TIER 2-DETAILED ANALYSIS

INTERSTATE 65 WIDENING

FROM STATE ROUTE 840 TO STATE ROUTE 96

WILLIAMSON COUNTY, TENNESSEE

PREPARED PURSUANT TO THE
CONGESTION MANAGEMENT SYSTEM (OCTOBER 20, 2004)
OF THE NASHVILLE AREA METROPOLITAN PLANNING ORGANIZATION

PREPARED BY:
THE TENNESSEE DEPARTMENT OF TRANSPORTATION

TDOT

AND
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PREPARED FOR: NASHVILLE AREA METROPOLITAN PLANNING ORGANIZATION

AUGUST 2006

EXECUTIVE SUMMARY

The Tennessee Department of Transportation along with the Nashville Area Metropolitan Planning Organization is proposing to improve a section of Interstate 65 located in Williamson County between State Route 840 and State Route 96 to address congestion and to improve safety. The proposed improvements include widening both directions of interstate from two to four lanes. One of these additional lanes will be a general purpose travel lane and the second added lane will serve as a High Occupancy Vehicle (HOV) lane in each direction. This project area has been identified by the MPO as a future congested roadway section.

This report was prepared using the CMS guidance and constitutes the Tier 2 Analysis that the MPO is requiring for the proposed project. The report identifies the causes and magnitude of congestion and demonstrates that the entire "toolbox" of strategies in the adopted CMS has been considered.

This Tier 2 Analysis indicates that a number of "toolbox" strategies can be used simultaneously to improve congestion of Interstate 65. Several strategies are already in use or are currently being developed, such as:

- Carpools and Vanpools
- Ridesharing
- Park and Ride Lots
- Flex Time
- Telecommuting
- Guaranteed Ride Home
- Trip Reduction Ordinances
- Traffic and Incident Monitoring Systems

Other additional strategies in the CMS toolbox that can improve congestion on Interstate 65 include:

- Expanded Transit Services
- Goods Movement Management
- Extended HOV Lanes
- Local Transit Circulator in Franklin/Cool Springs Area

The findings of this Tier 2 Analysis are that the simultaneous use of the aforementioned CMS toolbox strategies will not meet all of the project needs and will not reduce future congestion to levels under the threshold prescribed in the CMS. Therefore, it is proposed to widen this section of Interstate 65 from four to eight lanes. This increased laneage, when combined with the selected toolbox strategies, will increase corridor traffic capacity and safety.

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1.0 STUDY PURPOSE

The subject of this report is the section of Interstate 65 between State Route 840 and State Route 96 in Williamson County. The Tennessee Department of Transportation and the Nashville Area Metropolitan Planning Organization are proposing to improve the roadway to relieve projected congestion levels and to improve safety.

This report was prepared using the CMS guidance and constitutes the Tier 2 Analysis that the MPO is requiring for the proposed project. The report identifies the causes and magnitude of congestion and demonstrates that the entire "toolbox" of strategies in the adopted CMS has been considered.

2.0 BACKGROUND

The Tennessee Department of Transportation has initiated a Tier 2 Analysis to address congestion and improve safety along a 6.5 mile section of Interstate 65 from State Route 840 to State Route 96 in Williamson County. This section is primarily located within the City of Franklin city limits and urban growth boundary. The August 2004 City of Franklin Major Thoroughfare Plan Update recommended widening this section from two to four lanes in each direction, including a High Occupancy Vehicle (HOV) lane in each direction. This proposed widening would primarily utilize the existing right-of-way. Currently, this section of interstate has four twelve (12) foot lanes, twelve (12) foot shoulders, a sixty (60) foot median, and a speed limit of seventy (70) miles per hour. Nashville area HOV lanes currently terminate just north of this section. There is one additional interchange within the study section; the State Route 248 interchange in the Goose Creek area lies approximately 2.7 miles north of State Route 840 and 3.8 miles south of State Route 96. State Route 248 at this location is currently a two-lane major arterial with ten (10) foot shoulders. The City of Franklin Major Thoroughfare Plan Update recommended widening the section of State Route 248 crossing I-65 to four lanes.

The State Route 840 South Loop is a four-lane controlled access highway which will eventually stretch from the I-40 interchange in Wilson County to the I-40 interchange in Dickson County. While the majority of this 78 mile South Loop project has been built and is open to traffic, certain sections west of I-65 are currently in the design phase or are under construction. The section just west of the I-65 interchange, from east of Thompson Station Road to State Route 106 (Lewisburg Pike), is currently only open to local traffic. TDOT has announced the alignment for the final section of the south loop (West of Bending Chestnut Road to east of Thompson Station Road), with construction scheduled to begin in the next three to five years.

