COMPREHENSIVE TRANSPORTATION PLAN

FOR

CITY OF TULLAHOMA

TULLAHOMA, TENNESSEE

RESOLUTION NO. 1591

ADOPTED
JULY 8, 2013

PREPARED BY:
PLANNING & CODES DEPARTMENT
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AMENDMENTS:
RESOLUTION NO. 1753-MAY 21, 2018

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City of Tullahoma
Comprehensive Transportation Plan

I. INTRODUCTION

Purpose of Comprehensive Transportation Plan

The purpose of this transportation study is to update the existing plan to meet current transportation planning requirements and goals.

The updated plan provides a framework for implementation of transportation improvements in the Tullahoma area over a 20-year period. The plan provides an opportunity to coordinate land use development with transportation needs. In addition, the plan contains a financially constrained element, which includes only those projects which can be expected to be funded during the study period. Any remaining capacity or safety problems must be addressed through a series of management systems, or by finding additional sources of funding. Other management systems may include pavement, bridge, safety, congestion and public transportation solutions.

Background

Tullahoma, Tennessee is the largest city of Coffee County and is located in the southern Middle Tennessee area. It has seen moderate population growth over the period since the adoption of the 1996 Comprehensive Transportation Plan ("1996 CTP") was prepared in 1996 and also has experienced significant growth in commercial and industrial sectors. The current (2012) city limits boundary and urban growth boundary are shown in Map I-1 (page 9).

The region as a whole has been negatively impacted during the last four years due to the weak national economy causing a decline in retail sales and building activity, but local economic indicators in recent months have taken a positive turn and therefore it is anticipated that the downturn merely reflected with the cyclical nature of the economy. However, some changes in the economy do not fall into that category, such as the relocation and off-shoring of industry outside the United States. This has resulted in the necessity to re-examine assumptions made in the 1996 projections and traffic counts. Some transportation improvements may also be necessary to position the community to compete in a global economy.

Subsequent Studies and Plans

With the aging of the data in the 1996 CTP horizon, comes the need to update the plan and prepare for growth within the next 20-year planning horizon. The Tullahoma Regional Planning Commission has completed that process and has a plan in place for the next twenty year period.

In reviewing the proposed transportation improvements on existing and new alignments outlined in the 1996 CTP, it is noted that a number of the short-term and long-term system upgrades were executed as planned. Traffic trends have changed in sections of the city due to a shift in commercial development and residential housing resulting in the need to reevaluate some unexecuted roadway plans outlined in the previous plan.

This plan will revise the previous twenty year plan and short-term improvement list. This plan will assess recent traffic counts, traffic accidents, and growth projections in order to develop an updated twenty year plan of capital projects and short-term improvements to the transportation

system. This plan will also address intermodal transportation including pedestrian and bicycle facilities and Tullahoma airport and rail plans.

The City of Tullahoma revised its Major Thoroughfare Plan in 2007. A proposed update to it will be outlined later in this comprehensive plan. The major thoroughfare plans for Coffee County and Franklin County are provided in the Appendix (page 54 & 55). It should be noted that the Franklin County plan has not been updated in more than forty years. Copies of the Bedford County plan and Moore County plans are not available.

In addition the *Tullahoma Regional Airport Area Development Study* was completed in 2000 by the City. It outlined options for future development of the airport and runways, as well as identified areas adjacent to the airport that might be viable for economic development. Another land use and improvement plan was completed in 2003. This Land Use Study focused on the Cedar Lane roadway from US41-A to Wilson Avenue as well as the area between US41-A and State Route 130.

Changes in Regional Transportation Planning

In Tennessee, there have been a number of significant legislative and administrative changes since the adoption of the 1996 CTP. These changes include the passage by the Tennessee General Assembly of Public Chapter 1101 and the establishment of Rural Transportation Planning Organizations (RPO's) by the Tennessee Department of Transportation.

The Chapter 1101 legislation created growth boundaries for both cities and counties in Tennessee. These boundaries were established through a public process during 1999-2001 and the intent was to provide for the orderly growth and development of communities. Tullahoma is doubly impacted in that its population and corporate boundaries are in two counties; Coffee and Franklin, and therefore, it has two Urban Growth Boundaries (UGB's). Tullahoma has no growth boundary, nor planning authority or jurisdiction in Moore County. This is a fundamental constraint on the development of any roadway infrastructure beyond the western margin of Tullahoma's corporate limits.

The other major change was in the creation of Rural Planning Organizations (RPO's), which is a relatively new application of a concept that has been in place for over three decades for large urbanized areas. Metropolitan Planning Organization's (MPO's) have long been used to allocate Federal and State funds used for regional transportation improvements, congestion mitigation/air quality and other transportation enhancement projects.

Tullahoma is located in the South Central East Rural Planning Organization (SCERPO) which includes Bedford, Coffee, Franklin, Giles, Lincoln, Marshall and Moore counties. Transportation projects proposed in the Tullahoma area, once they are classified as part of the regional transportation network, must compete for funding through the SCERPO and are evaluated by a Technical Advisory Committee and then forwarded to the SCERPO Executive Committee. The final recommendations and rankings of SCERPO must then compete with other RPO's within the State of Tennessee. Finally the Commissioner of Transportation will submit a recommended Transportation Improvement Plan (TIP) to the General Assembly for funding as part of the Tennessee Department of Transportation's (TDOT) budget.

To qualify for State and Federal funding, the projects must have a regional impact, be integrated into the TIP, and be already designated, or eligible to be designated, state routes. In the case of

new highway construction on new alignments, they typically will have termini with existing state routes. Also, as a general rule, road projects planned outside a city's or a county's corporate or legal boundaries require that the applicable local government approve of the concept, project development, right-of-way acquisition, and local cost sharing, if any.

The regional projects recommended by the South Central East Rural Planning Organization for the 2013-2015 Three Year Work Program are shown on the map in Appendix A (page 52). All are projects on state routes. The projects in the Tullahoma area include the widening of SR 55 from Jackson Street (SR 16/US41-A) to First Avenue, which is in the city limits, and the widening of SR/16/US41-A from the northern Tullahoma city limits to Shelbyville. The Tullahoma project would include improvements to the intersection of SR 55/Wilson Avenue at Cedar Lane, including additional lanes west of that intersection. The improvement of SR16/US41-A includes widening from two lanes to five lanes as well as geometric improvements, of which a phase of that project is under construction (2012).

Goals of the Comprehensive Transportation Plan

- To safely and efficiently move people and goods with minimum impact on residents and activities within the community
- To enable residents to move safely and easily from one part of the community to another
- To develop an internal street system that effectively and safely integrates into the regional and state highway system
- To develop a local street system that will encourage safe integration and practical separation of through and local traffic
- To configure the local street system to provide adequate internal circulation
- To minimize pedestrian-vehicular conflict through the development of adequate pedestrian access-ways throughout the community
- To improve existing arterials and collectors and eliminate or minimize deficiencies

Conclusions

Findings are as follows:

- Several major projects recommended in the 1996 CTP have been completed. These include:
    - South Jackson Street (US41-A; SR16) from Carroll Street to the southern city limits was widened to 5 12-ft. lanes with curb & gutter.
    - Hermitage Drive Extension (designated Connector 3) from Turkey Creek Road to Westside Drive was constructed with 2 12-ft. lanes with extruded curb, box culvert and turn lanes at intersections and at West Middle School.
    - Carroll Street (SR55) Viaduct from Washington Street to Jackson Street was rehabilitated.

- North Jackson Street (US41-A; SR16) from Cedar Lane to the northern city limits was widened to 5 12-ft. lanes with curb and gutter and included signalization modifications at Cedar Lane/Washington Street; Hoover Lane; and Ledford Mill Road.

Recommendations

Establish Priorities

It is recommended that the City adopt the plan and to implement the cost-constrained concept plan outlined in Chapter VI.

Update Functional Classification Map

Tullahoma's functional classification map (Appendix B, page 53) will be reviewed in relation to the recommended final plan as documented in this report. The functional classification map should be amended to include any major new routes on new alignments that are proposed for funding within the first five years after this plan is adopted. If necessary, the map will be amended so that all proposed major improvements are on routes that are shown on the map either as urban collectors or as minor or principal arterials.

Adopt Final Plan & File with the Tennessee Department of Transportation

In order for this plan to be an effective tool for setting funding priorities or for guiding new development, it is essential that the plan be officially adopted. Under Tennessee law, the planning commission has the authority and the responsibility to adopt a major thoroughfare plan. In order to ensure that the plan is followed when local budgets are prepared, it will be presented by planning staff for adoption by the Mayor and Board of Aldermen. A copy of the plan will also be submitted to the Tennessee Department of Transportation for acceptance.

Record Plan with County Registrar

As a final step in the adoption of this plan, a large scale copy of the plan will be officially filed with the County Registrar in Coffee and Franklin counties. Besides meeting state legislative requirements, this action will serve to notify affected property owners that new routes, and improvements to existing routes, have been officially proposed and adopted within the study area.

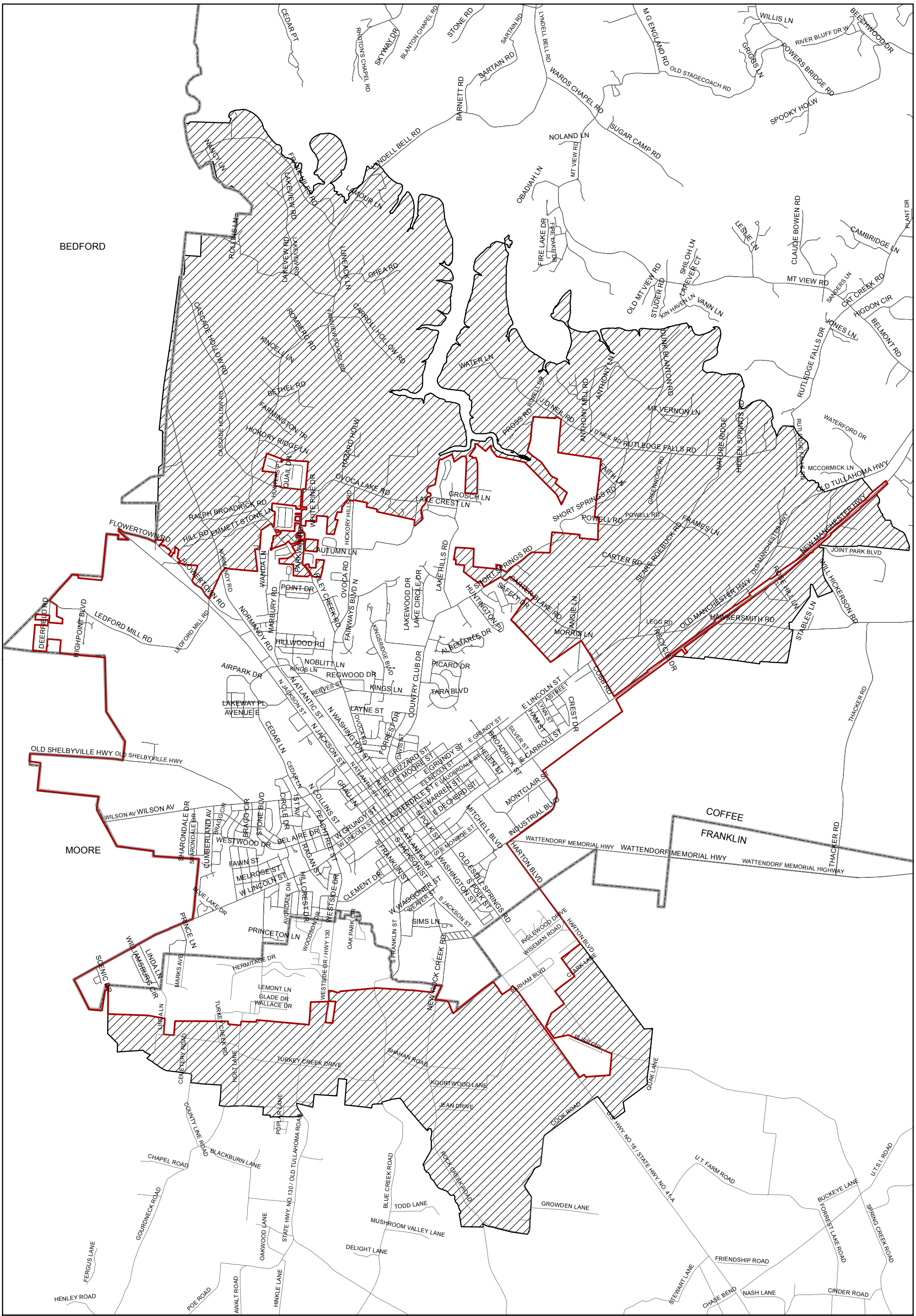
Provide for Monitoring and Routine Appraisals of Plan

In order for the plan to remain an effective tool for guiding spending decisions and new development, it is essential for the plan to be kept up to date. It is recommended that the land use estimates and forecasts documented in this plan be reviewed by planning staff annually, on or about the anniversary of the official adoption of the plan. If actual development trends are found to be different from the trends that have been predicted, it may be necessary to revise the land use forecast and to revise traffic forecasts.

Similarly, annual traffic counts available from the Tennessee D.O.T. should be reviewed in relation to the 2010 traffic counts and the year 2030 traffic forecasts. If actual traffic trends are significantly different from the trends that have been forecast, then the plan will be revised.

Finally, the status of the plan will be reviewed as projects are implemented. If a major project included in the plan is significantly revised prior to implementation (for example, if the cross

section or the alignment is significantly different from the plan proposal), or if a major project is determined to be infeasible or unnecessary, then the plan will be revised to reflect these changes. As projects included in the plan are completed, they will be removed from the list of proposed new projects.



Tullahoma City Limits & UGB - 2013
Map I-1

II. EXISTING CONDITIONS

Functional Classifications

Tullahoma's street system includes streets that have been functionally classified as arterials (figure II-1, page 11), collectors (figure II-2, page 12) or local streets (figure II-3, page 13). Those streets classified as local streets are not typically included as part of the Tullahoma street system for analysis purposes.

Urban functional classification is a means of categorizing streets and highways according to how they function within the study area. The existing street system in Tullahoma was classified according to the following definitions:

- Urban Principal Arterials are facilities that serve major centers of activity, the highest volume corridors, and the longest trips within the study area. The recommended right-of-way for roads in this classification ranges between 84 – 150 feet.
- Urban Minor Arterials are roads that interconnect with and augment the urban principal arterial network, and provide service to trips of moderate lengths. They also distribute travel to geographic areas smaller than identified with the principal arterial system. Right-of-way for this classification ranges between 60 – 84 feet in width.
- Urban Collectors are streets which provide both land access service and traffic circulation within residential, commercial and industrial areas. This system also collects traffic from local streets in the residential neighborhoods and channels it into the arterial system. The typical right-of-way width is 60 feet.
- Local Streets are facilities that provide direct access to abutting land and access to the higher order systems. Service to through traffic movement usually is discouraged. The typical right-of-way for a local street is 50 feet.

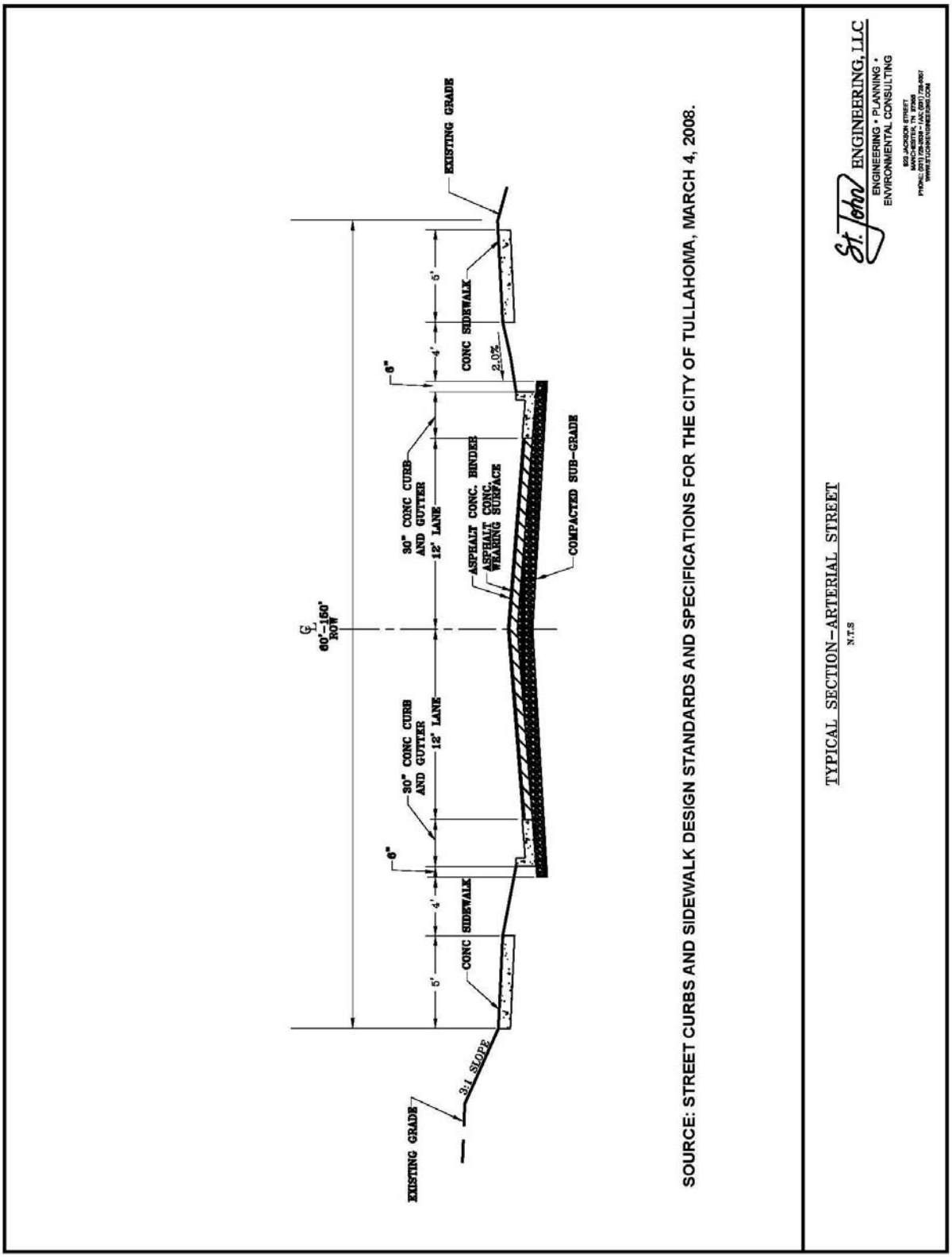


Figure II-1
Arterial Street – Typical Cross Section

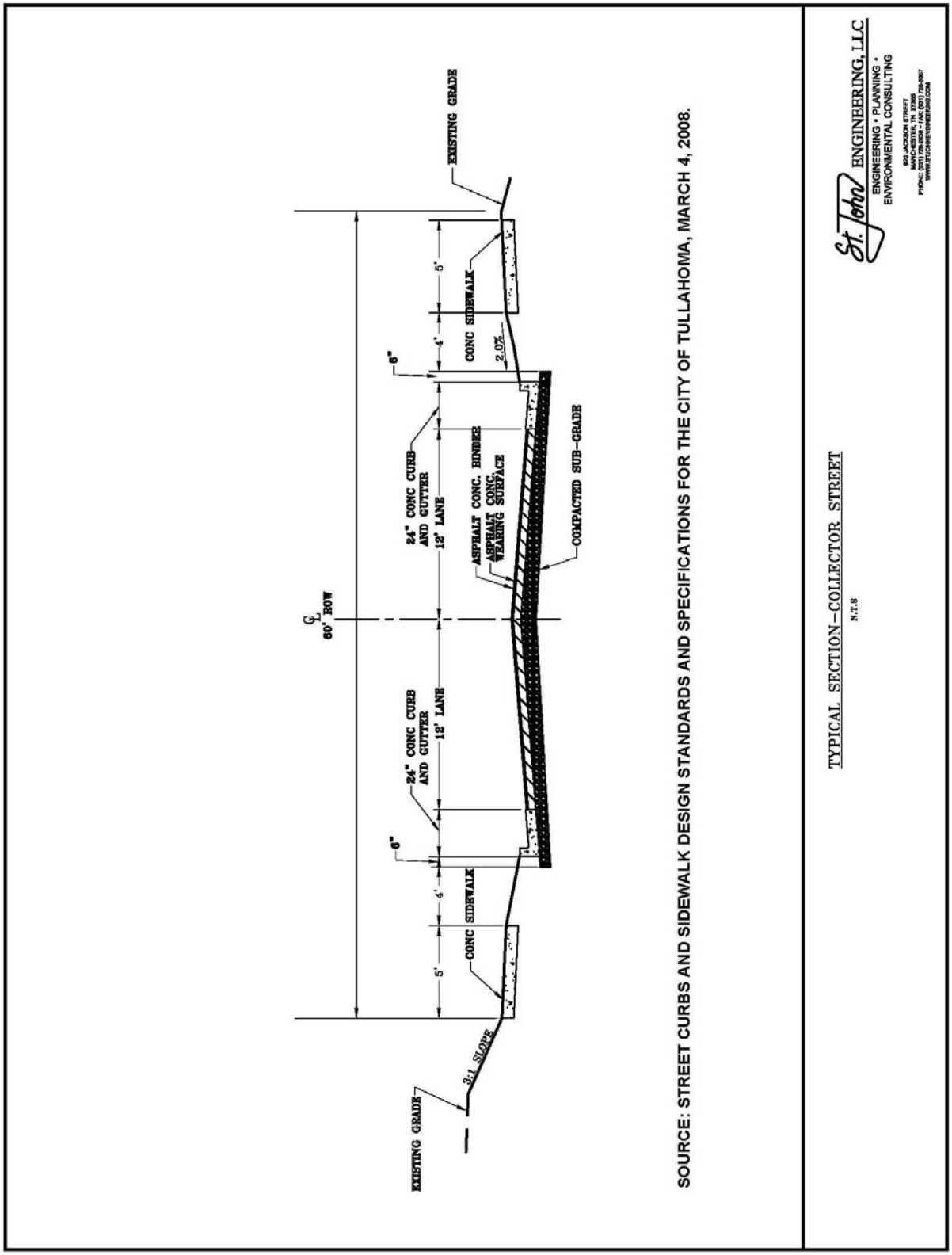


Figure II-2
Collector Street – Typical Cross Section

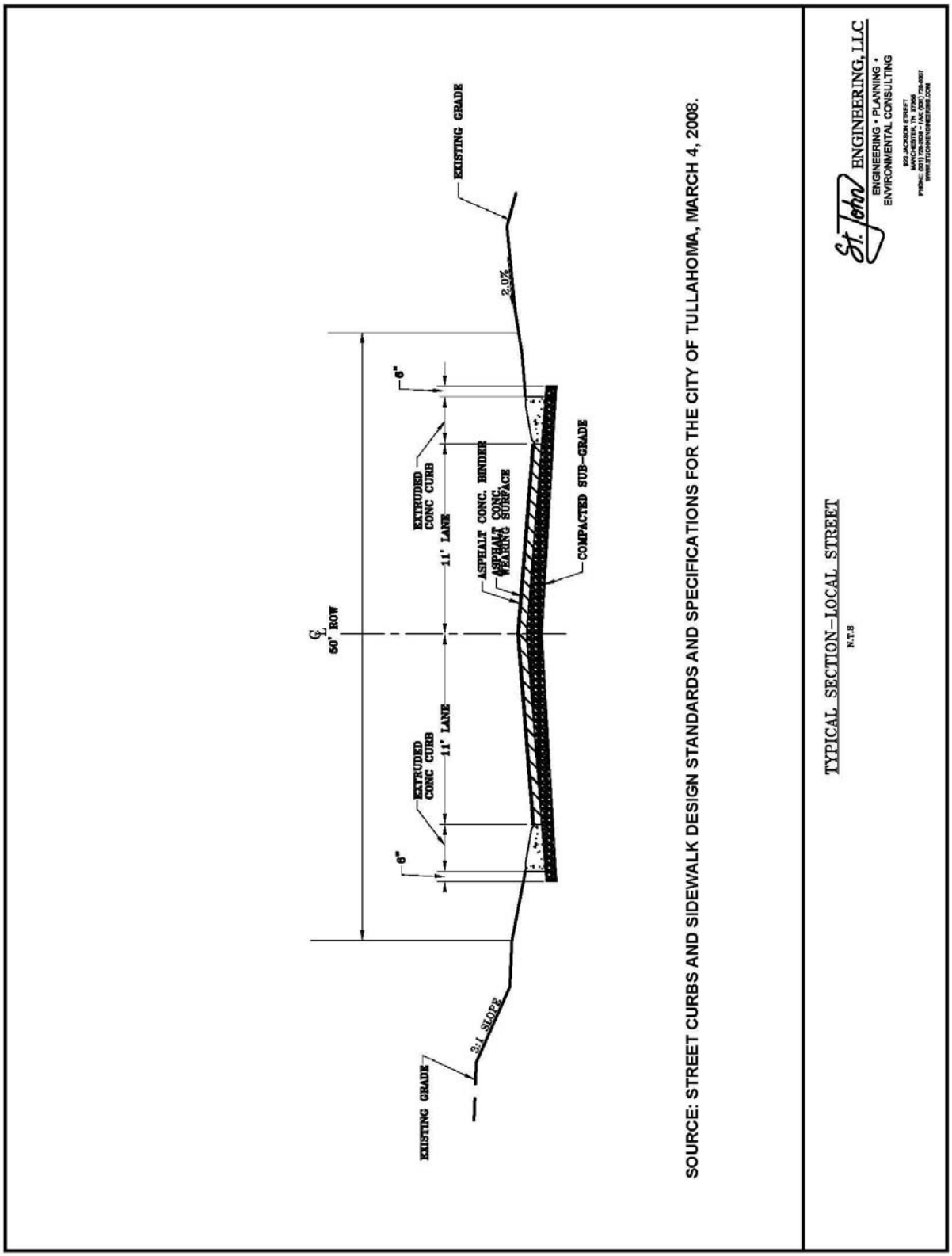


Figure II-3
Local Street – Typical Cross Section

Roadway Deficiencies

Roadway deficiencies can fall into one or more for the following categories; pavement width, pavement condition, and capacity.

