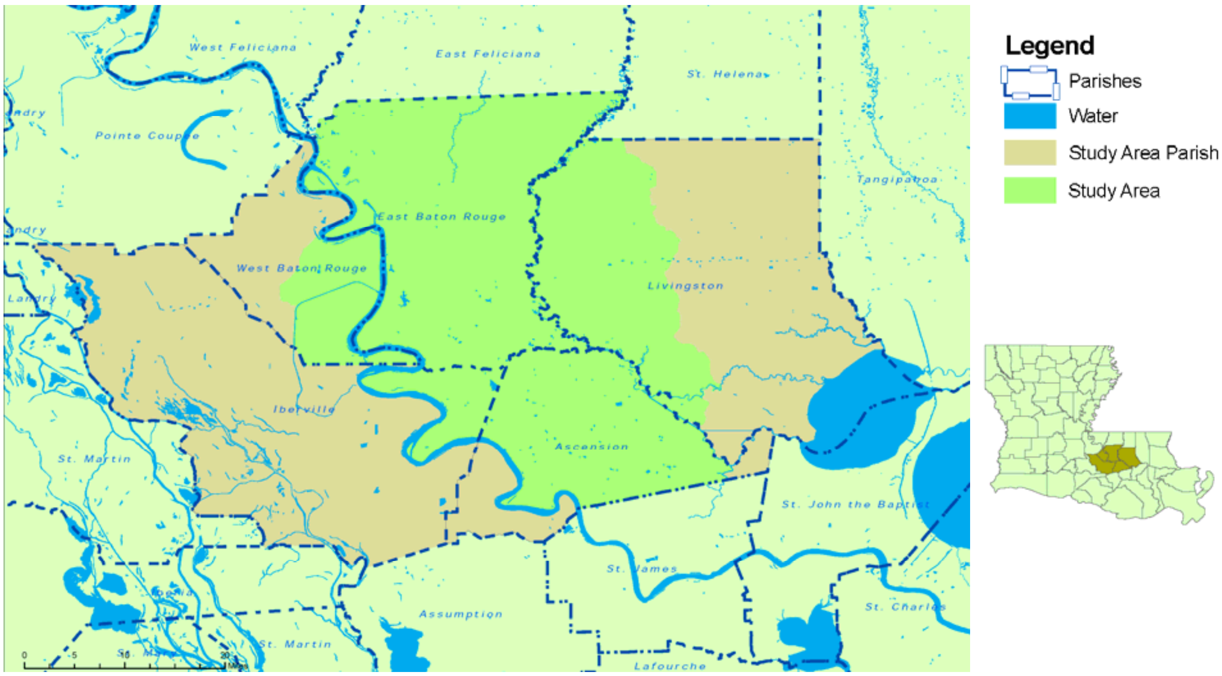
FINAL

BATON ROUGE METROPOLITAN TRANSPORTATION PLAN UPDATE



DECEMBER 2007

STATE PROJECT NO. 736-17-0331 F.A.P. NO. SPR-0010(028)

SUBMITTED TO:

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SUBMITTED BY:

Krebs, LaSalle, LeMieux Consultants, Inc.

IN ASSOCIATION WITH:

NEEL-SCHAFFER Solutions you can build upon & ALLIANCE Transportation Group, Inc.

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EXECUTIVE SUMMARY

Overview

The Federal Highway Act of 1962 required the implementation of a comprehensive Transportation Plan for all major cities within the United States. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Transportation Equity Act (TEA-21) of 1998 and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 have been interpreted to require that metropolitan master transportation plans be financially constrained (i.e., financially sound), based upon availability of federal, state, local and private funding. Moreover, Federal legislation requires that these comprehensive, long-range transportation plans be updated in cyclic fashion approximately every three years.

Accordingly, a Project Team comprised of three consultants conducted a study to update the existing comprehensive, long-range transportation plan for the Baton Rouge Metropolitan Area (the Parishes of Ascension, East Baton Rouge, Livingston and West Baton Rouge). The Project Team followed a formal seven-step process to develop a transportation plan to accommodate travel demands in the Area out to the year 2032. The steps include Inventory of existing highway and transit facilities, Land Use Forecasting, Trip Generation, Trip Distribution, Mode Choice, Trip Assignment and Evaluation.

Conclusions and Recommendations

Highway Networks

The Project Team developed a staged implementation plan for highway construction projects for the 25-year study period 2007 – 2032. Staging was based on projected traffic volumes, highway capacity-related deficiencies and funds, and on accepted metropolitan planning factors.

Stage I included projects in LA DOTD's State Transportation Improvement Program (STIP), those in the East Baton Rouge City/Parish's Green Light Program, and those designated for funding by the 2007 State budget surplus. These projects are considered financially constrained. LA DOTD projects without estimated letting dates were excluded from Stage I. **Table ES-1** and **Figure ES-1** present the highway projects proposed for Stage I.