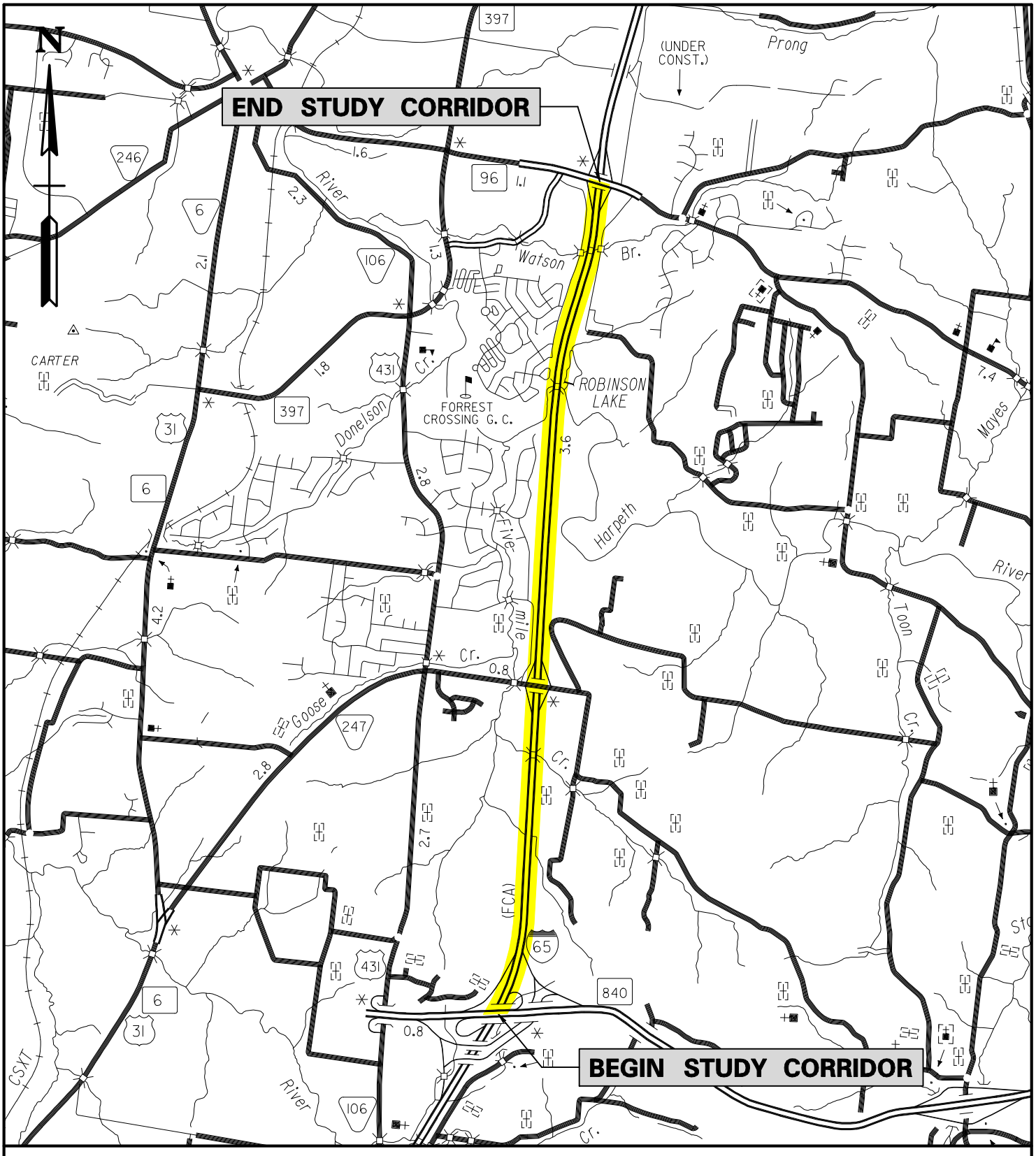
State Route 96 within this study area is a two-lane major arterial highway with 22' travel lanes and four foot shoulders. TDOT and the City of Franklin have committed plans to widen this roadway to four lanes from the I-65 ramps to Wilson Pike.

0 5 10

SCALE: 1"=5 MILES

VICINITY MAP

INTERSTATE 65
TIER 2 ANALYSIS
WILLIAMSON COUNTY



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SCALE: 1" = 1 MILE

STUDY AREA MAP

INTERSTATE 65
TIER 2 ANALYSIS
WILLIAMSON COUNTY

AERIAL #1

N

TO HUNTSVILLE

S.R. 840

WATKINS RD.

I–65

S.R. 106

BEGIN PROJECT

URBAN GROWTH BOUNDARY

I–65

MATCHLINE SEE AERIAL #2

HARPETH SCHOOL RD.

PRATT LN.

S.R. 840

CAMBELL RD.

TIER 2 ANALYSIS
INTERSTATE 65
FROM STATE ROUTE 96
TO STATE ROUTE 840

WILLIAMSON COUNTY

0 1000′ 2000′ 3000′

SCALE: 1″ = 1000′

AERIAL #2

N

GOOSE CREEK DR.

GOOSE CREEK BYP.

LEWISBURG PK

BERRY HILL
RURAL
PLAINS
PARCEL

GOOSE CREEK

OLD PEYTONSVILLE RD.

ELLINGTON DR.

ASCOT LN.

BERRY HILL
CHADWELL
PARCEL

S.R. 248

FIVEMILE CREEK

CAROLINE CIR.

WARRIOR DR.

MATCHLINE SEE AERIAL #1

MATCHLINE SEE AERIAL #3

I–65

BERRY HILL
REAMS–FLEMING
PARCEL

LONG LN.

HARPETH RIVER

PEYTONSVILLE RD.

LONG LN.