- Pavement width can be a safety issue for roadways that have less than twenty feet in total width. While most of these facilities 1) carry low volumes of traffic; 2) have acceptable volume-to-capacity ratios, and, 3) have low to acceptable accident rates, these roadways should be monitored for statistical changes.
- Pavement condition is an important factor in evaluating the street system. Adequate funding for roadway pavement maintenance reduces costly roadway reconstruction and prevents damage to user vehicles.
- Roadway capacity is a measure of the ability of a street or intersection to accommodate traffic while the Level of Service defines the quality of traffic flow. Levels of Service range from 'A' which is a category of a free flow, to 'F' which represents a breakdown of flow. 'A' Level of Service designation means that the roadway has a reasonable quality of traffic flow which provides a stable flow at acceptable speeds and maneuverability for urban areas.

The Tennessee Department of Transportation (TDOT) obtains and documents traffic counts on State highways and on local streets on an annual basis. These past and present traffic counts are important to the proper planning of roadway improvements at the state and local level. Table II-1 (page 15) provides a comparison between the 1994 counts and the 2010 traffic counts. TDOT traffic count stations are shown on Map II-1 (page 18) as well as tabulated average daily traffic (ADT) counts at the stations for the study period. The traffic counts are used to evaluate the usage and resulting congestion of the streets within the City.

Roadway segment traffic counts were obtained from annual coverage counts performed by TDOT. Roadway segment traffic counts are two-directional average daily traffic (ADT) counts, which are conducted for a twenty-four hour period. The locations of the roadway segments and the 1994 ADT counts used in the 1996 CTP compared with the 2010 ADT counts are provided in Table II-1.

TABLE II-1
AVERAGE DAILY COUNT (ADT) COMPARISON

TDOT COUNT STATION	ROADWAY SEGMENT	TDOT 1994 COUNT	TDOT 2010 COUNT
150	Anderson St., s. of SR55	8,500	7,682
63	Atlantic St., n. of Washington St.	1,590	2,616
143	Carroll St. (SR55), e. of Washington	16,410	16,234
59	Carroll St. (SR55), w. of Cobb Rd.	12,400	13,631
107	Clement Dr., w. of Jackson St. (US41-A)	6,550	6,848
125	Cedar Ln., n. of W. Lincoln St.	11,428	10,017
126	Cedar Ln., n. of McKellar Dr.	8,963	10,281
214	Cedar Ln., n. of Airpark Dr.	N/a	10,288
171	Country Club Dr., n. of Kings Ln.	2,920	N/a
61	Country Club Dr., s. of Kings Ln.	4,040	3,676
183	Cumberland Springs Rd., w. of Linda Ln.	2,450	2,795
168*	Ledford Mill Rd., e. of Jackson St. (US41-A)	920	1,370
80	Forrest Blvd., e. of Anderson St.	5,500	4,189
155	Hogan St., e. of Atlantic St.	3,500	4,135
163	Hogan St., e. of Washington St.	3,340	N/a
101	Jackson St. (US41-A), s. of Wilson Ave. (SR55)	17,100	20,212
149	Jackson St. (US41-A), n. of Carroll St. (SR55)	18,200	18,542
69	Jackson St. (US41-A), s. of city limits	9,990	10,558
160	Jackson St. (US41-A), n. of Wilson Ave. (SR55)	16,770	22,463
64	Jackson St. (US41-A), n. of Washington St.	13,490	18,126
99	Jackson St. (US41-A), s. of Carroll St.	13,220	14,215
100	Lincoln St., w. of Jackson St. (US41-A)	12,010	8,365
67	Lincoln St., e. of Turkey Creek Rd.	8,400	6,457
62	Ovoca Road, n. of Kings Ln.	4,240	4,738
68	New Rock Creek Road, s. of Jackson St.	1,400	1,509
161	Washington St., n. of Hogan St.	6,460	5,546
157	Wilson Avenue (SR55), w. of Old Shelbyville Hwy.	6,690	7,641
156	Wilson Avenue (SR55), e. of Old Shelbyville Hwy.	8,380	9,878
102	Wilson Avenue (SR55), e. of Cedar Lane	9,570	8,992

Source: Tennessee DOT; *TDOT Station 168 was incorrectly listed as Flowertown Rd. in the 1996 CTP

TABLE II-2
LEVEL OF SERVICE (LOS) COMPARISON

TDOT COUNT STATION	ROADWAY SEGMENT	1994 LOS	2010 LOS
150	Anderson St., s. of SR55	B	B
63	Atlantic St., n. of Washington St.	A	A
143	Carroll St. (SR55), e. of Washington	C	C
59	Carroll St. (SR55), w. of Cobb Rd.	B	B
107	Clement Dr., w. of Jackson St. (US41-A)	B	B
125	Cedar Ln., n. of W. Lincoln St.	C	C
126	Cedar Ln., n. of McKeller Dr.	B	C
214	Cedar Ln., n. of Airpark Dr.	N/a	C
171	Country Club Dr., n. of Kings Ln.	A	N/a
61	Country Club Dr., s. of Kings Ln.	A	A
183	Cumberland Springs Rd., w. of Linda Ln.	A	A
168*	Ledford Mill Rd., e. of Jackson St. (US41-A)	A	A
80	Forrest Blvd., e. of Anderson St.	B	A
155	Hogan St., e. of Atlantic St.	A	A
163	Hogan St., e. of Washington St.	A	N/a
101	Jackson St. (US41-A), s. of Wilson Ave. (SR55)	B	C
149	Jackson St. (US41-A), n. of Carroll St. (SR55)	C	C
69	Jackson St. (US41-A), s. of city limits	B	A
160	Jackson St. (US41-A), n. of Wilson Ave. (SR55)	B	D
64	Jackson St. (US41-A), n. of Washington St.	C	C
99	Jackson St. (US41-A), s. of Carroll St.	B	B
100	Lincoln St., w. of Jackson St. (US41-A)	B	A
67	Lincoln St., e. of Turkey Creek Rd.	B	B
62	Ovoca Road, n. of Kings Ln.	A	A
68	New Rock Creek Road, s. of Jackson St.	A	A
161	Washington St., n. of Hogan St.	B	B
157	Wilson Avenue (SR55), w. of Old Shelbyville Hwy.	B	B
156	Wilson Avenue (SR55), e. of Old Shelbyville Hwy.	A	A
102	Wilson Avenue (SR55), e. of Cedar Lane	B	B

Sources: 1996 CTP, *TDOT Station 168 was incorrectly listed as Flowertown Rd. in the 1996 CTP; TDOT 2010 ADT

TABLE II-3
CLASSIFICATION COMPARISON

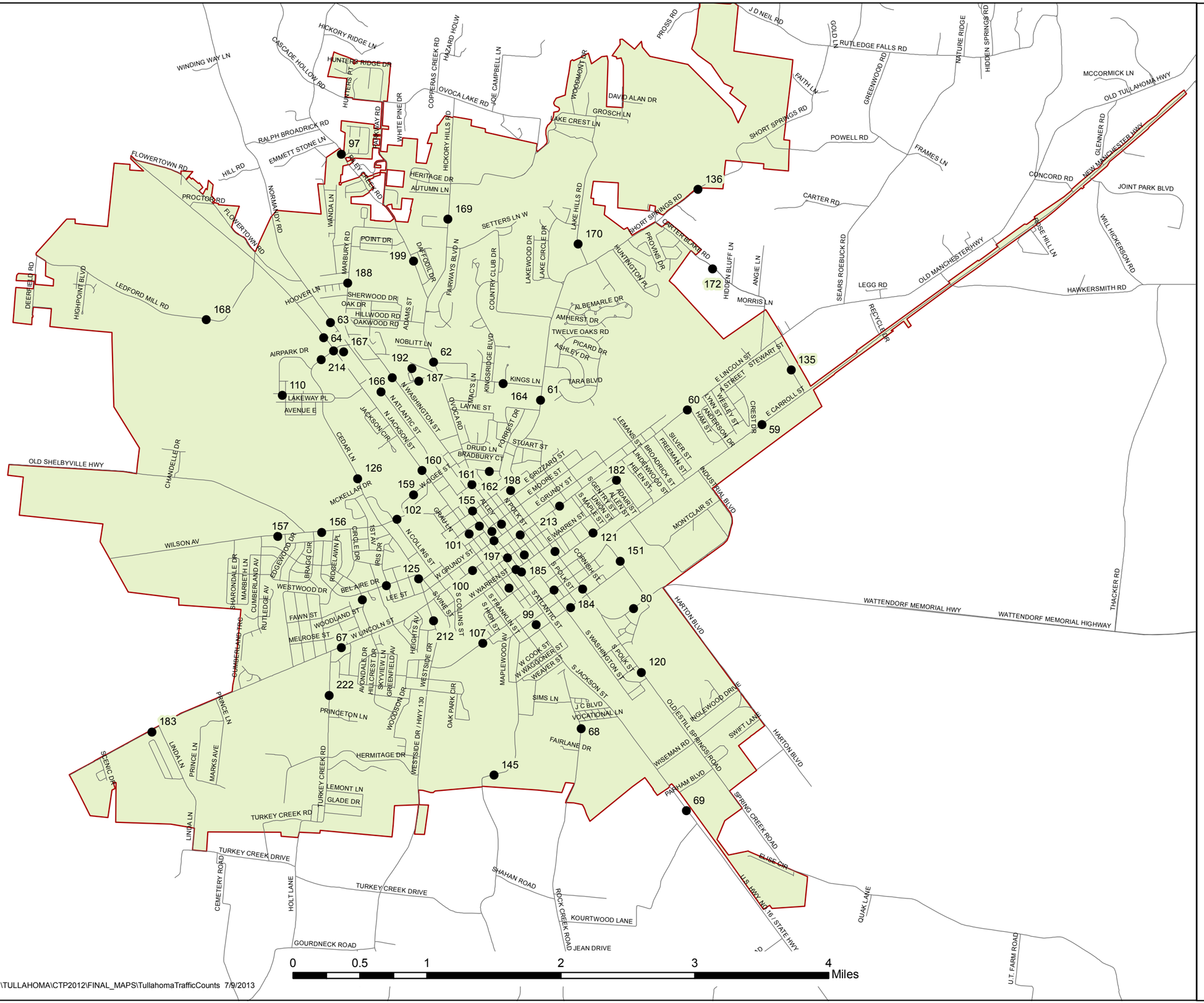
ROADWAY SEGMENT	ROAD TYPE	2007 THOROUGHFARE PLAN
Anderson St., s. of SR55	2 Lane Arterial Urban	Urban Minor Arterial
Atlantic St., n. of Washington St.	2 Lane Collector Urban	Urban Collector
Carroll St. (SR55), e. of Washington	4 Lane Arterial Urban	Urban Principal Arterial
Carroll St. (SR55), w. of Cobb Rd.	4 Lane Arterial Urban	Urban Principal Arterial
Cedar Ln., n. of W. Lincoln	2 Lane Arterial Urban	Urban Minor Arterial
Cedar Ln., n. of McKeller Dr.	2 Lane Arterial Urban	Urban Minor Arterial
Cedar Ln., n. of Airpark Dr.	2 Lane Arterial Urban	Urban Minor Arterial
Clement Dr., w. of Jackson St. (US41-A)	2 Lane Arterial Urban	Urban Minor Arterial
Country Club Dr., n. of Kings Ln.	2 Lane Collector Urban	Urban Collector
Country Club Dr., s. of Kings Ln.	2 Lane Collector Urban	Urban Collector
Cumberland Springs Rd., w. of Linda Ln.	2 Lane Collector Urban	Urban Collector
Ledford Mill Rd., e. of Jackson St. (US41-A)	2 Lane Collector Rural	Urban Collector
Forrest Blvd., e. of Anderson St.	2 Lane Arterial Urban	Urban Minor Arterial
Hogan St., e. of Atlantic St.	2 Lane Collector Urban	Urban Collector
Hogan St., e. of Washington St.	2 Lane Collector Urban	Urban Collector
Jackson St. (US41-A), s. of Wilson Ave. (SR55)	5 Lane Arterial Urban	Urban Principal Arterial
Jackson St. (US41-A), n. of Carroll St. (SR55)	5 Lane Arterial Urban	Urban Principal Arterial
Jackson St. (US41-A), s. of city limits	5 Lane Arterial Urban	Urban Principal Arterial
Jackson St. (US41-A), n. of Wilson Ave. (SR55)	5 Lane Arterial Urban	Urban Principal Arterial
Jackson St. (US41-A), n. of Washington St.	5 Lane Arterial Urban	Urban Principal Arterial
Jackson St. (US41-A), s. of Carroll St.	5 Lane Arterial Urban	Urban Principal Arterial
Lincoln St., w. of Jackson St. (US41-A)	5 Lane Collector Urban	Urban Collector
Lincoln St., e. of Turkey Creek Rd.	2 Lane Collector Urban	Urban Collector
Ovoca Road, n. of Kings Ln.	2 Lane Collector Urban	Urban Collector
New Rock Creek Road, s. of Jackson St.	2 Lane Collector Rural	Minor Street
Washington St., n. of Hogan St.	2 Lane Collector Urban	Urban Collector
Wilson Ave. (SR55), w. of Old Shelbyville Hwy.	2 Lane Arterial Urban	Urban Principal Arterial
Wilson Ave. (SR55), e. of Old Shelbyville Hwy.	5 Lane Arterial Urban	Urban Principal Arterial
Wilson Ave. (SR55), e. of Cedar Lane	3 Lane Arterial Urban	Urban Principal Arterial

Tullahoma Traffic Count Stations Map II-1

Tullahoma City Limits

Traffic Count Stations

Source: TDOT



GIS_DATA\COFFEE\TRANSPORTATION\TULLAHOMA\CTP2012\FINAL_MAPS\TullahomaTrafficCounts 7/9/2013

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Tullahoma Traffic Count Stations - ADT 1985 to 2010

Source: Tennessee DOT

59	60	61	62	63	64
1985: 7874	1985: 3354	1985: 2601	1985: 2115	1985: 1037	1985: 7715
1986: 9007	1986: 3560	1986: 3007	1986: 2528	1986: 1350	1986: 9960
1987: 9485	1987: 5203	1987: 3460	1987: 3181	1987: 1471	1987: 7891
1988: 11775	1988: 3495	1988: 3635	1988: 2778	1988: 1386	1988: 9778
1989: 10085	1989: 3303	1989: 4001	1989: 3597	1989: 1400	1989: 12110
1990: 10087	1990: 4076	1990: 3586	1990: 3056	1990: 1282	1990: 11843
1991: 10198	1991: 3398	1991: 3293	1991: 2811	1991: 1044	1991: 12286
1992: 12155	1992: 4164	1992: 3928	1992: 3579	1992: 1276	1992: 11624
1993: 11556	1993: 3838	1993: 3992	1993: 3711	1993: 1726	1993: 13394
1994: 12398	1994: 3928	1994: 4043	1994: 4237	1994: 1587	1994: 13487
1995: 13256	1995: 3900	1995: 3718	1995: 3997	1995: 2000	1995: 20400
1996: 13107	1996: 3240	1996: 3721	1996: 4157	1996: 2119	1996: 18412
1997: 12891	1997: 4012	1997: 3939	1997: 4290	1997: 1873	1997: 18637
1998: 12820	1998: 4172	1998: 3406	1998: 4227	1998: 2441	1998: 19150
1999: 12771	1999: 4083	1999: 3561	1999: 4355	1999: 2503	1999: 19102
2000: 12761	2000: 3885	2000: 3886	2000: 4569	2000: 2518	2000: 19048
2001: 13303	2001: 4108	2001: 3649	2001: 3994	2001: 2676	2001: 17938
2002: 15143	2002: 4377	2002: 4211	2002: 4378	2002: 2709	2002: 20705
2003: 14310	2003: 4086	2003: 4112	2003: 5085	2003: 3543	2003: 19735
2004: 14467	2004: 3799	2004: 4100	2004: 5237	2004: 3211	2004: 22343
2005: 15194	2005: 4049	2005: 4276	2005: 4962	2005: 3969	2005: 20360
2006: 13525	2006: 3468	2006: 3963	2006: 4761	2006: 3668	2006: 23067
2007: 13962	2007: 3435	2007: 4082	2007: 4904	2007: 3120	2007: 20971
2008: 13695	2008: 3007	2008: 3315	2008: 4280	2008: 3213	2008: 19394
2009: 13546	2009: 3330	2009: 3569	2009: 4600	2009: 2550	2009: 20223
2010: 13631	2010: 3430	2010: 3676	2010: 4738	2010: 2616	2010: 18126

67	68	69	80	97	99
1985: 3915	1985: 951	1985: 6500	1985: 4143	1985: 1422	1985: 15804
1986: 4395	1986: 1035	1986: 8342	1986: 4614	1986: 1867	1986: 13867
1987: 4306	1987: 1147	1987: 8321	1987: 4366	1987: 1553	1987: 15141
1988: 6367	1988: 1214	1988: 8318	1988: 4580	1988: 1650	1988: 15500
1989: 4796	1989: 1144	1989: 8570	1989: 4724	1989: 1768	1989: 15600
1990: 4669	1990: 1284	1990: 8571	1990: 4917	1990: 2159	1990: 11592
1991: 4893	1991: 1258	1991: 8509	1991: 4959	1991: 1802	1991: 13585
1992: 5209	1992: 1281	1992: 10060	1992: 5186	1992: 1854	1992: 12303
1993: 5250	1993: 1411	1993: 9757	1993: 5597	1993: 1850	1993: 12732
1994: 8400	1994: 1399	1994: 9993	1994: 5500	1994: 2125	1994: 13216
1995: 5684	1995: 1346	1995: 9960	1995: 5748	1995: 1760	1995: 14071
1996: 5833	1996: 1317	1996: 9985	1996: 5600	1996: 2048	1996: 12443
1997: 5906	1997: 1533	1997: 10274	1997: 4789	1997: 1900	1997: 12904
1998: 5910	1998: 1742	1998: 8739	1998: 4552	1998: 1910	1998: 12163
1999: 5855	1999: 1574	1999: 9839	1999: 4486	1999: 1742	1999: 12305
2000: 6406	2000: 1453	2000: 10149	2000: 4228	2000: 1972	2000: 13233
2001: 6311	2001: 1618	2001: 10961	2001: 4753	2001: 1826	2001: 13771
2002: 6768	2002: 1508	2002: 11551	2002: 4539	2002: 1985	2002: 15409
2003: 7369	2003: 1531	2003: 10965	2003: 4458	2003: 1709	2003: 14236
2004: 7113	2004: 1443	2004: 11547	2004: 5172	2004: 1780	2004: 15258
2005: 7049	2005: 1594	2005: 11746	2005: 4536	2005: 1928	2005: 14929
2006: 6415	2006: 1432	2006: 11064	2006: 4243	2006: 1942	2006: 14747
2007: 6657	2007: 1510	2007: 11746	2007: 3973	2007: 2151	2007: 15196
2008: 6139	2008: 1425	2008: 10870	2008: 3653	2008: 1809	2008: 15215
2009: 6240	2009: 1415	2009: 10723	2009: 3760	2009: 1977	2009: 15671
2010: 6457	2010: 1509	2010: 10558	2010: 4189	2010: 1986	2010: 14215

100	101	102	107	110	120
1985: 14251	1985: 23655	1985: 11255	1985: 4408	1985: 119	1985: 2039
1986: 13227	1986: 20978	1986: 12329	1986: 5387	1986: 187	1986: 2434
1987: 12897	1987: 20773	1987: 13603	1987: 5881	1987: 165	1987: 2325
1988: 11404	1988: 21850	1988: 11304	1988: 5549	1988: 166	1988: 2300
1989: 11403	1989: 18681	1989: 11329	1989: 6141	1989: 178	1989: 2416
1990: 12434	1990: 20852	1990: 9859	1990: 5886	1990: 203	1990: 2548
1991: 11905	1991: 21251	1991: 9304	1991: 5940	1991: 165	1991: 2353
1992: 11518	1992: 22748	1992: 10662	1992: 6127	1992: 291	1992: 2893
1993: 12265	1993: 21368	1993: 10415	1993: 6410	1993: 214	1993: 3297
1994: 12012	1994: 17099	1994: 9569	1994: 6547	1994: 156	1994: 2991
1995: 12100	1995: 24888	1995: 14017	1995: 6525	1995: 152	1995: 2863
1996: 11046	1996: 24000	1996: 10922	1996: 6267	1996: 198	1996: 3028
1997: 11090	1997: 21516	1997: 10476	1997: 6703	1997: 228	1997: 2971
1998: 11100	1998: 21563	1998: 12471	1998: 7003	1998: 395	1998: 3544
1999: 9694	1999: 20463	1999: 11086	1999: 5775	1999: 291	1999: 3561
2000: 10233	2000: 22337	2000: 11565	2000: 6429	2000: 387	2000: 3505
2001: 9260	2001: 22071	2001: 11683	2001: 6274	2001: 388	2001: 3359
2002: 10755	2002: 25130	2002: 12011	2002: 7023	2002: 306	2002: 2827
2003: 10907	2003: 22276	2003: 12253	2003: 7255	2003: 340	2003: 2903
2004: 11234	2004: 22294	2004: 12554	2004: 7446	2004: 363	2004: 2746
2005: 10400	2005: 21265	2005: 11416	2005: 8170	2005: 419	2005: 2791
2006: 9979	2006: 20605	2006: 11336	2006: 7223	2006: 361	2006: 2527
2007: 9254	2007: 21142	2007: 11676	2007: 7235	2007: 342	2007: 2664
2008: 9812	2008: 20309	2008: 9974	2008: 8336	2008: 366	2008: 2534
2009: 9811	2009: 19757	2009: 10273	2009: 6380	2009: 353	2009: 2675
2010: 8365	2010: 20212	2010: 8992	2010: 6848	2010: 330	2010: 2651

