IMAGED 186 PAGES
ON 6-2-99
DATE

NOTICE OF SPECIAL MEETING

FORT BEND COUNTY COMMISSIONERS COURT
7TH FLOOR, WM. B. TRAVIS BUILDING, RICHMOND, TEXAS
WEDNESDAY, MAY 5, 1999
1:00 P.M.

AGENDA

1 Call to order

2 Receive Fort Bend County Toll Road Authority's Report to Commissioners Court on the proposed Fort Bend Parkway Toll Road Project and authorize appropriate action

3. Adjournment

In the event any of the foregoing items are not covered in the time allocated on the date of this agenda, the County may order a continuance for the next day until the discussion is completed on all items

FILED FOR RECORD
TIME 11:55 AM
APR 29 1999

County Clerk Fort Bend Co Texas

James C Adolphus, County Judge

Notice of meeting/agenda posted at William B Travis Annex, Courthouse & Jane Long Annex, Richmond, Texas on Thursday, April 29, 1999 by Mandi Bronsell

NOTICE
Policy of Non-Discrimination on the Basis of Disability

Fort Bend County does not discriminate on the basis of disability in the admission or access to or treatment or employment in its programs or activities

ADA Coordinator Risk/Management Insurance Dept 7th Floor Travis Building, Richmond Texas 777469 phone 281-341-8618 has been designated to coordinate compliance with the non-discrimination requirements in Section 35 107 of the Department of Justice regulations * Information concerning the provisions of the Americans with Disabilities Act, and the rights provided thereunder are available from the ADA coordinator

APPROVAL OF MINUTES
COMMISSIONERS COURT
FORT BEND COUNTY

I, Dianne Wilson, duly elected County Clerk and Clerk of Court, Fort Bend County, Texas do hereby submit the Official Minutes of Commissioners Court held on the 5TH day of MAY, 1999

DIANNE WILSON, COUNTY CLERK

Now, therefore, be it resolved upon the motion of Commissioner O'Shieles seconded by Commissioner PATTERSON, duly put and carried, it is ordered to accept for record the attached minutes approved on this the 25TH day of MAY, 1999

JIM ADOLPHUS, COUNTY JUDGE

l/comm/ccm doc

Approved Minutes

MINUTES

BE IT REMEMBERED, That on this 5TH DAY of MAY, 1999 Commissioners Court of Fort Bend County, Texas, met at a scheduled meeting with the following present

JAMES C ADOLPHUS	COUNTY JUDGE
R L "BUD" O'SHIELES	COMMISSIONER PRECINCT 1
GRADY PRESTAGE	COMMISSIONER PRECINCT 2
ANDY MEYERS	COMMISSIONER PRECINCT 3
JAMES PATTERSON	COMMISSIONER PRECINCT 4
DIANNE WILSON	COUNTY CLERK

When the following were heard and the following orders passed:

1. **Call to Order.**

   Call to Order by Judge Adolphus at 1 05 p m

2. **Receive Fort Bend County Toll Road Authority's Report to Commissioners Court on the proposed Fort Bend Parkway Toll Road Project and authorize appropriate action.**

   Norm Mason, Chair, Fort Bend County Toll Road Authority introduced the board and presented a report on the toll road project

   Board members present
   Mike Stone
   Bobbie Tallas
   Charles Richard

   Jim Condrey absent

   Court and Public comments
   Larry Hughes
   Commissioner Grady Prestage
   David Gornet, of Grand Parkway Association
   Cliff Kavenaugh, First Southwest
   Terry Boyner, EarthTech
   Judge Jim Adolphus
   Commissioner James Patterson

item #2 continued - Receive Fort Bend County Toll Road Authority's Report to Commissioners Court on the proposed Fort Bend Parkway Toll Road Project and authorize appropriate action.

Moved by Commissioner Patterson, Seconded by Commissioner Prestage, to authorize the Toll Road Authority to negotiate with TXDOT to present best scenario for Fort Bend County from Beltway 8 to State Hwy 99 or 2759 with written commitment from TXDOT for their participation

MOTION WITHDRAWN

Postpone action until May 25 with a workshop on May 11

3. Adjournment.

Commissioners Court Special Meeting adjourned at 2 21 p m on Wednesday, May 5, 1999

Vinson & Elkins
ATTORNEYS AT LAW

VINSON & ELKINS L L P
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HOUSTON, TEXAS 77002-6760
TELEPHONE (713) 758-2222
FAX (713) 758-2346

WRITER'S TELEPHONE
(713) 758-3894

WRITER'S FAX
(713) 615-5760

May 27, 1999

Ms Alicia Yeomans
c/o Judge Jim Adolphus
Fort Bend County Courthouse
301 Jackson
Richmond, Texas 77469

Re: Fort Bend County Toll Road Authority

Dear Alicia

You will find enclosed, per your request, a copy of the Fort Bend County Toll Road Authority's Report from the May 5, 1999, Fort Bend County Commissioners' Court meeting If you have any questions, please call me at the above number.

Very truly yours,

Nicole K. Counts

Nicole K. Counts
Legal Assistant

Enclosure
F \NC8760\FBTOLLRD\LTR\ADOLPHUS LTR

FORT BEND PARKWAY TOLL ROAD

REPORT

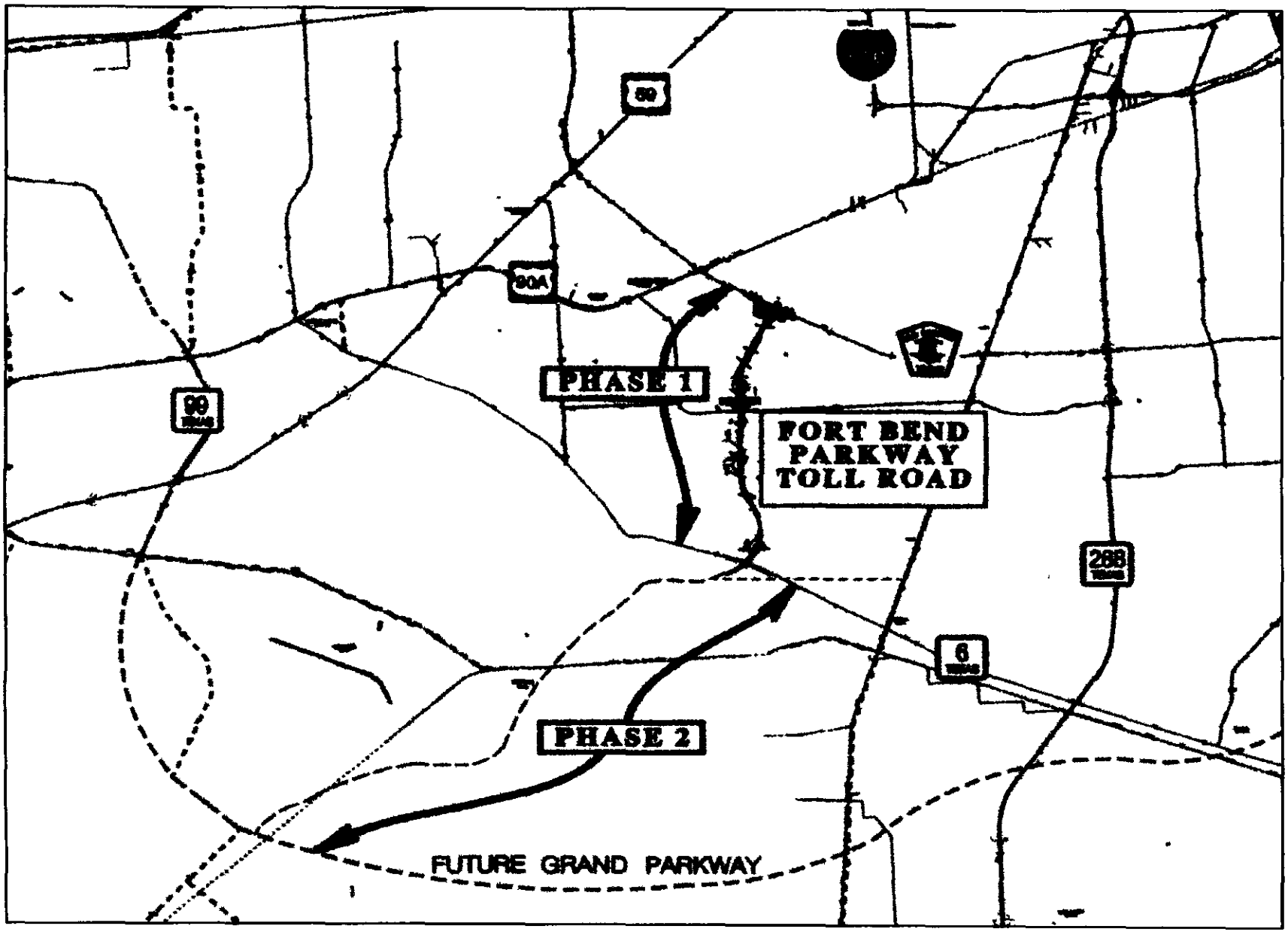
TO

COMMISSIONERS COURT

April 1999

Prepared By:

[illegible]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PHASE 1
FORT BEND
PARKWAY
TOLL ROAD
288
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PHASE 2
FUTURE GRAND PARKWAY

TABLE OF CONTENTS

INTRODUCTION

On January 28, 1997, the Fort Bend County Commissioners Court created the Fort Bend County Toll Road Authority (the "Authority") The Authority was created to aid, assist and act on behalf of the County to determine, among other things, the feasibility of a toll road project extending from the Sam Houston Parkway ("Beltway 8") to State Highway 99 (the "Grand Parkway") to be called the Fort Bend Parkway Toll Road (the "Project") The Project was identified for study and construction in two phases Phase I extending from Beltway 8 to State Highway 6 and Phase II extending from State Highway 6 to the Grand Parkway

On March 24, 1998, after preliminary studies were complete and at the Authority's recommendation, the County authorized the Authority to proceed with final studies necessary to determine the feasibility of Phase I In the last year, the Authority contracted with Wilbur Smith Associates ("WSA"), a nationally recognized authority in traffic studies, to conduct an "investment grade" traffic and revenue study for Phase I. Additionally, the Authority contracted with Rust Environment & Infrastructure, Inc (now Earth Tech, Inc) to perform an engineering feasibility analysis for Phase I Finally, the Authority requested First Southwest Company analyze and recommend several financing options available to the Authority for the design and construction of Phase I

In addition, the Authority has received preliminary information from Turner, Collie & Braden, Inc ("TC&B") and WSA on construction costs and revenue projections for Phase II

Based on all information received to date, the Authority believes Phase I is feasible The Authority further believes that adopting a master plan to, (1) proceed with Phase I while, (2) concurrently initiating formal plan for Phase II will best expedite both Phase I & Phase II and best serve the mobility of Fort Bend County with respect to this corridor

It is the purpose of this report to summarize the findings and conclusions of WSA, Earth Tech, TC&B, and First Southwest Company and make recommendations to the County on how to proceed with the Project

SUMMARY OF FEASIBILITY STUDIES

WHY A TOLL ROAD?

Mobility is one of the greatest challenges facing Fort Bend County both today and in the foreseeable future How Fort Bend County addresses its mobility needs will have a substantial impact -- either positively or negatively -- on the County's economic development over the next two decades and the quality of life for all residents

A major north-south traffic corridor extending from the Sam Houston Toll Road southwest through Fort Bend County and across the Brazos River has long been recognized as a key element of the total county infrastructure The corridor was first proposed as a freeway in 1961 and was included in the Major Thoroughfare Plans of Houston in 1963 and Fort Bend County in 1984 The corridor was designated as State Highway 122 in 1986 The feasibility of a major thoroughfare in this corridor was initially studied by the Fort Bend Parkway Association with funding from the Fort Bend Parkway Road District in 1990 Significant additional studies have now been performed for the Authority. While the project has been well studied, and the need for it is clear, the question remains how to pay for it.

In recent testimony before the Texas Senate Interim Committee on Transportation, Texas Department of Transportation ("TxDOT") officials estimated that only 40% of needed infrastructure projects in Texas can be funded, even with the increased TxDOT funding provided by the Transportation Equity Act of 1998 Traffic delays cause an estimated $4 4 billion annual economic loss in Texas' six largest metropolitan areas. (*See* Consensus Statement, Texas Transportation Funding Coalition, Appendix B).

TxDOT is already committed to numerous projects in Fort Bend including construction of State Highway 6, improvements along U S 59 and U S. 90A, and continued extension of the Grand Parkway With these projects, Fort Bend County will receive approximately $143 8 million in TxDOT funding for 1999-- a disproportionately high twenty-nine percent (29%) of TxDOT funds for the Houston District considering Fort Bend County comprises only nine percent (9%) of the population The Authority does not anticipate this level of funding in Fort Bend County can continue The completion of these major projects, as vital as they are, will still leave Fort Bend County with many ongoing and increasing needs for transportation infrastructure

It is virtually certain that neither the County nor TxDOT will be in a position to construct this entire Project (Phase I and Phase II) alone Therefore, it will be incumbent on the leadership of Fort Bend County to seek ways to expedite infrastructure development at the local level based on local initiatives A joint undertaking between the County and TxDOT allows the County to initiate this needed infrastructure improvement with very little proportional financial risk Moreover, the toll road has the potential of creating a substantial operating surplus beginning in its fourth year of operation and provide a catalyst for future economic development

WSA Traffic and Revenue Study

On February 11, 1999, WSA presented to the Authority the results of its study to estimate usage and toll revenue of Phase I

The Traffic and Revenue Study included the assembly of all available data, such as traffic counts, proposed improvements to complementary and competing routes, previous study reports (both for the Project and other facilities in the area), and socioeconomic data from a variety of sources The Houston Galveston Area Council's (HGAC's) traffic model and associated socioeconomic forecasts were obtained and refined for purposes of estimating project usage. WSA also conducted origin-destination surveys in the Project corridor to determine trip patterns The survey findings were incorporated into the HGAC traffic model, which was then used, first, to estimate the traffic flow in the corridor and then determine the effect of varying toll rates. Annual revenue forecasts are provided for Phase I for the period between July 1, 2001 (the assumed opening date) and 2020. (*See* Table 2). In addition, sensitivity tests were conducted to gauge the impact on the project's traffic and toll revenue of early completion of improvements to competing routes; lower growth, and lower values of time

Socioeconomic forecasts incorporated in the WSA model were prepared by Professor Barton Smith of the University of Houston's Center for Public Policy, a recognized leader in Houston area demographics According to Professor Barton Smith, his projections incorporate the effect of a near-term economic downturn His projections are "appropriately, but not overly conservative, falling within the comfort zone between being realistic and conservative without excessively underestimating growth " (*See* WSA Report, p. 41)

WSA determined that an initial toll rate of $0.16 per mile (corresponding to $1 00 for the six-mile Phase I trip) would initially achieve the optimum Project revenue This determination was based in part on a toll sensitivity test which compared the use of the Project assuming toll rates of $0.05, $0 11, $0 16, and $0.25 per mile and toll-free (*See* Table 1)

TABLE 1

Toll Rate per mile (Total Trip)	Average Daily Traffic on Phase I	Percent Change
Toll-Free	41,300	N/A
$0 05 ($0 50)	20,000	-51.5%
$0 11 ($0 75)	17,650	-57.26%
$0 16 ($1 00)	14,950	-63 80%
$0 25 ($1 50)	8,968	-78 29%

Source WSA Report p 63

At the recommended toll rate, WSA forecasts 3,384,000 annual transactions in Phase I's initial year of operation, generating approximately $2 7 million in revenue These figures would escalate to 7,211,000 annual transactions, or $5 96 million in revenue, by the year 2010. (*See Table 2*)

The traffic and revenue estimates in the WSA Report are based on the assumption that toll-costs and values of time remain at 1998 levels. The WSA Report also concludes:

- It will be possible for the Fort Bend Toll Road Authority to raise prices periodically to track inflation, without affecting the traffic levels estimated in this report

- If tolls are not increased over time, and inflation occurs, then the value of the tolls related to people's perceived time value will drop. This should result in higher traffic levels than indicated in this report

(*See* WSA Report, p. 61)

TABLE 2

Estimated Annual Toll Transactions and Revenue

Year	Annual Transactions (thousands)[1]	Annual Revenue (thousands)[2]	Escalated Annual Revenue (thousands)[3]
2001	3,384	$2,735	$2,735
2002	4,930	3,945	3,945
2003	5,433	4,306	4,306
2004	5,718	4,488	4,488
2005	6,019	4,677	4,677
2006	6,335	4,875	5,620
2007	6,696	5,164	5,909
2008	7,079	5,470	6,215
2009	7,483	5,794	6,539
2010	7,211	5,965	6,710
2011	7,420	6,138	7,952
2012	7,628	6,310	8,124
2013	7,834	6,481	8,295
2014	8,038	6,649	8,463
2015	8,238	6,815	8,629
2016	8,444	6,986	10,174
2017	8,645	7,160	10,348
2018	8,872	7,340	10,828
2019	9,094	7,523	10,711
2020	9,321	7,711	10,899

1 *Source* WSA Report p 71

2 *Source* WSA Report p 71

3 *Source* First Southwest Company Assumes escalation in toll rates every 5 years equivalent to 3% per year The numbers do not reflect the impact that a toll increase would have on transactions and revenue in the first year of the increase

EARTH TECH ENGINEERING FEASIBILITY ANALYSIS

On February 11, 1999, Earth Tech presented to the Authority the results of its Engineering Feasibility Analysis for Phase I. Based in part on cost information from TxDOT comparable projects, the Earth Tech Report included comprehensive estimates of potential costs associated with construction, environmental regulation compliance and mitigation (including wetlands), required drainage, bridge construction, right-of-way acquisition, geotechnical investigation, toll collection options, and design engineering

Earth Tech has estimated the construction cost for Phase I at **$49,236,822** (*See* Table 3, *below*) According to Earth Tech, in determining this estimate, where there was a choice of a higher or lower estimated cost, Earth Tech used the higher number. (*See* Earth Tech Report, p. 4) Also, this figure includes a ten percent (10%) contingency of $4,246,029

TABLE 3

Earth Tech, Inc. Cost Estimate	
Construction Item:	**Amount:**
Site and Earthwork	$ 5,884,876
Concrete Paving	$12,626,415
Structural Costs	$ 7,979,482
Drainage	$ 3,027,500
Incidental Items	$ 1,119,600
Lighting and Striping	$ 1,005,000
Utility Adjustments (Private)	$ 1,200,000
Toll Plazas (Ramps Only)	$ 4,200,000
Toll Collection Equipment	$ 750,000
Mobilization on Hard Construction Costs	$ 1,889,644
Design Engineering Only	$ 2,777,776
Contingencies	$ 4,246,029
Environmental Mitigation	$ 1,030,500
Right of Way (Land Only)	$ 1,500,000
Total Capital Costs	$49,236,822

Source Earth Tech Report, Table ES 3

Earth Tech also provided the Authority with a second figure which represents a "not likely to exceed" estimation of construction costs of $55,471,920. Both cost estimates were used by First Southwest Company in exploring possible financing options The current figures do not include the interchange at State Highway 6 (estimated by Earth Tech to cost between $6,000,000 and $8,000,000) which cost is proposed to be funded by TxDOT.

Operating Costs

In addition to construction, cost estimates for toll operations were verified through conversations with HCTRA These conversations also included favorable discussions about the possibility of a common EZ Tag system as well as HCTRA operating and maintaining Phase I under contract with the Authority

Right of Way Acquisition

The estimate for right of way acquisition assumes that all right of way acquisition is hostile, resulting in $1,284,000 being included for litigation and administrative expenses and $1,500,000 for land costs This conservative approach reduces the risk that actual cost for right of way acquisition exceed the projections used in the economic analysis.

Other Costs

In addition to the design and construction costs, the proposed $63.095 million bond issue includes funds to 1) establish a three-year (3) capitalized interest fund, 2) pay administrative, engineering and legal costs during right of way acquisition and design and construction of the project, 3) pay costs of issuance for the bonds, 4) defease the existing Fort Bend Parkway Road District Bonds and 5) repay the County for advances made to the Authority

Whether the Road District bonds are retired with the Authority's bonds is a policy issue for Commissioners Court It is the Authority's recommendation that the landowners of the majority of the Phase I corridor be given a choice of either. 1) dedicating the Phase I right of way in exchange for defeasance of the existing Road District Bonds or 2) receiving compensation for the right of way without defeasance of the Road District Bonds

The County has previously advanced $805,000 to the Authority to conduct its feasibility analysis The Authority anticipates it will require approximately $5.66 million over an 18-month period for design engineering, right of way acquisition, administrative and legal expenses necessary to advance Phase I to the point the Authority can issue its bonds A variety of options exist for the Authority to obtain the necessary pre-construction funds The following Table 4 summarizes the necessary pre-construction funds

TABLE 4

County Advanced Funds:		**Amount:**
Pre-Project Expenditures		
Parkway Toll Road Studies		$705,000
Other Studies and Expenses		$100,000
Sub-total Pre-Project Expenditures		*$805,000*
Pre-Construction Expenditures		
Design Engineering		$2,778,000
Right of Way Acquisition		$2,784,000
Land Acquisition[1]	$1,500,000	
Legal Fees[2]	$800,000	
Title Insurance	$192,000	
Appraisal	$96,000	
Environmental	$96,000	
Sub-total Right of Way Acquisition	*$2,784,000*	
Administration[3]		$100,000
Sub-total Pre-Construction Expenditures		*$5,662,000*
Total		**$6,467,000**

1 Assumes 150 acres at $10,000/acre

2 Assumes hostile acquisition of 29 parcels of land and possible acquisition or relocation of 3 oil wells

3 Includes fees for bookkeeper, auditor, legal and miscellaneous expenses

FIRST SOUTHWEST COMPANY'S PROJECT FINANCING ANALYSIS

Based on the revenue figures projected in the WSA Report (*See* Table 2) and the cost estimates included in the Earth Tech report, First Southwest Company prepared several financial projections to ascertain the financial viability of Phase I of the Project

First Southwest Company has determined that bonds secured solely by revenues of a 'startup' toll road project, if marketable at all, would require excessively high interest rates As bonds secured in whole or part by the County would receive a substantially reduced interest rate, First Southwest Company prepared two project financing alternatives

(1) a $63.095 million bond issue consisting of one series of revenue bonds secured by a county pledge for the life of the bonds to fund any shortfall in the debt service fund in the event that available fund balances dropping below required levels, and

(2) a $67 915 million bond issue consisting of two series of bonds

  (a) a $37.275 million series secured solely by a senior lien on toll revenues, and

  (b) a $30 640 million series secured by a subordinate lien on toll revenues and further secured by the county pledge to fund any shortfall in the debt service fund in the event that available fund balances dropping below required levels

Although alternative (2) may be marketable, it would result in approximately $10 3 million in increased debt service costs Because this plan is more costly, it results in actual County participation being more likely than if the whole financing has County backing Therefore, in First Southwest Company's opinion, alternative no. 1 provides the most favorable financing structure for the Authority's bond issue. (*See* Tables 5-A & 5-B *below*, for use of bond proceeds).

Included in Table 6 of this report are several cash flow projections illustrating the alternative financing options It should be noted that these schedules reflect no participation by the County based upon the projected revenues and costs County participation would be necessary in varying degrees if

- the Project costs increased significantly,
- actual revenues are less than those projected,
- interest rates are significantly higher at the time bonds are sold,
- the Project is not timely completed and the collection of tolls is delayed

A county pledge similar to the proposed alternative (1) was utilized by the HCTRA in which Harris County guaranteed $900 million of HCTRA bonds for startup HCTRA issued an additional $700 million bonds secured solely by toll revenue only after actual toll operations had commenced To date, Harris County has not expended any funds in support of this pledge

In fact, the financial firm of Lehman Brothers estimated that the net present value of the HCTRA system exceeds its outstanding obligations by approximately $500 million.

TABLE 5-A

Use of Bond Proceeds (Alternative No. 1):	**Amount:**
Repayment to County of Advanced Funds	$805,000
Pre-Construction Costs (*See* detail)	$5,662,000
Construction Cost (including contingency)	$43,892,200
Environmental Mitigation	$1,030,500
Deposit to Capitalized Interest Fund	$9,122,800
Defeasance of Existing Parkway Road District Bonds	$1,500,000
Underwriter's Discount (1% of par amount)	$631,000
Costs of Issuance	$450,000
Contingency	$1,500
Total	**$63,095,000**

TABLE 5-B

Use of Bond Proceeds (Alternative No. 2):	**Amount:**
Repayment to County of Advanced Funds (*See* detail)	$805,000
Pre-Construction Costs (*See* detail)	$5,662,000
Construction Cost (including contingency)	$43,892,200
Environmental Mitigation	$1,030,500
Deposit to Senior Lien Debt Service Reserve Fund	$3,536,600
Deposit to Senior Lien Capitalized Interest Fund	$5,929,100
Deposit to Junior Lien Capitalized Interest Fund	$4,430,200
Defeasance of Existing Parkway Road District Bonds	$1,500,000
Underwriter's Discount (1% of par amount)	$679,150
Costs of Issuance	$450,000
Contingency	$250
Total	**$67,915,000**

Cash Flow Projections

The following Table 6 includes several cash flow projections utilizing both alternative financing options All projections assume operation & maintenance expenses increase at a rate of 3% per year.

- Table 6-A reflects project financing alternative no. 1 and takes the conservative assumption that the Authority does not increase toll revenues over the life of the bonds The projected interest rate on such bonds is 5 25% The projections reflect no county participation and show net revenues exceed debt service and expenses by an average of approximately $575,000 per year Cumulative net revenue after debt service and expenses is $17.2 million

- Table 6-B is identical to Table 6-A except that it assumes the Authority will increase toll rates every five years at a rate equal to 3% per year. The Authority believes this assumption reflects a more realistic view of likely events and therefore Table 6-B is a more likely (but less conservative) projection The projections reflect no county participation and show net revenues exceed debt service and expenses by an average of approximately $3.26 million per year Cumulative net revenue after debt service and expenses is $97 8 million

- Table 6-C reflects project financing alternative no 2 The projected interest rates on the senior lien bonds and the junior lien bonds are 6 25% and 5.25%, respectively. The projections reflect no county participation and show net revenues exceed debt service and expenses by an average of approximately $230,000 per year Cumulative net revenue after debt service and expenses is $6 9 million

- Table 6-D is identical to Table 6-C except that it assumes the Authority will increase toll rates every five years at a rate equal to 3% per year The projections reflect no county participation and show net revenues exceed debt service and expenses by an average of approximately $2 9 million per year Cumulative net revenue after debt service and expenses is $86 2 million

Scenarios reflecting the results of actual revenues at 90%, 92%, 108%, and 110% of WSA estimates are attached at the end of this report to show a range of possible outcomes Also attached at the end of this report is a scenario that assumes construction costs of $55 million (*See* Appendix A)

TABLE 6-A

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD PROJECT
Alternative No 1
Scenario 1 Base case

Projected Cash Flows and Coverages

very Date 08/15/2000

ar Ending bruary 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2 735 000	0	---	2,735 000	954 000	238 500	1 542 500	---	1 542 500
2004	3,945 000	1 656 244	**2.382**	2 288 756	983 000	7 250	1 298,506	**1 784**	2 841 006
2005	4 306 000	3,312 488	**1.300**	993 513	1 012 000	7 250	(25 738)	**0.992**	2 815 269
2006	4 488 000	3 312 488	**1.355**	1 175 513	1 042 000	7 500	126 013	**1 038**	2 941 281
2007	4 677 000	3 312 488	**1.412**	1 364 513	1 074 000	8 000	282 513	**1 085**	3 223 794
2008	4 875 000	3 367 488	**1 448**	1 507 513	1 106 000	8 000	393 513	**1 117**	3 617 306
2009	5 164 000	3 594 600	**1 437**	1 569 400	1 139 000	8 250	422 150	**1 117**	4 039 456
2010	5 470 000	3 834 638	**1 426**	1 635 363	1 173 000	8 500	453 863	**1 118**	4 493 319
2011	5 794 000	4 096 288	**1 414**	1 697 713	1 208 000	8 750	480 963	**1 117**	4 974 281
2012	5 965 000	4 212 713	**1 416**	1 752 288	1 245 000	9 250	498 038	**1 118**	5 472 319
2013	6 138 000	4 335 738	**1.416**	1 802 263	1 282 000	9 250	511 013	**1 118**	5 983 331
2014	6 310 000	4 454 575	**1 417**	1 855 425	1 321 000	9 750	524 675	**1 118**	6 508 006
2015	6 481 000	4 573 963	**1 417**	1 907 038	1 360 000	9 750	537 288	**1.117**	7 045 294
2016	6 649 000	4 683 375	**1 420**	1 965 625	1 401 000	10 250	554 375	**1 118**	7 599 669
2017	6 815 000	4 797 813	**1 420**	2 017 188	1 443 000	10 500	563 688	**1.117**	8 163 356
2018	6 986 000	4 911 488	**1.422**	2 074 513	1 486 000	10 750	577 763	**1 118**	8 741 119
2019	7 160 000	5 023 875	**1 425**	2 136 125	1 531 000	11 250	593 875	**1.118**	9 334 994
2020	7 640 000	5 414 450	**1 411**	2 225 550	1 577 000	11 500	637 050	**1 118**	9 972 044
2021	7 523 000	5 267 988	**1 428**	2 255 013	1 624 000	11 750	619 263	**1 118**	10 591 306
2022	7 711 000	5 391 263	**1 430**	2 319 738	1 673 000	12 250	634 488	**1 118**	11 225 794
2023	7 711 000	5 345 100	**1 443**	2 365 900	1 723 000	12 500	630 400	**1 118**	11 856 194
2024	7 711 000	5 302 638	**1 454**	2 408 363	1 775 000	13 000	620 363	**1 117**	12 476 556
2025	7 711 000	5 253 350	**1.468**	2 457 650	1 828 000	13 250	616 400	**1 117**	13 092 956
2026	7 711 000	5 202 238	**1 482**	2 508 763	1 883 000	13 750	612 013	**1 118**	13 704 969
2027	7 711,000	5 154 038	**1 496**	2 556 963	1 939 000	14 000	603 963	**1 117**	14 308 931
2028	7 711 000	5 103 225	**1 511**	2 607 775	1 997 000	14 500	596 275	**1 117**	14 905 206
2029	7 711 000	5 049 538	**1 527**	2 661 463	2 057 000	15 000	589 463	**1.117**	15 494 669
2030	7 711 000	4 992 713	**1.544**	2 718 288	2 119 000	15 500	583 788	**1 117**	16 078 456
2031	7 711 000	4 937 488	**1 562**	2 773 513	2 183 000	16 000	574 513	**1 116**	16 652 969
2032	7 711 000	4 878 338	**1.581**	2 832 663	2 248 000	16 250	568 413	**1.117**	17 221 381
tal	$193 942 000	$130 772 619		$63 169 381	$45 386 000	$562 000	$17 221 381		

Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
Assumes $63 095 million County-backed senior lien bonds are issued with a rating of A at an interest rate of 5 25%
Before estimated operating and maintenance expenses
Assumes no junior lien bonds are issued
Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project
Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
After estimated operating and maintenance expenses

OTE No interest earnings on the revenue fund operating fund or surplus funds have been imputed

OTE This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual nstruction costs and timing There are usually differences in estimated net revenues and actual net revenues because events and circumstances quently do not occur as expected, and such differences may be material

TABLE 6-B

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No 1
Scenario 2 Escalated toll rates

Projected Cash Flows and Coverages

livery Date 08/15/2000

ear Ending ebruary 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2 735 000	0	---	2 735 000	954 000	238 500	1 542 500	---	1 542 500
2004	3 945 000	1 656,244	**2.382**	2 288 756	983 000	7 250	1 298,506	**1.784**	2 841 006
2005	4 306 000	3 312 488	**1.300**	993 513	1 012 000	7 250	(25 738)	**0.992**	2 815 269
2006	4 488 000	3 312 488	**1.355**	1 175,513	1 042 000	7 500	126 013	**1.038**	2 941 281
2007	4 677 000	3 312 488	**1 412**	1 364 513	1 074 000	8 000	282,513	**1.085**	3 223 794
2008	5 619 925	3 312 488	**1 697**	2 307 437	1 106 000	8 000	1 193 437	**1.360**	4 417 231
2009	5 908 925	3 312 488	**1 784**	2 596 437	1 139 000	8 250	1 449 187	**1 437**	5 866 418
2010	6 214 925	3 312 488	**1.876**	2 902 437	1 173 000	8 500	1 720 937	**1 520**	7 587 356
2011	6 538 925	3 312 488	**1 974**	3 226 437	1 208 000	8 750	2 009 687	**1 607**	9 597 043
2012	6 709 925	3 312 488	**2 026**	3 397 437	1 245 000	9 250	2 143 187	**1 647**	11 740 230
2013	7 951 642	3 737 488	**2 128**	4 214 154	1 282 000	9 250	2 922 904	**1 782**	14 663 135
2014	8 123 642	3 810 175	**2 132**	4 313 467	1 321 000	9,750	2 982 717	**1 783**	17 645 852
2015	8 294 642	3 887 875	**2.133**	4 406 767	1 360 000	9,750	3 037 017	**1 781**	20 682 869
2016	8 462 642	3 960 063	**2.137**	4 502 579	1 401 000	10 250	3 091 329	**1.781**	23 774 198
2017	8 628 642	4 026 738	**2 143**	4 601 904	1,443,000	10 500	3 148 404	**1.782**	26 922 603
2018	10 173 961	4 867 900	**2.090**	5 306 061	1 486 000	10 750	3 809 311	**1 783**	30 731 913
2019	10 347 961	4 942 600	**2.094**	5 405 361	1 531 000	11 250	3 863 111	**1.782**	34 595 024
2020	10 827 961	5 183 638	**2 089**	5 644 323	1 577,000	11 500	4 055 823	**1 782**	38 650 848
2021	10 710 961	5 091 825	**2.104**	5 619 136	1 624 000	11 750	3 983 386	**1 782**	42 634 234
2022	10 898 961	5 168 700	**2 109**	5 730 261	1 673 000	12 250	4 045 011	**1 783**	46 679 244
2023	12 634 883	6 115 338	**2.066**	6 519 545	1 723 000	12 500	4 784,045	**1 782**	51 463 290
2024	12 634 883	6 085 538	**2.076**	6 549 345	1 775 000	13 000	4 761 345	**1 782**	56 224 635
2025	12 634 883	6 057 600	**2 086**	6 577 283	1 828 000	13 250	4 736 033	**1 782**	60 960 668
2026	12 634 883	6 026 000	**2 097**	6 608 883	1 883 000	13 750	4 712 133	**1 782**	65 672 800
2027	12 634 883	5 995 475	**2 107**	6 639 408	1 939 000	14 000	4 686 408	**1 782**	70 359 208
2028	14 647 292	7 090 500	**2 066**	7 556 792	1 997 000	14 500	5 545 292	**1 782**	75 904 500
2029	14 647 292	7 056 488	**2.076**	7 590 805	2 057,000	15,000	5 518 805	**1.782**	81 423 305
2030	14 647 292	7 019 088	**2 087**	7 628 205	2 119,000	15 500	5 493 705	**1.783**	86 917 009
2031	14 647 292	6 987 775	**2 096**	7 659 517	2 183,000	16 000	5 460 517	**1.781**	92 377 526
2032	14 647 292	6 946 500	**2.109**	7 700 792	2 248 000	16 250	5 436 542	**1.783**	97 814 068
tal	$281 975 512	$138 213 444		$143 762 068	$45 386 000	$562 000	$97 814 068		

Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes escalation in toll rates every 5 years equivalent to
Assumes $63 095 million County-backed senior lien bonds are issued with a rating of A at an interest rate of 5 25%
Before estimated operating and maintenance expenses
Assumes no junior lien bonds are issued
Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project
Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
After estimated operating and maintenance expenses

OTE *No interest earnings on the revenue fund operating fund or surplus funds have been imputed*

OTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation reserves These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual nstruction costs and timing There are usually differences in estimated net revenues and actual net revenues because events and circumstances equently do not occur as expected and such differences may be material.

TABLE 6-C

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No 2
Scenario 1 Base case

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending February 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (e)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	--	$0	---	$0	$0	$0	$0	-	$0
2002	0	0	--	0	---	0	0	0	0	--	0
2003	2 735 000	0	--	0	---	2 735 000	954 000	238 500	1 542 500	---	1 542 500
2004	3 945 000	1 076 430	**3 665**	804 300	**2 098**	2 064 270	983 000	7 250	1 074 020	**1.571**	2 616 520
2005	4,306 000	2 152 859	**2 000**	1 608 600	**1 145**	544 541	1 012,000	7 250	(474 709)	**0.874**	2 141 811
2006	4 488 000	2 152 859	**2.085**	1 608 600	**1 193**	726 541	1 042 000	7 500	(322 959)	**0 914**	1 818 852
2007	4 677 000	2 152 859	**2 172**	1 608 600	**1.243**	915 541	1 074 000	8 000	(166 459)	**0 956**	1 652 392
2008	4 875 000	2 152 859	**2.264**	1 633 600	**1.287**	1 088 541	1 106 000	8 000	(25 459)	**0 993**	1 626 933
2009	5 164 000	2 172 859	**2.377**	1 747 288	**1.317**	1 243 853	1 139 000	8 250	96 603	**1 025**	1 723 536
2010	5 470 000	2 331 609	**2.346**	1 864 938	**1.303**	1 273 453	1 173 000	8 500	91 953	**1 022**	1 815 489
2011	5 794 000	2 495 359	**2.322**	1 986 025	**1.293**	1 312 616	1 208 000	8 750	95 866	**1 021**	1 911 355
2012	5 965 000	2 578 172	**2.314**	2 045 025	**1.290**	1 341 803	1 245 000	9 250	87 553	**1 019**	1 998 908
2013	6 138 000	2 654 422	**2.312**	2 104 825	**1.290**	1 378 753	1 282 000	9 250	87 503	**1 018**	2 086 411
2014	6 310 000	2 734 109	**2.308**	2 165 163	**1.288**	1 410 728	1 321 000	9 750	79 978	**1 016**	2 166 389
2015	6 481 000	2 811 609	**2.305**	2 220 775	**1.288**	1 448 616	1 360 000	9 750	78 866	**1 016**	2 245 255
2016	6 649 000	2 881 609	**2.307**	2 276 663	**1.289**	1 490 728	1 401 000	10 250	79 478	**1 015**	2 324 733
2017	6 815 000	2 954 109	**2.307**	2 327 563	**1.290**	1 533 328	1 443 000	10 500	79 828	**1 015**	2 404 561
2018	6 986 000	3 033 484	**2.303**	2 383 475	**1.290**	1 569 041	1 486 000	10 750	72 291	**1 013**	2 476 851
2019	7 160 000	3 108 797	**2.303**	2 438 875	**1.291**	1 612 328	1 531 000	11 250	70 078	**1 013**	2 546 930
2020	7 640 000	3 359 734	**2.274**	2 628 500	**1.276**	1 651 766	1 577 000	11 500	63 266	**1 011**	2 610 195
2021	7 523 000	3 264 734	**2.304**	2 555 000	**1.293**	1 703 266	1 624 000	11 750	67 516	**1 012**	2 677 711
2022	7 711 000	3 344 109	**2.306**	2 616 500	**1.294**	1 750 391	1 673 000	12 250	65 141	**1 011**	2 742 851
2023	7 711 000	3 316 922	**2.325**	2 595 91	**1.304**	1 798 166	1 723 000	12 500	62 666	**1 011**	2 805 517
2024	7 711 000	3 284 109	**2.348**	2 572 175	**1.317**	1 854 716	1 775 000	13 000	66 716	**1 011**	2 872 233
2025	7 711 000	3 255 672	**2.368**	2 550 288	**1.328**	1 905 041	1 828 000	13 250	63 791	**1 011**	2 936 02
2026	7 711 000	3 220 984	**2.394**	2 524 988	**1.342**	1 965 028	1 883 000	13 750	68 278	**1 012**	3 004 301
2027	7 711 000	3 190 047	**2 417**	2 501 275	**1.355**	2 019 678	1 939 000	14 000	66 678	**1 012**	3 070 980
2028	7 711 000	3 157 234	**2 442**	2 478 888	**1.368**	2 074 878	1 997 000	14 500	63 378	**1 011**	3 134 358
2029	7 711 000	3 122 234	**2 470**	2 452 563	**1.383**	2 136 203	2 057 000	15 000	64 203	**1 012**	3 198 561
2030	7 711 000	3 086 734	**2.500**	2 422 300	**1 400**	2 203 966	2 119 000	15 500	69 466	**1 013**	3 268 026
2031	7 711 000	3 049 422	**2.529**	2 398 100	**1 416**	2 263 478	2 183 000	16 000	64 478	**1 012**	3 332 505
2032	7 711 000	(525 891)	-	2 594 438	**4 127**	5 842 453	2 248 000	16 250	3 578 203	**2 915**	6 910 708
Total	$193 942 000	$77 568 055		$63 515 238		$52 858 708	$45 386 000	$562 000	$6 910 708		

Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
(a) Assumes $37 275 million revenue backed senior lien bonds are issued with a rating of Baa3 at an interest rate of 6 25%
(b) Before estimated operating and maintenance expenses
(c) Assumes $30 640 million County-backed junior lien bonds are issued with a rating of A at an interest rate of 5 25%
(d) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project
(e) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
(f) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

NOTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves These cash flows will change based on market conditions at the time of sale actual revenues and investment income and actual construction costs and timing There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material.

TABLE 6-D

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No 2
Scenario 2 Escalated toll rates

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending January 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (e)	Projected Net Revenue After Debt Service (e)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	2 735 000	0	---	0	---	2 735 000	954 000	238 500	1 542 500	---	1 542 500
2004	3 945 000	1 076 688	**3.664**	805 481	**2 096**	2 062 831	983 000	7 250	1 072 581	**1.570**	2 615 081
2005	4 306 000	2 153 375	**2 000**	1 610 963	**1 144**	541 663	1 012 000	7 250	(477 588)	**0 873**	2 137 494
2006	4 488 000	2 153 375	**2 084**	1 610 963	**1 192**	723 663	1 042 000	7 500	(325 838)	**0 913**	1 811 656
2007	4 677 000	2 153,375	**2 172**	1 610 963	**1.242**	912 663	1 074 000	8 000	(169 338)	**0 955**	1 642 . 19
2008	5 619 925	2 153 375	**2 610**	1 610 963	**1 493**	1 855 587	1 106 000	8 000	741 587	**1 197**	2 . 87 906
2009	5 908 925	2 153 375	**2 744**	1 610 963	**1.570**	2 144 587	1 139 000	8 250	997 337	**1.265**	3 981 24
2010	6 214 925	2 153 375	**2.886**	1 610 963	**1 651**	2 450 587	1 173 000	8 500	1 269 087	**1.337**	4 680 1
2011	6 538 925	2 152 375	**3 037**	1 610,963	**1 737**	2 774 587	1 208 000	8 750	1 557 837	**1 414**	6 208 168
2012	6 709 925	2 152 375	**3 116**	1 610 963	**1 782**	2 945 587	1 245 000	9 250	1 691 337	**1 449**	7 899 505
2013	7 951 642	2 248 375	**3.537**	1 815 963	**1 956**	3 887 304	1 282 000	9 250	2 596 054	**1 639**	10 495 560
2014	8 123 642	2 297 438	**3.536**	1 855 200	**1 956**	3 971 004	1 321 000	9 750	2 640 254	**1 636**	13 135 814
2015	8 294 642	2 343 063	**3.540**	1 891 813	**1 959**	4 059 767	1 360 000	9 750	2 690 017	**1 635**	15 825 831
2016	8 462 642	2 390 250	**3.540**	1 925 800	**1 961**	4 146 592	1 401 000	10 250	2 735 342	**1 634**	18 561 17
2017	8 628 642	2 438 688	**3.538**	1 957 163	**1 963**	4 232 792	1 443 000	10 500	2 779 292	**1 632**	21 340 465
2018	10 173 961	2 988 063	**3 405**	2 365 900	**1 900**	4 819 998	1 486 000	10 750	3 323 248	**1 621**	24 66 71
2019	10 347 961	3 031 813	**3 413**	2 402 063	**1 904**	4 914 086	1 531 000	11 250	3 371 836	**1 621**	28 0 5 529
2020	10 827 961	3 194 313	**3.390**	2 519 025	**1.895**	5 114 623	1 577 000	11 500	3 526 123	**1 617**	31 561 67
2021	10 710 961	3 132 750	**3 419**	2 477 325	**1 909**	5 100 886	1 624 000	11 750	3 465 136	**1 618**	35 026 809
2022	10 898 961	3 180 250	**3 427**	2 514 878	**1 914**	5 203 873	1 673 000	12 250	3 518 622	**1 618**	38 545 4 2
2023	12 634 883	3 799 938	**3.325**	2 972 362	**1.866**	5 862 583	1 723 000	12 500	4 127 083	**1 609**	42 672 515
2024	12 634 883	3 780 563	**3.342**	2 957 588	**1.875**	5 896 733	1 775 000	13 000	4 108 733	**1 610**	46 781 247
2025	12 634 883	3 759 313	**3.361**	2 943 875	**1.885**	5 931 695	1 828 000	13 250	4 090 445	**1 610**	50 871 693
2026	12 634 883	3 740 875	**3.378**	2 930 963	**1.894**	5 963 045	1 883 000	13 750	4 066 295	**1 609**	54 937 988
2027	12 634 88	3 719 625	**3.397**	2 913 588	**1 905**	6 001 670	1 939 000	14 000	4 048 670	**1 610**	58 986 658
2028	14 647 292	4 435 250	**3.302**	3 446 750	**1.858**	6 765 292	1 997 000	14 500	4 753 792	**1 603**	63 740 450
2029	14 647 292	4 411 188	**3.320**	3 431 313	**1.868**	6 804 792	2 057 000	15 000	4 732 792	**1 603**	68 473 242
2030	14 647 292	4 390 250	**3.336**	414 313	**1.877**	6 842 730	2 119 000	15 500	4 708 230	**1 603**	73 181 472
2031	14 647 292	4 366 500	**3.354**	3 395 488	**1.887**	6 885 305	2 183 000	16 000	4 686 305	**1 604**	77 867 776
2032	14 647 292	599 [illegible]	**24 440**	3 399 575	**3.663**	10 648 405	2 248 000	16 250	8 384 155	**3 097**	86 251 931
Total	$281 975 512	$82 551 500		$67 224 081		$132 199 931	$45 386 000	$562 000	$86 251 931		

Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes escalation in toll rates every 5 years equivalent to 3% per year
Assumes $37 450 million revenue backed senior lien bonds are issued with a rating of Baa3 at an interest rate of 6 25%
Before estimated operating and maintenance expenses
Assumes $30 685 million County-backed junior lien bonds are issued with a rating of A at an interest rate of 5 25%
Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

NOTE This is a projection of cash flows based on assumptions current market conditions, and a flow of funds that allows for the accumulation of reserves These cash flows will change based on market conditions at the time of sale actual revenues and investment income, and actual construction costs and timing There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material

ADDITIONAL FEASIBILITY CONSIDERATIONS

LOCAL SUPPORT OF BONDS AND OPERATIONS IN CRITICAL YEARS.

As noted above, the cash flow projections shown in Tables 6-A - 6-D indicate that no County participation is anticipated to be required over the life of the bonds However, these projections also show that years 2005-2008 (the first four years after capitalized interest is expended) are the most critical with regard to shortfalls in net revenues (after debt service and expenses) (*See* Table 6-A to 6-D)

In order to further insulate the County from the effects of shortfalls in these years, the City of Missouri City and the developer of Sienna Plantation have agreed, in principal, to contract with the County to provide a "backstop" of up to $1 million per year for these four years. Any payments made pursuant to this agreement would be repaid only if and when the Project becomes profitable; however, the defining terms of such repayment have not been negotiated

PHASE II

The Authority has not performed investment grade studies of Phase II. However, Commissioners Court engaged TC&B to prepare a preliminary feasibility study of Phase II Certain information from this study has been provided to the Authority In addition, the Authority has received a preliminary study from WSA on the effect of Phase II on the traffic and revenue of Phase I, and the estimated revenues from a toll on the bridge across the Brazos River This preliminary analysis has determined that Phase II is not suitable at this time or the foreseeable future as a stand alone toll road

The preliminary WSA study indicates with the construction of Phase II that revenues on Phase I would increase by $1 5 million annually and the toll on the Brazos River Bridge would generate approximately $1.0 million annually

The TC&B study estimates Phase II construction costs to be $58 million. Such estimate assumes the construction of a four-lane facility from State Highway 6 to Sienna Parkway, a two-lane facility from Sienna Parkway to FM 762 at its intersection with the Grand Parkway, and a two-lane bridge across the Brazos River

No financial analysis relating to Phase II construction has been undertaken by the Authority, nor have any preliminary engineering plans been developed.

TXDOT PARTICIPATION

The Authority has had several meetings and discussions with TxDOT and has discussed options to construct Phases I & II as a joint project. Discussions are ongoing However, based on these preliminary discussions, TxDOT has indicated it believes the Project has merit and is willing to negotiate TxDOT participation, in some form, through State Infrastructure Bank financing and traditional TxDOT funding

The Authority believes that the County's best opportunity to ensure construction of Phase II is through a cooperative effort with TXDOT on the entire Project. Failure to take this opportunity now could see a delay in Phase II for many years

Accordingly, negotiations with TxDOT to participate in the Project in connection with local funding of Phase I should commence immediately TxDOT plans to let contracts for the continued construction on Highway 6 in late summer of 1999 It is critical that the Phase I intersection with Highway 6 is included in these contracts Additionally, State Infrastructure Bank and TxDOT construction funds are limited, and competition for these funds continues to increase The Authority stands ready to begin negotiations on behalf of the County to ensure timely participation of TxDOT.

OTHER CONSIDERATIONS

Environmental Impact

Studies have identified approximately 13 8 acres of wetland along the proposed Phase I alignment. Preliminary discussions with state and federal agencies reveal the possibility of acquiring approximately 40 acres near Phase I for wetland mitigation.

