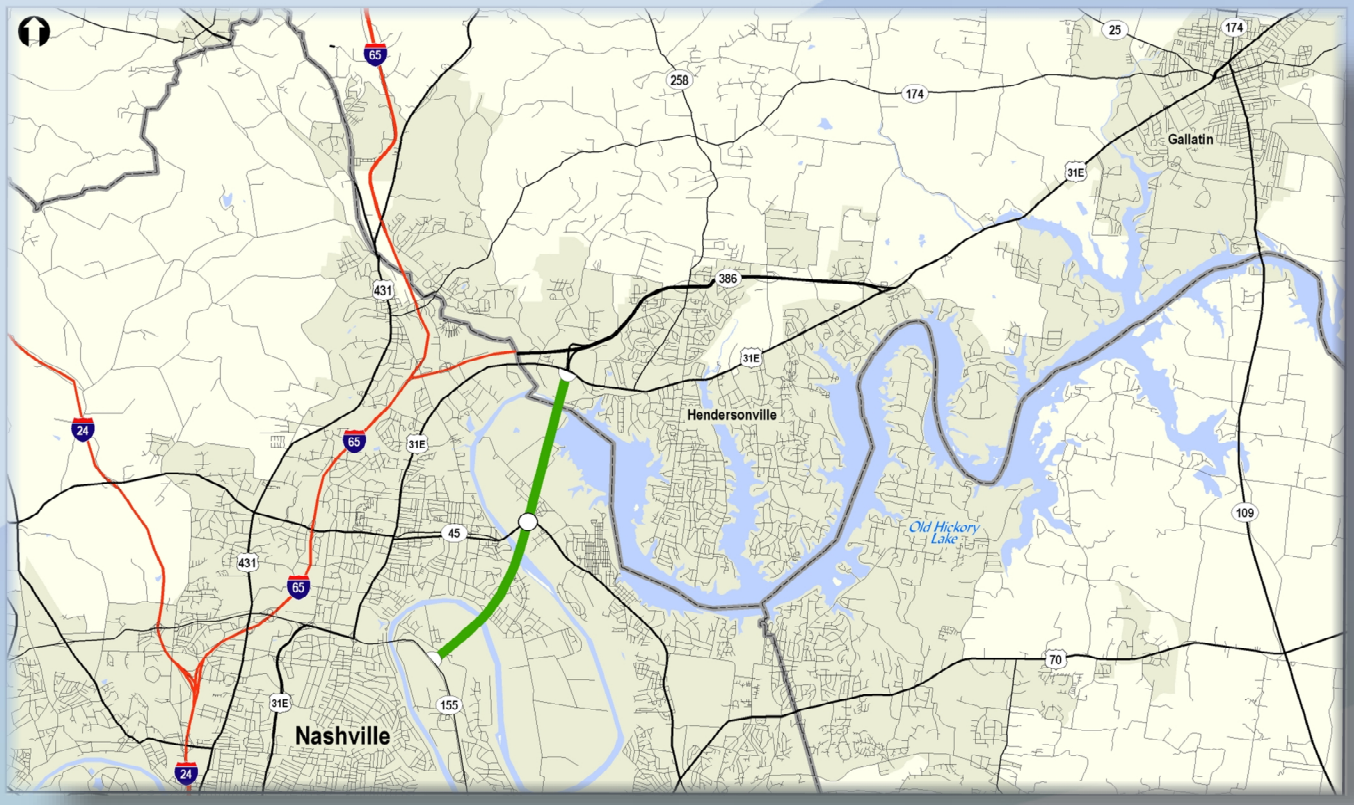
Tennessee Department of Transportation

Proposed Hadley Bend Connector

Conceptual Feasibility Report



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April 2007

EXECUTIVE SUMMARY

Across the country all levels of government are coming to grips with the fiscal challenges created by increased demand for new transportation infrastructure and the need to maintain the existing transportation networks within the constraints of existing funding mechanisms. In Tennessee, the public sector has financed transportation infrastructure through a combination of state and local taxes, fees and—for major projects—Federal grants derived from the allocation of the national motor fuel taxes. These resources have been combined to fund projects on a "pay-as-you-go" basis, meaning that projects have often been built in phases or increments as funds become available over a period of years.