121	122	123	124	125	126
1985: 412	1985: 8845	1985: 4281	1985: 1509	1985: 4850	1985: 1850
1986: 723	1986: 7944	1986: 2963	1986: 1300	1986: 7537	1986: 1900
1987: 886	1987: 7783	1987: 2805	1987: 0	1987: 9214	1987: 7033
1988: 683	1988: 8590	1988: 2990	1988: 1748	1988: 9868	1988: 7421
1989: 626	1989: 8570	1989: 3293	1989: 1732	1989: 9896	1989: 7300
1990: 666	1990: 8600	1990: 3300	1990: 2101	1990: 9641	1990: 7361
1991: 861	1991: 8538	1991: 3040	1991: 1659	1991: 9396	1991: 7793
1992: 694	1992: 9358	1992: 3991	1992: 1887	1992: 10150	1992: 8381
1993: 617	1993: 9019	1993: 3900	1993: 2101	1993: 11056	1993: 8584
1994: 730	1994: 9000	1994: 5290	1994: 3002	1994: 11428	1994: 8963
1995: 632	1995: 9050	1995: 4362	1995: 2191	1995: 12992	1995: 10326
1996: 695	1996: 8493	1996: 4193	1996: 2359	1996: 12429	1996: 9667
1997: 606	1997: 8824	1997: 4242	1997: 2305	1997: 11333	1997: 9577
1998: 536	1998: 10124	1998: 4197	1998: 3114	1998: 11111	1998: 9971
1999: 573	1999: 10752	1999: 4440	1999: 2090	1999: 10680	1999: 9589
2000: 615	2000: 9313	2000: 4449	2000: 2277	2000: 10757	2000: 9777
2001: 613	2001: 9584	2001: 4679	2001: 2442	2001: 10686	2001: 9852
2002: 643	2002: 10040	2002: 4730	2002: 2515	2002: 11765	2002: 10727
2003: 682	2003: 10203	2003: 5331	2003: 2105	2003: 13073	2003: 10782
2004: 704	2004: 9367	2004: 5490	2004: 2798	2004: 11421	2004: 12052
2005: 615	2005: 10656	2005: 5346	2005: 2152	2005: 12752	2005: 12277
2006: 621	2006: 9725	2006: 4635	2006: 2216	2006: 11347	2006: 10919
2007: 646	2007: 9192	2007: 4626	2007: 1833	2007: 10080	2007: 9696
2008: 808	2008: 8613	2008: 4755	2008: 1846	2008: 10082	2008: 9858
2009: 890	2009: 9071	2009: 4422	2009: 1625	2009: 10781	2009: 10165
2010: 857	2010: 10587	2010: 4368	2010: 1713	2010: 10017	2010: 10281

135	137	143	145	148	149
1985: 434	1985: 1230	1985: 12989	1985: 0	1985: 0	1985: 0
1986: 632	1986: 753	1986: 14249	1986: 207	1986: 2504	1986: 16463
1987: 472	1987: 1201	1987: 12898	1987: 326	1987: 2535	1987: 14188
1988: 619	1988: 1318	1988: 13973	1988: 290	1988: 1896	1988: 16053
1989: 715	1989: 1448	1989: 15244	1989: 413	1989: 1882	1989: 16772
1990: 593	1990: 1252	1990: 15450	1990: 410	1990: 1561	1990: 17603
1991: 682	1991: 1243	1991: 16087	1991: 367	1991: 1893	1991: 16971
1992: 722	1992: 1273	1992: 15949	1992: 410	1992: 1988	1992: 17983
1993: 746	1993: 1359	1993: 15087	1993: 604	1993: 2110	1993: 20681
1994: 805	1994: 1472	1994: 16407	1994: 451	1994: 1975	1994: 18201
1995: 1016	1995: 1287	1995: 16000	1995: 382	1995: 1966	1995: 23893
1996: 903	1996: 1323	1996: 16083	1996: 382	1996: 1958	1996: 19663
1997: 887	1997: 1414	1997: 16961	1997: 525	1997: 1841	1997: 18588
1998: 872	1998: 1221	1998: 16970	1998: 649	1998: 1663	1998: 17294
1999: 899	1999: 1223	1999: 13254	1999: 564	1999: 1822	1999: 16434
2000: 855	2000: 1357	2000: 15684	2000: 629	2000: 2024	2000: 19107
2001: 903	2001: 1232	2001: 16066	2001: 697	2001: 1900	2001: 19575
2002: 903	2002: 1309	2002: 18557	2002: 721	2002: 2131	2002: 20508
2003: 1040	2003: 1322	2003: 17044	2003: 615	2003: 1985	2003: 19877
2004: 1005	2004: 1360	2004: 17125	2004: 647	2004: 1942	2004: 20499
2005: 1128	2005: 1493	2005: 17909	2005: 650	2005: 2159	2005: 19564
2006: 1161	2006: 1250	2006: 17127	2006: 593	2006: 1921	2006: 17376
2007: 1017	2007: 1300	2007: 17841	2007: 627	2007: 1979	2007: 19266
2008: 1072	2008: 1252	2008: 17473	2008: 609	2008: 1598	2008: 19709
2009: 1000	2009: 1261	2009: 16564	2009: 594	2009: 1550	2009: 18428
2010: 1030	2010: 1299	2010: 16234	2010: 589	2010: 1688	2010: 18542

150	151	152	153	154	155
1985: 0	1985: 0	1985: 0	1985: 0	1985: 0	1985: 0
1986: 7810	1986: 2388	1986: 7577	1986: 4121	1986: 1352	1986: 6046
1987: 10180	1987: 2224	1987: 7366	1987: 4155	1987: 1568	1987: 4388
1988: 7146	1988: 2450	1988: 7665	1988: 5225	1988: 1500	1988: 6101
1989: 8105	1989: 2000	1989: 7707	1989: 4068	1989: 1593	1989: 5570
1990: 7613	1990: 2241	1990: 7536	1990: 4391	1990: 1481	1990: 5674
1991: 8915	1991: 1696	1991: 7348	1991: 4889	1991: 1500	1991: 4619
1992: 9211	1992: 1834	1992: 8569	1992: 4833	1992: 1461	1992: 4591
1993: 8653	1993: 1769	1993: 8227	1993: 6745	1993: 1102	1993: 4117
1994: 8500	1994: 1592	1994: 7651	1994: 5408	1994: 1252	1994: 3504
1995: 8072	1995: 1723	1995: 7575	1995: 5500	1995: 1142	1995: 4575
1996: 8127	1996: 1562	1996: 8127	1996: 4865	1996: 1200	1996: 4608
1997: 8482	1997: 1339	1997: 8572	1997: 4915	1997: 1006	1997: 4414
1998: 8716	1998: 1314	1998: 7872	1998: 6359	1998: 1073	1998: 4588
1999: 8674	1999: 1406	1999: 9132	1999: 5089	1999: 925	1999: 4183
2000: 8462	2000: 1382	2000: 8829	2000: 4750	2000: 969	2000: 4331
2001: 8292	2001: 1549	2001: 8455	2001: 4563	2001: 842	2001: 4326
2002: 8364	2002: 1601	2002: 8433	2002: 4627	2002: 894	2002: 4609
2003: 8260	2003: 1486	2003: 8475	2003: 5093	2003: 936	2003: 4324
2004: 7916	2004: 1558	2004: 8559	2004: 5310	2004: 961	2004: 4248
2005: 8258	2005: 1689	2005: 8424	2005: 4485	2005: 1079	2005: 4454
2006: 7677	2006: 1706	2006: 7677	2006: 4036	2006: 957	2006: 4210
2007: 7614	2007: 1513	2007: 7681	2007: 3975	2007: 879	2007: 3942
2008: 7177	2008: 1460	2008: 7496	2008: 4076	2008: 838	2008: 3899
2009: 7110	2009: 1432	2009: 7034	2009: 3109	2009: 753	2009: 4162
2010: 7682	2010: 1652	2010: 7409	2010: 2891	2010: 749	2010: 4135

156	157	159	160	161	162
1985: 0	1985: 0	1985: 0	1985: 0	1985: 0	1985: 0
1986: 3575	1986: 4487	1986: 2344	1986: 8729	1986: 3473	1986: 597
1987: 8250	1987: 4976	1987: 1685	1987: 21695	1987: 3550	1987: 680
1988: 7710	1988: 4178	1988: 1176	1988: 18018	1988: 3500	1988: 730
1989: 9089	1989: 4200	1989: 1200	1989: 15461	1989: 4308	1989: 732
1990: 8252	1990: 6164	1990: 1350	1990: 26871	1990: 4235	1990: 872
1991: 7469	1991: 6164	1991: 1212	1991: 22066	1991: 4111	1991: 746
1992: 9407	1992: 9258	1992: 1260	1992: 20246	1992: 4200	1992: 760
1993: 10706	1993: 7867	1993: 1510	1993: 20675	1993: 5206	1993: 758
1994: 8379	1994: 6693	1994: 1541	1994: 16770	1994: 6460	1994: 685
1995: 8198	1995: 7655	1995: 1805	1995: 28193	1995: 6305	1995: 809
1996: 10269	1996: 7765	1996: 1656	1996: 21751	1996: 6528	1996: 860
1997: 10245	1997: 7990	1997: 1765	1997: 22326	1997: 5495	1997: 786
1998: 10564	1998: 8100	1998: 1781	1998: 21361	1998: 5980	1998: 756
1999: 9789	1999: 7595	1999: 1617	1999: 22137	1999: 5679	1999: 813
2000: 10238	2000: 9843	2000: 1690	2000: 21105	2000: 5687	2000: 960
2001: 9953	2001: 7146	2001: 1640	2001: 21126	2001: 6295	2001: 905
2002: 10939	2002: 8465	2002: 1880	2002: 24840	2002: 6095	2002: 1008
2003: 10449	2003: 7609	2003: 1973	2003: 22707	2003: 6966	2003: 1091
2004: 11408	2004: 7534	2004: 2052	2004: 24470	2004: 6235	2004: 1124
2005: 9530	2005: 7084	2005: 2094	2005: 22060	2005: 6743	2005: 1227
2006: 9333	2006: 6964	2006: 2102	2006: 20426	2006: 5742	2006: 1170
2007: 10092	2007: 7269	2007: 2156	2007: 20632	2007: 5305	2007: 1046
2008: 9779	2008: 7637	2008: 2112	2008: 21880	2008: 5881	2008: 1016
2009: 9615	2009: 7980	2009: 2234	2009: 21310	2009: 5981	2009: 1116
2010: 9878	2010: 7641	2010: 2008	2010: 22463	2010: 5546	2010: 1009

164	165	166	167	168	169
1985: 0	1985: 0	1985: 0	1985: 0	1985: 0	1985: 0
1986: 1193	1986: 2152	1986: 1934	1986: 4972	1986: 657	1986: 743
1987: 1544	1987: 2174	1987: 3199	1987: 5469	1987: 843	1987: 746
1988: 1445	1988: 2410	1988: 2560	1988: 4921	1988: 850	1988: 700
1989: 1440	1989: 1870	1989: 2600	1989: 5000	1989: 799	1989: 725
1990: 1361	1990: 1384	1990: 1427	1990: 836	1990: 1101	1990: 1039
1991: 2219	1991: 2066	1991: 1219	1991: 581	1991: 728	1991: 721
1992: 2693	1992: 2707	1992: 1601	1992: 600	1992: 948	1992: 857
1993: 3069	1993: 3234	1993: 4120	1993: 693	1993: 910	1993: 829
1994: 3251	1994: 3775	1994: 3061	1994: 740	1994: 918	1994: 996
1995: 3354	1995: 3715	1995: 3424	1995: 692	1995: 986	1995: 997
1996: 3272	1996: 3840	1996: 3340	1996: 643	1996: 990	1996: 964
1997: 3184	1997: 3725	1997: 4434	1997: 720	1997: 1071	1997: 1138
1998: 3364	1998: 3658	1998: 4290	1998: 678	1998: 1086	1998: 1115
1999: 3592	1999: 4099	1999: 3806	1999: 728	1999: 1129	1999: 1234
2000: 3503	2000: 4342	2000: 4543	2000: 798	2000: 1225	2000: 1231
2001: 3317	2001: 4317	2001: 4476	2001: 777	2001: 1144	2001: 1197
2002: 3732	2002: 4329	2002: 5210	2002: 856	2002: 1330	2002: 1214
2003: 3819	2003: 4544	2003: 5086	2003: 793	2003: 1461	2003: 1289
2004: 3659	2004: 4882	2004: 5167	2004: 817	2004: 1504	2004: 1148
2005: 3787	2005: 4627	2005: 4466	2005: 842	2005: 1380	2005: 1262
2006: 3984	2006: 4176	2006: 4785	2006: 1106	2006: 1280	2006: 1320
2007: 3901	2007: 4017	2007: 4929	2007: 829	2007: 1240	2007: 1360
2008: 3326	2008: 3999	2008: 3562	2008: 747	2008: 1296	2008: 1319
2009: 3592	2009: 4163	2009: 3942	2009: 871	2009: 1335	2009: 1018
2010: 3700	2010: 4288	2010: 3593	2010: 793	2010: 1370	2010: 1109

170	172	182	183	184	185
1985: 0	1985: 0	1985: 0	1985: 0	1985: 0	1985: 0
1986: 452	1986: 344	1986: 0	1986: 0	1986: 0	1986: 0
1987: 634	1987: 402	1987: 1000	1987: 2600	1987: 0	1987: 0
1988: 1000	1988: 642	1988: 1150	1988: 2490	1988: 0	1988: 0
1989: 615	1989: 534	1989: 1146	1989: 2192	1989: 614	1989: 1584
1990: 513	1990: 482	1990: 1242	1990: 2355	1990: 580	1990: 1648
1991: 416	1991: 434	1991: 1074	1991: 2264	1991: 547	1991: 1465
1992: 603	1992: 606	1992: 1227	1992: 2162	1992: 678	1992: 1595
1993: 493	1993: 727	1993: 998	1993: 2306	1993: 533	1993: 2045
1994: 516	1994: 764	1994: 1209	1994: 2446	1994: 668	1994: 1798
1995: 504	1995: 769	1995: 1676	1995: 2473	1995: 736	1995: 1800
1996: 466	1996: 673	1996: 1223	1996: 2347	1996: 735	1996: 1748
1997: 527	1997: 757	1997: 1111	1997: 2573	1997: 714	1997: 1744
1998: 487	1998: 804	1998: 1374	1998: 2757	1998: 804	1998: 1887
1999: 570	1999: 772	1999: 1296	1999: 2664	1999: 869	1999: 1390
2000: 567	2000: 678	2000: 1235	2000: 3080	2000: 763	2000: 1487
2001: 495	2001: 784	2001: 1347	2001: 3078	2001: 750	2001: 1476
2002: 510	2002: 786	2002: 1363	2002: 2994	2002: 718	2002: 1170
2003: 668	2003: 1006	2003: 1589	2003: 3297	2003: 769	2003: 1221
2004: 688	2004: 1036	2004: 1454	2004: 3179	2004: 828	2004: 1386
2005: 571	2005: 960	2005: 1425	2005: 3385	2005: 736	2005: 1423
2006: 544	2006: 922	2006: 1372	2006: 2924	2006: 719	2006: 1234
2007: 615	2007: 849	2007: 1213	2007: 3086	2007: 741	2007: 1145
2008: 492	2008: 864	2008: 1114	2008: 2744	2008: 546	2008: 1129
2009: 493	2009: 804	2009: 1197	2009: 2582	2009: 466	2009: 1035
2010: 534	2010: 769	2010: 1219	2010: 2795	2010: 509	2010: 1119

186	187	188	192
1985: 0	1985: 0	1985: 0	1985: 0
1986: 0	1986: 0	1986: 0	1986: 0
1987: 0	1987: 0	1987: 0	1987: 0
1988: 0	1988: 0	1988: 0	1988: 0
1989: 4176	1989: 729	1989: 1412	1989: 0
1990: 4596	1990: 188	1990: 1680	1990: 3559
1991: 3969	1991: 163	1991: 1883	1991: 3185
1992: 4337	1992: 198	1992: 2025	1992: 3495
1993: 4739	1993: 190	1993: 2708	1993: 4003
1994: 4700	1994: 189	1994: 2313	1994: 5095
1995: 5403	1995: 176	1995: 2813	1995: 4941
1996: 5785	1996: 195	1996: 2916	1996: 5183
1997: 5447	1997: 234	1997: 2556	1997: 5427
1998: 6064	1998: 203	1998: 2682	1998: 5992
1999: 6060	1999: 260	1999: 2649	1999: 5936
2000: 6053	2000: 272	2000: 2316	2000: 5948
2001: 5585	2001: 215	2001: 2379	2001: 5231
2002: 5658	2002: 241	2002: 2523	2002: 5954
2003: 5428	2003: 301	2003: 2646	2003: 6641
2004: 6252	2004: 310	2004: 2871	2004: 6812
2005: 5930	2005: 290	2005: 2645	2005: 6517
2006: 5448	2006: 263	2006: 2659	2006: 6812
2007: 5021	2007: 204	2007: 2473	2007: 5803
2008: 4770	2008: 206	2008: 2495	2008: 5497
2009: 4766	2009: 253	2009: 2789	2009: 5896
2010: 4694	2010: 261	2010: 2879	2010: 6073

193	196	197	198
1985: 0	1985: 0	1985: 0	1985: 0
1986: 0	1986: 0	1986: 0	1986: 0
1987: 0	1987: 0	1987: 0	1987: 0
1988: 0	1988: 0	1988: 0	1988: 0
1989: 0	1989: 0	1989: 0	1989: 0
1990: 0	1990: 0	1990: 0	1990: 0
1991: 0	1991: 0	1991: 0	1991: 0
1992: 0	1992: 0	1992: 0	1992: 0
1993: 0	1993: 0	1993: 0	1993: 0
1994: 0	1994: 0	1994: 0	1994: 0
1995: 0	1995: 0	1995: 0	1995: 0
1996: 10521	1996: 0	1996: 0	1996: 0
1997: 10530	1997: 0	1997: 0	1997: 0
1998: 11647	1998: 0	1998: 0	1998: 0
1999: 11648	1999: 0	1999: 0	1999: 0
2000: 11509	2000: 3386	2000: 2315	2000: 5332
2001: 11790	2001: 2743	2001: 2148	2001: 5962
2002: 12187	2002: 3113	2002: 2436	2002: 5764
2003: 12789	2003: 2719	2003: 2392	2003: 6174
2004: 12888	2004: 2435	2004: 2452	2004: 5705
2005: 13148	2005: 2919	2005: 1769	2005: 6397
2006: 12233	2006: 3180	2006: 1787	2006: 5628
2007: 11838	2007: 3275	2007: 1841	2007: 5748
2008: 12043	2008: 2229	2008: 1754	2008: 4955
2009: 13240	2009: 1941	2009: 1510	2009: 5904
2010: 13637	2010: 2322	2010: 1740	2010: 5503

199	212	213	214	222
1985: 0	1985: 0	1985: 0	1985: 0	1985: 0
1986: 0	1986: 0	1986: 0	1986: 0	1986: 0
1987: 0	1987: 0	1987: 0	1987: 0	1987: 0
1988: 0	1988: 0	1988: 0	1988: 0	1988: 0
1989: 0	1989: 0	1989: 0	1989: 0	1989: 0
1990: 0	1990: 0	1990: 0	1990: 0	1990: 0
1991: 0	1991: 0	1991: 0	1991: 0	1991: 0
1992: 0	1992: 0	1992: 0	1992: 0	1992: 0
1993: 0	1993: 0	1993: 0	1993: 0	1993: 0
1994: 0	1994: 0	1994: 0	1994: 0	1994: 0
1995: 0	1995: 0	1995: 0	1995: 0	1995: 0
1996: 0	1996: 0	1996: 0	1996: 0	1996: 0
1997: 0	1997: 0	1997: 0	1997: 0	1997: 0
1998: 0	1998: 0	1998: 0	1998: 0	1998: 0
1999: 0	1999: 0	1999: 0	1999: 0	1999: 0
2000: 2254	2000: 0	2000: 0	2000: 0	2000: 0
2001: 1467	2001: 8414	2001: 6564	2001: 8880	2001: 1170
2002: 2356	2002: 8878	2002: 6334	2002: 9561	2002: 1294
2003: 2723	2003: 9171	2003: 6561

LOS 2010 by Classification Map II-2

Level of Service (LOS)
By Class - 2010

- A, Arterial Urban
- A, Collector Urban
- B, Arterial Urban
- B, Collector Urban
- C, Arterial Urban
- C, Collector Urban
- D, Arterial Urban

0 0.5 1 2 Miles

Source: TDOT and "City of Tullahoma Comprehensive Transportation Plan: Table 11-6"

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
820 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-9334 • FAX: (931) 535-0367
WWW.STJOHNENGINEERING.COM

GIS_DATA\COFFEE\TRANSPORTATION\TULLAHOMA\CTP2012\FINAL_MAPS\2010_LOS_Tullahoma 7/9/2013

Level of Service

The level of service (LOS) of a street is a term used to evaluate the level of congestion or extent of use of a street. Table II-4 (below) shows an accepted method of evaluating the street classifications by relating each to a level of service. In general terms, a level of service of 'A' reflects the highest quality or free-flowing, least congested street. A level of service of 'F' represents jammed conditions and the worst condition. As a general rule, a level of service of 'C' or better is desirable, with a level of service of 'D' considered the lowest acceptable during peak hours. Table II-5 (page 21) and Table II-6 (page 21) show descriptions for LOS for signalized intersections and unsignalized intersections. Intersection traffic counts were not obtained as a part of this plan, so roadway segments and the resulting LOS are evaluated.

Map II-2 (page 19) identifies the resulting LOS at traffic count stations in the City limits for the year 2010 counts. The figure indicates one station with LOS 'D' along N. Jackson Street north of the Wilson Avenue intersection. There are a number of stations with LOS 'C' along Jackson Street (south of Wilson Avenue), Cedar Lane, Carroll Street, and Anderson Street. Levels of service at stations in the rural areas contiguous to the city but outside of the city limits were found to be at a LOS of 'A'. The evaluation of the level of service of streets in the City of Tullahoma using current traffic counts indicates what is apparent to most motorists travelling within the city. The most congested areas are along Jackson Street in the northern section of town where commercial growth has occurred in recent years. As a Federal route, US 41-A, Jackson Street serves not only community traffic but traffic of a regional nature, therefore any improvements to improve local access while facilitating regional traffic would be of great benefit. Also, Cedar Lane, which acts as an alternate route to N. Jackson Street, is heavily travelled. Carroll Street and Anderson Street are heavily travelled due to the entrance into the city in the southerly section and movements to the Arnold Engineering Development Complex (AEDC) and Interstate 24.

