

DRAFT REPORT

City of South Pittsburg, Tennessee Access and Traffic Flow Study

July 2019

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CHAPTER 1 - INTRODUCTION

A. Purpose of the Study

In 2018, the City of South Pittsburg, TN was awarded by TDOT a Community Transportation Planning Grant (CTPG), which is intended to provide rural cities with funding opportunities to plan

for all modes of transportation. Only cities located outside Metropolitan Planning Organization (MPO) boundaries are eligible for the CTPG. Award recipients are responsible for contributing a 10% local match to TDOT's funding.

The City's grant application indicated the need to study two areas within the city limits, each area with its own needs. As shown in Figure 1, area one includes the US-72 / SR-27 corridor from the Alabama state line to Sweetens Cove Road. The City identified the need for improved access to adjacent, undeveloped parcels along this corridor. Area two includes Cedar Avenue from 1st Street to 12th Street. The City identified a need for improved traffic flow through the downtown, specifically addressing alignment and parking between 3rd Street and 5th Street, as well as pedestrian improvements between 6th Street and 12th Street.

This study evaluates the existing conditions within each study area, identifies existing and future needs, and evaluates several options for addressing these needs along each corridor. The evaluation process included one stakeholder meeting and one public meeting to receive local input.

B. History & Background

South Pittsburg is home to the National Cornbread Festival, Princess Theatre, Lodge Manufacturing, U.S. Stove Company, and Royal Remanufacturing. Each of these significantly impacts the traffic flow and parking inside the city limits. Frequent festivals and events also impact traffic patterns on downtown streets and adjacent roadways. In industrial areas, manufacturing plants generate heavy truck traffic volumes.



Cedar Avenue

Cedar Avenue, from 2nd Street to 5th Street was narrowed in 1997 to increase on-street parking opportunities, provide safer pedestrian accommodations, and enhance aesthetics of the downtown area. As part of the project, curb extensions created a serpentine alignment through the 3rd Street intersection and near 4th Street. The City also passed an ordinance in 1997 restricting heavy vehicle traffic on several city streets, including Cedar Avenue in the downtown area.



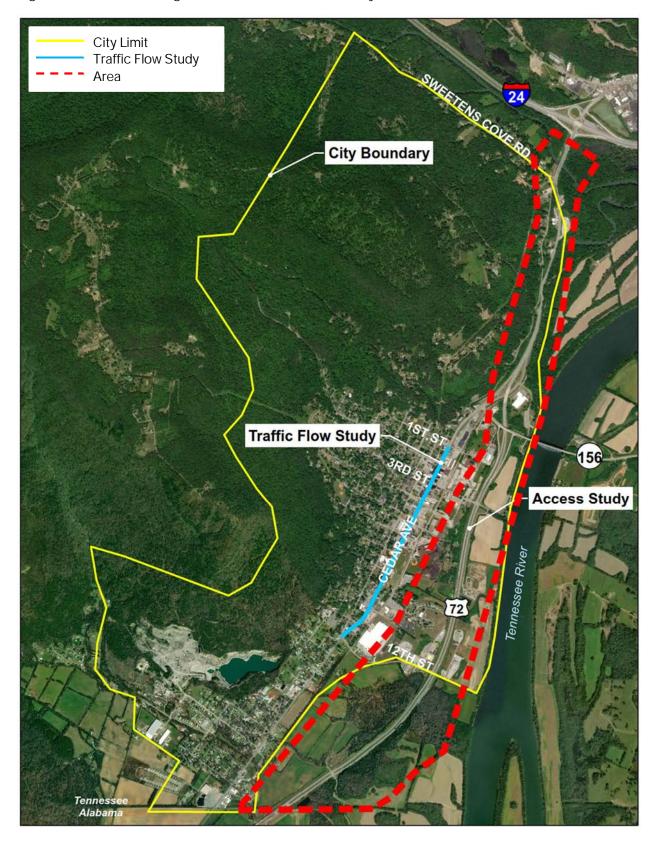
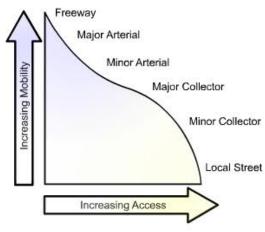


Figure 1 – South Pittsburg Access and Traffic Flow Study Areas

<u>US -72 / SR-27</u>

According to the Tennessee Roadway Information Management System (TRIMS), US-72 / SR-27 was extended from the Alabama state line to SR-156 in 1996. This portion of US-72 / SR-27 provides partial access control with only two intersections (12th Street and 3rd Street) and one driveway cut (just north of the state line). The purpose of this type of access control is to allow for increased mobility, higher travel speeds, and shorter travel times. Designated as a federal truck route and an urban principal arterial, US-72 / SR-27 was constructed as a four-lane median divided highway with access-control fencing on controlled segments.