TABLE ES-1
STAGE I (2007 - 2012)

S. No	Project Number	Parish	Name (Location)	Improvement	Total Cost (000)	Funding Source
1	742-17-MAP8	EBR	Transfer CMAQ Funds to STPHAZ	City's Share of M.A.P.	1,750	CM
2	077-02-0019	ASC	LA 73 (LA 74 - LA 30)	Three Lane	9,850	STPHAZ, STPFLEX, CM
3	077-05-0043	EBR	Br Computer Sig. Sync Phase V	Signal Synchronization @ 44 Intersections	10,916	DEMO
4	050-07-0066	WBR	LA 1 - Port Allen Canal Bridge	Bridge Rehabilitation	19,714	FBRON
5	077-04-0019	EBR	LA 73 (Old Jeff. Hwy @ Antioch Rd)	Intersection Improvement	1,189	CM
6	254-02-0040	EBR	LA 37 (Magnolia Bridge Rd - Indian Mound)	Reconstruction W/Geometric Improvements	18,704	OTHER
7	260-01-0020	ASC	LA 42 - Amite River Relief Bridge	Bridge Replacement	2,340	FBRON
8	262-31-0016	LIV	LA 64 - Amite River Br .& Relief @ Magnolia	Bridge Replacement, 2 to 4 Lanes	23,187	FBRON
9	273-03-0025	LIV	LA 1026 - Turn Lanes at LA 64 & LA 1026	Intersection Improvement	3,084	STPHAZ
10	414-01-0036	EBR	LA 30 (Nicholson Drive @ Brightside Lane)	Intersection Improvement	2,650	CM
11	450-10-0108	EBR	I-10 (I-10/I-12 Split to Siegen)	Reconstruction and Widening to 6 Lanes	57,500	IM, STGEN, OTHER
12	454-01	EBR	I-12 (Millerville Rd to Livingston Parish Line)	Patch and Overlay	5,294	IM
13	450-08-0051	WBR	I-10 (La 1 in Port Allen to I-110)	Interstate Signing	855	IM
14	742-06-0044	EBR	Millerville Rd (I-12 to Harrells Ferry Rd)	Widen from 2 to 5 Lanes	7,313	STP>200K
15	742-17-0008	EBR	Flannery @ Florida	Intersection Improvement	2,653	CM
16	742-17-0118	EBR	Sherwood Forest Blvd (Choctaw - Greenwell Spgs Rd)	Widen to 5 Lanes	12,200	STP>200k
17	742-17-0131	EBR	Jones Creek Rd (Tigerbend Rd - Coursey Rd)	Widen to 5 Lanes	13,755	STP>200K
18	742-17-0150	EBR	Central Thruway	Comite and Beaver Bayou #1 Bridges	23, 830	City/Parish/DEMO*
19	742-17-0143	EBR	Central Thruway	Frenchtown-Sullivan,C&G & Embank	3,066	STP>200K/DEMO
20	254-02-0051	EBR	Central Thruway	LA 37 at Central Thruway	6,800	DEMO, STP>200K, LOCAL
21	742-17-05TR	EBR	Flex to Transit	Operating	5,000	CMAQ
22	817-41-0008	EBR	LA 3245 O'Neal Lane, I-12 to US 190 Florida Boulevard	Widen to 5 Lanes	17,250	STPFLEX
23	832-11-0008	LIV	La 1031 (Hatchell) @ Us 190 & La1030	Left Turn Lanes	3,777	STPHAZ
24	City	EBR	Picardy Avenue (Summa - Essen)	Extension of Road	1,083	City/Parish
25	City	EBR	Comite Drive (Plank Rd - Comite River)	Widening to 3 lanes	7,460	City/Parish
26	City	EBR	O'Neal Lane (George O'Neal Rd - S Harrells Ferry Rd)	Widening to 4/5 lanes	5,712	City/Parish
27	City	EBR	S.Choctaw Rd (Flannery Rd - Central Thruway)	Widen to 4 Lanes	6,664	City/Parish
28	City	EBR	S.Harrell's Ferry Rd. Ph I(Sherwood forest - Millerville)	Widen to 4 Lanes	9,044	City/Parish
29	077-02-0020	ASC	LA 73 (I-10 to US 61)	Widen to 4 Lane	14,000	DEMO/OTHER
30	019-02-0051	EBR	US 61 (I-110 to LA 964)	Rubblize and Overlay	7,633	NHS
31	832-22-0019	LIV	LA 1032 River Road	Realign with LA 1032 4-H Clu Rd	880	STPHAZ
32	253-02-0024	EBR	Zachary Ped Paths and Sidewalks	New Sidewalks	200	STPENH