TABLE II-4
DAILY VOLUMES (ADT) RELATED TO LEVEL OF SERVICE

ROAD TYPE	LOS A	LOS B	LOS C	LOS D	LOS E
2 Lane Arterial Urban	6,500	9,400	11,600	14,000	18,700
3 Lane Arterial Urban	8,200	11,600	14,400	17,500	23,300
4 Lane Arterial Urban	10,700	15,400	19,000	23,000	30,700
5 Lane Arterial Urban	12,400	17,600	21,900	26,500	35,300
6 Lane Arterial Urban	20,500	29,400	36,400	44,000	58,700
7 Lane Arterial Urban	22,400	32,000	39,700	48,000	64,000
8 Lane Arterial Urban	25,700	36,600	45,400	55,000	73,300
2 Lane Arterial Rural	8,400	12,000	14,900	18,000	24,000
3 Lane Arterial Rural	10,500	15,000	18,600	22,500	30,000
4 Lane Arterial Rural	13,100	18,600	23,100	28,000	37,300
5 Lane Arterial Rural	15,200	21,600	26,800	32,500	43,300
2 Lane Collector Urban	5,100	7,400	9,100	11,000	14,700
3 Lane Collector Urban	6,400	9,200	11,300	13,700	18,300
4 Lane Collector Urban	8,400	12,000	14,900	18,000	24,000
5 Lane Collector Urban	10,700	15,400	19,000	23,000	30,700
2 Lane Collector Rural	6,500	9,400	11,600	14,000	18,700
3 Lane Collector Rural	8,200	11,600	14,500	17,500	23,300

Source: Alabama DOT and Maryland SHA

TABLE II-5
DESCRIPTION OF LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

LOS	Description	Delay/Veh (sec)
A	Operations with very low delay. This occurs when progression is extremely favorable. Most vehicles do not stop at all.	≤ 5.0
B	Operations with stable flows. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	5.1 - 15.0
C	Operations with stable flow. Occurs with fair progression and/or longer cycle lengths. The number of vehicles stopping is significant, although many still pass through the intersection.	15.1 - 25.0
D	Approaching unstable flow. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop.	25.1 - 40.0
E	Unstable flow. This is considered to be the limit for acceptable delay. These high delays generally indicate poor progression, long cycle lengths, and high V/C ratios.	40.1 - 60.0
F	Unacceptable delay. This condition often occurs with oversaturation or with high V/C ratios. Poor progression and long cycle lengths may also cause such delay levels.	> 60.0

Source: Highway Capacity Manual. TRB Special Report 209

TABLE II-6
DESCRIPTION OF LEVEL OF SERVICE FOR UNSIGNALIZED INTERSECTIONS

LOS	Reserve Capacity (pcph)	Description
A	≥ 400	Little or no delay
B	300 – 399	Short traffic delay
C	200 – 299	Average traffic delay
D	100 – 199	Long traffic delay
E	0 – 99	Very long traffic
F	< 0	Extreme traffic delay

Source: Highway Capacity Manual. TRB Special Report 209

III. TRAFFIC ACCIDENT DATA

Data Collection

Traffic accidents were analyzed to determine problematic intersections or roadway segments due to geometric problems, high volumes, sight visibility problems, or similar deficiencies. The Tullahoma Police Department prepared data for the previous two-year period on the highest accident areas within the city as summarized in Table III-1.

TABLE III-1
MOTOR VEHICLE ACCIDENT (MVA) DATA
DATE RANGE: MAY 2009 THROUGH MAY 2011

Intersection	Total No. of MVA	No. of MVA with Injuries
Jackson St. (US41-A/SR16) at Lincoln St.	15	2
Jackson St. (US41-A/SR16) at Cedar Lane	51	7
Jackson St. (US41-A/SR16) at Carroll St.	31	2
Jackson St. (US41-A/SR16) at Washington St.	25	1
Jackson St. (US41-A/SR16) at Wilson Ave.	20	4
Jackson St. (US41-A/SR16) at Lauderdale St.	10	1
Jackson St. (US41-A/SR16) at K-Mart	3	0
Jackson St. (US41-A/SR16) at Northgate Mall	4	0
Lincoln St. at Anderson St.	22	4
Lincoln St. at Washington St.	8	1
Lincoln St. at Cedar Lane	24	4
Wilson Ave. (SR55) at Cedar Lane	22	3
Wilson Ave. (SR55) at Old Shelbyville Hwy. (SR 130)	3	1
Anderson St. at Hogan St.	2	0
Anderson St. at Carroll St. (SR 55)	14	4
Country Club Dr. at Kings Lane	9	2
Westside Dr. at Clement Dr.	1	0

Source: Tullahoma Police Department

Accident Analysis

The accident data was evaluated and ranked using TDOT's accepted methodology. Table III-2 (page 23) shows the ranking criteria and results to correctly evaluate the degree of concern with the safety of the major intersections or segments in the City. This calculation statistically normalizes the data based on traffic volumes and uses statewide average accident rates, 'Ra', in the comparative evaluation. The '**R/Rc'** factor in Table III-2 indicates the most problematic intersections.

Table III-2 shows that nine of the intersections have a high R/Rc value. The following intersections have the most significant accident histories in Tullahoma for the two year period studied and are listed in descending order of R/Rc:

- North Jackson Street (US41-A/SR16) at Cedar Lane/Washington Street
- South Jackson Street (US41-A/SR16) at Carroll Street
- West Lincoln Street at Cedar Lane

- Wilson Avenue (SR55) at Cedar Lane
- East Lincoln Street at Anderson Street
- North Jackson Street (US41-A/SR16) at Wilson Avenue (SR55)
- Anderson Street at Carroll Street (SR55)
- North Jackson Street (US41-A/SR16) at Lincoln Street
- Kings Lane at Country Club Drive

Table III-2

Intersection Accident Analysis Using TDOT Methodology

Intersection	A	PI+F	V	T	Ra *	E	Rc	R	R/Rc	SI
Jackson St. & Cedar/Washington	76	8	12,279	730	0.3175	8.96	0.81	8.48	**10.45**	0.11
Jackson St. & Carroll St.	31	2	12,974	730	0.3175	9.47	0.80	3.27	**4.11**	0.06
Lincoln St. & Cedar Ln	24	4	8,443	730	0.4151	6.16	1.10	3.89	**3.54**	0.17
Wilson Ave. & Cedar Ln	22	3	10,000	730	0.3175	7.30	0.87	3.01	**3.46**	0.14
Lincoln St. & Anderson St.	22	4	7,017	730	0.4970	5.12	1.32	4.29	**3.26**	0.18
Jackson St. & Wilson Ave.	20	4	17,167	730	0.3175	12.53	0.73	1.60	**2.19**	0.20
Anderson St. & Carroll St.	14	4	11,208	730	0.3175	8.18	0.84	1.71	**2.04**	0.29
Jackson St. & Lincoln St	15	2	14,536	730	0.3175	10.61	0.77	1.41	**1.84**	0.13
Kings Ln. & Country Club Dr.	9	2	3,634	730	0.5891	2.65	1.87	3.39	**1.81**	0.22
Lincoln St. & Washington St.	8	1	5,809	730	0.4970	4.24	1.41	1.89	**1.34**	0.13
Jackson St. & Lauderdale St.	10	1	13,365	730	0.3175	9.76	0.79	1.02	**1.30**	0.10
Anderson St. & Hogan St.	2	0	4,926	730	0.4151	3.60	1.34	0.56	**0.41**	0.00
Westside Dr. & Clement Dr.	1	0	3,969	730	0.2383	2.90	1.08	0.35	**0.32**	0.00

* Ra Values from: *TDOT: Statewide Average Rate for Sections & Spots (2006-2008)*

Where: A= Total Number of Accidents
PI + F = Total Personal Injury and Fatality Accidents
V = Volume of Traffic Entering Intersection on a Daily Basis
T = Analysis Time Period Measured in Days
Ra = Average Rate of Accident per Million Vehicles (Source: TDOT)
E = (V x T)/1,000,000
Rc = Critical Accident Rate
R = Rate of Accident per Million Vehicles Entering the Intersection (A/E)
R/Rc = Ratio of Actual Accident Rate to the Critical Accident Rate
SI = Severity Index (PI+F)/A

The high R/Rc factor of 10.45 shows the N. Jackson St/Cedar Lane/Washington Street intersection is of most concern. This intersection experienced 76 accidents, including 8 personal injuries or fatalities, over the two year period. The review of the individual accident reports indicated that a various types of accidents occurred including tail-end accidents, head-on collisions, and other types of collisions. The multiple turn-lane lines markings and off-set of opposing lanes is a source of the driver confusion and resulting accidents. Since this intersection is on a State highway and a recent highway widening project, TDOT's regional traffic engineer should be requested to evaluate intersection and provide recommendations for improvements.

The next highest ranked intersection for accidents is Jackson Street and Carroll Street with and R/Rc value of 4.11. This intersection experienced 31 accidents, including 2 personal injuries or fatalities. This intersection was also part of the viaduct construction project over the past decade administered by TDOT. TDOT's regional traffic engineer should also be requested to evaluate intersection and provide recommendations for improvements.

IV. LAND USE AND TRAFFIC PROJECTIONS

Population and Growth

The population of the City of Tullahoma grew at a relatively high rate from the 1940's through the 1960's, as indicated in Table IV-1 (below). Since that period, the City has grown at a moderate single-digit rate to a population of 18,655 in the 2010 census. Coffee County has grown at a double-digit rate over the last two decades to a population of 52,796 in the 2010 census. The City of Tullahoma continues to experience economic growth and expects steady, moderate growth over the upcoming decade. With a rebounding economy, Tullahoma is expected to yield positive economic benefits of an expanding commercial sector.

TABLE IV-1
POPULATION DATA – HISTORICAL

	COFFEE COUNTY, TN		TULLAHOMA, TN	
YEAR	POPULATION	% Change	POPULATION	% Change
1940	n/a	- - -	4,549	- - -
1950	23,049	- - -	7,562	66.1%
1960	28,603	24.1%	12,242	61.9%
1970	32,572	13.9%	15,311	25.1%
1980	38,311	17.6%	15,800	3.2%
1990	40,339	5.3%	16,761	6.1%
2000	48,014	19.0%	17,994	7.4%
2010	52,796	10.0%	18,655	3.7%

With growth in the residential and commercial sectors, traffic counts are expected to increase. The previous Comprehensive Transportation Plan noted traffic counts at numerous TDOT traffic stations and calculated the traffic increases and decreases over a 10-year period up to 1994. Table IV-2 (page 27) lists the traffic counts at these major roadway segments for the period from 1995 to 2010 and notes the average growth per year for that period for each segment. Table IV-2 also lists the projected traffic counts in year 2030 by projecting the 'average growth rate per year' over the upcoming 20-year period.

Level of Service Traffic Projections

Map IV-1 (page 28) shows the projected level of service (LOS) in year 2030 for these major roadway segments. The 2030 projected traffic counts are utilized in determining the LOS if a positive average growth rate is listed. If a negative growth rate is listed, the 2010 traffic count was used instead of the lower 2030 projected count for the determination of the future LOS.

In comparing the results of Map IV-1 to Map II-2, current levels of service, it is evident that some stations deteriorate from an LOS of 'B' to an LOS of 'C', while most other remain the same. Overall, there were no additional 'D' or lower rated stations from the 2010 ratings, with the exception of station 214 on Cedar Lane which changed to an LOS of 'E'. It should be noted that this station will have an LOS of 'D' if considered as a three lane minor arterial street as proposed in the Concept Plan listed in Section VI. As a whole, the average growth rates, whether negative or positive, are small in magnitude and reflect only anticipated minor changes in the overall level of service within the City.

It must be noted that the traffic counts over the past 15-year period are affected by a number of significant issues. North Jackson Street underwent a major construction project (widening from three to five lanes) during the 2005 to 2008 time frame. This had a negative impact on traffic counts. The recessionary period from 2008 to present time also impacted traffic throughout the City. These issues have dampened the calculated average growth rate through 2010 as well as the 2030 projected counts. The proper planning strategy should be to consider the 4% to 17% increases seen on N. Jackson Street during the period from 2000 to 2004 and plan for positive growth mirroring those increases over the upcoming decades.

As the North Jackson Street corridor reaches build-out, other areas should be identified for the future growth of the community. The primary area is between Jackson Street and the Tullahoma Municipal Airport which Cedar Lane bisects. A secondary area is that area north of Ledford Mill road on both the east and west side of Jackson Street. A tertiary area that has potential for redevelopment is along the Anderson Street corridor, east of US41-A. Another potential area for development that would have traffic impacts would be associated with any redevelopment or the enhanced lease use of lands held by the U. S. Air Force under the Arnold Engineering Development Complex.

Roadway	Segment	TDOT Station	Average Daily Traffic/ % Per Year Growth																Avg Growth per Year	Projected 2030
			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010		
Anderson Street	S of Carroll St. (Hwy 55)	150	8,072	8,127	8,482	8,716	8,674	8,462	8,292	8,364	8,260	7,916	8,258	7,677	7,614	7,177	7,110	7,682		
				0.68%	4.37%	2.76%	-0.48%	-2.44%	-2.01%	0.87%	-1.24%	-4.16%	4.32%	-7.04%	-0.82%	-5.74%	-0.93%	8.05%	-0.26%	7,299
Atlantic St. (Normandy Rd.)	N of Washington Street	63	2,000	2,119	1,873	2,441	2,503	2,518	2,676	2,709	3,543	3,211	3,969	3,668	3,120	3,213	2,550	2,616		
				5.95%	-11.61%	30.33%	2.54%	0.60%	6.27%	1.23%	30.79%	-9.37%	23.61%	-7.58%	-14.94%	2.98%	-20.63%	2.59%	2.85%	4,589
Carroll Street (Hwy 55)	W of Cobb Road	59	13,256	13,107	12,891	12,820	12,771	12,761	13,303	15,143	14,310	14,467	15,194	13,525	13,962	13,695	13,546	13,631		
				-1.12%	-1.65%	-0.55%	-0.38%	-0.08%	4.25%	13.83%	-5.50%	1.10%	5.03%	-10.98%	3.23%	-1.91%	-1.09%	0.63%	0.32%	14,529
	E of Washington Street	143	16,000	16,083	16,961	16,970	13,254	15,684	16,066	18,557	17,044	17,125	17,909	17,127	17,841	17,473	16,564	16,234		
				0.52%	5.46%	0.05%	-21.90%	18.33%	2.44%	15.50%	-8.15%	0.48%	4.58%	-4.37%	4.17%	-2.06%	-5.20%	-1.99%	0.52%	18,021
Clement Drive	W of Jackson St. (US 41A)	107	6,525	6,267	6,703	7,003	5,775	6,429	6,274	7,023	7,255	7,446	8,170	7,223	7,235	8,336	6,380	6,848		
				-3.95%	6.96%	4.48%	-17.54%	11.32%	-2.41%	11.94%	3.30%	2.63%	9.72%	-11.59%	0.17%	15.22%	-23.46%	7.34%	0.94%	8,259
Country Club Drive	S of Kings Lane	61	3,718	3,721	3,939	3,406	3,561	3,886	3,649	4,211	4,112	4,100	4,276	3,963	4,082	3,315	3,569	3,676		
				0.08%	5.86%	-13.53%	4.55%	9.13%	-6.10%	15.40%	-2.35%	-0.29%	4.29%	-7.32%	3.00%	-18.79%	7.66%	3.00%	0.31%	3,908
Cumberland Springs Rd.	W of Linda Lane	183	2,473	2,347	2,573	2,757	2,664	3,080	3,078	2,994	3,297	3,179	3,385	2,924	3,086	2,744	2,582	2,795		
				-5.10%	9.63%	7.15%	-3.37%	15.62%	-0.06%	-2.73%	10.12%	-3.58%	6.48%	-13.62%	5.54%	-11.08%	-5.90%	8.25%	1.16%	3,517
Forrest Boulevard	E of Anderson St.	80	5,748	5,600	4,789	4,552	4,486	4,228	4,753	4,539	4,458	5,172	4,536	4,243	3,973	3,653	3,760	4,189		
				-2.57%	-14.48%	-4.95%	-1.45%	-5.75%	12.42%	-4.50%	-1.78%	16.02%	-12.30%	-6.46%	-6.36%	-8.05%	2.93%	11.41%	-1.73%	2,957
Hogan Street	E of N. Atlantic	155	4,575	4,608	4,414	4,588	4,183	4,331	4,326	4,609	4,324	4,248	4,454	4,210	3,942	3,899	4,162	4,135		
				0.72%	-4.21%	3.94%	-8.83%	3.54%	-0.12%	6.54%	-6.18%	-1.76%	4.85%	-5.48%	-6.37%	-1.09%	6.75%	-0.65%	-0.56%	3,699
Jackson Street (US 41A)	N of Washington Street	64	20,400	18,412	18,637	19,150	19,102	19,048	17,938	20,705	19,735	22,343	20,360	23,067	20,971	19,394	20,223	18,126		
				-9.75%	1.22%	2.75%	-0.25%	-0.28%	-5.83%	15.43%	-4.68%	13.22%	-8.88%	13.30%	-9.09%	-7.52%	4.27%	-10.37%	-0.43%	16,628
	S of City Limits	69	9,960	9,985	10,274	8,739	9,839	10,149	10,961	11,551	10,965	11,547	11,746	11,064	11,746	10,870	10,723	10,558		
				0.25%	2.89%	-14.94%	12.59%	3.15%	8.00%	5.38%	-5.07%	5.31%	1.72%	-5.81%	6.16%	-7.46%	-1.35%	-1.54%	0.62%	11,946
	S of Carroll St. (Hwy 55)	99	14,071	12,443	12,904	12,163	12,305	13,233	13,771	15,409	14,236	15,258	14,929	14,747	15,196	15,215	15,671	14,215		
				-11.57%	3.70%	-5.74%	1.17%	7.54%	4.07%	11.89%	-7.61%	7.18%	-2.16%	-1.22%	3.04%	0.13%	3.00%	-9.29%	0.28%	15,018
	S of Wilson Ave. (Hwy 55)	101	24,888	24,000	21,516	21,563	20,463	22,337	22,071	25,130	22,276	22,294	21,265	20,605	21,142	20,309	19,757	20,212		
				-3.57%	-10.35%	0.22%	-5.10%	9.16%	-1.19%	13.86%	-11.36%	0.08%	-4.62%	-3.10%	2.61%	-3.94%	-2.72%	2.30%	-1.18%	15,937
	N of Carroll Street (Hwy 55)	149	23,893	19,663	18,588	17,294	16,434	19,107	19,575	20,508	19,877	20,499	19,564	17,376	19,266	19,709	18,428	18,542		
				-17.70%	-5.47%	-6.96%	-4.97%	16.27%	2.45%	4.77%	-3.08%	3.13%	-4.56%	-11.18%	10.88%	2.30%	-6.50%	0.62%	-1.33%	14,172
	N of Wilson Ave. (Hwy 55)	160	28,193	21,751	22,326	21,361	22,137	21,105	21,126	24,840	22,707	24,470	22,060	20,426	20,632	21,880	21,310	22,463		
				-22.85%	2.64%	-4.32%	3.63%	-4.66%	0.10%	17.58%	-8.59%	7.76%	-9.85%	-7.41%	1.01%	6.05%	-2.61%	5.41%	-1.07%	18,104
Ledford Mill Road	E of Jackson St. (US 41A)	168	986	990	1,071	1,086	1,129	1,225	1,144	1,330	1,461	1,504	1,380	1,280	1,240	1,296	1,335	1,370		
				0.41%	8.18%	1.40%	3.96%	8.50%	-6.61%	16.26%	9.85%	2.94%	-8.24%	-7.25%	-3.13%	4.52%	3.01%	2.62%	2.43%	2,214
Lincoln Street	E of Turkey Creek Road	67	5,684	5,833	5,906	5,910	5,855	6,406	6,311	6,768	7,369	7,113	7,049	6,415	6,657	6,139	6,240	6,457		
				2.62%	1.25%	0.07%	-0.93%	9.41%	-1.48%	7.24%	8.88%	-3.47%	-0.90%	-8.99%	3.77%	-7.78%	1.65%	3.48%	0.99%	7,859
	W of Jackson St. (US 41A)	100	12,100	11,046	11,090	11,100	9,694	10,233	9,260	10,755	10,907	11,234	10,400	9,979	9,254	9,812	9,811	8,365		
				-8.71%	0.40%	0.09%	-12.67%	5.56%	-9.51%	16.14%	1.41%	3.00%	-7.42%	-4.05%	-7.27%	6.03%	-0.01%	-14.74%	-2.12%	5,454
New Rock Creek Road	S of Jackson St. (US 41A)	68	1,346	1,317	1,533	1,742	1,574	1,453	1,618	1,508	1,531	1,443	1,594	1,432	1,510	1,425	1,415	1,509		
				-2.15%	16.40%	13.63%	-9.64%	-7.69%	11.36%	-6.80%	1.53%	-5.75%	10.46%	-10.16%	5.45%	-5.63%	-0.70%	6.64%	1.13%	1,889
Ovoca Road	N of Kings Lane	62	3,997	4,157	4,290	4,227	4,355	4,569	3,994	4,378	5,085	5,237	4,962	4,761	4,904	4,280	4,600	4,738		
				4.00%	3.20%	-1.47%	3.03%	4.91%	-12.58%	9.61%	16.15%	2.99%	-5.25%	-4.05%	3.00%	-12.72%	7.48%	3.00%	1.42%	6,281
Short Springs Road	E of Carter Blake Rd.	136	777	872	880	1,010	1,000	872	951	1,009	1,056	911	958	900	927	753	788	812		
				12.23%	0.92%	14.77%	-0.99%	-12.80%	9.06%	6.10%	4.66%	-13.73%	5.16%	-6.05%	3.00%	-18.77%	4.65%	3.05%	0.75%	943
Washington Street	N of Hogan St.	161	6,305	6,528	5,495	5,980	5,679	5,687	6,295	6,095	6,966	6,235	6,743	5,742	5,305	5,881	5,981	5,546		
				3.54%	-15.82%	8.83%	-5.03%	0.14%	10.69%	-3.18%	14.29%	-10.49%	8.15%	-14.85%	-7.61%	10.86%	1.70%	-7.27%	-0.40%	5,114
Wilson Avenue (Hwy 55)	E of Cedar Lane	102	14,017	10,922	10,476	12,471	11,086	11,565	11,683	12,011	12,253	12,554	11,416	11,336	11,676	9,974	10,273	8,992		
				-22.08%	-4.08%	19.04%	-11.11%	4.32%	1.02%	2.81%	2.01%	2.46%	-9.06%	-0.70%	3.00%	-14.58%	3.00%	-12.47%	-2.43%	5,500
	E of Old Shelbyville Hwy.	156	8,198	10,269	10,245	10,564	9,789	10,238	9,953	10,939	10,449	11,408	9,530	9,333	10,092	9,779	9,615	9,878		
				25.26%	-0.23%	3.11%	-7.34%	4.59%	-2.78%	9.91%	-4.48%	9.18%	-16.46%	-2.07%	8.13%	-3.10%	-1.68%	2.74%	1.65%	13,707
	W of Old Shelbyville Hwy.	157	7,655	7,765	7,990	8,100	7,595	9,843	7,146	8,465	7,609	7,534	7,084	6,964	7,269	7,637	7,980	7,641		
				1.44%	2.90%	1.38%	-6.23%	29.60%	-27.40%	18.46%	-10.11%	-0.99%	-5.97%	-1.69%	4.38%	5.06%	4.49%	-4.25%	0.74%	8,850
Cedar Lane	N of Airpark Dr.	214	0	0	0	0	0	0	8880	9561	9669	9514	11163	10011	9829	9457	10192	10288		
										7.67%	1.13%	-1.60%	17.33%	-10.32%	-1.82%	-3.78%	7.77%	0.94%	1.92%	15,049
	N of W Lincoln St.	125	12,992	12,429	11,333	11,111	10,680	10,757	10,686	11,765	13,073	11,421	12,752	11,347	10,080	10,082	10,781	10,017		
				-4.33%	-8.82%	-1.96%	-3.88%	0.72%	-0.66%	10.10%	11.12%	-12.64%	11.65%	-11.02%	-11.17%	0.02%	6.93%	-7.09%	-0.14%	9,740
	N of McKellar Dr.	126	10,326	9,667	9,577	9,971	9,589	9,777	9,852	10,727	10,782	12,052	12,277	10,919	9,696	9,858	10,165	10,281		
				-6.38%	-0.93%	4.11%	-3.83%	1.96%	0.77%	8.88%	0.51%	11.78%	1.87%	-11.06%	-11.20%	1.67%	3.11%	1.14%	0.16%	10,615
Kings Lane	W of Country Club Dr.	164	3,354	3,272	3,184	3,364	3,592	3,503	3,317	3,732	3,819	3,659	3,787	3,984	3,901	3,326	3,592	3,700		
				-2.44%	-2.69%	5.65%	6.78%	-2.48%	-5.31%	12.51%	2.33%	-4.19%	3.50%	5.20%	-2.08%	-14.74%	8.00%	3.01%	0.87%	4,400