CHAPTER 2 - EXISTING CONDITIONS

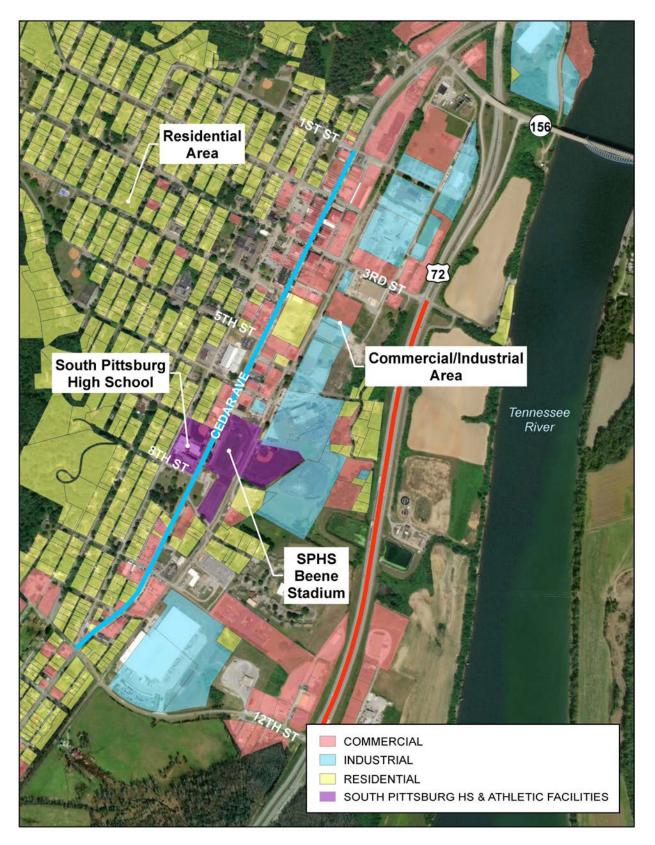
A. Description of Study Area

The City of South Pittsburg is located in Marion County, approximately 22 miles southeast of Chattanooga. With exception to a small commercial and residential area near Sweetens Cove Road at the northern city limit, most of the developed area is south of the SR-156 / US-72 / SR-27 interchange. The downtown area is bordered to the north by SR-156, which travels in an east-west direction connecting South Pittsburg to other rural areas south of I-24 and the Tennessee River. To the east, it is bordered by US-72 / SR-27 which travels in a north-south direction, connecting I-24 and the Alabama state line. Cedar Avenue runs north-south through the center of South Pittsburg, from the Alabama state line to 2nd Street where it continues north with the designation of SR-156.

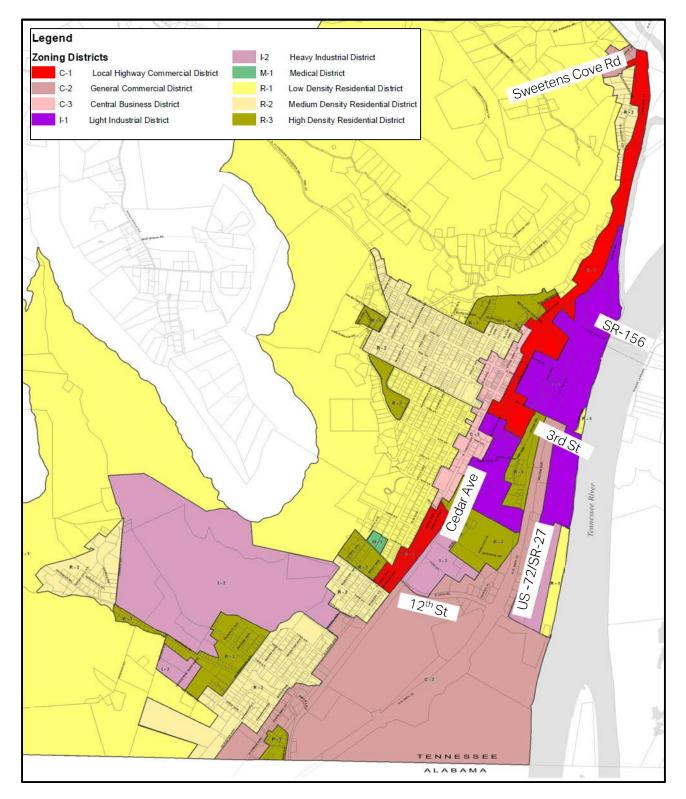
Currently, Cedar Avenue divides the downtown residential areas to the west from the industrial and commercial areas to the east. As shown in Figure 2, South Pittsburg High School is located on Cedar Avenue, between 7th Street and 8th Street. An elevated pedestrian walkway connects the academic buildings on the west side of Cedar Avenue to the athletic facilities on the east side of Cedar Avenue.