Additionally, abandoned oil field sites were identified along the proposed Phase I alignment. Such sites will require removal and disposal of contaminated soil from the oil field sites

Finally, several active oil wells were identified as potentially impacting the proposed alignment. However, Earth Tech concluded that only one of these wells would be required to be plugged and relocated

Other than the foregoing wetlands mitigation, oil field clean-up, and oil well relocation, Phase I's environmental impact on the surrounding area will be minimal. The Earth Tech cost estimate includes an allotment of more than $1 million to address identified environmental concerns

Social Impact

Professor Smith, in his presentation to the Authority on February 11, 1999, concluded that the Project would have substantial positive effects on the socioeconomic development of east Fort Bend County Most significantly, the Project will spur growth in several geographical areas that are currently at a competitive disadvantage due to the lack of a major arterial thoroughfare In fact, Professor Barton Smith noted that development west of the Brazos River is difficult to predict because such development is so dependant on the construction of the Project

To the extent the County can facilitate development through infrastructure improvements, the County can significantly benefit from an increase in the Fort Bend County tax base Recently, the County participated in infrastructure improvements that required a proportionately small investment yet resulted in a substantial increase in its tax base. For example

- The Oyster Creek improvement project, which required an investment of approximately $30 million, facilitated the development the First Colony master-planned community and resulted in a $500 million increase in assessed valuation in the service area over the past eight years

- The Grand Parkway construction from I-10 to U.S 59 enabled by right of way dedication from property owners and only a $4.0 million expenditure by Fort Bend County aided the developments of Cinco Ranch and New Territory which resulted in a current assessed value in those developments of $645 million and $685 million, respectively

In addition to new development, the County will realize the widespread effects of increased traffic mobility. When completed, Phases I and II will provide a viable alternative route to major traffic arteries in the area. The significance of such an alternative is heightened when one considers that U S 59 will be undergoing repairs and improvements for the next 10 years

CONCLUSIONS AND RECOMMENDATIONS

Based on the WSA report, the Earth Tech report and the First Southwest projections, the Authority has made the following conclusions:

1. Phase I will provide better access to a major portion of the entire east side of Fort Bend County The addition of Phase II will provide a needed additional crossing over the Brazos River, which crossing will allow better access to a major portion of Fort Bend County west of the Brazos River which is distant from U S 59

2 There currently exist tremendous traffic congestion problems in east Fort Bend County that would be materially improved by the Project.

3 The County will enjoy substantial ad valorem tax revenue increases because of increased development as a result of the project

4 TxDOT will not provide funds for Phase I of the Project

5 Phase I of the Project as a self-supporting toll road facility is feasible However, a County pledge to support revenue shortfalls is required to insure the marketability and a favorable interest rate on the Authority's proposed bond issue

6 Projections indicate the Authority is unlikely to have shortfalls in revenues However, the City of Missouri City and the developers of Sienna Plantation have agreed to provide up to $4,000,000 in funding of any realized shortfall during a four-year period after capitalized interest is expended, further minimizing the risk to the County Payments made pursuant to this backstop would be repaid only after the Project becomes profitable

7 The Authority believes that a joint Phase I/Phase II project with TxDOT may be possible if Phase I is constructed and supported by local funds.

8 Viable alternatives exist for a joint project with TxDOT for Phase II. These alternatives should be pursued concurrently with proceeding with Phase I

Based on these conclusions, the Authority makes the following recommendation

The Authority should negotiate an agreement with TxDOT for the funding of the Phase I Highway 6 interchange and the commitment to a feasible joint plan for Phase II in return for the Authority's construction of Phase I with revenue bonds fully secured by a County tax pledge and with the City and the developers of Sienna Plantation providing a backstop for net revenue shortfalls up to $1,000,000 per year for the four (4) years after three (3) years capitalized interest has been expended

FORT BEND PARKWAY TOLL ROAD
PROJECT OVERVIEW

PROJECT DESCRIPTION

An 18.7 mile road extending from Beltway 8 at Hillcroft southwest to the Grand Parkway

- Phase I — A six-mile, four-lane toll road extending from Beltway 8 to State Highway 6
- Phase II — A combined toll road and free road facility, totaling approximately 12 7 miles and consisting of a four-lane road from State Highway 6 to Sienna Parkway and a two-lane road from Sienna Parkway to the Grand Parkway, with a two-lane toll bridge crossing the Brazos River.

PROJECT COSTS

- Phase I — The construction costs of Phase I is $49,236,822 as projected by the Earth Tech Report This figure excludes the cost of the interchange at State Highway 6, which interchange will cost between $6 million and $8 million and is proposed to be funded by the TxDOT.
- Phase II — The projected construction cost of Phase II is uncertain, but preliminary estimates indicate approximately $58 0 million

PROJECT FINANCING

It is anticipated that the construction of the Project would be a cooperative effort between the Authority, the County, the City of Missouri City, TxDOT, and the developer of Sienna Plantation under the following terms

1 The Authority issues revenue bonds to fund Phase I (excluding the interchange at State Highway 6) secured by the County's tax pledge Additionally, the City and the developer of Sienna Plantation would provide a backstop for any net revenue shortfall after capitalized interest has been expended

2 TxDOT funds the construction of the State Highway 6 interchange, and

3 TxDOT funds Phase II from its general fund and from the State Infrastructure Bank Financing to be repaid from non-defaultable subordinate revenue bonds issued by the Authority and payable solely from revenue generated from the Phase II toll bridge across the Brazos River or a mutually agreeable alternative arrangement

DESIGN AND CONSTRUCTION TIME

The estimated time to design, acquire right of way and construct Phase I is thirty-six (36) months, from the time the Authority is authorized to proceed

The estimated time to investigate, design, and acquire right of way and construct Phase II cannot be estimated by the Authority due to the preliminary stage of the study

APPENDIX A
First Southwest Company
Preliminary Financial Projections

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD PROJECT
Alternative No. 1
Scenario 1: Base case

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending February 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2,735,000	0	---	2,735,000	954,000	238,500	1,542,500	---	1,542,500
2004	3,945,000	1,656,244	2.382	2,288,756	983,000	7,250	1,298,506	1.784	2,841,006
2005	4,306,000	3,312,488	1.300	993,513	1,012,000	7,250	(25,738)	0.992	2,815,269
2006	4,488,000	3,312,488	1.355	1,175,513	1,042,000	7,500	126,013	1 038	2,941,281
2007	4,677,000	3,312,488	1 412	1,364,513	1,074,000	8,000	282,513	1.085	3,223,794
2008	4,875,000	3,367,488	1.448	1,507,513	1,106,000	8,000	393,513	1.117	3,617,306
2009	5,164,000	3,594,600	1.437	1,569,400	1,139,000	8,250	422,150	1.117	4,039,456
2010	5 470 000	3,834,638	1.426	1,635,363	1,173,000	8,500	453,863	1.118	4,493,319
2011	5,794,000	4,096 288	1.414	1 697,713	1 208,000	8,750	480,963	1.117	4,974,281
2012	5 965 000	4,212 713	1.416	1 752 288	1,245,000	9,250	498,038	1.118	5,472,319
2013	6 138,000	4,335 738	1 416	1 802,263	1,282,000	9,250	511,013	1.118	5,983 331
2014	6,310,000	4,454,575	1 417	1,855,425	1,321,000	9,750	524,675	1.118	6,508,006
2015	6,481,000	4,573,963	1.417	1,907,038	1,360,000	9,750	537,288	1.117	7,045 294
2016	6,649,000	4,683,375	1.420	1,965,625	1,401,000	10,250	554,375	1.118	7,599,669
2017	6,815,000	4,797,813	1.420	2,017,188	1,443,000	10,500	563,688	1.117	8,163,356
2018	6,986,000	4,911,488	1.422	2,074,513	1 486,000	10,750	577,763	1.118	8,741,119
2019	7,160,000	5,023,875	1.425	2,136,125	1,531,000	11,250	593,875	1.118	9,334,994
2020	7,640,000	5,414,450	1.411	2,225,550	1,577,000	11,500	637,050	1.118	9,972,044
2021	7,523 000	5,267,988	1 428	2,255,013	1,624,000	11,750	619,263	1.118	10,591,306
2022	7,711,000	5,391,263	1.430	2,319,738	1,673,000	12,250	634 488	1.118	11,225,794
2023	7,711,000	5 345 100	1.443	2,365,900	1,723,000	12 500	630,400	1.118	11,856,194
2024	7,711,000	5 302 638	1.454	2,408,363	1,775,000	13,000	620,363	1.117	12,476,556
2025	7,711,000	5,253 350	1.468	2 457 650	1,828 000	13,250	616,400	1.117	13,092,956
2026	7,711 000	5 202 238	1.482	2 508,763	1,883,000	13,750	612,013	1.118	13,704,969
2027	7 711 000	5,154,038	1.496	2 556 963	1,939,000	14,000	603,963	1.117	14,308,931
2028	7,711,000	5,103,225	1.511	2,607,775	1,997,000	14,500	596,275	1.117	14,905,206
2029	7,711,000	5,049,538	1.527	2 661,463	2,057,000	15,000	589,463	1.117	15,494,669
2030	7,711,000	4,992,713	1.544	2,718,288	2,119,000	15,500	583,788	1.117	16,078,456
2031	7 711 000	4,937,488	1.562	2 773,513	2,183,000	16,000	574,513	1 116	16,652,969
2032	7,711,000	4,878,338	1.581	2,832,663	2,248,000	16,250	568,413	1 117	17,221,381
Total	$193,942,000	$130,772,619		$63,169,381	$45,386,000	$562,000	$17,221,381		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1, 2002 Assumes no escalation in toll rates
b) Assumes $63 095 million County-backed senior lien bonds are issued with a rating of A at an interest rate of 5 25%
c) Before estimated operating and maintenance expenses
d) Assumes no junior lien bonds are issued
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund operating fund or surplus funds have been imputed

NOTE: This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 1
Scenario 2: Escalated toll rates

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending February 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2,735,000	0	---	2,735,000	954,000	238,500	1,542,500	---	1,542,500
2004	3,945,000	1,656,244	**2.382**	2,288,756	983,000	7,250	1,298,506	**1.784**	2,841,006
2005	4,306,000	3,312,488	**1.300**	993,513	1,012,000	7,250	(25,738)	**0.992**	2,815,269
2006	4,488,000	3,312,488	**1.355**	1,175,513	1,042,000	7,500	126,013	**1.038**	2,941,281
2007	4,677,000	3,312,488	**1.412**	1,364,513	1,074,000	8,000	282,513	**1.085**	3,223,794
2008	5,619,925	3 312,488	**1.697**	2,307,437	1,106,000	8,000	1,193,437	**1.360**	4,417,231
2009	5,908,925	3,312,488	**1.784**	2,596 437	1,139,000	8,250	1,449,187	**1.437**	5,866,418
2010	6 214 925	3,312,488	**1.876**	2,902 437	1,173,000	8,500	1,720,937	**1.520**	7,587,356
2011	6,538,925	3,312 488	**1.974**	3,226,437	1,208,000	8,750	2,009,687	**1.607**	9,597,043
2012	6 709,925	3,312,488	**2.026**	3,397,437	1,245,000	9,250	2,143,187	**1.647**	11,740,230
2013	7,951,642	3,737,488	**2.128**	4,214,154	1,282,000	9,250	2,922,904	**1.782**	14,663,135
2014	8,123,642	3,810,175	**2.132**	4,313,467	1,321,000	9,750	2,982,717	**1 783**	17,645,852
2015	8,294,642	3,887,875	**2.133**	4,406,767	1,360,000	9,750	3,037,017	**1.781**	20,682,869
2016	8,462,642	3,960,063	**2.137**	4,502,579	1,401,000	10,250	3,091,329	**1.781**	23,774,198
2017	8,628,642	4,026,738	**2.143**	4,601,904	1,443,000	10,500	3,148,404	**1.782**	26,922 603
2018	10,173,961	4,867,900	**2.090**	5,306,061	1,486,000	10,750	3,809,311	**1.783**	30,731,913
2019	10,347,961	4,942,600	**2.094**	5,405,361	1,531,000	11,250	3,863,111	**1.782**	34,595,024
2020	10,827,961	5,183,638	**2.089**	5,644,323	1,577,000	11,500	4,055,823	**1.782**	38,650,848
2021	10,710,961	5,091,825	**2.104**	5,619,136	1,624,000	11,750	3,983,386	**1.782**	42,634,234
2022	10,898,961	5,168,700	**2.109**	5,730,261	1,673,000	12,250	4,045,011	**1.783**	46,679,244
2023	12,634,883	6,115,338	**2.066**	6,519,545	1,723,000	12,500	4,784,045	**1.782**	51,463,290
2024	12 634 883	6,085,538	**2.076**	6,549,345	1,775,000	13,000	4,761,345	**1.782**	56,224,635
2025	12,634,883	6,057,600	**2.086**	6 577,283	1,828,000	13,250	4,736,033	**1.782**	60,960,668
2026	12,634,883	6,026,000	**2 097**	6,608,883	1,883,000	13,750	4,712,133	**1.782**	65,672,800
2027	12.634,883	5,995,475	**2.107**	6,639,408	1,939,000	14,000	4,686,408	**1.782**	70,359,208
2028	14,647,292	7,090,500	**2.066**	7,556,792	1,997,000	14,500	5,545,292	**1.782**	75 904,500
2029	14,647,292	7,056,488	**2.076**	7,590,805	2,057,000	15,000	5,518,805	**1.782**	81,423 305
2030	14,647,292	7,019,088	**2.087**	7,628,205	2,119,000	15,500	5,493,705	**1.783**	86,917,009
2031	14,647,292	6,987,775	**2.096**	7,659,517	2,183,000	16,000	5,460,517	**1.781**	92,377,526
2032	14,647,292	6,946,500	**2.109**	7,700,792	2,248,000	16,250	5,436,542	**1.783**	97,814,068
Total	$281,975,512	$138,213,444		$143,762,068	$45,386,000	$562,000	$97,814,068		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1, 2002 Assumes escalation in toll rates every 5 years equivalent to
b) Assumes $63 095 million County-backed senior lien bonds are issued with a rating of 'A' at an interest rate of 5.25%
c) Before estimated operating and maintenance expenses
d) Assumes no junior lien bonds are issued
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund operating fund or surplus funds have been imputed

NOTE This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 1
Scenario 3: Actual revenues are 90% of projected

Projected Cash Flows and Coverages

)elivery Date 08/15/2000

Year Ending February 15	90% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2,461,500	0	---	2,461,500	954,000	238,500	1,269,000	---	1,269,000
2004	3,550,500	1,656,244	**2.144**	1,894,256	983,000	7,250	904,006	**1.546**	2,173,006
2005	3,875 400	3,312,488	**1.170**	562,913	1,012,000	7,250	(456,338)	**0.862**	1,716,669
2006	4,039,200	3,312,488	**1.219**	726,713	1,042,000	7,500	(322,788)	**0.903**	1,393,881
2007	4,209,300	3,312 488	**1.271**	896,813	1,074,000	8,000	(185,188)	**0.944**	1,208,694
2008	4,387,500	3,362,488	**1.305**	1,025,013	1,106,000	8,000	(88,988)	**0.974**	1,119,706
2009	4,647,600	3,599,863	**1.291**	1,047,738	1,139,000	8,250	(99,513)	**0 972**	1,020 194
2010	4,923,000	3,844,638	**1.280**	1,078,363	1,173,000	8,500	(103,138)	**0.973**	917,056
2011	5,214,600	4,105,763	**1.270**	1,108,838	1,208,000	8,750	(107,913)	**0.974**	809,144
2012	5,368,500	4,226,663	**1.270**	1,141,838	1,245,000	9,250	(112 413)	**0.973**	696,731
2013	5,524,200	4,348,900	**1.270**	1,175,300	1,282 000	9,250	(115,950)	**0.973**	580,781
2014	5,679,000	4,466,950	**1.271**	1,212,050	1,321,000	9,750	(118,700)	**0.973**	462,081
2015	5,832,900	4,585,550	**1.272**	1,247,350	1,360,000	9,750	(122,400)	**0.973**	339,681
2016	5,984,100	4,699,175	**1.273**	1,284,925	1,401,000	10,250	(126,325)	**0.973**	213,356
2017	6,133,500	4,807,563	**1.276**	1,325,938	1,443,000	10,500	(127,563)	**0.973**	85,794
2018	6,287,400	4,925,450	**1.277**	1,361,950	1,486,000	10,750	(134,800)	**0.973**	(49,006)
2019	6,444,000	5,036,788	**1.279**	1,407,213	1,531,000	11,250	(135,038)	**0.973**	(184,044)
2020	6,876,000	5,431 313	**1.266**	1,444,688	1,577,000	11,500	(143,813)	**0.974**	(327,856)
2021	6,770,700	5,278,538	**1.283**	1,492,163	1,624,000	11,750	(143,588)	**0.973**	(471,444)
2022	6 939,900	5 400 763	**1.285**	1 539,138	1,673,000	12,250	(146,113)	**0.973**	(617,556)
2023	6 939,900	5 348,550	**1.298**	1,591,350	1,723,000	12,500	(144,150)	**0.973**	(761 706)
2024	6 939,900	5,295,300	**1.311**	1,644,600	1,775,000	13,000	(143,400)	**0.973**	(905,106)
2025	6,939,900	5,240,750	**1.324**	1,699,150	1,828,000	13,250	(142,100)	**0.973**	(1,047,206)
2026	6,939,900	5,184,638	**1.339**	1,755,263	1,883,000	13,750	(141,488)	**0.973**	(1,188,694)
2027	6,939,900	5 126,700	**1.354**	1,813,200	1,939,000	14,000	(139,800)	**0.973**	(1,328,494)
2028	6,939,900	5,066 675	**1.370**	1,873,225	1,997,000	14,500	(138,275)	**0 973**	(1,466,769)
2029	6,939,900	5,004,300	**1.387**	1,935,600	2,057,000	15,000	(136,400)	**0.973**	(1,603,169)
2030	6,939,900	4,944,313	**1.404**	1,995,588	2,119,000	15,500	(138,913)	**0.972**	(1,742,081)
2031	6,939,900	4 876 188	**1.423**	2 063,713	2,183 000	16 000	(135,288)	**0.972**	(1,877 369)
2032	6,939,900	4,809 925	**1 443**	2,129,975	2 248,000	16,250	(134,275)	**0.972**	(2,011,644)
Total	$174,547,800	$130,611,444		$43,936,356	$45,386,000	$562,000	($2,011,644)		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1, 2002 Assumes no escalation in toll rates
b) Assumes $63 095 million County-backed senior lien bonds are issued with a rating of 'A' at an interest rate of 5 25%
c) Before estimated operating and maintenance expenses
d) Assumes no junior lien bonds are issued
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund operating fund or surplus funds have been imputed

NOTE This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 1
Scenario 4: Actual revenues are 92% of projected

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending February 15	92% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2,516,200	0	---	2,516,200	954,000	238,500	1,323,700	---	1,323,700
2004	3,629,400	1,656,244	**2.191**	1,973,156	983,000	7,250	982,906	**1.593**	2,306,606
2005	3,961,520	3 312,488	**1.196**	649,033	1,012,000	7,250	(370,218)	**0.888**	1,936,389
2006	4,128,960	3,312,488	**1.246**	816,473	1,042,000	7,500	(233,028)	**0.930**	1,703,361
2007	4,302,840	3,312,488	**1.299**	990,353	1,074,000	8,000	(91,648)	**0.972**	1,611,714
2008	4,485,000	3,362,488	**1.334**	1,122,513	1,106,000	8,000	8,513	**1.003**	1,620,226
2009	4,750,880	3,594,863	**1.322**	1,156,018	1,139,000	8,250	8,768	**1.002**	1,628,994
2010	5,032,400	3 844,900	**1.309**	1,187,500	1,173,000	8,500	6,000	**1.002**	1,634,994
2011	5,330 480	4,106,025	**1.298**	1,224,455	1,208,000	8,750	7,705	**1 002**	1,642,699
2012	5,487,800	4,226,925	**1.298**	1,260,875	1,245,000	9,250	6,625	**1.002**	1,649,324
2013	5 646.960	4 344,163	**1.300**	1,302,798	1,282,000	9,250	11,548	**1.003**	1,660,871
2014	5,805,200	4,467,475	**1.299**	1,337,725	1,321,000	9,750	6,975	**1.002**	1,667,846
2015	5,962,520	4,581,075	**1.302**	1,381,445	1,360,000	9,750	11,695	**1.003**	1,679,541
2016	6,117,080	4,694,963	**1.303**	1,422,118	1,401,000	10,250	10,868	**1.002**	1,690,409
2017	6,269,800	4,803,613	**1.305**	1,466,188	1,443,000	10,500	12,688	**1.003**	1,703,096
2018	6,427,120	4,921 763	**1.306**	1,505,358	1,486,000	10,750	8,608	**1.002**	1,711,704
2019	6,587,200	5,033,363	**1.309**	1,553,838	1 531,000	11,250	11,588	**1.002**	1,723,291
2020	7,028,800	5,428,150	**1.295**	1,600,650	1 577,000	11,500	12,150	**1.002**	1,735,441
2021	6,921,160	5,275,638	**1.312**	1,645,523	1,624,000	11,750	9,773	**1.002**	1,745,214
2022	7,094,120	5,398,125	**1.314**	1,695 995	1,673,000	12,250	10,745	**1.002**	1,755,959
2023	7,094,120	5 346,175	**1.327**	1,747,945	1,723,000	12,500	12,445	**1.002**	1,768,404
2024	7,094,120	5,298,188	**1.339**	1,795,933	1,775,000	13,000	7,933	**1.001**	1,776,336
2025	7,094,120	5 243,638	**1.353**	1,850,483	1,828,000	13,250	9,233	**1.002**	1,785,569
2026	7,094,120	5 187,525	**1.368**	1,906,595	1,883,000	13,750	9,845	**1.002**	1,795,414
2027	7,094,120	5,134,588	**1.382**	1,959,533	1,939,000	14,000	6,533	**1.001**	1,801,946
2028	7,094,120	5 074,300	**1.398**	2,019,820	1,997,000	14,500	8,320	**1.002**	1,810,266
2029	7,094,120	5,016,663	**1.414**	2,077,458	2,057,000	15,000	5,458	**1.001**	1,815,724
2030	7,094,120	4,956,150	**1.431**	2,137,970	2,119,000	15,500	3,470	**1.001**	1,819,194
2031	7,094,120	4,887,500	**1.451**	2,206,620	2,183,000	16,000	7,620	**1.002**	1,826,814
2032	7,094,120	4,825 713	**1.470**	2,268,408	2,248,000	16,250	4,158	**1.001**	1,830,971
Total	$178,426,640	$130 647,669		$47,778,971	$45,386,000	$562,000	$1,830,971		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1, 2002 Assumes no escalation in toll rates
b) Assumes $63 095 million County-backed senior lien bonds are issued with a rating of 'A' at an interest rate of 5 25%
c) Before estimated operating and maintenance expenses
d) Assumes no junior lien bonds are issued
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund operating fund or surplus funds have been imputed

NOTE: This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 1
Scenario 5· Actual revenues are 108% of projected

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending February 15	108% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2,953,800	0	---	2,953,800	954,000	238,500	1,761,300	---	1,761,300
2004	4 260,600	1,656,244	**2.572**	2,604,356	983,000	7,250	1,614,106	**1.975**	3,375,406
2005	4,650,480	3,312,488	**1.404**	1,337,993	1,012,000	7,250	318,743	**1.096**	3,694,149
2006	4,847,040	3,312,488	**1.463**	1,534,553	1,042,000	7,500	485,053	**1.146**	4,179,201
2007	5,051,160	3,312,488	**1.525**	1,738,673	1,074,000	8,000	656,673	**1.198**	4,835,874
2008	5,265,000	3,367,488	**1.563**	1,897,513	1,106,000	8,000	783,513	**1.233**	5,619,386
2009	5,577,120	3,589,600	**1.554**	1,987,520	1,139,000	8,250	840,270	**1.234**	6,459,656
2010	5,907,600	3,829,900	**1.542**	2,077,700	1,173,000	8,500	896,200	**1.234**	7,355,856
2011	6,257,520	4,086,813	**1.531**	2,170,708	1,208,000	8,750	953,958	**1.233**	8,309,814
2012	6,442 200	4,208 763	**1.531**	2,233,438	1,245,000	9,250	979,188	**1.233**	9,289,001
2013	6,629,040	4,327 050	**1.532**	2,301,990	1,282,000	9,250	1,010,740	**1.234**	10,299,741
2014	6,814 800	4 446,413	**1.533**	2,368,388	1,321,000	9,750	1,037,638	**1.233**	11,337,379
2015	6,999,480	4,566 325	**1.533**	2 433,155	1,360,000	9,750	1,063,405	**1.233**	12,400,784
2016	7,180,920	4,676,263	**1.536**	2,504,658	1,401,000	10,250	1,093,408	**1.234**	13,494,191
2017	7,360,200	4,791,225	**1.536**	2,568,975	1,443,000	10,500	1,115,475	**1.233**	14,609,666
2018	7,544,880	4,905,425	**1.538**	2,639,455	1,486,000	10,750	1,142,705	**1.233**	15,752 371
2019	7,732,800	5,018,338	**1.541**	2,714,463	1,531,000	11,250	1,172,213	**1.234**	16,924,584
2020	8,251,200	5,399,438	**1.528**	2,851,763	1,577,000	11,500	1,263,263	**1.234**	18,187,846
2021	8,124,840	5,264,025	**1.543**	2,860,815	1,624,000	11,750	1,225,065	**1.233**	19,412 911
2022	8,327,880	5,387,825	**1.546**	2,940,055	1,673,000	12,250	1,254,805	**1.233**	20,667,716
2023	8,327,880	5,347,188	**1.557**	2,980,693	1,723,000	12,500	1,245,193	**1.233**	21,912,909
2024	8,327,880	5,304,988	**1.570**	3,022,893	1,775,000	13,000	1,234,893	**1.233**	23,147,801
2025	8,327,880	5,260,963	**1.583**	3,066,918	1,828,000	13,250	1,225,668	**1.233**	24,373,469
2026	8,327,880	5,214,850	**1.597**	3,113,030	1,883,000	13,750	1,216,280	**1.233**	25,589,749
2027	8,327 880	5 171,388	**1.610**	3,156,493	1,939,000	14,000	1,203,493	**1.233**	26,793,241
2028	8 327 880	5 125,050	**1.625**	3,202.830	1,997,000	14,500	1,191,330	**1.232**	27 984,571
2029	8,327,880	5,075,575	**1.641**	3 252,305	2,057,000	15,000	1,180,305	**1.233**	29 164,876
2030	8,327,880	5,022,700	**1.658**	3,305,180	2,119,000	15,500	1,170,680	**1.233**	30,335,556
2031	8 327,880	4,971,163	**1.675**	3,356,718	2,183,000	16,000	1,157,718	**1.233**	31,493,274
2032	8 327 880	4 920,438	**1.693**	3,407,443	2,248,000	16,250	1,143,193	**1.232**	32,636,466
Total	$209,457,360	$130,872,894		$78,584,466	$45,386,000	$562,000	$32,636,466		

(a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1, 2002 Assumes no escalation in toll rates
(b) Assumes $63 095 million County-backed senior lien bonds are issued with a rating of A' at an interest rate of 5 25%
(c) Before estimated operating and maintenance expenses
(d) Assumes no junior lien bonds are issued
(e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project
(f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
(g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed

NOTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 1
Scenario 6: Actual revenues are 110% of projected

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending February 15	110% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	3,008,500	0	---	3,008,500	954,000	238,500	1,816,000	---	1,816,000
2004	4,339,500	1,656 244	**2.620**	2,683,256	983,000	7,250	1,693,006	**2.022**	3,509,006
2005	4,736,600	3,312,488	**1.430**	1,424,113	1,012,000	7,250	404,863	**1.122**	3,913,869
2006	4,936,800	3,312 488	**1.490**	1,624,313	1,042,000	7,500	574,813	**1 174**	4,488,681
2007	5,144 700	3 312,488	**1.553**	1,832,213	1,074,000	8,000	750,213	**1.226**	5,238,894
2008	5,362,500	3,367,488	**1.592**	1,995,013	1,106,000	8,000	881,013	**1.262**	6,119,906
2009	5,680,400	3,589,600	**1.582**	2,090,800	1,139,000	8,250	943,550	**1.263**	7,063,456
2010	6,017,000	3,829,900	**1.571**	2,187,100	1,173,000	8,500	1,005,600	**1.263**	8,069,056
2011	6,373,400	4,086,813	**1.560**	2,286,588	1,208,000	8,750	1,069,838	**1.262**	9,138,894
2012	6,561,500	4,203,763	**1.561**	2,357,738	1,245,000	9,250	1,103,488	**1.262**	10,242,381
2013	6,751,800	4,327,313	**1.560**	2,424,488	1,282,000	9,250	1,133,238	**1.262**	11,375,619
2014	6,941,000	4 446,675	**1.561**	2,494,325	1,321,000	9,750	1,163,575	**1.262**	12,539,194
2015	7,129,100	4,561,588	**1.563**	2,567,513	1,360,000	9,750	1,197,763	**1.263**	13,736,956
2016	7,313,900	4,676 788	**1.564**	2,637,113	1,401,000	10,250	1,225,863	**1.262**	14,962,819
2017	7,496,500	4,786,750	**1.566**	2,709,750	1,443,000	10,500	1,256,250	**1.262**	16,219,069
2018	7 684 600	4,901,213	**1.568**	2 783,388	1,486,000	10,750	1,286,638	**1.263**	17,505,706
2019	7,876,000	5,019,388	**1.569**	2,856,613	1,531,000	11,250	1,314,363	**1.262**	18,820 069
2020	8 404,000	5 400,488	**1.556**	3 003,513	1,577,000	11,500	1,415,013	**1.262**	20,235,081
2021	8 275 300	5,260,075	**1.573**	3,015,225	1,624,000	11,750	1,379,475	**1.262**	21,614,556
2022	8,482,100	5,384,138	**1.575**	3,097,963	1,673,000	12,250	1,412,713	**1.262**	23,027,269
2023	8,482 100	5,343,763	**1.587**	3,138,338	1,723,000	12,500	1,402,838	**1.263**	24,430,106
2024	8,482,100	5,306,825	**1.598**	3,175,275	1,775,000	13,000	1,387,275	**1.261**	25,817,381
2025	8,482 100	5,262,800	**1.612**	3,219,300	1,828,000	13,250	1,378,050	**1.262**	27,195,431
2026	8,482,100	5,216,688	**1.626**	3,265,413	1,883,000	13,750	1,368,663	**1.262**	28,564,094
2027	8 482,100	5,173,225	**1.640**	3,308,875	1,939,000	14,000	1,355,875	**1.262**	29,919,969
2028	8 482,100	5,126,888	**1.654**	3,355,213	1,997,000	14,500	1,343,713	**1.262**	31,263,681
2029	8,482 100	5,082,413	**1.669**	3,399,688	2,057,000	15,000	1,327,688	**1.261**	32,591,369
2030	8,482,100	5,034,275	**1.685**	3,447,825	2,119,000	15,500	1,313,325	**1.261**	33,904,694
2031	8 482 100	4,982,213	**1 702**	3,499,888	2,183,000	16,000	1,300,888	**1.261**	35,205,581
2032	8,482 100	4 930,963	**1.720**	3 551,138	2,248,000	16,250	1,286,888	**1.261**	36,492,469
Total	$213,336 200	$130,895,731		$82,440,469	$45,386,000	$562,000	$36,492,469		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1, 2002 Assumes no escalation in toll rates
b) Assumes $63 095 million County-backed senior lien bonds are issued with a rating of 'A' at an interest rate of 5 25%
c) Before estimated operating and maintenance expenses
d) Assumes no junior lien bonds are issued
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund operating fund or surplus funds have been imputed

NOTE: This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No 1
Scenario 7: Construction costs are $55 million

Projected Cash Flows and Coverages

)elivery Date 08/15/2000

Year Ending February 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c) (d)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	$0	0	$0	---	$0
2002	0	0	---	0	0	0	0	---	0
2003	2,735,000	0	---	2,735,000	954,000	238,500	1,542,500	---	1,542,500
2004	3,945,000	1,844,063	2.139	2,100,938	983,000	7,250	1,110,688	1.602	2,653,188
2005	4,306,000	3,688,125	1.168	617,875	1,012,000	7,250	(401,375)	0.891	2,251,813
2006	4,488,000	3,688,125	1.217	799,875	1,042,000	7,500	(249,625)	0.932	2,002,188
2007	4,677,000	3,688,125	1.268	988,875	1,074,000	8,000	(93,125)	0.975	1,909,063
2008	4,875,000	3,748,125	1.301	1,126,875	1,106,000	8,000	12,875	1.003	1,921,938
2009	5,164,000	3,999,975	1.291	1,164,025	1,139,000	8,250	16,775	1.004	1,938,713
2010	5,470,000	4,273,438	1.280	1,196,563	1,173,000	8,500	15,063	1.004	1,953,775
2011	5,794,000	4,561 675	1.270	1,232,325	1,208,000	8,750	15 575	1.003	1,969,350
2012	5,965,000	4,693,113	1.271	1,271,888	1,245,000	9,250	17,638	1.004	1,986,988
2013	6,138,000	4,825,100	1.272	1,312,900	1 282,000	9,250	21,650	1.004	2,008,638
2014	6 310 000	4 962 113	1.272	1,347,888	1,321,000	9,750	17,138	1.003	2,025,775
2015	6 481,000	5 088 363	1.274	1,392,638	1,360,000	9,750	22,888	1.004	2,048,663
2016	6,649,000	5,218,850	1.274	1 430,150	1,401,000	10,250	18,900	1.004	2,067,563
2017	6,815,000	5,342,788	1.276	1,472,213	1,443,000	10,500	18,713	1.004	2,086,275
2018	6,986 000	5 469 913	1.277	1,516,088	1,486,000	10,750	19,338	1.004	2,105 613
2019	7,160,000	5,594,438	1.280	1,565,563	1,531,000	11,250	23,313	1.004	2,128,925
2020	7,640,000	6,025,838	1.268	1,614,163	1,577,000	11,500	25,663	1.004	2 154,588
2021	7,523,000	5,862,313	1.283	1,660,688	1,624,000	11,750	24,938	1.004	2,179,525
2022	7,711,000	6,003,525	1.284	1,707,475	1,673,000	12,250	22,225	1.004	2,201,750
2023	7,711,000	5,953,463	1.295	1,757,538	1,723,000	12,500	22,038	1.004	2,223 788
2024	7,711,000	5 901,313	1.307	1,809,688	1,775,000	13,000	21,688	1.004	2,245,475
2025	7,711,000	5,846,813	1.319	1,864,188	1,828,000	13,250	22,938	1.004	2,268,413
2026	7,711,000	5,794,700	1.331	1,916,300	1,883,000	13,750	19,550	1.003	2,287,963
2027	7,711,000	5,739,450	1.344	1,971,550	1,939,000	14,000	18,550	1.003	2,306,513
2028	7,711,000	5,680,800	1.357	2,030,200	1,997,000	14,500	18,700	1.003	2,325,213
2029	7,711,000	5,618,488	1.372	2,092 513	2,057,000	15,000	20,513	1.004	2,345,725
2030	7,711,000	5,557,250	1.388	2,153,750	2,119,000	15,500	19,250	1.003	2,364,975
2031	7,711 000	5 496,563	1.403	2 214 438	2,183,000	16,000	15,438	1.003	2,380 413
2032	7,711,000	5,430,900	1.420	2,280,100	2,248,000	16,250	15,850	1.003	2,396,263
'otal	$193,942,000	$145,597,738		$48,344,263	$45,386,000	$562,000	$2,396,263		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1, 2002 Assumes no escalation in toll rates
b) Assumes $70 250 million County-backed senior lien bonds are issued with a rating of 'A' at an interest rate of 5 25%
c) Before estimated operating and maintenance expenses
d) Assumes no junior lien bonds are issued
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed

NOTE: This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation f reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual onstruction costs and timing There are usually differences in estimated net revenues and actual net revenues because events and circumstances requently do not occur as expected, and such differences may be material

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 2
Scenario 1. Base case

Projected Cash Flows and Coverages

Delivery Date 08/15/2000

Year Ending February 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	2,735,000	0	---	0	---	2,735,000	954 000	238,500	1,542,500	---	1,542 500
2004	3,945,000	1 076,430	**3.665**	804 300	**2.098**	2,064,270	983,000	7,250	1,074,020	**1.571**	2 616 520
2005	4,306 000	2,152,859	**2.000**	1,608,600	**1.145**	544,541	1,012,000	7,250	(474,709)	**0.874**	2,141,811
2006	4,488 000	2,152.859	**2.085**	1,608,600	**1.193**	726,541	1,042,000	7,500	(322,959)	**0.914**	1,818 852
2007	4,677,000	2 152 859	**2.172**	1,608 600	**1.243**	915,541	1 074,000	8,000	(166,459)	**0.956**	1,652 392
2008	4 875 000	2 152 859	**2.264**	1 633 600	**1.287**	1,088,541	1,106,000	8,000	(25,459)	**0.993**	1 626 933
2009	5 164 000	2 172,859	**2.377**	1 747,288	**1.317**	1,243,853	1,139,000	8 250	96,603	**1.025**	1,723 536
2010	5 470,000	2,331,609	**2.346**	1,864,938	**1.303**	1,273,453	1,173 000	8,500	91,953	**1.022**	1 815 489
2011	5,794 000	2,495 359	**2.322**	1,986 025	**1.293**	1,312 616	1,208,000	8,750	95,866	**1 021**	1 911,355
2012	5,965 000	2 578 172	**2.314**	2 045 025	**1.290**	1,341,803	1,245,000	9,250	87 553	**1 019**	1,998 908
2013	6 138 000	2 654 422	**2.312**	2 104,825	**1.290**	1,378,753	1,282,000	9 250	87,503	**1.018**	2,086,411
2014	6,310 000	2 734 109	**2.308**	2,165 163	**1.288**	1,410,728	1,321 000	9 750	79,978	**1 016**	2 166 389
2015	6 481,000	2 811 609	**2.305**	2,220 775	**1.288**	1,448.616	1,360 000	9 750	78,866	**1.016**	2,245 255
2016	6 649 000	2 881 609	**2.307**	2,276,663	**1.289**	1 490,728	1,401,000	10,250	79 478	**1 015**	2,324,733
2017	6 815 000	2 954 109	**2.307**	2 327,563	**1.290**	1,533,328	1,443,000	10 500	79,828	**1 015**	2,404,561
2018	6,986 000	3,033,484	**2.303**	2,383,475	**1.290**	1,569 041	1,486 000	10,750	72,291	**1 013**	2 476 851
2019	7,160 000	3 108 797	**2.303**	2 438 875	**1.291**	1 612,328	1,531 000	11,250	70,078	**1 013**	2 546 930
2020	7 640 000	3 359 734	**2.274**	2 628,500	**1.276**	1,651 766	1,577,000	11 500	63 266	**1.011**	2 610 195
2021	7 523 000	3,264,734	**2.304**	2,555,000	**1.293**	1,703,266	1,624,000	11,750	67,516	**1.012**	2,677,711
2022	7,711,000	3 344 109	**2.306**	2,616,500	**1.294**	1 750 391	1 673,000	12,250	65,141	**1 011**	2,742 851
2023	7 711,000	3 316 922	**2.325**	2,595 913	**1.304**	1 798,166	1 723,000	12,500	62,666	**1.011**	2 805 517
2024	7 711 000	3,284 109	**2.348**	2,572 175	**1.317**	1,854 716	1,775,000	13,000	66 716	**1.011**	2,872 233
2025	7 711 000	3,255 672	**2.368**	2,550,288	**1.328**	1,905,041	1,828,000	13,250	63,791	**1.011**	2,936,023
2026	7,711,000	3,220 984	**2.394**	2,524,988	**1.342**	1,965 028	1 883,000	13 750	68,278	**1.012**	3,004 301
2027	7,711 000	3 190 047	**2.417**	2,501 275	**1.355**	2 019,678	1,939 000	14,000	66,678	**1 012**	3 070 980
2028	7 711 000	3 157 234	**2.442**	2 478 888	**1.368**	2,074 878	1,997,000	14,500	63 378	**1 011**	3 134 358
2029	7,711 000	3 122,234	**2.470**	2 452 563	**1.383**	2,136,203	2,057,000	15,000	64 203	**1 012**	3,198 561
2030	7,711 000	3 084 734	**2.500**	2,422,300	**1.400**	2,203,966	2,119 000	15 500	69,466	**1.013**	3,268 026
2031	7 711 000	3 049 422	**2.529**	2,398 100	**1.416**	2,263 478	2,183,000	16,000	64,478	**1.012**	3 332 505
2032	7 711 000	(525 891)	---	2 394 438	**4.127**	5 842,453	2,248,000	16,250	3 578 203	**2.915**	6,910,708
Total	$193 942,000	$77 568 055		$63 515 238		$52,858 708	$45,386,000	$562,000	$6,910,708		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
b) Assumes $37,275 million revenue-backed senior lien bonds are issued with a rating of 'Baa3' at an interest rate of 6 25%
c) Before estimated operating and maintenance expenses
d) Assumes $30 640 million County-backed junior lien bonds are issued with a rating of 'A' at an interest rate of 5 25%
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund.
g) After estimated operating and maintenance expenses

NOTE. No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

NOTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No 2
Scenario 2: Escalated toll rates

Projected Cash Flows and Coverages

elivery Date 08/15/2000

ear Ending ebruary 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	2,735 000	0	---	0	---	2,735,000	954,000	238,500	1,542,500	---	1,542,500
2004	3,945,000	1,076,688	**3.664**	805,481	**2.896**	2,062,831	983,000	7,250	1,072,581	**1.570**	2,615,081
2005	4,306,000	2,153,375	**2.000**	1,610,963	**1.144**	541,663	1,012,000	7,250	(477,588)	**0.873**	2 137,494
2006	4,488,000	2 153,375	**2.084**	1 610,963	**1.192**	723,663	1,042,000	7,500	(325 838)	**0.913**	1,811,656
2007	4 677,000	2,153,375	**2.172**	1,610,963	**1.242**	912,663	1,074,000	8,000	(169,338)	**0.955**	1 642,319
2008	5 619,925	2,153,375	**2.610**	1,610,963	**1.493**	1,855 587	1,106 000	8,000	741,587	**1 197**	2,383 906
2009	5,908,925	2,153,375	**2 744**	1,610,963	**1.570**	2 144,587	1,139,000	8,250	997,337	**1.265**	3 381,243
2010	6,214 925	2,153,375	**2.886**	1 610,963	**1.651**	2,450.587	1,173,000	8,500	1 269,087	**1.337**	4 650,331
2011	6,538,925	2 153,375	**3.037**	1,610,963	**1.737**	2,774,587	1,208,000	8 750	1,557,837	**1.414**	6,208,168
2012	6 709,925	2 153,375	**3 116**	1,610 963	**1.782**	2,945,587	1,245,000	9,250	1,691,337	**1.449**	7,899,505
2013	7,951 642	2 248,375	**3.537**	1,815,963	**1.956**	3,887,304	1 282,000	9,250	2,596,054	**1.639**	10 495 560
2014	8,123 642	2,297 438	**3.536**	1 855,200	**1.956**	3,971 004	1,321,000	9,750	2 640 254	**1 636**	13 135 814
2015	8,294 642	2 343 063	**3.540**	1 891,813	**1.959**	4,059,767	1,360,000	9,750	2 690,017	**1.635**	15,825 831
2016	8,462,642	2,390,250	**3.540**	1,925,800	**1.961**	4,146,592	1 401 000	10,250	2,735,342	**1.634**	18 561 173
2017	8,628,642	2 438,688	**3.538**	1 957 163	**1.963**	4,232,792	1 443,000	10,500	2,779,292	**1.632**	21 340 465
2018	10 173 961	2 988 063	**3 405**	2 365 900	**1.900**	4,819 998	1,486 000	10 750	3,323.248	**1.621**	24,663,713
2019	10 347 961	3 031 813	**3.413**	2,402,063	**1.904**	4,914,086	1,531,000	11,250	3 371,836	**1.621**	28 035,549
2020	10,827 961	3 194,313	**3.390**	2 519,025	**1.895**	5,114 623	1,577 000	11 500	3,526,123	**1.617**	31 561 673
2021	10,710 961	3 132 750	**3.419**	2 477 325	**1.909**	5 100.886	1,624,000	11,750	3,465,136	**1.618**	35 026 809
2022	10 898 961	3 180 250	**3.427**	2 514 838	**1.914**	5,203.873	1,673,000	12 250	3,518,623	**1.618**	38,545,432
2023	12 634 883	3 799 938	**3.325**	2,972 363	**1.866**	5,862,583	1,723,000	12 500	4,127,083	**1.609**	42,672,515
2024	12 634,883	3,780,563	**3.342**	2 957,588	**1.875**	5,896 733	1,775 000	13,000	4,108,733	**1.610**	46 781 247
2025	12,634 883	3 759 313	**3.361**	2 943,875	**1.885**	5 931 695	1,828,000	13,250	4,090 445	**1.610**	50 871,693
2026	12 634 883	3 740,875	**3.378**	2 930 963	**1.894**	5,963,045	1,883,000	13 750	4,066,295	**1.609**	54,937 988
2027	12,634 883	3 719 625	**3.397**	2,913,588	**1.905**	6,001.670	1 939 000	14,000	4,048,670	**1.610**	58,986,658
2028	14 647 292	4 435,250	**3.302**	3 446,750	**1.858**	6,765,292	1 997 000	14,500	4,753 792	**1.603**	63 740 450
2029	14,647,292	4 411 188	**3.320**	3 431 313	**1.868**	6 804 792	2,057 000	15,000	4,732 792	**1.603**	68 473,242
2030	14 647,292	4 390,250	**3.336**	3 414 313	**1.877**	6,842,730	2,119,000	15,500	4,708 230	**1.603**	73,181 472
2031	14 647,292	4 366 500	**3.354**	3 395,488	**1.887**	6,885,305	2,183,000	16,000	4 686 305	**1.604**	77,867 776
2032	14,647,292	599 313	**24.440**	3 399,575	**3.663**	10,648 405	2,248 000	16,250	8 384,155	**3.097**	86,251 931
otal	$281 975,512	$82,551,500		$67,224,081		$132,199,931	$45,386 000	$562,000	$86 251 931		

i) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes escalation in toll rates every 5 years equivalent to 3% per year
) Assumes $37 450 million revenue-backed senior lien bonds are issued with a rating of 'Baa3' at an interest rate of 6.25%
) Before estimated operating and maintenance expenses
l) Assumes $30 685 million County-backed junior lien bonds are issued with a rating of 'A' at an interest rate of 5.25%
) Source: Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund.
g) After estimated operating and maintenance expenses

OTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

OTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash ows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually ifferences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be aterial.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 2
Scenario 3 Actual revenues are 90% of projected

Projected Cash Flows and Coverages

elivery Date 08/15/2000

ear Ending ebruary 15	90% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (c)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	2,461,500	0	---	0	---	2,461,500	954,000	238,500	1,269,000	---	1,269 000
2004	3,550,500	968,859	**3.665**	889,613	**1.910**	1,692,028	983,000	7,250	701,778	**1.378**	1 970,778
2005	3,875,400	1,937,719	**2.000**	1,779,225	**1.043**	158,456	1,012,000	7,250	(860 794)	**0.768**	1,109 984
2006	4 039,200	1 937 719	**2.085**	1 779,225	**1.087**	322,256	1,042,000	7,500	(727,244)	**0.804**	382,741
2007	4,209,300	1,937 719	**2.172**	1,779 225	**1.132**	492,356	1,074,000	8 000	(589 644)	**0.841**	(206 903)
2008	4,387,500	1 937,719	**2.264**	1,804 225	**1.173**	645,556	1,106,000	8 000	(468 444)	**0.875**	(675,347)
2009	4,647 600	1,957,719	**2.374**	1 932 913	**1.195**	756 969	1 139,000	8 250	(390,281)	**0 900**	(1,065,628)
2010	4,923 000	2 101 469	**2.343**	2 064 775	**1 182**	756 756	1 173 000	8,500	(424 744)	**0.898**	(1,490,372)
2011	5 214 600	2 256 156	**2.311**	2 204 288	**1 169**	754 156	1,208,000	8,750	(462 594)	**0.896**	(1 952 966)
2012	5 368 500	2 325 531	**2.309**	2 270,663	**1.168**	772,306	1,245,000	9,250	(481 944)	**0.895**	(2,434 909)
2013	5 524,200	2,399 281	**2.302**	2,337 313	**1 166**	787,606	1,282,000	9 250	(503,644)	**0.894**	(2,938,553)
2014	5 679 000	2 466 781	**2.302**	2 398 975	**1 167**	813,244	1 321,000	9,750	(517,506)	**0.894**	(3 456 059)
2015	5,832 900	2 538 031	**2.298**	2,460 650	**1 167**	834,219	1,360,000	9 750	(535,531)	**0.893**	(3 991 591)
2016	5 984,100	2,602,406	**2.299**	2 522,075	**1.168**	859,619	1,401 000	10,250	(551 631)	**0.892**	(4 543,222)
2017	6 133,500	2 669 906	**2.297**	2,582 988	**1 168**	880,606	1,443,000	10 500	(572,894)	**0.891**	(5,116 116)
2018	6 287 400	2 734 906	**2.299**	2,643 125	**1 169**	909 369	1 486 000	10,750	(587,381)	**0.891**	(5 703 497)
2019	6 444 000	2,802 094	**2.300**	2 707 225	**1 170**	934,681	1,531 000	11 250	(607 569)	**0.890**	(6 311 066)
2020	6 876 000	3 035 844	**2.265**	2,914,763	**1.156**	925,394	1,577,000	11 500	(663,106)	**0.889**	(6 974 172)
2021	6 770,700	2 940,219	**2.303**	2 832 863	**1 173**	997 619	1,624 000	11,750	(638,131)	**0.889**	(7 612,303)
2022	6 939 900	3 014 594	**2.302**	2 900 963	**1 173**	1 024 344	1 673,000	12,250	(660,906)	**0.888**	(8 273 210)
2023	6 939 900	2,983 344	**2.326**	2 871 188	**1 185**	1,085,369	1,723 000	12 500	(650 131)	**0.889**	(8 923 341)
2024	6,939 900	2 952 406	**2.351**	2,843,263	**1 197**	1,144,231	1 775,000	13 000	(643 769)	**0.889**	(9 567,110)
2025	6 939 900	2 921 469	**2.375**	2 811,925	**1.210**	1,206 506	1 828 000	13,250	(634,744)	**0.889**	(10,201 853)
2026	6 939 900	2 890,219	**2.401**	2 782 175	**1.223**	1 267 506	1,883 000	13,750	(629 244)	**0.889**	(10 831 097)
2027	6 939 900	2 853 344	**2.432**	2 753,750	**1.238**	1,332 806	1,939,000	14,000	(620 194)	**0.889**	(11 451 291)
2028	6,939 900	2,820 844	**2.460**	2 721,388	**1.252**	1 397 669	1 997 000	14 500	(613 831)	**0.889**	(12 065 122)
2029	6,939 900	2 782 094	**2.494**	2 690 088	**1.268**	1 467 719	2 057,000	15 000	(604,281)	**0.890**	(12 669 403)
2030	6 939 900	2 747 094	**2.526**	2 654 588	**1.285**	1,538 219	2 119,000	15,500	(596 281)	**0.890**	(13,265 685)
2031	6 939 900	2 705,219	**2.565**	2 619,888	**1.303**	1,614 794	2,183,000	16,000	(584 206)	**0.890**	(13 849 891)
2032	6 939 900	(529 156)	---	2 620 725	**3.318**	4 848,331	2 248 000	16,250	2 584 081	**2.235**	(11 265,810)
otal	$174 547,800	$69,691,547		$70 174,063		$34,682,190	$45 386,000	$562,000	($11,265,810)		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
b) Assumes $33.560 million revenue-backed senior lien bonds are issued with a rating of Baa3 at an interest rate of 6.25%
c) Before estimated operating and maintenance expenses
d) Assumes $33.890 million County-backed junior lien bonds are issued with a rating of A at an interest rate of 5.25%
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund.
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

NOTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash lows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing There are usually ifferences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be naterial.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 2
Scenario 4: Actual revenues are 92% of projected

Projected Cash Flows and Coverages

elivery Date 08/15/2000

ear Ending ebruary 15	92% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (e)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	2,516,200	0	---	0	---	2,516,200	954,000	238 500	1,323 700	---	1,323 700
2004	3,629 400	990,266	3.665	872,681	1.948	1,766,453	983,000	7,250	776,203	1.417	2,099,903
2005	3,961,520	1,980,531	2.000	1,745,363	1.063	235,626	1,012,000	7,250	(783,624)	0.790	1 316 279
2006	4,128,960	1 980 531	2.085	1,745,363	1 108	403,066	1,042,000	7,500	(646,434)	0.827	669 846
2007	4 302,840	1 980 531	2 173	1 745 363	1 155	576,946	1,074,000	8 000	(505 054)	0.864	164 792
2008	4 485 000	1,980,531	2.265	1,770,363	1.196	734,106	1,106,000	8,000	(379,894)	0.899	(215,102)
2009	4,750,880	2,000 531	2.375	1,894 050	1.220	856,299	1,139 000	8,250	(290,951)	0.925	(506 053)
2010	5,032 400	2,144,281	2.347	2,026 175	1.207	861 944	1,173,000	8,500	(319,556)	0 923	(825 609)
2011	5,330 480	2,303 969	2.314	2 160 950	1.194	865,561	1,208,000	8,750	(351,189)	0.921	(1 176,798)
2012	5 487 800	2 378 031	2.308	2 227,850	1.191	881,919	1,245,000	9,250	(372,331)	0 919	(1 549,129)
2013	5,646 960	2,451 156	2.304	2,290 025	1 191	905,779	1,282 000	9,250	(385,471)	0.919	(1 934,601)
2014	5,805,200	2 518,031	2.305	2 352 475	1.192	934 694	1,321,000	9,750	(396,056)	0 919	(2,330 657)
2015	5 962 520	2,588 656	2.303	2 414 938	1 192	958 926	1,360,000	9,750	(410,824)	0.918	(2,741 481)
2016	6 117 080	2 657 406	2.302	2 472,150	1.193	987,524	1,401,000	10,250	(423,726)	0.917	(3,165,207)
2017	6 269,800	2 723 969	2.302	2 529 113	1 194	1,016 719	1,443 000	10,500	(436 781)	0.917	(3,601,988)
2018	6 427 120	2,793 031	2.301	2 590 563	1 194	1,043,526	1,486,000	10,750	(453,224)	0 916	(4,055 212)
2019	6 587,200	2 863 969	2.300	2 650 975	1 194	1,072,256	1,531 000	11 250	(469 994)	0 915	(4,525 206)
2020	7,028 800	3,101 156	2.267	2,860 088	1 179	1,067 556	1,577,000	11,500	(520,944)	0.913	(5,046,150)
2021	6,921 160	3,008 656	2.300	2 779,763	1 196	1 132,741	1,624,000	11,750	(503,009)	0.913	(5 549 158)
2022	7 094 120	3 080 844	2.303	2 844 438	1 197	1,168 839	1,673,000	12,250	(516 411)	0 913	(6,065 570)
2023	7 094 120	3 052 406	2.324	2 816,500	1.209	1,225,214	1,723,000	12,500	(510,286)	0.913	(6,575,856)
2024	7,094,120	3 018,969	2.350	2,790 413	1.221	1,284,739	1,775 000	13,000	(503,261)	0.913	(7 079,117)
2025	7,094 120	2 990,531	2.372	2 760 913	1.233	1,342 676	1,828 000	13,250	(498,574)	0.913	(7 577,691)
2026	7 094 120	2 956 469	2.400	2 733 000	1.247	1,404 651	1,883 000	13,750	(492,099)	0.914	(8,069 790)
2027	7 094 120	2 921 781	2.428	2,706 413	1.260	1,465,926	1,939 000	14,000	(487,074)	0.913	(8,556 863)
2028	7 094 120	2,886 156	2.458	2,675 888	1.275	1,532 076	1,997,000	14,500	(479,424)	0.914	(9,036,287)
2029	7,094 120	2 849,281	2 490	2 641,425	1.292	1 603 414	2,057 000	15,000	(468,586)	0 915	(9 504 873)
2030	7 094 120	2 815 844	2.519	2 608 025	1.308	1 670,251	2,119 000	15,500	(464,249)	0 914	(9 969 122)
2031	7 094 120	2 775 219	2.556	2 575 425	1.326	1,743,476	2,183,000	16,000	(455,524)	0.915	(10 424,646)
2032	7 094 120	(526,969)	---	2 573 363	3.467	5,047,726	2 248 000	16,250	2,783 476	2.360	(7 641 170)
otal	$178,426 640	$71,265 766		$68,854,044		$38,306,830	$45,386 000	$562,000	($7,641 170)		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
b) Assumes $34,300 million revenue-backed senior lien bonds are issued with a rating of 'Baa3' at an interest rate of 6 25%
c) Before estimated operating and maintenance expenses
d) Assumes $33,245 million County-backed junior lien bonds are issued with a rating of A at an interest rate of 5.25%
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund.
g) After estimated operating and maintenance expenses

OTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

OTE This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash ows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing There are usually *ifferences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be* aterial.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 2
Scenario 5 Actual revenues are 108% of projected

Projected Cash Flows and Coverages

elivery Date 08/15/2000

ear Ending ebruary 15	108% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (e)	Projected Net Revenue After Debt Service (c)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	2,953,800	0	---	0	---	2,953,800	954,000	238,500	1,761,300	---	1,761,300
2004	4,260,600	1 162,914	**3.664**	735,919	**2.244**	2,361,767	983,000	7,250	1,371,517	**1.722**	3,132,817
2005	4,650,480	2,325,828	**1.999**	1,471,838	**1.225**	852,814	1,012,000	7,250	(166 436)	**0.956**	2 966,382
2006	4,847,040	2,325,828	**2.084**	1 471,838	**1.276**	1 049,374	1,042,000	7,500	(126)	**1.000**	2 966,256
2007	5,051 160	2,325 828	**2.172**	1,471,838	**1.330**	1,253,494	1,074,000	8,000	171,494	**1.045**	3,137,750
2008	5,265,000	2 325 828	**2.264**	1,496 838	**1.377**	1,442,334	1,106,000	8 000	328 334	**1 086**	3 466 085
2009	5 577,120	2,345 828	**2.377**	1,595 525	**1.415**	1 635 767	1,139 000	8 250	488 517	**1 124**	3 954 602
2010	5 907,600	2,514 578	**2.349**	1 703 963	**1.400**	1 689,059	1,173 000	8 500	507 559	**1 120**	4 462 161
2011	6,257,520	2,692 703	**2.324**	1,816,363	**1.388**	1,748,454	1,208 000	8,750	531,704	**1.118**	4,993,865
2012	6 442,200	2 778 953	**2.318**	1 867,200	**1.387**	1,796,047	1,245,000	9,250	541 797	**1 117**	5,535,662
2013	6 629 040	2 863 328	**2.315**	1 924,363	**1.385**	1,841 349	1,282 000	9,250	550 099	**1 115**	6 085 762
2014	6 814 800	2 945,516	**2.314**	1 977 325	**1.384**	1,891,959	1,321,000	9,750	561,209	**1.114**	6,646,971
2015	6 999 480	3 030,203	**2.310**	2,026,088	**1.384**	1,943,189	1,360,000	9,750	573,439	**1.113**	7,220 410
2016	7 180 920	3 111 766	**2.308**	2 075 650	**1.384**	1,993 504	1,401,000	10 250	582 254	**1.112**	7,802 665
2017	7 360 200	3 189 891	**2.307**	2 125,750	**1.385**	2,044,559	1 443,000	10 500	591 059	**1.111**	8 393 724
2018	7,544,880	3,269,266	**2.308**	2 176 125	**1.386**	2 099 489	1,486,000	10,750	602 739	**1 111**	8 996 464
2019	7 732,800	3 354 266	**2.305**	2,231,513	**1.384**	2,147,022	1,531,000	11,250	604,772	**1 108**	9,601,235
2020	8,251,200	3 623,953	**2.277**	2,401,388	**1.369**	2,225,859	1,577,000	11,500	637,359	**1.106**	10 238 595
2021	8 124 840	3.521 141	**2.307**	2 339 450	**1.386**	2,264,249	1,624 000	11 750	628,499	**1 107**	10 867 094
2022	8,327,880	3 612,703	**2.305**	2,392 250	**1.387**	2,322 927	1,673,000	12,250	637 677	**1.106**	11 504 771
2023	8 327 880	3,581,453	**2.325**	2,373 750	**1.398**	2 372 677	1,723,000	12,500	637,177	**1 107**	12,141,948
2024	8 327 880	3 554 266	**2.343**	2,357 363	**1.409**	2,416,252	1,775,000	13,000	628,252	**1 106**	12,770 200
2025	8,327,880	3,520,516	**2.366**	2 337 825	**1.422**	2 469 539	1,828,000	13,250	628 289	**1 107**	13 398 489
2026	8,327,880	3 490 203	**2.386**	2,315 138	**1.435**	2,522 539	1,883 000	13,750	625 789	**1.108**	14,024 279
2027	8 327 880	3 457 703	**2 409**	2,294 300	**1.448**	2,575 877	1,939,000	14 000	622 877	**1 108**	14,647 155
2028	8 327 880	3 427 703	**2.430**	2,275 050	**1.460**	2 625 127	1,997 000	14,500	613 627	**1 108**	15,260 782
2029	8 327 880	3 389,578	**2.457**	2 252 125	**1.476**	2 686 177	2 057 000	15,000	614,177	**1 109**	15 874 959
2030	8,327,880	3,358 328	**2.480**	2,230,525	**1.490**	2 739 027	2 119,000	15,500	604 527	**1 108**	16,479,486
2031	8 327 880	3,318 016	**2.510**	2,209,988	**1.506**	2,799,877	2,183,000	16,000	600,877	**1 109**	17,080,363
2032	8 327 880	(531 047)	---	2 210 250	**4.959**	6,648 677	2,248 000	16 250	4,384 427	**3.611**	21 464 790
otal	$209 457,360	$83 887 039		$58,157,531		$67,412,790	$45,386,000	$562,000	$21,464,790		

) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
)) Assumes $40.265 million revenue-backed senior lien bonds are issued with a rating of 'Baa3' at an interest rate of 6.25%
) Before estimated operating and maintenance expenses
l) Assumes $28 035 million County-backed junior lien bonds are issued with a rating of A at an interest rate of 5.25%
) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund.
) After estimated operating and maintenance expenses

OTE. No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

OTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves These cash ows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing There are usually ifferences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be aterial.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No. 2
Scenario 6 Actual revenues are 110% of projected

Projected Cash Flows and Coverages

'elivery Date 08/15/2000

ear Ending ebruary 15	110% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (e)	Projected Net Revenue After Debt Service (e)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	3,008,500	0	---	0	---	3,008,500	954,000	238,500	1,816 000	---	1,816 000
2004	4,339,500	1 183 570	**3.666**	719,513	**2.280**	2,436 417	983,000	7,250	1,446,167	**1 760**	3,262,167
2005	4,736 600	2,367 141	**2.001**	1 439 025	**1.244**	930,434	1,012,000	7,250	(88,816)	**0.977**	3,173 352
2006	4,936,800	2,367,141	**2.086**	1,439,025	**1.297**	1,130,634	1,042,000	7,500	81 134	**1.021**	3,254,486
2007	5,144,700	2,367,141	**2 173**	1,439,025	**1.352**	1,338,534	1,074 000	8 000	256,534	**1.067**	3,511,020
2008	5 362 500	2,367 141	**2.265**	1,464,025	**1.400**	1 531,334	1,106 000	8,000	417,334	**1.109**	3 928,355
2009	5 680 400	2 387 141	**2.380**	1 557,713	**1.440**	1 735,547	1,139,000	8,250	588,297	**1 149**	4 516 652
2010	6,017,000	2,555 891	**2.354**	1,661,413	**1.427**	1,799,697	1,173,000	8,500	618 197	**1 147**	5 134,848
2011	6,373 400	2,739,016	**2.327**	1 774,338	**1.412**	1,860,047	1,208,000	8,750	643,297	**1.143**	5 778,145
2012	6,561,500	2 824,953	**2.323**	1 825,700	**1.411**	1,910,847	1,245 000	9,250	656,597	**1.141**	6,434,742
2013	6 751 800	2 914 016	**2.317**	1 878,388	**1.409**	1,959 397	1,282,000	9,250	668 147	**1 139**	7 102 889
2014	6 941 000	3 000 578	**2.313**	1,932,138	**1.407**	2,008,284	1,321,000	9,750	677 534	**1 137**	7,780 423
2015	7,129,100	3 084,328	**2.311**	1,981,688	**1.407**	2 063 084	1 360,000	9,750	693,334	**1.137**	8,473,758
2016	7 313 900	3 164 953	**2.311**	2 032 038	**1.407**	2 116,909	1,401,000	10,250	705,659	**1 136**	9,179 417
2017	7 496,500	3,247 141	**2.309**	2 077 925	**1.408**	2,171,434	1,443,000	10,500	717,934	**1 135**	9 897,352
2018	7 684 600	3 330,266	**2.308**	2 129,350	**1.408**	2,224,984	1,486,000	10,750	728 234	**1 133**	10,625 586
2019	7,876 000	3 408,703	**2.311**	2,180,788	**1.409**	2,286,509	1,531 000	11 250	744,259	**1 133**	11,369 845
2020	8 404 000	3 682,141	**2.282**	2 346,975	**1.394**	2,374 884	1 577,000	11,500	786,384	**1 130**	12 156 230
2021	8 275 300	3,582,766	**2.310**	2,286,613	**1.410**	2,405,922	1 624,000	11,750	770 172	**1 131**	12 926 402
2022	8,482 100	3 672,453	**2.310**	2,335,988	**1.412**	2,473,659	1,673,000	12,250	788 409	**1.131**	13 714,811
2023	8 482 100	3 644,328	**2.327**	2 319,325	**1.422**	2 518 447	1 723 000	12 500	782 947	**1.131**	14 497,758
2024	8 482 100	3 614 953	**2.346**	2 304 775	**1.433**	2 562,372	1 775,000	13,000	774 372	**1 131**	15 272 130
2025	8 482,100	3 589,016	**2.363**	2,287 075	**1.443**	2,606,009	1,828,000	13,250	764 759	**1 130**	16 036 889
2026	8,482,100	3,555,891	**2.385**	2 266,225	**1.457**	2,659 984	1,883,000	13 750	763 234	**1 131**	16 800 124
2027	8 482 100	3,525 578	**2.406**	2,247,225	**1.469**	2 709 297	1 939,000	14 000	756,297	**1.131**	17,556 420
2028	8 482 100	3 492 453	**2.429**	2 229 813	**1.482**	2 759 834	1 997,000	14,500	748,334	**1.131**	18 304 755
2029	8 482 100	3 456 203	**2 454**	2 208 725	**1.497**	2 817,172	2,057,000	15,000	745 172	**1 132**	19 049 927
2030	8 482 100	3 421 516	**2.479**	2 183 963	**1.513**	2 876 622	2 119,000	15 500	742 122	**1 132**	19 792 049
2031	8 482 100	3 382 766	**2.507**	2 165 525	**1.529**	2 933 809	2 183,000	16,000	734 809	**1 132**	20 526 858
2032	8 482 100	(526 297)	---	2 162 888	**5.183**	6,845 509	2,248,000	16,250	4,581,259	**3 799**	25 108 117
otal	$213,336,200	$85 402 883		$56 877,200		$71 056,117	$45,386,000	$562,000	$25,108,117		

1) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
2) Assumes $40 975 million revenue-backed senior lien bonds are issued with a rating of 'Baa3' at an interest rate of 6 25%
3) Before estimated operating and maintenance expenses
4) Assumes $27 410 million County-backed junior lien bonds are issued with a rating of 'A' at an interest rate of 5.25%
5) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
6) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund.
7) After estimated operating and maintenance expenses

OTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

OTE. This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash ows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing. There are usually ifferences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be aterial.

Preliminary For Discussion Purposes Only

FORT BEND PARKWAY TOLL ROAD
Alternative No 2
Scenario 7 Construction costs are $55 million

Projected Cash Flows and Coverages

Delivery Date. 08/15/2000

Year Ending February 15	100% of Projected Annual Revenues (a)	Projected Senior Lien Net Debt Service Requirements (b)	Senior Lien Debt Service Coverage Ratio (c)	Projected Junior Lien Net Debt Service Requirements (d)	Junior Lien Debt Service Coverage Ratio (e)	Projected Net Revenue After Debt Service (e)	Projected Operating & Maintenance Expenses (e)	Projected Transfer to Operating Reserve Fund (f)	Projected Net Revenue After Debt Service and Expenses (g)	Net Debt Service Coverage Ratio (g)	Cumulative Net Revenue After Debt Service and Expenses (g)
2001	$0	$0	---	$0	---	$0	$0	$0	$0	---	$0
2002	0	0	---	0	---	0	0	0	0	---	0
2003	2 735,000	0	---	0	---	2,735,000	954,000	238,500	1,542,500	---	1 542 500
2004	3,945,000	1,076 125	**3.666**	992,381	**1.907**	1,876,494	983 000	7,250	886,244	**1.428**	2,428,744
2005	4,306,000	2,152,250	**2.001**	1,984,763	**1.041**	168 988	1 012,000	7,250	(850,263)	**0 794**	1,578 481
2006	4,488 000	2,152,250	**2.085**	1 984,763	**1.085**	350,988	1,042,000	7,500	(698,513)	**0.831**	879,969
2007	4,677,000	2,152,250	**2.173**	1,984,763	**1 131**	539 988	1,074,000	8,000	(542,013)	**0.869**	337,956
2008	4,875 000	2 152,250	**2.265**	2 014,763	**1 170**	707,988	1 106 000	8,000	(406,013)	**0.903**	(68 056)
2009	5 164 000	2 172,250	**2.377**	2 153 188	**1 194**	838,563	1,139,000	8,250	(308,688)	**0.929**	(376,744)
2010	5,470 000	2 331,000	**2.347**	2,299,263	**1 181**	839,738	1,173,000	8 500	(341,763)	**0.926**	(718,506)
2011	5,794 000	2 499,750	**2.318**	2,452,200	**1 170**	842,050	1 208,000	8,750	(374,700)	**0.924**	(1,093,206)
2012	5 965 000	2 577,250	**2.314**	2 526 213	**1 169**	861 538	1 245,000	9,250	(392,713)	**0.923**	(1 485 919)
2013	6 138 000	2 653 500	**2.313**	2 594 975	**1.169**	889,525	1,282,000	9,250	(401 725)	**0 923**	(1 887 644)
2014	6 310 000	2,733,188	**2.309**	2 668 488	**1 168**	908,325	1,321,000	9,750	(422 425)	**0.922**	(2 310,069)
2015	6 481 000	2 810,688	**2.306**	2 741,225	**1 167**	929 088	1 360 000	9,750	(440,663)	**0.921**	(2,750 731)
2016	6 649 000	2 880 688	**2.308**	2 807 925	**1 169**	960,388	1 401,000	10,250	(450,863)	**0 921**	(3,201 594)
2017	6 815 000	2 953 188	**2.308**	2 873 588	**1 170**	988,225	1,443,000	10 500	(465,275)	**0 920**	(3,666 869)
2018	6,986 000	3 027 563	**2.307**	2 942,950	**1 170**	1,015 488	1 486 000	10,750	(481,263)	**0.919**	(4,148,131)
2019	7,160 000	3 103 188	**2.307**	3 010 488	**1 171**	1 046 325	1,531 000	11,250	(495,925)	**0 919**	(4 644 056)
2020	7 640 000	3 359 438	**2.274**	3,240 938	**1 158**	1 039,625	1 577 000	11,500	(548,875)	**0 917**	(5 192 931)
2021	7 523,000	3,264 438	**2.305**	3,155 375	**1 172**	1,103,188	1,624,000	11,750	(532,563)	**0 917**	(5 725 494)
2022	7,711 000	3,343 813	**2.306**	3,229,550	**1 173**	1,137,638	1,673,000	12,250	(547,613)	**0.917**	(6,273 106)
2023	7 711 000	3 316 625	**2.325**	3 200 063	**1 183**	1,194 313	1 723,000	12,500	(541,188)	**0.917**	(6,814,294)
2024	7 711 000	3,283 813	**2.348**	3 176 900	**1.194**	1,250,288	1,775,000	13,000	(537 713)	**0 917**	(7,352 006)
2025	7,711,000	3,255 375	**2.369**	3,144,538	**1.205**	1,311,088	1,828,000	13,250	(530,163)	**0 917**	(7,882,169)
2026	7,711 000	3 220 688	**2.394**	3 118 238	**1.216**	1 372 075	1 883 000	13,750	(524,675)	**0.917**	(8,406,844)
2027	7 711 000	3 189 750	**2.417**	3 087 475	**1.228**	1 433 775	1 939 000	14,000	(519,225)	**0 917**	(8 926 069)
2028	7 711 000	3 156 938	**2.443**	3 057 250	**1.241**	1,496,813	1 997,000	14,500	(514,688)	**0 917**	(9 440 756)
2029	7 711 000	3 121 938	**2.470**	3 022 300	**1.255**	1 566 763	2 057,000	15,000	(505,238)	**0 918**	(9 945,994)
2030	7 711 000	3 084 438	**2.500**	2 992 625	**1.269**	1 633 938	2 119 000	15 500	(500,563)	**0 918**	(10 446 556)
2031	7 711 000	3 044 125	**2.533**	2 957 700	**1.285**	1,709 175	2 183,000	16 000	(489 825)	**0.918**	(10 936 381)
2032	7 711 000	(525 563)	---	2 957 525	**3 171**	5,279,038	2,248 000	16 250	3 014 788	**2.240**	(7 921 594)
Total	$193 942 000	$77,543 188		$78 372 406		$38,026 406	$45 386,000	$562,000	($7 921,594)		

a) Source Wilbur Smith Associates (December 1998) Assumes project opens January 1 2002 Assumes no escalation in toll rates
b) Assumes $37 265 million revenue-backed senior lien bonds are issued with a rating of 'Baa3' at an interest rate of 6.25%
c) Before estimated operating and maintenance expenses
d) Assumes $37.805 million County-backed junior lien bonds are issued with a rating of A at an interest rate of 5.25%
e) Source Wilbur Smith Associates (November 1997) Assumes expenses increase at 3% per year for life of project.
f) Assumes operating reserve fund balance is maintained at three months of annual expenses Also assumes no earnings on operating reserve fund.
g) After estimated operating and maintenance expenses

NOTE No interest earnings on the revenue fund, operating fund or surplus funds have been imputed.

NOTE: This is a projection of cash flows based on assumptions, current market conditions, and a flow of funds that allows for the accumulation of reserves. These cash flows will change based on market conditions at the time of sale, actual revenues and investment income, and actual construction costs and timing There are usually differences in estimated net revenues and actual net revenues because events and circumstances frequently do not occur as expected, and such differences may be material.

APPENDIX B
Texas Transportation
Funding Coalition

Texas Transportation Funding Coalition

RECOMMENDATION TO THE 76TH TEXAS LEGISLATURE

Increase annual appropriations to the Texas Department of Transportation by:

- Fully funding the Department of Public Safety from a source other than State Highway Fund 006 [$315 million] and
- Levying and collecting the state motor fuels tax at the terminal rack [$235 million]

RATIONALE

The U.S. Congress recognized the need for increased investment in the nation's surface transportation infrastructure when it enacted the Transportation Equity Act for the 21st Century (TEA-21) in 1998. TEA-21 will increase federal reimbursements coming to Texas by about $750 million annually, provided Texas puts up about $190 million more in state funds to meet the financial participation requirement. Even with this additional $940 million, Texas will still have funding to address only 42 percent of its identified surface transportation needs.

Business growth is essential to a healthy economy, to Texas prosperity; and a reliable and efficient transportation system is critical to business growth. With a strong economy and healthy state revenues, there is an opportunity ***now*** for Texas to improve its level of investment in mobility. Texas should have sufficient resources to address at least 50 percent of its identified road and bridge maintenance and expansion needs--a reasonable and achievable goal.

Annual Department of Public Safety appropriations from State Highway Fund 006 have increased from $30 million in 1983, to $60 million in 1986, to more than $315 million in 1998. In the meantime, Texas' aging infrastructure is deteriorating--30% of highway lane miles were rated desirable in 1997 as compared to 57% in 1993. Traffic volumes increased 3-fold over the last 30 years. Hours of delay due to traffic congestion doubled in the past 14 years, causing a $4.4 billion annual economic loss in Texas' six largest metropolitan areas. And Texas has 13,840 deficient bridges--the most in the nation. State Highway Fund 006 revenues need to be fully invested in road and bridge maintenance and expansion.

The Federal government and 19 states have realized significant revenue increases from their motor fuels taxes by moving the point of accountability from the distributor to the terminal rack. Texas should follow suit by levying its tax on motor fuels at the terminal rack without disrupting legitimate businesses. The IRS collected significantly more revenue when the federal tax on diesel fuel was moved to the terminal in Texas in 1993. If the same rate of collection increase applies to the state tax on fuel by moving it to the terminal, then Texas would realize $42 million new revenue for schools and $235 million new revenue for transportation annually.

The additional $550 million investment of state funding in transportation infrastructure recommended herein will help alleviate deteriorating road and bridge conditions and rising roadway congestion and enable Texas to meet the match requirement to leverage TEA-21 federal reimbursements.

ATS (Austin MPO), Dallas Regional Mobility Coalition, El Paso MPO, Fort Worth Chamber of Commerce, Greater Austin Chamber of Commerce, Greater Dallas Chamber, Greater El Paso Chamber of Commerce, Greater Houston Partnership, Greater San Antonio Chamber of Commerce, Houston-Galveston Area Council, Lubbock MPO, North Central Texas Council of Governments, North Texas Commission, Rio Grande Valley Partnership, San Antonio-Bexar County MPO, Texas Conference of Urban Counties, Texas Good Roads/Transportation Association, Texas Metropolitan Planning Organizations (TEMPO)

Why should Texas invest more to maintain and expand its road and bridge infrastructure?

1. Texas infrastructure is aging—more funding is required to maintain it.

   - The typical design life for surface transportation infrastructure is 30-to-40 years--much of Texas' infrastructure is already beyond its design life
   - 78% of Texas roadways are in need of repair or modernization

2 The condition of Texas roads and bridges is deteriorating

   - 57% of the lane miles of Texas highways were rated *desirable* in 1993
   - 30% of the lane miles of Texas highways were rated *desirable* in 1997
   - Texas has 13,840 deficient bridges--most in the nation

3 Highway performance is not keeping up with job, population and traffic growth

   - Texas is a high growth state--it added 368,000 new jobs in 1997 and its population increased 2,453,002 between 1990 and 97
   - Traffic volumes are increasing dramatically in Texas--3-fold over the last 30 years--120 billion vehicle miles of travel on Texas highways in 1997
   - 1.4 million worker hours are lost every day due to traffic congestion in Texas--the hours of delay have doubled in the past 14 years--$4.4 billion annual economic loss in Texas' six largest metropolitan areas
   - 25% of the Texas interstate highway system in urban and metro areas is at 95% of design capacity—an additional 43% is at 80% capacity.

4. Texas does not invest adequately in its surface transportation infrastructure.

   - *Transportation Needs Revenue Assessment* published by TxDOT in January of 1997 documented that current level funding is adequate to address only one third of the identified Texas road and bridge maintenance and expansion needs
   - Transportation expenditures as a percentage of total state government expenditures declined from 33% in 1960 to 7% in 1997
   - Texas ranks relatively low nationally in highway expenditures--41st per lane mile, 44th per vehicle mile traveled and 45th per capita.
   - Nearly $200 million more is needed in annual state funding for Texas to receive all eligible reimbursement of federal motor fuel taxes paid by Texans

5. Business growth is essential to a healthy economy, to Texas prosperity; and a reliable and efficient transportation system is critical to business growth.

Texas Transportation Funding Endorsements

(as of March 29, 1999)

Local governments chambers of commerce and numerous other organizations throughout Texas are formally adopting policy positions urging the 76th Texas Legislature to provide more state funding for transportation. Recommended sources for the additional funding include moving the state motor fuel tax from the distributor to the terminal rack (SB1547/HB3659) and fully funding DPS from a budgetary source other than State Highway Fund 006

1 Alice Chamber of Commerce
2 Allen City Council
3 Alvarado City Council
4 Amarillo Chamber of Commerce
5 Argyle City Council
6 Arlington Chamber of Commerce
7 Arlington City Council
8 Atlanta City Council
9 Baytown City Council
10 Beckville City Council
11 Bedford City Council
12 Border Infrastructure Coalition
13 Brazos Valley Council of Governments
14 Burleson City Council
15 Camp County Commissioners Court
16 Capital Area MPO
17 Capital Area Transportation Council
18 Carrollton City Council
19. Carthage City Commission
20 Cedar Hill City Council
21 Cherokee County Commissioners Court
22 Collin County Commissioners Court
23 Consulting Engineers Council of Texas
24 Coppell City Council
25 Daingerfield City Council
26 Dallas Citizens Council
27 Dallas City Council
28 Dallas County Commissioners Court
29 Dallas Regional Mobility Coalition
30 Denton City Council
31 Deport City Council
32 DeSoto City Council
33 Duncanville City Council
34 East Texas Council of Governments
35 Ector County Commissioners Court
36 Ellis County Commissioners Court
37 El Paso City Council
38 El Paso County Commissioners Court
39 Everman City Council
40 Farmers Branch City Council
41 Fort Stockton City Council
42 Fort Worth Chamber of Commerce
43 Fort Worth City Council
44 Frisco City Council
45 Garland City Council
46 Gladewater City Council
47. The Grand Parkway Association (Houston)
48 Grand Prairie Chamber of Commerce
49 Grand Prairie City Council
50 Greater Austin Chamber of Commerce
51 Greater Dallas Chamber
52 Greater El Paso Chamber of Commerce
53 Greater Houston Partnership
54 Greater Irving-Las Colinas Chamber of Commerce
55 Greater San Antonio Chamber of Commerce
56. Harris County Commissioners Court
57 Hawkins City Council
58 Henderson City Council
59 Hewitt City Council
60 Hooks City Council
61 Houston City Council
62 Houston-Galveston Area Council
63 Houston West Chamber of Commerce
64 Hughes Springs City Council
65 Hurst City Council
66 Irving City Council
67 Jacksonville Chamber of Commerce
68 Jefferson City Council
69 Jim Wells County Commissioners Court
70 Johnson County Commissioners Court
71 Kaufman County Commissioners Court
72 Keller City Council
73. Kilgore City Commission
74 Lamar County Chamber of Commerce
75 Lamar County Commissioners Court
76 Lewisville City Council
77 Lindale City Council
78 Lone Star City Council
79 Lubbock Chamber of Commerce
80 Lubbock City Council
81 Lubbock Metropolitan Planning Organization
82 Lufkin/Angelina County Chamber of Commerce
83 Mansfield City Council
84 McKinney City Council
85 Mesquite City Council
86 Metrocrest Chamber of Commerce
87 Midland Chamber of Commerce
88 Mineola City Council
89 Morris County Commissioners Court
90 MOTRAN Alliance, Inc
91 Mount Pleasant City Council
92. Mt Vernon City Council
93 Nacogdoches City Commission
94 North Central Texas Council of Governments
95. North Dallas Chamber of Commerce
96 North Richland Hills City Council
97 North Texas Commission
98 North Texas Regional Transportation Task Force
99 North Texas Tollway Authority
100 Northeast Tarrant Chamber of Commerce
101 Oak Cliff Chamber of Commerce
102 Odessa Chamber of Commerce
103 Odessa City Council
104 Odessa Development Corporation
105 Odessa Industrial Development Corporation
106 Palestine City Council
107 Paris City Council
108 Parker County Commissioners Court
109 Pecos County Commissioners Court
110 Pittsburg Camp County Chamber of Commerce
111 Pittsburg City Council
112 Pittsburg Kiwanis Club
113 Pittsburg Lions Club
114 Plano City Council
115 Polk County Commissioners Court
116 Quitman City Council
117. Rains County Commissioners Court
118 Red River County Commissioners Court
119 Richardson Chamber of Commerce
120 Richardson City Council
121. Rio Grande Valley Partnership
122. Rosenberg City Council
123 Rowlett Chamber of Commerce
124 Rowlett City Council
125 Rowlett Economic Development Foundation
126 Rusk City Council
127 Rusk County Commissioners Court
128. Rusk Industrial Foundation
129 San Antonio-Bexar County MPO
130. Smith County Commissioners Court
131 SE Harris County Economic Development Council
132 SW Dallas County Regional Transportation Committee
133 Sugarland City Council
134 Tarrant County Commissioners Court
135 Texarkana City Council
136 TEMPO-Texas Metropolitan Planning Organizations
137 Texas Conference of Urban Counties
138 Titus County Commissioners Court
139 Tyler Area Chamber of Commerce
140 Tyler City Council
141 Uptown Houston District
142 Van Zandt County Commissioners Court
143 Watauga City Council
144 Waxahachie City Council
145 West Gulf Maritime Association
146 West Houston Association
147 Wichita Falls City Council
148 Willacy County Commissioners Court
149 Winnsboro City Council

RESOLUTION URGING THE TEXAS
LEGISLATURE TO INCREASE APPROPRIATIONS
FOR ROAD AND BRIDGE MAINTENANCE AND EXPANSION

WHEREAS, road and bridge maintenance and expansion is a core function of government; and

WHEREAS, mobility is fundamental to Texas economic vitality and quality of life; and

WHEREAS, maintaining mobility requires a continuing investment of state resources to maintain and expand the surface transportation infrastructure to meet identified needs; and

WHEREAS, current level appropriations to the Texas Department of Transportation (TxDOT) are adequate to address only one-third of the identified Texas transportation needs; and

WHEREAS, Texas should increase its annual investment in surface transportation infrastructure to a level that will enable TxDOT to address at least one-half of the state's identified transportation needs; and

WHEREAS, increased appropriations to TxDOT are necessary to continue state-funded road and bridge maintenance and construction programs and simultaneously leverage the maximum amount of federal funding for which Texas is eligible from the Transportation Equity Act for the 21st Century

NOW, THEREFORE BE IT RESOLVED by _____

Section 1: That the 76th Texas Legislature be and hereby is urged to increase annual appropriations to TxDOT by (a) funding the Department of Public Safety from a source other than State Highway Fund 006 so that Fund 006 resources will be available to maintain and expand road and bridge infrastructure and (b) moving the point of accountability for state motor fuel taxes from the distributor to the terminal rack.

Section 2: That a copy of this resolution be transmitted to the offices of the Governor, Lieutenant Governor, Speaker of the House of Representatives, the Chairman of the Texas Transportation Commission, and the chairs of the following legislative committees: Senate Committee on Finance, Senate Committee on State Affairs, House Committee on Appropriations, House Committee on Transportation, House Committee on Ways and Means, and House Select Committee on Revenue and Public Education Funding.

Passed this ___ day of _____, 1999.

_____ _____

Signature Signature

Vinson & Elkins
ATTORNEYS AT LAW

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HOUSTON, TEXAS 77002-6760
TELEPHONE (713) 758-2222
FAX (713) 758-2346

WRITER'S TELEPHONE
(713) 758-3894

WRITER'S FAX
(713) 615-5760

May 17, 1999

Ms. Dianne Wilson
c/o Judge Jim Adolphus
Fort Bend County Courthouse
301 Jackson
Richmond, Texas 77469

Re: Fort Bend County Toll Road Authority

Dear Diane:

You will find enclosed a copy of the Fort Bend County Toll Road Authority's presentation from the May 5, 1999, Fort Bend County Commissioners' Court meeting I have also enclosed a copy of the Wilbur Smith Associates Traffic and Revenue Study for Judge Adolphus' review If you have any questions, please call me at the above number.

Very truly yours,

Nicole K. Counts
Legal Assistant

F \NC8760\FBTOLLRD\LTR\ADOLPHUS LTR

FORT BEND COUNTY TOLL ROAD AUTHORITY

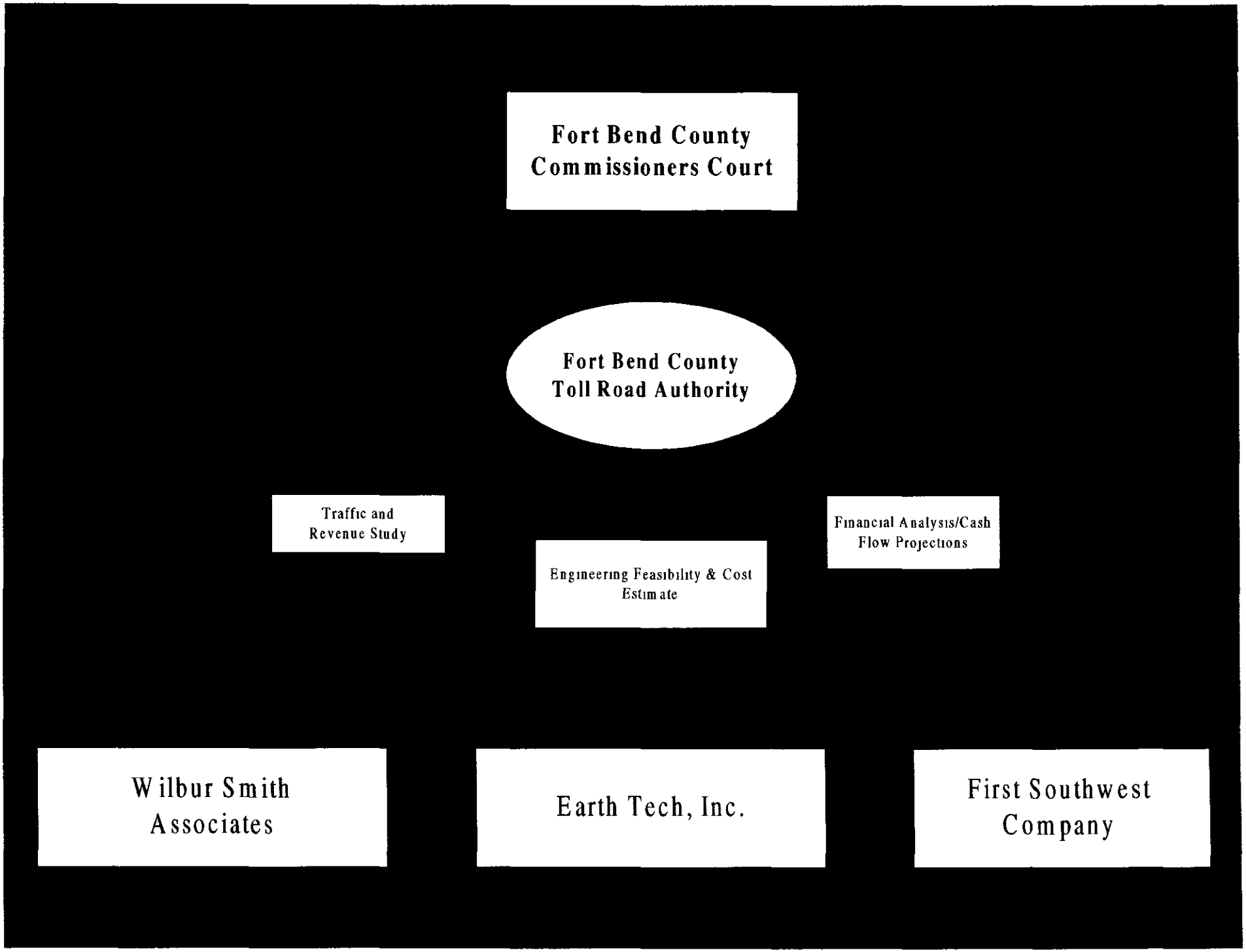
- Created in 1997 to act on behalf of Fort Bend County
- Charged with the responsibility to aid, assist and act on behalf of the County to determine the feasibility of a toll road project extending from Beltway 8 to State Highway 99
- Five member board of directors appointed by Commissioners Court

OVERVIEW OF THE FORT BEND PARKWAY CORRIDOR

- Initially proposed as a freeway in 1961
- Included in Houston's Major Thoroughfare Plan in 1963
- Included in Fort Bend County's Major Thoroughfare Plan in 1984
- Designated as State Highway 122 in 1986
- Studied by the Fort Bend Parkway Association commencing in 1990
- Investment grade feasibility study completed by the Authority in 1999

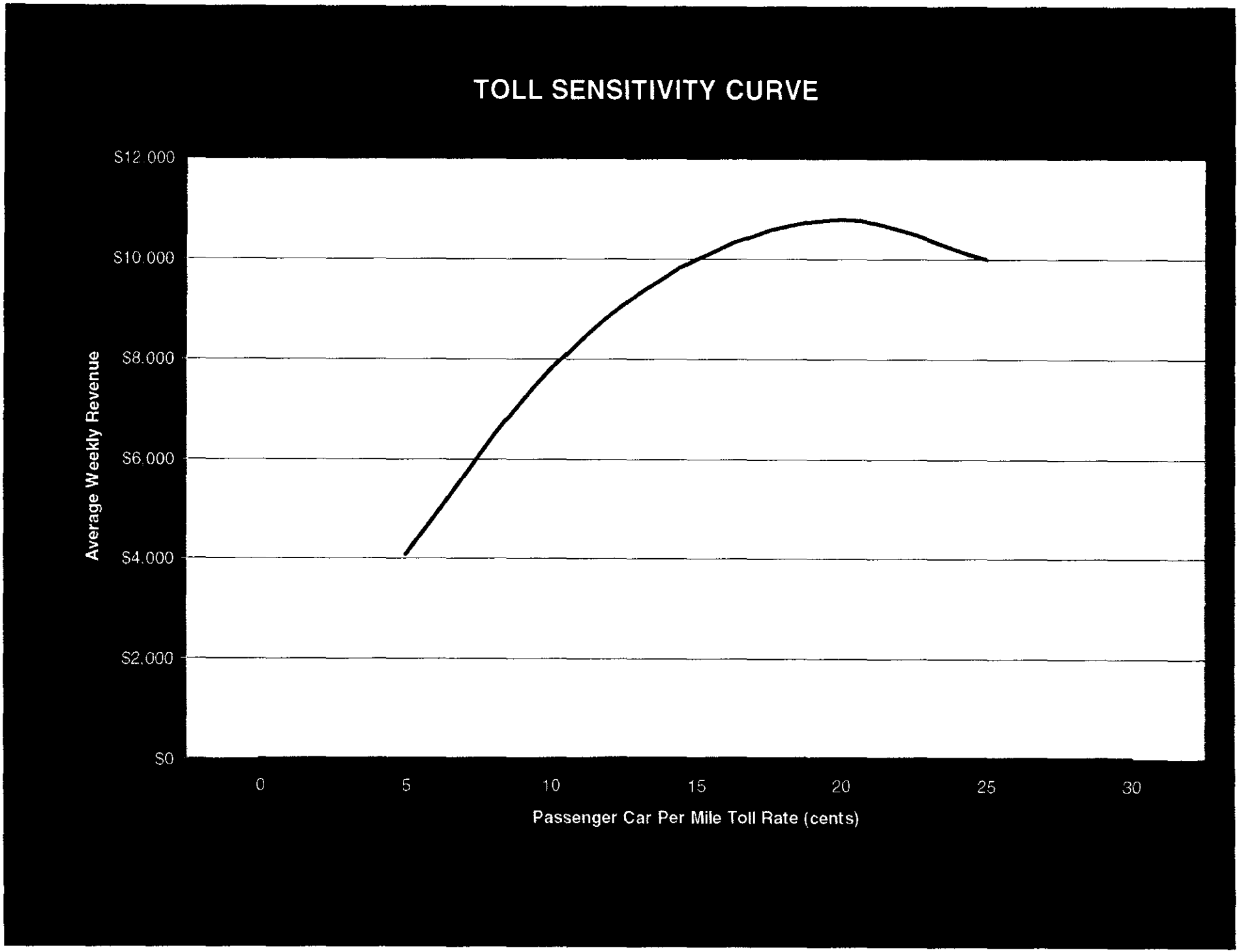
Why a Toll Road?