Because of competing demands for its transportation funding dollar, Tennessee is faced with the reality that critical projects may face years of delay before funding is available. Delaying these projects results in hidden costs associated with inflation and unrealized economic development, especially for projects delayed several years. In addition, delaying projects that reduce emissions or eliminate safety hazards has obvious negative impacts on the quality of life issues for Tennessee residents.

In recognition of these factors, the Tennessee Department of Transportation retained the firm of Wilbur Smith Associates to begin exploring the potential for the use of tolls by the State to advance needed projects that would otherwise languish waiting for adequate funding. Wilbur Smiths' scope of work included conducting preliminary traffic and revenue studies on three potential toll projects.

Wilbur Smiths' assignment culminates in the preparation of Conceptual Feasibility Studies for each of the three projects. This report constitutes the Conceptual Feasibility Study for the Proposed Hadley Bend Connector in the northeastern metropolitan Nashville area. The findings of this report should be considered conceptual in nature and are conditioned on the statements contained within this report.

In conducting this report, Wilbur Smith performed three basic analyzes: a preliminary traffic and revenue study; an estimate of project costs; and a conceptual plan of finance. Wilbur Smith also began applying various quantitative and qualitative criteria to the Hadley Bend Connector to help formulate a recommendation concerning the next steps in the process.

At this early stage of project development there is insufficient planning, environmental analysis, engineering, and public input to reach a final conclusion concerning the feasibility of the Hadley Bend Connector. These and other outstanding issues will significantly influence this outcome. However, based on the work conducted on the proposed Hadley Bend Connector pursuant to this assignment, Wilbur Smith believes that this project warrants additional study as a tolled facility.

Specifically, Wilbur Smith recommends that TDOT undertake the following steps:

- Inclusion of the Hadley Bend Connector in the Northeast Corridor Major Investment Study in order to evaluate this project in a regional transportation context;
- Reduce the inflationary impact on construction by revisiting the opening-year assumption to reflect funding the project with tolls, rather than through traditional funding mechanisms;
- Perform a project specific estimate of construction costs; and
- Retain either an investment bank or a financial advisor to prepare a more sophisticated financial model including both federal lending programs and 3P or concessionaire financings.

Having said this WSA believes that the Hadley Bend Connector has a reasonable expectation to be feasible as a toll facility. In addition, early results indicate that Scenario 2 may be more feasible than Scenario 1 due to a higher demand to connect to Briley Parkway and points south, particularly to the airport.

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INTRODUCTION

Determining the feasibility of a toll project is an iterative process. The first step is to screen a project, or projects, to develop an initial understanding of how the potential traffic and revenue characteristics of that project. This step usually requires either a Level 1 Sketch Level Analysis or a Preliminary Traffic and Revenue Study. Both are considered planning level studies designed to assist in furthering the normal planning process and are required for all transportation projects.

At the request of the Tennessee Department of Transportation (TDOT), Wilbur Smith Associates (WSA) has completed preliminary traffic and revenue studies for the Hadley Bend Connector near Nashville. The Hadley Bend Connector was studied under two alternative configurations, or scenarios. This study was conducted to facilitate the planning process required for the proposed transportation facility. Depending upon a number of factors inherent in the transportation planning process modifications, and updates may be needed as competing routes and modes get added to regional plans, project configurations change, and land use patterns evolve.

Traffic and revenue studies, by themselves, do not determine project feasibility – though such studies are significant factors in undertaking such an analysis. As a result, subsequent planning steps are usually taken once a sketch or preliminary traffic and revenue study is completed and it has been determined that a project, or projects, has the potential to be feasible as a toll facility. This planning process often incorporates an analysis of the project in the context of a regional or statewide transportation plan, major investment studies, preferred alignments, preliminary design and engineering, and the development of preliminary plans of finance.

Separately, WSA developed estimates of project costs for each scenario. These estimated project costs were used in analyzing the project's financial feasibility at this conceptual stage. Bonding capacity was estimated utilizing a traditional public toll authority financial model. These cost and bonding estimates (contained herein) are conceptual in nature and are provided as inputs into a screening process to help determine the direction that future planning efforts will take for the proposed project.