As shown in Figure 3, the Town's zoning map indicates a general commercial district near Sweetens Cove Road, light and heavy industrial uses between US-72 / SR-27 and the Tennessee River, and light industrial / commercial north of 3rd Street to the SR-156 interchange.

Figure 2 – Detail of Downtown Land Uses







B. Crash History

Cedar Avenue

Historic crash data was obtained from TRIMS and evaluated. From 2010 to 2018, fifty-four (54) crashes were reported on Cedar Avenue between 1st Street and 12th Street. Of these crashes, one (1) involved serious injuries. Forty-one (41) occurred at intersections. The majority of crashes occurred during the day in clear conditions. As shown in Figure 4, angle, rear end and non-vehicle crashes comprised 77% of the crash types. Non-vehicle crashes describe those in which vehicles collide with something other than another vehicle – in this case, curbs, poles, and one pedestrian. Upon evaluation of detailed reports (provided by TDOT) for crashes occurring between 1st Street and 5th Street, it was discovered that eight (8) of the twenty-four (24) crashes on this segment of Cedar Avenue involved vehicles running a red-light or stop sign.

<u>US-72 / SR-27</u>

As shown in Figure 5, thirty-five (35) crashes occurred on this segment of US-72 / SR-27 between 2010 and 2018. Of these crashes, one (1) was fatal and thirteen (13) involved serious injuries. Angle and rear-end crashes comprised 73% of the crash types.

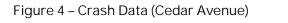
C. Geometrics

Cedar Avenue is classified as a minor collector. Between 2nd Street and 5th Street, Cedar Avenue provides one travel lane in each direction (widths varying from 13 feet to 16 feet) and either parallel or angled on-street parking. Curb, gutter, and sidewalk are provided on both sides of the road. Several bulb-outs and curb extensions provide pedestrian refuge and streetscape through this segment of



Cedar Avenue. Near 3rd Street and 4th Street, these features also create a serpentine alignment.

From 5th Street to 8th Street, one 12-foot travel lane is provided in each direction with an 11foot wide center turn lane. Curb, gutter and sidewalk are provided on each side. Between 8th Street and 12th Street, Cedar Avenue provides one, 12-foot lane in each direction and one 12foot center turn lane. This segment of Cedar Avenue has no sidewalk and open drainage on each side. The speed limit on Cedar Avenue is 30 mph.