33	742-17-0146	EBR	S. Sherwood Forest Blvd. at S.Harrell's Ferry Road	Intersection Improvements	8,655	STP>200K
34	077-02-0017	ASC	LA 621 / LA 73 / @ I-10	Intersection Improvements	1,700	CM
35	265-01-0043	ASC	LA 44 in Gonzales	Signal Improvements	1,200	CM
36	742-17-ATM	EBR	Advanced Traffic Management Center	Operations	1,500	CM
37	257-04-0025	EBR	LA 42 Burbank at West Lee Drive	Intersection Improvements	279	STPHAZ
38	260-02-0037	LIV	LA 16 @ LA 22	Realign Curve	590	STPHAZ
39	007-07-0048	ASC	US 61 in Ascension and East Baton Rouge Parishes	Signal Improvements	4,762	STPFLEX
40	262-02	LIV	LA 16 (Range Avenue) at Jackson Street	Turn Lanes	1,200	CM
41	267-02-B	ASC	LA 431 at Gold Place in Gonzales	Turn Lanes	600	CM
42		EBR	CATS -- Bus Rapid Transit	Study	3,000	DEMO
43	742-32-0002	LIV	Walker Park and Ride	Ped/Bike Pathway/Park & Ride	625	CM
44	253-02-0025	EBR	LA 64 (LA 19 to McHugh Road)	Center Turn Lane	2,850	STPHAZ
45	737-99-0595	EBR	Baton Rouge ITS Deployment (Phase 3)	Baton Rouge ITS	2,500	CM
46	742-17-K	EBR	B.R. Levee Bike Path (S. Bertman Dr.-Farm)	B.R. Levee Bike Path	2,200	CM
47	737-96-0039	EBR	Baton Rouge ITS (Phase 4)	Baton Rouge ITS	2,500	STPFLEX
48	737-17-0010	EBR	Information Center at Southern University	Information Center at Baton Rouge	1,804	DEMO/OTHER
49	736-96-0016	EBR	Regional Rideshare Program	Administration	1,000	CM
50		ASC	LA 22 in Ascension Parish	Plan,Design & Construct Rdwy Improvements	200	DEMO
51	744-17-0015	EBR	Bicycle/Pedestrian Path Improvement Dalrymple Drive	Bicycle/Pedestrian Path Improvement	906	STPENH, CITY/PARISH*
52		EBR	Burbank Dr. (Lee Dr. to Bluebonnet)	Complete 4 Lanes	17,316	City/Parish
53		EBR	Burbank Dr. (Bluebonnet to Siegen Ln)	Complete 4 Lanes	9,031	City/Parish
54		EBR	Jones Creek (S. Harrell’s Rd. – Coursey Blvd.)	Widen to 5 Lanes	21,529	City/Parish
55		EBR	Staring Ln. (Highland Rd. – Burbank Dr.)	New 5 Lanes	10,097	City/Parish
56		EBR	Brightside Dr. (River Rd. – Nicholson Dr.)	Widen to 3 Lanes	31,159	City/Parish
57		EBR	Veterans Memorial Blvd Extension (Quimby-Blount)	New 4 Lanes	6,517	City/Parish
58		EBR	Essen Lane @ I-10	Intersection Improvements	6,804	City/Parish
59		EBR	Pecue Ln Imp. (Perkins Rd to Airline Hwy)	Widen 2 to 5 Lanes	30,836	City/Parish
60		EBR	Ford Street (Plank Rd to Mickens Rd)	2 Ln Blvd.	20,291	City/Parish
61		EBR	Perkins Road @ Stanford/Acadian	Intersection Improvements	8,548	City/Parish
62		EBR	Foster Drive at Government Street	Intersection Improvements	3,903	City/Parish
63		EBR	Downtown Signal Upgrades (30)	Upgrades and Interconnect	10,258	City/Parish
64		EBR	Sherwood Forest Blvd at Coursey Blvd	Intersection Improvements	5,197	City/Parish
65		EBR	Staring Ln (Perkins Rd to Highland Rd)	Widen to 4 Lanes	49,765	STP>200K
66		EBR	Siegen Ln (Perkins to Highland Rd.)	Widen to 4 Lanes	18,611	STPFLEX
67		EBR	Old Hammond (BlvdDe Provence - MillervilleRd.)	Widen to 4 Lanes	12,996	City/Parish