URBAN GROWTH BOUNDARY

TIER 2 ANALYSIS
INTERSTATE 65
FROM STATE ROUTE 96
TO STATE ROUTE 840

WILLIAMSON COUNTY

0 1000′ 2000′ 3000′

SCALE: 1″ = 1000′

AERIAL #3

N

FORREST CROSSING GOLF CLUB

HARPETH RIVER

RIVERVIEW DR.

FOREST CROSSINGS BLVD.

STONEGATE DR.

S. ROYAL OAKS BLVD.

OAK MEADOW DR.

SOUTH WINDS DR.

MURFREESBORO RD.

MATCHLINE SEE AERIAL #2

I-65

RIVERSIDE DR.

WATSON BRANCH

N. ROYAL OAKS BLVD.

ROBINSON LAKE

S. CAROTHERS RD.

TO NASHVILLE

END PROJECT

EDWARD CURD LN.

S.R. 96

CROSS CREEK DR.

TIER 2 ANALYSIS
INTERSTATE 65
FROM STATE ROUTE 96
TO STATE ROUTE 840

WILLIAMSON COUNTY

0 1000′ 2000′ 3000′

SCALE: 1″ = 1000′

Existing land uses adjacent to the interstate include undeveloped agricultural land, gas stations, a truck stop, and miscellaneous commercial businesses. Franklin's Urban Growth Boundary is expanding to the south where real estate developers are proposing substantial residential and commercial development sites. This area has seen explosive growth in recent years, with continued growth expected into the foreseeable future. Nissan North America's recent decision to move its corporate headquarters to the Cool Springs area is expected to generate an additional 1,300 jobs. Several large mixed-use developments are proposed in this area, including Berry Farms development, which would be located in the area surrounding the State Route 248 interchange. Phase I of this proposed development would contain over 600 households and over one million square feet of retail and office space.

The definition for congestion selected for the Nashville Area Congestion Management System is the same one established in the federal regulations; it is defined as "the level at which transportation system performance is no longer acceptable due to traffic interference." The Nashville Area Long Range Transportation Plan does not currently list this section of interstate as congested. It does project that this section will be congested by the year 2030 and operate at a failing level of service if only currently committed projects are constructed. The Nashville Area Long Range Transportation Plan considers the interstate just north of this section to be congested currently. TDOT is underway with a construction project that will widen this section between State Route 96 and Cool Springs Boulevard from eight to ten lanes with the addition of the McEwen Drive interchange. This project is scheduled for completion in early 2007.

An Interchange Modification Study was conducted in conjunction with this Tier 2 analysis to determine the need for improvements to the State Route 248 interchange. This Interchange Modification Study determined that existing traffic currently exceeds the capacity of the existing interchange. It was the recommendation of this study that this interchange should be improved in conjunction with the proposed interstate widening to accommodate future traffic volumes.

3.0 TRANSPORTATION PLANS

As the City of Franklin continues to expand south, it is important to provide an adequate transportation network for the increase in traffic. Franklin's 1998 Major Thoroughfare Plan Update (MTPU) recommended widening I-65 from four to eight lanes from Highway 96 to the Goose Creek Bypass. The 2004 MTPU expanded this recommendation to include widening to State Route 840. This project does not currently have committed funding but is listed as a recommended improvement.

An HOV study conducted by the Nashville Area Metropolitan Planning Organization identified this section of interstate as one of five interstate sections in its jurisdiction with the greatest potential to support HOV facilities. It is stated in the Long Range Transportation Plan that these future HOV lanes would only be regulated during the morning and evening peak hours, as is the case with Nashville area HOV lanes already in place.

TDOT is expected to begin construction in three to five years on the final section of the State Route 840 South Loop project which will eventually stretch from the I-40 interchange in Dickson County to the I-40 interchange in Wilson County. Several other roadway improvements are currently being constructed just north of the study area. TDOT is currently underway with a construction project that will widen Interstate 65 between State Route 96 and Cool Springs Boulevard from eight to ten lanes. This project is scheduled for completion in early 2007. The City of Franklin is currently involved with the construction of the McEwen Drive extension project, which includes the construction of an I-65 interchange just south of the Cool Springs Boulevard interchange.

State Route 248 and State Route 96 are both currently listed for improvements in the City of Franklin Major Thoroughfare Update. State Route 248 widening from two to four lanes is listed as a recommended improvement, without current funding. The preferred cross-section for this roadway is a four-lane, median-divided roadway with bicycle facilities. Highway 96 (Murfreesboro Road) widening is a committed project. This roadway will be widened from two to four lanes from the I-65 ramps to Wilson Pike. Construction will occur in two phases: the first phase for widening State Route 96 will start at I-65 and continue to east of Arno Road. The second phase will in include widening the roadway from Arno Road to Wilson Pike.

It was the recommendation of the recent State Route 248 Interchange Modification Study that capacity improvements were needed at the State Route 248 interchange and along the interstate main line. The recommended proposed modification to the interchange would maintain the existing diamond configuration but would add capacity through additional travel lanes.

In 1994, the Metropolitan Transit Authority (MTA) modified its existing Crieve Hall route to extend it as far as Old Hickory Boulevard near Brentwood. This move attracted a handful of hospitality workers from the Marriott Residence Inn, who used a shuttle arrangement to pick-up the bus riders. Then, in 1995 the route was further modified as the bus traveled south on Franklin Road, west onto Maryland Way, north on East Park Drive and back onto Old Hickory to I-65. Ridership is low and the route is on the short list of service that will be discontinued in the event of future MTA budget cuts.