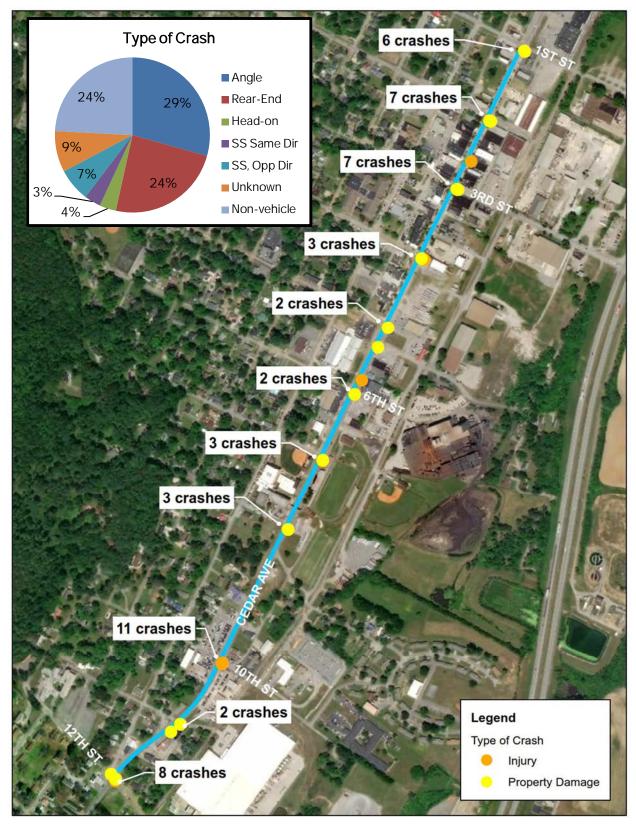
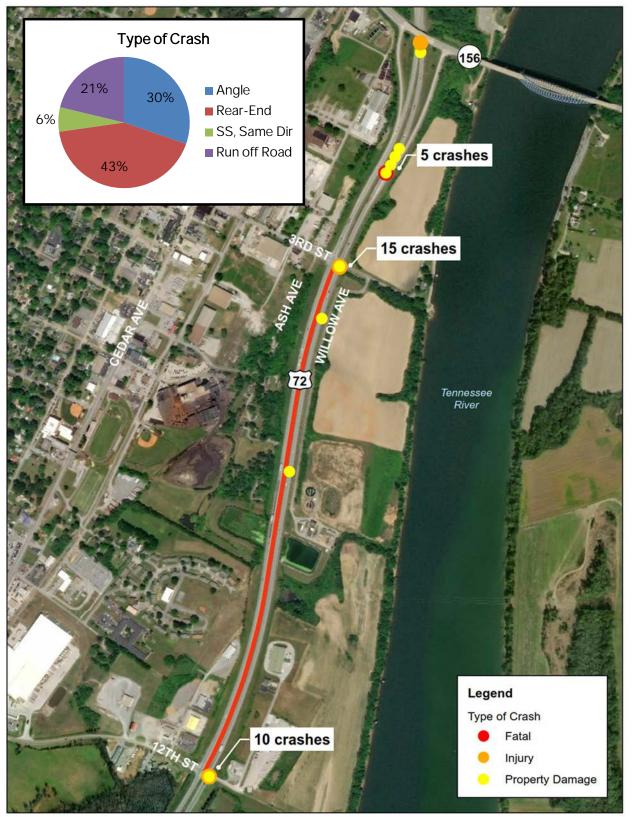


Figure 5 – Crash Data (US-72 / SR-27)



US-72 / SR-27 is classified as an urban principal arterial and is a federally designated truck route. It provides two, 12-foot travel lanes in each direction. Between Sweetens Cove Road and the Touchless Car Wash property, US-72 / SR-27 provides a center turn lane and/or landscaped median. The speed limit on this section of US-72 / SR-27 is 45mph.

Between the car wash and SR-156, access on US-72 / SR-27 is fully controlled and the speed limit is 45 mph. From SR-156 to the state line, access on US-72 / SR-27 is partially controlled with only two intersections (12th Street and 3rd Street) and one driveway cut, located just north of the state line. Access control fencing runs along both sides of the road and the posted speed limit is 55 mph.

D. Level of Service Analyses

Turning movement counts were conducted at the following intersections during the week of April 14, 2019 from 7:00AM to 9:00AM and from 2:00 PM to 6:00 PM. Figure A1 of Appendix A shows the peak hour traffic volumes at each study intersection.

- Cedar Avenue @ 1st Street (signalized)
- Cedar Avenue @ 2nd Street (signalized)
- Cedar Avenue @ 3rd Street (signalized)
- Cedar Avenue @ 4th Street
- Cedar Avenue @ East 5th Street (signalized)
- Cedar Avenue @ West 5th Street
- Cedar Avenue @ 10th Street
- Cedar Avenue @ 12th Street

Historic traffic data from TDOT count stations in the area were also obtained from TRIMS. The 24-hour count data is summarized in Table 1. With exception to the portion of Cedar Avenue north of 1st Street (which is also designated SR-156), traffic volumes have decreased between 2007 and 2017.

Station #	Location	2007 AADT	2017 AADT	Avg. Annual Growth
87	Cedar Ave north of 1st Street	7,225	8,428	1.6%
64	Cedar Ave near 16th St	4,085	4,020	-0.2%
46	Cedar Ave near Alabama State Line	2,039	1,817	-1.2%
48	US-72 near Sweetens Cove Rd	22,569	18,548	-1.9%
84	US-72 at Alabama State Line	13,660	10,226	-2.9%

Table 1. Historic Average Annual Daily Traffic Volumes

Level of Service (LOS) is a qualitative measure that is used to gauge the operational performance of an intersection or roadway segment. There are six levels ranging from "A" to "F" with "F" being the worst. Each level represents a range of operating conditions. Table 2 defines the traffic flow conditions and approximate driver comfort at each intersection level of service. Delays associated with levels of service for signalized intersections are different than those associated with unsignalized intersections. The Highway Capacity Manual explains that drivers perceive a signalized intersection is designed to carry higher traffic volumes and therefore expect to experience greater delays at signalized intersections than unsignalized intersections are described by a single LOS value; while unsignalized intersections are LOS D as the minimum acceptable level of service.