68		EBR	Old Hammond (Millerville to O'Neal)	Widen to 4 Lanes	6,599	City/Parish
69	817-41-0007	EBR	O'Neal (Harrell's Ferry - I-12)	Widening Letting	20,524	LOCAL*
70		EBR	S.Harrell's Ferry Rd. Ph II (Millerville - O'Neal Ln)	Widen to 4/5 Lanes	6,652	STP>200K
71		EBR	Lobdell Ave (Florida Blvd -- Jefferson Hwy)	Widen to 4 Lanes	6,101	STP>200K
72		EBR	Sharp Rd. (Florida Blvd to O.HammondHwy)	Widen to 4 Lanes	6,480	STP>200K
73		EBR	N Harrell's Ferry Rd (Old Hammond-Sherwood Forest)	Widen to 3 Lanes	1,797	STP>200k
74		EBR	Sullivan Road (Central Thruway to Wax Road)	Widen to 4 Lanes	31,981	STP>200K
75	259-01-93	EBR	LA 42 Highland Road (Perkins to Airline)	Widen to 4 Lanes	31,374	City/Parish
76		EBR	US 61 Airline (From LA 427 Perkins to Pecue Lane)	Removing old surface/Resurface	6,580	STCASH
77		ASC	LA 74 (Iberville Parish Line to US 61)	Removing old surface/Resurface	2,485	STCASH
78		ASC	I-10	Installing roadway lightingat La30 & La 44	820	STCASH
79		EBR	I-10 (Washington Street to Acadian Thruway)	Patch and Overlay	1,000	STCASH
80		EBR	I-110 (I-10 to Chippewa)	Patch and Overlay	1,000	STCASH
81		EBR	LA 3246 (Siegen overpass south of I-10)	Modify rampw/turning lanes	438	STCASH
82		LIV	LA 63 (Weiss Rd from W.LA 449 to LA 1023)	Patch and Overlay	2,035	STCASH
83		WBR	LA 989-1 (LA 989-2 to end of control section)	Patch and Overlay	2,167	STCASH
84		WBR	LA 989-1 (LA 1 to LA 989-2) Combine w/project above	Patch and Overlay	0	STCASH
85		ASC	LA 73	Rights-of-way and utilities for widening	1,000	STCASH
86		ASC	I-10 (I-10 at LA 74)	Feasibility/traffic analysis of new interchange	500	STCASH
87		ASC	LA 42 (US 61 to LA 44)	Engineering for widening	1,000	STCASH
88		EBR	Baton Rouge Bypass	Feasibility/environmental study	1,000	STCASH
89		EBR	LA 427 (from Siegen to Highland)	Environmental Impact Study of Widening	100	STCASH
90		EBR	I-10 (I-10 Bridge to the 10/12 split)	Feasibility/environmental study	1,000	STCASH
91		EBR	I-10 (from Siegen to LA 22)	Feasibility/Environmental study widen to 6 lns	100	STCASH
92		EBR	I-12 (O'Neal to Juban Rd)	Environmental Impact Study of Widening	1,000	STCASH
93			Federal Off-System Bridges	Bridge Replacement	2,500	DEMO
94			Bridge Rail and Guard Rail	Bridge Rehabilitation	1,000	FBR
95			Bridge Painting	Bridge Maintenance	1,000	FBR
96			Federal Bridge Inspection Programs	Bridge Inspection	1,000	FBR
97			Interstate Preventive Maintenance	Maintenance	5,000	FBR
98			Interstate Maintenance	Maintenance	10,000	IM
99			Pavement Maintenance Projects	Maintenance	5,000	IM
100			Overlay	Overlay	10,000	OLAY
101			Bridge Repair	Bridge Repair	1,000	STPFLEX
102			Federal Enhancement Projects	Enhancement	1,250	STCASH

103			Hazardous Elimination Projects	Safety	2,500	STPENH
				Total	756,435	
				Total	306,772	City/Parish/Local

INSERT FIGURE ES-1

STAGE I MAP

(See Figure 52 .tif format for this figure)

Stage II projects included a number remaining in the TIP and in the 2004 Plan Update (as modified) and those in the Green Light Plan estimated to be built in the period 2012 to 2022. These included specifically LA DOTD projects without letting dates. Most of the highway projects in Stage III of the previous Plan Update were moved to Stage II. A small group of new capacity-improvement projects were inserted into Stage II as funds permitted. **Table ES-2** and **Figure ES-2** follow and present the highway projects proposed for Stage II.

TABLE ES-2
STAGE II (2013 - 2022)

S. No	Project Number	Parish	Name (Location)	Improvement	Total Cost (000)	Funding Source
1	258-01-0033	EBR	LA 427 Perkins Rd (Pecue - Highland)	Widen to 5 Lanes	17,500	DEMO
2	454-02-0025	LIV	I-12 (O'Neal Lane to Pete's Highway Overpass)	Pavement Replacement and Widening	125,000	IM,NHS,FBRON
3		EBR	Cedarcrest (Airline to Old Hammond)	Widen to 4 Lanes	5,640	STP>200K
4		EBR	LA 1068 Drusilla (Jefferson Hwy to Old Hammond)	Widen to 4/5 Lanes	4,000	STPFLEX
5		LIV	US 190 Florida Ave (Pete's Hwy to LA 1027)	Widen to 4/5 Lanes	19,360	NHS
6		LIV	Juban Road Extension (US 190 - Lockhart Rd)	New 4 Lanes	7,000	STPFLEX
7		EBR	Central Thruway (Florida Blvd – Sullivan Rd)	Widen 2 to 4 Lanes	13,600	City/Parish
8		EBR	Airline Hwy Ph I-C (Florida Blvd to Florline)	Widen to 6 Lanes	1,800	NHS
9		EBR	Airline Hwy Ph III (Florline to Greenwell Spg)	Widen to 6 Lanes	9,300	NHS
10		EBR	Airline Hwy Ph II-B (Greenwell Spg to I-110)	Widen to 6 Lanes	23,220	NHS
11		EBR	Florida Blvd (Airline to Monterrey)	Widen to 8 Lanes	4,620	NHS
12		EBR	Florida Blvd (Monterry to Sherwood Frst Blvd.)	Widen to 8 Lanes	11,340	NHS
13		LIV	LA 64 (LA 16 to LA 37) in LIV and EBR Parishes	Widen to 4 Lanes	10,920	
14		WBR	LA 1(I-10 to Brusly)	Widen to 6 Lanes	23,940	DEMO
15		EBR	LA 42 Burbank Dr (Nicholson Dr. to 0.8 mile east)	Widen to 6 Lanes	4,800	
16		EBR	LA 67 Plank Rd (Airline to Hooper)	Widen to 6 Lanes	4,500	
17	260-01-0026	ASC	LA 42 (US 61 to LA 44)	Widen to 4 Lanes	25,000	DEMO
18		EBR	LA 64 (Joor Rd to LA 67 Plank Rd)	Widen to 4 Lanes	15,200	
19		EBR	Lee Dr. (Perkins Rd. to Highland)	Widen to 4 Lanes	7,360	STP>200K
20		EBR	S. Sherwood Forest (Fla Blvd to Old Hammond Hwy)	Widen to 4 Lanes	6,000	
21		LIV	LA 1026 Juban Rd (Wax Rd to US 190)	Widen to 4 Lanes	17,500	