PROJECT DESCRIPTION

The proposed Hadley Bend Connector is located in the northeastern portion of the metropolitan Nashville region. If constructed this new route would provide an additional north-south route between Davidson and Sumner Counties via bridges over the Cumberland River. Currently, the only north-south connection over the Cumberland River into and out of Sumner County is State Route 109, which connects Sumner and Wilson Counties. According to the Nashville Area MPO's recently adopted 2030 Long Range Transportation Plan, the Hadley Bend Connector would bridge the Cumberland River connecting State Route 45 (Old Hickory Boulevard) and State Route 386 (Vietnam Veterans Boulevard). According to the plan, the approximate distance for the connector (bridge and roadway) is 3.6 miles and would be a four lane facility.

As part of WSA's Preliminary Traffic and Revenue Study, a second configuration was studied. This second configuration would extend the proposed project south to an intersection with SR 155, completing a bypass of I-65 for trips to the southeastern area of Nashville, the airport, and potentially to destinations further south. This southern extension will require two more bridged crossings of the Cumberland River. The approximate distance of the project under Scenario 2 is 6.4 miles.

Figures 1 and *2* depict the location of the two individual scenarios which WSA studied for the Hadley Bend Connector. As noted above, both configurations show the project extending from the existing U.S. 31E to SR 45, in Old Hickory, Tennessee. In Scenario 2 (*Figure 2*), the Hadley Bend Connector would have a full access interchange with SR 45 and would continue to the south terminating with a partial interchange with SR 155, Briley Parkway. This partial interchange with SR 155 would allow access to and from the north. In either scenario, the Connector would provide an alternate route for traffic traveling between the City of Nashville and the region including Hendersonville and Gallatin. By using the Connector, patrons would no longer be inclined to use I-65 north of the Interchange with SR 45 to gain access to downtown.

Also shown in *Figures 1* and *2* are the assumed tolling locations for each scenario. The tolling locations have been located to ensure that no toll-free travel would occur on the facility. Under these tolling concepts, motorists using any portion of the project would pass through at least one toll plaza.

TN 100617 / 4-1-07 / Location Map - Scenario 1 (R.2).mxd

PROJECT LOCATION MAP - SCENARIO 1
US 31E TO SR 45

WilburSmith ASSOCIATES

FIGURE 1

TN 100617 / 4-1-07 / Location Map - Scenario 2 (R.2).mxd

PROJECT LOCATION MAP - SCENARIO 2
US 31E TO SR 155

WilburSmith ASSOCIATES

FIGURE 2

EVALUATION CATEGORIES

WSA has developed a checklist of items that could impact the feasibility of a new toll facility. These items are listed in *Table 1* and are organized around seven main categories. Each of these main categories contains multiple subcategories or criteria. To a great extent the items on the checklist are interdependent. It is important to note that the applicability and/or the weight given to a specific factor are dependent upon the characteristics and objectives of the toll project and the sponsoring agency. In the final analysis toll projects, regardless if developed by a public entity or through a public private partnership, are essentially public assets and subject to public policy of the sponsoring entity.

As mentioned above, the applicability and/or weighting of any of the sub-categories contained in *Table 1* are dependent upon project specific factors. This Conceptual Feasibility Report is not intended to provide an extensive analysis of each of these characteristics. The type of analysis needed to determine a project's feasibility is the part of a project's planning process.

One of the functions of the planning process is to define what issues are relevant to a project and the respective weight of these issues. As such, this analysis will be focused on the major categories rather than trying to determine the applicability of each of the sub items.