The map on page nine and the chart on page ten were taken from the Nashville Area Metropolitan Planning Organization Long Range Transportation Plan Project Map and describe the recommended and committed projects in this area through the year 2030.

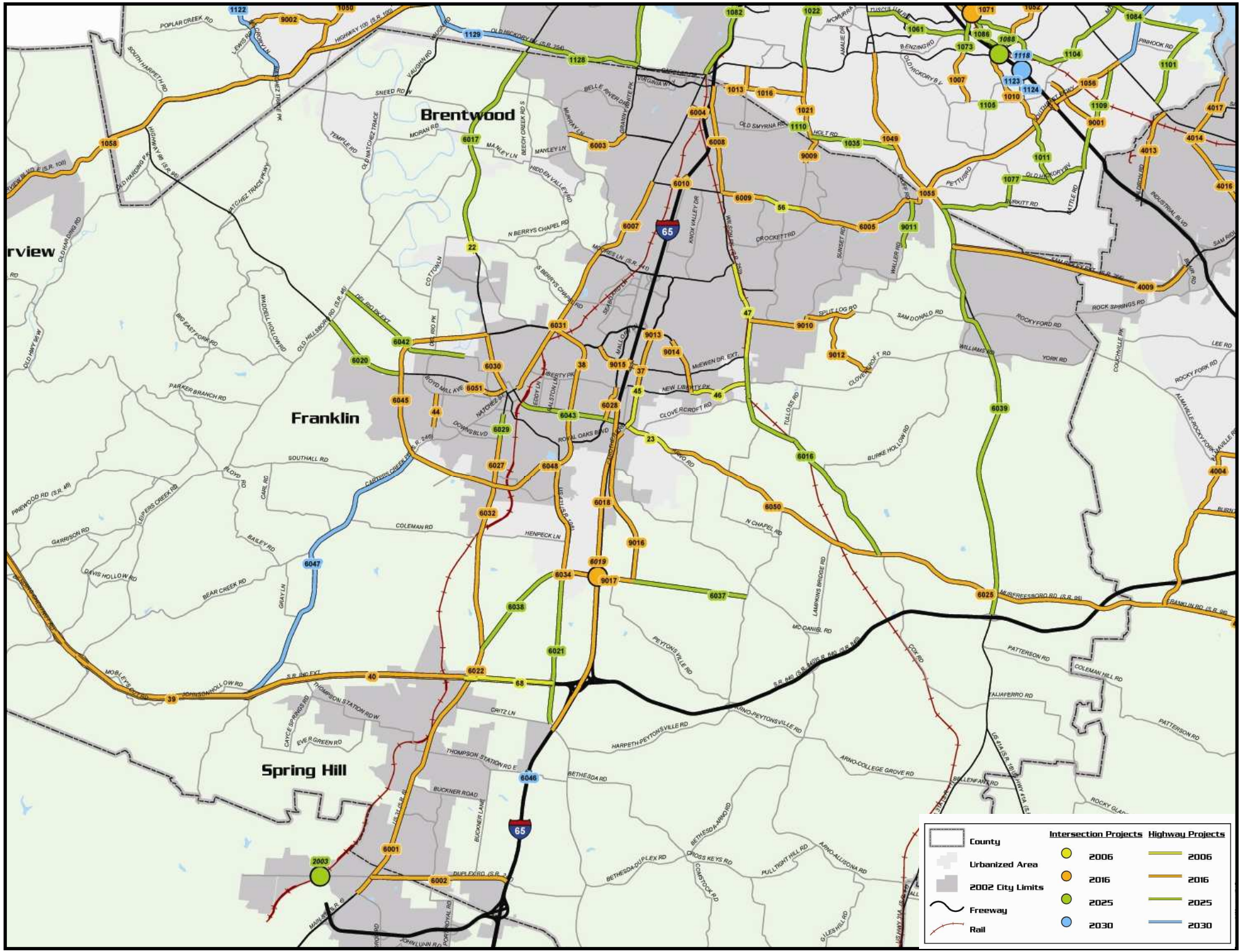
Brentwood
Franklin
Spring Hill
County
Urbanized Area
2002 City Limits
Freeway
Rail
Intersection Projects
2006
2016
2025
2030
Highway Projects
2006
2016
2025
2030

Table 1 Relevant Williamson County Projects listed in the Nashville Area 2030 Long Range Transportation Plan