22		EBR	Nicholson Dr. (Gourrier Ave. – Ben Hur Rd.)	Widen to 5 Lanes	42,417	City/Parish
23		EBR	Highland Road to Burbank Drive Connector	New 4 Lanes	4,409	City/Parish
24		EBR	Stumberg Extension (Airline Hwy to Jefferson Hwy)	New 5 Lanes	22,002	City/Parish
25		EBR	Jones Creek Extension (Jefferson Hwy to Tiger Bend)	New 5 Lanes	21,387	City/Parish
26		EBR	LA 64 Mt Pleasant-Zachary Rd(US 61 to LA 964)	Widen to 4 Lanes	28,595	City/Parish
27		EBR	Picardy Avenue to Perkins Rd Connector	New 4 Lanes	40,204	City/Parish
28		EBR	Glen Oaks Drive (Plank Rd to McClelland Dr)	Widen to 3 Lanes	8,812	City/Parish
29		EBR	McHugh Road (Wimbush Dr to Lower Zachary Rd)	2 Lanes	11,142	City/Parish
30		EBR	Elm Grove Garden (Fairchild to Rosenwald Rd)	2 Lanes	4,526	City/Parish
31		EBR	Fairchild-Badley Road (Scenic to Veterans)	2 Lanes	9,926	City/Parish
32		EBR	Perkins Road (Siegen Lane to Pecue Lane)	Widen to 4 Lanes	25,928	City/Parish
33	255-02-0027	EBR	Hooper Rd. (Blackwater - Devall Rd.)	Widen to 4 Lanes	41,472	STPFLEX
34		EBR	Old Hammond Hwy (O'Neal Lane to Florida Blvd)	Widen to 4 Lanes	5,000	STPFLEX
35		EBR	Flannery Rd (Fla Blvd to Old Hammond Hwy)	Widen to 4 Lanes & Re-align w/ Millerville	5,500	STP>200K
36		ASC	LA 73 (I-10 to LA 74)	Widen to 4 Lanes	3,000	
37		LIV	LA 3003 Rushing Rd (LA 16 to 0.5 Mi West of LA 3002)	Widen to 4 Lanes	7,700	
38		LIV	LA 16/LA1031 (Vincent Rd to Centerville St)	Widen to 4 Lanes	20,000	
39	454-02-0047	LIV	I-12 - Pete's Hwy Interchange	New Interchange	17,500	DEMO,OTHER
40	736-17-03A	EBR	Baton Rouge CMS Study	Study	300	CM
41	736-17-03C	EBR	Quick Response Team	Planning / Engr	250	CM
42	742-17-MAP	EBR	Transfer CMAQ funds to STPHAZ	City's Share of M.A.P.	3,500	CM
43	742-17-ATM	EBR	Advanced Traffic Management Center	Operations	3,000	CM
44	742-17-TR	EBR	Flex to Transit	Operating	10,000	CM
45	736-96-0016	EBR	Regional Ride Share Program	Administration	2,000	CM
46	742-00-UU	EBR	Highland Park & Ride	Park & ride	180	CM
47	742-00-VV	EBR	O'Neal Park & Ride	Park & ride	225	CM
48	742-00-WW	EBR	Baker Park & Ride	Park & ride	180	CM
49	742-07-O	EBR	EBR Pavement Markings	Replace Striping	255	STP>200K
50	007-10-	EBR	US 190 MS River Bridge	Repairs	375	NHS
51	450-92-0036	EBR	I 110 (I 10 - US 61)	Reconstruct at Grade Concrete Pvmt.	27,000	DEMO
52	255-01-99B	EBR	LA 408 (Harding Blvd @ I-110)	Intersection Improvemment 255-01-99B	500	CM
53	454-01-0068	EBR	I-12 @ Essen Ln Ph-II	New Ramp	11,500	NHS
54		WBR	I-10 / LA 1 Connector Study	Study	1,000	DEMO
55		EBR	Baton Rouge Loop Study	Engineering	500	DEMO
56			Federal Off-System Bridges	Bridge Replacement	5,000	DEMO

