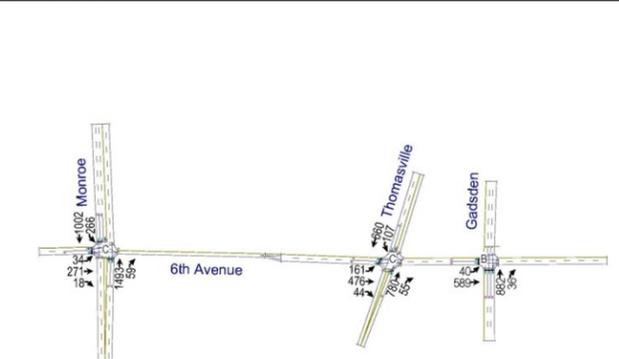
HCM Signalized Intersection Capacity Analysis
3. Gadsden & 6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4T			0			0			4T		
Volumes (vph)	16	506	0	0	0	0	0	0	398	18	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	550	0	0	0	0	0	0	422	20	0	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	0	565	0	0	0	0	0	0	438	0	0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	4			2			6			6		
Permitted Phases	4			6			6			6		
Actual Green, G (s)	62.0			40.0			40.0			40.0		
Effective Green, g (s)	62.0			40.0			40.0			40.0		
Actual g/C Ratio	0.56			0.36			0.36			0.36		
Clearance Time (s)	4.0			4.0			4.0			4.0		
Lane Grp Cap (vph)	1992			1837			1837			1837		
v/s Ratio Prot	0.16			0.09			0.09			0.09		
v/c Ratio Perm	0.28			0.24			0.24			0.24		
Uniform Delay, d1	12.5			24.4			24.4			24.4		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	0.1			0.2			0.2			0.2		
Delay (s)	1.5			24.7			24.7			24.7		
Level of Service	A			C			C			C		
Approach Delay (s)	1.5			0.0			24.7			0.0		
Approach LOS	A			C			C			A		
Intersection Summary	11.7			HCM Level of Service			B			0.27		
HCM Average Control Delay	0.27			HCM Volume to Capacity ratio			110.0			Sum of lost time (s)		
Actual Cycle Length (s)	29.0%			ICU Level of Service			A			15		
Intersection Capacity Utilization	15			Analysis Period (min)			c			Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
10. Monroe & 6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4T			0			0			4T		
Volumes (vph)	12	250	17	0	0	0	0	0	590	21	398	1574
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	250	18	0	0	0	0	0	641	23	423	1715
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	13	264	0	0	0	0	0	0	660	0	423	1715
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	4			2			6			6		
Permitted Phases	4			6			6			6		
Actual Green, G (s)	16.0			16.0			16.0			36.0		
Effective Green, g (s)	16.0			16.0			16.0			36.0		
Actual g/C Ratio	0.27			0.27			0.27			0.60		
Clearance Time (s)	4.0			4.0			4.0			4.0		
Lane Grp Cap (vph)	472			492			596			2123		
v/s Ratio Prot	0.14			0.19			0.19			0.48		
v/c Ratio Perm	0.01			0.24			0.24			0.24		
Uniform Delay, d1	16.3			18.8			19.9			9.5		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	6.1			4.1			4.4			7.0		
Delay (s)	16.4			23.0			24.2			16.5		
Level of Service	B			C			C			B		
Approach Delay (s)	22.7			0.0			24.2			13.5		
Approach LOS	C			A			C			B		
Intersection Summary	16.6			HCM Level of Service			B			0.72		
HCM Average Control Delay	0.72			HCM Volume to Capacity ratio			110.0			Sum of lost time (s)		
Actual Cycle Length (s)	29.0%			ICU Level of Service			B			15		
Intersection Capacity Utilization	15			Analysis Period (min)			c			Critical Lane Group		