Table 1
Feasibility Checklist

Regional Transportation System
- a) Traffic movements to be served
- b) Existing Alternative Routes
- c) Future planned networks
- d) Other planned transportation improvements

Environmental
- a) Major Investment Study
- b) Designation of preferred alignment
- c) Cost implications of mitigation requirements
- d) Projected timeline for environmental clearance
- e) Full EIS versus environmental assessment (FONSI)

Right-of-Way
- a) Number of takes
- b) Project costs
- c) Acquisition timetable
- d) 4F Issues
- e) Utility Issues

Construction/Engineering
- a) Uniqueness of engineering/construction requirements
- b) Required Permits
- c) Constructability
- d) Construction schedule
- e) Project Costs
- f) Bonding requirements

Corridor Socio-Economic Data
- a) Land use plans
- b) Population growth
- c) Projected non-residential activity
- d) Income Levels
- e) Household size

Traffic and Revenue
- a) Project configuration
- b) Project interconnectivity
- c) Value of time calculations
- d) Time/distance savings
- e) Corridor share
- f) Toll regimes
- g) Typical movements

Financial Considerations
- a) Project financial structure
- b) State/Local contribution
- c) Federal programs

Regional Transportation System

Toll facilities need to fit within the overall regional transportation system; in this case overseen by the Nashville Area Metropolitan Planning Organization (MPO). WSA is aware that the MPO currently has a solicitation pending to study the corridor within which the Hadley Bend Connector is located. This study is referred to as the Northeast Corridor Major Investment Study and is expected to be completed within 21 months of its award date. This study will address many of the items identified in the Checklist under this category.

The MPO's study should also provide a good understanding of how the Hadley Bend Connector will fit in the overall transportation network within this corridor. For example, based on the traffic and revenue work WSA has

conducted for this project, we have identified two new roadways being constructed near the southern portion of the project and shown on the MPO's 2030 Long Range Transportation Plan which could significantly impact Scenario 2 of the project. These new roadways are an extension of Hermitage Road from Briley Parkway to Neeley's Bend and Donelson/Neely's Bend Connection from Lebanon at Stewart's Ferry to Neely's Bend. WSA ran models with and without these improvements to determine the potential impact thereof. This modeling indicates that the inclusion of these two new roads reduces average weekday traffic at the RT 45 ramp toll plazas by 3,900 vehicles. At the 2030 ramp plaza toll rate of $1.50, this translates to a revenue loss of $5,800 per day, or $1.9 million annually.

If the Hadley Bend Connector is determined to have a greater impact in terms of the MPO's objectives, then the added benefit of this project needs to be weighed against the impact of the two new roadways. It is within the context of regional studies, such as the Northeast Corridor Major Investment Study, that these issues should be balanced and decided.

Environmental

Toll facilities are not exempt from applicable federal and state environmental review requirements. The environmental clearance process has a significant impact on the feasibility of any transportation project, but especially so in the case of a toll facility. In addition to the typical environmental studies needed for an Environmental Impact Statement (EIS), toll projects need to study the economic impact of charging tolls on the facility.

Besides time, the most significant impact of the environmental process, are the costs of mitigation required by the EIS document. Whether from longer or more difficult alignments, wetland mitigation costs, or more difficult construction requirements, these requirements can add considerable costs to any transportation project. For a toll project, the environmental process can change the amount of project costs that can be paid for solely by toll revenue.

To date, WSA is not aware of any significant environmental work that has been done for the Hadley Bend Connector. We would note that the current configuration of the project crosses the Cumberland River at least once (Scenario 1) and potentially three times (Scenario 2). Our experience is that crossing bodies of water, especially those considered to be navigable, present unique challenges during the environmental clearance process which can result in extended schedules and increased project costs.

Right-of-Way

Right-of-way for transportation projects is typically acquired subject to eminent domain procedures. As such the right-of-way acquisition process is established by federal and state laws and requirements. These requirements are typically applied regardless of whether a toll facility is being developed as a public toll facility or through the use of a public-private partnership. In rare cases landowners will donate or "proctor" right-of-way for toll facilities in order to benefit from increased land values resulting from improved access provided by the facility.

Generally, specific right-of-way takings are not identified until after a preferred alignment is identified pursuant to the normal EIS process. The availability and cost of the required right-of-way is often a factor in determining a preferred alignment. This is true for all transportation projects, including toll facilities.

To date, WSA is not aware of any analysis of right-of-way impacts and costs that has been undertaken for the proposed Hadley Bend Connector.