57			Bridge Rail and Guard Rail	Bridge Rehabilitation	2,000	FBR
58			Bridge Painting	Bridge Maintenance	2,000	FBR
59			Federal Bridge Inspection Programs	Bridge Inspection	2,000	FBR
60			Interstate Preventive Maintenance	Maintenance	10,000	IM
61			Interstate Maintenance	Maintenance	20,000	IM
63			Overlay	Overlay	20,000	OLAY
64			Bridge Repair	Bridge Repair	2,000	STPFLEX
65			Federal Enhancement Projects	Enhancement	2,500	STCASH
66			Hazardous Elimination Projects	Safety	5,000	STPENH
67			Incidence Management	Incidence Management	5,000	STPHAZ
68			Traffic Management Center	Operations & Maint.	2,000	CMAQ
69			Railroad Crossing Improvements	Railroad Safety	5,000	NHS
				Total	820,385	

FIGURE ES-2

STAGE II MAP

(See Figure 53 in .tif format for this figure)

Stage III included five projects that were in Stages II and III in the 2004 (as modified) Plan Update. None of these projects were in LA DOTD's STIP and only one had a project number (but no letting date). Six capacity-improvement projects were inserted into Stage III as funds permitted. **Table ES-3** and **Figure ES-3** follow and present the highway projects proposed for Stage III.

TABLE ES-3
STAGE III (2023 - 2032)

S. No	Project Number	Parish	Name (Location)	Improvement	Total Cost (000)	Funding Source
1		ASC	LA 70 (I-10 to Assumption Parish Line)	Widen to 4 Lanes	17,500	
2		EBR	US 61 Airline (Cedarcrest to Perkins Rd)	Widen to 6 Lanes	25,000	
3		LIV	LA 447 Walker North/South (Duff to Hood Rds)	Widen to 4 flanes	30,000	
4		WBR	WBR Connector Road (LA 415 - LA 1)	New 2-Lane Road	16,900	
5		EBR	Hooper Rd (Plank to Mickens Rd.)	Widen to 6 Lanes	8,740	STPFLEX
6		EBR	Plank Rd. (Groom Rd to LA 64)	Widen to 4 Lanes	19,640	STPFLEX
7		LIV	LA 408 Extenstion (From Devall Rd to 0.4Miles East of LA 16)	New 4 lane extension	50,000	DEMO
8		ASC	LA 44 (LA 621 to LA 42)	Widen to 4 Lanes	15,000	
9	254-02-0039	EBR	LA 37 Greenwell Springs Rd (Sullivan - Magnolia)	Widen to 5 Lanes	33,900	STPFLEX
10		EBR	Rolins Rd (Ext to LA 19)	New 2 Lane Extension	3,000	
11		EBR	Mickens Rd (From LA 946 Joor Rd to LA 67 Plank Rd)	Widen to 4 Lanes	21,000	
12		EBR	Signal Synchronization Stage -VI	Signal Synchronization	5,500	CMAQ
13		EBR	Traffic Management Center	Operations & Maintenance	3,000	CMAQ
14		EBR	Transfer CMAQ funds to STPHAZ	City's Share of M.A.P.	3,500	CMAQ
15		EBR	Flex to Transit	Operating	10,000	CMAQ
16		EBR	Regional Rideshare Program	Administration	2,000	CMAQ
17			Various Locations	Intersection Improvements	6,000	CMAQ
18			Various Locations	ITS Deployment	48,000	CMAQ, NHS, IM
19			Various Locations	Bridge Replacements	8,000	FBR
20			Various Locations	Maintenance	8,000	IM
21			Various Locations	Overlay	8,000	OLAY
22			Various Locations	Enhancements	2,000	STPENH
23			Various Locations	HAZ/Design/Engineering	8,000	STPHAZ
24			Various Locations	Signal Synchronization	16,000	CMAQ
25	742-17-0016	EBR	Bluebonnet Blvd	Landscaping	52	STP>200K
26		EBR	US 190 - Mississippi River Bridge	Painting	68,350	NHS
27	744-17-0004	EBR	I-10 (I-10 @ Essen)	Landscaping @ Entr/Exit	25	STPENH
				Total	437,107	

FIGURE ES-3

STAGE III MAP

(See Figure 54 in .tif format for this figure)

Unmet Needs included projects technically warranted but not feasible during the staged construction period due to lack of funds. In the event that funding becomes available in the future, this list of projects will positively impact the transportation infrastructure. Until such funding is available, these projects are being categorized as "unmet needs" within the study area. **Table ES-4** follows and presents the unmet needs.