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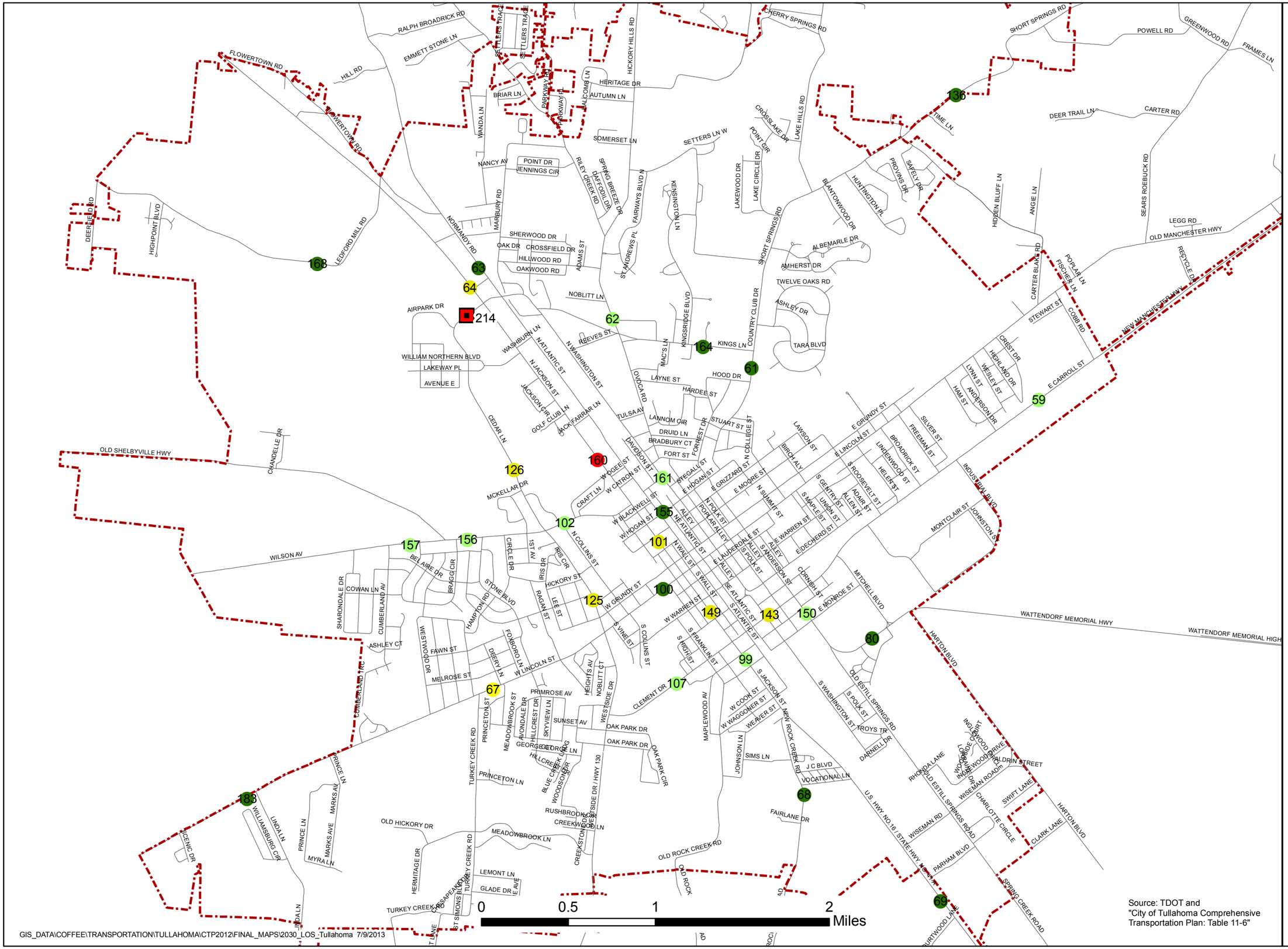
TABLE IV-2
Traffic Data - Historical and Projected

LOS 2030 by Classification Map IV-1



Level of Service (LOS)

Classification

- A, Arterial Urban
- A, Collector Urban
- B, Arterial Urban
- B, Collector Urban
- C, Arterial Urban
- C, Collector Urban
- D, Arterial Urban
- E, Arterial Urban

Using 2010 LOS on Stations with Negative Avg Growth per Year

#214 Projection Calculated From 2001-2010

Cedar Lane LOS is Based Current Lane Conditions, LOS Will Improve One Step with Added Lane

Source: TDOT and "City of Tullahoma Comprehensive Transportation Plan: Table 11-6"

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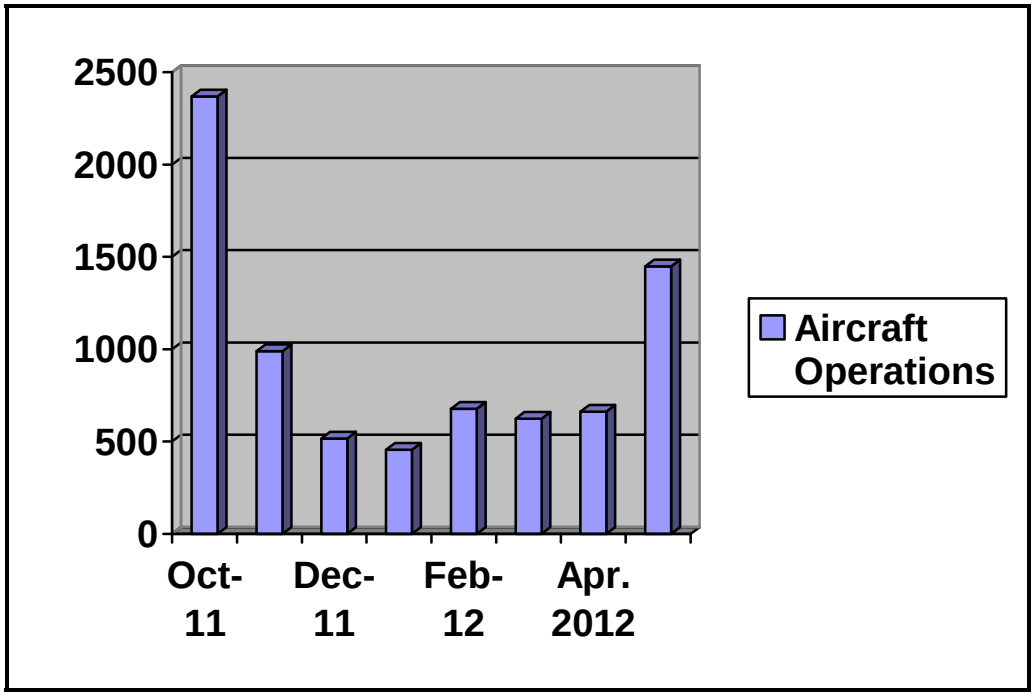
V. INTERMODALITY

Intermodality consists of the combination of more than one mode of transportation and typically results in the interchange of equipment. In Tullahoma examples can include the interaction between air transportation and transfer to vehicular transportation and can involve a passenger or passengers or the transfer of freight. Other local examples would include vehicular transportation to pedestrian or bicycle modes, typically using trailheads or the transfer of freight or materials from rail to trucks or trailers by way of depots, yards or transfer stations.

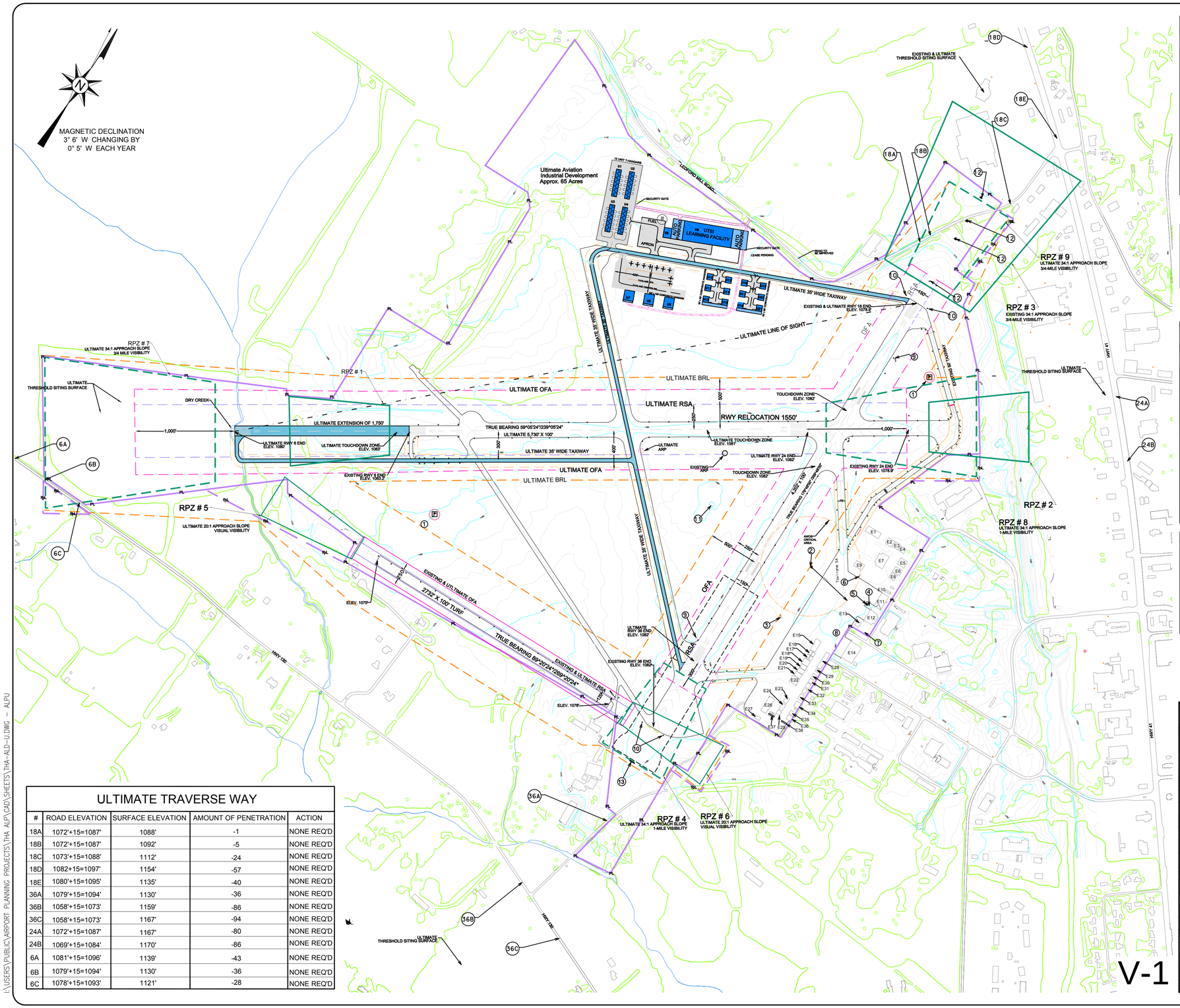
Airport Infrastructure

The City of Tullahoma has an active general aviation municipal airport in the northwest quadrant of the City with Airport Operations activity levels for the period October 2011 thru May 2012 listed in Table V-1 (below). There are two paved runways and a grassed runway. The primary runway, Runway 06/24, is oriented in the east-west position and extends westward towards the Tullahoma-Coffee County/ Moore County boundary. This primary runway has been extended in recent years and a long-range plan for an additional extension westward is shown on the Ultimate Airport Layout Map (page 30).

TABLE V-1
TULLAHOMA AIRPORT AIRCRAFT OPERATIONS – OCT. 2011 THRU MAY 2012



Source: Tullahoma Airport Authority



ULTIMATE FACILITIES

#	DESCRIPTION	TOP ELEVATION	#	DESCRIPTION	TOP ELEVATION
U1	12 UNIT T-HANGAR	1112'	U12	60' x 60' HANGAR	1109'
U2	12 UNIT T-HANGAR	1112'	U13	60' x 60' HANGAR	1109'
U3	12 UNIT T-HANGAR	1112'	U14	60' x 60' HANGAR	1109'
U4	12 UNIT T-HANGAR	1112'	U15	60' x 60' HANGAR	1109'
U5	75' x 40' HANGAR	1122'	U16	60' x 60' HANGAR	1109'
U6	490' x 195' HANGAR	1122'	U17	60' x 60' HANGAR	1109'
U7	100' x 100' HANGAR	1114'	U18	60' x 60' HANGAR	1109'
U8	100' x 100' HANGAR	1114'	U19	60' x 60' HANGAR	1109'
U9	100' x 100' HANGAR	1114'	U20	60' x 60' HANGAR	1109'
U10	60' x 60' HANGAR	1109'	U21	60' x 60' HANGAR	1109'
U11	60' x 60' HANGAR	1109'			

NOTE : For planning purposes, ultimate building height for 100' x 100' is 30', 60' x 60' is 25', t-hangar is 20' and 75' x 40' is 30'.

ULTIMATE RUNWAY PROTECTION ZONES

RPZ 7	1,700'L, 1,000'IW, 1,510'OW
RPZ 8	1,700'L, 500'IW, 1,010'OW
RPZ 9	1,000'L, 500'IW, 700'OW

EXISTING OBJECTS

NUMBER	FEATURE
1	WINDSOCK & SEGMENTED CIRCLE
2	AWOS III
3	TETRAHEDRON
4	ROTATING BEACON
5	AVGAS PUMPS
6	JET-A PUMPS
7	AUTO PARKING
8	AIRCRAFT PARKING APRON
9	GVGSI
10	REIL
11	VOR
12	ODALS
13	SDF

EXISTING RUNWAY PROTECTION ZONES

RPZ 1	1,000'L, 500'IW, 700'OW
RPZ 2	1,000'L, 500'IW, 700'OW
RPZ 3	1,700'L, 1,000'IW, 1,510'OW
RPZ 4	1,000'L, 500'IW, 700'OW
RPZ 5	1,000'L, 250'IW, 450'OW
RPZ 6	1,000'L, 250'IW, 450'OW

ULTIMATE TRAVERSE WAY

#	ROAD ELEVATION	SURFACE ELEVATION	AMOUNT OF PENETRATION	ACTION
18A	1072'+15=1087'	1088'	-1	NONE REQ'D
18B	1072'+15=1087'	1092'	-5	NONE REQ'D
18C	1073'+15=1088'	1112'	-24	NONE REQ'D
18D	1082+15=1097'	1154'	-57	NONE REQ'D
18E	1080'+15=1095'	1135'	-40	NONE REQ'D
36A	1079'+15=1094'	1130'	-36	NONE REQ'D
36B	1058'+15=1073'	1159'	-86	NONE REQ'D
36C	1058'+15=1073'	1167'	-94	NONE REQ'D
24A	1072'+15=1087'	1167'	-80	NONE REQ'D
24B	1069'+15=1084'	1170'	-86	NONE REQ'D
6A	1081'+15=1096'	1139'	-43	NONE REQ'D
6B	1079'+15=1094'	1130'	-36	NONE REQ'D
6C	1078'+15=1093'	1121'	-28	NONE REQ'D

LEGEND

DESCRIPTION	EXISTING	ULTIMATE
Runway Markings		
Runway Safety Area (RSA)		
Runway Object Free Area (ROFA)		
Runway Protection Zone (RPZ)		
Taxiway Object Free Area (TOFA)		
Taxiway Safety Area		
Building Restriction Line (BRL)		
Runway Visibility Zone		N/A
Airfield Pavement		
Automobile Parking		
Airport Apron		
Airport Reference Point		
Airport Buildings		
Airport Property Line/Easements	PL	PL
Roads		
Tree line		
Stream		
Ground Elevation Contours	2' 1090 10' 1075	2' 1090 10' 1075
GVGSI		

DATE	REVISION	BY

TULLAHOMA REGIONAL AIRPORT
WILLIAM NORTHERN FIELD
TULLAHOMA, TENNESSEE

APPROVED
Chairman, General John Miller
DATE

HEI Project No.	06S8015		
Filename	THA-ALD-U.DWG		
Scale	1"=500'		
Date	5/13/08		
LAYOUT	JLB2	2/07	
DRAWN	JLB2	5/13/08	
REVIEWED	TSH	5/13/08	

HANSON

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ULTIMATE
AIRPORT LAYOUT
DRAWING

3

MAY 13, 2008 11:13 AM BINGH01213
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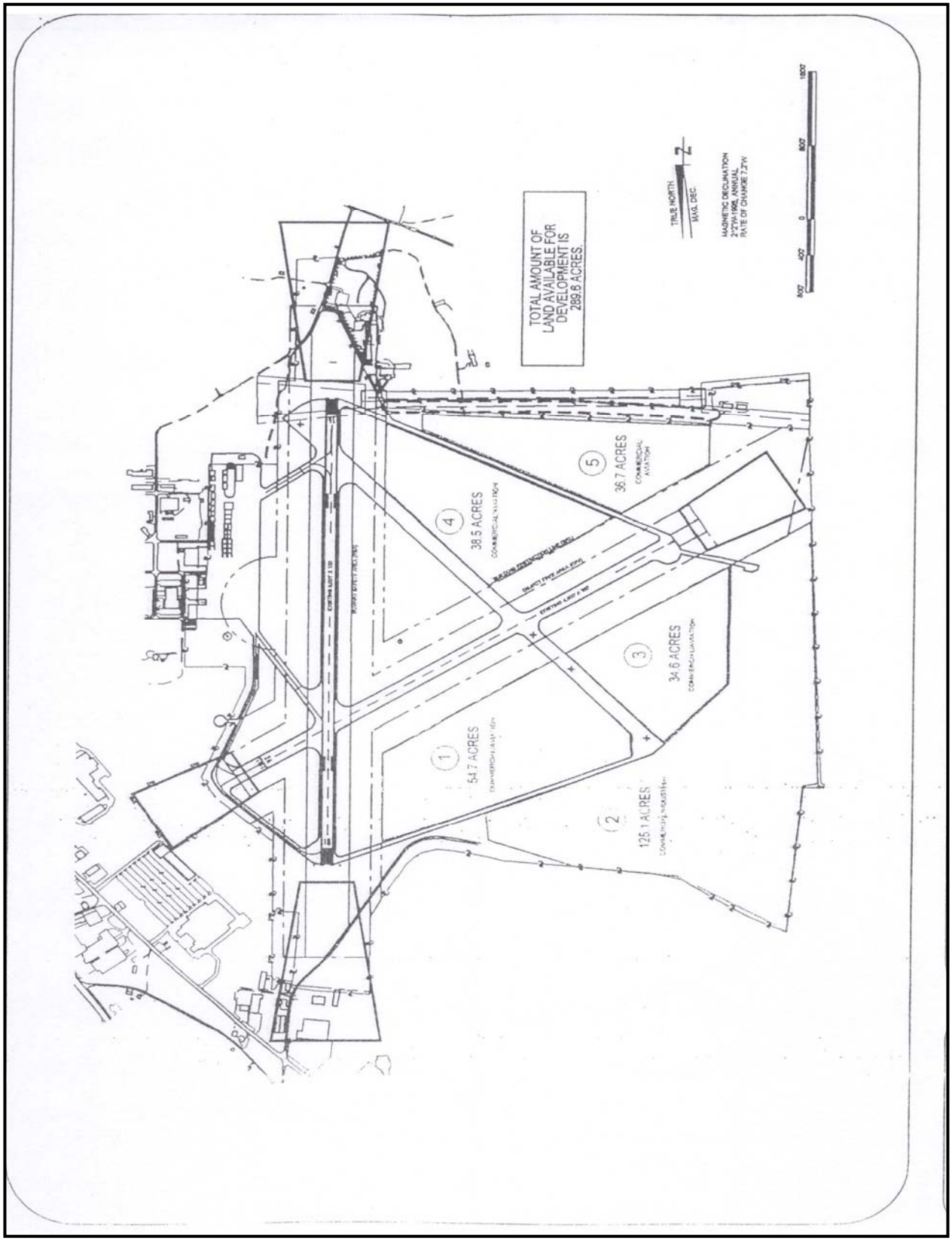
The airport is important to the economic growth of the community due to the existence of airport related businesses, industries, and its generation of tourism to the area. The airport generates vehicular traffic in support of, and as a result of, aircraft related activity, businesses, and industries. The 2000 Airport Area Development Study identified land development options which are shown on Map V-2 (page 32). Since the 2000 study, the airport authority has worked to construct airport infrastructure in support of general aviation use of the airport. The next project is the development of an airport business park to be located within the designated plan area. An airport business park is expected to generate additional commercial business, industries, and private aircraft hangars for the facility. Roadway improvements will be needed on Ledford Mill Road in support of the development, but will consist primarily of resurfacing, pavement marking, and some widening to provide for two 12-ft. lanes, and shoulders.



Source: *Tullahoma Airport Area Study*

Map V -2
Land Development Options

Pedestrian and Bicycle Infrastructure

Pedestrian facilities including sidewalks, greenways, and bicycle routes are important alternate modes of transportation. These types of facilities also are important to improving the quality of life of citizens. The City has historically placed emphasis on developing sidewalks and greenways within the community.

- **Bike Paths** are pathways specifically constructed for bicycle or combined with pedestrian use. These paths are physically separated from the roadway (Figure V-1, page 34).

- **Bike Lanes** include striped lanes on the edges of the roadway that are specifically designated for bicycle travel (Figure V-2, page 35).

- **Shared Roadways** are roadways with wider than normal lanes. These roadways are signed for bicycle, but are not striped for bike lanes.