Project #	Project Location	Termini	Length (mi.)	Year	Cost	Improvement	Project Description
68	SR-840	SR-6 to SR-106		2006		New Roadway	Construct new 4 lane roadway
6018	**I-65**	**SR-840 to SR-96**	**6.0**	**2016**	**$27,230,000**	**Widening**	**Widen from 4 to 8 lanes**
6019	I-65	SR-248 (Goose Creek)	-	2016	$16,000,000	Reconstruction	Reconstruct Interchange
6021	SR-106 (Lewisburg Pk)	Critz Lane to SR-248 (Goose Creek Bypass)	4.9	2025	$15,000,000	Widening	Widen from 2 to 4 lanes
6022	SR-6 (US-31)	Buckner Lane to Henpeck Lane	9.6	2016	$29,000,000	Widening	Widen from 2 to 4/5 lanes
6032	Lewisburg Pk (SR-106/US-431)	Henpeck Lane to Mack Hatcher	1.3	2016	$15,000,000	Widening	Widen from 2 to 4 lanes with bike lanes
6034	Goose Creek Bypass (SR-248)	SR-106 Lewisburg Pk to I-65	0.8	2016	$2,450,000	Widening	Widen to 4 lane median divided highway
6037	Goose Creek Bypass (SR-248)	New South Carothers Road to Peytonsville/Trinity Road	5.0	2025	$2,287,740	New Roadway	Construct new 3 lane roadway
6038	Goose Creek Bypass (SR-248)	SR-6 / US-31 to SR-106	2.8	2025	$11,000,000	Widening	Widen from 2 to 3 lanes
6048	Mack Hatcher East (SR-397) SE Quadrant	SR-6 (US-31) South of Franklin to SR-96 east of Franklin	3.0	2016	$18,300,000	Widening	Widen from 2 to 4 lanes as median divided highway
9016	South Carothers Road	Franklin Commons to proposed Goose Creek Bypass	4.3	2016	$4,830,000	Widening / New Roadway	Widen to 4 lane median divided with bike lanes and extend South Carothers to New Goose Creek Bypass
9017	SR-248 (Goose Creek Bypass)	I-65 to new South Carothers Road	0.8	2016	$442,260	New Roadway	Construct new 3 lane roadway

4.0 PROJECT NEED AND PURPOSE

The section of Interstate 65 that is proposed for improvement will not be able to safely and efficiently serve the projected traffic in this rapidly growing area. Additional lanes are needed to meet existing and future traffic demands and to provide a safer roadway and improved travel times for drivers traveling within and through the area.

The project needs are described in more detail below.

4.1 Improved Level of Service and Travel Times

TDOT developed traffic volume data for the project area for the years 2009 and 2029 using traffic counts and growth factors derived from the MPO's Travel Demand Model.

2009 Projected ADT: 64,690
2029 Projected ADT: 99,820
% Trucks DHV: 11%
% Trucks ADT: 17%

The TDOT count station located on Interstate 65 between State Route 248 and State Route 96 recorded an average daily traffic of 20,738 vehicles in 1985 and 62,939 vehicles in 2005, an increase of approximately 200%. The TDOT count station located on Interstate 65 between State Route 840 and State Route 248 recorded an average daily traffic of 13,279 vehicles in 1985 and 55,787 vehicles in 2005, an increase of well over 300%.

The August 2004 City of Franklin Major Thoroughfare Plan Update listed a projected 2025 ADT of 94,230 and a LOS F for I-65 south of Goose Creek Bypass if only currently committed projects are constructed.

The Alabama Department of Transportation and the Maryland State Highway Administration have published a chart that correlates ADT information with anticipated level of service for a given roadway type. The following is excerpted from that chart:

ROAD TYPE	LOS A	LOS B	LOS C	LOS D	LOS E
4 lane freeway	31,700	45,300	56,200	68,000	90,700
8 lane freeway	63,500	90,600	112,400	136,000	181,300

This indicates that this section currently operates at a LOS C and will operate at a LOS F by 2029 if no improvements are made. If this section is widened to eight lanes, a LOS C could be expected in 2029.

Further analysis using Highway Capacity software revealed the information on the following page:

I-65 from S.R. 840 to S.R. 248 Northbound

	2009 AM Peak Existing Conditions	2029 AM Peak Existing Conditions	2029 AM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	2,432	3,753	2,190
Density (passenger cars per mile per lane)	>45	>45	37
Expected Level-of-Service	F	F	E

	2009 PM Peak Existing Conditions	2029 PM Peak Existing Conditions	2029 PM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	1,186	1,830	1,068
Density (passenger cars per mile per lane)	18	29	16
Expected Level-of-Service	C	D	B

I-65 from S.R. 840 to S.R. 248 Southbound

	2009 AM Peak Existing Conditions	2029 AM Peak Existing Conditions	2029 AM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	866	1,337	780
Density (passenger cars per mile per lane)	13	20	12
Expected Level-of-Service	B	C	B

	2009 PM Peak Existing Conditions	2029 PM Peak Existing Conditions	2029 PM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	2,291	3,536	2,063
Density (passenger cars per mile per lane)	42	>45	35
Expected Level-of-Service	E	F	E

I-65 from S.R. 248 to S.R. 96 Northbound

	2009 AM Peak Existing Conditions	2029 AM Peak Existing Conditions	2029 AM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	3,050	4,707	2,746
Density (passenger cars per mile per lane)	>45	>45	>45
Expected Level-of-Service	F	F	F

	2009 PM Peak Existing Conditions	2029 PM Peak Existing Conditions	2029 PM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	1,410	2,175	1,269
Density (passenger cars per mile per lane)	22	38	19
Expected Level-of-Service	C	E	C

I-65 from S.R. 248 to S.R. 96 Southbound

	2009 AM Peak Existing Conditions	2029 AM Peak Existing Conditions	2029 AM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	989	1,526	890
Density (passenger cars per mile per lane)	15	23	13
Expected Level-of-Service	B	C	B