Construction and Engineering

As part of its assignment WSA has made conceptual level estimates of construction and engineering costs. In developing the estimated engineering and construction costs for the Hadley Bend Connector, TDOT's cost estimate worksheet was used to determine the 2007 costs. This worksheet has been used for several years by TDOT in its planning office to develop estimates of engineering, right of way, and construction costs for project planning purposes only. The cost estimation worksheet is based on per lane and per mile cost factors. The calculations take into account factors including location (rural, suburban, urban, etc.) and terrain (flat, hilly, mountainous, etc.).

In addition to standard road construction costs, toll equipment costs were developed for the project. Costs estimated for the anticipated toll equipment also include electronic toll collection (ETC) system components such as ETC antenna and reader units, the tolling zone controllers, automatic coin machines, vehicle detection and classification devices, vehicle detector loops, traffic signals, overhead canopy lights, various power supplies, violation enforcement system cameras, and traffic control gates (in the automatic lanes).

WSA also estimated the cost of the communications infrastructure that would be required to support each of the analyzed tolling concepts. In addition to the direct equipment costs, estimates for the required civil work were prepared, including the cost of procuring and installing tolling gantries at each of the tolling zone locations. Other toll system costs were estimated for toll system design, development, and deployment. These costs include the Toll System Contractor's program management, software development, development of the system design documentation, factory and integration testing, equipment installation, and field testing to confirm that the delivered system meets the toll specification requirements. The capital costs of the toll system host and the other back office subsystems (including ETC account management and violation processing) were also estimated. These are all one-time costs that are associated with the procurement and deployment of the tolling system on the project.

Project costs were inflated to 2013, the assumed first year of construction. An inflation rate of 10% is applied to the project cost for the first three years through 2010 and a 3% inflation rate is applied to the project cost from 2010 until the year of construction. *Table 2* sets forth the estimated project cost for the project, and each of the associated scenarios. The numbers are in millions of dollars and have been inflated to 2013, the assumed year when construction starts. These estimates exclude costs that would have been expended prior to financing such as environmental costs, preliminary engineering, and right-of-way. As the project becomes better defined during the normal planning process these project costs will need to be refined. Additional factors that could impact these estimates include mitigation costs, bridge lengths, and specific subsurface conditions. The final alignment will also impact estimated project costs.

Table 2
Construction and Engineering Costs
(2013 $ Million)

	Scenario 1	Scenario 2
Construction/Engineering	$ 130.8	$ 245.5
Toll Systems	$ 15.1	$ 21.0
Estimated Project Cost	$ 145.9	$ 266.5

Corridor Socio-Economics

Future economic growth potential is important for the study of any new start-up toll facility such as the Hadley Bend Connector. As part of WSA's preliminary traffic and revenue study for this facility, a review of both historical and forecast growth in the Nashville region was conducted. This data creates the basis on which to judge the reasonableness of future demand for the toll facility. This future demand is a function of the levels of future congestion on alternative routes and estimates of the willingness and ability to pay future tolls. Generally speaking the larger the population, the greater the level of congestion on free routes and the greater the time savings offered by a toll facility. At the same time higher levels of income results in increased values of time, which influence the optimal toll levels.

The socioeconomic forecast developed by the Nashville MPO included in the travel demand model was used for the analysis. Since this is a preliminary traffic and revenue study, an independent economic analysis was not commissioned. However, an independent economic analysis would be necessary for any comprehensive or "investment grade" traffic and revenue study that might be used to support a project financing.

A major element in this economic assessment is reviewing both the historical and forecasted growth in population, households, employment, and median household income. The historical trend assessment was performed focusing on both Davidson and Sumner Counties and major cities within the corridor. In addition to those prepared by the MPO, WSA collected the socio-economic/demographic forecasts prepared by a third party source, Woods and Poole Economics, Inc. Both historical trend data and the third-party forecasts were used to check the reasonableness of the forecasts prepared by the MPO. This process provides a reasonableness check of the forecasts used in the modeling process.