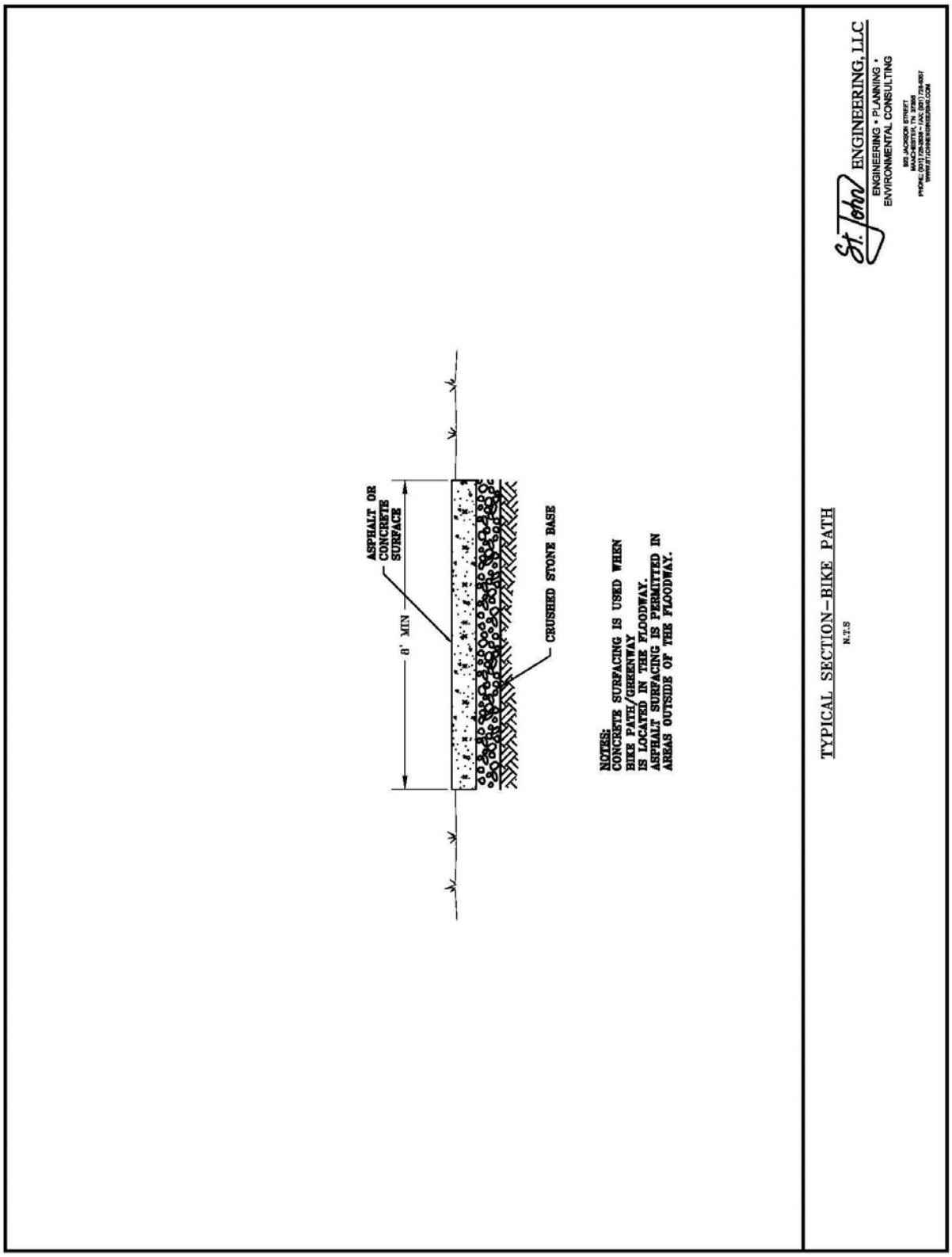


Figure V-1
Bike Path

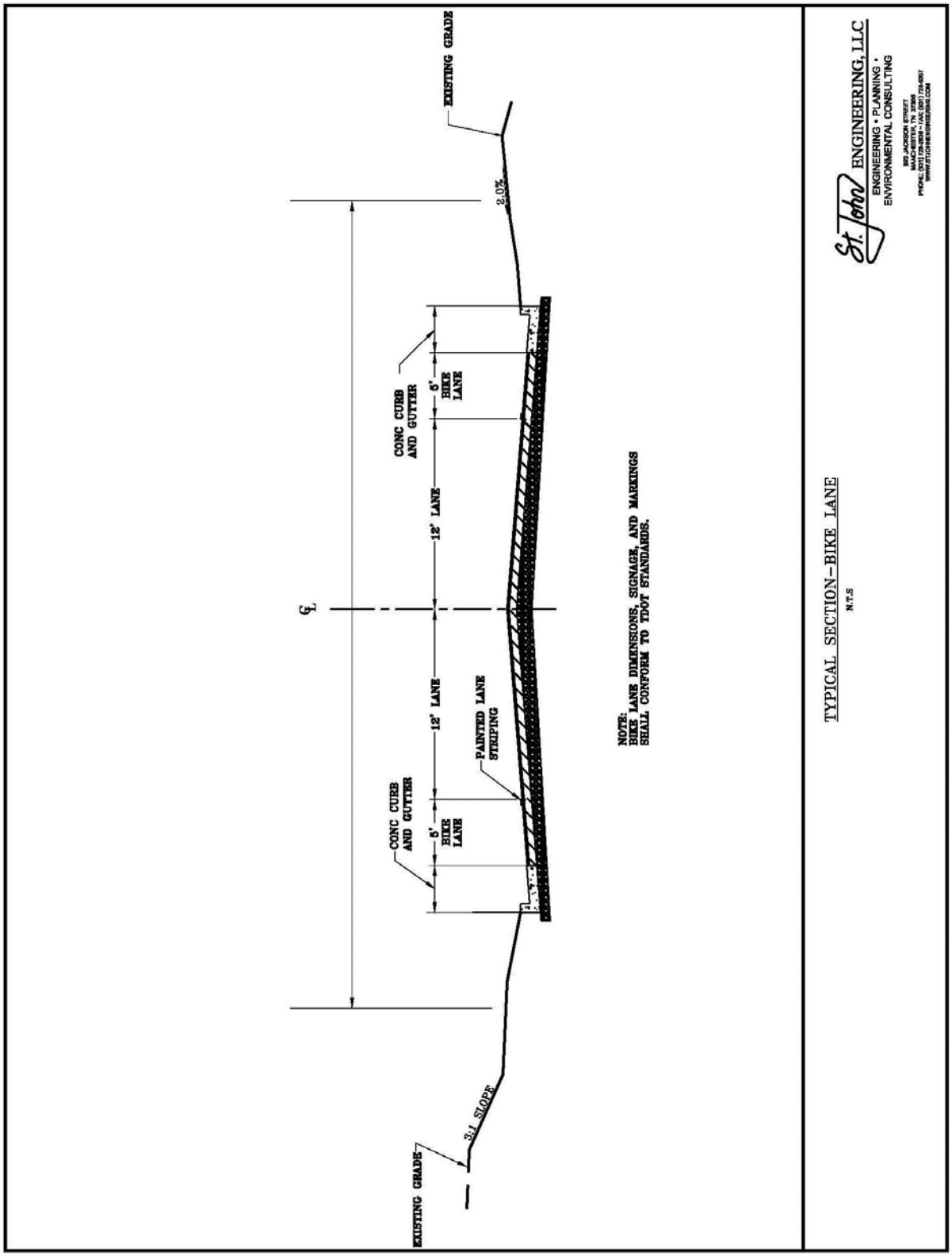


Figure V-2
Bike Lanes

Map V-5 (page 39) illustrates desirable locations for bike routes. The figure is not meant to be all inclusive of any and all enhancement projects which the City should undertake during the planning period; but, rather to be used as a guide for where bikeways may be best utilized.

The Sidewalk Master Plan, Map V-3(page 37), and the Greenway Master Plan, Map V-4 (page 38), outline the proposed development of pedestrian infrastructure in Tullahoma. Over the last decade, the City has applied for, received awards for, and constructed a number of pedestrian facility extensions with federal and state grants. The grants have included TDOT Enhancement funds, TDOT Safe-Routes-To-School grants, TDEC Recreational Trails Program, and TDEC LPRF funds. Grant applications continue to be submitted annually to further extend these pedestrian facilities.

Currently, the City has been awarded and is in various phases of implementation for pedestrian projects including the West Lincoln Street Sidewalk Extension Project (TDOT SRTS), Collins Street Greenway Extension (TDOT Enhancement), East Lincoln Street Sidewalk Extension Project (TDOT SRTS), and the Downtown Revitalization Projects Phase I and II (TDOT Enhancement).

The intent is to implement bike routes into roadway improvement projects on numerous arterial and collector streets planned for the future. Bike lanes adjacent to the vehicle lanes are a standard design feature in many communities on selected streets. Bike lanes are encouraged by TDOT as an alternate mode of transportation and will be implemented in the future in the City of Tullahoma.

City of Tullahoma Sidewalk Plan Map V-3

Existing Sidewalk

Proposed Sidewalk

Tullahoma C/L

Points of Interest

1. City Hall
2. Post Office
3. Lannom Memorial Library
4. Harton Regional Medical Center
5. South Jackson Civic Center
6. Tullahoma Fine Arts Center
7. D.W. Wilson Center
8. Cascade Park
9. Frazier McEwen Park
10. Waggoner Park
11. Bel Aire Elementary School
12. E. Lincoln Elementary School
13. Imagination Station
14. Hands on Science Center
15. Farrar Elementary School
16. Robert E. Lee Elementary School
17. East Middle School
18. West Middle School
19. Tullahoma High School
20. Short Springs State Natural Area
21. Jefferson Park
22. C.D. Stamps Community Center
23. Johnson Lane Recreation Area
24. Rogers Group Soccer Complex
25. Senior Citizen's Center
26. Downtown Park
27. History Park
28. East Park Natural Area & Outdoor Classroom
29. Clayton-American City Bank Terminal
30. Evergreen Cemetery
31. Conferderate Veterans Cemetery
32. Maplewood Cemetery
33. Oakwood Cemetery
34. Beechcraft Heritage Museum
35. George A. Dickel Distillery
36. Rutledge Falls
37. Tennessee Correction Academy
38. Citizen's Cemetery

0 0.5 1 2 Miles

N W E S

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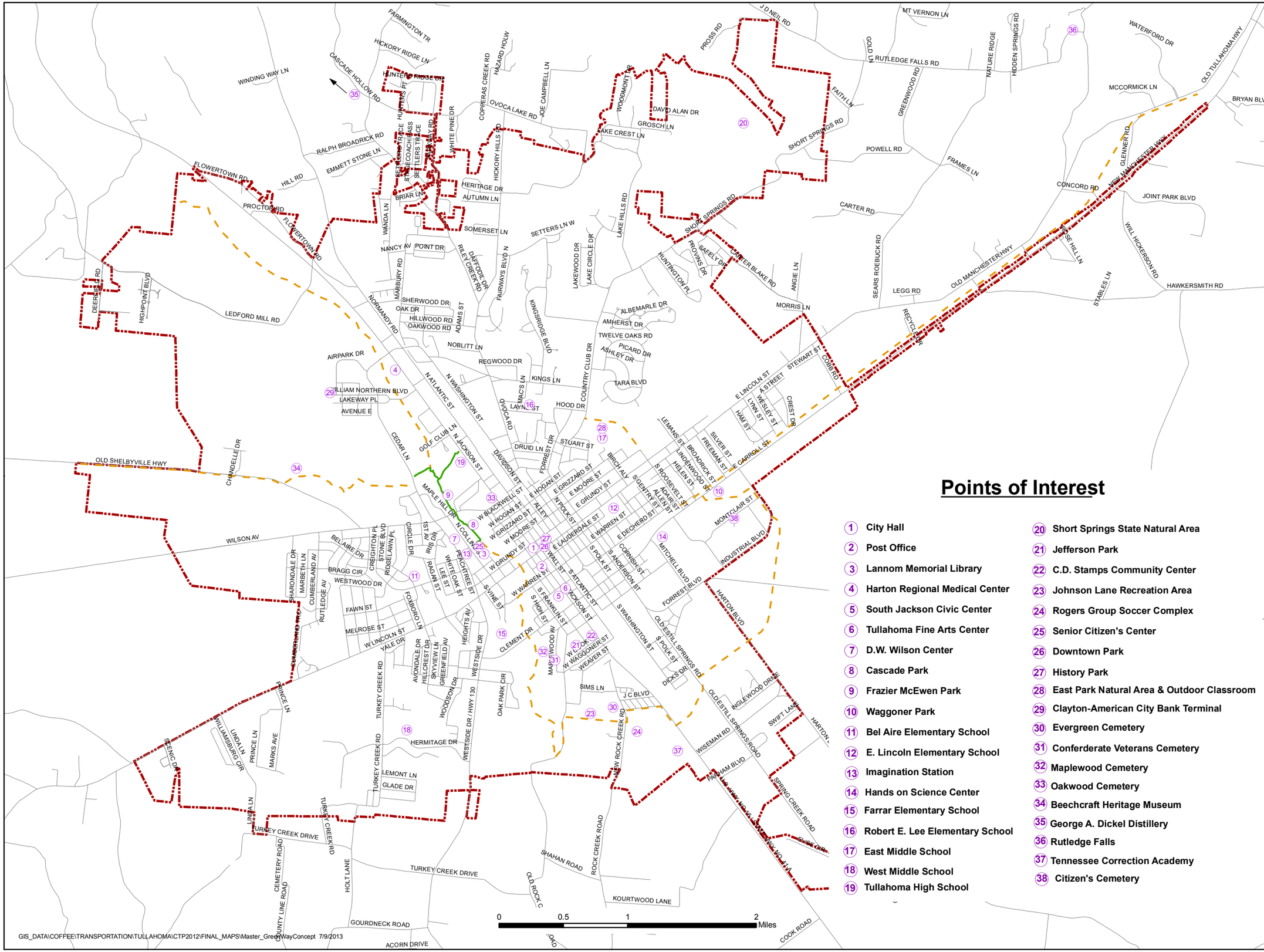
City of Tullahoma Greenway Plan Map V-4



Existing Greenway

Proposed Greenway

Tullahoma C/L

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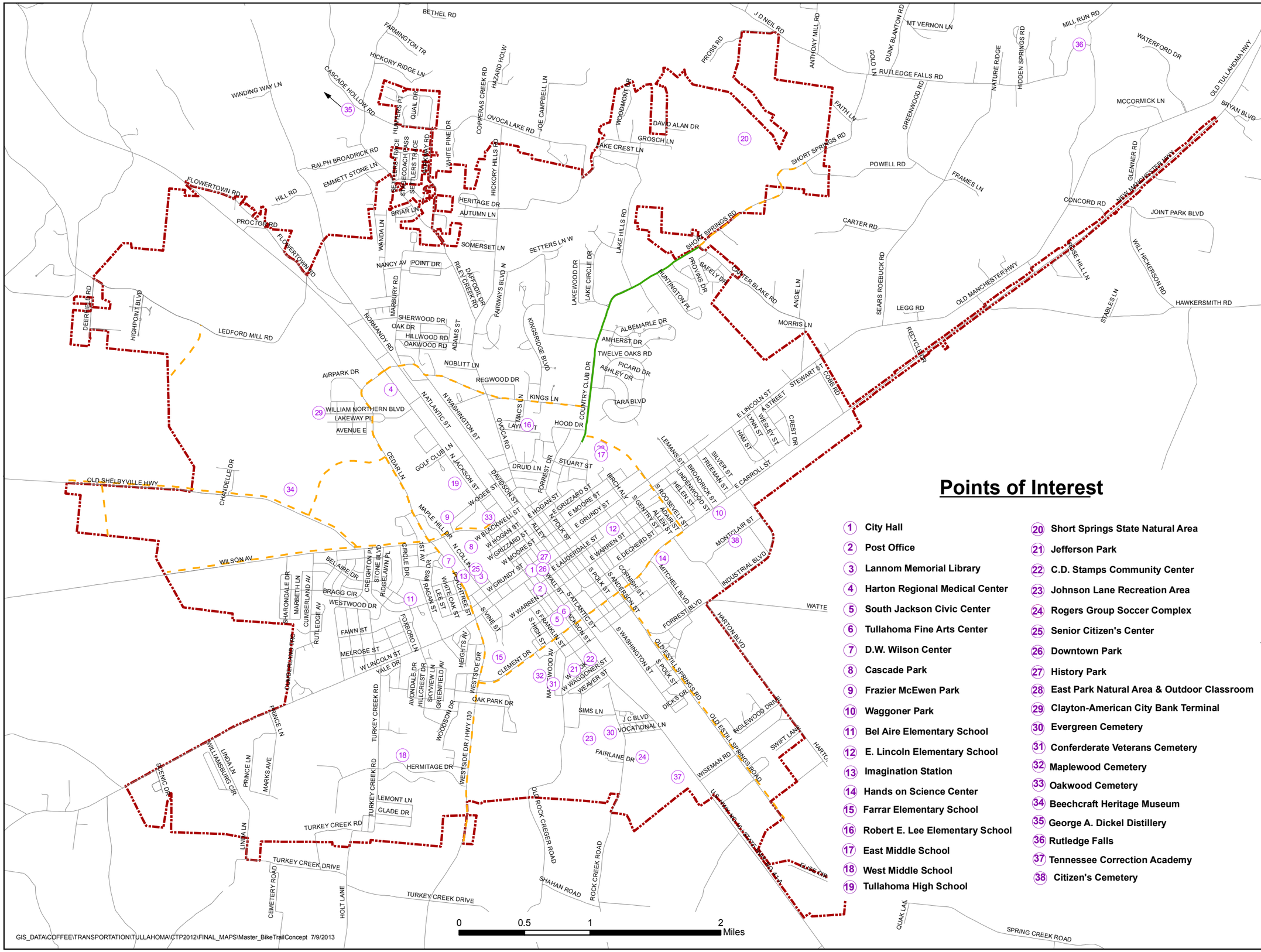
City of Tullahoma Bike Route Plan Map V-5



Points of Interest

1. City Hall
2. Post Office
3. Lannom Memorial Library
4. Harton Regional Medical Center
5. South Jackson Civic Center
6. Tullahoma Fine Arts Center
7. D.W. Wilson Center
8. Cascade Park
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Existing Bike Path

Proposed Bike Lane or Path

Tullahoma C/L

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Rail Facilities

The Tennessee Department of Transportation has funded two rail plans within the last ten years. The *Tennessee Rail System Plan* (2003) provided a review of existing lines, rail program recommendations and funding options. The other study was associated with high-speed rail. The *Maglev Feasibility Study* (2008) focused on evaluating a high-speed railroad corridor between Atlanta and Nashville with further points north.

The TDOT *Tennessee Rail System Plan* also provided a rail system inventory that included information on the Class of Track. Depending on condition and geometry of the railroad track, the Federal Railroad Administration (FRA) categorized track into separate classes. Geometry of the track includes the degree of curvature, super-elevation, and gage variances of the railroad track. Condition of the track includes such items as the overall maintenance of the roadbed and railroad. Table V-2 (below) lists the FRA's speed limits for each class of track.

TABLE V-2
FRA – SPEED LIMITS BY CLASS OF TRACK

Class of Track	Maximum Allowable Operating Speed for Freight Trains
Excepted	10
1	10
2	25
3	40
4	60
5	80

"Excepted track" is track that is allowed to operate by the FRA with certain limitations. Some of these limitations include limiting the number of hazardous material carloads on a train to five and forbidding passenger trains altogether. By keeping the railroads maintained at the highest class of track possible, railroads are allowed to operate trains at higher speeds.

The City of Tullahoma is served by a Class I railroad, CSX Transportation (CSX) and a non-Class I short line railroad, the Caney Fork & Western (CF&W). There is also a spur to AEDC that is partly used by CSX to serve businesses in the Tullahoma Industrial Park. Beyond that point the track is under the jurisdiction of AEDC, though that remainder has not been used in a decade. Railroad classifications are established by the Surface Transportation Board (STB), based on the operating revenues for each of the railroads. A Class I railroad is one in which the operating revenues exceed $250 million.

CSX Transportation

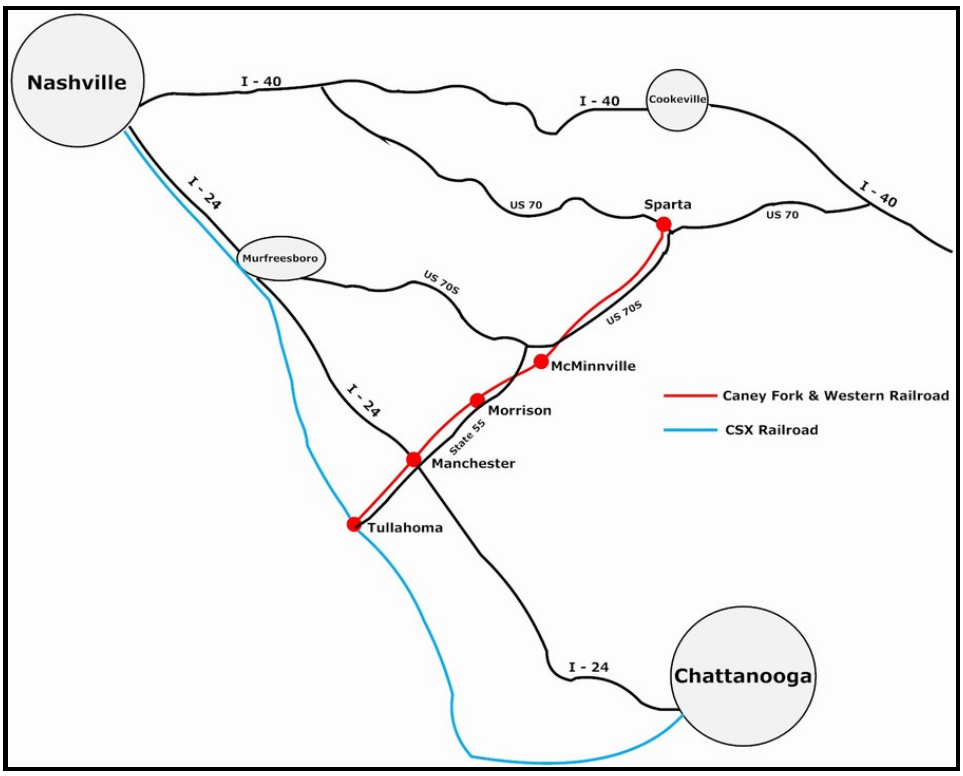
CSX Transportation operates 23,357 miles of track in 23 states in the eastern United States. In Tennessee, CSX operates 1,137 miles of track. The CSX track that runs through the heart of Tullahoma has a high volume of traffic and has been rated as congested.

Caney Fork & Western Railroad

Connecting with CSX's Class I rail line in Tullahoma, is a local rail line, also known as a short line, managed and operated by the Caney Fork & Western Railroad (CF&W), which is owned by Iron Horse, Inc. (Map V-6). Both rail lines carry freight and there is no passenger service in Tullahoma. There is a CSX depot and small rail yard in Tullahoma. The railroad corridor is owned by the Tri-County Railroad Authority, which was established by state law and who purchased the line from CSX in 1983 in order to maintain rail transportation capabilities for economic development. The Caney Fork & Western Railroad operates on a 59.1 mile corridor from Tullahoma to Sparta. The CF&W has proposed to construct a transfer facility north of the existing city limits adjacent to the tracks that will provide a rail-truck connection.

High-Speed Rail

TDOT studied several corridors between Nashville and Chattanooga, including one along the US41-A route through Tullahoma, and their preferred route has been identified as the Interstate 24 corridor. If implemented, this would put the corridor through Manchester, but there would be no stops between Nashville and Chattanooga.