TABLE ES-4
UNMET NEEDS

Parish	Name (Location)	Improvement	Total Cost (000)
ASC	LA 621 (LA 73 to US 61)	Widen to 4 Lanes	10,000
EBR	I-10 / I-110	On - Off Ramp Improvements	50,000
LIV	US 190 Florida (From LA 1027 to LA 63 Frost Rd)	Widen to 4 Lanes	23,500
LIV	LA 1026 Lockhart Rd (From LA 16 North Range to Burgess Rd)	Widen to 4 Lanes	14,000
EBR	LA 30 Nicholson Drive (Ben Hur to LA 74)	Widen to 4 Lanes	59,600
ASC	I-10 (From Siegen Lane to LA 44)	Widen to 6 Lanes	114,954
ASC	US 61 (LA 44 to EBR Parish Line)	Widen to 8 Lanes	56,000
ASC	LA 30 (LA 3251 to LA 44)	Widen to 4 Lanes	10,000
EBR	I-10 at Pecue Lane	New Interchange Ramps	10,000
EBR	LA 427 Perkins(Acadian to Essen)	Widen to 6 Lanes	19,200
EBR	Acadian/Stanford(Bawell to W Lakeshore)	Widen to 6 Lanes	10,200
ASC	LA 22(Weber City Rd to LA 16 at Head of Island)	Widen to 4 Lanes	45,600
LIV	LA 16(LA 444 in F Settlement to LA 42/LA 16 in P Vincent)	Widne to 4 Lanes	22,000
LIV	LA 16(LA 42/LA 16 in P Vincent to 4-H Club Road)	Widen to 4 Lanes	14,000
EBR	US 190 Florida(O'Neal Ln to 4-H Club Rd)	Widen to 6 Lanes	13,800
LIV	I-12(Pete's Highway to Frost Rd)	Widen to 6 Lanes	72,000
EBR	S Sherwood Forest(Airline to Old Hammond)	Widen to 6 Lanes	16,800
EBR	College Drive(Perkins to I-10)	Widen to 6 Lanes	3,000
EBR	College Drive(I-10 to Foster)	Widen to 6 Lanes	6,000
EBR	LA 327 River Road(South Blvd to Brightside Ln)	Widen to 4 Lanes	13,200
ASC	Industrial Access Corridor(I-10 @ LA 73 to LA 942)	New 4 Lanes	70,000
EBR	Coursey Blvd(Airline to O'Neal Lane)	Widen to 6 Lanes	23,400
EBR	Highland Rd(Chimes to Perkins Rd)	Widen to 4 Lanes	43,200
EBR	Dalrymple Drive(I-10 to Highland Rd)	Widen to 4 Lanes	4,400
EBR	LA 3236 Siegen Ln(Perkins to Airline)	Widen to 6 Lanes	15,000
EBR	Jefferson Hwy(Lobdell to Bluebonnet)	Widen to 6 Lanes	15,600
EBR	LA 37 Greenwell Springs(Airline to Sullivan)	Widen to 6 Lanes	34,800
EBR	US 61 Scenic Highway(I-110 to Irene)	Widen to 6 Lanes	35,400
EBR	I-10(Mississippi R Bridge to I-10/I-12 split)	Widen to 8 Lanes, ramps	90,000
EBR	US 61 Airline(Cedarcrest to Florida)	Widen to 8 Lanes	19,200
ASC	LA 431(Airline to LA 931)	Widen to 4 Lanes	37,800
WBR	LA 1(Brusly to Iberville Parish Line)	Widen to 6 Lanes	30,000
EBR	LA 1248 Bluebonnet(Highland to Airline)	Widen to 6 Lanes	27,600
		TOTAL	1,030,254

Transit Networks

The Capital Area Transit System (CATS) provides mass transportation services to the Baton Rouge Area. CATS is a regional transportation authority funded primarily by the East Baton Rouge City-Parish Government. Its long range vision to provide bus, bus rapid transit, light rail, park-and-ride facilities, van pools, on-demand response, and special programs to the citizens of the Area is well on track. From 1999 to 2001, CATS developed eleven park and ride facilities, successfully implemented regional service from Tangipahoa Parish (approximately 40 miles east of Baton Rouge) to Iberville Parish on the west side of the Mississippi River. As the major transit provider, it has been awarded discretionary and demonstration grants by both federal and state agencies to implement innovative transportation programs in the capital region. Due to funding cutbacks, CATS had to discontinue commuter service to park and ride facilities and reduce overall transit service to approximately 193,400 service hours for CY 2003. This was a 25% decrease in service hours from Calendar Year (CY) 2001, and a 10% decrease from CY 2002. *However, after the impact of Hurricane Katrina, CATS now operates approximately 220,000 service hours annually.*

CATS is now embraced by public and private entities as a part of the transportation infrastructure. Its support is from grass root community riders, from special interest such as the Downtown Development District and from the social service entities that have developed a strong bond with CATS over the last ten years. Programs such as the Department of Transportation's Job Access/Reverse Commute provided funding for CATS to expand the geographical service area and the operational hours per day. This partnership with numerous public and private agencies drives the transportation type and amount of service. CATS now operates 364 days per year. CATS now operates under an operating agreement with the City-Parish government so that CATS can directly apply and receive state and federal grants.

CATS has begun to have an expanded role in meeting the transportation trip demand for the area. **Tables ES-5** through **ES-13** and some descriptive narrative follow and present the CATS transit development plan for the period 2007 – 2032.