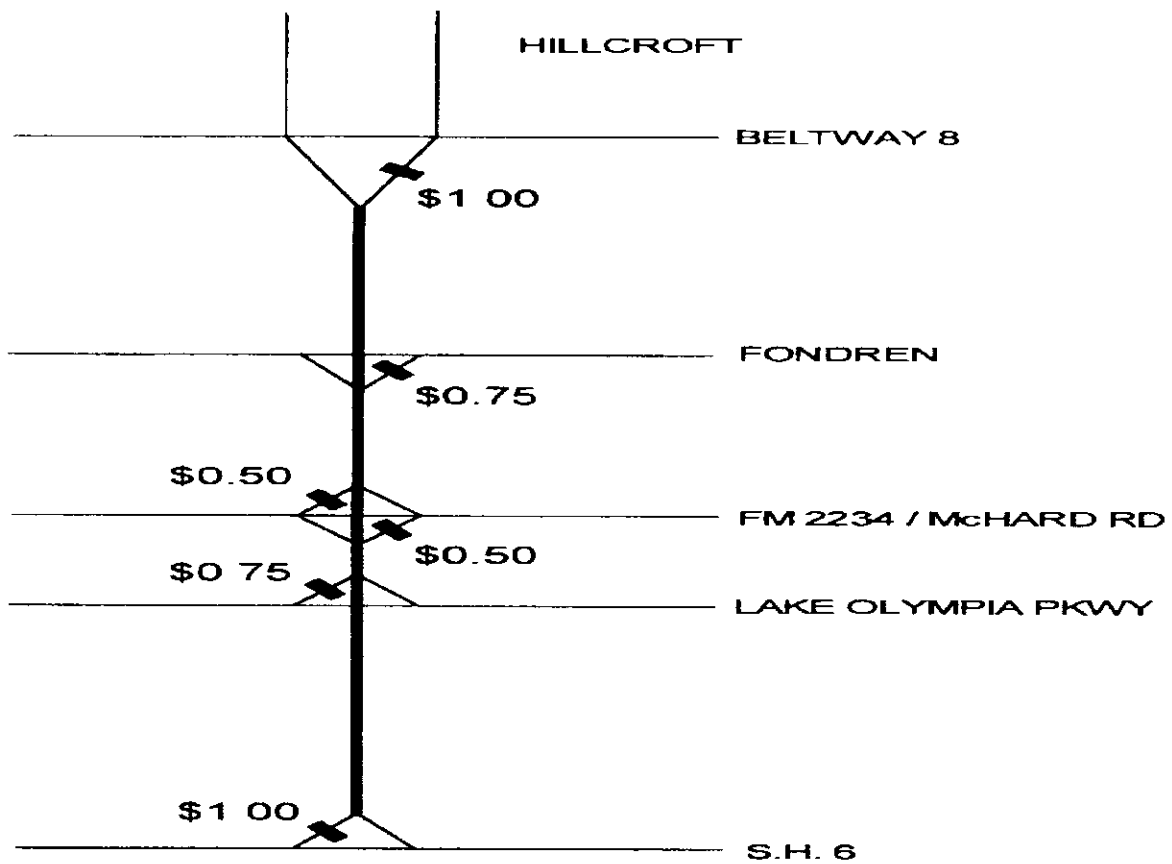
- Current TxDOT funds can only pay for 40% of the necessary statewide road improvements
- With TxDOT funding of U.S. 59, U.S. 90A Highway 6 and the Grand Parkway, Fort Bend County already receives a disproportionately high percentage of TxDOT funds
- Joint projects between TxDOT and local governments will necessarily have to increase
- Fort Bend's expected population growth requires locally lead infrastructure development now


Fort Bend County
Commissioners Court
Fort Bend County
Toll Road Authority
Traffic and
Revenue Study
Engineering Feasibility & Cost
Estimate
Financial Analysis/Cash
Flow Projections
Wilbur Smith
Associates
Earth Tech, Inc.
First Southwest
Company

WILBUR SMITH ASSOCIATES
TRAFFIC & REVENUE STUDY
PROCEDURES

- Used an adaptation of updated HGAC traffic model
- Surveyed of motorist travel patterns and trip characteristics
- Determined of motorist trip origin and destination to quantified current infrastructure utilization
- Identified and analyzed of future infrastructure improvements on both competing and complementary routes
- Incorporated Professor Barton Smith's socioeconomic forecasts
- Determined vehicle operating costs and value of time
- Conducted toll sensitivity analysis
- Prepared annual revenue revenue forecasts

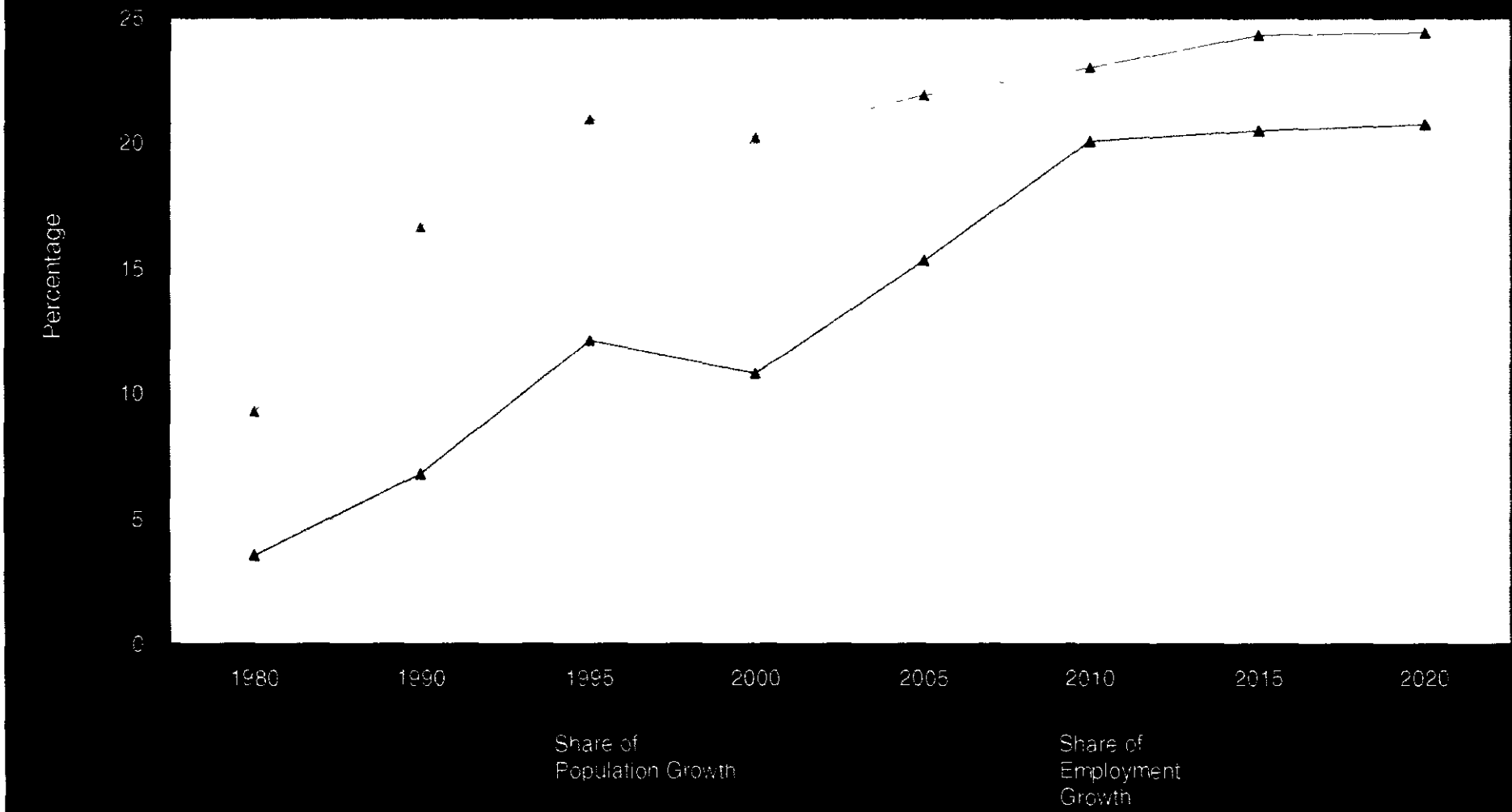

TOLL SENSITIVITY CURVE
$12.000
$10.000
$8.000
$6.000
$4.000
$2.000
$0
Average Weekly Revenue
0
5
10
15
20
25
30
Passenger Car Per Mile Toll Rate (cents)

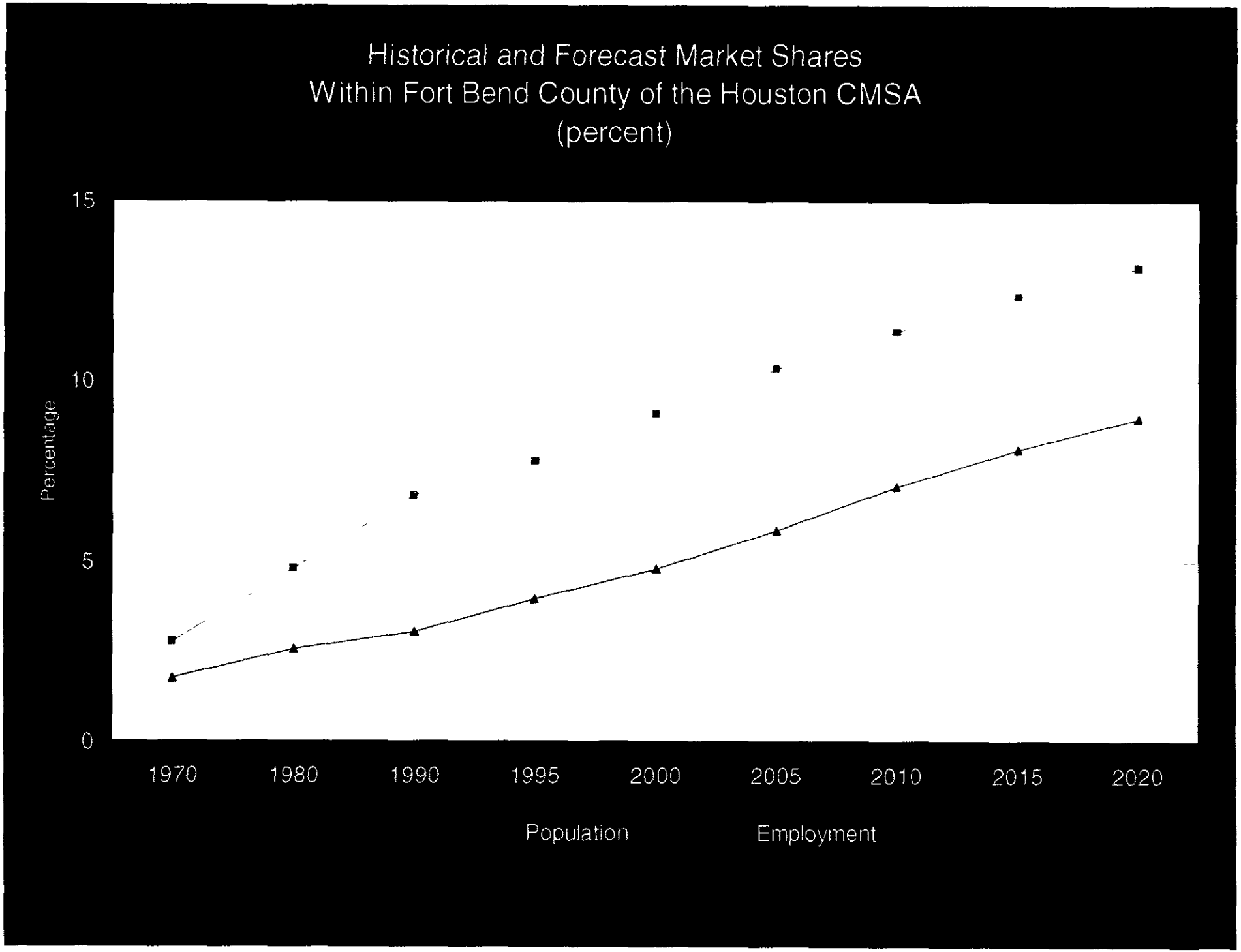


RECOMMENDED TOLL SCHEDULE
Passenger Toll Rate

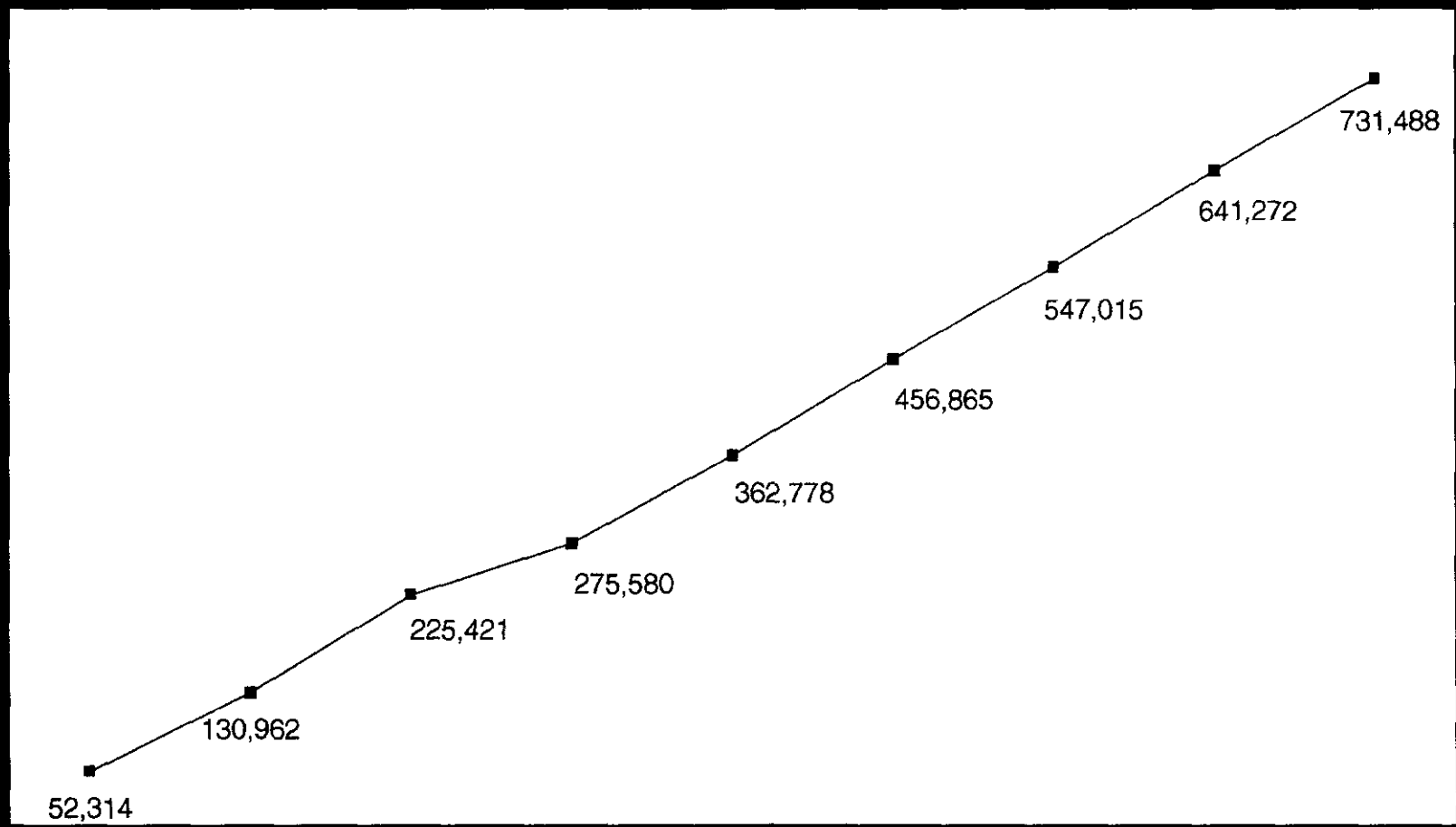
Source: Wilbur Smith Associates February 1999

Historical and Forecast Area Capture Rates in Fort Bend County of the Houston CMSA (percent)




Historical and Forecast Market Shares
Within Fort Bend County of the Houston CMSA
(percent)
15
10
5
0
Percentage
1970
1980
1990
1995
2000
2005
2010
2015
2020
Population
Employment

FORT BEND COUNTY HISTORICAL AND PROJECTED POPULATION



Source: WSA Report Table 11

Summarized Cost Estimate

ITEM	FROM	TO	VARIATION
Site and Earthwork	$5,884,876	$6,000,000	2%
Concrete Paving	$12,626,415	$14,000,000	11%
Structures	$7,979,482	$9,000,000	13%
Drainage	$3,027,500	$3,300,000	9%
Incidental Items	$1,119,600	$1,300,000	16%
Lighting & Striping	$1,005,000	$1,100,000	9%
Subtotal Grading, Pavement, Structures, and Drainage	**$31,642,873**	**$34,700,000**	10%
Utility Adjustments	$1,200,000	$1,800,000	50%
Toll Plazas	$4,200,000	$4,800,000	14%
Electronic Toll Collection	$750,000	$885,000	18%
Mobilization on Hard Construction Costs	$1,889,644	$2,109,250	12%
Engineering and Administration	$2,777,776	$2,952,950	6%
Contingencies	$4,246,029	$4,724,720	11%
Environmental Mitigation	$1,030,500	$1,500,000	46%
Right Of Way	$1,500,000	$2,000,000	33%
Total	**$49,236,822**	**$55,471,920**	13%

Source: Earth Tech Report February 1999

Bond Financing Analysis

- Bonds supported solely by start-up toll road revenue require excessively high interest rates
- County pledge to support bonds dramatically reduces interest rates
- Full County pledge saves $10 million in debt service costs over partial County pledge
- "Backstop" provided by City of Missouri City and Developers of Sienna Plantation
- Projections indicate no County participation over the life of the bonds

Source: First Southwest Company February 1999

Proposed Bond Structures

Alternative No. 1

- $63.095 million issue of senior lien bonds
- Fully backed by County
- Expected Interest Rates of 5.25%

Alternative No. 2

- $67.915 million issue of both senior and junior lien bonds
- County backs $30.640 million junior lien bonds
- Expected interest rates of 6.25% and 5.25%, respectively

Alternative No. 1

Scenario No. 1

Assumptions

- $63.095 million senior lien bonds
- Operation & Maintenance expenses increase 3% per year
- No increase in toll rates over the life of the bonds

Conclusions

- No county participation required
- Net revenue exceeds debt service and expenses by an average of approximately $575,000 per year
- Cumulative net revenue after debt service and expenses approximately $17.2 million.

Alternative No. 1

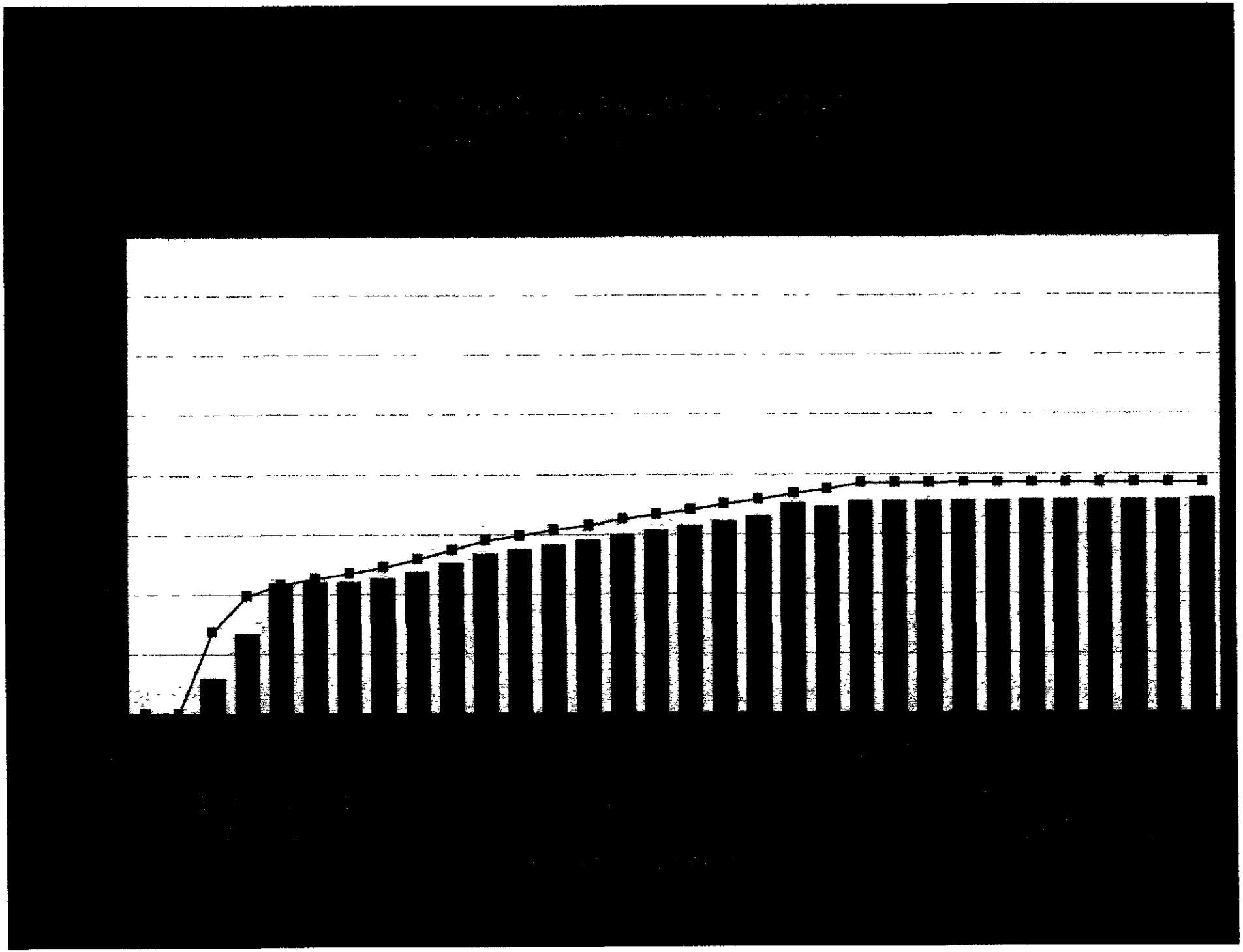
Scenario No. 1

Assumptions

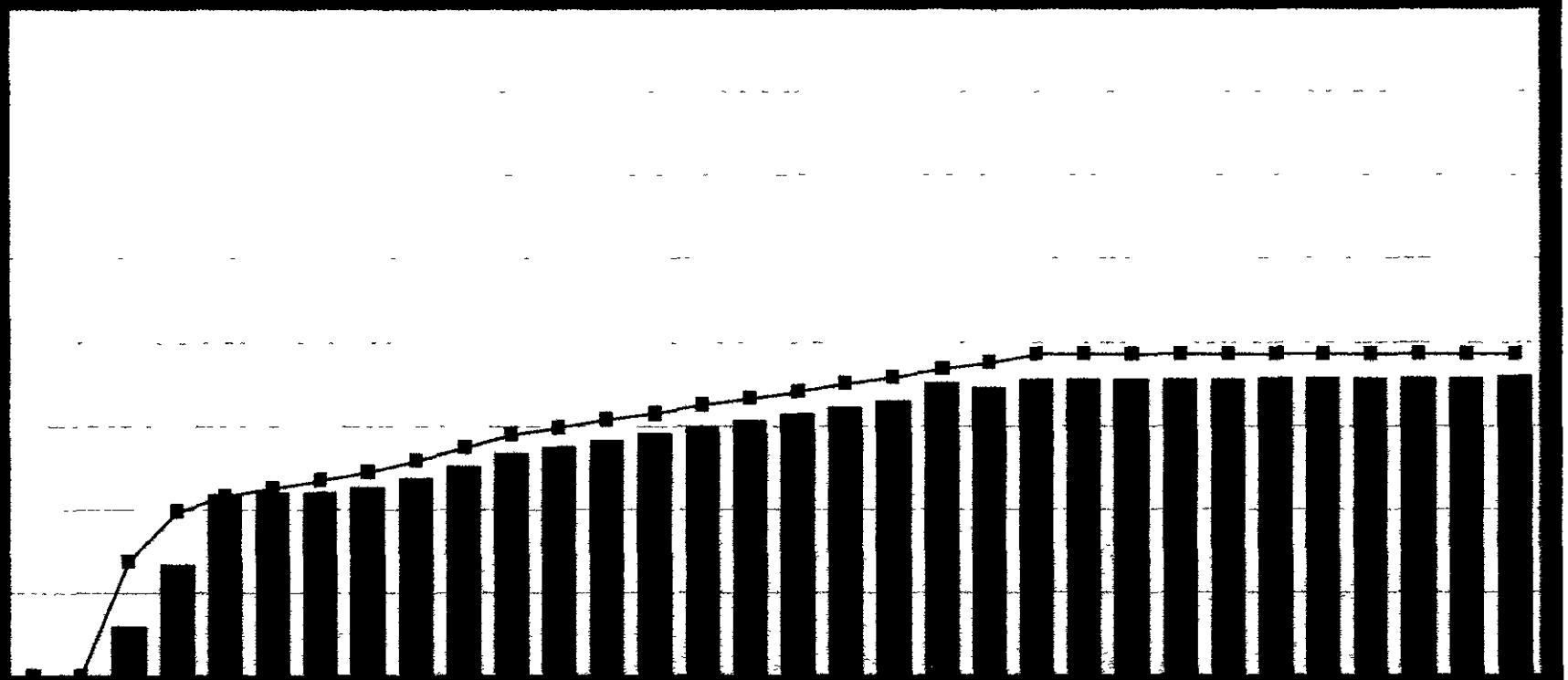
- $63.095 million senior lien bonds
- Operation & Maintenance expenses increase 3% per year
- No increase in toll rates over the life of the bonds

Conclusions

- No county participation required
- Net revenue exceeds debt service and expenses by an average of approximately $575,000 per year
- Cumulative net revenue after debt service and expenses approximately $17.2 million.



FORT BEND PARKWAY TOLL ROAD
Alternative No. 1 (Scenario No. 1)



Alternative No. 1
Scenario No. 2

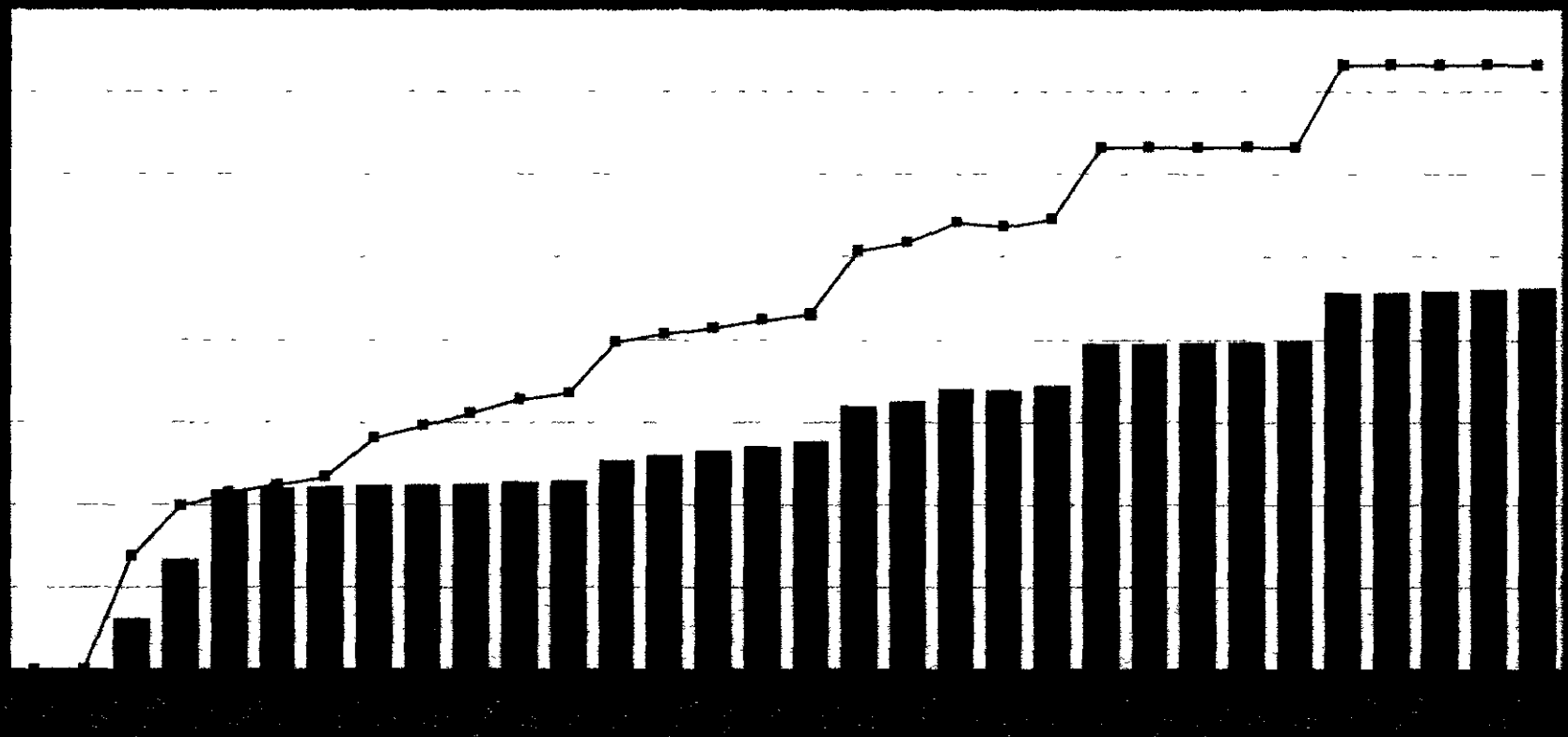
Assumptions

- $63.095 million senior lien bonds
- Operation & Maintenance expenses increase 3% per year
- Toll rates increase every five years equal to 3% per year

Conclusions

- No county participation required
- Net revenue exceeds debt service and expenses by an average of approximately $3.056 million per year
- Cumulative net revenue after debt service and expenses approximately $97.8 million

FORT BEND PARKWAY TOLL ROAD
Alternative No. 1 (Scenario No. 2)



Alternative No. 2
(Scenario No. 1)

Assumptions

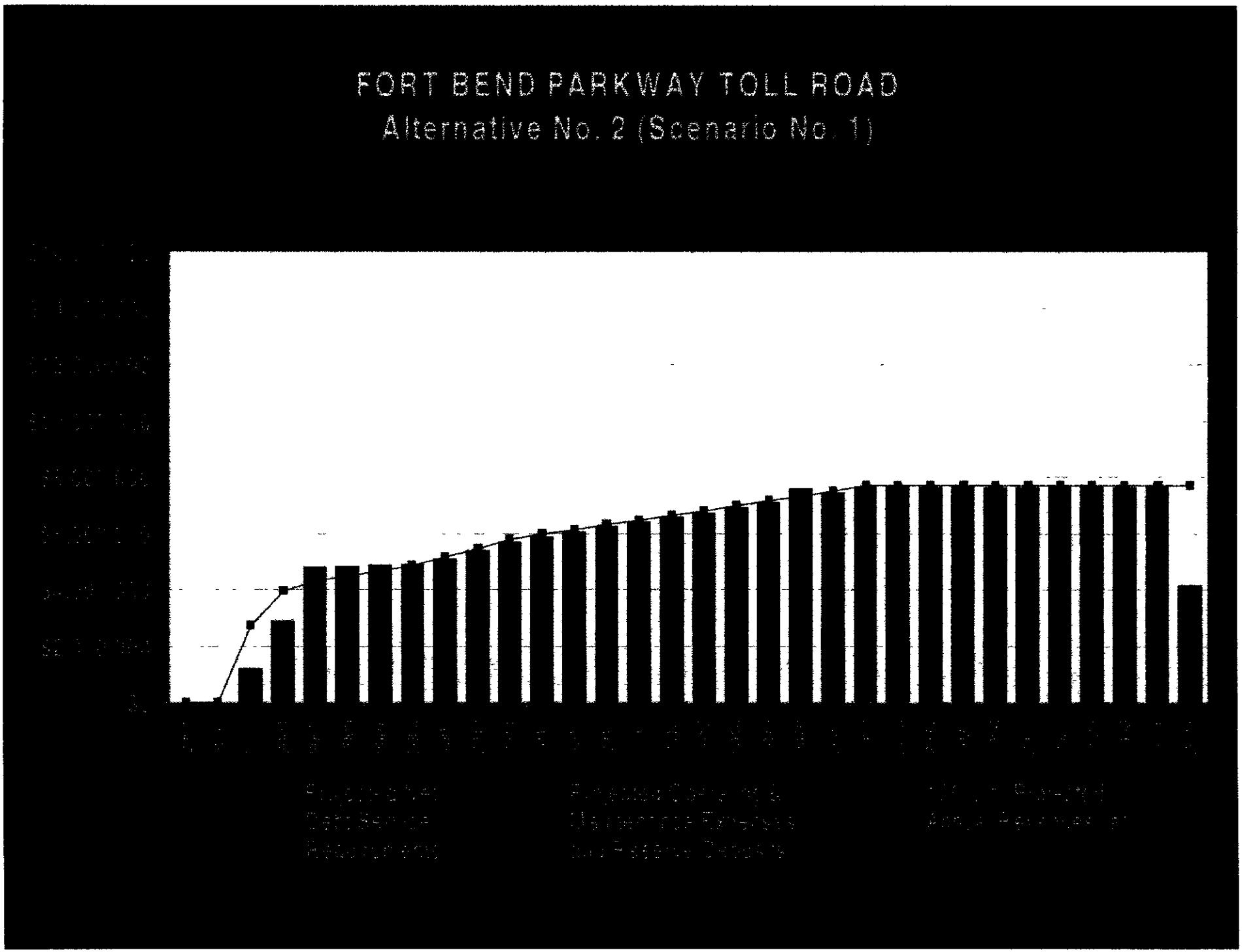
- $67.915 million senior and junior lien bonds
- Operation & Maintenance expenses increase 3% per year
- No increase in toll rates over the life of the bonds

Conclusions

- No county participation required
- Net revenue exceeds debt service and expenses by an average of approximately $230,000 per year
- Cumulative net revenue after debt service and expenses approximately $6.9 million.

FORT BEND PARKWAY TOLL ROAD

Alternative No. 2 (Scenario No. 1)



Alternative No. 2
(Scenario No. 2)

Assumptions

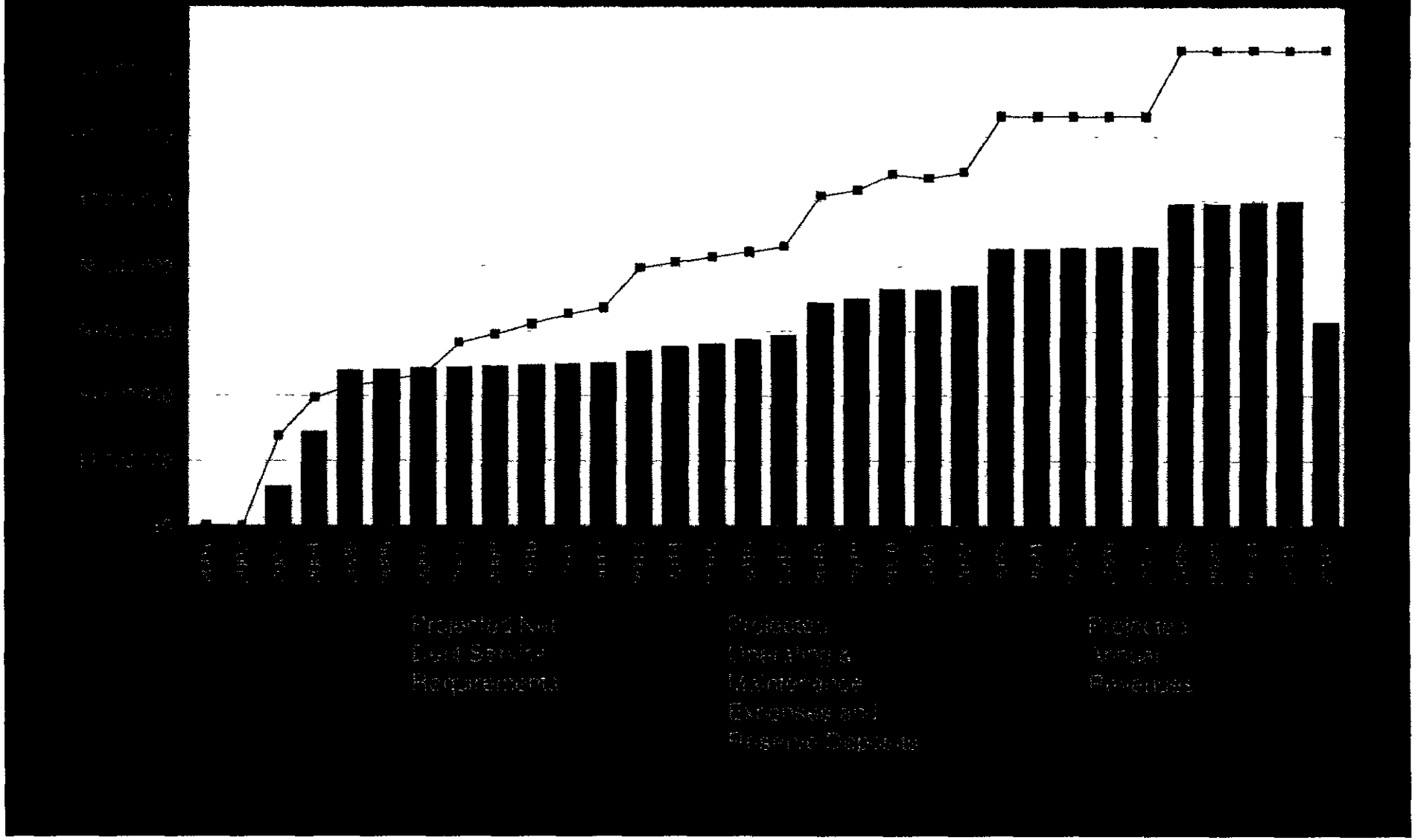
- $67.915 million senior and junior lien bonds
- Operation & Maintenance expenses increase 3% per year
- Toll rates increase every five years equal to 3% per year

Conclusions

- No county participation required
- Net revenue exceeds debt service and expenses by an average of approximately $2.9 million per year
- Cumulative net revenue after debt service and expenses approximately $86.2 million.

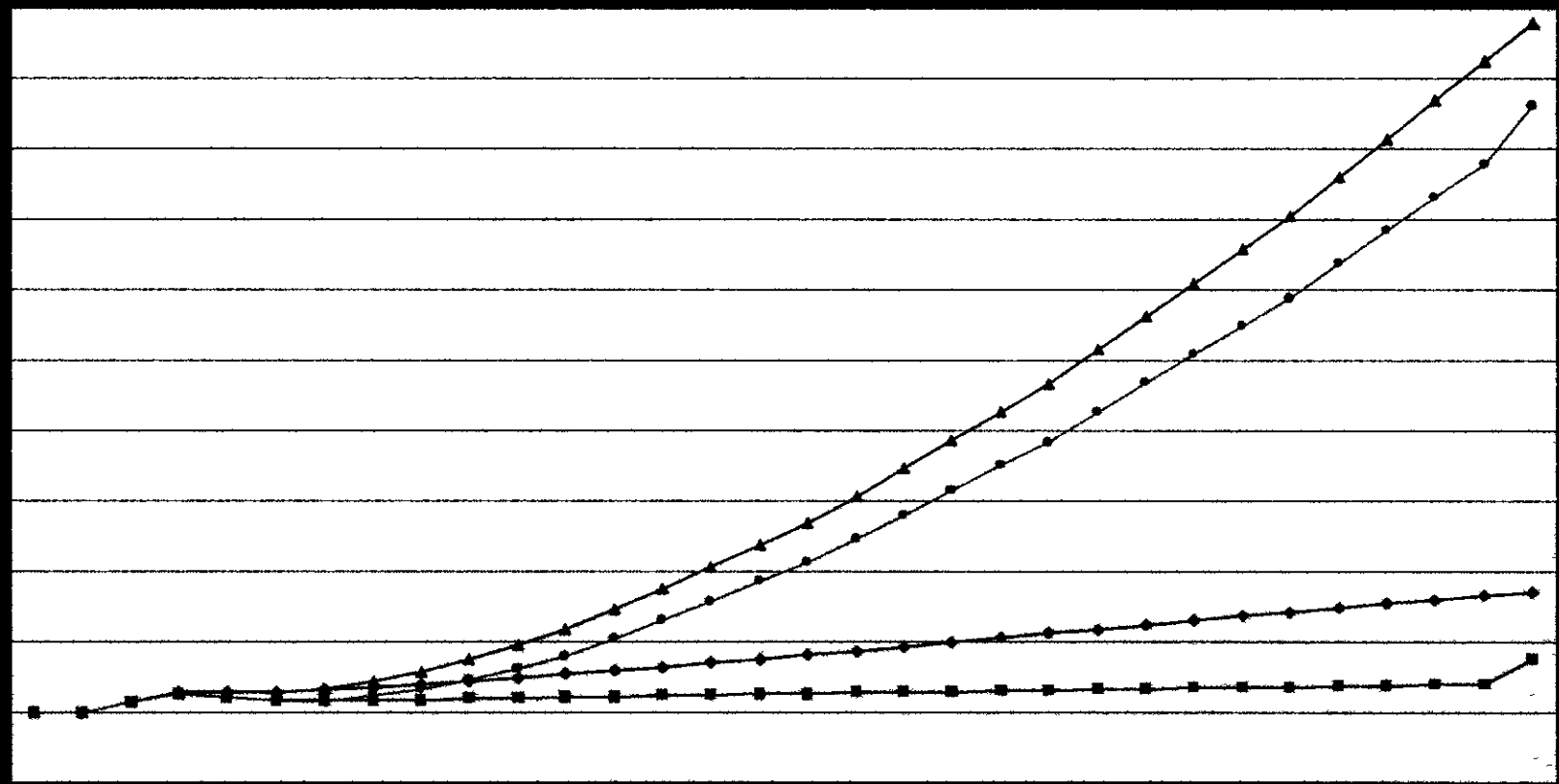
FORT BEND PARKWAY TOLL ROAD

Alternative No. 2 (Scenario No. 2)



FORT BEND PARKWAY TOLL ROAD

Cumulative Net Revenue After Debt
and Service Expenses



County Participation

Projections indicate that the County will not expend any funds over the life of the bonds. However, county participation at varying levels would be required based on changes in the following assumptions:

Risks at time of bond sale:

- Interest rates higher
- Construction bids exceed cost estimates

Risks after bonds sold:

- Construction not timely completed
- Revenues lower than projections

TxDOT Participation

- TxDOT has agreed in principal to fund the Toll Road-Highway 6 interchange ($6-$8 million)
- With County construction of Phase I, TxDOT more likely to fund Phase II.
- TxDOT general funds and State Infrastructure Bank (SIB) funds limited and the demand for them is increasing
- Best opportunity to ensure Phase II is constructed is to negotiate Phase I and Phase II cost sharing <u>now</u>

Conclusions and Recommendations

- Phase I will provide better access to east Fort Bend County
- Phase II will provide a needed additional crossing over the Brazos River
- Phase I is feasible as a self-supporting toll road
- County participation is needed to ensure marketability and favorable interest rates on the Authority's bonds
- The County should authorize the Authority to negotiate an agreement with TxDOT for the funding of the Phase I interchange and Phase II in exchange for local financing of Phase I.

ESTIMATED PRE-BOND SALE ACTIVITY & COSTS

Design Engineering		$2,778,000
Right of way Acquisition		
Land Acquisition	$1,500,000	
Legal Fees	$800,000	
Title Insurance	$192,000	
Appraisal	$96,000	
Environmental	$96,000	
Subtotal Right of Way		$2,784,000
Administration		$100,000
Total		$5,662,000

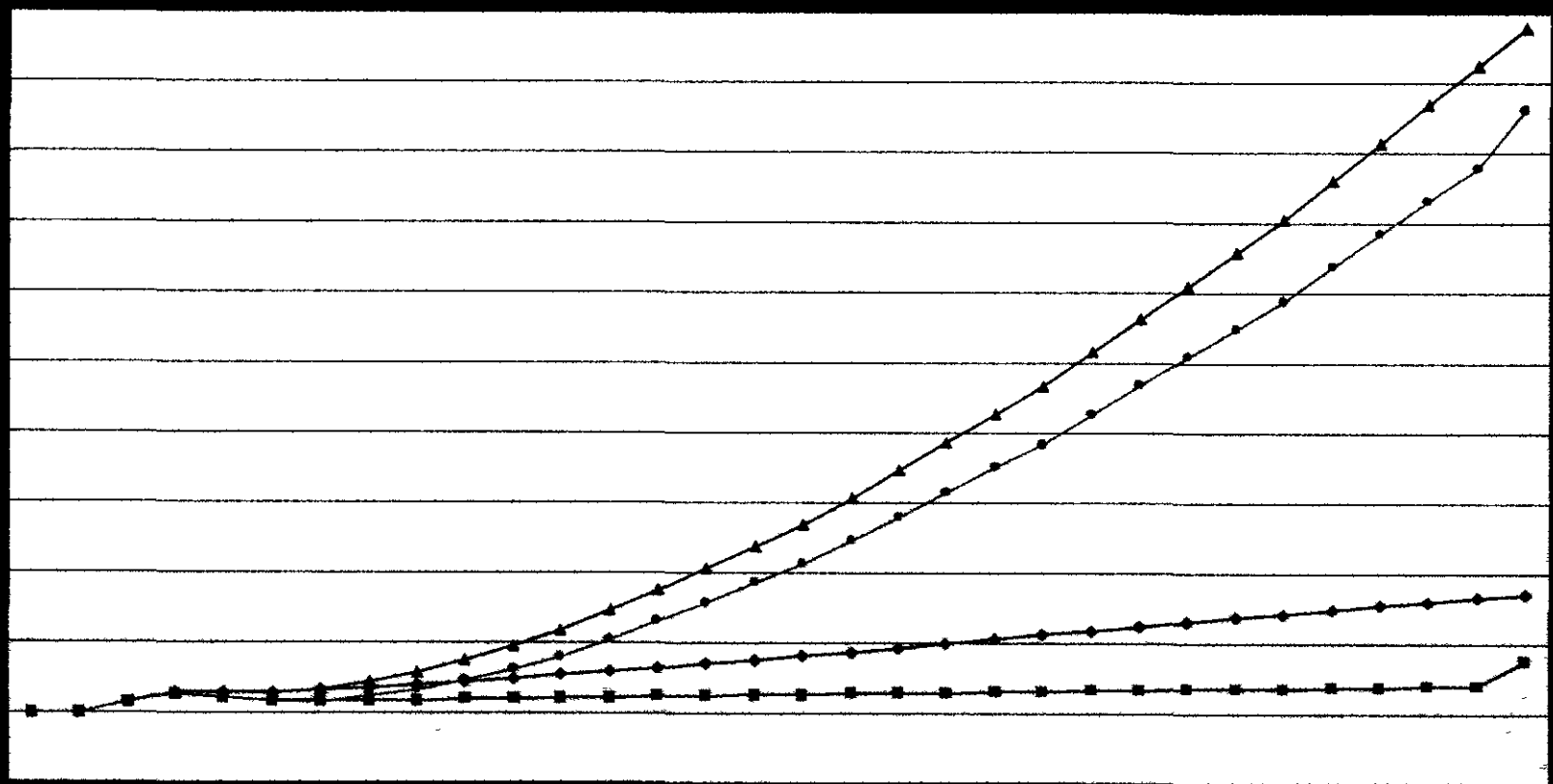
Use of Bond Proceeds

(Alternative No. 1)

Use of Bond Proceeds (Alternative No. 1):	***Amount:***
Repayment to County of Advanced Funds	$805,000
Pre-Construction Costs (See detail)	$5,662,000
Construction Cost (including contingency)	$43,892,200
Environmental Mitigation	$1,030,500
Deposit to Capitalized Interest Fund	$9,122,800
Defeasance of Existing Parkway Road District Bonds	$1,500,000
Underwriter's Discount (1% of par amount)	$631,000
Costs of Issuance	$450,000
Contingency	$1,500
Total	**$63,095,000**

FORT BEND PARKWAY TOLL ROAD

Cumulative Net Revenue After Debt and Service Expenses



Fort Bend Parkway Toll Road

Traffic and Revenue Study

WILBUR SMITH ASSOCIATES

Fort Bend Parkway Toll Road

Traffic and Revenue Study

Prepared for

Fort Bend Toll Road Authority

By

WILBUR SMITH ASSOCIATES

February 1999

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February 10, 1999

Mr Norman Mason, Chairman
Fort Bend County Toll Road Authority
C/O Vinson & Elkins L L P
1001 Fannin Street
Suite 2300
Houston, Texas 77002-6760

Re **Traffic and Revenue Study - Fort Bend Parkway Toll Road**

Dear Mr Mason

Wilbur Smith Associates (WSA) is pleased to submit this report summarizing the results of our Comprehensive Traffic and Revenue Study for the proposed Fort Bend Parkway Toll Road The proposed project would connect the Sam Houston Tollway (Beltway 8) and State Highway 6 (SH 6) in northeastern Fort Bend County

The study included assembly of available data, including socioeconomic forecasts and a transportation model provided by Houston Galveston Area Council (HGAC) Socioeconomic forecasts were prepared by Professor Barton Smith of the University of Houston's Center for Public Policy WSA modified HGAC's travel model to focus on the effect of toll changes on usage of the proposed project Annual revenue forecasts are provided for the Fort Bend Parkway for the period between July 1, 2001, the opening date and 2020 In addition, sensitivity tests were conducted to gauge the impact on the project's traffic and toll revenue of early completion of improvements to competing routes, lower growth, and lower values of time

I, together with other members of the WSA study team, including John W McMahon, Robert Josef and Butch Babineaux, as well as our subconsultant, Professor Barton Smith, gratefully acknowledge the valuable inputs and assistance provided by you, staff from HGAC, the City of Missouri City, Fort Bend Economic Development Council, and various other agencies and companies contacted during the course of the study We sincerely appreciate the opportunity to have participated in this study

Respectfully submitted,
WILBUR SMITH ASSOCIATES

Jeffrey N Buxbaum, AICP
Vice President

EXECUTIVE SUMMARY

The proposed Fort Bend Parkway Toll Road project would be a six mile, four lane, limited access highway between Sam Houston Tollway (Beltway 8) and State Highway 6 (SH 6) in northeastern Fort Bend County (see Figure ES-1) The project would provide a more direct connection between existing neighborhoods south of Beltway 8 between Fondren Road and South Post Oak Road to the Beltway and north into southwestern Houston

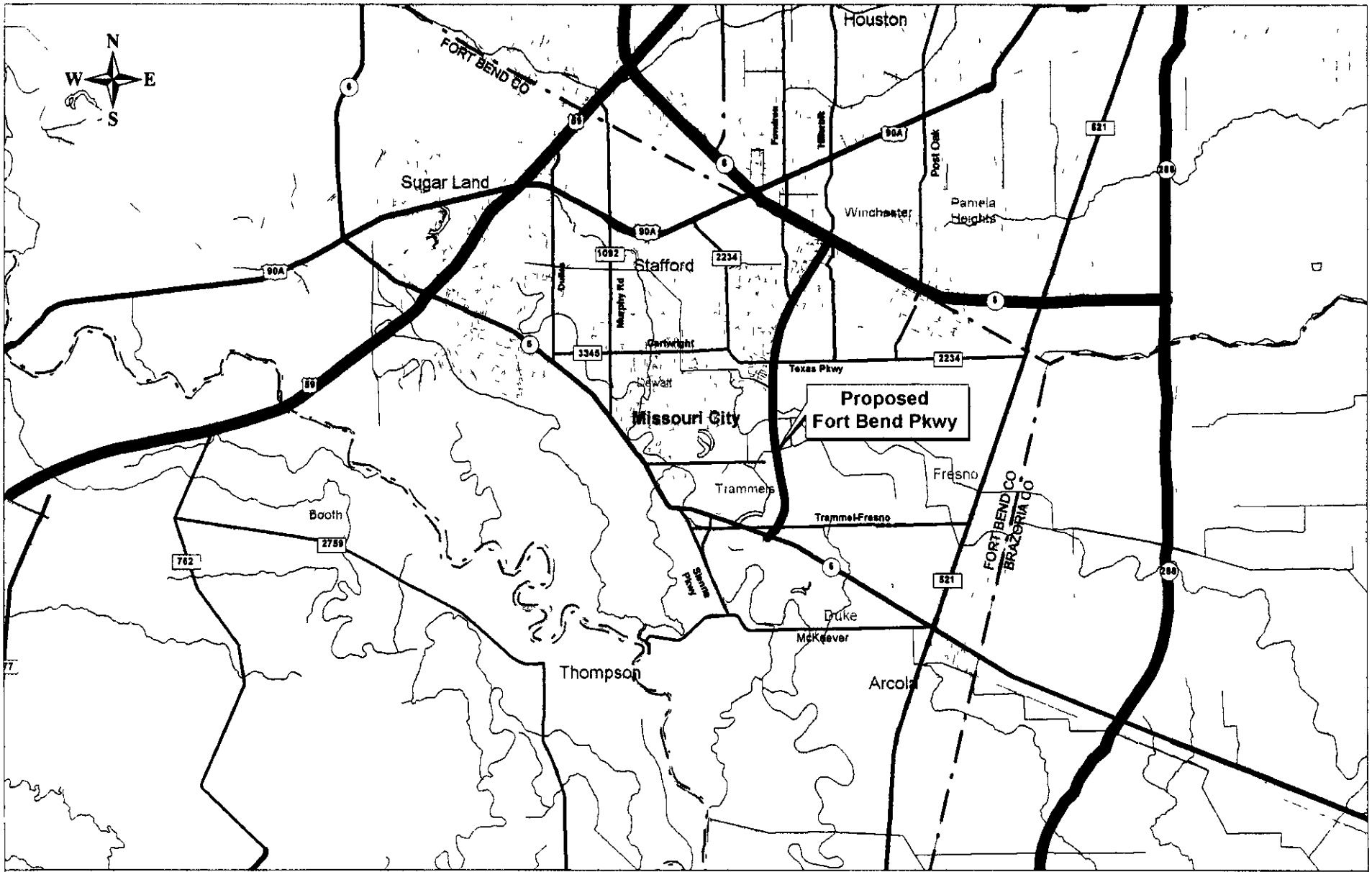
STUDY APPROACH

This study estimated traffic and toll revenue for the proposed Fort Bend Parkway Toll Road between the opening on July 1, 2001, and 2020 To accomplish this, a comprehensive study approach was used which included the assembly of extensive background material, regional transportation models, the latest socioeconomic forecasts and historical traffic trends A travel pattern and characteristic survey was conducted in June 1998 to obtain a "real-world" measure of travel patterns in the region for use in estimating demand

WSA contracted with Professor Barton Smith of the University of Houston to conduct an analysis of corridor growth potential A thorough investigation was conducted of socioeconomic conditions and site-specific developments

WSA obtained the most current travel demand model used by Houston Galveston Area Council (HGAC), and used this as a starting point for analysis of the Parkway The following important modifications were made to the basic model

- The survey data was merged with the synthetic travel pattern data used by HGAC,