Source: Caney Fork & Western Railroad

Map V – 6
Rail Connections in Tullahoma

Table V-3 provides the breakdown for CSX and CF&W.

TABLE V-3
CLASS OF TRACK (in Tennessee)

Railroad	Excepted Track	Class 1	Class 2	Class 3	Class 4	Class 5
Caney Fork & Western	59.1	0	0	0	0	0
CSX Transportation	0	46.2	147.6	194.8	586.4	0

TABLE V-4
RAIL CROSSINGS IN TULLAHOMA

Location	Railroad	No. of Tracks	Crossing Type	Signals	Gates	Notes
Marbury Rd.	CSX	2	At-grade	N	N	Closed
N. Washington St.	CSX	2	Grade-separated	N/a	N/a	Underpass
N. Atlantic St.	CSX	1	At-grade	N	N	Inactive spur
Brown St.	CSX	2	At-grade	Y	Y	
E. Hogan St.	CSX	2	At-grade	Y	Y	
E. Grundy St.	CSX	1	At-grade	Y	Y	
E. Lincoln St.	CSX	1	At-grade	Y	Y	
E. Lauderdale St.	CSX	2	At-grade	Y	Y	
E. Warren St.	CSX	2	At-grade	Y	Y	
SR 55/Carroll St.	CSX	2	Grade-separated	N/a	N/a	Viaduct
Wiseman Rd.	CSX	1	At-grade	Y	Y	
Parham Rd.	CSX	1	At-grade	Y	Y	
S. E. Atlantic St.	CSX	1	At-grade	Y	N	Connects CFW/AEDC
S. Washington alley	CSX	1	Grade-separated	N/a	N/a	RR bridge
Polk St.	CSX	1	At-grade	N	N	
Anderson St.	CSX	1	At-grade	Y	Y	
SR 55	AEDC	1	At-grade	N	N	
Industrial Blvd.	AEDC	1	At-grade	N	N	
Montclair St.	AEDC	2	At-grade	N	N	
Industrial Blvd. (2)	AEDC	1	At-grade	N	N	
Roosevelt St.	CFW	1	At-grade	N	N	
Helen St.	CFW	1	At-grade	N	N	
Broadrick St.	CFW	1	At-grade	N	N	
Freeman St.	CFW	1	At-grade	N	N	
Anderson Dr.	CFW	1	At-grade	N	N	
Cobb Rd.	CFW	1	At-grade	N	N	

VI. CONCEPT PLAN

Long-Range Improvements

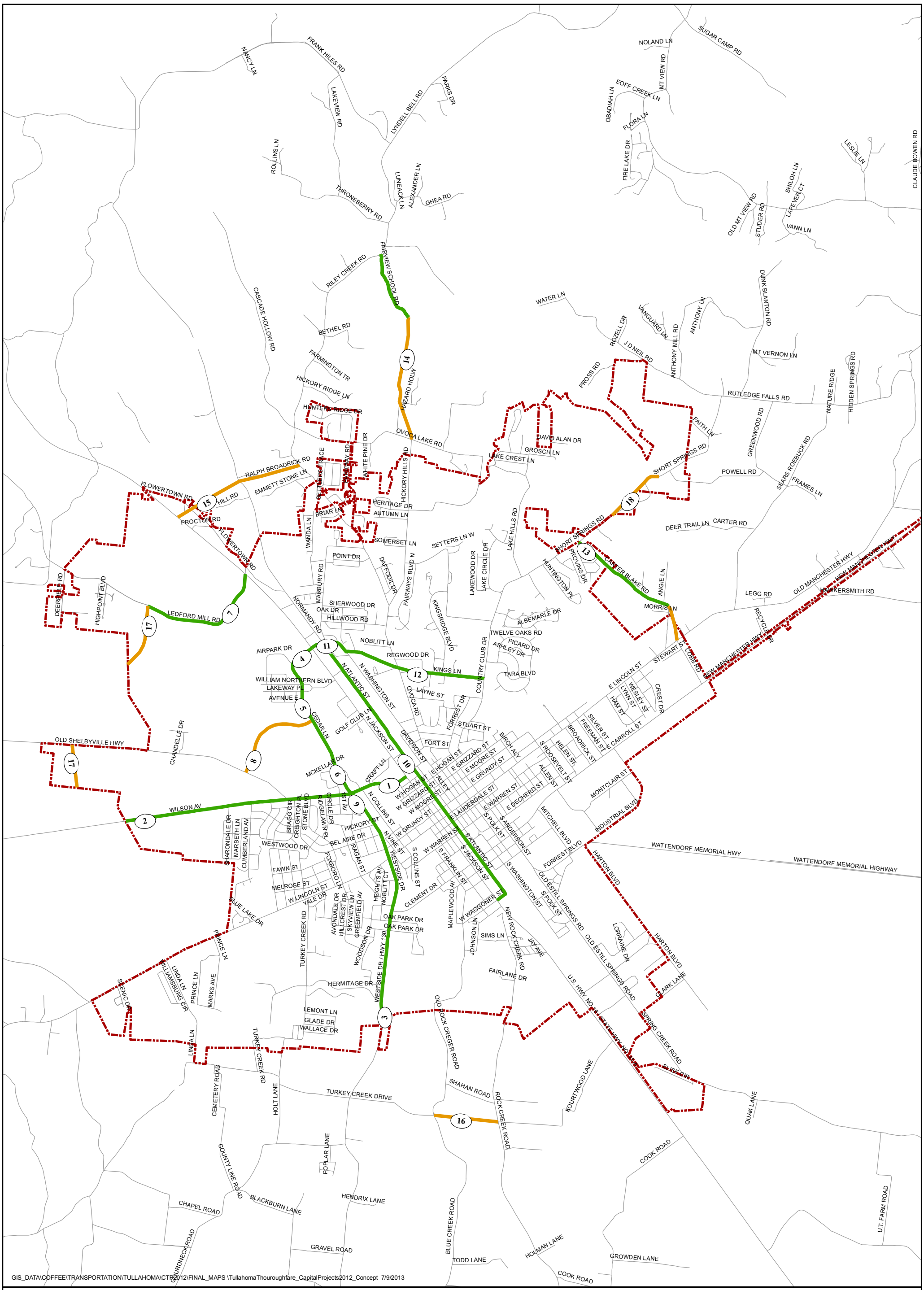
During the preparation of this Comprehensive Transportation Plan, the Planning Commission has been actively involved in its development. The Commission has reviewed traffic counts, traffic projections, levels of service, and accident rates. The members have evaluated the current transportation system and discussed needed improvements to current roadway segments. The Commission has solicited input from citizens through the media on needed improvements to the transportation system. All of the proposed roadway projects on existing alignments outlined in later sections were thoroughly evaluated by the Commission. The proposed improvements are shown in a Concept Plan on Map VI-1 (page 44).

A number of proposed projects on existing alignments are projects already under consideration or active projects by the Tennessee Department of Transportation. The projects include the widening of US Hwy 41A from Tullahoma to Shelbyville and two projects on SR 55 from Tullahoma to Lynchburg. Another project that has been discussed as a future need by TDOT is the widening of SR 130 (Westside Drive) from Clement Drive to the Urban Growth Boundary. These projects will be completely funded by TDOT.

In 2003, the City developed a study of the Cedar Lane corridor with an emphasis on the area bounded to the west by the Tullahoma Municipal Airport. The need for transportation improvements in the airport area was a recommendation in order to accompany an expanding hospital, additional medical facilities, and to market the development of aviation-related businesses and industries. It is noted that some of the roadway improvements will be driven by the public sector while others will be developed by the private sector. Based on recommendations of the study, the City of Tullahoma has moved forward a Surface Transportation Project to widen Cedar Lane from North Jackson Street to William Northern Boulevard with construction expected to begin in 2012. The study also recommended improved access from Cedar Lane to SR 130.

Several other proposed projects on existing alignments have been discussed with a high priority level assigned, such as improvements to future phases of Cedar Lane to create a three-lane minor arterial street on the west side of the City that serves as an alternate route to North and South Jackson Street. On the east side of the City, Atlantic Street has also been evaluated as a project to better serve as an alternate to North and South Jackson Street. Other projects on existing alignments include Ledford Mill Road which was discussed earlier, and improvements to Ralph Broadrick Road in the northern portion of the City.

In 2007, the Planning Commission updated the Major Thoroughfare Plan for the City of Tullahoma and added four proposed roadway segments on new alignments. Those projects consisted of a northward extension of Hickory Hills Road connecting to Riley Creek Road, a westward extension of Ralph Broadrick Road to US Hwy 41A, a connector road from Ledford Mill Road to Old Shelbyville Hwy (SR 130), and a new segment of roadway from Turkey Creek Road to Kourtwood Lane in the southern section of the UGB. The development of this Comprehensive Transportation Plan has maintained these proposed segments.



Capital Projects APR2012

- Project on Existing Alignment
- Project on Proposed Alignment
- Tullahoma City Limits

Concept Plan
Map VI-1

0 0.5 1 2 Miles

N W E S

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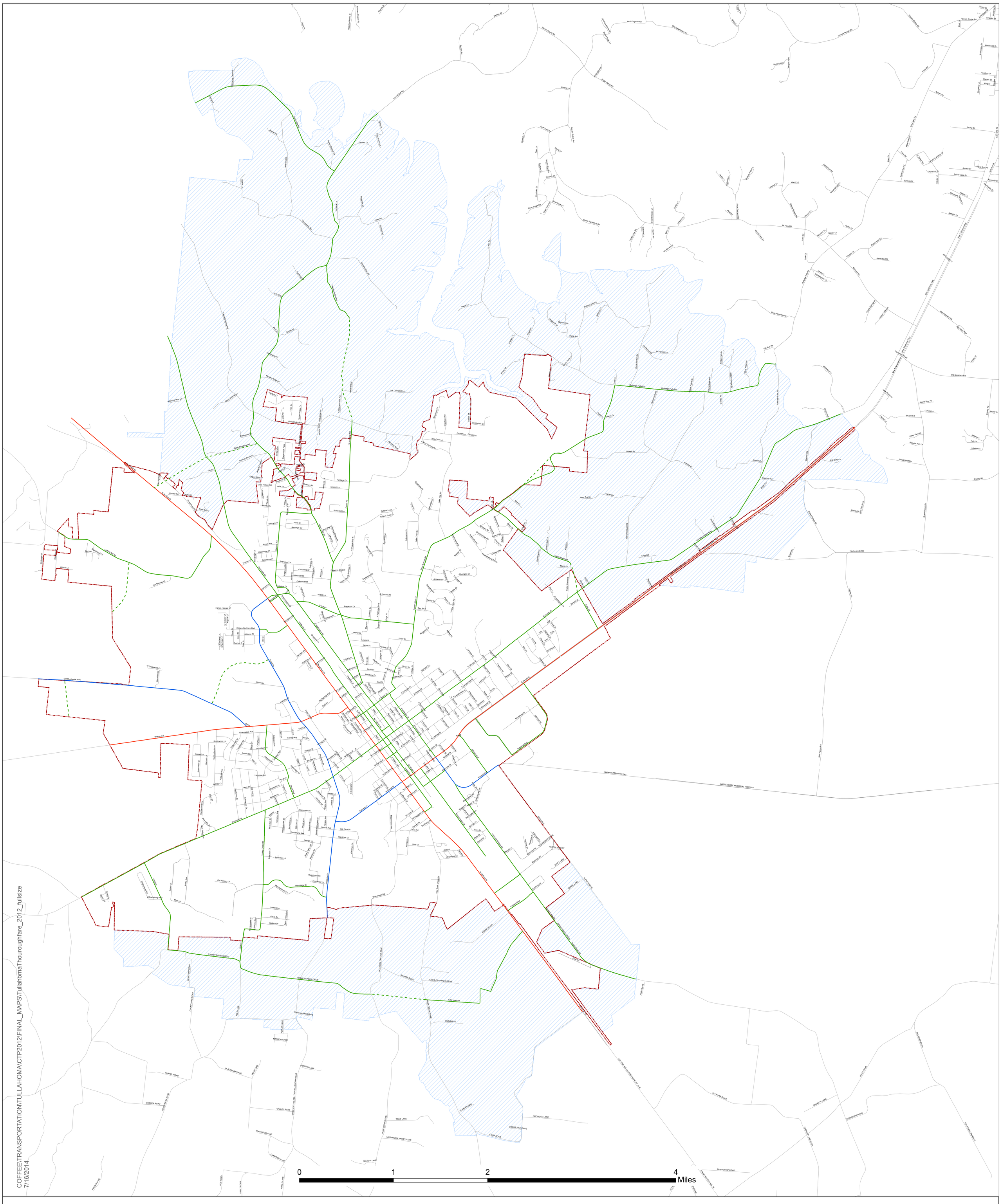

COFFEE\TRANSPORTATION\TULLAHOMA\CTP2012\FINAL_MAPS\TullahomaThouroughfare_2012_fullsize
7/16/2014

Tullahoma Thoroughfare Plan

- Urban Principle Arterial (84' - 150' ROW)
- Urban Minor Arterial (60' - 84' ROW)
- Urban Minor Arterial - Proposed (60' - 84' ROW)
- Urban Collector (60' ROW)
- Urban Collector - Proposed (60' ROW)

Major Thoroughfare Plan - Tullahoma, TN

Map VI-2

Adoption Resolution #1591
Adopted July 8, 2013
Amendment Resolution #1753
Amended May 21, 2018

N
W E
S

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The proposed Major Thoroughfare Plan in Map VI-2 (page 45) represents the recommended final traffic plan as a result of the evaluation of all factors in this plan. The Major Thoroughfare Plan shows the intended classification of proposed roadways on new alignments as well as existing roadways. This plan lists the needed right-of-way widths for each classification of roadway. The thoroughfare plan is intended to be utilized by the Planning Commission and staff in requiring future dedication of right-of-way by residential subdivisions, commercial developers, and industrial developers. Preserving the needed right-of-way for the construction of planned roadways is critical to meeting this long-range transportation plan.

As a result of the plan, some portions of the proposed roadways may be constructed by private developers over time. Other portions will be constructed by the City. TDOT funding will play a critical role in years to come in the ability to construct the longer segments of the plan. The City of Tullahoma is currently utilizing TDOT STP (Surface Transportation Program) funds for the upcoming widening of Cedar Lane, Phase I, from N. Jackson Street to William Northern Blvd.

20-Year Plan by 5-Year Increments

A proposed 20-year project list is presented in Table VI-1 (page 47). The project list is broken down into five-year increments with the intended completion of projects in that period listed. This list contains numerous projects that were identified in the 1996 Comprehensive Transportation Plan but were not completed. Therefore, it is noted that this project list is an aggressive plan that relies heavily on favorable economic conditions at the federal, state, and local levels to generate the needed funding. This 20-year project list is to be reviewed by the Planning Commission every five years and revised as necessary.

Map VI-1 (page 44), Concept Plan, depicts the projects identified on the 20-year project list. This plan mirrors the Major Thoroughfare Plan in layout of arterial and collector streets planned for the City over the upcoming year 20-year period and beyond.

Recommended interim improvements to the transportation system are listed in Table VI-2 (page 49). These items are considered projects of a size that they can be completed with City forces or they can be budgeted into a single fiscal year without issuance of bonds or other financing. These projects are considered an immediate need and should be enacted within the first five-year period.

The Planning Commission, during the development of the Comprehensive Transportation Plan, has evaluated the need for, and the alignment options of, an urban minor arterial connector roadway that extends around the perimeter of the City providing connectivity to existing arterial and collector roadways. Much consideration has been given to the need for the connector roadway and to the phasing plan of the route. While the long-term need was identified, it was concluded that the timing would be beyond the current 20-year planning period.

The alignment of the connector roadway considered would generally extend around the City outside of the current corporate limits but within the boundaries of the Urban Growth Boundary (UGB). The route would fall within Moore County in the westerly quadrant and within Arnold Engineering Development Complex property in the easterly quadrant. The City of Tullahoma does not have planning jurisdiction within these areas, making the consideration of the potential route at the discretion of those entities.

Because the current need for the minor arterial connector roadway within the UGB is projected to be beyond the current 20-year planning period, a projected route is not included in the Concept Plan presented in this document. A need may arise in the upcoming years that may warrant

additional consideration of the route and accelerated planning for the alignment. Considerations such as a new major industry in a quadrant of the City or even within a neighboring city might point to the need for the roadway or a phase of the roadway. Other considerations such as accelerated residential growth in a specific quadrant or the construction of a school in an area may yield the same planning effort for the roadway. As will be discussed in later sections, the Comprehensive Transportation Plan will be evaluated periodically for the need to update the plan. The connector roadway within the UGB will be one element to be considered in evaluating the need to update the plan.

Table VI-1
Concept Plan – 20-Year Project List

First Five Years(2012-2017)						
REF NO	**PROJECT**	**FROM**	**TO**	**2010 TRAFFIC IMPROVEMENT**	**(MILES)**	**EST COST**
1	Wilson Avenue (SR 55) (TDOT Project)	N Jackson	First Ave	5 Lanes @ 12' W/C&G W/Sidewalks and Bike Lanes	0.64	$3.0M
2	Wilson Avenue (SR 55) (TDOT Project)	First Av	Corporate Boundary	4 Lanes @ 12' W/Shoulders W/sidewalks and Bike Lanes	1.94	$7.0M
3	Westside Dr.(SR 130) (TDOT Project)	Clement Dr.	Corporate Boundary	3 Lanes @ 12' W/8' Shoulders W/Bike Lanes	1.03	$2.5M
4	Cedar Lane	N Jackson	William Northern	3 Lanes @ 12' W/C&G W/Sidewalks and Bike Lanes	0.43	$1.1M
5	Cedar Lane	William Northern	Connector (Cedar/SR 130)	3 Lanes @ 12' W/C&G W/Sidewalks and Bike Lanes	.33	$0.9 M
6	Cedar Lane	Connector (Cedar/SR 130	Wilson Ave	3 Lanes @ 12' W/C&G W/Sidewalks and Bike Lanes	.75	$2.2 M
7	Ledford Mill RD	N Jackson	North Airport	2 Lanes @ 12' W/Shoulder	1.11	$1.0M
8	Connector Road	Cedar Lane	SR 130	3 Lanes @ 12' W/Shoulder W/Sidewalks and Bike Lanes	0.87	$2.5M
				Total First Five Years	$20.2M	
Second Five Years (2017 – 2022)						
9	Cedar Lane/Westside Dr.	Wilson Ave	Clement Dr.	3 Lanes @ 12' W/C&G W/Sidewalks and Bike Lanes	1.18	$3.5M
10	Atlantic St	Kings LN	S Jackson St	2 Lanes @ 12' W/C&G or Shoulders W/Sidewalks	3.03	$1.9M
				Total Second Five Years	$5.4M	
Third Five Years (2022 - 2022)						
11	Kings Lane	Ovoca Rd	Marbury Dr.	2 Lanes @ 12' W/C&G or Shoulders W/Sidewalks and Bike Lanes	0.74	$1.6M
12	Kings Lane	Country Club Dr.	Ovoca Rd.	2 Lanes @ 12' W/C&G or Shoulders W/Sidewalks and Bike Lanes	0.78	$1.7M
				Total Third Five Years	$3.3M	
Last Five Years (2027 - 2032)						
13	Carter Blake Rd.	Short Springs Rd./Cobb Rd.	New Manchester HWY	2 Lanes @ 12' W/2' Shoulders	1.32	$2.0M
14	Hickory Hills Rd.	Hickory Hills	Riley Creek Rd.	2 Lanes @ 12' W/2' Shoulders	1.78	$4.7M
15	Ralph Broadrick Rd.	Riley Creek Rd.	N. Jackson St.	2 Lanes @ 12' W/2' Shoulders	1.07	$2.3M
16	Turkey Creek Dr.	Turkey Creek Dr.	Kourtwood	2 Lanes @ 12' W/2' Shoulders	0.58	$0.8 M
17	Connector Road	Ledford Mill Rd.	Wilson Ave.	2 Lanes @ 12' W/2' Shoulders W/Sidewalks and Bike Lanes	.97	$2.1 M
18	Short Springs Rd.			2 Lanes @ 12' W/2' Shoulders W/ Bike Lanes or Paths	.56	$4.0M
				Total Fourth Five Years	$15.9M	

Interim Improvements (5-Year Plan)

In order to address some of the existing and projected capacity and access needs, the City should consider several interim roadway or intersection improvements. Table VI-2 (page 49) presents the interim projects which are recommended. Descriptions of each of these projects are as follows:

- **Existing Arterial and Collector Streets – Conduct speed limit study**

  Several existing arterial and collector streets have either been improved or have seen changes in traffic patterns. These roadway sections should be re-evaluated for potential changes to the posted speed limits based on the guidelines set forth below.

- **US41-A/State Route 16/North Jackson Street at Washington Street and Cedar Lane – Intersection improvement**

  When the Tennessee DOT widened US41-A from just south of Washington Street/Cedar Lane to the northern city limits, several intersections were modified. These modifications in many cases included signalization and geometrics. However, when TDOT reconstructed the above referenced intersection, the new intersection created alignment issues for the east-west traffic on Cedar Lane and Washington Street. It is recommended that the intersection be improved to address this issue. This project should be corrected at TDOT expense.

- **US41-A/State Route 16/South Jackson Street at East Lauderdale Street – Traffic signal improvement**

  The present traffic signal installation should be modified to add a protected left-turn phase for north and south-bound traffic turning onto Lauderdale Street.

- **Atlantic Street at Brown Street near CSX Railroad Crossing – Intersection improvement**

  While the railroad is typically responsible for railroad crossing improvements within 25-feet of the track, other improvements may be required beyond that point. The intersection east of the railroad should be improved as the radius for truck turning movements is inadequate.

- **Cedar Lane to State Route 130 Connection (Phase 1) – Urban Collector Street**

  In an effort to improve access from Cedar Lane to SR 130 and SR 55, an alignment through undeveloped property in the northwest quadrant has been proposed by the City and the private sector. The City should begin by acquiring right-of-way for this project followed by the construction of the Phase 1 segment.

- **Carter Blake Road at East Lincoln/Old Manchester Highway – Intersection realignment**

  The intersection should be re-aligned to provide for a 90-degree connection of Carter Blake Road with the Old Manchester Highway to improve sight visibility.

- **Riley Creek Road at Ovoca Road – Intersection Alignment**

  The intersection should be re-aligned to provide for a 90-degree connection of Ovoca road to Riley Creek Road to improve sight visibility.

TABLE VI-2
RECOMMENDED INTERIM IMPROVEMENTS

ITEM #	LOCATION	TYPE OF IMPROVEMENT	SUGGESTED IMPROVEMENT	ESTIMATED COST
1	Existing Arterial & Collectors	Speed limit study	Provide analysis & speed limit changes based on existing conditions	$1,000
2	US41-A/SR 16 at Washington St./Cedar Lane	Intersection Improvement	Lane alignment	TDOT Project
3	S. Jackson / E. Lauderdale	Signal Upgrade	Provide protected left turn signal for side street	$10,000
4	Atlantic St. @ Brown St./near CSX Railroad	Intersection Improvement	Improve geometrics	$40,000
5	Cedar Lane to SR 130 Connection	Urban Collector Street	Right-of-Way Construction – 1st phase	$140,500
6	Carter Blake Road/Old Manchester Hwy.	Intersection Alignment	Align side street to a 90° intersection with through-street	$25,000
7	Riley Creek Rd/Ovoca Rd.	Intersection Alignment	Align side street to a 90° intersection with through-street	$5,000

Speed Limits

The *Manual on Uniform Traffic Control Devices* (MUTCD) suggests that the speed limit of a roadway be "established by law, or by regulation, after an engineering and traffic investigation has been made in accordance with traffic engineering practices." According to the MUTCD, the following factors are to be considered in setting speed limits:

1. Road characteristics, shoulder condition, grade, alignment, and sight distance.
2. The 85th percentile speed and pace speed.
3. Roadside development and culture, and roadside friction.
4. Safe speed for curves or hazardous locations within the zone.
5. Parking practices and pedestrian activity.
6. Reported accident experience for a recent 12-month period.