	2009 PM Peak Existing Conditions	2029 PM Peak Existing Conditions	2029 PM Peak Proposed Conditions
Flow Rate (passenger cars per hour per lane)	2,710	4,182	2,440
Density (passenger cars per mile per lane)	>45	>45	40
Expected Level-of-Service	F	F	E

4.2 Accommodate Area Growth and Increased Traffic

This section of interstate primarily serves commuters with destinations in Williamson or Davidson County. According to 2000 Census data, 38% of Williamson County residents commute to Davidson County daily. Williamson County is the third most populous county of the five in the MPO region. Its population increased 74.5% between 1990 and 2002 more than any other county. Davidson County is the most populated county of the five in the MPO region, although it saw the lowest rate of population growth between 1990 and 2002.

Franklin is an incorporated city in Williamson County, located approximately 20 miles south of Nashville. The City of Franklin is approximately 33 square miles in size and had a population of approximately 46,900 persons as of July 2003. Franklin is one of the fastest growing cities in the middle Tennessee area. This growth is partly due to the diverse mixture of land uses within its city limits. The development of the Cool Springs area has also contributed significantly to Franklin's growth. Cool Springs has grown dramatically in recent years, with retail, office, and residential uses located in this area.

Several large tracts of land adjacent to this project are in the development review process with the City of Franklin. Specifically, a project called "Berry Farms Mixed Use Development" is planned to be constructed in phases over the next ten to twenty years and is expected to substantially increase traffic in this area. Phase I of this proposed development would contain over 600 households and over one million square feet of retail and office space. Plans also are currently underway to construct Meridian Cool Springs, a proposed development in the Cool Springs area that calls for 570,000 square feet of office space, 70,000 square feet of retail space, and 200 hotel rooms.

Nissan is currently in the process of moving their headquarters to the Cool Springs area. This move is expected to bring as many as 1,300 jobs to this area and will contribute to congestion if improvements are not made.

The stated purpose of the State Route 840 South Loop project is to provide economic development opportunities in areas around Middle Tennessee. A positive by-product of this project is that it is expected to reduce traffic on the urban Nashville interstate highway system. A reduction of traffic with the Nashville area can be expected when this project is fully constructed, however this will have the likely effect of increasing congestion in rural areas along this corridor.

4.3 Correct Roadway Deficiencies

There are deficiencies at the State Route 248 interchange at the ramp merge and diverge areas along I-65. These deficiencies are primarily affected by heavy traffic volumes along I-65. In addition, the existing acceleration and deceleration lengths are short and do not meet current design standards. Traffic exiting at the southbound ramp routinely queues onto mainline I-65. These acceleration and deceleration lanes would be lengthened and constructed to current design standards if the combined interchange modification and mainline widening is enacted.

4.4 Improve Safety

The crash rate for this section was found to be 0.74 crashes/million vehicle miles (c/mvm) during the three year period beginning January 1, 2001, which exceeds the statewide average rate of 0.46 c/mvm. The crash rate is derived from a formula that takes into account factors such as total number of accidents, length of roadway, and the time period over which the crashes occurred. The critical rate defines statistically how the actual rate differs from the statewide rate. The critical rate for this segment of roadway is 0.55. The ratio of the actual crash rate to the critical crash rate, known as the A/C ratio, is used to determine the severity of the crash problem. An A/C ratio of 1.00 is considered the threshold for a safety deficiency to exist. This section of roadway was found to have an A/C ratio of 1.33 during the study period.

A total of 223 crashes were recorded within the study area during the three year period beginning January 1, 2001. Of these crashes, 55 involved personal injury and 5 involved a fatality.

Reducing congestion along this section by adding travel lanes will reduce crashes caused by stopping or slowing vehicles and those caused by sideswipe and cutoff maneuvers. Also, by improving the capacity of this section, emergency vehicle response times should improve for crashes that occur in the area.

5.0 CMS TIER 1 SCREENING

This project area has been identified by the MPO as a future congested roadway section. This identification was made using data from the MPO's Travel Demand Model to determine projected average route speed. Projected average route speed indicates how well an interstate segment can be expected to accommodate future travel demand. Congestion is measured as the condition when peak-hour speeds are at 30% or less of the free-flow speed.

6.0 CMS TIER 2 DETAILED ANALYSIS

The purpose of the Tier 2 Analysis required for certain projects under the MPO's 2004 CMS is to:

1. Validate that a congestion problem is actually occurring;
2. Define the magnitude and cause of the congestion; and
3. Identify the appropriate strategies to manage the congestion and establish a schedule for implementing those strategies.

6.1 Validate Congestion Problem

TDOT and the MPO have coordinated traffic data and the MPO's Travel Demand Model assumptions and have reconciled the projected traffic numbers.

A level of service analysis was completed for the section of Interstate 65 proposed for improvement and is presented in Section 4.1 of this report. The analysis used 2009 and 2029 traffic data/projections provided by TDOT. The analysis demonstrated that congestion is present today along this section and, in the year 2029, congestion has increased to an unsatisfactory level.