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LOCATION MAP

Proposed Fort Bend Parkway

FIGURE ES-1

- Economic growth estimates developed by Dr Smith were used to factor the 1998 travel patterns to opening-year (2001), fifth year (2006) and 2010 levels,
- The travel model was validated to current conditions, and
- Highway improvement assumptions in the vicinity of the project were reviewed to determine which were fully funded, anticipated for funding in the near future, or long-term potential projects

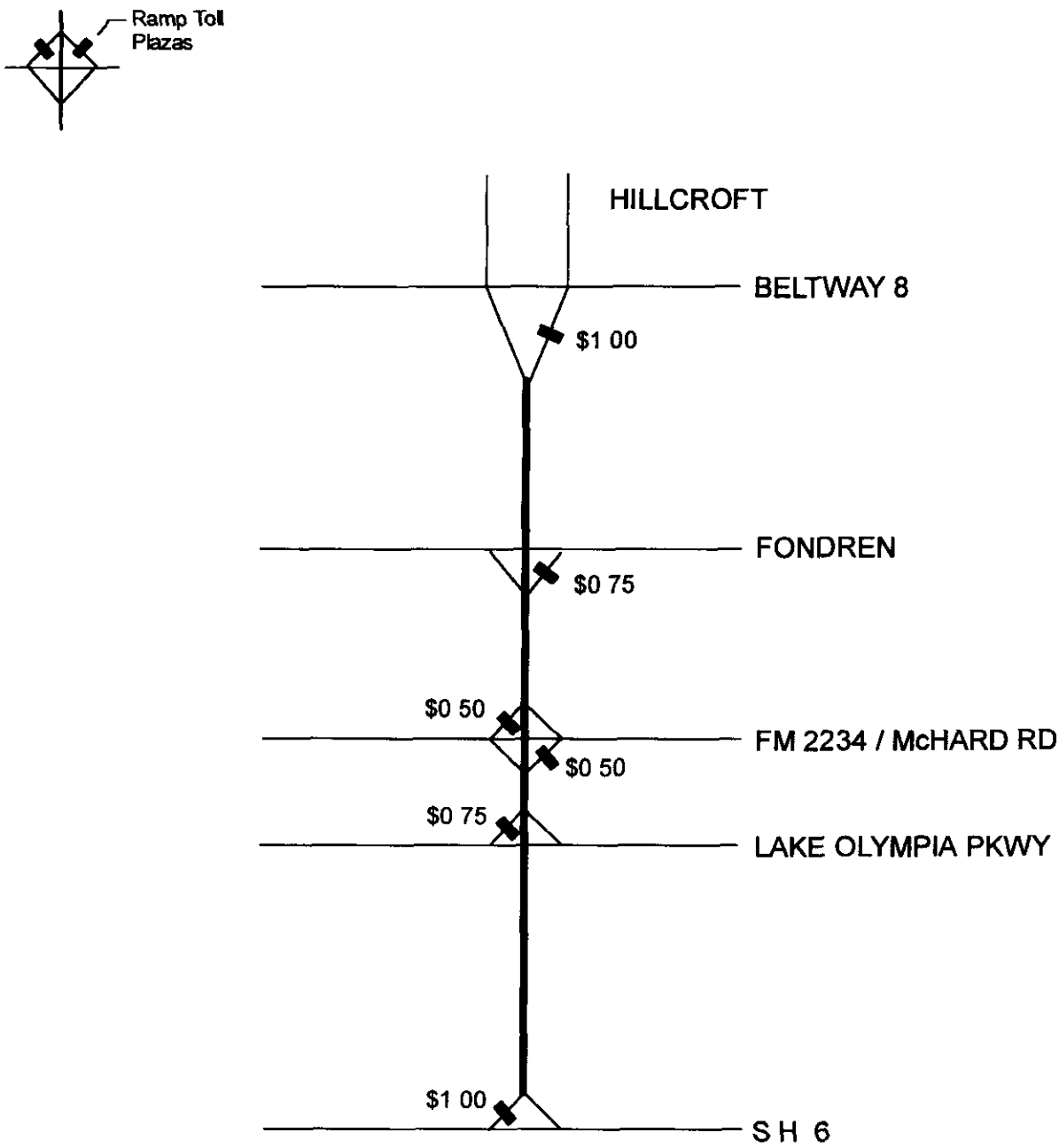
The models were used to test the changes in traffic patterns that would result from the proposed Parkway A toll sensitivity evaluation was done for the early years of the project to determine the most appropriate toll rates to charge

TOLL ROAD ACCESS AND COLLECTION CONCEPT

Access to and from the Parkway would be at a limited number of selected locations with tolls at every exit ramp on the Parkway (see Figure ES-2) Toll charges at each of the plazas would be set to reflect the maximum distance traveled on the Parkway before exiting at that point. The recommended toll charges for passenger cars and commercial vehicles at each of the toll plazas are shown in Table ES-1 The toll charges are based on the recommended $0 16 per mile, rounded to the nearest quarter Hence, the rate charged on the exit ramps at each end of the Parkway would be $1 00, to cover full-length trips

The toll rates for trucks would be higher than for passenger cars A five-axle truck would pay four times the passenger car rate

It is recommended that low volume ramp toll plazas be left unattended for some or all of the day to reduce the cost of collection Although some loss of revenue can be expected, the savings in operating expenses outweigh the revenue loss under certain combinations of toll rate and traffic levels Based on traffic volumes it was recommended that Hillcroft, McHard Road southbound off and S H 6 should be manned for 16 hours a day It is anticipated that the toll revenue collected at these locations would decline by an estimated 7 percent due to evasion during the times at which the plazas are unattended The Lake Olympia Parkway, McHard Road northbound off, and Fondren, should be unattended at all times It is anticipated that evasion at these ramps would result in a 20 percent loss in toll revenue collected A flat toll rate should be charged at the lower volume exit plazas irrespective of the number of axles The flat rate



RECOMMENDED TOLL SCHEDULE

Passenger Car Toll Rate

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FIGURE ES-2

Table ES-1

Recommended Toll Schedule

Plaza Location	Class 1 Two-Axle Vehicles	Class 3 Three-Axle Vehicles and Combinations	Class 4 Four-Axle Vehicles and Combinations	Class 5 Five-Axle Vehicles and Combinations	Class 6 Six-Axle Vehicles and Combinations
Hillcroft NB Off	$1 00	$2 00	$3 00	$4 00	$5 00
Fondren BN Off	0 75	0 75	0 75	0 75	0 75
Mc Hard Rd SB Off	0 50	1 00	1 50	2 00	2 50
Mc Hard Rd NB Off	0 50	0 50	0 50	0 50	0 50
Lake Olympia Pkwy SB Off	0 75	0 75	0 75	0 75	0 75
SH 6 SB Off	1 00	2 00	3 00	4 00	5 00

would eliminate the problems that might arise with incorrect change, while the revenue impact would be minimal

ESTIMATED AVERAGE WEEKDAY TRAFFIC AND TOLL REVENUE

WSA estimated the average weekday traffic at 2001 levels (assuming the opening of the Parkway will be July 1, 2001), 2006 (to represent the fifth year of operation) and 2010

In the opening-year (not taking into account the "ramp-up" effects) the estimated traffic volume at the peak load point, between McHard Road and Fondren, would be approximately 14,000 By 2006, the weekday traffic volume at the peak load point is expected to grow to 18,000 vehicles This represents an increase of 27 0 percent, or an annual rate of growth of 4 8 percent Between 2006 and 2010 traffic is expected to grow by approximately 24 0 – 26 0 percent throughout the four-year period or by 5 5 –6 0 percent per annum, to reach an average weekday traffic volume at the peak load point of approximately 23,000 vehicles

The total annual transactions and revenue for the period between 2001 and 2020 are shown in Table ES-2 The opening-year revenue of $2,735,000 reflects the assumption that the project will open in July 1, 2001 and that the traffic will achieve our full estimated value after a 12-month ramp-up period Annual toll revenue is expected to grow to $5,965,000 in 2010

SENSITIVITY TESTS

In addition to the baseline traffic and toll revenue forecasts presented above, the following three sensitivity tests were performed at 2010 levels to gauge the facility's sensitivity to changing conditions

- ***Accelerated Construction of Competitive Roadway Improvements*** - This test assumes that an additional lane is added in each direction to Almeda Road, between SH 6 and SH 99 just south of Beltway 8 The sensitivity analysis results indicate that the improvement would have a 2 percent impact to traffic on the Parkway and a similar impact on toll revenue The minimal impact is because additional capacity would not be necessary at this point in time as the project has diverted traffic away from Almeda Road

- ***Slower Growth*** - The test looks at the sensitivity of our traffic estimates to an assumption that due to changing economic

conditions, residential construction and population growth would not be as strong as our base assumption The test assumes that only 50 percent of the forecast during the forecast period actually occurs This assumption would result in approximately a 7 percent impact on traffic

Table ES-2
Estimated Annual Toll Transactions and Revenue

Year	Annual Transactions (thousands)	Annual Revenue (thousands)
2001	3,384	$2,735
2002	4,930	3,945
2003	5,433	4,306
2004	5,718	4,488
2005	6,019	4,677
2006	6,335	4,875
2007	6,696	5,164
2008	7,079	5,470
2009	7,483	5,794
2010	7,211	5,965
2011	7,420	6,138
2012	7,628	6,310
2013	7,834	6,481
2014	8,038	6,649
2015	8,238	6,815
2016	8,444	6,986
2017	8,645	7,160
2018	8,872	7,340
2019	9,094	7,523
2020	9,321	7,711

NOTES Project assumed to open on July 1, 2001
Effects of ramp-up are assumed to last 12 months
Estimates assume toll rates and time values at 1998 levels

- ***Lower Values of Time*** - The third test assumed a 25 percent reduction in the value of time A reduction in the value of time should impact the number of vehicles willing to pay the recommended toll rate This test resulted in an 11 percent reduction in traffic and toll revenue

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CHAPTER 1

INTRODUCTION

The proposed Fort Bend Parkway Toll Road project (hereafter referred to as "the Parkway" or "the project" would be a six mile, four-lane, limited-access highway between the Sam Houston Tollway (Beltway 8) and State Highway 6 (SH 6) in northeastern Fort Bend County (see Figure 1) The project would provide a more direct connection between existing neighborhoods south of Beltway 8 between Fondren Road and South Post Oak Road to the Beltway and north into southwestern Houston It would also improve access to the areas south of SH 6, which have been developing rapidly in the last few years and are expected to continue to do so in the future

The major existing north/south connections through this area are currently provided by U S 59, FM 1092, FM 521 and SH 288, the first three of which are currently congested

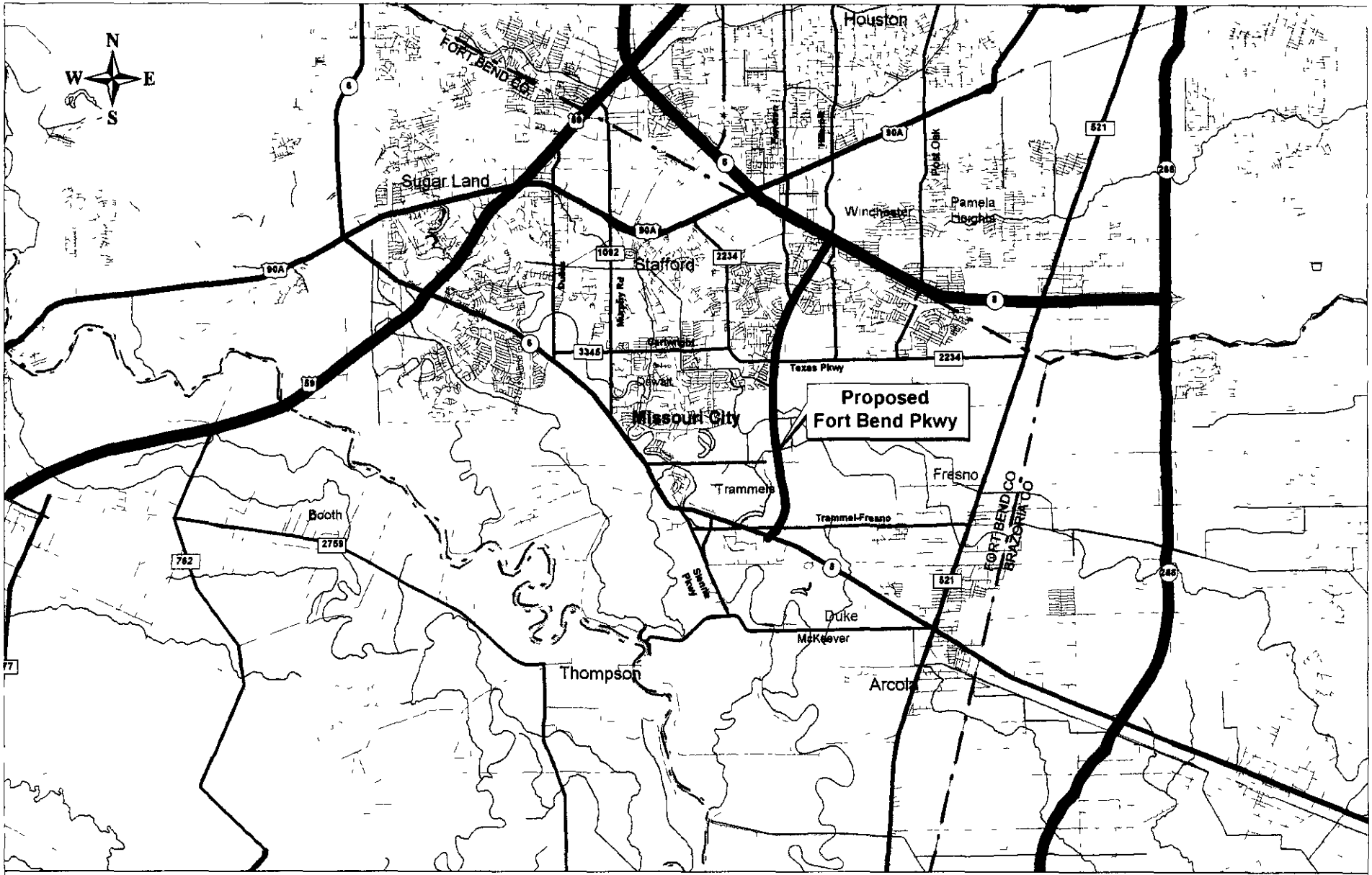
The Parkway was included in the 1996 Fort Bend Mobility Plan However, because it is unlikely that funds will be available for construction in the foreseeable future, alternative funding sources including tolls, are being explored to advance the implementation of the project

PURPOSE OF STUDY

The purpose of this study was to develop traffic and toll revenue estimates for the proposed Toll Road, which would be open to traffic on July 1, 2001 The analysis was to be conducted at a sufficient level of detail to support bond financing

SCOPE AND METHODS

The study was built upon the data and knowledge gained from a preliminary study of the Parkway The scope included collection of extensive "real world" motorist travel pattern and trip characteristic data at survey stations conducted at various locations on key roadways within the



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LOCATION MAP

Proposed Fort Bend Parkway

FIGURE 1

project corridor An optimum toll collection system was developed and tested under various pricing strategies Based on this analysis, an optimum toll rate was identified, and rate schedules created

A summary of the work scope and methods used is provided below

FIELD INVESTIGATIONS

WSA conducted motorist interview travel surveys at 12 locations in the project corridor These surveys provided real-world data on current travel patterns of traffic that might be potential to the Parkway WSA staff also obtained travel time data on existing roadways during both peak and off peak conditions These data provide a basis for evaluating the potential time and/or distance savings that might be provided by the Parkway, which aids in evaluating its attractiveness vis-à-vis toll prices that might be charged The results of these field studies are summarized in Chapter 2

ECONOMIC GROWTH ANALYSIS

Much of the traffic that would use the project is expected to come from future development in the corridor Therefore, estimates of population and employment growth are a critical component of this study

A thorough investigation was conducted of socioeconomic conditions, site-specific developments and existing traffic patterns The services of Professor Barton Smith, of the University of Houston, were used to conduct the investigation of the socioeconomic conditions Professor Smith has extensive experience tracking development in the Houston area He develops macro projections of regional growth each year using the University of Houston's Center for Public Policy econometric model Professor Smith's forecast provided an independent assessment of growth in the Houston metro area, as well as the corridor, which differed from those used by the Houston Galveston Area Council (HGAC) for other transportation planning studies

TRAVEL DEMAND AND TOLL SENSITIVITY ESTIMATES

WSA obtained the most current travel demand model used by HGAC, and used this as a starting point for analysis of the Parkway The following important modifications were made to the basic model provided by HGAC

- WSA's survey data obtained for this project was merged with the synthetic travel pattern data used by HGAC for areawide planning purposes This provides a more refined estimate of travel patterns in the project corridor,

- The independent economic growth estimates developed by Dr Smith were used to factor the 1998 travel patterns to opening-year (2001), fifth year (2006) and 2010 levels These revised travel patterns formed the basis of the demand analysis for the Parkway,

- WSA validated the travel model to current conditions, and developed models to reflect several future horizon years, and

- Highway improvement assumptions were carefully reviewed to determine which of the numerous proposed projects in the project vicinity were fully funded, anticipated for funding in the near future, or long-term potential projects Reasonable assumptions, documented in Chapter 4 were made To deal with some of the uncertainty regarding the timing of some planned improvements, WSA did sensitivity test which reflected a higher level of improvement to highways that might compete with the Toll Road

The models were used to test the change in traffic patterns that would result from the proposed Parkway A toll sensitivity evaluation was done for the early years of the project to determine the most appropriate toll rates to charge Future-year evaluations were done using this selected toll rate WSA paid particular attention to the value that the proposed Toll Road provided to potential customers in terms of travel time and/or distance savings in developing the estimates

More detail on our methods, assumptions and findings are provided in Chapter 4

TRAFFIC AND REVENUE ESTIMATES

The estimated traffic at the indicated toll rates was used to estimate toll revenue that could be expected from the project Some of the considerations in making these estimates included the effects of gradual ramp-up of traffic over the first year of the project, the effects of weekend and holiday traffic on annual transactions, and the effects of unattended toll collection at low-volume ramps on actual revenue realization These estimates are provided in Chapter 4

SENSITIVITY TESTS

The traffic estimates are based on a whole series of assumptions related to future events that are not under the control of the forecaster For this reason, several tests of the sensitivity of the estimates to changes in key assumptions were made These are reported in Chapter 5

PROJECT DESCRIPTION

The Parkway would be a four-lane wide limited access highway of approximately six miles, connecting the Beltway 8 and SH 6 (refer back to Figure 1) At the north end the Parkway would connect into the frontage roads for Beltway 8 A half-diamond interchange would be constructed at Fondren Road and Lake Olympia Parkway, and a full diamond interchange at McHard Road (FM 2234) The exact configuration of the connection between the Parkway and SH 6 has yet to be determined either merge ramps or an intersection are being considered

Frontage roads, typical to Houston area freeways and the Sam Houston Toll Road will not be constructed

The toll road would provide a four-lane divided road designed in accordance with Texas Department of Transportation (TxDOT) and American Association of State Highway and Transportation Officials (AASHTO) design criteria and specifications for freeways Toll collection facilities would be provided at all off ramps thereby eliminating any mainline barrier toll collection facilities A total of six toll stations would be provided

The proposal to widen SH 6 to a six-lane divided roadway, from near Lake Olympia Parkway southeasterly to its point of intersection with the proposed toll road, is important to the viability of the project The construction of a SH 6/Parkway grade separation and partial interchange ramps would facilitate access to the toll road WSA assumed that TxDOT would fund the SH 6 improvements, which are currently programmed for construction, on a timely basis

The project would facilitate more direct access between existing neighborhoods south of Beltway 8 between Fondren Road and South Post Oak Road to the Beltway and southwestern side of Houston The project would also improve access to newly developing areas in and around SH 6 in Fort Bend County

CHAPTER 2

TRAVEL PATTERNS AND CHARACTERISTICS

WSA collected extensive data on existing traffic flows in the project corridor This data included the present traffic volumes, vehicle compositions, and travel patterns in the project corridor, as well as extensive route reconnaissance, and a review of all available traffic statistics on highways within the study area

WSA compiled all available traffic trend data from the cities of Missouri City and Sugar Land, HGAC and TxDOT All available information on programmed highway improvements scheduled in the study corridor in accordance with the latest HGAC Transportation Improvement Program (TIP) and the Fort Bend County Mobility Plan Update were reviewed and incorporated into the analysis

EXISTING HIGHWAY SYSTEM

The proposed Parkway would facilitate traffic movement in a north–south direction between the Beltway 8 and the high growth residential sections of Fort Bend County in the vicinity of SH 6

The Parkway would provide a new limited access link in an area currently served by the following facilities

- SH 288, a six-lane freeway in the vicinity of Fort Bend County that extends from U S 59 near downtown Houston south to the Gulf of Mexico at Freeport Peak period congestion is often evident from McHard Road to the north into Houston.

- Almeda Road/(FM 521), which is generally a two-lane rural highway that parallels the Union Pacific railroad tracks through the study area It extends from downtown Houston, south into Brazoria County

- FM 1092 (Murphy Road) is a two-to-four lane arterial paralleling the project from U S 59 to SH 6 Travel times vary over the roadway due to peak hour congestion

- SH 6, which is a partial circumferential route around Houston In the study area, SH 6 connects Sugar Land, Missouri City and Alcola Fresno as a two-to-six lane highway Some congestion is often observed on this route in the study area especially near U S 59

- U S. 59, a freeway that provides a southwest to northeast path through the Houston metropolitan area This is a heavily congested freeway for much of the day from the Sugar Land area into downtown Houston

- Beltway 8, is a newly opened toll highway that provides circumferential connections around Houston It would be at the northern terminus of the Parkway project In addition to toll lanes, it has free frontage roads on each side

- FM 2234 (McHard Road, Texas Parkway and Gessner Road), is a group of arterial roadways that provides circulation through the northern portion of the study area

- U S 90A, is an at-grade highway that extends east-west through Fort Bend County, generally paralleling U S 59

- Fondren Road, South Post Oak Road, and Hillcroft Road, are all north-south arterial roadways that provide access from the northern portion of the study area into Houston Hillcroft Road connects to Beltway 8 at the northern terminus of the proposed Parkway

PRESENT TRAFFIC VOLUMES

WSA assembled traffic data for roadways in and around the project study corridor, as measured by data obtained from HGAC, Missouri City, Sugar Land and the Harris County Toll Road Authority TxDOT does not maintain any permanent count station locations in the vicinity of the Parkway corridor The information reviewed included monthly traffic variations obtained from the Beltway 8 which is the best source of available data on monthly variations in traffic in this area of Houston The Beltway 8 information was used in conjunction with manual traffic counts taken during the field survey effort, which is described in greater detail later in this chapter

These data were supplemented with data obtained from automatic traffic recorder counts conducted at WSA's 12 motorist interview survey locations for a minimum of 48 continuous hours and at selected sites for a continuous seven-day period These counts provided daily traffic variation data used in factoring the survey data The WSA manual classification counts were used to determine the overall composition of traffic that is currently traveling within the Parkway corridor

MONTHLY TRAFFIC VARIATIONS

Monthly traffic variations obtained from the southwest portion of Beltway 8 are illustrated in Table 1 Data was obtained for the fiscal year 1996-1997 which was prior to the opening of the new section of Beltway 8. This data was used to determine the seasonal traffic variations in this part of the Houston Metro area

Table 1

Monthly Traffic Variation Index
Sam Houston Tollway South (1996-1997)

Month	Mainline	Deerwood	Westheimer	Bellaire	Total
January	98	102	99	105	99
February	99	101	100	109	100
March	104	92	101	95	102
April	103	94	100	98	101
May	98	89	94	93	96
June	99	99	101	97	99
July	98	100	101	96	99
August	102	106	103	100	102
September	96	102	99	100	97
October	100	106	101	103	101
November	97	102	97	96	97
December	106	107	104	108	106
Average Month	100	100	100	100	100

Note An index of 100 represents an average month
Source Harris County Toll Road Authority

The monthly variations exhibited at each of the ramps and the mainline plaza locations indicates relatively little seasonality, which is indicative of a high percentage of commuter traffic throughout the study area The peak travel month is generally December, when the traffic levels are approximately 6 percent higher than the average month The monthly traffic variations are somewhat different at the plazas that have lower volumes of traffic such as, Deerwood and Bellaire, compared with high volume plazas such as the Mainline and Westheimer.

DAILY TRAFFIC VARIATIONS

Daily traffic variations were calculated for three locations throughout the Parkway project study area corridor using the data recorded by 24-hour automatic traffic counters operated in conjunction with the WSA field survey These traffic variations are shown in Table 2

Table 2

Daily Traffic Variations

Day	SH 6, East Of Austin Parkway	FM 2234 (Texas Parkway) North Of Adams Avenue	FM 2234 (McHard Rd) West Of FM 521
Monday	104	103	105
Tuesday	100	100	104
Wednesday	102	98	98
Thursday	109	106	101
Friday	112	111	114
Saturday	97	104	99
Sunday	76	78	81
Average Day	100	100	100

Note An index of 100 represents an average day

These highway locations exhibit characteristics indicative of heavy commuter use, with average weekday traffic levels significantly higher than the average weekend day traffic The greatest daily variation in traffic was observed on SH 6, where Friday was the peak day with traffic 12 percent higher than the average day, while on Sunday the traffic was 24 percent below the average daily traffic levels The variation in traffic observed at the other two locations is similar, though not as great, as the location on SH 6

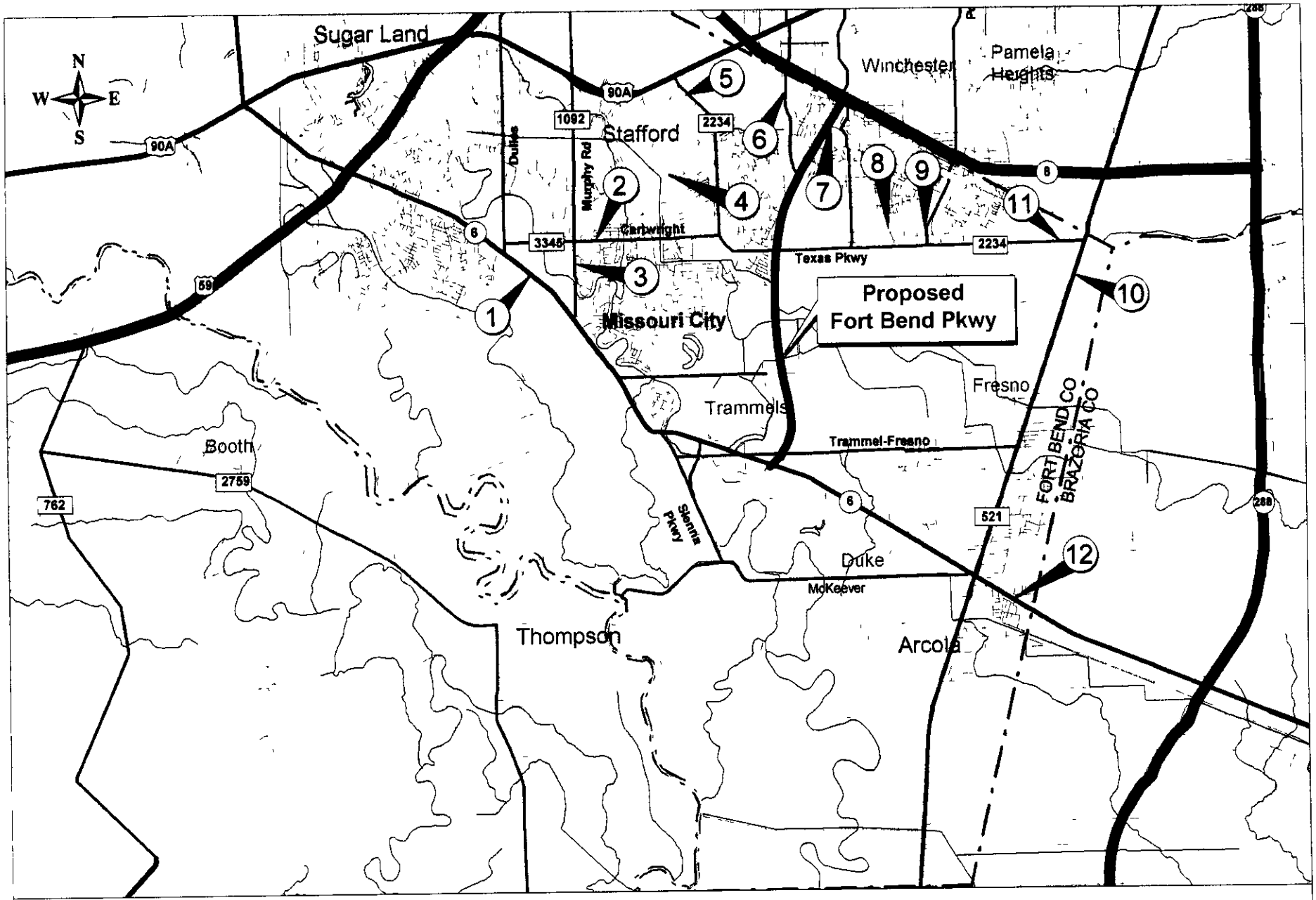
TRAVEL PATTERN AND TRIP CHARACTERISTIC SURVEY

In order to obtain the most accurate and up-to-date information on travel patterns and trip characteristics of motorists in the study corridor, WSA conducted a motorist travel pattern and trip characteristics survey in June 1998 The objective of this survey effort was to obtain a "real world" measure of travel patterns and trip characteristics of motorists who would be potential users of the new facility

SURVEY PROCESS OVERVIEW

Motorists passing through the survey stations were handed a pre-addressed, postage-paid, survey card, which they were asked to complete and mail back at their earliest convenience This type of mailback survey is employed at locations of relatively high traffic volume in order to minimize the impacts on traffic flow, and to ensure overall safety during the survey operations

Survey locations were selected to best evaluate trips that could potentially divert to the new facility Twelve stations were operated during the weeklong survey period The locations of these survey stations are also depicted graphically in Figure 2 The survey stations were positioned so as to create a screenline across the study area The traffic screenline attempts to capture and provide the basis of an effective analysis of travel patterns on all routes serving traffic that could potentially divert onto the proposed facility A description of the survey locations, the direction of travel surveyed, as well as the number of surveys distributed and returned are presented in Table 3 A total of 46,811 survey forms were distributed, of which 7,786 usable cards were returned and coded This represents a 16 6 percent sampling of the distributed surveys



SURVEY STATION LOCATIONS

Proposed Fort Bend Parkway Toll Road

WILBUR SMITH ASSOCIATES

FIGURE 2

Table 3
Summary of Survey Station Operations

Station Number	Survey Location	Date of Survey	Survey Direction	Passing Traffic	Survey Distributed	Survey Returned	Percent Returned	Percent of Passing Traffic
1	SH 6, east of Austin Parkway	6/2/98	E B	10,424	8,546	1,823	21 3	17 5
2	Cartwright Rd, east of FM 1092	6/2/98	E B	7,835	5,566	1,145	20 6	14 6
3	FM 1092 (Murphy Road) south of Cartwright Rd	6/2/98	S B	7,997	6,657	1,475	22 2	18 4
4	Staffordshire, south of 5th	6/3/98	S B	1,183	1,152	219	19 0	18 5
5	FM 2234 (Texas Parkway) north of Adams Ave	6/3/98	S B	9,160	7,899	1,069	13 5	11 7
6	Fondren Road, north of Chasewood	6/3/98	S B	4,678	3,724	442	11 9	9 4
7	Hillcroft Ave, north of Chasewood	6/5/98	S B	3,074	2,295	243	10 6	7 9
8	Chimney Rock, north of McHard Rd	6/5/98	S B	589	407	48	11 8	8 1
9	Post Oak Bvd, north of McHard Rd	6/5/98	S B	2,399	1,733	128	7 4	5 3
10	FM 521 (Almeda Rd), south of McHard Rd	6/4/98	S B	4,502	2,686	359	13 4	8 0
11	FM 2234 (McHard Rd), west of FM 521	6/4/98	W B	4,250	2,791	385	13 8	9 1
12	SH 6, east of FM 521	6/4/98	W B	3,653	3,355	450	13 4	12 3
	Total			59,744	46,811	7,786	16 6	13 0

The data obtained from the survey questionnaire was coded to a geographic zone system of 2,677 Traffic Analysis Zones (TAZ's), and entered into computer files for processing and analysis The survey returns were geo-coded using commercially available software and then allocated to the zone system used by HGAC, which is the Metropolitan Planning Organization for Houston metro area.

Hourly machine traffic counts were conducted for a continuous 48-hour period in both directions at some of the survey locations and for seven days at others, during the survey period Vehicle classification counts were manually conducted at all survey stations in both directions of travel during the survey period These data were used to factor the interviews to average weekday traffic levels

SURVEY METHODS

At all of the survey locations, motorists were intercepted and handed questionnaire forms during the hours between 7 a m to 7 p m Traffic at each location was surveyed in one direction only The rationale for collecting a sample in one direction is that the resulting origin/destination matrix for one direction could be transposed to obtain the reverse direction travel This is a standard technique, as many motorists make return trips over the same streets

SURVEY FORMS

A sample of the survey form used for the roadside interviews is depicted in Figure 3 The questions asked on the survey form were

- Origin and destination of the trip,
- Time of the trip,
- Trip purpose,
- Trip frequency,
- Vehicle occupancy,
- State of registration of the vehicle, and
- Participation in the EZ Tag program

DATA ENTRY AND SURVEY CODING

The completed surveys returned to WSA were processed on a daily basis for coding and data entry Questionnaires were coded as they were received WSA coding supervisors performed random inspections of the work performed by all data entry/coding staff through the duration of the study, to ensure the quality of the data entry and coding was at an acceptable level These inspections involved checking the data against the actual survey form Supervisors were also given the responsibility to

FORT BEND COUNTY TOLL ROAD AUTHORITY

STA | DAY | DIR | HR

DEAR MOTORIST

This survey is undertaken to obtain important information about present travel patterns and characteristics in the Houston metropolitan area You are asked to complete and mail this postage-paid questionnaire Your cooperation will help the Fort Bend County Toll Road Authority and Fort Bend County serve you better Please help make this mailback survey successful by returning this completed form promptly

DO NOT WRITE IN THIS AREA

1 Please identify the type of vehicle you were driving (circle one)

1 Passenger car, pick-up or van
2 Passenger car - plus one-axle trailer
3 Passenger car - plus two-axle trailer
4 Two-axle six-tire truck or bus
5 Three-axle truck or bus
6 Four-axle truck or bus
7 Five-axle truck or bus
8 Six-or-more axle truck or bus

2 Where did you begin this particular trip (in this direction)? Include street address nearest intersection, or other explanation, e g , airport, shopping malls etc Please be as specific as possible

Street Address or Nearest Intersection

City, Town | County (if known) | State | Zip Code (if known)

3 Where will this particular trip (in this direction) end? Include street address, nearest intersection or other explanation, e g , airport, shopping malls, etc (Should not be the same as answer to Question 1)

Street Address or Nearest Intersection

City Town | County (if known) | State | Zip Code (if known)

4 What was the purpose of this trip when given this card? (circle one)

1 Journey to or from work
2 Company Business
3 Personal Business
4 School
5 Shopping
6 Social
7 Recreational

5 On the average, how many times per week do you make this trip (in this direction) for the above purpose? (circle one)

Less than 1 1 2 3 4 5 More than 5

6 On this trip how many people including the driver, were in your vehicle? (circle one)

1 2 3 4 5 6 or More

7 Please indicate State of vehicle registration

8 Are you presently a participant in the EZ Tag program? (circle one) Yes No

Please fill out this card even if you have received more than one card Please mail this card as soon as possible We sincerely appreciate your cooperation Thank you

MAY 1998

SAMPLE SURVEY FORM

review and change, if appropriate, any of the records entered by the data/coding staff and to resolve trip records that were difficult to code

Once the data was entered into a database the address information was used to identify the latitudes and longitudes of the origins and destinations Commercially available software was used for this process, which is referred to as geo-coding Following the process of geo-coding the origins and destinations were then allocated to zones using a geographical information system (GIS) coverage supplied by HGAC

Several validity checks were undertaken to ensure the coded trip movement was consistent with the direction and location of the observation This included a test to ensure that it was logical for the trip to pass through the survey location, given the trip coded The data was also checked to ensure that the trip being made was conducted in the proper direction, to correspond with the direction in which the vehicle was observed Any trips that were determined to be invalid based on the previous criteria were omitted from the data set

Expansion Of The Survey Data

The survey data was expanded to represent travel for an average week day The two-way traffic counts undertaken at each survey station were used as control counts for the expansion process Seasonal adjustment factors were applied to the control count totals in order to produce a trip table that represents an average week day The expansion was performed for each time period and vehicle type The survey sampled vehicles traveling in a single direction at each survey station In order to obtain travel patterns for vehicles traveling in the non-surveyed direction, it was assumed that a trip made in the a m peak period would make the reverse trip between the same origin and destination pairs in the p m peak period Similarly, it was assumed that vehicles observed in the p m peak period made the reverse trip in the a m peak period For the off-peak periods, it was assumed that the travel patterns in the non-surveyed directions were identical to the surveyed direction

TRIP CHARACTERISTICS

The following presents travel pattern and trip characteristic data from the survey questionnaires

Vehicle Classification Counts

Vehicle classification counts taken at the survey sites are presented in Table 4 The data was expanded to represent a weekday, 24-hour

Table 4
Vehicle Classification Counts

Station Number	Survey Location	Vehicle Class: Passenger Cars (1)	Light Commercial Vehicles (2)	Heavy Commercial Vehicles (3)	Total
1	SH 6, east of Austin Parkway	28,276	965	322	29,563
2	Cartwright Rd, east of FM 1092	22,963	702	117	23,782
3	FM 1092 (Murphy Road) south of Cartwright Rd	21,174	495	99	21,768
4	Staffordshire, south of 5th	3,553	39	0	3,592
5	FM 2234 (Texas Parkway) north of Adams Ave	21,675	457	76	22,208
6	Fondren Road, north of Chasewood	14,807	315	0	15,122
7	Hillcroft Ave, north of Chasewood	10,897	0	0	10,897
8	Chimney Rock, north of McHard Rd	1,691	47	0	1,738
9	Post Oak Blvd, north of McHard Rd	6,112	33	36	6,181
10	FM 521 (Almeda Rd), south of McHard Rd	10,784	1,616	404	12,804
11	FM 2234 (McHard Rd), west of FM 521	11,764	625	312	12,701
12	SH 6, east of FM 521	7,591	900	246	8,737
	Total Vehicles (All Stations)	161,287	6,194	1,612	169,093
	Percent of Total Vehicles	95 4%	3 7%	0 9%	100 0%

(1) Includes passenger cars pulling trailers, and passenger vans
(2) Includes recreational vehicles, as well as 2-, 3-, and 4-axle commercial vehicles
(3) Includes 5- and 6-axle commercial vehicles

count sample size Passenger cares comprised by far the largest vehicle class recorded at each survey station, accounting for just over 95 percent of all passing vehicles Light commercial vehicles comprised approximately 4 percent of the passing traffic and heavy commercial vehicles approximately 1 percent

TRIP PURPOSE DISTRIBUTION

Motorists passing through each of the survey stations were asked to identify the primary purpose of the trip they were making at the time they were given the survey card Figure 4 summarizes the results provided in more detail in Table 5

Journeys to or from work comprised the leading trip purpose among all of the survey stations, representing 46 percent of all the responses obtained However, there was considerable variation between stations The lowest journey-to-work trip purpose, of 33 percent, was recorded at Station 1, SH 6 east of Austin Parkway, and the highest, of 61 percent, at Station 7, Hillcroft Avenue, north of McHard The second highest recorded trip purpose was personal business, which accounted for approximately 20 percent of the total responses obtained Company business accounted for approximately 12 percent of the total trip purposes Trips to and from school were the least cited trip purpose, only accounting for approximately 3 percent of the coded responses

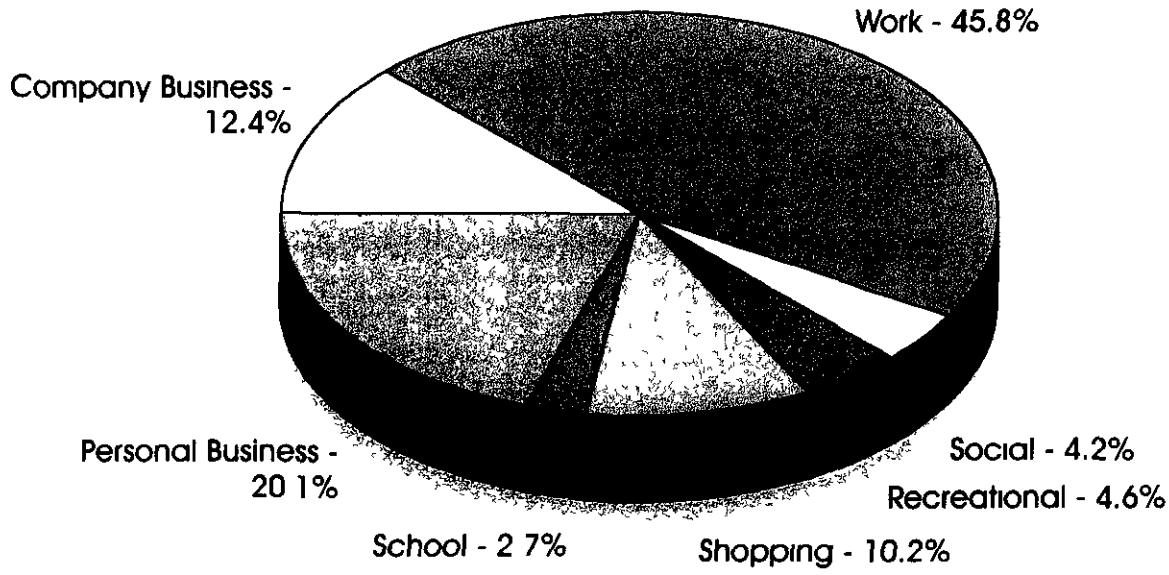
Work-related trips in the corridor (trips to or from work and company business) accounted for approximately 58 percent of the coded responses

TRIP FREQUENCY DISTRIBUTION

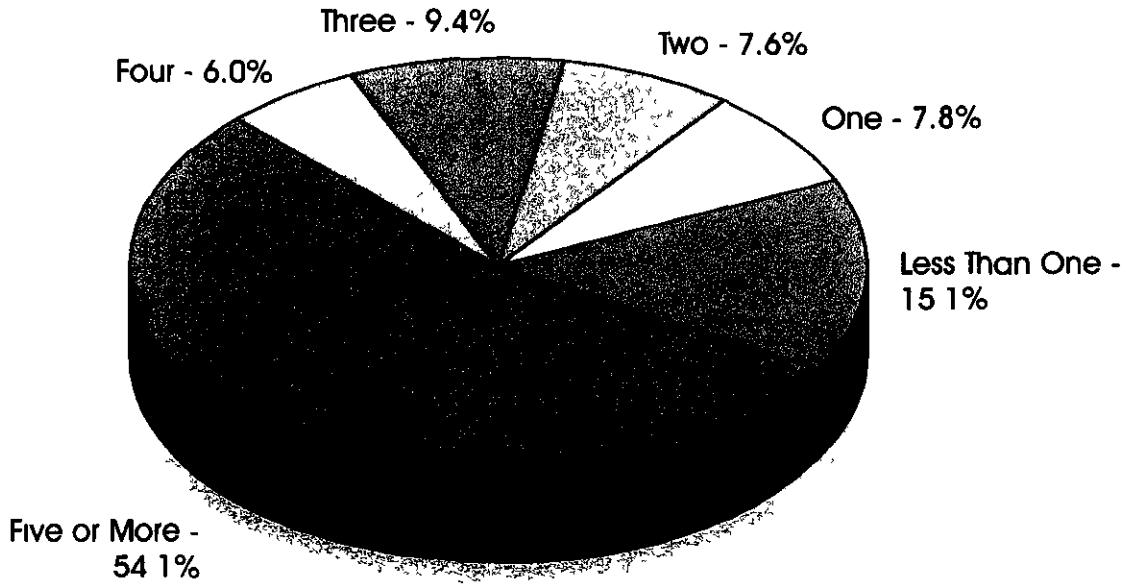
Motorists were asked to specify the number of times per week that they made that particular trip The results are shown in Figure 4 with more details in Table 6 The highest number of respondents (approximately 54 percent) indicated that they made the trip five or more times a week These numbers are consistent with the response to the trip purpose question, and indicate that the highway network in the project study area is heavily used for commuter and work-related trips

VEHICLE OCCUPANCY DISTRIBUTION

The vehicle occupancy distribution for the survey period is presented in Figure 5 with details by survey station in Table 7 The overwhelming majority of respondents (approximately 72 percent) indicated that they were traveling alone A further 17 percent of respondents indicated that they were traveling in a vehicle with one other person The overall average vehicle occupancy of the surveyed motorists through the study corridor was 1 46 occupants



Trip Purpose Distribution



Trip Frequency Distribution

WILBUR SMITH ASSOCIATES

FIGURE 4

Table 5
Trip Purpose by Survey Station
(percent)

Station	Survey Location	To/From Work	Company Business	Personal Business	School	Shopping	Social	Recreational	Total
1	SH 6 east of Austin Parkway	32 6	14 9	21 0	2 9	20 0	3 4	5 2	100 0
2	Cartwright Rd, east of I M 1092	39 1	10 3	23 1	3 0	15 8	3 6	5 1	100 0
3	I M 1092 (Murphy Road) south of Cartwright Rd	40 4	10 3	23 0	2 0	16 7	3 3	4 3	100 0
4	Staffordshire, south of 5th	40 4	8 5	37 8	0 9	4 8	7 0	0 6	100 0
5	FM 2234 (Texas Parkway) north of Adams Ave	53 6	12 9	19 4	4 2	3 6	3 3	3 0	100 0
6	Fondren Road, north of Chasewood	57 6	7 4	17 0	0 5	3 7	5 1	8 7	100 0
7	Hillcroft Ave, north of Chasewood	61 1	6 0	16 3	3 7	1 0	7 4	4 5	100 0
8	Chimney Rock, north of McHard Rd	44 3	6 8	32 9	---	6 0	8 0	2 0	100 0
9	Post Oak Bvd, north of McHard Rd	42 6	10 0	27 9	2 5	8 9	3 5	4 6	100 0
10	FM 521 (Almeda Rd), south of McHard Rd	57 8	20 0	12 7	2 5	1 4	2 7	2 9	100 0
11	FM 2234 (McHard Rd), west of FM 521	57 3	13 9	12 5	4 1	4 5	5 1	2 6	100 0
12	SH 6, east of FM 521	36 4	20 6	20 6	0 8	9 0	6 6	6 0	100 0
	Total	45 8	12 4	20 1	2 7	10 2	4 2	4 6	100 0

Table 6
Trip Frequency by Survey Station
(Number of Trips per Week)
(percent)

Station Number	Survey Location	Less Than 1	1	2	3	4	5 or more	Total
1	SH 6, east of Austin Parkway	20 0	9 6	9 7	10 9	6 0	43 8	100 0
2	Cartwright Rd, east of FM 1092	12 4	8 9	9 7	9 7	7 8	51 5	100 0
3	FM 1092 (Murphy Road) south of Cartwright Rd	15 2	9 0	9 2	11 0	5 5	50 1	100 0
4	Staffordshire south of 5th	19 1	6 1	6 4	9 1	3 1	56 2	100 0
5	FM 2234 (Texas Parkway) north of Adams Ave	16 3	5 8	6 1	7 9	4 8	59 1	100 0
6	Fondren Road north of Chasewood	9 5	7 6	6 1	8 1	5 8	62 9	100 0
7	Hillcroft Ave, north of Chasewood	8 3	4 6	4 4	9 3	7 2	66 2	100 0
8	Chimney Rock, north of McHard Rd	8 2	11 9	13 1	6 2	4 1	56 5	100 0
9	Post Oak Bvd, north of McHard Rd	12 2	7 4	6 3	10 6	7 6	55 9	100 0
10	FM 521 (Almeda Rd), south of McHard Rd	8 4	4 7	6 8	8 8	6 8	64 5	100 0
11	FM 2234 (McHard Rd), west of FM 521	15 6	7 1	5 1	7 3	6 0	58 9	100 0
12	SH 6, east of FM 521	30 8	11 4	5 8	9 5	4 1	38 4	100 0
	Total	15 1	7 8	7 6	9 4	6 0	54 1	100 0

Table 7
Vehicle Occupancy by Survey Station
(percent)

Station	Survey Location	1	2	3	4	5 or more	Total
1	SH 6, east of Austin Parkway	65 3	19 4	8 8	4 5	2 0	100 0
2	Cartwright Rd, east of FM 1092	71 8	18 6	6 2	2 8	0 6	100 0
3	FM 1092 (Murphy Road) south of Cartwright Rd	67 5	20 5	6 8	3 5	1 7	100 0
4	Staffordshire, south of 5th	72 9	14 0	7 7	4 2	1 2	100 0
5	FM 2234 (Texas Parkway) north of Adams Ave	77 0	15 8	5 4	0 5	1 3	100 0
6	Fondren Road, north of Chasewood	76 0	14 0	5 3	3 0	1 7	100 0
7	Hillcroft Ave, north of Chasewood	73 8	16 1	7 7	1 8	0 6	100 0
8	Chimney Rock, north of McHard Rd	56 2	23 7	14 7	2 7	2 7	100 0
9	Post Oak Bvd, north of McHard Rd	66 9	18 0	8 7	3 8	2 6	100 0
10	FM 521 (Almeda Rd), south of McHard Rd	73 6	14 4	6 5	3 0	2 5	100 0
11	FM 2234 (McHard Rd), west of FM 521	77 9	14 8	4 0	1 8	1 5	100 0
12	SH 6, east of FM 521	70 2	17 9	5 7	2 6	3 6	100 0
	Total	71 6	17 3	6 7	2 8	1 6	100 0

EZ TAG PROGRAM PARTICIPATION

Motorists were also asked whether or not they were participants in the Harris County Toll Road Authority "EZ Tag" Program As shown in Figure 5 and Table 8, approximately 22 percent of the survey respondents were participants

TRAVEL PATTERN SUMMARY

Perhaps the most important element of the motorist travel pattern and trip characteristics survey was to determine the origin and destination of the motorists in the project corridor