PM Concept 1
Volumes and Intersection LOS



Baseline

Level of Service Analysis

HCM Signalized Intersection Capacity Analysis
1. 6th Avenue & Thomasville
6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	4	1	1	1	1	1	1	1	1	1	1	1	
Volume (vph)	161	476	44	0	0	0	0	730	55	107	660	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Fit	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Fit Protected	0.99	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	3464	1846	1846	1770	1846	1846	1770	1846	1846	1846	1846	1846	
Fit Permitted	0.99	1.00	1.00	0.21	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	2464	1846	1846	238	1846	1846	238	1846	1846	1846	1846	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	175	517	48	0	0	0	848	60	116	717	0	0	
RTOR Reduction (vph)	0	5	0	0	0	0	2	0	0	0	0	0	
Lane Group Flow (vph)	0	735	0	0	0	0	905	0	116	717	0	0	
Turn Type	Perm						Perm						
Protected Phases	4			2			6						
Permitted Phases	4			6			6						
Actuated Green, G (s)	24.0			78.0			78.0						
Effective Green, g (s)	24.0			78.0			78.0						
Actuated g/C Ratio	0.22			0.71			0.71						
Clearance Time (s)	4.0			4.0			4.0						
Lane Grp Cap (vph)	756			1369			275				1321		
v/s Ratio Prot				0.49			0.38						
v/s Ratio Perm	0.21			0.30			0.21				0.21		
v/c Ratio	0.97			0.69			0.42				0.54		
Uniform Delay, d1	42.7			9.1			6.6				7.6		
Progression Factor	1.00			1.00			1.00				1.00		
Incremental Delay, d2	26.7			3.0			4.7				1.6		
Delay (s)	69.4			12.2			11.3				9.2		
Level of Service	E			B			B				A		
Approach Delay (s)	69.4		0.0	12.2			9.5				16.7		
Approach LOS	E		A	B			A				B		
Intersection Summary													
HCM Average Control Delay	28.3						HCM Level of Service						C
HCM Volume to Capacity ratio	0.76												
Actuated Cycle Length (s)	110.0						Sum of lost time (s)						8.0
Intersection Capacity Utilization	79.6%						ICU Level of Service						D
Analysis Period (min)	15												
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
3. Gadsden &
6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	4	1	1	1	1	1	1	1	1	1	1	1	
Volume (vph)	40	539	0	0	0	0	0	392	36	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Fit	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Fit Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	3628	1846	1846	1770	1846	1846	1770	1846	1846	1846	1846	1846	
Fit Permitted	1.00	1.00	1.00	0.21	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	2528	1846	1846	238	1846	1846	238	1846	1846	1846	1846	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	43	640	0	0	0	0	369	39	0	0	0	0	
RTOR Reduction (vph)	0	4	0	0	0	0	4	0	0	0	0	0	
Lane Group Flow (vph)	0	679	0	0	0	0	394	0	0	0	0	0	
Turn Type	Perm						Perm						
Protected Phases	4			2			6						
Permitted Phases	4			6			6						
Actuated Green, G (s)	42.0			78.0			78.0						
Effective Green, g (s)	42.0			78.0			78.0						
Actuated g/C Ratio	0.56			0.71			0.36						
Clearance Time (s)	4.0			4.0			4.0						
Lane Grp Cap (vph)	1969			1828			1828				1828		
v/s Ratio Prot				0.20			0.20						
v/s Ratio Perm	0.19			0.20			0.20				0.20		
v/c Ratio	0.24			0.64			0.54				0.54		
Uniform Delay, d1	13.0			27.7			27.7				5.0		
Progression Factor	0.29			1.00			1.00				1.00		
Incremental Delay, d2	0.2			1.1			1.1				0.5		
Delay (s)	3.8			28.9			28.9				5.5		
Level of Service	A			C			C				A		
Approach Delay (s)	3.8		0.0	28.9			0.0				16.7		
Approach LOS	A		A	C			A				B		
Intersection Summary													
HCM Average Control Delay	18.7						HCM Level of Service						B
HCM Volume to Capacity ratio	0.42												
Actuated Cycle Length (s)	110.0						Sum of lost time (s)						8.0
Intersection Capacity Utilization	42.0%						ICU Level of Service						A
Analysis Period (min)	15												
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
10. Monroe &
6/21/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	3	1	1	1	1	1	1	1	1	1	1	1	
Volume (vph)	34	271	18	0	0	0	0	1463	59	266	1002	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Fit	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	1770	1846	1846	1770	1846	1846	1770	1846	1846	1846	1846	1846	
Fit Permitted	0.95	1.00	1.00	0.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	1770	1846	1846	2519	1846	1846	2519	1846	1846	1846	1846	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	37	295	20	0	0	0	1620	64	289	1089	0	0	
RTOR Reduction (vph)	0	2	0	0	0	0	3	0	0	0	0	0	
Lane Group Flow (vph)	37	313	0	0	0	0	1634	0	289	1089	0	0	
Turn Type	Perm						pm-rt						
Protected Phases	4			2			6						
Permitted Phases	4			6			6						
Actuated Green, G (s)	17.0			49.0			65.0				65.0		
Effective Green, g (s)	17.0			49.0			65.0				65.0		
Actuated g/C Ratio	0.19			0.54			0.72				0.72		
Clearance Time (s)	4.0			4.0			4.0				4.0		
Lane Grp Cap (vph)	334			1916			319				2556		
v/s Ratio Prot				0.48			0.12				0.21		
v/s Ratio Perm	0.02			0.54			0.54				0.54		
v/c Ratio	0.11			0.88			0.91				0.43		
Uniform Delay, d1	20.2			17.9			27.7				5.0		
Progression Factor	1.00			1.00			1.00				1.00		
Incremental Delay, d2	0.7			6.1			31.3				0.5		
Delay (s)	20.9			24.0			59.0				5.5		
Level of Service	C			E			C				A		
Approach Delay (s)	60.0		0.0	24.0			16.7				16.7		
Approach LOS	E		A	C			B				B		
Intersection Summary													
HCM Average Control Delay	24.8						HCM Level of Service						C
HCM Volume to Capacity ratio	0.59												
Actuated Cycle Length (s)	90.0						Sum of lost time (s)						8.0
Intersection Capacity Utilization	82.2%						ICU Level of Service						E
Analysis Period (min)	15												
c Critical Lane Group													

TABLE 7 Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas¹ 10/4/70

STATE SIGNALIZED ARTERIALS				FREEWAYS						
Class I (1-100 to 1,999 signalized intersections per mile)				Class II (2-100 to 4,500 signalized intersections per mile)						
Lanes	Median	B	C	D	E	Median	B	C	D	E
1	Undivided	510	820	880	***	2	2,200	3,020	3,720	4,020
2	Divided	1,560	1,890							