6.2 Define Magnitude and Cause of Congestion

Traffic growth for this section of interstate has averaged seven percent annually over the last twenty years. The TDOT count station located on Interstate 65 between State Route 248 and State Route 96 recorded an average daily traffic of 20,738 vehicles in 1985 and 62,939 vehicles in 2005, an increase of approximately 200%. The TDOT count station located on Interstate 65 between State Route 840 and State Route 248 recorded an average daily traffic of 13,279 vehicles in 1985 and 55,787 vehicles in 2005, an increase of well over 300%. TDOT Traffic Assignment predicts that this section will have an average daily traffic of 99,820 by the year 2029. Area growth is the primary factor for the increase in congestion.

6.3 Evaluate Congestion Management Strategies

This study has identified and validated the congestion on Interstate 65 in the project area. The next step in the CMS is to evaluate strategies that would, pursuant to the CMS, emphasize the reduction of single occupancy vehicles and improve the operations of the existing transportation system. In addition to reducing congestion, these same strategies can improve air quality.

6.3.1 Feasible CMS Toolbox Strategies for Improving Congestion on I-65

The discussion in the Nashville MPO's October 20, 2004 *Congestion Management System* (CMS) report provides a "toolbox" of possible strategies to reduce use of single occupancy vehicles and reduce congestion. The CMS state that, in most situations, the appropriate response may be the "simultaneous use of several tools."

Table 4 lists the strategies in the "toolbox" and discusses their applicability for addressing the congestion problem on I-65. This table has been developed with input from the City of Brentwood, the Tennessee Department of Transportation, the Regional Transportation Authority, the TMA Group, and the staff of the MPO.

Table 4 Congestion Management Strategies and Their Applicability to the I-65 Project

CMS STRATEGY	*Is the CMS Strategy an Appropriate Tool to Manage Congestion on I-65?*
Transportation Demand Management	
Carpools, Vanpools	NO, the TMA Group, under contract to Williamson County, currently promotes van and car pools and offers vans for van pool use. Nashville MTA also offers van pool services and Custom Commuter Bus Pools.
Ridesharing	NO, the TMA Group and Nashville MTA currently offer free ridematch services to assist commuters with Ridesharing.
Park and Ride Lots	NO, there is an existing Park and Ride lot located on Long Lane near the State Route 248 interchange that contains 104 parking spaces. It is presently an underutilized facility that has capacity for serving additional park and ride users. Commuters from Maury County use the Northgate Shopping Center in Columbia as a meeting place.
Flex Time (work, school, work week)	**YES,** this strategy is already in place, but has not alleviated the congestion problem. Many residents of the area work in Nashville and have flex time at their places of employment. Williamson County Schools stagger their starting times as well. More widespread implementation of flexible working hours would likely have a positive effect on congestion.
Telecommuting	**YES**, The TMA Group is currently conducting pilot telecommute programs. More widespread implementation of telecommuting would likely have a positive effect on congestion.
Guaranteed Ride Home	NO, the TMA Group currently offers up to eight (8) free rides to a registered employee who rideshares a minimum of three times a week. Nashville MTA offers a similar service.
Congestion Pricing (HOT Lanes)	NO, the Tennessee Department of Transportation does not currently have a policy for the implementation of HOT Lanes.
Speed Control Measures	NO, speed control will not reduce congestion. The road is congested due to overcapacity, and the speed is often dictated by the congestion.

Trip Reduction Ordinances	**YES**, the TMA group is in the process of developing a proposed Trip Reduction Incentive Ordinance (TRIO). Companies are encouraged to participate on a voluntary basis. This measure is not currently under consideration in the Nashville area and therefore would have a limited effect on congestion.
Employer-based Transportation Programs	NO, no known employer-based van pools operate in this area.
Public-private Partnerships	NO, the Transportation Management Association Group (TMA) serves commuter needs in Franklin. A development impact fee is in effect ($595 per lot) in Brentwood. These fees are not anticipated to reduce congestion in the corridor.
Parking Management	NO, not applicable.
Transit or Pedestrian-only Zones	NO, transit demand is not yet high enough to consider dedicated facilities.
Goods Movement Management	**YES,** TDOT is currently researching ways to move manage freight transportation in a more efficient manner. A large percentage of trucks currently travel this section of interstate, and trucks carry approximately 80 percent of the manufactured freight transported in Tennessee. More efficient Goods Movement Management would likely have a positive effect on congestion.
Traffic Operational Improvements	
Turn Lanes	NO, not applicable.
Intersection Widening	NO, not applicable.
Turn Restrictions	NO, not applicable.
Median	NO, this section currently has a 60’ median.
Center Turn Lane	NO, not applicable.
Traffic Signal Improvements	NO, not applicable.
Reversible Lanes	NO, not applicable.
One-Way Streets	NO, not applicable.
Intersection Realignment	NO, not applicable.
Frontage Roads	NO, frontage roads might alleviate some congestion on the surrounding roadway network but would not help congestion on the interstate mainline.
Grade-Separated Interchange	NO, currently there are plans to improve the interchange at State Route 248, however no new interchanges or roadways crossing this section of the interstate are planned.
Traffic and Incident Monitoring Systems	**YES**, the City of Franklin is in the process of updating their ITS systems to provide greater utility to commuters. Studies across the nation have shown that ITS projects translate into a 12% improvement in network operations.