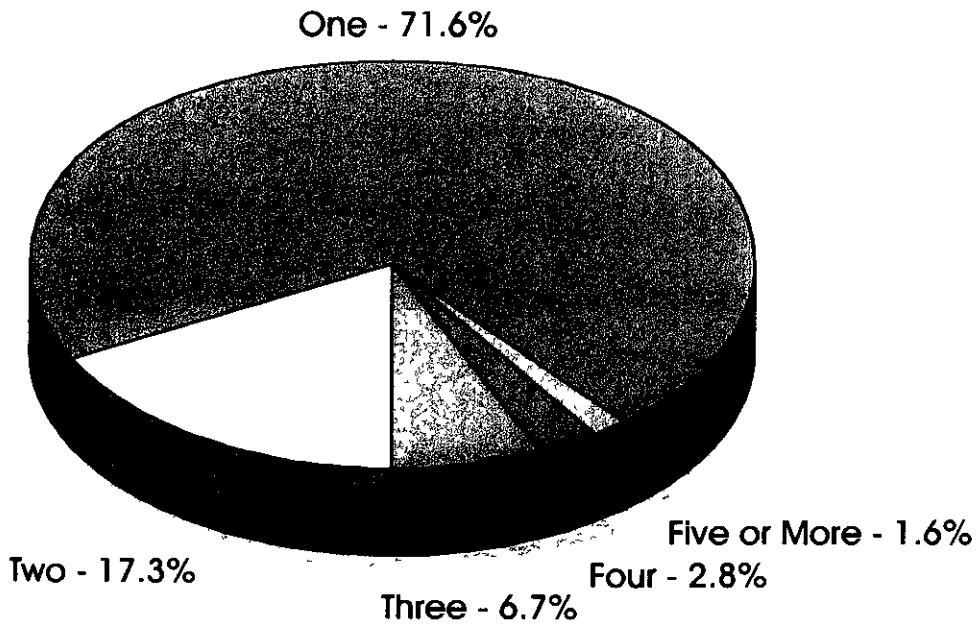
The origins and destinations of motorists in the project corridor were analyzed using a GIS overlay and the latitudes and longitudes of trips on the road network

The origins and destinations of all trip information gathered from the surveys are shown in Figure 6 The majority of trips are fairly local, concentrated within an area bounded by U S 59 on the west and SR 288 on the east, SH 6 to the south and I-10 to the north

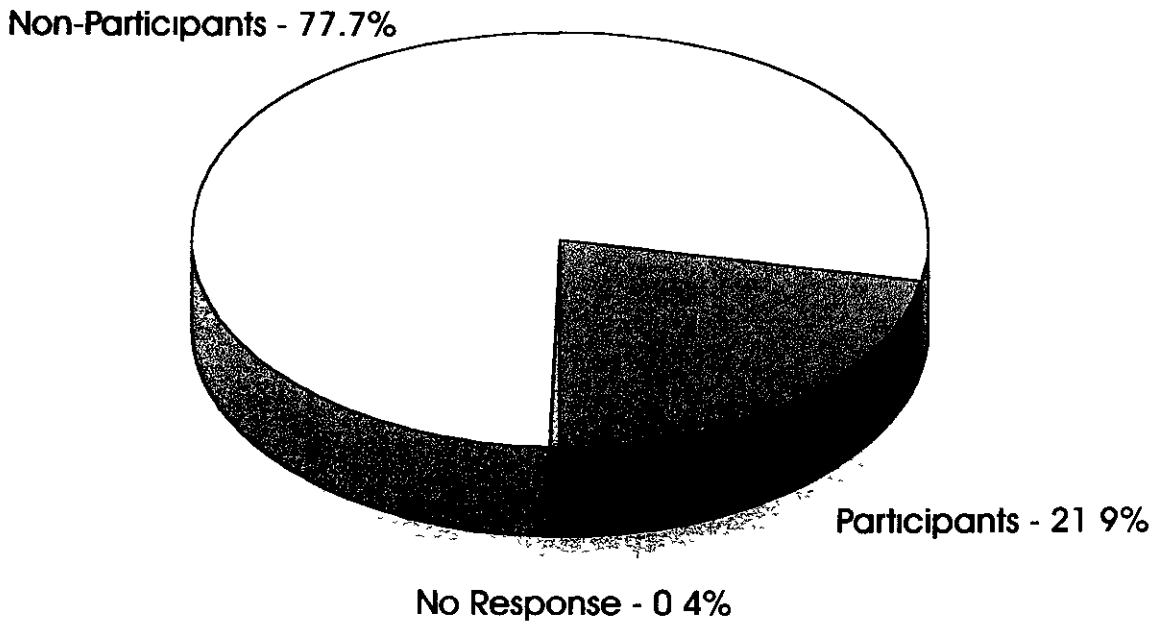
When reviewing the origin-destination summary, it is important to understand that this shows a composite of all trips passing through the 12 survey stations Although the survey stations were selected to capture most traffic that would be potential to the proposed Fort Bend Parkway Toll Road, many of the trips passing though these stations would not be potential users of the road WSA has integrated its data into its travel demand models where a more detailed analysis of propensity to use the toll road has been conducted

Using the model, we estimated the origins and destinations of trips that would be expected to use the Parkway under toll-free conditions if the road were in place today The analysis showed that 40 percent of the traffic would originate from the area bounded by SH 6 to the south and McHard/Cartwright Road to the north Almeda (FM 521) on the east, and Murphy Road (FM 1092) on the west Within this area the single most important source (approximately 25 percent) of traffic expected to use the Parkway would come from Quail Valley (see Table 9)

A further 24 percent of the traffic using the project, under toll free conditions, originated in the part of Missouri City that lies just north of Cartwright



Vehicle Occupancy Distribution



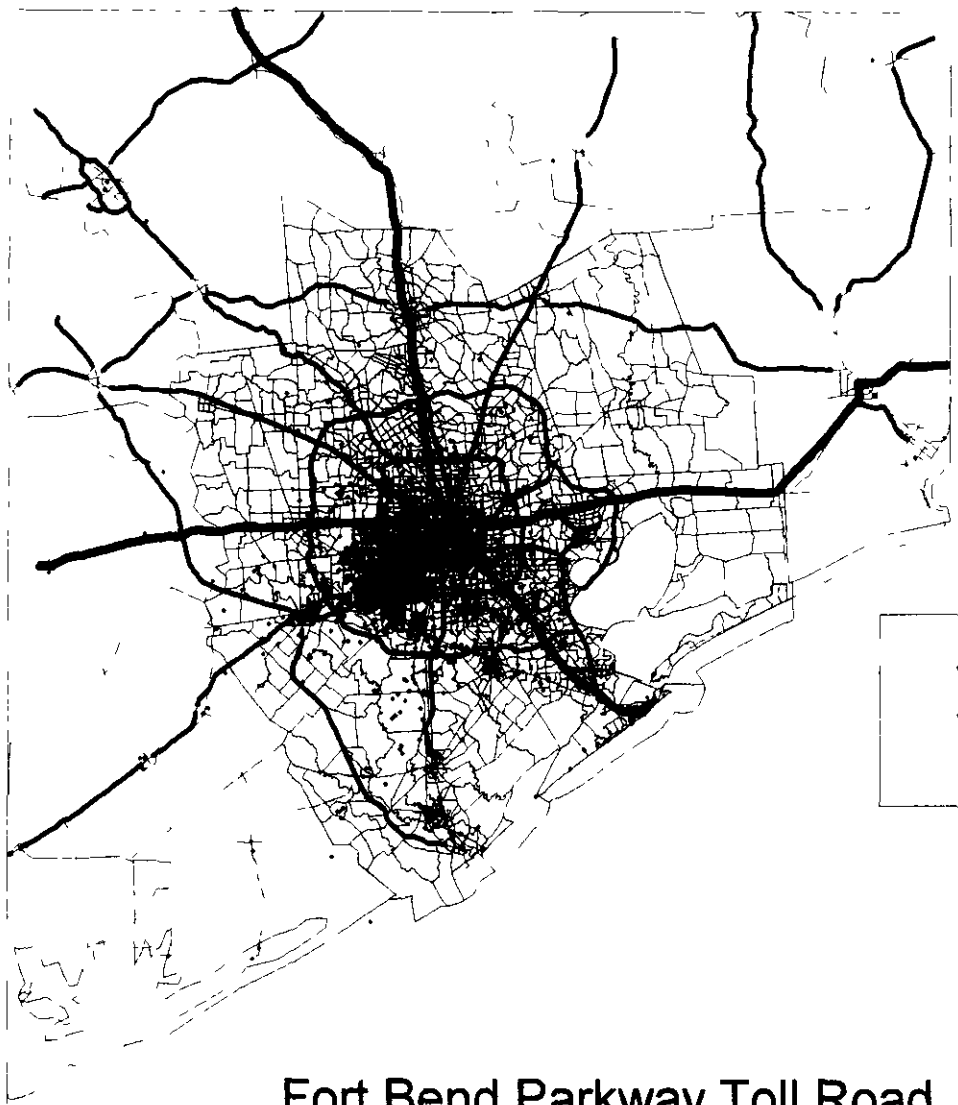
EZ Tag Program Distribution

WILBUR SMITH ASSOCIATES

FIGURE 5

Table 8
EZ Tag Program Participation by Survey Station
(percent)

Station	Survey Location	Participants	Non-Participants	No Response	Total
1	SH 6, east of Austin Parkway	27 1	72 7	0 2	100 0
2	Cartwright Rd, east of FM 1092	24 7	75 1	0 2	100 0
3	FM 1092 (Murphy Road) south of Cartwright Rd	28 2	71 3	0 5	100 0
4	Staffordshire, south of 5th	11 7	87 1	1 2	100 0
5	FM 2234 (Texas Parkway) north of Adams Ave	19 9	79 9	0 2	100 0
6	Fondren Road, north of Chasewood	18 2	81 2	0 6	100 0
7	Hillcroft Ave, north of Chasewood	9 1	90 9	---	100 0
8	Chimney Rock, north of McHard Rd	6 3	93 7	---	100 0
9	Post Oak Bvd, north of McHard Rd	19 2	79 5	1 3	100 0
10	FM 521 (Almeda Rd), south of McHard Rd	24 1	75 4	0 5	100 0
11	FM 2234 (McHard Rd), west of FM 521	20 7	79 3	---	100 0
12	SH 6, east of FM 521	17 1	82 6	0 3	100 0
	Total	21 9	77 7	0 4	100 0



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Smith
Associates

- Origin
- Destination
  Station Location

Fort Bend Parkway Toll Road

Total Trips
All Survey Locations

WILBUR SMITH ASSOCIATES

FIGURE 6

Table 9
Distribution of Destinations from Top Four Origins
Fort Bend Parkway Toll Road - Toll Free

Origin Area	Percent of Parkway Trips (Toll-Free)	Top 5 Destinations (Geographic Analysis Areas)	Percentage of Parkway Trips From Origin
Quail Valley	25%		
		Inner Loop	51%
		Primary Service Area	18%
		West Harris County	13%
		South Harris County	10%
		East Harris County	4%
		Percent of Total	**96%**
Missouri City North of Cartwright	24%		
		Primary Service Area	47%
		Inner Loop	25%
		West Harris County	11%
		South Harris County	6%
		North Harris County	2%
		Percent of Total	**91%**
Vicksburg	5%		
		Inner Loop	61%
		West Harris County	19%
		North Harris County	6%
		Primary Service Area	6%
		East Harris County	4%
		Percent of Total	**96%**
Pearland	6%		
		West Harris County	76%
		Primary Service Area	15%
		North Harris County	3%
		South Harris County	3%
		Sugarland/Richmond	2%
Percent of all Origins	**60%**	**Percent of Total**	**99%**

Approximately 5 percent of traffic originates in the area that includes Vicksburg

Twenty percent of the traffic originates from outside the primary market service area Six percent of this traffic originates in Pearland

The analysis also shows that the most important destination for trips, outside the Primary Service Area of the Parkway, is the Inner Loop area of Houston As can be seen from Table 9, 51 percent of the total trips origination from Quail Valley that would use the Parkway under toll-free conditions are destined for the Inner Loop area Of the trips originating from Missouri City north of Cartwright, the second largest trip producing area, 25 percent of the total trips are destined for the Inner Loop area

Of the four areas detailed in Table 9, that constitute approximately 60 percent of all trips that would use the Parkway under toll-free conditions only Pearland shows a somewhat different origin-destination pattern West Harris County is the most important destination for using the Parkway that originate in the Pearland area

It is important to remember that the select link analysis under toll-free conditions shows the usage of the project based on the present day pattern of movements of traffic within the project service area As housing development spreads to new areas south of SH 6 in the future and employment/commercial activity grows within Fort Bend County the patterns of origins and destinations will change

TYPICAL TRAVEL TIME-DISTANCE RELATIONSHIPS

Construction of the proposed Parkway would offer users savings in travel time, and in many cases, travel distance savings over existing routes The most important origins and destinations of traffic that would use the Parkway under toll-free conditions were used as a guide for choosing the appropriate movements for analysis The results of this analysis are shown in Table 10 and Figure 7 Each comparison uses a logical route between trip termini that first includes the Parkway, and then takes a logical existing alternative route that does not use the Parkway Comparisons of travel routing alternatives reflect various time and speed runs conducted during peak conditions

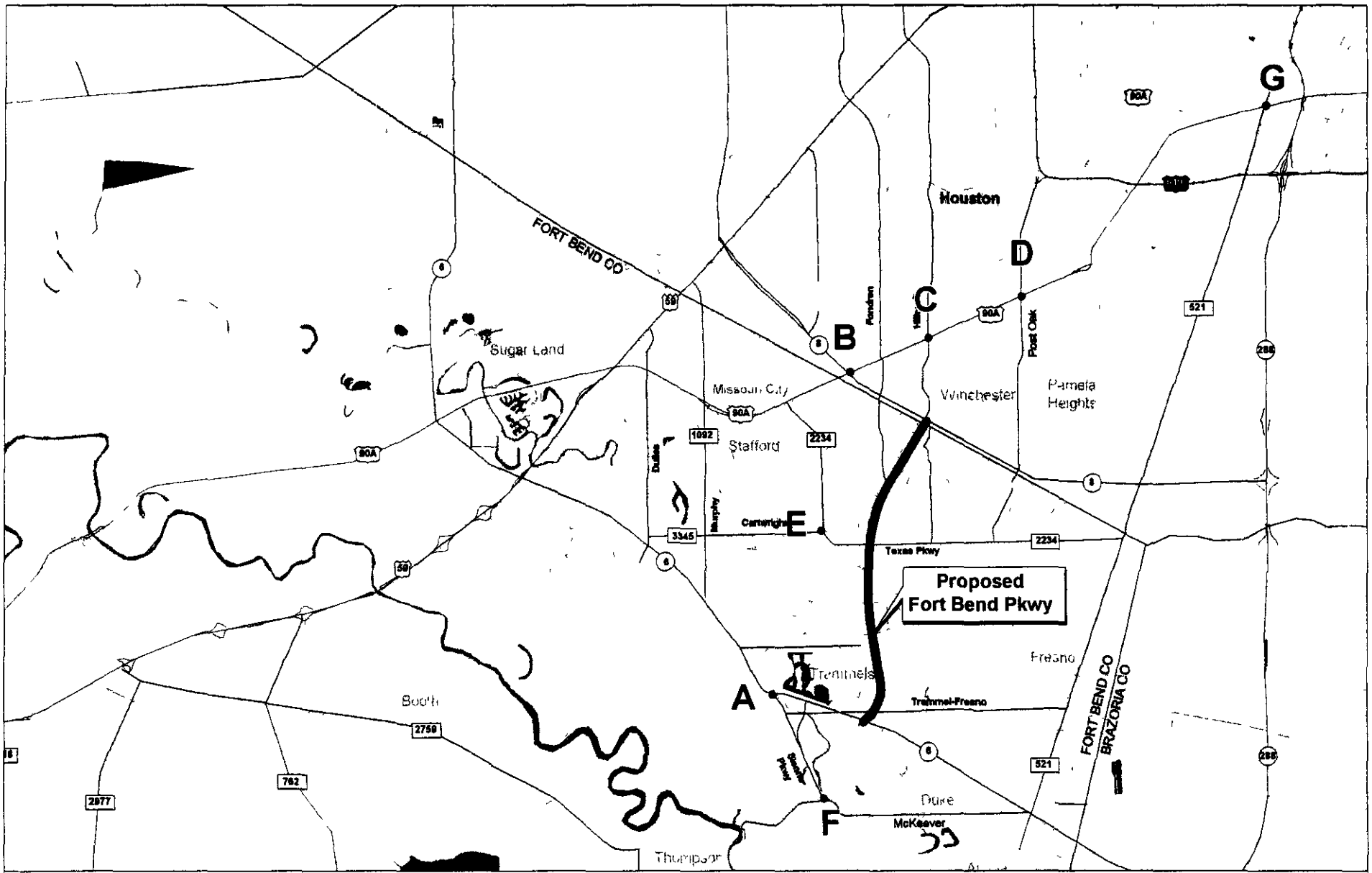
Much of the focus of the travel time and distance comparisons is on movements to and from the Sienna Plantation area, in recognition of the potential importance of this area as a traffic generator in future years It must be recognized that the times and distances are based on current conditions on the competing routes In the case of the southern end of the

Table 10

Typical Peak-Period Time-Distance Relationships

Movement Between (1)	VIA	Travel Parameter		Average	Savings Due To Parkway Routing	
		Distance	Time	Speed	Distance	Speed
		(miles)	(minutes)	(m p h)	(miles)	(minutes)
A	SH6,Project, Beltway 8	9 9	10 5	57		
and					(1 1)	8 6
B	SH6,FM 1092, Alt 90	8 8	19 1	28		
A	SH6, Project, Hillcroft	9 7	12 5	47		
and					0 8	9 8
C	SH6, FM1092,Alt 90	10 5	22 3	28		
A	SH6, Project, Hillcroft	11 6	15 5	45		
and	and				5 9	10 8
D	S Post Oak	17 5	26 3	40		
E	FM 2234,Project,Hillcroft	7 3	12 3	36		
and	and				0 2	1 2
C	FM2234, Alt 90	7 5	13 5	33		
F	SH6, Project, Alt 90	20 5	31 1	39		
and	and				(3 0)	(5 3)
G	McKeever Rd/FM521	17 5	25 4	41		

(1) (See Figure 7 For Origin-Destination Points)



Note For use with Table 2-10

TIME DISTANCE RELATIONSHIPS

Orgin-Destination Points

WILBUR SMITH ASSOCIATES

FIGURE 7

market service area, especially along SH 6, conditions will change significantly over time In future years as new development south of SH 6 feeds additional traffic onto the road, travel times on existing routes will increase, thereby increasing the attractiveness of the Parkway

The first three movements analyzed are between Sienna Plantations and various points The first movement is between the entrance to Sienna Plantation at SH 6 and U S 90 (Alt) at the point where it intersects Beltway 8 The distance to this point using the project is 9 9 miles compared with 8 8 miles using SH 6 and Murphy Road However, the time taken using the Parkway is 10 5 minutes compared with 19 1 minutes using the alternative route, resulting in a time savings via the Parkway of 8 6 minutes

The second route considered has the same starting point as the first with the terminus changed to U S 90 Alt at the point where it meets with Hillcroft The alternative route is 0 8 miles shorter However, the average speed on the project route is reduced because it includes a section of Hillcroft Overall, the Parkway route still provides time savings of 9 8 minutes compared with the alternative route

The third route also starts at the intersection of SH 6 and McKeever, but ends at the point where South Post Oaks intersects with SH 90 (Alt) The alternative route considered is via Almeda Road (FM 521) and the difference in the distance between the two routes is 5 9 miles The time taken between these two points via the project would be 15 5 minutes, compared with 26 3 minutes via Almeda Road, and the Parkway provides time savings of 10 4 minutes

The fourth route examined is from the Quail Valley area of Missouri City and South Post Oaks intersection with Alt 90 The alternative route, using Murphy Road is just 0 2 miles shorter than the route using the Parkway The average speed on the Parkway route is slightly higher than the alternative route The Parkway route saves travelers 1 2 minutes over the Murphy Road alternative

The fifth and final movement that was analyzed was between Sienna Plantation and the point, close to the inner loop, where FM 521 and Alt 90 meet This route would be used by traffic destined for locations within the Houston Inner Loop The route, which includes the Parkway, is via S.H 6, Hillcroft and Alt 90 and is a distance of 20.5 miles The alternative leaves Sienna Plantation via McKeever Road and proceeds along FM 521 The total distance traveled on the alternative route is approximately 17 5 miles and is 3 0 miles shorter than the Parkway route The alternative

route speed is also slightly higher than the project route, 41mph versus 39 mph, and would provide time savings of approximately five minutes The speed and delay results suggest that many of the trips originating in the Sienna Plantation development will use FM 521 in preference to the Parkway

CHAPTER 3

CORRIDOR GROWTH

INTRODUCTION

This chapter provides a comprehensive evaluation of growth in the Houston metropolitan area, as well as in the Parkway corridor The growth evaluation was prepared by Dr. Barton Smith under subcontract to WSA, with the purpose of providing an independent review of expected growth in the study area Dr Smith evaluated growth patterns from two perspectives top-down and bottom-up The top-down approach considered the overall factors that drive the entire economy of the Houston metropolitan area, and the forces that will tend to allocate that growth to one area or another He also considered, however, the specific development plans or individual land development projects, and the competitive factors that will make one area grow before or after another

HISTORICAL GROWTH IN FORT BEND COUNTY

Fort Bend County is now home to more than a quarter million people That constitutes about 8 percent of the entire population of metropolitan Houston Remarkably, 30 years ago this area was essentially rural (See Table 11 for an historical profile of population and employment within the metropolitan area counties) At the time, the development of bedroom communities serving Houston had just begun In 1970, the population of Fort Bend County was only 52,000 (a mere 2 8 percent of the Primary Metropolitan Statistical Area (PMSA) which in Houston consists of Harris, Fort Bend, Montgomery, Liberty and Waller Counties) The limited amount of suburban development that did exist was clustered close to the Harris/Fort Bend County line

The Early Years. Suburbanization of Fort Bend County greatly accelerated during the 1970s The area got caught up in the explosive growth of Houston, associated with the regional oil boom which was generated from a 10 fold increase in the price of oil Initially, the Quail Valley area of Fort Bend County attracted homebuilders and households

Table 11
Population and Employment Trends and Forecasts

Year	PMSA (1)	CMSA (1)	Brazoria	Chambers	Ft Bend	Galveston	Harris County Houston	Harris County Suburban Harris	Harris County Total	Loop	Liberty	Montgomery	Waller
Population													
1970	1,891,005	2,181,316	108,312	12,187	52,314	169 812	1,232,802	509,111	1,741,913	489,143	33,014	49,479	14,285
1980	2,734,617	3,118,480	169,587	18,538	130,962	195,738	1,595,138	814,409	2,409,547	460,614	47,088	127,222	19,798
1990	3,301,885	3,732 919	192,591	20,116	225,421	218,327	1,630,553	1,187,541	2,818,094	408,227	52,726	182,201	23,443
1995	3,540 801	3,885,919	206,181	21,234	275 580	227,703	1,683,500	1,281,517	2,965,017	419,118	55,443	220,066	24,715
1998	3,841,147	4 331 212	227,173	23,148	333,139	239 744	1,735,878	1,417,112	3,152,890	427,606	62,506	285,976	28,537
2000	3,987 507	4 492 350	236,116	23 879	362,778	244,848	1,756,970	1 489,121	3,246,091	429,694	64,996	286,327	27,314
2005	4 416,801	4 970,865	261 789	26,423	456,865	266,052	1,803,976	1,698,492	3,502,469	435,955	72,521	353,610	31,137
2010	4,807 358	5,408,214	286,531	29,207	547 015	285,118	1,835,949	1,875,484	3,711,433	438,937	81,340	430,313	37,257
2015	5 194 215	5 842 837	312,963	32,249	641,272	303 411	1,860,703	2,043,834	3,904,537	437,741	91,522	511,435	45,449
2020	5,563 331	6,258 048	339,950	35,617	731,488	320 148	1,877,340	2,197,368	4,074,708	435,091	103,033	597,079	57,024

Year	PMSA (1)	CMSA (1)	Brazoria	Chambers	Ft Bend	Galveston	Harris County Houston	Harris County Harris	Harris County Total	Loop	Liberty	Montgomery	Waller
Employment													
1970	807,826	904,142	33,873	3,509	14,159	58,934	685,122	87,785	772,907	440,427	7,919	9,403	3,438
1980	1,467,790	1,616,123	68,052	7,482	37,545	72,799	1,084,380	299,724	1,384,104	584,206	13,854	26,388	5,899
1990	1,660,770	1,818,566	71,209	6,070	50,731	80,517	1,168,059	376,611	1,544,670	528,761	14,303	43,426	7,640
1995	1,843,014	2,017,229	74,464	7,585	72,868	92 168	1,235,672	449,601	1,685,273	536,813	15,662	60,415	8,796
1998	2,034,637	2,221,840	77,916	8,354	95,729	100,932	1,309,582	524,625	1,834,208	571,885	16,858	78,035	9,808
2000	2,102,665	2,293,369	79,218	8,559	100,908	102,927	1,338,834	551,750	1,891,584	585,096	17,387	82,660	10,125
2005	2,338,049	2,541,528	85,156	9,390	136,772	110,933	1,425,732	631,322	2,057,054	591,535	19,607	111,120	11,497
2010	2,554,000	2 774,457	91,587	10,271	180,635	118 620	1,498,401	695,452	2,191,853	588,843	22,529	145,785	13,198
2015	2,764,964	3,000 908	98,248	11,209	223,912	126 488	1,564,926	754,676	2,319,601	585,846	28,341	179,607	15,503
2020	2,964 007	3 214,990	105,248	12,201	285,234	133,535	1,623,898	809,320	2,433,218	581,546	30,864	216,412	18,280

(1) Primary Metropolitan Statistical Area
(2) Consolidated Metropolitan Statistical Area
Source Center for Public Policy Updates

because of the low cost of land which allowed builders to construct quality single family housing at very competitive price levels The Quail Valley area also provided the standard suburban package that has always drawn Americans to the urban fringe - affordable housing, an escape from inner-city problems, agglomerations of middle and upper-middle income households, and schools that provided excellence in education and a sense of local community.

While the explosive growth of the Fort Bend County followed the regional economy, it also received boosts from significant investments in radial transportation to Houston The most important corridors at the time were U S. 59 and U S 90 The expansion of the former into the "Southwest Freeway" was the single most important exogenous stimulus to rapid suburban development Largely because of it, Fort Bend County's population had by 1980 more than doubled, growing from 52,000 to over 130,000

The Second Phase of Suburbanization. By the early 1980s, urban decentralization in Houston was moving toward an important second phase Initially, decentralization in Houston involved only population The suburbs remained essentially bedroom communities Residents worked and shopped in Houston and other parts of Harris County However, by 1980, these bedroom communities had become large enough to produce the types of economies of scale which could support local shopping and labor markets As a consequence, jobs and retail sales began to migrate to the suburbs of Houston as well This created what are known as local multiplier effects

Whereas bedroom commuters previously earned income in the central city and then returned there to spend it, now, new suburbanite income began to be spent locally This increased the demand for local workers, which further increased suburban incomes, households, and the need for housing As the second phase of suburban development took hold, each new "commuter job" created a demand for more than one new housing unit - one to house the new commuter and additional housing units to meet the needs of the new local workers hired because of the new commuter's local spending

As a result, the physical features of Houston's suburbs began to change Not only were thousands of acres of suburban housing seen, but so were growing amounts of commercial real estate As has occurred in other metropolitan areas throughout the country, the second phase of

suburbanization brought with it a wave of multi-family development to house workers in the local secondary sectors of the economy

Fort Bend County was just beginning this transition in the early 1980s, though it was relatively slow in the development of suburban apartments complexes Other somewhat more mature suburban areas such as Montgomery County and northwest Harris County experienced a substantial boom in multifamily construction between 1978 and 1982 By 1982, significant amounts of commercial development had begun to emerge in Houston's suburbs to service the growing population This was also true of Fort Bend County, though initially much of the major commercial development remained within the confines of Harris County It wasn't until the late 1980s and 1990s that commercial development began to boom within the county itself

The Bust of the 80s. The second phase of suburbanization typically is associated with accelerated growth as the multiplier effect takes hold However, the acceleration in growth was put on hold for nearly a decade by the regional "oil bust" of the 1980s. From 1982 to 1986 the Houston regional economy shed more than a quarter million jobs, regional population shrank, and the area's real estate market was left devastated with more than 200,000 vacant housing units and 50 million square feet of vacant office space

Surprisingly, Fort Bend growth did not totally stop But the annual population growth rate fell from the 9 61 percent average of the 70s to about 5 68 percent in the 1980s, and the employment growth rate dropped from 10 24 percent to 3 06 (Market shares, capture rates, and growth rates are reported in Tables 12, 13 and 14 respectively) During the actual recession years (1982-86) the growth rates were even less as most of the growth in the 80s occurred in the first two years of the decade, when Houston was still booming, and in the last two years, when the economy was recovering and absorbing the huge inventory of unoccupied housing

Despite this slowdown in growth, however, Fort Bend County emerged from the 1980s as one of the key growth centers of the overall region and First Colony, the County's primary master-planned community, competed every year for the top spot in new home construction with the likes of The Woodlands in suburban Montgomery County By 1990 Fort Bend had a population of over 225,000 people, almost 7 percent of Houston's total population Even more impressive, Fort Bend County captured during the 80s almost 17 percent of all new population growth within the PMSA

Table 12
Historical and Forecast Market Shares within Houston CMSA (1)
(percent)

Year	Brazoria	Chambers	Ft Bend	Galveston	Harris	Houston	Loop	Liberty	Montgomery	Waller
Population Share										
1970	4 97	0 56	2 77	7 78	92 12	65 19	25 87	1 75	2 62	0 76
1980	5 44	0 59	4 79	6 28	88 11	58 33	16 84	1 72	4 65	0 72
1990	5 16	0 54	6 83	5 85	85 35	49 38	12 36	1 60	5 52	0 71
1995	5 16	0 53	7 78	5 70	83 74	47 55	11 84	1 57	6 22	0 70
1998	5 25	0 53	8 67	5 54	82 08	45 19	11 13	1 63	6 92	0 69
2000	5 26	0 53	9 10	5 45	81 41	44 06	10 78	1 63	7 18	0 69
2005	5 27	0 53	10 34	5 35	79 30	40 85	9 87	1 64	8 01	0 71
2010	5 30	0 54	11 38	5 27	77 20	38 19	9 13	1 69	8 95	0 78
2015	5 36	0 55	12 35	5 19	75 17	35 82	8 43	1 76	9.85	0 88
2020	5 43	0 57	13 15	5 11	73 24	33 74	7 82	1 85	10 73	1 03

Year	Brazoria	Chambers	Ft Bend	Galveston	Harris	Houston	Loop	Liberty	Montgomery	Waller
Employment Share										
1970	3 75	0 39	1 75	6 52	95 68	84 81	54 52	0 98	1 16	0 43
1980	4 21	0 46	2 56	4 50	94 30	73 88	39 80	0 94	1 80	0 40
1990	3 92	0 33	3 05	4 43	93 01	70 33	31 84	0 86	2 61	0 46
1995	3 69	0 38	3 95	4 57	91 44	67 05	29 13	0 85	3 28	0 48
1998	3 51	0 38	4 70	4 54	90 15	61 36	28 11	0 83	3 84	0 48
2000	3 45	0 37	4 80	4 49	89 96	63 72	27 83	0 83	3 93	0 48
2005	3 35	0 37	5 85	4 36	88 06	61 03	25 32	0 84	4 76	0 49
2010	3 30	0 37	7 07	4 28	85 82	58 59	23 06	0 88	5 71	0 52
2015	3 27	0 37	8 10	4 21	83 89	56 60	21 19	0 95	6 50	0 56
2020	3 27	0 38	8 95	4 15	82 09	54 79	19 62	1 04	7 30	0 62

(1) Consolidated Metropolitan Statistical Area

Source Center for Public Policy Updates

Table 13
Historical and Forecast Area Capture Rates
(percent)

Year	Brazoria	Chambers	Ft Bend	Galveston	Harris	Houston	S Harris	Loop	Liberty	Montgomery	Waller
Share of Population Growth											
1980	6 54	0 68	9 32	2 77	79 14	42 95	36 19	(3 38)	1 67	9 22	0 65
1990	3 74	0 26	16 65	3 68	72 02	6 24	65 78	(9 23)	0 99	9 69	0 64
1995	5 17	0 43	20 99	3 56	61 50	22 16	39 33	4 56	1 14	15 85	0 53
1998	6 26	0 57	19 17	3 59	62 59	17 44	45 15	2 83	2 35	15 29	0 61
2000	5 55	0 45	20 25	3 17	63 61	14 41	49 20	1 43	1 70	13 90	0 53
2005	5 37	0 53	21 93	4 43	59 75	10 95	48 79	1 46	1 75	15 68	0 89
2010	5 66	0 64	23 07	4 36	53 48	8 18	45 29	0 76	2 26	19 63	1 57
2015	6 08	0 70	24 36	4 21	49 92	6 40	43 52	(0 31)	2 63	20 97	2 12
2020	6 48	0 81	24 44	4 02	46 10	4 51	41 60	(0 72)	3 12	23 20	3 14

Year	Brazoria	Chambers	Ft Bend	Galveston	Harris	Houston	S Harris	Loop	Liberty	Montgomery	Waller
Share of Employment Growth											
1980	4 80	0 56	3 54	1 95	92 61	60 50	32 11	21 79	0 90	2 57	0 37
1990	1 56	(0 70)	6 83	3 81	83 20	43 36	39 84	(28 73)	0 23	8 83	0 90
1995	1 64	0 76	12 15	5 86	77 15	37 10	40 05	4 42	0 75	9 32	0 63
1998	1 69	0 38	11 93	4 28	77 72	38 57	39 15	18 30	0 62	9 20	0 53
2000	1 82	0 29	10 80	2 79	79 46	40 12	39 34	18 60	0 66	8 57	0 51
2005	2 39	0 33	15 37	3 23	70 90	36 81	34 09	2 76	0 95	12 19	0 59
2010	2 75	0 38	20 13	3 30	61 85	32 42	29 42	(1 24)	1 34	15 90	0 78
2015	2 95	0 41	20 51	3 47	60 55	32 48	28 07	(1 42)	1 81	16 03	1 09
2020	3 27	0 46	20 76	3 29	57 08	29 63	27 45	(2 16)	2 27	18 49	1 40

Source Center for Public Policy Updates

Table 14
Historical and Forecast Area Growth Rates
(percent)

Year	Brazoria	Chambers	Ft Bend	Galveston	Harris	Houston	S Harris	Loop	Liberty	Montgomery	Waller	PMSA (1)	CMSA (2)
Population Growth Rate Per Year													
1980	4 59	4 28	9 61	1 43	3 30	2 61	4 81	(0 60)	3 61	9 90	3 32	3 76	3 64
1990	1 28	0 82	5 58	1 10	1 58	0 22	3 84	(1 20)	1 14	3 66	1 70	1 90	1 81
1995	1 37	1 09	4 10	0 84	1 02	0 64	1 53	0 53	1 01	3 85	1 06	1 41	1 37
1998	3 28	2 92	6 53	1 73	2 07	1 03	3 41	0 67	4 08	6 52	2 40	2 75	2 72
2000	1 95	1 57	4 35	1 06	1 47	0 61	2 51	0 24	1 97	3 76	1 45	1 89	1 84
2005	2 09	2 04	4 72	1 67	1 53	0 53	2 67	0 29	2 21	4 31	2 65	2 07	2 04
2010	1 82	2 02	3 67	1 39	1 17	0 35	2 00	0 14	2 32	4 00	3 65	1 71	1 70
2015	1 78	2 00	3 23	1 25	1 02	0 27	1 73	(0 05)	2 39	3 51	4 06	1 56	1 58
2020	1 67	2 01	2 67	1 08	0 86	0 18	1 46	(0 12)	2 40	3 15	4 64	1 38	1 39

Year	Brazoria	Chambers	Ft Bend	Galveston	Harris	Houston	S Harris	Loop	Liberty	Montgomery	Waller	PMSA (1)	CMSA (2)
Employment Growth Rate Per Year													
1970													
1980	7 23	7 87	10 24	2 14	6 00	4 70	13 07	2 87	5 75	10 87	5 55	6 15	5 98
1990	0 45	(2 07)	3 06	1 01	1 10	0 75	2 31	(0 99)	0 32	5 11	2 62	1 24	1 19
1995	0 90	4 56	7 51	2 74	1 76	1 13	3 61	0 30	1 83	6 83	2 86	2 10	2 10
1998	1 52	3 27	9 52	3 07	2 86	1 96	5 28	2 13	2 48	8 91	3 70	3 35	3 27
2000	0 83	1 22	2 67	0 98	1 55	1 15	2 55	1 15	1 56	2 92	1 61	1 66	1 60
2005	1 46	1 87	6 27	1 51	1 69	1 25	2 73	0 22	2 43	6 10	2 57	2 13	2 08
2010	1 46	1 81	5 72	1 35	1 28	0 97	1 95	(0 09)	2 82	5 58	2 80	1 80	1 77
2015	1 42	1 76	4 39	1 29	1 14	0 90	1 65	(0 10)	3 18	4 26	3 27	1 60	1 58
2020	1 39	1 71	3 45	1 09	0 96	0 74	1 41	(0 15)	3 22	3 80	3 35	1 40	1 39

(1) Primary Metropolitan Statistical Area
(2) Consolidated Metropolitan Statistical Area
Source Center for Public Policy Updates

A New Beginning. Just as the housing market in the early 90s had finished absorbing most of the real estate excesses, the Houston economy once again stalled (1992-93), primarily because of the national economic recession at the time This slowdown continued to help hide the acceleration of the second phase of suburbanization

However, by 1994 all systems were "go" for a rebirth of suburbia boom - real estate vacancies were at or below normal, regional job growth was solid, local job growth was expanding By then the suburbanization of north and northeast Fort Bend County had clearly taken on the characteristics of phase II growth with a rapidly expanding job base and significant amounts of new commercial development

This boom peaked in 1997 and early 1998 For the first time in one and a half decades all engines of the Houston economy were operating at full throttle the U S economy was booming, international trade was experiencing double digit growth rates, and upstream energy (crude oil exploration and production) was back, enjoying its best year since 1980 These combined influences lead to the strongest spurt of growth in the Houston economy and in suburban development since 1982 The result was not only thousands of new homes, but hundreds of thousands of new square feet of fully occupied office space and over a million square feet of new retail space

Ironically, Fort Bend County capture rates (the percent of Fort Bend County population growth to total PMSA growth) declined slightly during the mid-90s boom This occurred primarily because the overall regional boom stimulated building in somewhat less desirable locations that had been experiencing little growth during the times of less robust expansion

Geographic Expansion of Suburban Growth. The location of suburban growth began to shift during the 1990s Essentially, Quail Valley and other subdivisions close to U S 90 had already become mostly built-out by the early 1980s, and by the mid 90s, even newcomer First Colony was rapidly running out of room to grow. This meant that suburban development would be pushed outward along key arteries such as the Southwest Freeway, SH 6, and the Katy Freeway (I-10) In addition, Harris County growth in the 90s began to spill over along the I-10 corridor from Cinco Ranch and adjacent subdivisions Thus, a new front was established in the suburban push Indeed, the area around Katy, Texas became another major center of suburban growth in metropolitan Houston

Furthermore, improvements to SH 6 along with growth along the Katy corridor greatly accelerated suburban expansion on either side of this

circular road in Houston's more distant suburbs Thus, by the mid 1990s, suburban development in Fort Bend County had not only grown, but it had expanded to almost all of the areas bordering Harris County

But suburbanization in metropolitan Houston has always been relatively "lumpy," pushing out to distant locations in a hop-scotch fashion This has produced a spotty geographic distribution of growth which will continue in the future. Fort Bend was no exception New subdivisions were popping up in distant locations even though as much as 50 percent of the closer-in land lay undeveloped

Today, many areas of the County are essentially built out, and therefore will experience little additional population growth except for an occasional new apartment complex Furthermore, some of the remaining parcels of land in the closer-in locations will be slow to fill in These areas are characterized by small fragmented parcels of land in which the per-lot costs of development are prohibitive, at least given current lot prices Even many areas of the County with large amounts of open spaces will develop slowly because the ownership of land is fragmented into small parcels

For the most part, land within the County will be developed if it (1) has close proximity to existing subdivisions with tie-in capabilities to existing municipal utility districts (MUDS), (2) is near important transportation arteries, and (3) is in large enough parcels to make the private construction of stand-alone infrastructure economically efficient Small parcels of land can only be developed right now if they are tied into existing suburban developments such as that which is currently occurring along portions of SH 6 But, other areas with significant amounts of land in 10-50 acre plots are getting by-passed because of the per lot expense in providing key neighborhood infrastructure and amenities

A large portion of Fort Bend County development will occur within master planned communities In these cases, the parcels of land are large enough so that new independent communities can emerge even at further distances from the central city because the economies of scale are sufficient to lower the per unit costs of the private development of the capital infrastructure This is the type of development currently underway in places like Greatwood These types of communities that can affordably offer the full range of suburban amenities households are looking for open spaces, golf courses, lakes, community facilities, local schools, near-by shopping, and landscaped common property

FOCUS OF THIS GROWTH EVALUATION

The focus of this study is the development of small area population and employment forecasts for the Houston metropolitan area that can be used by WSA in forecasting transportation demands for the proposed Fort Bend Parkway Toll Road linking SH 6 just north of Sienna Plantation (Fort Bend County's newest master-planned development) with Beltway 8 The primary question is whether the most recent boom in Fort Bend County will continue and how its spatial distribution will affect travel demand on the Toll Road

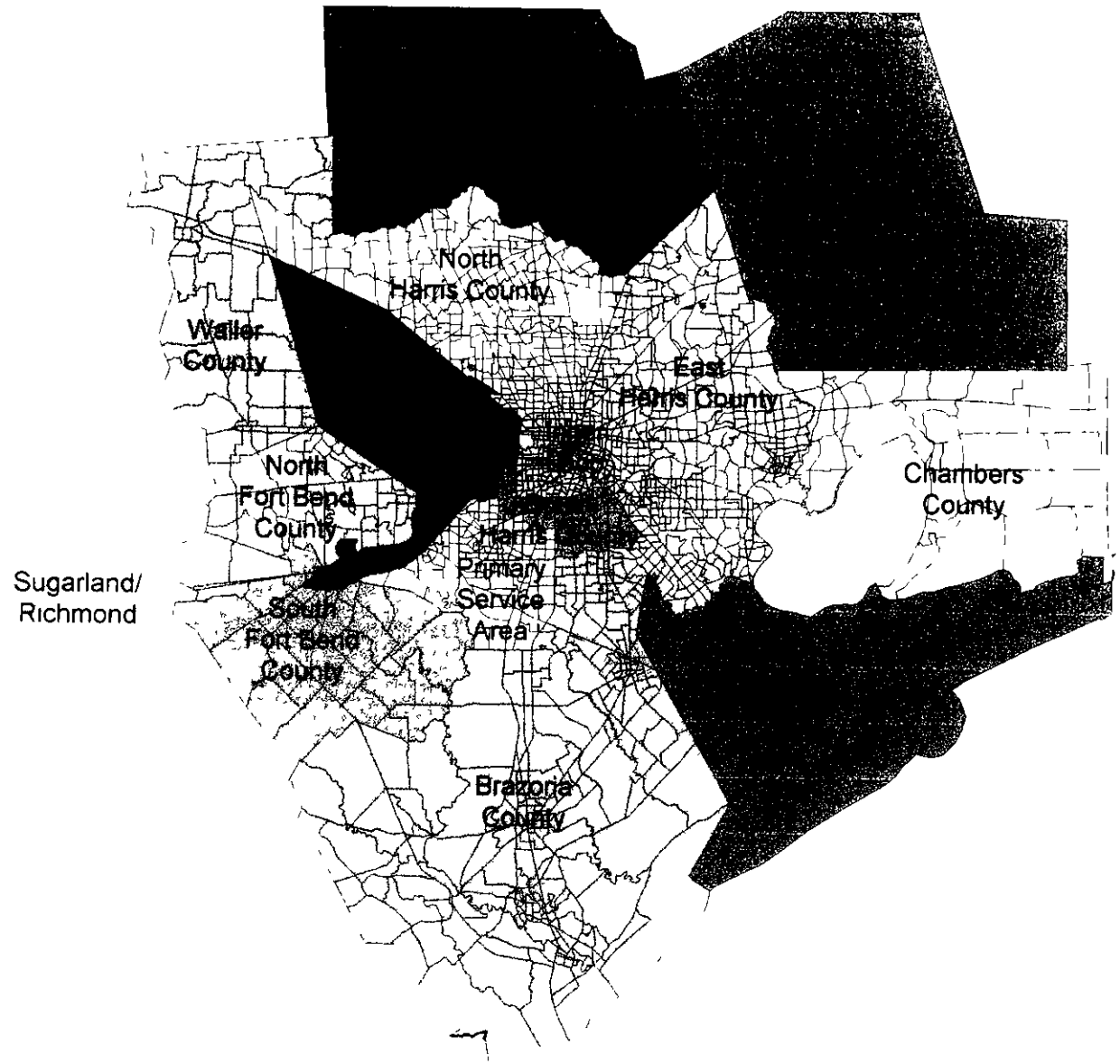
Within the primary service area (PSA) of the proposed toll road as designated by WSA, population and employment is forecast at the transportation analysis zone level (TAZ) Figure 8 shows the analysis region's referenced in its chapter The rest of Fort Bend County is divided into three other conglomerations of regional analysis zones (RAZs) While part of Harris County is actually included within the primary service area, the rest of Harris County is divided into five broad areas All other forecasts are restricted to county-wide totals, with the exception of a small portion of Brazoria County which is also in the primary service area In total, forecasts are made for 140 subregional locations

- 123 TAZs within the primary service,
- 12 large area divisions of Fort Bend, Brazoria, and Harris counties, and
- 5 additional counties - Galveston, Montgomery, Liberty, Chambers, Waller counties

MODEL ALGORITHMS

Small area models of urban/suburban growth are of two types (1) top-to-bottom models and (2) bottom-to-top models Regardless of the statistical sophistication, all efforts to estimate growth for a small area geographic follow one of these two patterns In the first, forecasters initially estimate population or employment of the broader region such as the PMSA and then allocate downward the aggregate population estimate into smaller and smaller geographic units In the second, forecasters attempt to estimate new development at each small geographic area first and then aggregate up to larger geographic units to obtain to regional totals.

Both approaches have pitfalls The problem with the second approach is that small geographic units are not independent economic entities and because of their interdependence upon the broader region, the smaller areas can not be analyzed independent of what is happening to the region



MAJOR GEOGRAPHICAL ANALYSIS AREAS

WILBUR SMITH ASSOCIATES

FIGURE

Even though an analyst might identify ample land for development, strong current building activity, and developer interest in continuing, without understanding the macro regional economy and the competition that exists between subregions, the forecasts that he might produce from the micro perspective alone are likely to miss the mark

On the other hand, the simple pro-rata allocation of aggregate regional population totals to smaller geographic units is equally fraught with potential error. The typical source of error stems from the simple allocation of new growth on the basis of past shares that fails to account for important changes which could cause future growth to deviate from historical patterns A common problem is the allocation of growth to historically strong areas that are now completely developed and no longer have available land for new development Since the redevelopment of areas over existing capital is so much more difficult than development on raw land, the share of regional growth captured by this "mature" subregion will no longer reflect its past performance

The approach taken in this study utilizes both frameworks New PMSA growth is distributed downward to smaller and smaller areas, while at the same time growth estimates at the smallest unit (in this case TAZs) are aggregated upward and the totals are then reconciled The macro projections of regional growth used in this study are estimates produced each year for the University of Houston's Center for Public Policy The basic tool used to distribute the regional totals down to small geographic units is referred to as "shift-share analysis " A description of the unique approach used in this study that ameliorates some of the weaknesses in common applications of these type of analyses is provided later in this report

THE MACRO ANALYSES

THE BASIC MODELS

The model used to generate the macro regional forecasts was first developed in the mid-1980s Since then, the econometric model has been expanded and refined as the "Houston Economic Multi-Sector (HEMS) Model " This model is now updated semi-annually for the University of Houston's Center for Public Policy The model is a composite of econometrically fitted forecast equations for each of the two-digit Standard Industrial Classification (SIC) sectors in the Houston economy Manufacturing, Mining, Transportation/Utilities; Trade, Services, Finance, Construction, and Government In addition, the combined model includes separate estimating equations for income, prices, population, and retail sales The forecasts which are distributed to the public at the Center for

Public Policy's symposiums, are found in the Center's monthly publication DATABOOK HOUSTON.