LOS	Traffic Flow Conditions	Delay (seconds) Signalized Intersections	Delay (seconds) Unsignalized Intersections
A	Progression is extremely favorable and most vehicles do not stop at all.	0-10	0-10
В	Good progression, some delay.	10-20	10-15
С	Fair progression, higher delay.	20-35	15-25
D	Unfavorable progression, congestion becomes apparent.	35-55	25-35
E	Poor progression, significant delay.	55-80	35-50
F	Poor progression, extreme delay.	>80	>50

Table 2. Level of Service Index for Intersections

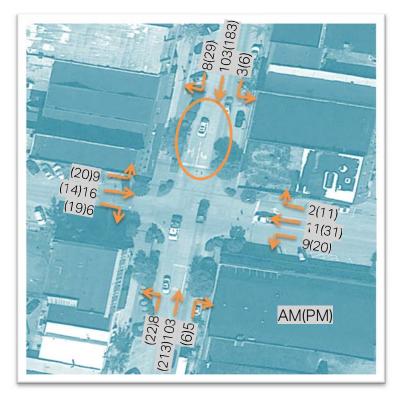
Level of service analyses were performed using the existing (2019) peak hour volumes at the study intersections. The results of the analyses are shown in Table 3. As shown, all signalized intersections and turning movements currently operate at LOS B or better during both peak hours. The HCS reports are included in Appendix B.

It should be noted that the intersection of Cedar Avenue and 3rd Street currently provides one SB left turn lane and one SB thru / right lane. This is significant because the storage offered for the thru/right lane, which carries the highest southbound traffic volume, is 25 feet long. When the southbound movements are stopped by a red light, the thru/right turning vehicles queue up, blocking the left turn lane. Figure 6 shows the AM and PM peak hour volumes for each turning movement at this intersection.

Intersection	Control	Movement	LOS (AM)	LOS (PM)
Cedar Ave @ 1 st St	Signalized	Overall Intersection	А	А
Cedar Ave @ 2 nd St	Signalized	Overall Intersection	В	В
Cedar Ave @ 3 rd St	Signalized	Overall Intersection	А	А
Cedar Ave @ 4 th St	2-Way Stop	EB Left & Right Turns	А	А
	2-way Stop	NB Left / Thru	А	А
Cedar Ave @ W 5 th St	Signalized	Overall Intersection	А	А
		EB Left/Thru/Right	А	В
Cedar Ave @ E 5 th St /		WB Left / Thru Right	В	В
Drwy	2-Way Stop	SB Left / Thru	А	А
		NB Left	А	А
		EB Left/Thru/Right	А	А
Cedar Ave @ 10 th St		WB Left/Thru/Right	А	А
Ceual Ave @ 10 St	2-Way Stop	NB Left	А	А
		SB Left	А	А
	St 2-Way Stop	EB Left/Thru/Right	В	В
Cedar Ave @ 12 th St		WB Left	В	В
Ceual Ave @ 12 ^m St		NB Left	А	А
		SB Left	А	А

Table 3. Intersection Level of Service – Existing Conditions (2019)

Figure 6 – Peak Hour Traffic Volumes at Cedar Avenue and 3rd Street



E. Existing Multi-modal Facilities

As shown in Figure 7, TDOT's Proposed State Highway Bicycle Route Map indicates that SR-156, which runs east-west through the study area, is part of a proposed designated bike route connecting Memphis and Chattanooga. No bicycle facilities currently exist along US-72 / SR-27 or Cedar Avenue.

Sidewalk is provided along both sides of Cedar Avenue from 1st Street to 8th Street. Near 8th Street, an elevated pedestrian walk way connects the South Pittsburg High School academic buildings on the west side of Cedar Avenue to the athletic facilities on the east side of Cedar Avenue.