Based on these analyses, WSA concluded that the Nashville MPO's forecasts of population, household, and employment growth appear to be reasonable. Forecast growth appears in line, or lower, when compared to

historical growth trends in the region. When compared to the Woods and Poole Economics data it was found that for the most part, the MPO forecasts are somewhat conservative. While the employment forecasts do differ between the two sources, it is believed that the MPO forecast of employment growth for 2016 to 2030 can be considered reasonable given historical trends and lower forecasted growth from 2006 to 2016.

Traffic and Revenue

Traffic and revenue reports consider known and measurable factors that influence the choices of tens of thousands of daily traveling decisions. Sophisticated models are built based on regional travel demand models, that reflect socio-economic data, existing and future funded transportation networks, and actual travel time data.

For the purpose of the preliminary traffic and revenue study it was assumed, regardless of scenario, that the Connector would open to traffic in 2016. Under Scenario 1, which terminates at SR 45, a full interchange is assumed at US Highway 31E with a partial interchange assumed at SR 45 allowing movements to and from the north. Under Scenario 2, the interchange with SR 45 is assumed to be full access, whereas a partial access interchange (to and from the north) was assumed with SR 155. The roadway was assumed to be two lanes in each direction with a posted speed limit of 55 miles per hour.

The projected gross revenue, operating expenses, and net revenue for the Hadley Bend Connector under Scenario 1 and Scenario 2 are presented in ***Table 3***. More detailed discussion of the projections is contained within the January 2007 "Proposed Hadley Bend Connector Preliminary Traffic and Revenue Study" prepared by WSA.

Table 3
Annual Net Toll Revenue Forecasts
Proposed Hadley Bend Connector

	Scenarion 1			Scenarion 2		
Year	Gross Toll Revenue	Toll Operating Expense	Net Toll Operating Revenue	Gross Toll Revenue	Toll Operating Expense	Net Toll Operating Revenue
2016	$ 3,652,000	$ 2,826,000	$ 826,000	$ 8,449,000	$ 3,253,000	$ 5,196,000
2017	5,211,000	2,910,000	2,301,000	11,958,000	3,317,000	8,641,000
2018	6,480,000	2,997,000	3,483,000	14,750,000	3,383,000	11,367,000
2019	7,338,000	3,087,000	4,251,000	16,569,000	3,450,000	13,119,000
2020	7,853,000	3,179,000	4,674,000	17,589,000	3,518,000	14,071,000
2021	8,404,000	3,274,000	5,130,000	18,672,000	3,588,000	15,084,000
2022	8,994,000	3,372,000	5,622,000	19,821,000	3,659,000	16,162,000
2023	9,625,000	3,473,000	6,152,000	21,041,000	3,731,000	17,310,000
2024	10,300,000	3,577,000	6,723,000	22,336,000	3,805,000	18,531,000
2025	11,023,000	3,684,000	7,339,000	23,711,000	3,880,000	19,831,000
2026	11,796,000	3,794,000	8,002,000	25,170,000	3,957,000	21,213,000
2027	12,624,000	3,907,000	8,717,000	26,719,000	4,035,000	22,684,000
2028	13,510,000	4,024,000	9,486,000	28,364,000	4,115,000	24,249,000
2029	14,458,000	4,144,000	10,314,000	30,110,000	4,196,000	25,914,000
2030	15,471,000	4,268,000	11,203,000	31,962,000	4,279,000	27,683,000
2031	16,014,000	4,336,000	11,678,000	33,023,000	4,311,000	28,712,000
2032	16,576,000	4,405,000	12,171,000	34,119,000	4,343,000	29,776,000
2033	17,158,000	4,475,000	12,683,000	35,251,000	4,375,000	30,876,000
2034	17,760,000	4,547,000	13,213,000	36,421,000	4,407,000	32,014,000
2035	18,383,000	4,620,000	13,763,000	37,630,000	4,440,000	33,190,000
2036	19,028,000	4,694,000	14,334,000	38,879,000	4,473,000	34,406,000
2037	19,696,000	4,769,000	14,927,000	40,169,000	4,506,000	35,663,000
2038	20,387,000	4,845,000	15,542,000	41,502,000	4,540,000	36,962,000
2039	21,102,000	4,922,000	16,180,000	42,879,000	4,574,000	38,305,000
2040	21,842,000	5,001,000	16,841,000	44,302,000	4,608,000	39,694,000
2041	22,608,000	5,081,000	17,527,000	45,772,000	4,642,000	41,130,000
2042	23,401,000	5,162,000	18,239,000	47,291,000	4,676,000	42,615,000
2043	24,222,000	5,245,000	18,977,000	48,860,000	4,711,000	44,149,000
2044	25,072,000	5,329,000	19,743,000	50,481,000	4,746,000	45,735,000
2045	25,952,000	5,414,000	20,538,000	52,156,000	4,781,000	47,375,000
2046	26,862,000	5,500,000	21,362,000	53,887,000	4,817,000	49,070,000
2047	27,804,000	5,588,000	22,216,000	55,675,000	4,853,000	50,822,000
2048	28,779,000	5,677,000	23,102,000	57,523,000	4,889,000	52,634,000
2049	29,789,000	5,768,000	24,021,000	59,432,000	4,925,000	54,507,000
2050	30,834,000	5,860,000	24,974,000	61,404,000	4,962,000	56,442,000
2051	31,916,000	5,954,000	25,962,000	63,442,000	4,999,000	58,443,000
2052	33,036,000	6,049,000	26,987,000	65,547,000	5,036,000	60,511,000
2053	34,195,000	6,145,000	28,050,000	67,722,000	5,073,000	62,649,000
2054	35,395,000	6,243,000	29,152,000	69,969,000	5,111,000	64,858,000
2055	36,637,000	6,343,000	30,294,000	72,291,000	5,149,000	67,142,000