The HEMS model produces 5-year forecasts These short-term forecasts are then integrated with a separate long-run forecasting model In that model, long-term forecasts are produced by dynamic, nonlinear trend analyses and by econometric estimates of the population of large U S cities and their historical growth rates as they mature in age and size The long-run forecast produces a projected growth rate that is specific to Houston, but that, following national patterns, is declining because of increasing city size These forecasts are also published monthly in DATABOOK HOUSTON, but are, in fact, only updated semi-annually Together, the HEMS and long-run forecasts produce a time-series estimate of population and employment from the present through the year 2020 The projections for this study displayed in Table 11 were just recently updated and were a part of the Center for Public Policy's Fall, 1998 Forecast which was released on November 18, 1998

FORECAST ACCURACY

Long-run economic forecasts are risky at best For the most part, analysts must rely on historical trends and patterns that may or may not continue into the future Since these educated guesses are often relied upon by both private sector and public sector decision makers, forecasters have an obligation to lean toward conservatism, while avoiding gross underestimation that can produce equally damaging results The latter has been more common of late Forecasts of the past 10 years have greatly underestimated growth in Houston, partly because many forecasters were burnt so badly by the crash of the mid-80s. Unfortunately, such low-ball estimates have resulted in serious delays in the construction of key infrastructure Regional highways are already at or near capacity again because planners in the 1980s didn't foresee the strong recovery of the Houston economy In the suburbs, school districts are now struggling to squeeze soaring student populations into their already crowded suburban schools, and suburban roadways, that were anticipated to last well into the 21st century, are already dreadfully congested

There is only one major alternative source of long-term projections for the Houston metropolitan area. That is the widely known projections produced by HGAC which are not updated as frequently as the Center for Public Policy forecasts The HGAC forecasts are somewhat lower than those produced by the CPP, as HGAC chooses to be even more conservative This conservatism especially shows up in HGAC's suburban employment forecasts For example, HGAC forecasts that Fort Bend County employment will reach 125,000 by the year 2020 Yet, from a level of

50,000 jobs in Fort Bend County in 1990, employment has already soared to more than 90,000 jobs and should end this decade at levels at or above 100,000 While HGAC suburban population forecasts are closer to the CPP estimates, they too have to be viewed as overly conservative and imply a geographic pattern of growth heavily biased towards Harris County, despite the fact that Harris County is running out of developable land

THE LONG-RUN FORECAST

At the aggregate PMSA or Consolidated Metropolitan Statistical Area (CMSA) level, there are only minor disagreements among regional analysts regarding long-run prospects Most, including HGAC, expect 2020 population to be between five and six million people The CPP forecast of 5,563,000 implies that population growth, which is currently averaging about 2 7 percent per year, will decline over time ending with an annual 1 6 percent growth average during the second decade of the next century This is less than the growth rate of the recession plagued 1980s, though, of course, the base is much larger Over the next 22 years, the long-run forecast indicates metropolitan area increases of about 400,000 people every five years (See Table 12)

The same pattern holds for employment While the employment growth rate is expected to decline over the years, the absolute level of new job creation is expected to remain roughly constant. By the end of the forecasting period Houston is expected to have an employment base of about 2 8 million jobs

THE SHORT-RUN

While the long-run forecast calls for solid growth over the next 22 years, the short-term forecast is less optimistic In retrospect, 1997 is going to appear within the decade of the 90s as a one-year aberration The engines of growth that stimulated the strong expansion of 1997 and the spillover growth in the first half of 1998 (the strong U S economy, expanding international trade, and a rebounding energy sector) are all struggling right now

One engine of growth has shut down Upstream energy, the exploration side of Houston's energy economy, grew strongly in 1997 for the first time in 15 years With rapidly expanding international trade and strong energy-independent growth that was stimulated by a healthy U S economy, all of the ingredients were in place for an economic boom in Houston However, early this year, oil prices began a free fall, dropping this Spring from around $22/barrel to $15/barrel and then dropping again to about $10/barrel by early Summer This decline in oil prices was

eventually accompanied by falling natural gas prices and a sharp drop in exploration activity As early as June, the smaller energy firms began reducing their work force and by early September, the region's major energy corporations were announcing lay-offs This alone would have greatly dampened regional growth, but the spread of the so-called "Asian flu" began to impact Houston's other two engines by late summer Latin America began to reel from the "emerging nations' blues" and the U S economy began to show some definite signs of a slowdown

The bottom line is that job growth that peaked near 6 percent last Fall is now struggling to stay above 1 percent Furthermore, the slowdown is not likely to reverse itself quickly. Job growth during the 4th quarter is likely to be zero and will pick up only modestly in 1999 Population growth which approached 3 percent in 1997 will also slow dramatically as job opportunities elsewhere in the nation will attract away many Houstonians without secure employment Over the next two years population growth will gradually fall toward 1 percent This means that new demand for housing and office space is not likely to be sufficient to absorb the new supply coming on line While this does not mean that Houston is in for another crash similar to the experience in the mid 80s, it does mean that the burst in growth during the last 18 months is over, at least for a while

The macro projections used in this study incorporates these recent changes in the short-run economic environment The HEMS model shows PMSA population growth falling over the course of the next two years from 3 36 percent to 1 38 and thereafter recovering only to around 2 percent Growth in excess of 3 percent that occurred last year is not in the foreseeable future

Next year will be the worst in terms of job growth The HEMS model currently forecasts growth of 1 38 percent Furthermore, this rate could be reduced even further if the U S economic slowdown worsens and/or Latin America economies go into recession Recent data suggest that neither are likely to happen, but decisionmakers need to be aware that either one could result in even lower growth in Houston during the next 12 months If all three drivers of the Houston economy shut down, then Houston will experience at least some degree of net job loss during the next year

Thereafter, job growth is expected to increase again, but remain well below the boom levels of the second half of 1997 By the end of 1999, most of the damage to the energy sectors will have taken place, and with a stable energy sector, non-energy growth in the region's economic base should be sufficient to raise job growth to about 2 percent. Nonetheless, with no growth from energy and somewhat slower growth from non-

energy, the Houston economy is not expected to replicate its 1997 performance in any of the next five years

Clearly this has important implications to suburban development in Fort Bend County First, new home building will begin to decline by Spring of 1999 Plans for apartment complexes in the area will be put on hold, as multi-family vacancy rates go up While retailing will continue to expand in the County, growth will be muted somewhat by the regional slowdown This means that there will continue to be modest job growth, but the growth in the higher paying economic base jobs will nearly come to a halt next year, and the rebound that will follow will be far below the pace of the last two years In general, the next five years are going to look more like the period between 1993 and 1996 than 1997

SPATIAL DISTRIBUTION OF GROWTH

THE BASIC SHIFT-SHARE MODEL

Sub-regional projections were estimated for future population growth for individual counties within the CMSA which in addition to the PMSA counties includes Galveston, Brazoria and Chambers Counties In addition, Harris County forecasts were divided further into inner-city (inside the Loop), central city, and suburban (all non central city areas) These projections were done using a modified trend analysis technique In this case, the trend that is projected is based upon subarea shares of decennial growth, often referred to as the capture rate Capture rates are simply the ratio of a subregion's growth in population divided by the overall population growth in the region (PMSA or CMSA) The algorithm used in this study is similar to more common forms of shift-share analysis, but it is based upon nonlinear extrapolation of capture rate patterns as opposed to linear extrapolations of overall market shares

The share analysis also takes into consideration supply constraints to growth where built-out ratios limit further expansion of development The analysis also incorporates anticipated demand stimuli where, for example, known new infrastructure, such as a new limited access freeway, is expected to accelerate changes in growth trends The subarea projections are then calibrated to correspond to the 22-year macro forecasts described above While the long-run forecasts are updated every year to reflect contemporary changes in the economy that affect regional short-run and long-run totals, the shift-share parameters are only recalibrated when sufficient divergence between actual and projected outcomes warrant the effort A special recalibration of the shift-share model has been done for this study

CHANGING MARKET SHARES

The accuracy of individual subregional forecasts depends upon (1) the accuracy of PMSA projections and (2) the accuracy of the estimates of area "capture rates " The latter is the percent of PMSA growth that is expected to flow to the area or subregion If one accepts the PMSA forecast as reasonable, then the only remaining question is the extent to which Fort Bend County will capture a portion of the expected 2 million increase in population over the next 22 years Currently, Fort Bend County contains about 9 percent of total PMSA population, but it is capturing nearly 20 percent of all new population growth That explains why the Fort Bend County market share has been rising substantially from 2 8 percent in 1970 to 4 8 percent in 1980, 6.8 percent in 1990 and 9 0 percent today On the other hand, Harris County as a whole held 92 0 percent of all PMSA population in 1970, 88 0 percent in 1980, 85 0 percent in 1990, and 82 0 percent today, and since Harris County's capture rate is only 62 0 percent, its overall market share will continue to decline (Both historical and projected capture rates are provided in Table 12)

Most of the new metropolitan population growth is going to the suburbs Fort Bend, Montgomery and suburban Harris Counties are capturing 97 percent of all PMSA population growth. The shift-share forecasts indicate that this trend will continue, with Harris County's overall capture rate falling and Fort Bend and Montgomery Counties share rising The continuation of this trend is physically mandated Harris County is simply running out of developable space Virtually all of the suburban growth in the Houston Metropolitan area is now being forced outside of Harris County with the exception of Harris County's far northwest suburbs To the west and southwest, builders and developers have exhausted the supply of developable Harris County land While some Harris County growth will continue in the distant northeast, the lion's share of Harris County growth in the next two decades will occur within the Cypress-Fairbanks and Tomball ISDs, along the U S 290 and SH 249 corridors where there is ample room for new development

PACE OF SUBURBANIZATION CONTINUES TO SURPRISE ANALYSTS

Despite several revisions over the past 10 years, our current shift-share parameters imply distant suburban growth that is still likely to be conservative This can be seen by the fact that the model still shows Harris County capturing almost 50 percent of metropolitan growth, even during the second decade of the next century It appears that even the nonlinear extrapolations of shift-share trends is not fully capturing the dynamics of Houston area suburbanization

Nonetheless, CPP county forecasts are significantly greater than HGAC's forecasts which imply that the Harris County capture rate will virtually stay constant at about 63 percent However, we believe that both nonlinear trends and common sense suggest that this HGAC assumption is not to happen Because development in Harris County will be progressively constrained by the limited amount of available land, a constant Harris County capture rate could only occur if overall long-run growth in metropolitan Houston diminished dramatically

The basic shift-share algorithm used in this study has been tested to some degree The first application of this type of shift-share model to the Houston metropolitan area was first applied to forecasts for The Woodlands, Texas in the mid 1980s While the model's forecast of The Woodlands growth was substantially above other estimates, including HGAC and the developers themselves, subsequent modifications have always required upward revisions because of continued underestimation of suburban growth Despite forecasts significantly above HGAC's estimates, the shift-share model has also been underestimating suburban growth simply because of the rapid pace at which suburbanization has been accelerating In general, the Houston metropolitan area continues to undergo very rapid decentralization of both population, jobs, and retail sales Because this Phase II suburbanization is so new and so dramatic, most modeling efforts are going to have difficulty in staying ahead of the curve

In light of the shift-share model's implications and past performance, it is believed that the Fort Bend County projections are appropriately, but not overly conservative, falling within the comfort zone between being realistic and conservative without excessively underestimating growth Right now, current growth continues to be somewhat above the forecast line, but differences in projected and actual population growth in the future will like vary because of the expected short-run fluctuations in the metropolitan economy While the next iteration in suburban shift-share coefficients are likely to once again involve upward revisions, it probably won't be until after the current economic slowdown before sufficient data will be available to assess changes in long-term trends

SPECIFIC MODEL RESULTS

While it is almost certain that Harris County's capture rate will continue to fall over the next 22 years, the Fort Bend County capture rate is likely to creep upward, peaking around 24 percent During periods of slower PMSA growth, the Fort Bend County capture rate will rise somewhat, and during periods of extraordinary growth, Fort Bend County will see some

diminution to its capture rate as building activity accelerates in less desirable locations

Because of its relatively high capture rate, Fort Bend County's market share will continue to gradually rise, increasing from today's 9 0 percent share to 10 4 percent in 2010 and 13 2 percent in 2020 Given the expected PMSA population forecast of 5,563,000 in the year 2020, total population in the Fort Bend County is expected to equal approximately 731,000, about the size of today's population in Austin

Area growth rates will gradually diminish as the population base becomes larger (See Table 14) The grow rate of the past three years of 6.58 percent is expected to fall immediately to around 4.35 percent because of the regional slowdown During the next five years the pace of development should rise modestly to about 4 72 percent and then begin a gradual decline toward a 2 67 percent annual growth rate Absolute population growth is also expected to decline, but much less dramatically Population is expected to increase by more than 94,000 between 2000 and 2005 Subsequent five year periods will experience annual population growth near 90,000 Together, Fort Bend and Montgomery Counties in 2020 will hold about 24 percent of the PMSA population, and each will have significantly greater population than the area inside the 610 Loop

GROWTH WITHIN FORT BEND COUNTY

HISTORICAL PATTERNS OF COUNTY GROWTH

The location of population growth in Fort Bend County has been governed by the following priorities proximity to Harris County, proximity to the major access routes to Houston, proximity to cross-haul suburban routes, and availability of large tracts of land Employment growth, on the other hand, remains much more centralized than population, centering only near the intersection of major thoroughfares

GROWTH IN THE 1970S

Initially, the most important route to Houston was U S 90 which in Houston turns into Main Street It was off this primary suburban artery that Quail Valley began as the first significant suburbanization within Fort Bend County By the early 1970s, the outward push of the Southwest Freeway converted U S 59 into a major radial link to the central city This, in turn, drew suburban development along that corridor toward Fort Bend County By the early 1980s, the completion of the freeway into Fort Bend County opened up a significant second front of suburbanization culminating in the development of First Colony. This was the first of the so-called master-planned communities in Fort Bend County, though given

today's proclivity to refer to a wide-spectrum of subdivisions as "master-planned communities, " Quail Valley with over 4,000 homes would have easily qualified for the designation A map showing the location of major developments mentioned in its chapter is provided as Figure 9

SPILLOVER GROWTH FROM HARRIS COUNTY

First Colony and Sugar Lakes were among the first Fort Bend County developments that were primarily dependent upon the Southwest Freeway Shortly, thereafter, development pushed into Fort Bend County along secondary routes such as Bellaire, Bissonet and Beechnut Yet, even these developments were ultimately dependent upon the Southwest Freeway, though their connections occurred well within Harris County Similar spillover growth began in the early 90s in the northern part of the county as Cinco Ranch pushed across the Fort Bend/Harris County line This area was made more viable by the widening of I-10 and the completion of the Grand Parkway linking I-10 and U S 59.

The most obvious exception to the basic pattern of priorities was the development of Pecan Grove Plantation This community clearly had the requisite size to make it economically viable as a stand-alone subdivision, but it was quite isolated from the major routes of accessibility

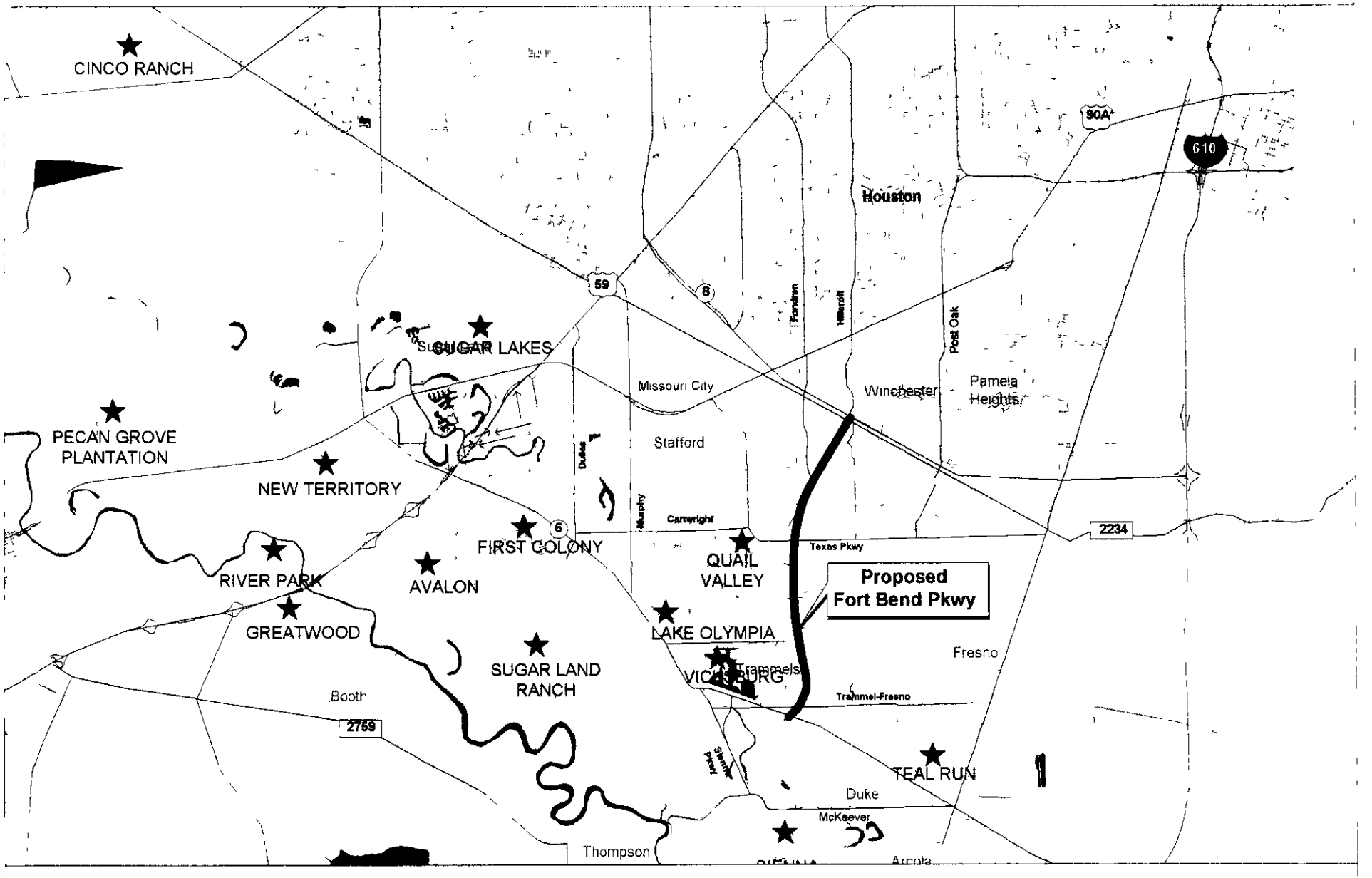
FILL-IN GROWTH

In general, fill-in development is slow in Houston Successful fill-in typically requires infrastructure connections to existing development Because virtually all infrastructure, from roads to parks to water and sewer, is put in by the developer, the costs of small subdivisions can be prohibitive unless they can be directly linked to adjacent municipal utility districts, existing road networks, public schools, and parks

Lot prices at the urban fringe in the master-planned communities range from $18,000 to $25,000 for typical suburban lots Typically, small subdivisions can not compete with these major developments on a cost per amenity basis Not until lots in the major developments have been nearly consumed do prices get bid up enough for secondary development in scattered small parcels to become economical This occurred in the 1970s in areas such as the neighborhoods adjacent to Meyerland and now in the 1990s in subdivisions such as those in the FM 1960 area.

COUNTY EMPLOYMENT

The primary difference between the development of the Fort Bend County suburbs and many of the suburban areas in Harris County was that employment growth has followed population growth so quickly This is because Fort Bend County's growth began approximately the same time as



Location of Major Residential Developments in Fort Bend County

WILBUR SMITH ASSOCIATES

FIGURE 9

the rapid acceleration in the decentralization of regional employment With the exception of the earliest development in Quail Valley, most developments in Fort Bend County have experienced employment growth contemporaneous with residential development

Even the suburbanization of employment in Harris County has played an important role in the development of Fort Bend County By the time First Colony was emerging as a major master-planned community, employment growth in Uptown Houston, along the SW Freeway and Highway 6 corridors, and now along West Belt, transformed Fort Bend County from a residential area primarily serving Houston's CBD and close-in work centers to a residential base for wide-spread employment sites throughout the region's southwest suburban quadrant

THOROUGHFARE MAGNETS

The influence of highway capital improvements has dominated suburbanization patterns in Houston for decades For example, when U S 59 was reconstructed as a modern freeway, development quickly pushed toward the southwest along that corridor

Like most other areas in metropolitan Houston, suburbanization in Fort Bend County is a creature of highway construction and improvements first improvements and widening of U S 90, then the conversion of U S 59 into the SW Freeway ultimately extending beyond Richmond followed by the major expansion of Highway 6, and the construction of Beltway 8 and Grand Parkway The relationship of growth to highway access means that all forecasts must be made with explicit highway assumptions in mind When highway investments are uncertain, forecasts are made more difficult For example, it is somewhat difficult to forecast growth on Fort Bend's east side, because such growth is partly dependent upon the decision to build the Fort Bend County Toll Road The area has many of the ingredients for success, such as large parcels of land and good tie-ins to existing developments But its current access to jobs and shopping is more limited than its central county counterparts Thus, while population and employment growth are essential for the success of the Fort Bend County Toll Road, the Toll Road or its equivalent is equally essential to the immediate development of this area

BEYOND WHAT'S THERE TODAY

The development of Fort Bend County in the next 5 to 10 years will be characterized by a transition from the 1990s subdivisions which are winding down building operations such as First Colony, New Territory, and Greatwood to new subdivisions some of which have just started and others of which are yet to be developed Part of this new development

will be spill-over growth from the major historical developments - Avalon and Commonwealth as spillover developments from First Colony, Grand Lakes and Meadowbrook Farms as spillover developments from Cinco Ranch, and River Park as a spill over from Greatwood First Colony spillover will also fill in most space along SH 6 all the way to Almeda Additional fill in may occur along and especially to the west of Highway 6 between U S 59 and I-10.

But the massive amount of new residential construction will occur in key new master planned communities Of these, Sienna Plantation is the only one that has started The other three sites likely to house large residential developments are the Department of Transportation sites which straddle SH 6 and the Grand Parkway, the Katy/Fulshear area south of Katy, Texas, and the George Ranch which could potentially be turned into a master-planned community comparable to The Woodlands in southern Montgomery County The latter three developments are far from actualization Properties remain in the original owner's hands, though negotiations have been underway for some time on the DOT land Now with the slowdown in the Houston economy, the urgency to purchase the land and start development has been diminished somewhat Most likely the development of these potential master-planned community sites has been postponed two to three years However, once vitality returns to the Houston economy, it is virtually certain that these areas will be among the most sought after parcels of land for residential development in all of suburban Houston In the next five years, however, it means that Sienna Plantation will be the primary master-planned community in Fort Bend County

SIENNA PLANTATION

Sienna Plantation is the single most important development in east Fort Bend County While Sienna Plantation has inferior accessibility to First Colony, the area became progressively more viable as First Colony became built out and as congestion mounted on the Southwest Freeway With First Colony bowing out of the picture, Cinco Ranch (much of which is in Harris County) will become the only large master-planned community in Fort Bend County Thus, conditions were ripe in Fort Bend County for a replacement to First Colony

Though, Sienna is more isolated than other developments this disadvantage is gradually diminishing in importance because of the growing congestion on the distant portions of I-10 and SW Freeway Today, both freeways face significant periods of peak time congestion at and near Fort Bend County lines At present Sienna Plantation is disadvantaged in terms of access to the West Loop, West Belt, and SH 6

employment centers On the other hand, its accessibility to the Houston CBD, Medical Center area, or east Harris County industrial centers is better than its alternatives

Another current constraint on growth in Sienna is the condition of Almeda Road which provides direct access to Loop 610 and indirect access to Highway 288 Almeda Road needs upgrading. In its current condition it could not adequately handle even a quarter of the traffic that will eventually be generated by Sienna Plantation assuming that the Parkway is not built This means that in the short run, Sienna Plantation will most likely attract households with economic ties to Fort Bend and southwest Harris County employment centers. While the proposed toll road would make a major difference in broadening the market for Sienna Plantation, especially if it is ultimately connected to Loop 610 and to a completed Grand Parkway to the south, this possibility is not considered as a part of the analyses of this study

There are several keys to Sienna Plantation's potential success First, there will be at least some time in which it will be the only true master-planned community in Fort Bend Second, it clearly has a size advantage over most alternative location (the exception would be later development of George Ranch), and because of its size it will be able to provide the entire suburban amenity package its own parks, golf courses, and walking paths, new community schools servicing just the immediate community, and the active attention of a builder/developer

Timing is critical to Sienna Plantation's success as well Its current timing is both bad and good It is coming on line, just as the other major developments are winding down On the other hand, it is coming on line just as the Houston economy is slowing down While this latter phenomenon is a negative, it is not a insurmountable problem First Colony, came on line just prior to the energy bust of the mid 1980s Ironically, the current economic slowdown may actually serve Sienna Plantation by postponing the emergence of competitive developments such as might occur on the DOT land and in the Katy area Now because of the regional slowdown, these developments are at least five years off, giving Sienna Plantation ample time to establish itself as the premier new Fort Bend County development

NO-GROWTH ZONES

It is also useful to note where development is not likely to occur Several large parcels of land within the Brazos River flood plain are not likely to be developed, despite the fact that the use of levies in Sienna Plantation appears to have salvaged a substantial amount of land for development In

many other locations similar type levies are impractical and uneconomical In addition, large areas of farm land are likely to remained undeveloped because current ownership patterns make it impossible for developers to accumulate sufficient quantities of land This is the case south of Rosenburg where thousands of acres exist as small broken parcels

There are also large areas of land within the Toll Road's primary service area in Brazoria County that also have the locational potential for development However, the area most likely to experience development will be more closely linked with Highway 288 than the Toll Road Furthermore, while this area has experienced rapid growth of late, its long-run potential remains less clear Much of the land is in small parcels Most of the area has serious flooding problems and developers would be required to build large run-off holding ponds While the development of Brazoria County in recent years has been impressive, most of the new building has occurred in subdivisions that were developed in the early 1980s, went under in the mid 80s and are just now being redeveloped There has not been new stand-alone development of any significance in Brazoria County during the 1990s

THE PRIMARY SERVICE AREA

Much of the northern portion of the primary service area has been built out and will experience only marginal amounts of new development On the other hand, the southern portions of the primary service area have substantial potential for new population and employment Furthermore, the greatest growth potential will be within striking distance of the proposed Fort Bend County Toll Road In fact, its is likely that the proposed Toll Road will be at the entrance of one the major Houston suburban growth centers In addition to Sienna Plantation, fill in development is expected to occur up and down SH 6 from First Colony to Almeda Road In fact, much of this is already underway from actual building in Avalon to recent land acquisitions west of Lake Olympia and adjacent to Vicksburg At present there is little activity in the area immediately east of the proposed Toll Road, however, there has been talk of development and several parcels are on the market Nonetheless, much of the area is divided into small parcels unsuitable for development and other areas are sprinkled with "junk" development that will make it difficult to sell new housing

A key to the analysis of the Fort Bend County east side depends not only upon the actuality of the Toll Road, but its final configuration as well Many in the County consider the Toll Road as only the beginning of a major suburban radial connecting distant portions of Fort Bend County to the Loop 610 in Houston via a South Post Oak Freeway (perhaps a Harris

County Toll Road) Such an investment in transportation would greatly impact the development of east Fort Bend County Not only would this longer project increase construction rates in Sienna Plantation by as much as 50 percent, but it would open up development in the George Ranch area by as much as 15 years earlier than currently forecast

SUBAREAS

Employment and population projections were subdivided for the Fort Bend County Toll Road Study into 15 major geographic areas, these are shown in Figure 8.

- The primary service area that WSA expects to generate most of the traffic on the proposed Toll Road, which includes parts of Fort Bend, Brazoria and Harris Counties,
- Four subareas within Fort Bend County (North, South, Sugarland/ Richmond, and the primary service area),
- Five subareas within Harris County, other than the part within primary service area,
- Brazoria County, other than the section within the primary service area,
- Waller County,
- Montgomery County,
- Chambers County,
- Liberty County, and
- Galveston County

Within the primary service area, 71 traffic analysis zones were identified from Fort Bend County, 40 from Harris County, and 9 from Brazoria County Employment and Population were estimated at the TAZ level for these 120 TAZs only In total 140 subarea projections were made

COMPARISONS WITH HGAC PROJECTIONS

Of those subareas which exactly correspond to counties, the updated CPP forecasts were used directly except that population was converted to households in order to make the projections consistent with HGAC's projections For the remaining 135 subareas, the HGAC allocations of growth were taken as the initial starting point Since the HGAC aggregates were less than the CPP projections, the HGAC projections

were modified upward in order to match the CPP aggregate projections at the county level This upward adjustment was not done, however, on a cross-the-board prorata basis, but by an area-by-area evaluation In the process, patterns of HGAC's underestimation became more clear

The first difference in projections between CPP and HGAC estimates stemmed from the assumptions regarding population per household HGAC forecasts significant declines in population per household over the next 22 years Implicit in the CPP forecast is a slightly upward drift in population per household over all and even greater increase within the suburban growth centers This is consistent with patterns noted in a recent Cypress-Fairbanks School District study After converting CPP population forecasts into household forecasts, the differences diminish significantly

The second source of differences in projections stems from the HGAC tendency to assign no new growth to areas that haven't to date experienced any growth Apparently HGAC feels more comfortable in forecasting growth where they can see activity already underway While that is probably a good procedural guideline for short-run forecasts, it is certainly very limiting in long-run forecasting periods of 20 or more years For example, as much as half the growth in the metropolitan area today is occurring in areas which 20 years ago were undisturbed rural acreage Applying that same constraint in forecasting 20 years ago would have resulted in a serious underestimate of fringe growth and development As will be seen, this bias in the HGAC forecasts has significant implications to the Toll Road Study

On the other hand, HGAC's forecasts for areas that are mostly developed or only partially developed seem very reasonable As a consequence most HGAC forecasts were actually accepted without modification. Of the 140 subareas analyzed, 74 were left without any modification Another 39 area projections were modified by no more than plus or minus 10 percent The remaining 27 subareas required significantly more modification and hence more detailed explanation is warranted

MODIFICATIONS

Overall at the CMSA level, household population was modified upward by 4 5 percent and employment was modified upward by 5 08 percent At the county level Harris County aggregates were modified by +2 97 percent and -1 69 percent, respectively While Waller, Chambers and Liberty aggregates differ from HGAC estimates by an order of magnitude of around 35 percent, the modifications collectively only involve about 10,000 households and 1,000 jobs

The biggest modifications occurred for Fort Bend, Brazoria, Galveston, and Montgomery Counties The most dramatic changes involve HGACs' employment projections for these suburban counties The age of HGAC's projections are reflected in the fact that nearly two-thirds of the employment HGAC forecast for both Montgomery and Fort Bend between 1990 and 2020 has already been achieved. In both of these cases the CPP employment forecast is approximately twice as high as the HGAC estimate

On the other hand, it appears that HGAC is overestimating growth in Galveston and Brazoria County The northern portions of both of these counties have experienced a spurt of growth during the mid 90s, but the rest of both counties remain relatively stagnant. Furthermore, much of the development in these two counties is associated with the completion of existing subdivisions that went bankrupt in the 1980s and have been brought back to life largely because of low lot prices Both areas have substantial flood problems, significant land segmentation, and inferior reputations regarding schools

Overall, the modified projections of population and employment in this report for the primary service area are 14 percent and 44 percent higher than the HGAC estimates The former is almost exclusively due to the fact that HGAC has assigned very little growth to the area that incorporates Sienna Plantation which had not begun when they did their last iteration The latter is due mostly because HGAC's estimate of current employment is far below what all other sources estimate

Within the primary service area there are two areas in which HGAC numbers have been modified downward - the far northern zone (TAZs 1808, 09, 12, 13, 31) where limited amounts of developable land will constrain growth and in the far southwest zone (TAZ 1943) where flood zone problems will greatly restrict development The areas in which HGAC numbers had to be significantly modified upward were associated with Sienna Plantation, adjacent areas and in the area west of Almeda Road and north of SH 6 These areas fall squarely within the category of TAZs with no previous growth history for which HGAC is reluctant to assign growth However, since HGAC's latest forecast iteration, all of these areas have experienced new activity The biggest change has been the creation of Sienna Plantation which is expected to eventually accommodate a population of more than 60,000 people But in addition to Sienna Plantation, several large parcels of land have recently been purchased for residential development to the north and northeast of Sienna Plantation Furthermore, the initial reception of Sienna Plantation has led the developer to purchase another large tract adjacent to the original

development None of the potential growth of these new developments is taken into consideration in HGAC's forecasts Thus, as a result about 13,000 households have been added to HGAC's forecasts for TAZs 1815, 1816, 1817 and 1818

This adjustment constitutes about half of the difference between the HGAC forecasts for Fort Bend County and those contained in this report The remaining adjustments include an additional 7,300 households in northern Fort Bend County (because HGAC fails to include the potential development of the DOT land), 5,900 households in southern Fort Bend County (because HGAC presumes little growth beyond Greatwood which is the only major development already there), and 1,900 households in the Sugarland/Richmond area (because HGAC again assigns little growth to the far end of the area that currently has no activity) It should be noted, however, that these adjustments were made on the assumption that the Fort Bend County Parkway would not be completed to the Loop 610 to the north or to the Grand Parkway to the south The extension of the parkway to the Grand Parkway would greatly accelerate the development of South Fort Bend County in general and the George Ranch area in particular

THE TIMING OF SIENNA PLANTATION DEVELOPMENT

Because of the importance of the development of Sienna Plantation to the overall viability of the Fort Bend County Toll Road, some additional attention was given to the timing of various phases of this development At the aggregate level, our estimates of near-term household growth in Sienna Plantation are somewhat less than that estimated by the developer In essence, I feel that Sienna Plantation will not meet its own projections early in the development because of the slowdown in the Houston regional economy However, toward the end of development, 10-20 years from now, building activity is anticipated to exceed those forecast by the developer (Table 15 compares the projected build-out rate used for this study with the proforma projections made by the developer)

From what is now understood, the developer of Sienna Plantation expects to build from north to south and from west to east That is consistent with current infrastructure development Building activity would spin off the completion of the Sienna Plantation Parkway which currently dead-ends in the northern sections of the community However, actual development patterns are not exogenous to the completion of the Toll Road Without the Toll Road, Sienna Plantation is going to be forced to look more to Almeda Road as its primary access route which will speed up the

Table 15
Development Buildout Plan
vs.
Forecast Development
(New Housing Units Per Year)

Year	Forecast	Proforma
1997-1999	150	250
1999-2001	374	600
2001-2006	543	750
2006-2007	532	850
2007-2010	841	850
2010-2020	919	850

completion of Sienna Plantation Parkway and accelerate development of eastern sections of the community

The exception to the north-south and west-east pattern of development is the estates section of Sienna Plantation in the southeast corner of the development. This is currently underway without a building program Here lots are being sold on an individual basis and custom homes are being built by the lot owners themselves With lots ranging from ½ acre to 3 acres, residential density will be quite low and overall population will be relatively small The area's primary access will be via Almeda Road and building activity is likely to be sporadic Similar developments in other distant subdivisions in the Houston metropolitan area have taken several decades to be completely built out

SUMMARY

Fort Bend County has experienced explosive growth during most of this decade That growth is just now peaking and will soon begin to slow down as the regional economy itself slows Because of slumping energy prices, population and employment growth within the overall Houston area is expected to decline substantially during the next several years Though next year will be the worst, job and population growth is not expected to return back to the levels of 1997 at any time during the next 22 years

Nonetheless, Fort Bend County has clearly established itself as one of the primary growth centers of the Houston CMSA and will continue to expand in terms of both population and employment Both will more than double by the year 2020 Much of the Fort Bend County growth will occur within the southern portion of the primary service area for the Fort Bend Parkway Toll Road. Population which is now approximately 88,000 households will increase to over 131,000 by 2020, and employment, now at 56,000 will rise to about 103,000.

Many areas within Fort Bend County will also enjoy strong gains in population and employment, though the best gains will occur along the Grand Parkway and out the Southwest Freeway Sienna Plantation appears to be the heir apparent in replacing First Colony as the county's major master-planned community Cinco Ranch will remain active for another 5-8 years and new master-planned communities are likely to get started within the next 10 years on the Department of Transportation land long the Grand Parkway and SH 6 and on the George Ranch land southwest of Sienna Plantation across the Brazos River

The forecasts provided in this report are considered appropriately conservative They assume that the energy portion of the Houston economy will not recover from its current woes for several years and that it will not experience another explosive year like 1997 throughout the entire forecasting period The forecast also assumes that the U S economy will slow and experience a mild recession during the first half of the next decade This, in turn, will impact the Houston economy, just about the time upstream energy is stabilizing As a consequence the average growth rate of the regional economy is forecast to be substantially lower than the level recently experienced

The subarea forecasts foresee Fort Bend County retaining its strong suburban comparative advantage and position This study, however, does not take into consideration the full development of the Fort Bend Parkway Toll Road from the Loop 610 to the Grand Parkway Were that to occur population and employment growth for the County as a whole and for the primary service area for the Toll Road would be substantially greater than currently forecasted

CHAPTER 4

ESTIMATED TRAFFIC AND TOLL REVENUE

WSA developed estimates of traffic that would be expected to use the Fort Bend Parkway Toll Road and the revenue that would result from such use To estimate these values, WSA analyzed the answers to three questions

- What is the basic traffic demand in the corridor?
- How much will the demand grow?
- What share of the demand will use the new road at different levels of price?

The answer to the first question is based, in large measure, on the travel pattern and trip characteristic data described in Chapter 2 The growth estimates are based on the economic growth analysis described in Chapter 3 These data were used, together with an analysis of the relative value that the toll road will provide to drivers in the corridor to answer the third question

It is important to note that the growth rate used in developing future-year traffic estimates for the Parkway, although conservative compared with the high growth rates that have occurred in this section of Fort Bend County in recent years are high compared with other areas of Houston and assume the continuation of the existing pattern and rate of development in Houston If there were a change in the current circumstances, as outlined in Chapter 3, this would have a significant impact on traffic using the Parkway and anticipated toll revenues

The analysis leading to the answer of this third question is the subject of this chapter The discussion below covers the analysis methodology, assumptions used, results of an analysis of the sensitivity of usage and revenue to toll price, and a variety of comparisons to help understand the basis for the estimate of toll road usage The final product of the analysis is estimated annual toll revenue at the recommended toll rate

ANALYSIS METHODOLOGY

The travel demand analysis for the proposed Fort Bend Parkway Toll Road used the regional travel model developed by HGAC as a starting point

At its basic level, a travel demand model is comprised of estimates of traffic volume between different parts of a particular study area (e g , the Houston metropolitan area), and a computer representation of the highway network that can serve that demand Other considerations in the model include the purpose for which trips are being made, the time of day, and the speeds and capacities of the roadway system

The models used by HGAC were developed to assist with a variety of transportation planning studies in the Houston metropolitan area WSA modified these models to reflect actual travel patterns in the corridor, as surveyed by WSA (and reported in Chapter 2) The revised model was then validated to reflect observed traffic volumes on the key roads in the study area

This validated travel model was used to help estimate the expected usage of the proposed project under toll-free conditions, as well as at a variety of toll rates. This toll-sensitivity testing was done with a system of ramps and toll plazas that provided frequent access points to the proposed project Toll rates ranging from $0 05 to $0 25 per mile were evaluated The results of this analysis were shared with the Fort Bend Toll Road Authority, and an optimum toll rate recommended

WSA's estimates of usage of the Fort Bend Parkway Toll Road involve evaluating the two best travel paths between any two areas in the Houston metropolitan area, one of which would use the Parkway (if appropriate) The choice of paths is based on shortest travel time, and reflects traffic congestion at three different times of day A M peak period, P M peak period, and the rest of the day A comparison of the total cost of using one path versus the other (including the cost of people's time and distance as well as tolls) forms the basis for estimating the share of that travel market that would use the toll road at a given price

In order to evaluate future conditions, WSA grew the current-year traffic patterns to reflect conditions in 2001 (opening year), 2006 (fifth year) and 2010 traffic levels, based on the revised household and employment growth estimates developed by Barton Smith In addition to estimates of future traffic flows (i e , demand for travel), WSA also estimated the

future supply for travel, i e , improvements to the roadway system WSA's improvement assumptions were based on published transportation improvement plans, and discussions with local planners familiar with transportation planning projects.

FUTURE-YEAR NETWORK ASSUMPTIONS

The actual traffic that will use the toll road in the future will be heavily influenced by the other roadway improvements that will affect people's future travel behavior The process of transportation project development and funding makes it impossible to know with certainty which transportation improvements will happen when However, it is important that we make reasonable assumptions regarding future improvements, since such improvements could have a considerable effect on project traffic volumes The degree of uncertainty in this area of Fort Bend County is even higher than in many cases, because many projects are related to the development of certain master-planned parcels of land, which will occur as development happens

A complete list of all the planned road improvements that WSA considered as potentially important to traffic on the project is provided in Table 16, and illustrated in Figure 10 Projects have been divided into three categories, which were used as the basis for our analysis assumptions

- **Current Transportation Improvement Program (T).** These are projects in the current Transportation Improvement Program (TIP) prepared by HGAC These are fully funded, and are expected to happen within the 1998 to 2000 time frame They are assumed to have a high level of certainty regarding implementation
- **Short Term Improvements (S).** These are proposed for the period between 2001 and 2006 in the Fort Bend County Mobility Plan These have less certainty about actually being built on schedule However, given the high levels of growth expected in Fort Bend County, it is reasonable to assume that most of these projects will occur over the indicated time frame Therefore, we have assumed that these projects will be in place by 2006
- **Long Term Improvements (L).** These longer-term projects are listed in the Fort Bend Mobility Plan, and have a much more uncertain outlook They have no particular funding commitment We have assumed that none of these projects will be built over the forecast period However, some of these projects might have an adverse effect on traffic and toll revenue Therefore, we tested the

Table 16
Highway Improvement Project Listing

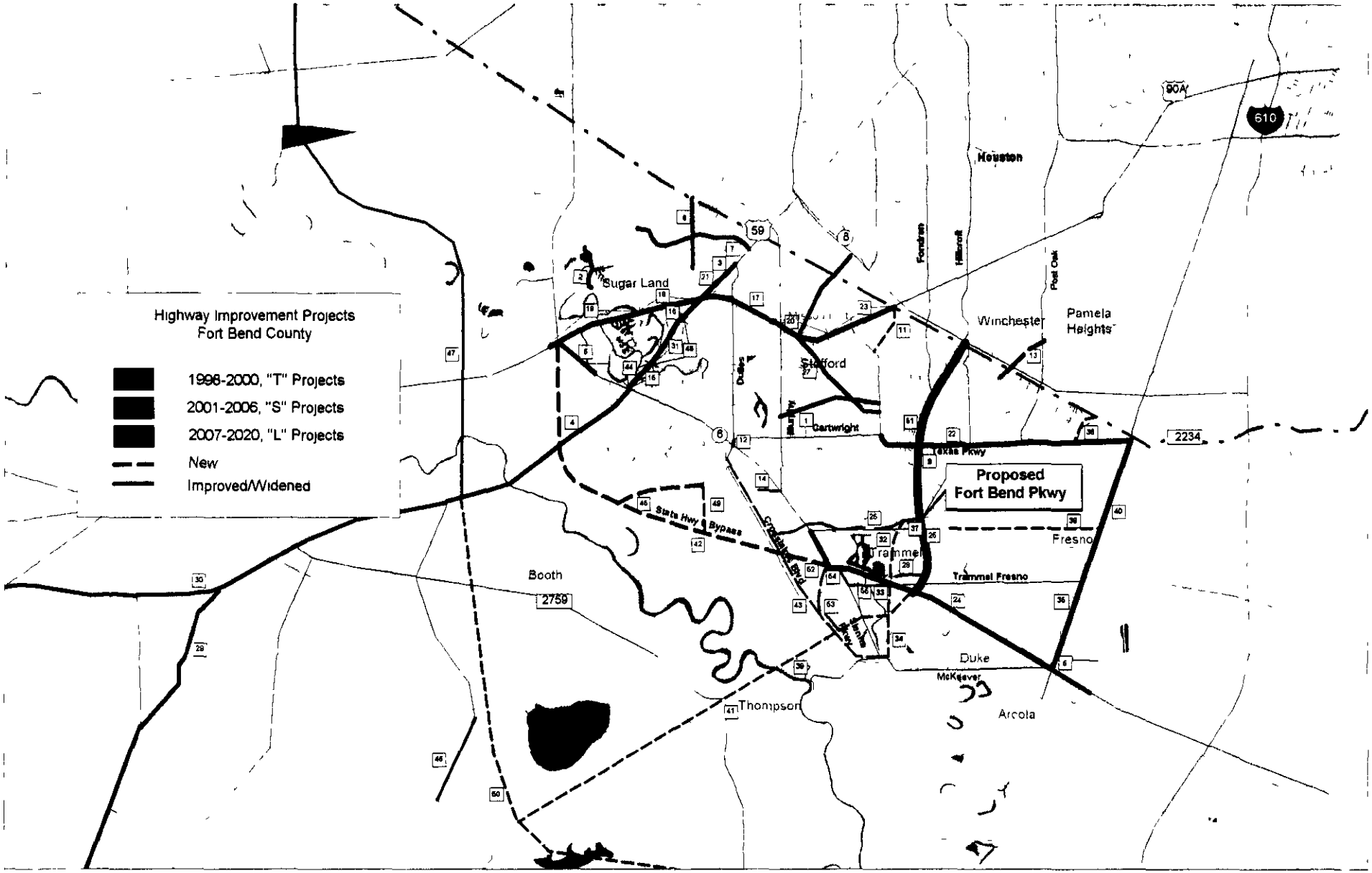
Number	Status	Street	From	To	Description	Lead-Agency	HGAC Code
1	T	INDEPENDENCE BLVD	FM 2234	FM 1092	CONST NEW 4 LN CONCRETE C&G RDWY	METRO	
2	T	BURNEY RD	JESS PIRTLE BLVD	VOSS RD	RECONST & WIDEN TO 40 RDWY W/ TRN BAYS	CITY OF SUGAR LAND	960089-XX
3	T	US 59	W OF S KIRKWOOD DR	RAMPS @ SP 41/SUGARCRK BLVD	WIDEN TO 8 LN FRWY W/HOV & FRTG AT ULT LOC	TXDOT	FB0018 98
4	T	US 59	W OF SH 6	RAMPS E OF FM 2759	WIDEN TO 6 MLN & TMS	TXDOT	FB0014A 98
5	T	SH 6	1 189 MI W OF FM 521	BRA C/L	WIDEN TO 6 LN DIV RUR	TXDOT	940297A 98
6	T	SH 6	22 MI SOUTHEAST SPRR	SP 58	WIDEN TO 6 LN DIV C&G	TXDOT	940570-98
7	T	W AIRPORT	US 59	ELDRIDGE RD	WID 2 TO 4 LNS DIV	SUGAR LAND/TXDOT	950025 98
8	T	DAIRY ASHFORD	STILES RD	WEST BELLFORT	WID 2 TO 4 LNS DIV BLVD W/ LEFT TRN LN	SUGAR LAND/TXDOT	950024 98
9	T	SH 122	HAR C/L	SH 6	CONST TWO 2 LN FRTG RDS	TXDOT	FB0007 98
10	T	SH 36	FM 2218	BRA C/L	WIDEN TO 4 LN DIV RUR	TXDOT	FB0009 98
11	T	GRAVITIS RD	[illegible] US 90A	[illegible] FM 2234	CONST 4 LN ASPHALT W/ STRM, ESPLANADES, C&G, ST LIGHTS & LNDSCPNG	CITY OF [illegible]	[illegible]
12	S	DULLES	CARTWRIGHT RD	SH 6	WIDEN TO 6 LN DIV	FORT BEND COUNTY	
13	S	INDEPENDENCE	W FUQUA	CHIMNEY ROCK	CONST 4 LN UNDIV	NO SPONSOR	
14	S	MURPHY RD (A)	GLENN LAKES BLVD	CROSSLAKES BLVD	CONST 2 LN CONCRT DIV W/ STRM ESPLANADES C&G ST LIGHTS & LNDSCPNG	CITY OF MISSOURI CITY	960155 XX
15	S	US 59	WILLIAMS TRACE BLVD	SH 6	CONSTRUCT REVERSIBLE HOV LN TO ULTIMATE CONFIGURATION	TXDOT	960744 XX
16	S	US 59	SP 41	WILLIAMS TRACE BLVD	CONSTRUCT REVERSIBLE HOV LN TO ULTIMATE CONFIGURATION	TXDOT	960748 XX
17	S	US 90A	E OF US 59	W OF FM 1092	WIDEN TO 8 LN DIV RUR SECTION	TXDOT	FB0021A
18	S	US 90A	FM 1876	W OF US 59	WIDEN TO 8 LN DIV	TXDOT	FB0021C
19	S	US 90A	0 3 MI W OF SH 6	FM 1876	WIDEN TO 8 LN DIV WITH IMPROVEMENTS AT DITCH "H"	TXDOT	FB0021D
20	S	US 90A	W OF FM 1092	0 1 MI W OF PRESENT ST	WIDEN TO 8 LN DIV	TXDOT	FB0021B
21	S	US 59	W OF S KIRKWOOD	RAMPS @ SP 41	CONSTRUCT HOV LN	TXDOT	940259
22	S	FM 2234	FM 3345	FM 521	WIDEN TO 4 LN DIV RUR SECT	TXDOT	940324
23	S	US 90A	0 1 MI W OF PRESENT ST	HARRIS C/L	WIDEN TO 8 LN DIV C&G W/ ACC RDS	TXDOT	FB0019A
24	S	SH 6	0 18 MI E OF SENIOR RD	1 189 MI W OF FM 521	WIDEN TO 6 LN DIV & GSEP AT FM 521	TXDOT	940296
25	S	LAKE OLYMPIA PKWY (B)	MISSOURI CITY LIMIT	HILLCROFT	CONST 4 LN CONCRT DIV W/ STRM ESPLANADES C&G ST LIGHTS & LNDSCPG	CITY OF MISSOURI CITY	960165 XX
26	S	SH 122	HAR C/L	SH 6	CONST 6 TOLL RD	FORT BEND TOLL RD AUTH	
27	S	STAFFORD RD & STAFFORDSH	BW 8	FM 2234	REPLACE 2 LN ASPHALT RD WITH 4 LN CONCRETE BLVD PROVIDE DIRECT CONNECTION AND GSEP ACROSS US 90A	CITY OF STAFFORD	960004 XX
28	S	VICKSBURG DR	HILLCROFT	SH 122	CONST 4 LN CONCRT DIV W/ STRM ESPLANADES C&G ST LIGHTS & LNDSCPNG	CITY OF MISSOURI CITY	960149 XX
29	S	FM 2218	US 59	SH 36	WIDEN TO 4 LNS DIV C&G	TXDOT	FB0001
30	S	US 59	RAMPS E OF FM 2759	SH 36 B/P	WIDEN TO 6 LN FRWY & BUS PRIORITY CORRIDOR TREATMENT	TXDOT	960234 XX
31	S	US 59	RAMPS @ SP 41/SUGARCREEK BLV	682 KM E OF WILLIAMS TR BLVD	PH 2 WIDEN TO 8 MLN W/HOV & FRTG @ ULT LOC	TXDOT	FB0017B 98
32	L	HILLCROFT (A)	TRUESDALE	LAKE OLYMPIA PKWY	CONST 4 LN CONCRT DIV W/ STRM, ESPLANADES, C&G, ST LIGHTS & LNDSCPG	CITY OF MISSOURI CITY	[illegible]
33	L	HILLCROFT (B)	SH 6	SH 122	CONST 4 LN CONCRT DIV W/ STRM, ESPLANADES, C&G, ST LIGHTS & LNDSCPG	CITY OF MISSOURI CITY	[illegible]
34	L	HILLCROFT (C)	SH 122	CROSSLAKES BLVD	CONST 4 LN CONCRT DIV W/ STRM, ESPLANADES, C&G, ST LIGHTS & LNDSCPG	CITY OF MISSOURI CITY	960164-XX

(continued)