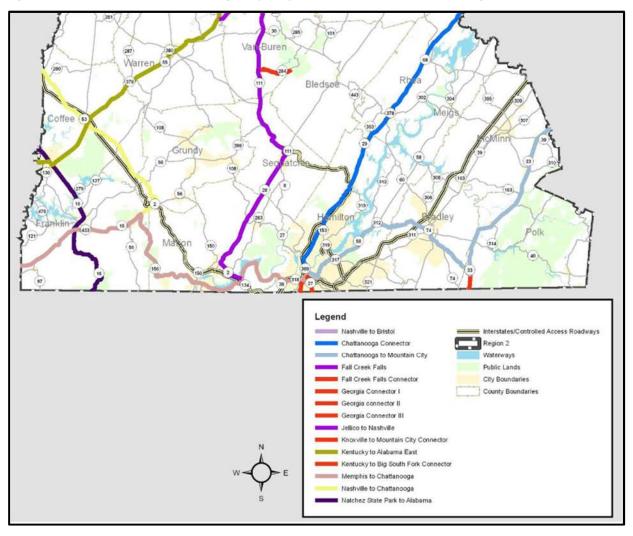


Figure 7 – TDOT Proposed State Highway Bicycle Routes – Excerpt from Region 2

CHAPTER 3 - PURPOSE AND NEED FOR IMPROVEMENTS

The primary purpose and need for improvements to US-72 / SR-27 within the study area is to promote economic development. The recommendations identified in the next pages are intended to increase access to properties available for commercial and /or industrial land uses.

The primary purpose and need for improvements to Cedar Avenue within the study area is to improve both pedestrian and vehicular flow through the downtown area. Recommended improvements address serpentine roadway geometry, safety concerns associated with onstreet parking, and disconnected pedestrian facilities. Understanding the City's business development goals and the public's concerns, the proposed improvements maintain the downtown streetscape elements and the availability of on-street parking.

CHAPTER 4 - OPTIONS FOR IMPROVEMENT

Recommendations are based on the results of analyses included in this study and feedback from stakeholders and members of the public. Detailed cost estimates for each option are included in Appendix C. Recommended improvements are described and illustrated in Figures 8-17.

It should be noted that the City and TDOT are currently discussing the removal of the center island on US-72 / SR-27 between Sweetens Cove Road and Andy's Market. The discussion centers on converting this island to a two-way left turn lane, providing better access to the existing businesses on this segment of US-72 / SR-27.



Figure 8 – US-72 / SR-27 Improvement: Existing Driveway Cut South of 12th Street

Eviating Driveryou Cut Couth of 10th Street	blic Preference Uke it! sults: Not So Much. No Thanks.	
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Improvement Details

- Promote development of parcels accessible by the existing driveway cut on US-72 / SR-27. Adjacent
 parcels are zoned C-2 (General Commercial District).
- The current geometry provides northbound and southbound left turn lanes on US-72/SR-27.
- No additional roadway improvements are recommended at this time; however, when development is
 proposed, a traffic impact study should be conducted.

imate Summary	
Right-of-Way	\$0
Construction Cost	\$0
Preliminary Engineering	\$0
Total Estimated Project Cost	\$0



Figure 9 – US-72 / SR-27 Improvement: 3rd Street @ Ash Avenue

Improvement: 3 rd Street @ Ash Avenue	Public Preference Results:	Love it! Like it! Not So Much. No Thanks.
Improvement Details		

- Re-stripe 3rd Street to add a westbound right turn lane at Ash Avenue and a two-way left turn lane extending west, approximately 400 feet.
- Improve Ash Avenue to promote access to undeveloped industrial and commercial lots
- Close secondary entrance off 3rd Street.

Cost Estimate Summary

-		
	Right-of-Way	\$1,000
	Construction Cost	\$72,000
	Preliminary Engineering	\$7,200
	Total Estimated Project Cost	\$80,000

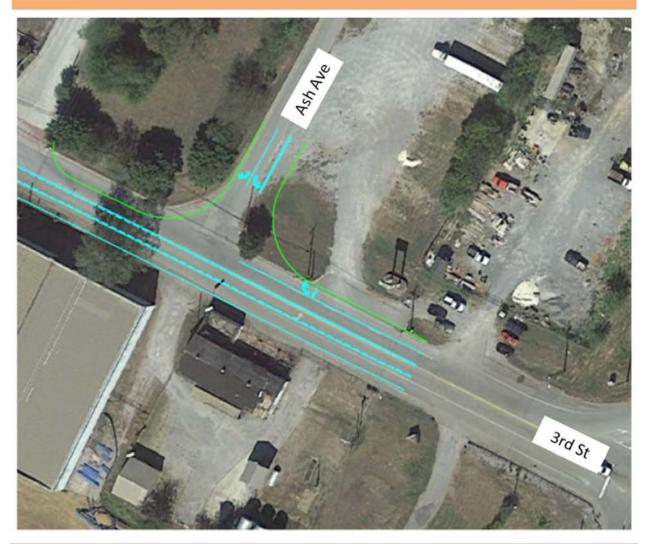


Figure 10 – US-72 / SR-27 Improvement: 12th Street East of US-72 at Willow Street