The MUTCD does not include guidelines for conducting the required engineering and traffic investigation, nor is any guidance given on the relative importance of each of the six factors. Therefore, it is left up to the government agency having jurisdiction to determine the procedures to follow in setting speed limits.

Research indicates that the 85th percentile speed is used far more than any other single factor in setting speed limits. The 85th percentile speed is the speed at or below which 85% of traffic is

moving. The 85th percentile speed is typically within about two miles per hour of the upper limit of the pace speed, which is the 10 mph range of speeds containing the largest number of observations. It is a widely recognized concept that the great majority of motorists drive at a safe and reasonable speed. Thus, the 85th percentile speed is typically considered a safe and reasonable speed for a given roadway.

The 85th percentile speed and the pace speed on a roadway are determined by conducting speed surveys in the field. Procedures for conducting and analyzing spot speed data are outlined in the *Manual of Transportation Engineering Studies*, which is published by the Institute of Transportation Engineers.

Recommended Speed Limit Policy

The recommended speed limit policy for the City of Tullahoma is:

> Speed limits for all roadways shall be set in multiples of 5 mph. The speed limits should not differ from the 85th percentile speed or upper limit of the 10 mph pace by more than 3 mph or less than 8 mph unless justified by supplemental investigations. The supplemental investigations may include any or all of the conditions listed below:

1. If the accident rate is 50% higher than the statewide rate for the same highway classification, the speed limit may be reduced by 5 percent.

2. The speed limit can be reduced if the roadway has a high driveway density. Based on the average number of driveways per mile, the speed for a roadway may be reduced by the percentages shown below.

Driveways Per Mile	Speed Reduction Percent
0 - 40	0%
40 – 60	5%
61 or more	10%

3. Where parking is permitted adjacent to the travel lane, the speed limit for the roadway may be reduced by 5 percent.

VII. SUMMARY

The City of Tullahoma has experienced moderate growth over recent decades and is expected to continue to grow in the future at a moderate rate. With residential growth distributed throughout the city and commercial growth in the northern area of N. Jackson Street, deteriorating levels of service have been experienced and higher accident rates have occurred on many roadway segments, but primarily on the state highway routes. This CTP updates the City of Tullahoma Major Thoroughfare Plan and establishes a 20-year capital projects plan for improvements to existing roadways and the development of roadways on new alignments to plan for projected

traffic conditions. This plan also updates the pedestrian facilities master plan documents for sidewalks, greenways, and bicycle routes.

The Major Thoroughfare Plan, Master Sidewalk Plan, Master Greenway Plan, and Master Bicycle Route Plan should be formally approved for adoption by the Planning Commission. The 20-year Capital Projects List should be approved and adopted by the Board of Mayor and Aldermen. Finally, the Major Thoroughfare Plan will be recorded with the register of deeds in Coffee County and Franklin County.

The Comprehensive Transportation Plan and supporting documentation will be provided to the Tennessee Department of Transportation (TDOT) for acceptance. This plan will be a first step in documenting the needs and establishing preliminary budgets for state funded transportation improvements in the Tullahoma planning region. The plan will also serve as an initial needs assessment for presenting to the TDOT Regional Planning Organization (RPO) of which Tullahoma is a member of the South Central East RPO.

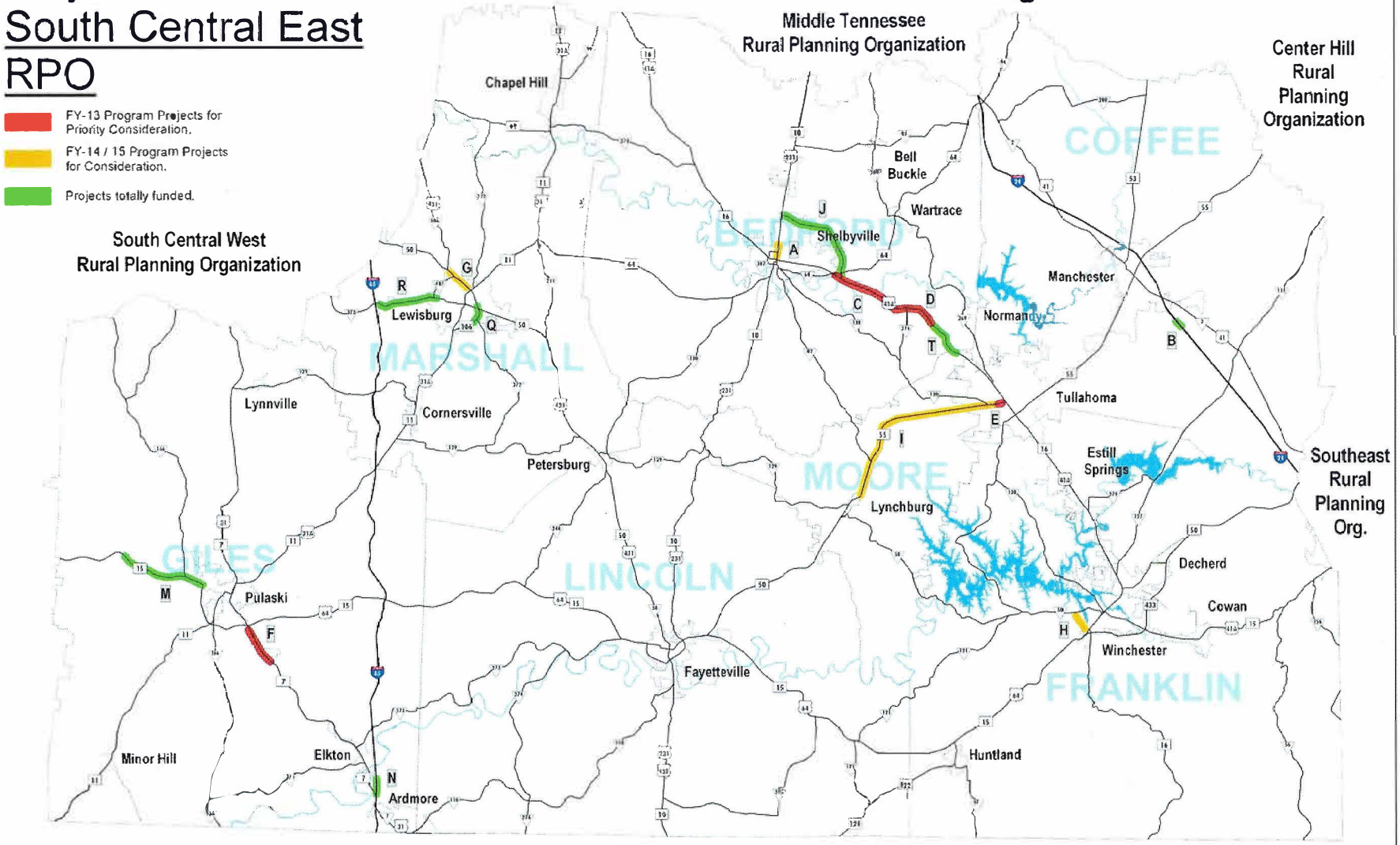
In conclusion, the Comprehensive Transportation Plan shall be reviewed periodically by the Planning Commission as projects are implemented. The plan will be reviewed every five years to assess existing traffic conditions and growth factors that could result in modification to the recommendations outlined in the plan.

IX. APPENDICES

Appendix A: South East Tennessee Rural Transportation Organization Plan

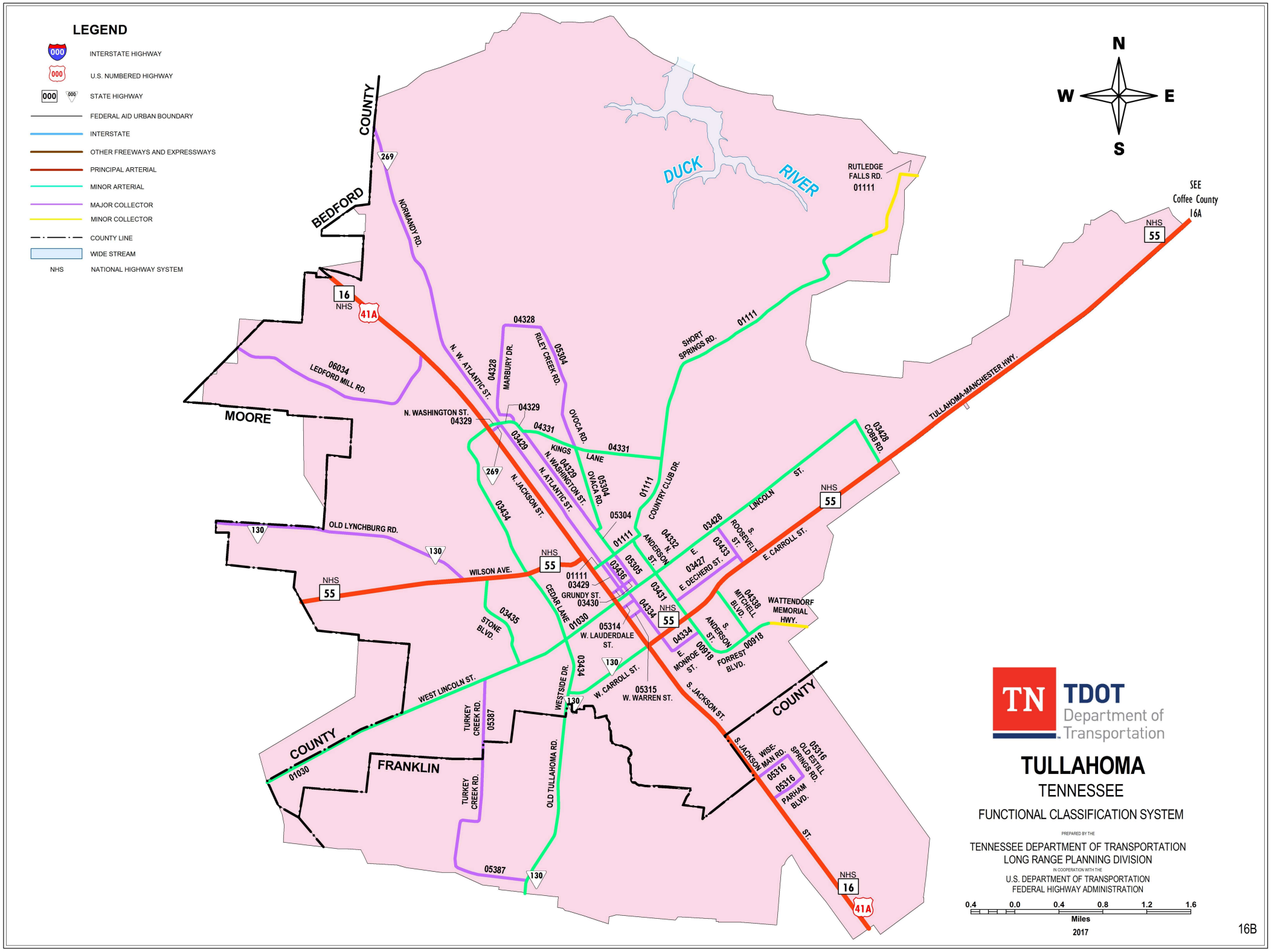
Projects for Recommendation to the 3 Year Work Program 2013-2015

South Central East RPO

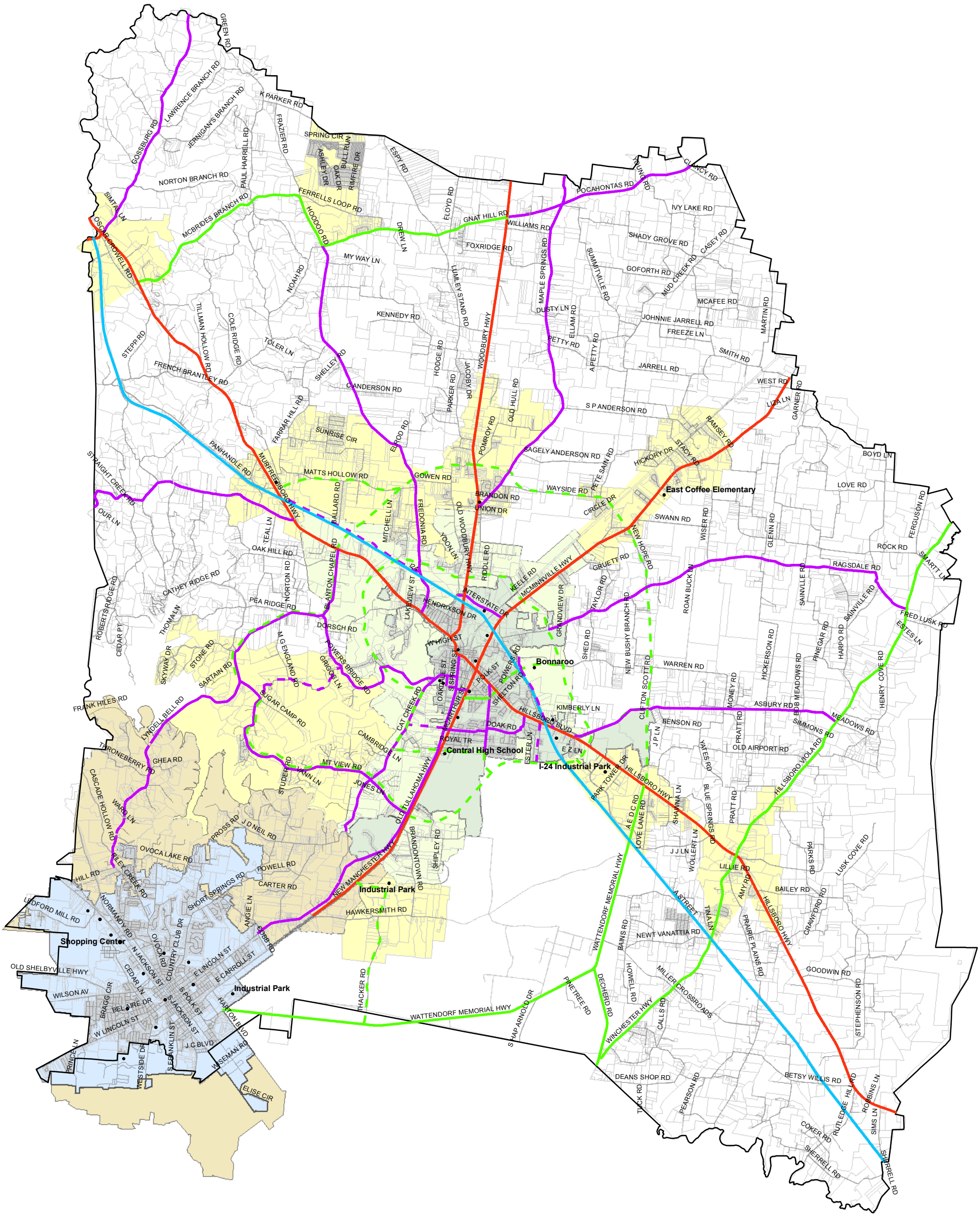


Prepared October 2011

Appendix B: TDOT Urban Functional Classification System


LEGEND
INTERSTATE HIGHWAY
U.S. NUMBERED HIGHWAY
STATE HIGHWAY
FEDERAL AID URBAN BOUNDARY
INTERSTATE
OTHER FREEWAYS AND EXPRESSWAYS
PRINCIPAL ARTERIAL
MINOR ARTERIAL
MAJOR COLLECTOR
MINOR COLLECTOR
COUNTY LINE
WIDE STREAM
NHS NATIONAL HIGHWAY SYSTEM
N
W
E
S
DUCK RIVER
BEDFORD COUNTY
MOORE COUNTY
FRANKLIN COUNTY
WISE COUNTY
RUTLEDGE FALLS RD. 01111
SEE Coffee County 16A
TULLAHOMA-MANCHESTER HWY.
NORMANDY RD.
LEDFORD MILL RD. 06034
N. W. ATLANTIC ST.
MARBURY DR. 04328
RILEY CREEK RD. 04328
OVOCA RD. 05304
SHORT SPRINGS RD. 01111
N. WASHINGTON ST. 04329
KINGS LANE 04331
N. JACKSON ST. 03434
OLD LYNCHBURG RD.
WILSON AVE.
STONE BLVD. 03435
CEDAR LANE 01030
COUNTRY CLUB DR. 01111
ANDERSON ST. 05305
N. ANDERSON ST. 04332
E. DECHERD ST. 03427
ROOSEVELT ST. 03433
LINCOLN ST. 03428
COBB RD. 03428
E. CARROLL ST.
GRUNDY ST. 03430
W. LAUDERDALE ST. 05314
W. CARROLL ST.
W. WARREN ST. 05315
WESTSIDE DR. 03434
WEST LINCOLN ST.
TURKEY CREEK RD. 05387
OLD TULLAHOMA RD.
S. JACKSON ST.
MITCHELL BLVD. 04338
WATTENDORF MEMORIAL HWY.
S. ANDERSON ST. 04334
E. MONROE ST. 00918
FORREST BLVD. 00918
WISE-MAN RD. 05316
OLD ESTILL SPRINGS RD. 05316
PARHAM BLVD.
TN TDOT Department of Transportation
TULLAHOMA
TENNESSEE
FUNCTIONAL CLASSIFICATION SYSTEM
PREPARED BY THE
TENNESSEE DEPARTMENT OF TRANSPORTATION
LONG RANGE PLANNING DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
0.4 0.0 0.4 0.8 1.2 1.6
Miles
2017

Appendix C: Coffee County Major Thoroughfare Plan – April 2008



LENGTH

Urban Interstate, Existing (150' R.O.W.)

Urban Principal Arterial, Existing (84'-150' R.O.W.)

Urban Minor Arterial, Existing (60'-84' R.O.W.)

Urban Minor Arterial, Proposed (60'-84' R.O.W.)

Urban Collector, Existing (60' R.O.W.)

Urban Collector, Proposed (60' R.O.W.)

Minor Street (50' R.O.W.)

COFFEE COUNTY, TENNESSEE

MAJOR THOROUGHFARE PLAN

APRIL 17, 2008

Approval herein certifies that this map represents the official transportation plan for Coffee County as adopted by the Planning Commision on this date.

Planning Commission Chairman

Date

0 0.45 0.9 1.8 2.7 3.6 Miles

N W E S

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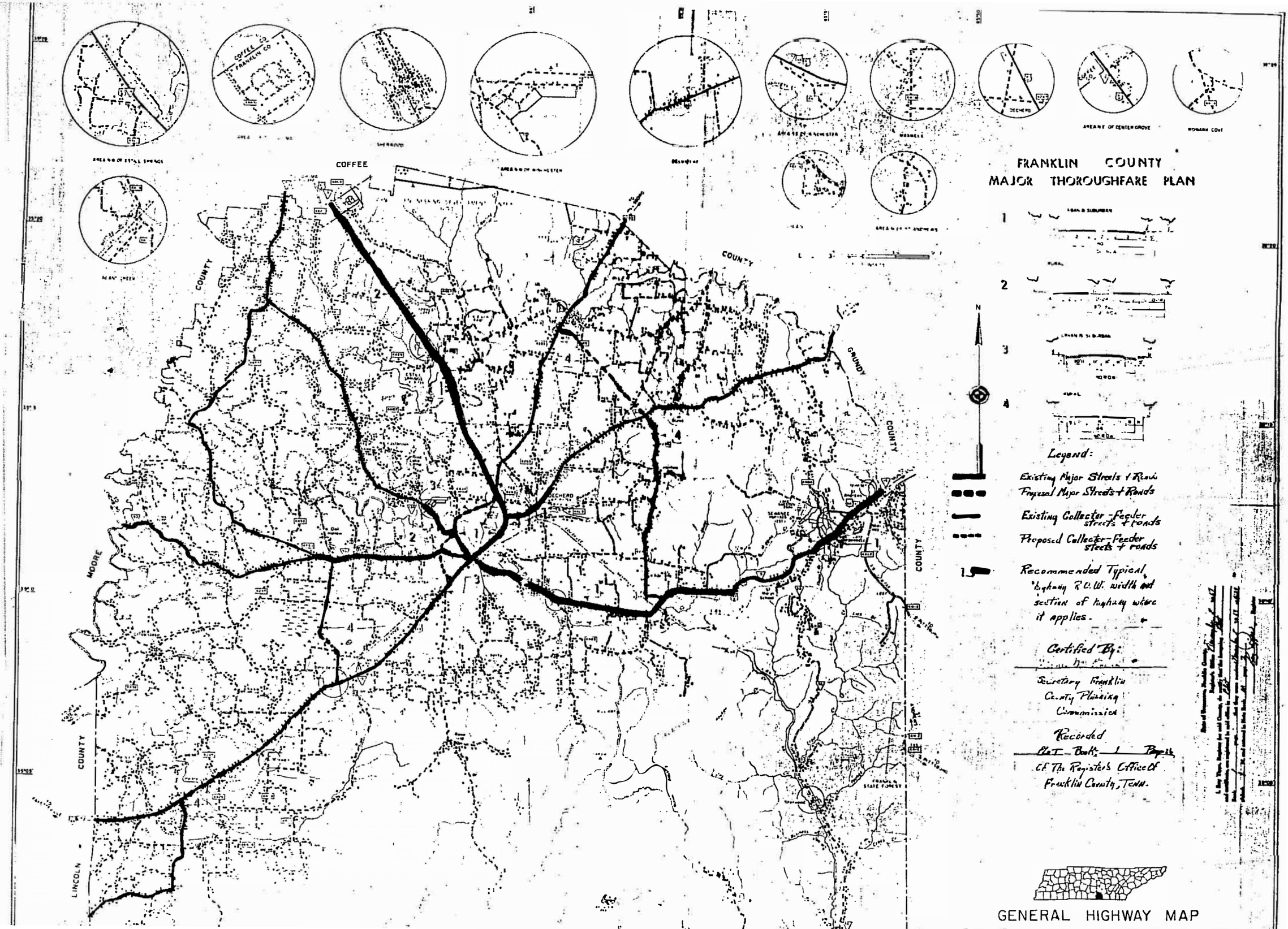
GIS_DATA\COFFEE\TRANSPORTATION\TULLAHOMA\CTP2012\CoffeeThouroughfare_2008 2/13/2012

Appendix D: Franklin County Major Thoroughfare Plan – 1967


FRANKLIN COUNTY
MAJOR THOROUGHFARE PLAN
COFFEE
COFFEE CO
FRANKLIN CO
COUNTY
MOORE
COUNTY
LINCOLN
COUNTY
GRUNDY
COUNTY
COUNTY
DECHERD
AREA OF CENTER GROVE
ROBANA COVE
1
2
3
4
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Legend:
Existing Major Streets & Roads
Proposed Major Streets & Roads
Existing Collector-Feeder streets & roads
Proposed Collector-Feeder streets & roads
Recommended Typical, highway R.O.W. width and section of highway where it applies.
Certified By:
Secretary Franklin County Planning Commission
Recorded
Plat Book 1 Page 26
of The Register's Office of Franklin County, Tenn.
GENERAL HIGHWAY MAP