Table 16 (Cont'd)
Highway Improvement Project Listing

Number	Status	Street	From	To	Description	Lead-Agency	HGAC Code
[illegible]							
42	S	SH 6	0 3 MI S OF US 90A/SPT RR O/	MCKEEVER RD	CONST 4 LN BYPASS ON NEW LOC & BUS PRIORITY CORRIDOR TREATMENT	TXDOT	960678-98
[illegible]							
43	S	CROSSLAKES BLVD (A)	RIM ROCK	MURPHY	CONST 4 LN CONCRT DIV W/ STRM ESPLANADES, C&G ST LIGHTS & LNDSCPNG	CITY OF MISSOURI CITY	960161 XX
44	T	US 59	0 682 KM E OF WILLIAMS TRACE	0 44 KM W OF SH 6	WIDEN TO 8 MLN W/ HOV TMS & FRTG RDS @ ULT LOC	TXDOT	FB0017D 98
45	S	COMMONWEALTH BLVD	DITCH H	US 59	CONST 2 LN BLVD TO CONNECT W/ US 59	CITY OF SUGAR LAND	960098 XX
[illegible]							
48	T	US 59	RAMPS @ SP 41/SUGARCREEK BLV	682 KM E OF WILLIAMS TR BLVD	CONDUCT P E & WIDEN TO 8 M/L W/ HOV & FRTG RDS	TXDOT	FB0017A 98
[illegible]							
52	T	NEW MCKEEVER LOOP ROAD	SH 6	MID PT IN DEVELOPMENT	CONST 4 LN BLVD		
53	S	NEW MCKEEVER LOOP ROAD	MIDPOINT IN DEVELOPMENT	FT BEND PKWAY PHASE 2 EXT	CONST 4 LN BLVD		
54	S	OLD MCKEEVER RD	SH 6	TRAMMEL FRESNO RD	RECONST TO ONE 41 FT SECTION		
55	S	TRAMMEL FRESNO RD	OLD MCKEEVER RD	SH 6	RECONST TO ONE 41 FT SECTION		

Note
The projects not assumed in our network are shaded
T Assumed to be in place by open year of the tollroad
S Assumed to be in place by 2006
L Assumed not to be built over forecast period The impact of subset of the projects will be evaluated as a sensitivity test
HGAC code Project code used by Houston Galveston Area Council



Future Highway Improvement Projects

WILBUR SMITH ASSOCIATES

FIGURE 10

sensitivity of our basic estimates to changes in future highway assumptions in the section of this report dedicated to sensitivity tests

WSA had to use best judgement to identify the location and description of several projects following discussions with staff from HGAC, Rust Lichliter/Jameson, Fort Bend Economic Development Council, Sienna Plantation, and the staff from the cities of Missouri City and Sugar Land

One additional road improvement was included in the 2010 road network Development of Sienna Plantation will probably have progressed to the point where the developer will extend Sienna Parkway south and make the connection to Almeda Road (FM 521), using the alignment of Scanlan Road This network improvement is important because it would facilitate access to Almeda Road for all residents of Sienna Plantation that travel to and from Houston inside the Inner Loop

BASIC ASSUMPTIONS

Traffic and toll revenue estimates for the Fort Bend Parkway Toll Road are predicated upon the following assumptions

- The Fort Bend Parkway Toll Road will be constructed as a limited-access, high-speed facility, which will open to traffic on July 1, 2001,
- The Fort Bend Parkway Toll Road will be well maintained, properly signed, and aggressively marketed to encourage maximum usage,
- The recommended toll collection concept and toll schedule will be adopted as shown in this report,
- Improvements to the present highway system in the travel corridor will be limited to those described in this report Furthermore, no competing limited-access highways will be constructed in the Parkway corridor,
- The economic forecasts for the area developed by Barton Smith are an accurate assessment of the corridors growth potential,
- No natural disasters will occur that could significantly alter travel patterns through the area,
- Motor fuel will remain in adequate supply, and future increases in fuel price will generally occur in proportion to the overall rate of inflation, and

- No local, regional, or national emergency will arise that would abnormally restrict the use of motor vehicles

Any significant departure from these basic assumptions could materially affect estimated traffic and toll revenue for the Fort Bend Parkway Toll Road

VEHICLE OPERATING COSTS AND VALUE OF TIME

In addition to tolls, two major costs are considered when calculating the total cost of a trip Vehicle operating costs take into account drivers perception of the wear and tear on a vehicle as expressed in maintenance costs, tires, etc., and other non-fixed costs such as fuel Value of time is the cost per minute of a specific trip as perceived by the traveler

VEHICLE OPERATING COSTS

A vehicle operating cost of $0 13 per mile for passenger cars was used in the model Past studies by WSA, have shown that drivers perceive primarily fuel cost in decisions regarding trip paths

VALUE OF TIME

Motorists perception of their value of time is a key component of the decision as to whether or not to use a toll facility People attach different values to their time depending on the purpose of their trip WSA estimated average values of time for different market segments (journey to/from work, business, other) that correspond to those used in the travel demand model Consideration was given to the following factors when determining the values of time

- Data on median household income for the area that select link analysis of the toll free assignment identified as the service area of the Parkway,

- Factors to adjust the values of time derived from median household income based on perceived value of time to reflect trip purpose The factors are based on numerous studies of travel behavior done by WSA and others, including stated preference surveys done specifically for toll road financing studies in other locations, and

- The distribution of trip purposes during different time periods from the road-side surveys

The median household income for Missouri City was used to determine the appropriate values of time for use in the model Current demand for

the Parkway would be primarily from Missouri City WSA also believes that new development areas such as Sienna Plantation, which will be an important source of demand for the Parkway in the future, will have income profiles close to that in Missouri City

The overall average value of time used in this study was $0 185 per minute

EFFECTS OF INFLATION ON TRAFFIC AND REVENUE ESTIMATES

The traffic and revenue estimates in this report are based on the assumption that toll-costs and values of time remain at 1998 levels This has two implications

- It will be possible for the Fort Bend Toll Road Authority to raise prices periodically to track inflation, without affecting the traffic levels estimated in this report

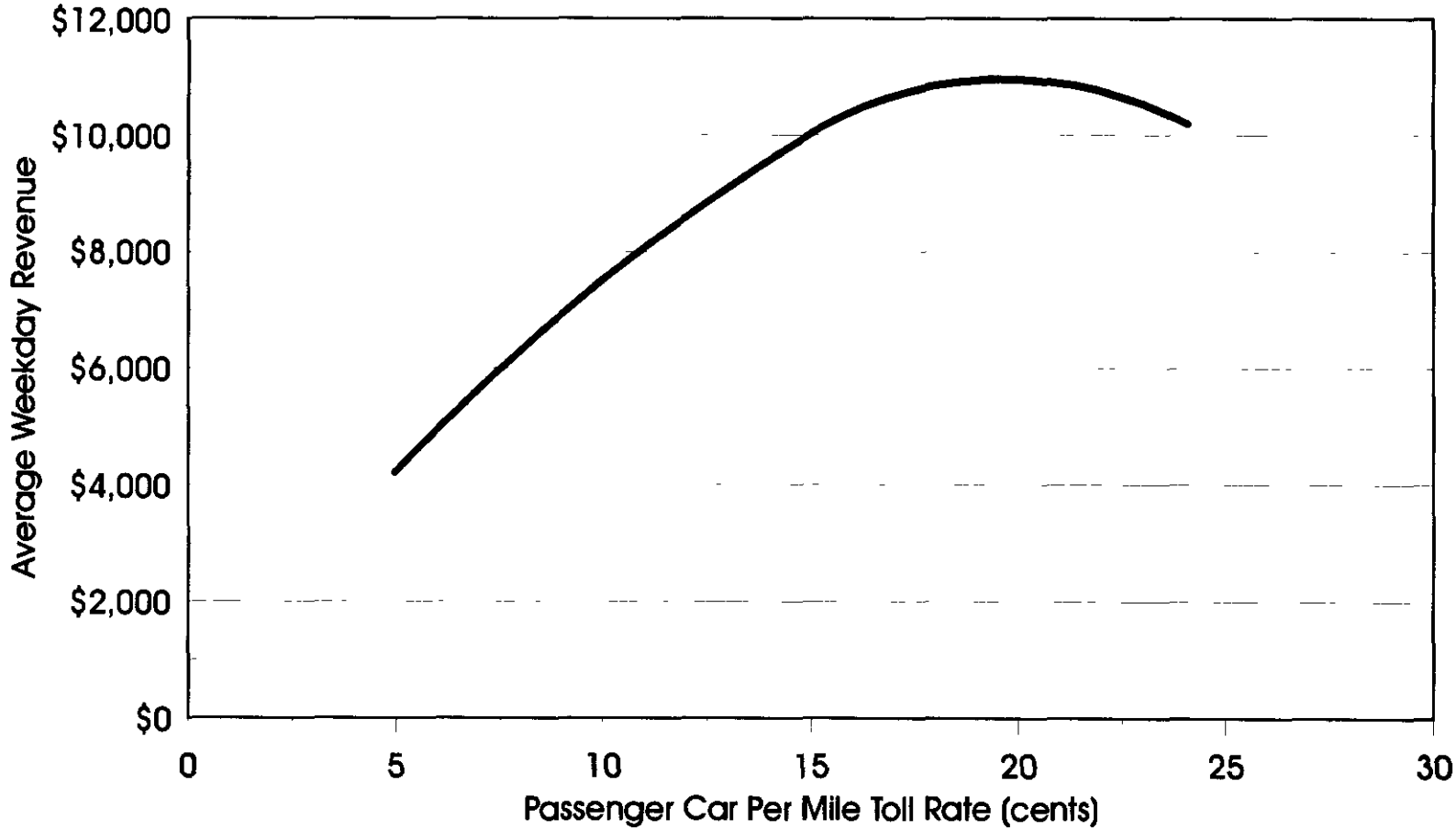
- If tolls are not increased over time, and inflation occurs, then the value of the tolls related to people's perceived time value will drop This should result in higher traffic levels than indicated in this report

TOLL SENSITIVITY ANALYSIS AND RECOMMENDED TOLL RATES

WSA evaluated the sensitivity of the usage of the project to a range of toll rates The analysis was done for the full project configuration (Toll Scheme 2 from our November 1997 report) at 1999 traffic levels Toll rates that represent per-mile charges ranging between $0 05 and $0 25 per-mile for passenger cars were tested, in addition to toll free conditions Proportionally higher rates would be charged for commercial vehicles

Figure 11 presents the findings of the toll sensitivity analysis WSA estimates that toll revenue would increase as toll rates increase up through a toll rate of about $0 20 per mile After that level, higher toll rates would discourage enough customers from using the facility to the point where toll revenue would drop

WSA recommends that the tolls be set at a level of $0 16 per mile, which is slightly below the "top" of the toll sensitivity curve Setting the toll at this level allows some room to raise tolls to improve revenue should traffic not meet expectations It is important to note that these toll rates are about twice that charged on the Sam Houston Toll Road, and would be among the highest toll rates in the nation



TOLL SENSITIVITY CURVE

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FIGURE 11

CORRIDOR SHARE ANALYSIS

The share of the corridor's travel market that would be captured by the Fort Bend Parkway Toll Road at different toll levels in 1999 was also analyzed (see Table 17) The corridor demand is measured at a point just north of the McHard Interchange and on parallel routes at the same location (see Figure 12) Under toll free conditions, the Parkway would attract approximately 41,300 vehicles on an average weekday, or 44 percent of the total traffic When a toll of $0 05 is introduced the traffic crossing the screenline using the Parkway would be expected to fall to 20,000, or approximately 24 percent of the total At $0 16 per mile the volume of traffic using the Parkway would fall to approximately 15,000, which represents approximately 18 percent of the traffic crossing the screenline If the toll rate were increased to $0 25 per mile traffic on the Parkway would fall to approximately 9,000 vehicles on an average weekday, or, 11 percent of traffic across the screenline

TOLL ROAD ACCESS AND COLLECTION CONCEPT

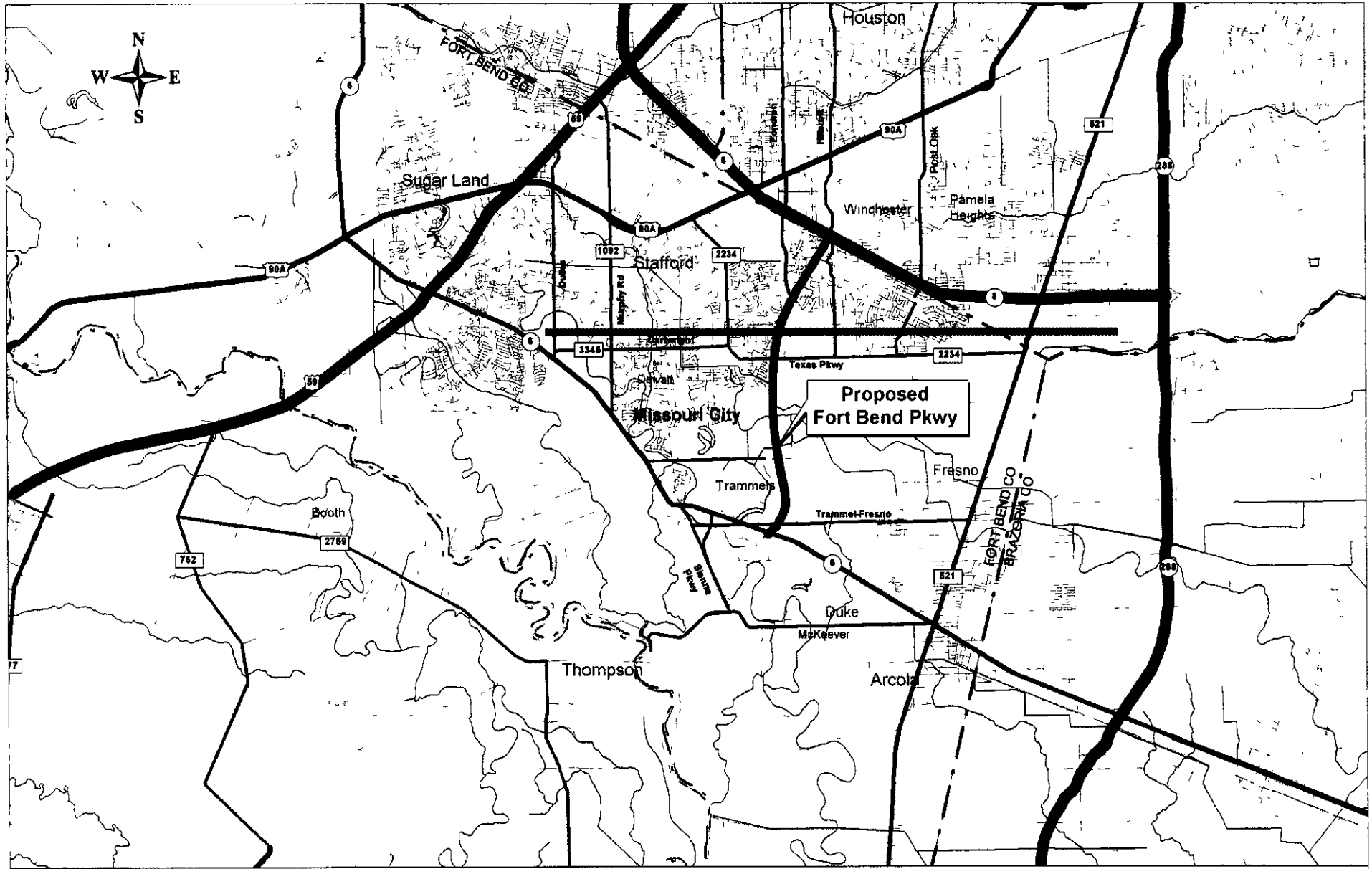
Access to and from the Parkway would be at a limited number of selected locations with tolls at every exit ramp on the Parkway (see Figure 13) Aside from the northern and southern termini, intermediate access points would be provided as follows

- **Fondren Road**, with access to and from the south only
- **McHard Road,** with full access
- **Lake Olympia Parkway**, with access to and from the north only

Toll charges at each of the plazas would be set to reflect the maximum distance traveled on the Parkway before exiting at that point The recommended toll charges for passenger cars and commercial vehicles at each of the toll plazas are shown in Table 18 The toll charges are based on a per mile rate of $0 16 per mile rounded to the nearest quarter Hence, the rate charged on the exit ramps at each end of the Parkway would be $1 00, assuming that all trips are full length At McHard Road the toll rate would be $0 50 assuming that all trips are entering either at the Beltway to the north or SH 6 to the south At Fondren Road and Lake Olympia Parkway the toll rate would be $0 75 The effective toll rate per mile charged on the Parkway would be higher for intermediate trips than for a full-length trip For example, the toll rate for vehicles entering the Parkway at McHard Road and getting off at the Beltway would be $1 00, which is the equivalent of a per mile rate of $0 32 Some inequity in the per mile toll rates is unavoidable with any toll system

Table 17
Fort Bend Parkway Corridor Share Comparison
Average Weekday Traffic - Base Condition
(1999)

	No Build		Toll Free		Toll $0 05 per mile		Toll $0 11 per mile		Toll $0 16 per mile		Toll $0 25 per mile	
Screenline	Average Daily Traffic	Percent of Screenline	Average Daily Traffic	Percent of Screenline	Average Daily Traffic	Percent of Screenline	Average Daily Traffic	Percent of Screenline	Average Daily Traffic	Percent of Screenline	Average Daily Traffic	Percent of Screenline
FM 1092	25,600	32 2%	19,500	20 6%	22,300	26 4%	22,600	27 1%	23,188	28 0%	23,925	29 0%
FM 2234 Texas Pkwy	28,100	35 3%	17,200	18 1%	21,400	25 3%	21,900	26 3%	22,867	27 6%	25,575	31 0%
Project	0	0 0%	41,300	43 6%	20,000	23 7%	17,650	21 2%	14,950	18 0%	8,968	10 9%
Almeda Rd (FM 521)	25,800	32 5%	16,800	17 7%	20,800	24 6%	21,100	25 4%	21,872	26 4%	24,007	29 1%
	79,500	100 0%	94,800	100 0%	84,500	100 0%	83,250	100 0%	82,877	100 0%	82,475	100 0%



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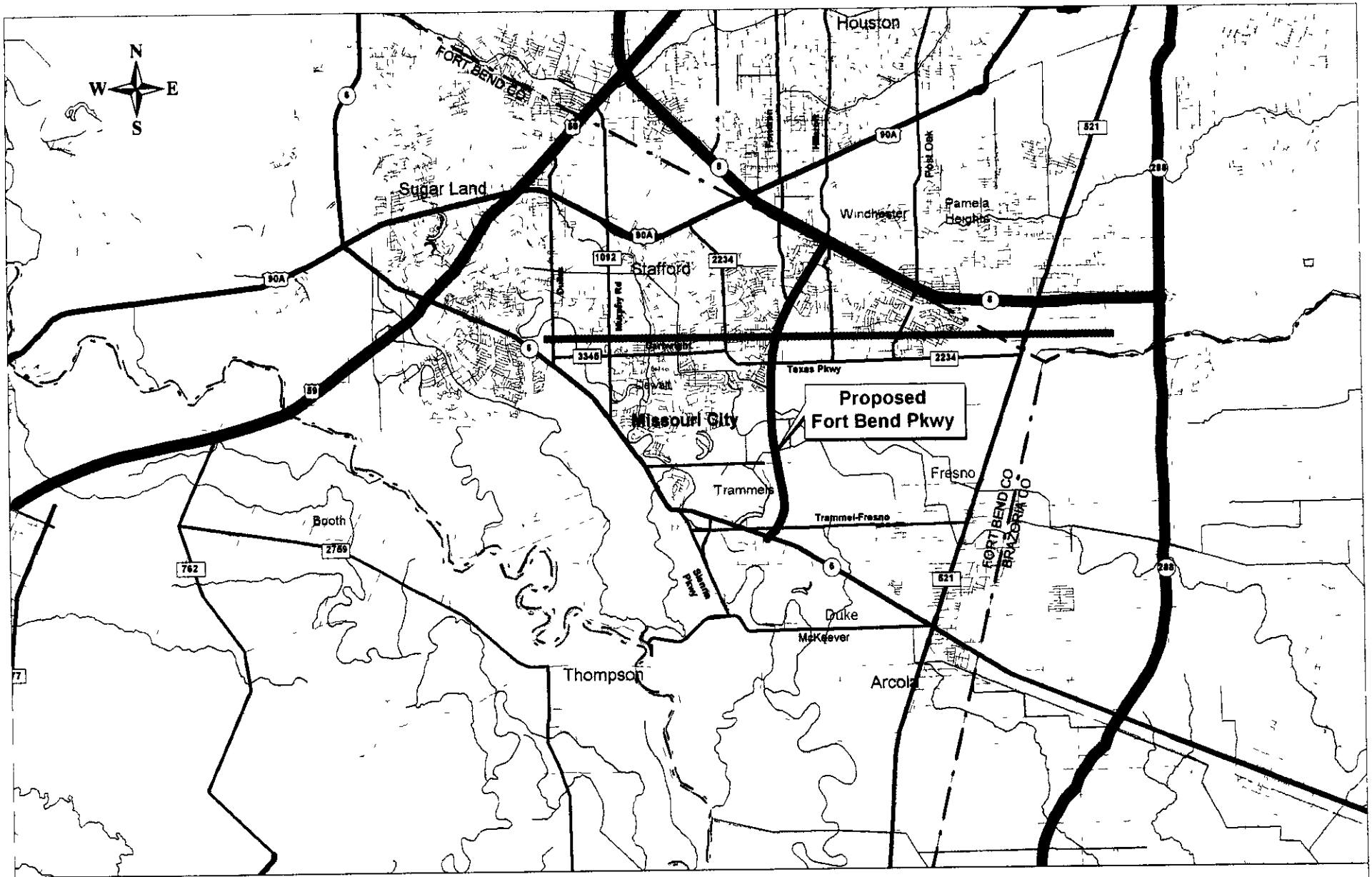
SCREENLINE LOCATION

FIGURE 12

Table 18

Recommended Toll Schedule

Plaza Location	Class 1 Two-Axle Vehicles	Class 3 Three-Axle Vehicles and Combinations	Class 4 Four-Axle Vehicles and Combinations	Class 5 Five-Axle Vehicles and Combinations	Class 6 Six-Axle Vehicles and Combinations
Hillcroft NB Off	$1 00	$2 00	$3 00	$4 00	$5 00
Fondren BN Off	0 75	0 75	0 75	0 75	0 75
Mc Hard Rd SB Off	0 50	1 00	1 50	2 00	2 50
Mc Hard Rd NB Off	0 50	0 50	0 50	0 50	0 50
Lake Olympia Pkwy SB Off	0 75	0 75	0 75	0 75	0 75
SH 6 SB Off	1 00	2 00	3 00	4 00	5 00



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SCREENLINE LOCATION

FIGURE 12

The rates charged for commercial vehicles would be higher on a per-axle basis than for passenger cars This recognizes that heavier commercial vehicles typically account for a disproportionate share of pavement and structure wear and tear While weight would be the most equitable basis for developing toll charges, for simplicity and cost reasons the charges are normally developed on the basis of the number of axles Toll rates for trucks are often based on a straight per-axle basis, which results in larger five-axle trucks paying tolls 2 5 times that of a car

Another variation on the per-axle toll rates is referred to as the "N minus 1" formula Under this method truck tolls are still axle-based, but are established in even multiples of the passenger car toll, using the following formula Toll = (R)(N-1), where R = the base rate for a two-axle vehicle and N= the number of axles The formula results in tolls for trucks that are higher for larger vehicles -- a five-axle truck would pay four times the passenger car rate

ESTIMATED AVERAGE WEEKDAY TRAFFIC

WSA estimated average weekday traffic at 2001 levels (assuming the opening of the Parkway will be July 1, 2001), 2006 (to represent the fifth year of operation) and 2010 using the proposed Parkway configuration as shown in Figure 13

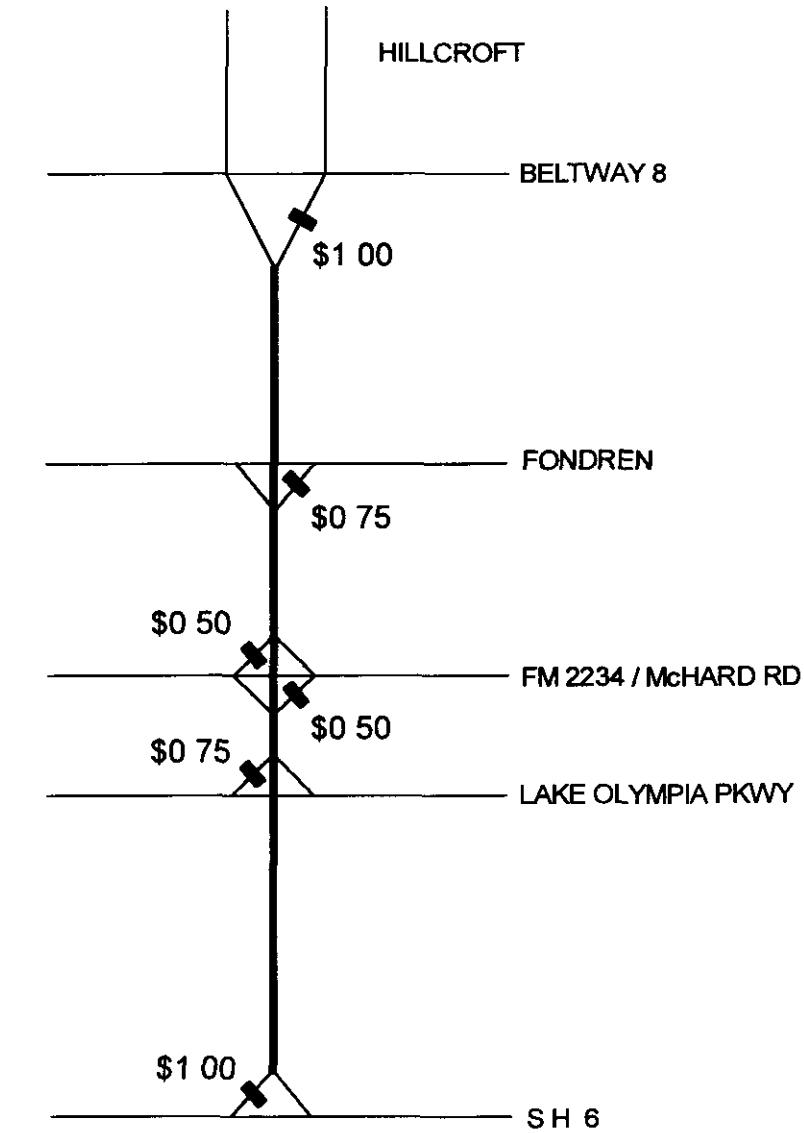
OPENING-YEAR (2001) ESTIMATED AVERAGE WEEKDAY TRAFFIC

At the peak load point on the Parkway, which lies between McHard Road (FM 2234) and Fondren, the estimated weekday traffic would be approximately 14,000 vehicles (see Figure 14) Approximately half of the vehicles (4,400 of the 8,500 vehicles expected to enter the system southbound and 3,400 of the 7,500 vehicles expected to enter the system northbound) would travel between McHard Road and Hillcroft/Beltway 8 The second most significant entry and exit point is at SH 6

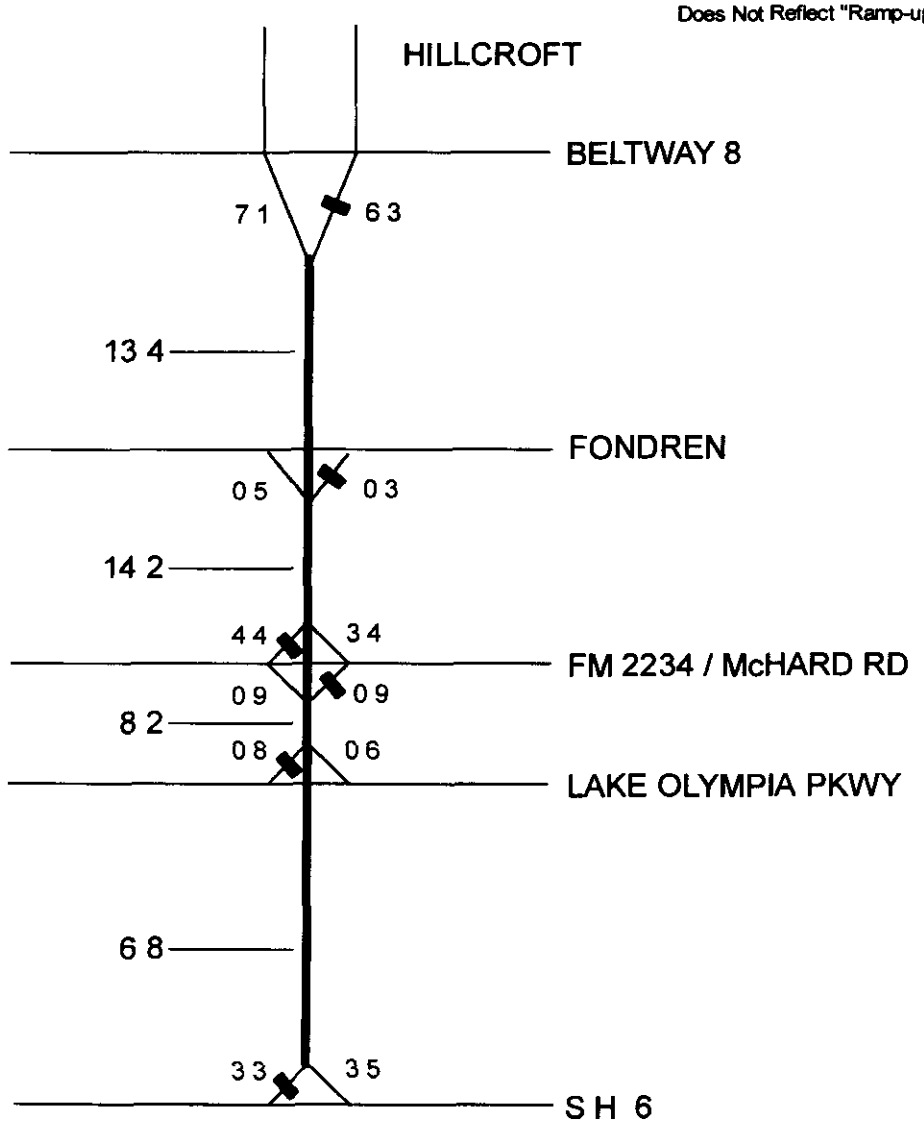
These numbers, which are shown in Figure 14, do not take into account the "ramp-up" effect, which will occur immediately after a new facility is opened "Ramp-up" is the period during which traffic gradually builds up on a new facility just after it opens as people familiarize themselves with the system This ramp-up of traffic is addressed later in its chapter

ESTIMATED AVERAGE WEEKDAY TRAFFIC, IN 2006

By 2006, weekday traffic at the peak load point on the Parkway is expected to grow to 18,000 vehicles (see Figure 15) This represents an increase of approximately 27 percent, or an annual rate of growth of 4 8 percent The most important movement remains between McHard Road

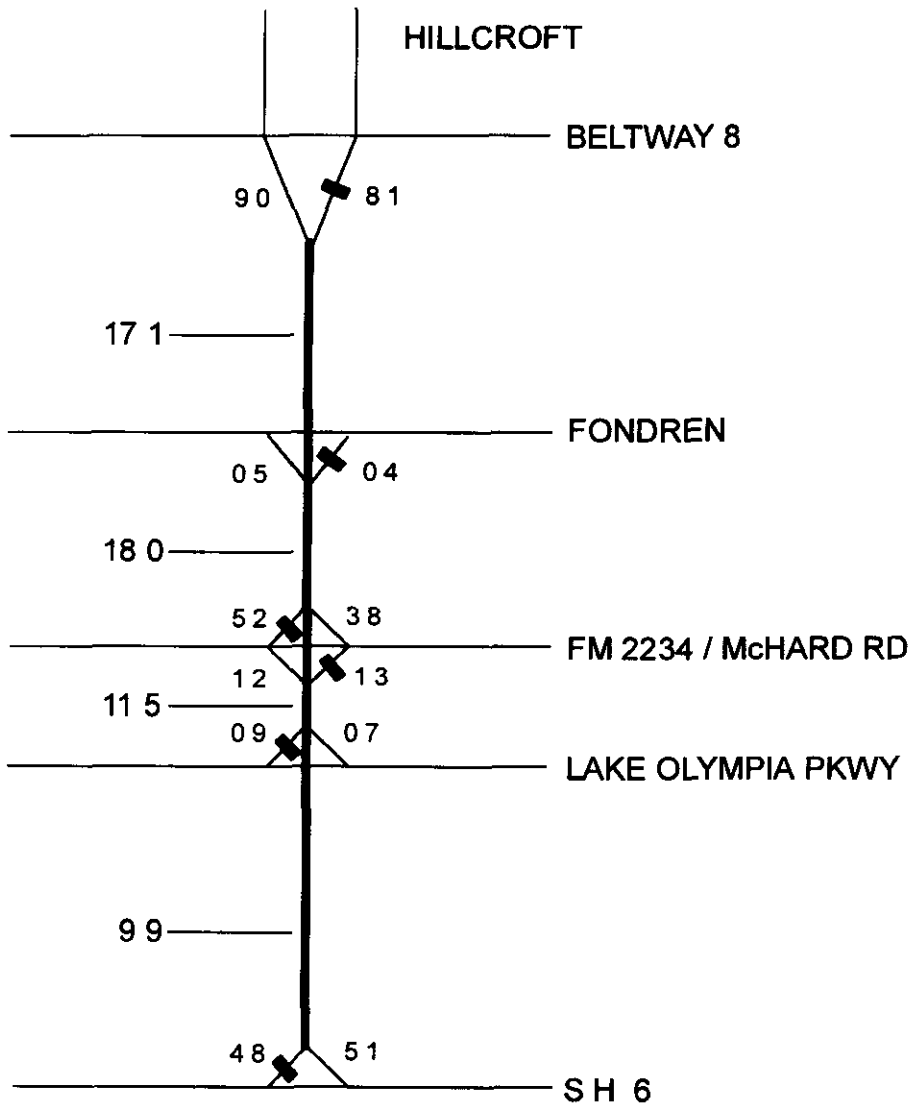


RECOMMENDED TOLL SCHEDULE
Passenger Toll Rate



ESTIMATED AVERAGE WEEKDAY TRAFFIC

YEAR 2001



ESTIMATED AVERAGE WEEKDAY TRAFFIC

YEAR 2006

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FIGURE 15

and Hillcroft/Beltway 8, however the growth in traffic at the southern end of the Parkway should be faster than at the northern end Total traffic volume expected to enter the Parkway at SH 6 should exceed the total entering at McHard Road On the section between Fondren Road and Hillcroft/Beltway 8 traffic would grow from 13,400 vehicles in 2001 to 17,100 by 2006, about 5.0 percent per annum On the southern section between Lake Olympia Parkway and S H 6 traffic would grow from 6,800 to 9,900 vehicles, or by approximately 8 0 percent per annum Traffic entering and exiting from the north at McHard Road would grow from 7,800 on an average weekday to 9,000, or by 2 9 percent per annum.

ESTIMATED AVERAGE WEEKDAY TRAFFIC, IN 2010

By 2010 the average weekday traffic at the peak load point on the Parkway would reach 23,000 (see Figure 16) The growth in traffic experienced at the northern and southern ends of the Parkway would be fairly uniform during this period However, the growth in traffic entering at S H 6 would be slightly higher than that occurring at the McHard Road ramps Traffic would grow by approximately 24 0 – 26 0 percent throughout the four-year period or by 5 5 - 6 0 percent per annum

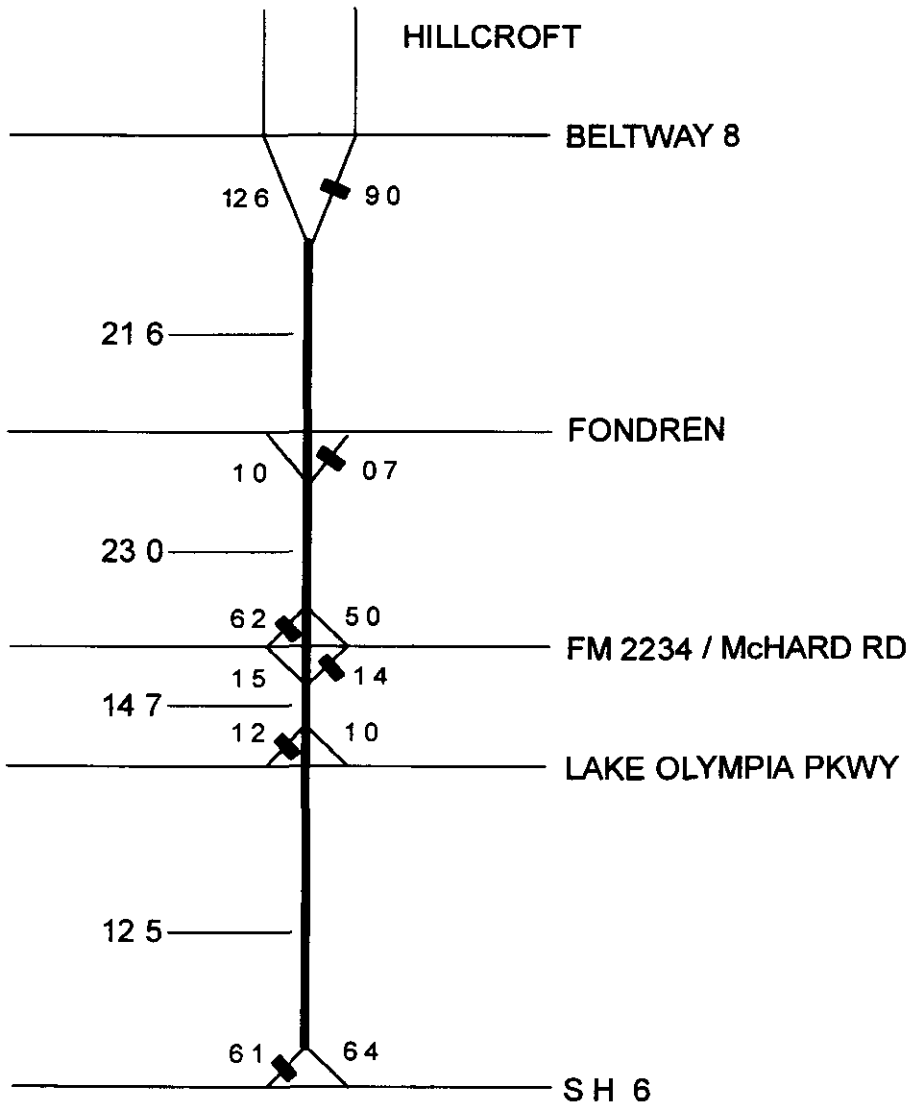
CORRIDOR SHARE COMPARISON

To put the traffic estimates in perspective, WSA compared the average weekday traffic volume that would be expected to travel on both the Parkway as opposed to competing routes (see Table 19)

The results of the analysis show that under toll free conditions in 2001 the Parkway would attract 42,000 vehicles on an average weekday, or 41 percent of the total traffic crossing the screenline Under toll conditions the traffic volume would fall to 14,200 capturing approximately 16 percent of the screenline total

By 2006, under toll free conditions, the traffic using the Parkway would grow to 49,700 vehicles on an average weekday, or 43 percent of the total screenline traffic Under toll conditions the traffic volumes of 18,000 would represent approximately 18 percent of the traffic crossing the screenline

In 2010, toll free traffic on the Parkway would increase to 60,100 or 42 percent of the total traffic crossing the screenline At the proposed toll rate the traffic volume would be 23,000, or 19 percent of the total traffic crossing the screenline



ESTIMATED AVERAGE WEEKDAY TRAFFIC

YEAR 2010

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FIGURE 16

Table 19
Corridor Share Comparison
Average Weekday Traffic

YEAR 2001

Screenline	No Build		Toll Free		Toll	
	Average Weekday Traffic	Percent of Screenline	Average Weekday Traffic	Percent of Screenline	Average Weekday Traffic	Percent of Screenline
FM1092	30,900	36 8%	22,800	22 3%	27,000	31 0%
FM 2234 Texas Pkwy	25,400	30 3%	17,700	17 4%	22,100	25 4%
Project	**0**	**0.0%**	**42,000**	**41.2%**	**14,200**	**16.3%**
Almeda Rd (FM 521)	27,600	32 9%	19,500	19 1%	23,800	27 3%
TOTAL	83,900	100 0%	102,000	100 0%	87,100	100 0%

YEAR 2006

Screenline	No Build		Toll Free		Toll	
	Average Weekday Traffic	Percent of Screenline	Average Weekday Traffic	Percent of Screenline	Average Weekday Traffic	Percent of Screenline
FM1092	37,200	38 7%	26,200	22 4%	32,400	32 2%
FM 2234 Texas Pkwy	26,300	27 4%	17,400	14 9%	21,900	21 8%
Project	**0**	**0.0%**	**49,700**	**42.6%**	**18,000**	17 9%
Almeda Rd (FM 521)	32,500	33 9%	23,500	20 1%	28,200	28 1%
TOTAL	96,000	100 0%	116,800	100 0%	100,500	100 0%

YEAR 2010

Screenline	No Build		Toll Free		Toll	
	Average Weekday Traffic	Percent of Screenline	Average Weekday Traffic	Percent of Screenline	Average Weekday Traffic	Percent of Screenline
FM1092	44,400	40 9%	30,300	21 2%	38,500	32 1%
FM 2234 Texas Pkwy	27,600	25 4%	16,400	11 4%	22,000	18 4%
Project	**0**	**0 0%**	**60,100**	41 9%	**23,000**	**19 2%**
Almeda Rd (FM 521)	36,500	36 7%	36,500	25 5%	36,300	30 3%
TOTAL	108,500	100 0%	143,300	100 0%	119,800	100 0%

NOTE Screenline located just north of McHard Road

ESTIMATED ANNUAL TOLL REVENUE

EFFECTS OF WEEKENDS AND HOLIDAYS

Annual toll revenue estimates were prepared for 2001, 2006 and 2010 based on the average weekday traffic estimates Average weekday traffic and toll revenue was multiplied by a factor of 307.5 to account for weekend and holiday traffic The 307 5 factor was derived as follows

- Traffic on weekends and holidays would be about one half of the amount travelling on weekdays This is consistent with patterns on other toll roads,

- Traffic on the toll road would amount to , on average 307 5 weekdays per year This reflects
  - 52 weeks x 5 weekdays = 260 weekdays
  - Minus 10 holidays = 250 weekdays and 115 weekends/holidays
  - The 115 weekends/holidays would generate 57 5 weekdays worth of traffic
  - 250+57 5 = 307 5

TRUCKS

Trucks were assumed to account for about one percent of the traffic flow on the Parkway This is consistent with the traffic levels evident on other toll facilities that serve primarily commuter markets The distribution of trucks by axle-category on the toll road was assumed to be consistent with that counted at the interview survey stations by WSA With the "n-1" toll rate system, trucks were assumed to pay, on average, 2 2 times the passenger car rate

EFFECTS OF UNATTENDED TOLL COLLECTION

It is common practice for toll agencies to leave low volume ramp toll plazas unattended for some or all of the day to reduce the costs of collection Although some loss in revenue can be expected from such a practice, the savings in operation expenses outweigh the revenue loss under certain combinations of toll rate and traffic levels

Based on the estimated traffic volumes, WSA recommends that the higher volume plazas, such as those at Hillcroft, McHard Road southbound off and S H 6, should be manned for 16 hours a day While toll revenue collected at these locations would decline by an estimated 7 percent because of evasion during the times at which the plazas are unattended, the loss should be outweighed by the labor cost savings.

It is recommended that lower volume plazas, such as Lake Olympia Parkway, McHard northbound off, and Fondren, be unattended at all times The gross toll revenue collected at these unattended locations would be approximately 20 percent lower due to evasion However, the net revenue would be higher because of the elimination of labor costs

The estimate of evasion at unattended plazas is based on the assumption that a program of strict enforcement would be instituted to keep the evasion rate under control One method for doing this would be to construct observation booths at each of the plazas, with tinted windows This would make it impossible for drivers to determine whether a booth is attended or not A random manning system would then be sufficient to discourage toll evasion at the unattended plazas.

It is also recommended that a flat toll rate be charged at the lower volume exit plazas irrespective of the number of axles The flat rate would eliminate the problems that might arise with incorrect change, while the toll revenue impact would be minimal

ESTIMATED TRAFFIC AND TOLL REVENUE BY PLAZA AND YEAR

The average weekday transactions and annual toll revenues by plaza, based on the assumptions outlined above, are shown in Table 20 The weekday transactions would be expected to range between 16,000 in 2001 to 20,700 in 2006 and 24,600 in 2010 The toll revenue would be expected to reach $3,963,000 in 2001 if the road was open for the entire year, not taking into account the "ramp-up" period By 2006 it is estimated that revenue would be $4,874,000, growing to $5,965,000 by 2010

The total annual transactions and revenue for the period between 2001 and 2020 are shown in Table 21 The opening-year and second year revenue of $2,735,000 reflects the assumption that the project will open on July 1, 2001 and that traffic will achieve our full estimated value after a 12-month ramp-up period Annual toll revenue is expected to grow from $2,735,000 in the first year of operation to $5,965,000 in 2010.

The growth in traffic and toll revenue is approximately 5 percent per annum between 2001 and 2006, and 3 percent per annum between 2006 and 2010 After 2010 it was assumed that the growth in traffic would be slightly slower It was assumed that the growth rate decline from 3 percent per annum in 2010 to 2 5 percent per annum in 2015 and remain at 2 5 percent per annum through to 2020

Table 20
Estimated Toll Revenue by Plaza

Plaza Location	Average Weekday Transaction (thousands)	Passenger Car Toll Rate (1)(2)	Annual Toll Revenue (thousands)
Year 2001			
Hillcroft	6 3	$1 00	$1 949
Fondren	0 3	0 75	55
McHard southbound off ramp	4 4	0 50	683
McHard northbound off ramp	0 9	0 50	111
Lake Olympia Parkway	0 8	0 75	148
SH 6	3 3	1 00	1,017
Total	**16 0**		**$3,963**
Year 2006			
Hillcroft	8 1	$1 00	$2,339
Fondren	0 4	0 75	74
McHard southbound off ramp	5 2	0 50	755
McHard northbound off ramp	1 3	0 50	160
Lake Olympia Parkway	0 9	0 75	166
SH 6	4 8	1 00	1 380
Total	**20 7**		**$4,874**
Year 2010			
Hillcroft	9 0	$1 00	$2,870
Fondren	0 7	0 75	125
McHard southbound off ramp	6 2	0 50	876
McHard northbound off ramp	1 4	0 50	167
Lake Olympia Parkway	1 2	0 75	215
SH 6	6 1	1 00	1,712
Total	**24 6**		**$5,965**

NOTES Estimates assume toll rates and time values at 1998 levels
2001 estimates do not reflect ramp-up effects, and annualized based on a full year of operation
(1) Assumed that the three higher volume plazas are manned 16 hours a day, and lower volume plazas are unattended
(2) Toll rate for passenger cars revenue estimates assume 1 percent commercial traffic paying an average of approximately 2 2 times the passenger car toll rate at the manned plazas (At Hillcroft, McHard southbound on ramp and S H 6)

Table 21
Estimated Annual Toll Transactions and Revenue

Year	Annual Transactions (thousands)	Annual Revenue (thousands)
2001	3,384	$2,735
2002	4,930	3,945
2003	5,433	4,306
2004	5,718	4,488
2005	6,019	4,677
2006	6,335	4,875
2007	6,696	5,164
2008	7,079	5,470
2009	7,483	5,794
2010	7,211	5,965
2011	7,420	6,138
2012	7,628	6,310
2013	7,834	6,481
2014	8,038	6,649
2015	8,238	6,815
2016	8,444	6,986
2017	8,645	7,160
2018	8,872	7,340
2019	9,094	7,523
2020	9,321	7,711

NOTES Project assumed to open on July 1, 2001
Effects of ramp-up are assumed to last 12 months
Estimates assume toll rates and time values at 1998 levels

DISCLAIMER

Current professional practices and procedures were used in the development of these findings However, there is considerable uncertainty inherent in future traffic and revenue forecasts for any toll facility There may sometimes be differences between forecasted and actual results caused by events and circumstances beyond the control of the forecasters These differences could be material Also, it should be recognized that traffic and revenue forecasts in this document are intended to reflect the overall estimated long-term trend Actual experience in any given year may vary due to economic conditions and other factors

CHAPTER 5

SENSITIVITY TESTS

In addition to the baseline traffic and toll revenue forecasts presented above, three sensitivity tests were performed to gauge the facility's sensitivity to changing conditions Each of the tests is discussed below

ACCELERATED CONSTRUCTION OF COMPETITIVE ROADWAY IMPROVEMENTS

This test assumes that an additional lane is added in each direction to Almeda Road between SH 6 and SH 99 just south of Beltway 8 This improvement was chosen for the sensitivity tests because it is the one possible change to the post 2010 road system that could have a detrimental impact on traffic using the Parkway, all of the other possible improvements would either have a positive or minimal impact The sensitivity analysis results indicate that the improvement to Almeda Road would have a 2 percent impact to traffic on the Parkway and a similar impact on toll revenue

The minimal impact of the construction of an additional lane in each direction would have on the Parkway traffic and toll revenue is because additional capacity would be unnecessary Capacity would not be constrained on Almeda Road in the future, at least until much later than 2010, because the construction of the Parkway would divert significant traffic away from Almeda Road

SLOWER GROWTH

The Parkway services a high growth residential area This test looks at the sensitivity of our traffic estimates to an assumption that due to changing economic conditions residential construction and population growth is not as strong as our base assumption The test assumes that only 50 percent of the forecast home construction during the forecast period actually occurs

This assumption would result in approximately a 7 percent impact on traffic

LOWER VALUES OF TIME

The third, and final, sensitivity test was a reduction of 25 percent in the value of time If drivers value of time is reduced this should impact the number of vehicles that will be willing to pay the recommended toll rate The reduction in value of time was run on the 2010 model year and resulted in approximately an 11 percent reduction in traffic and revenue

Table 22
Toll Sensitivity Test Results
(Year 2010)

Scenario	Traffic at Peak-Load Point	Percentage Impact
Base Traffic at $1 00 Toll Rate	23,500	N/A
Impact of Competitive Road Improvements	23,000	2 0%
Impact of slower Growth	21,900	7 0%
Impact of a Lower Value of Time	19,000	11 0%