Improve 12 th Stre	at Feet of U.C. 70 at Millow Otreat	Public Preference Results:	Love it! Like it! Not So Much. No Thanks.
 Impro travel Creat side o 	ment Details ve 12 th St, east of US-72/SR-27 to include one 12-ft lanes (one left/thru lane and one right turn lane) e a four-legged intersection at 12 th St and Willow St f US-72/SR-27 ve Willow St from 12 th St to the TN-AL Fireworks bu e one, 12-ft travel lane and one, 2-ft paved shoulde	to provide access to propert	ies on the east
Cost Est	imate Summary		
	Right-of-Way	\$0	
	Construction Cost	\$274,000	
	Preliminary Engineering	\$27,000	
	Total Estimated Project Cost	\$301,000	
		TIN-A FIREWO	DI AND S



Figure 11 – US-72 / SR-27 Improvement: US-72 / SR-27 at Sweetens Cove Road

Improvement:	
US-72 / SR-27 a	at Sweetens Cove Road

Public Preference Results:



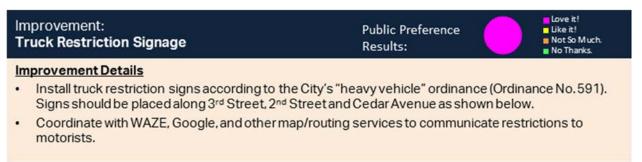
Improvement Details

- When properties on Sweetens Cove Road are proposed for development, the City should conduct a traffic impact study and signal warrant analysis for submittal to TDOT.
- If the study indicates the intersection should be signalized, Old Jasper Road should be realigned to intersect Neda Dr.
- The geometry and cost estimate shown below are based on analyses of a hypothetical full build out of commercial parcels on Sweetens Cove Road. Assumptions are included in Appendix D.

Cost Est	imate Summary		
	Right-of-Way	\$17,000	
	Construction Cost	\$286,000	
	Preliminary Engineering	\$29,000	
	Total Estimated Project Cost	\$332,000	



Figure 12 – Cedar Avenue Improvement: Truck Restriction Signage



Cost Estimate Summary

Right-of-Way	\$0
Construction Cost	\$3,300
Preliminary Engineering	\$300
Total Estimated Project Cost	\$4,000



Figure 13 – Cedar Avenue Improvement: Traffic Signal Head Upgrades

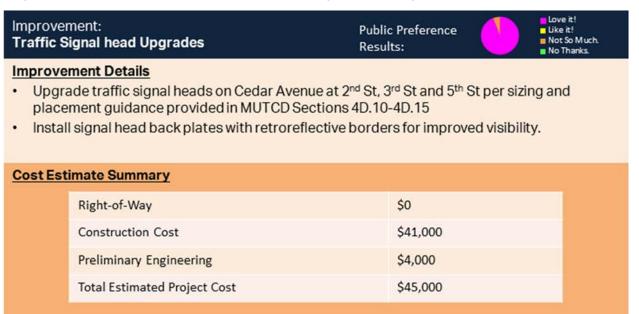




Figure 14 – Cedar Avenue Improvement: Cedar Avenue near 4th Street

Improvement: Cedar Ave Near 4th Street	Public Preference Results:		Love it! Like it! Not So Much. No Thanks.
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Improvement Details

- Remove two angled parking spaces just north of the Drug Store.
- Re-stripe the edge of pavement on the east side of Cedar Ave to remove the serpentine geometry.
- Add seven angled parking spaces on the west side of Cedar Avenue across from the Drug Store.

Cost Estimate Summary

Right-of-Way	\$0
Construction Cost	\$19,000
Preliminary Engineering	\$2,000
Total Estimated Project Cost	\$21,000



Figure 15 - Cedar Avenue Improvement: Cedar Avenue at 3rd Street



Improvement Details

- Restripe the northbound approach on Cedar Ave to provide on left/thru/right lane and one receiving lane. Remaining pavement can either be landscaped or channelized.
- Restripe the southbound approach to provide one left/thru lane and one right turn lane.