Traveler Info. Systems	**YES**, the City of Franklin is in the process of updating their ITS systems to provide greater utility to commuters. Studies across the nation have shown that ITS projects translate into a 12% improvement in network operations.
Ramp Metering	NO, the Tennessee Department of Transportation does not currently have a policy for the implementation of Ramp Metering.
HOV Use	
HOV Lanes	**YES**, no lanes are currently designated for HOV use within the study area. HOV lanes currently begin just north of the Highway 96 interchange. The use of HOV lanes would encourage commuters to carpool.
HOV Ramp Bypass Lanes	NO, the Tennessee Department of Transportation does not currently have a policy for the implementation of HOV Ramp Bypass Lanes.
Guaranteed Ride Home	NO, such a program is available for van and car pool users of the park-and-ride lot near the State Route 248 interchange.
Employer Trip Reduction Ordinance	**YES**, the TMA group is in the process of developing a proposed Trip Reduction Incentive Ordinance (TRIO). Companies are encouraged to participate on a voluntary basis. This measure is not currently under consideration in the Nashville area and therefore would have a limited effect on congestion.
Transit Improvements (Capital)	
Rail Line	NO, the Nashville Area Transit Development Plan Final Report recommends less capital intensive modes of transit (such as express buses) as the most appropriate way to build up to the more extensive future transit system in the Nashville region.
BRT (Fixed Guideway)	NO, the Nashville Area Transit Development Plan Final Report recommends less capital intensive modes of transit (such as express buses) as the most appropriate way to build up to the more extensive future transit system in the Nashville region.
Bus Lanes	NO, this measure would not reduce congestion at this time. More widespread implementation of transit services will be necessary before such a measure would have an effect.
Bus Bypass Ramps	NO, the Tennessee Department of Transportation does not currently have a policy for the implementation of Bus Bypass Ramps.
Park-and-Ride Lots	NO, there is an existing Park and Ride lot located on Long Lane near the State Route 248 interchange that contains 104 parking spaces. It is presently an underutilized facility that has capacity for serving additional park and ride users.

Intermodal Transit Center	NO, this measure would not reduce congestion at this time. More widespread implementation of transit services will be necessary before such a measure would have an effect.
Transfer Center (mini-hubs)	NO, the RTA and MTA are working with Metro Nashville to pursue construction of a new downtown transit center, however no other hubs are recommended at this time.
Paratransit	NO, the TMA Group and Nashville MTA currently offer paratransit services.
Local Circulators	**YES,** the Nashville Area Transit Development Plan Final Report recommends a Circulator in the Franklin/Cool Springs area.
Transit-oriented Design	**YES**, Transit-Oriented Development should be considered during the planning process of any new project.
Transit Improvements (Operational)	
Service Enhancement	**YES,** enhancement of Transit Service would likely have a positive effect on congestion.
Service Expansion	**YES**, expansion of Transit Service would likely have a positive effect on congestion.
Traffic Signal Preemption	NO, not applicable.
Fare Reduction	NO, this measure would not likely have a noticeable effect on congestion at this time.
Transit Info. Systems	NO, this measure would not reduce congestion at this time. More widespread implementation of transit services will be necessary before such a measure would have an effect.
Non-Auto Modes	
Pedestrian Facilities	NO, not applicable.
Bicycle Facilities	NO, not applicable.
Land Use Planning	
Zoning and Subdivision Controls	NO, zoning ordinances are not expected to relieve congestion in this area.
Comprehensive and Subarea Land Use Plans	NO, this area is under the jurisdiction of the Nashville Area Municipal Planning Organization and is currently part of a comprehensive land use plan.
Major Thoroughfare Plans	NO, this project is currently listed as “recommended” in the 2004 City of Franklin Major Thoroughfare Plan Update.
Mixed-use Zoning Districts	NO, this section of interstate is in a mixed-use zoning district.
Transit-friendly Design Policies for Development	**YES,** enhancement of Transit Service would likely have a positive effect on congestion.
Pedestrian and Bike Friendly Policies	NO, not applicable.

Access Management	
Access Controls	NO, the interstate has fully controlled access.
Access Consolidation	NO, the interstate has fully controlled access.
Cross-Access Easements Between Developments	NO, this measure would not relieve congestion on the interstate system.

6.3.2 Summary of Feasible Congestion Management Strategies

In summary, this Tier 2 Analysis indicates that a number of "toolbox" strategies can be used simultaneously to improve congestion of Interstate 65. Several strategies are already in use or are currently being developed, such as:

- Carpools and Vanpools
- Ridesharing
- Park and Ride Lots
- Flex Time
- Telecommuting
- Guaranteed Ride Home
- Trip Reduction Ordinances
- Traffic and Incident Monitoring Systems

Other strategies in the CMS toolbox that can improve congestion on Interstate 65 include:

- Expanded Transit Services
- Goods Movement Management
- HOV Lanes
- Local Transit Circulator in Franklin/Cool Springs Area

The findings of this Tier 2 Analysis are that the simultaneous use of the aforementioned CMS toolbox strategies will not meet all of the project needs and will not reduce future congestion to levels under the threshold prescribed in the CMS. Therefore, it is proposed to widen this section of Interstate 65 from four to eight lanes. This increased laneage, when combined with the selected toolbox strategies, will increase corridor traffic capacity and safety.