Notes: Ramp up was assumed to be 61%, 81%, and 95% in years 1,2, and 3 respectively.
An annualization factor of 335 was used to calculate annual totals.

As these numbers demonstrate, extending the Hadley Bend Connector to SR 155 allows for a complete bypass of I-65 for trips to the southeastern area of Nashville, the airport, and potentially to destinations further south. We refer you back to our January 2007 Preliminary Traffic and Revenue Study of the Hadley Bend Connector for a more detailed discussion.

Financial

Preliminary bonding capacity analyses were performed for both of the Hadley Bend Connector scenarios. This analysis was performed to estimate the amount of project costs that could be paid for with proceeds from bonds supported by toll revenues. This analysis is based on the revenue numbers forecasted in the preliminary traffic and revenue studies and presented above in *Table 2*. This analysis utilizes a bond sizing model typical of financings for other toll roads within the United States that have been recently issued by public authorities. The interest rate assumptions are indicative of WSA's understanding of current market conditions, which are subject to change based upon factors outside the control of WSA and TDOT.

Potential bonding capacity was calculated for both a net and a gross revenue pledge. Under a net pledge operations and maintenance are paid prior to debt services. This pledge provides comfort that the facility will be operated and revenues collected.

Under a gross revenue pledge, debt service is paid prior to operations and maintenance being paid. This results in an increase in bonding capacity. For a gross pledge to be financable, TDOT or some other entity would have to guarantee to pay the operations and maintenance costs should toll revenue be insufficient to pay debt service and operations and maintenance. These costs would be subject to reimbursement from future revenue.

Table 4 sets forth the estimated bonding capacity for Scenarios 1 and 2 under both a net and gross revenue pledge scenario. These estimates are net of financing costs, capitalized interest, and a debt services reserve—typical costs and reserves which are either paid or funded out of proceeds from financings.

Table 4
Bonding Capacity
(Million $)

	Net Pledge		Gross Pledge	
	Scenario 1	**Scenario 2**	**Scenario 1**	**Scenario 2**
Bonding Capacity	$ 77.60	$ 205.80	$ 115.70	$ 246.00
Financial Costs and Reserves	$ 10.10	$ 29.50	$ 17.30	$ 37.40
Net Bonding Capacity	$ 67.50	$ 176.30	$ 98.40	$ 208.60

The bonding capacity analyses were based on the following major assumptions:

- Project bonds are a combination of Current Interest Bonds and Capital Appreciation Bonds with 40-year maturities
- Both series of project bonds are issued at parity (i.e. both have equal claims to revenue)
- Project bonds have debt service coverage ratios of 1.75X for both series
- Both series have investment grade ratings
- All reserve funds are invested at 4% per annum
- Each project is open for traffic as indicated in *Table 3*
- Interest is capitalized during the assumed construction period for each project
- Financing costs assumed to equal 2.5% of bond size
- Debt Service Reserve is funded at closing from proceeds and estimated to equal 10% of total bond size

The bonding capacity analysis is provided for planning purposes only and is not intended to supplant the analysis that will be required by a financial advisor or underwriter as part of the financing process. The analysis is based on prevailing market rates and conditions for similar revenue bond offerings as of the date of this report. Changes in financial market conditions and further refinements by a financial advisor could materially alter the results of the bond sizing model.

A project's financial feasibility is dependent upon total available funding sources being adequate to pay for project costs. *Table 5* sets forth the conceptual plans of finance for the Hadley Bend Connector. These conceptual plans of finance are based on the estimated project costs shown in *Table 2*, revenue and operating costs set forth in *Table 3*, and bonding capacities shown in *Table 4*.

Table 5
Hadley Bend Connector
Conceptual Plans of Finance

	Scenario 1		Scenario 2	
	Net Pledge	**Gross Pledge**	**Net Pledge**	**Gross Pledge**
Sources				
Bonding Capacity	$ 76.10	$ 113.30	$ 200.40	$ 239.10
Investment Earnings	$ 1.50	$ 2.40	$ 5.40	$ 6.90
Public Contribution	$ 78.40	$ 47.50	$ 90.20	$ 57.90
Total Sources	$ 156.00	$ 163.20	$ 296.00	$ 303.90
Uses				
Project Costs	$ 145.90	$ 145.90	$ 266.50	$ 266.50
Financing Costs	$ 2.50	$ 6.00	$ 9.50	$ 13.50
Debt Service Reserve	$ 7.60	$ 11.30	$ 20.00	$ 23.90
Total Uses	$ 156.00	$ 163.20	$ 296.00	$ 303.90

Each of the line items shown in the conceptual plans of finance are discussed below:

Bonding Capacity:	The amount of debt that can be supported from a given revenue stream.
Investment Earnings:	Interest and earnings on unused bond proceeds. Bond proceeds are held in trust and drawn down over time to pay for project costs.
Public Contribution:	Public funding needed to cover difference, if any, between net bonding capacity and project costs.
Project Costs:	Estimated engineering, construction, and toll system costs of a project.
Financing Costs:	Transaction costs of a financing paid to underwriters, bond counsel, rating agencies, etc. This line item includes interest paid to bondholders during the construction of a project.
Debt Service Reserve:	Reserve account funded out of proceeds of a bond offering to provide funds to cover unforeseen circumstances resulting in operational deficiencies.

As shown in *Table 4*, on a conceptual level each of the Hadley Bend Connector plans requires a public contribution in order to cover all project and financing costs.

NEXT STEPS

At this early stage sufficient information has not been developed to make a final conclusion concerning the feasibility of the Hadley Bend Connector. There remain issues yet to be addressed that will significantly influence this outcome. However, based on the work conducted on the proposed Hadley Bend Connector pursuant to this assignment, WSA believes that this project warrants additional study as a tolled facility.

Specifically, Wilbur Smith recommends that TDOT undertake the following steps:

- Inclusion of the Hadley Bend Connector in the Northeast Corridor Major Investment Study in order to study this project in a regional transportation context;
- Reduce the inflationary impact on construction by revisiting the opening-year assumption to reflect funding the project with tolls, rather than through traditional funding mechanisms;
- Perform a project specific estimate of construction costs;
- Retain either an investment bank or a financial advisor to prepare a more sophisticated financial model including both federal lending programs and 3P or concessionaire financings.

Having said this WSA believes that the Hadley Bend Connector has a reasonable expectation to be feasible as a toll facility. In addition, early results indicate that Scenario 2 may be more feasible than Scenario 1 due to a higher demand to connect to Briley Parkway and points south, particularly to the airport.