Cost Estimate Summary

Right-of-Way	\$0
Construction Cost	\$44,000
Preliminary Engineering	\$4,000
Total Estimated Project Cost	\$48,000



Figure 16 – Cedar Avenue Improvement: Pedestrian Improvements



Improvement Details

- Construct new sidewalk on both sides of Cedar Avenue from 8th Street where the sidewalk currently ends to 12th Street.
- · Incorporate opportunities for streetscape elements within the sidewalk design.

ost Estimate Summary				
Right-of-Way	\$0			
Construction Cost	\$1,735,000			
Preliminary Engineering	\$174,000			
Total Estimated Project Cost	\$1,909,000			



Figure 17 – Cedar Avenue Improvement: Consideration of Reverse Angle Parking

rigure 17 – Cedar Avende improvement. Consideration of Reverse Angle Farking									
Improvement: Publi Consideration of Reverse Angle Parking Resu			ference						
 Improvement Details Consider converting angled parking to reverse angle parking. Benefits of reverse angle parking include: improved driver visibility, easier trunk loading/unloading, improved safety for children entering/exiting vehicles, and traffic calming. 									
Cost Est	Cost Estimate Summary								
	Right-of-Way	\$0							
	Construction Cost	\$16	5,700						
	Preliminary Engineering	\$1,7	\$1,700						
	Total Estimated Project Cost	\$18	,400						
	Pottstown, PA		BACK IN ONLY REVERSE ANGLE PARKING EASY AS 1-2-3						
			2. PULL FORWARD, STOP 3. REVERSE TO PARK CHARLOTTE.						
	Chattanooga, TN	T							

CHAPTER 5 - PUBLIC INVOLVEMENT

The following opportunities for public input were offered during this study:

- 1. Stakeholder meeting on February 19, 2019 at City Hall.
- Stakeholder meeting on February 20, 2019 at Western Sizzlin (Jasper, TN). During this meeting, results of the existing conditions assessment were presented and participants were asked to provide input regarding perceived issues along US-72/SR-27 and Cedar Avenue. Minutes from this meeting are included in Appendix E.
- Public meeting on April 9, 2019 at the Princess Theatre (S. Pittsburg, TN). The purpose of this meeting was to present results of analyses and receive feedback on initial recommendations for improvement to US-72/SR-27 and Cedar Avenue. Participants were asked to rate each improvement option on a scale of one to four, one representing "Love it" and four representing "No Thanks". Table 4 summarizes the public feedback on recommended improvement options.



Table 4. Public Responses to Recommended Improvement Options

	Improvement Option	1	2	3	4	Total Ratings Received
US-72/SR-27	Existing Driveway Cut	10	1	0	4	15
	Frontage Road off 12 th Street	5	8	3	3	19
	3 rd Street at Ash Ave	7	3	7	1	18
	US-72/SR-27 at Sweetens Cove Rd	7	9	1	7	24
CEDAR AVENUE	Truck Restriction Signs	15	0	0	0	15
	Signal Head Upgrades	16	0	1	0	17
	Near 4 th Street	7	3	1	3	14
	3 rd Street Intersection	10	3	4	5	22
	Pedestrian Improvements	16	1	3	3	23
	Reverse Angle Parking	6	2	6	9	23

CHAPTER 6 - SUMMARY

As mentioned previously, the primary purpose and need for improvements to US-72/SR-27 and Cedar Avenue in South Pittsburg are, respectively, to promote economic development and improve multi-modal flow through the downtown area. The recommended options in this report focus on improvements to existing driveway cuts on US-72/SR-27, as well as geometric improvements along Cedar Avenue, which increase safety and flow while maintaining landscaping and on-street parking. Table 5 provides a comparison of overall cost and public preference for each improvement option.

Public Preference Improvement Option **Estimated Cost** Love it! Like it! Not So Much. No Thanks. Existing Driveway Cut South of 12th \$0 Street 3rd Street @ Ash Street \$80,000 US -72 / SR-27 12th Street East of US-72@ Willow \$301,000 Street US-72 / SR-27 @ Sweetens Cover Rd \$332,000 **Truck Restriction Signage** \$4,000 Traffic Signal Head Upgrades \$45,000 **CEDAR AVENUE** Cedar Avenue Near 4th Street \$21,000 Cedar Avenue at 3rd Street \$48,000 Pedestrian Improvements \$1,909,000 **Reverse Angle Parking** \$18,400

Table 5. Summary of Recommended Improvement Options