TABLE ES-5
TRANSIT RIDERSHIP
(In Millions Per Year of Unlinked traveler Trips)

Year	2007	2010	2015	2020
Trips	6	7	12	15

TABLE ES-6
YEARLY OPERATING BUDGET
(In Millions Per Year)

Year	2007	2010	2015	2020	2025	2029	2032
Bus	12	16	22.5	28	30	33	37
Busway			0	6.9	7.6	7.8	9
Rail				13	13	16	20
Total	**12**	**16**	**22.5**	**47.9**	**50.6**	**56.8**	**66.6**

TABLE ES-7
TRANSIT SERVICE
(Yearly Hours)

Year	2007	2010	2015	2020	2025	2029	2032
Bus	220,000	250000	318000	315000	315000	315000	315000
Busway				32,000	80000	80000	80000
Rail				130000	130000	160000	160000
Total	**220,000**	**250,000**	**318,000**	**477,000**	**525,000**	**555,000**	**555,000**

Fixed Guideway Bus (Bus Rapid Transit)

CATS will begin in 2009 a planning feasibility study for fixed guideway buses with a target operational date of 2018. “Fixed Guideway Buses” are regular transit coaches that are allowed to travel on special pads in a transit only right of way. Planning work on feasibility of fixed guidelines will target the following corridors initially:

Walker to Baton Rouge – Route A
- Begin in Walker, US 190 at LA 447 (Station / Stop)
- South on LA 447 to I-12
- West on I-12 to Denham Springs
- North on LA 3002 (South Range Avenue) to US 190 (Florida Boulevard) (Station / Stop)
- West on US 190 (Florida Boulevard) to LA 3245 (O’Neal Lane)(Stop)
- West on US 190(Florida Boulevard) to Sherwood Forest Boulevard (Stop)
- West on US 190 (Florida Boulevard) to US 61(Airline Highway) (Station / Stop at Cortana Mall)
- West on US 190 (Florida Boulevard) to Baton Rouge Downtown Development District (Station/Stop)
- North – South on Trolley route (See CATS map)

Walker to Baton Rouge – Route B (Concurrent with Route A above)
- Begin in Walker, US 190 at LA 447 (Station / Stop)
- South on LA 447 to I-12
- West on I-12 to Denham Springs
- West on I-12 to LA 3245 (O’Neal Lane) (Stop)
- West on I-12 to Millerville Road (Stop)
- West on I-12 to Sherwood Forest Boulevard (Stop)
- West on I-12 / I-10 to Baton Rouge Downtown Development District (Station / Stop)
- North – South on Trolley route (See CATS map)

The proposed time line for the above bus system is as follows:

- 2009 – 2013 Busway Demonstration grant for feasibility, design / rights-of-way and construction plans -- $600,000
- 2013 - 2017 Construct busways -- $77.8 million
- 2018 – Busway operation at 32,000 annual hours of service

Light Rail

Planning work will begin in 2011 on the feasibility of light rail for the following corridor:

Denham Springs to Baton Rouge

Begin in Denham Springs, LA 16 (North Range Avenue) at Canadian National Illinois Central Gulf railroad crossing (Station / Stop)
West along CNICG railroad corridor toward Baton Rouge
Station / Stop at crossing with North Sherwood Forest Boulevard
West on CNICG railroad corridor (along Choctaw Road) to downtown Baton Rouge, Station / Stop near LA DOTD HQ
Transit Connectivity to Baton Rouge Downtown Development District

Light rail would be used in existing rail corridors on purchased rights of ways. The proposed time line is as follows:

2011 – 2015 Rail Demonstration for feasibility, design / rights-of-way, construction plans, $3.6 million
2015 – 2020 Construction of rail line and purchase of 20 cars, $600 million
2020 Begin rail service of 130,000 annual hours of operation

Long Range Capital Budget

The CATS capital budgets presented reflect an ambitious commitment of development and resources from a number of federal, state, and local entities if CATS is to meet the projected passenger trip demand. Projects such as fleet replacement will be funded primarily from Federal Transit Administration discretionary funds. Busway and light rail will be funded primarily from new start DOT funds earmarked by Congress. CATS current fleet consists of 61 fixed route transit buses and 20 vans for a total of 81 vehicles. CATS is projected to increase its fleet gradually to 102 vehicles by 2013, and to 135 vehicles by 2017; and it is to begin fixed guideway service by 2018 with 20 busway vehicles, along with 73 buses and 47 vans as shown in the following Fleet Replacement Tables.

TABLE ES-8

CATS FLEET REPLACEMENT SCHEDULE

STAGE I

LONG RANGE PLAN EQUIPMENT

	YEAR				
ACTIVITY	**2007**	**2008**	**2009**	**2010**	**2011**
Bus Replacement	25	5	7	7	7
Bus Explanation					
Total Bus Fleet	**61**	**61**	**61**	**61**	**61**
Van Replacement	15	5	5	6	7
Van Expansion		10	1	1	1
Total Vans	**20**	**34**	**35**	**36**	**37**
Busway Bus					
Busway Replacement					
Total Busway Bus					
Total Rail Cars					
Total Stock	**81**	**95**	**96**	**97**	**98**

TABLE ES-9
STAGE – I (2007-2011)
LONG RANGE PLAN FUNDING

Name (Location)	Improvement	Total Cost (000)	Fund Source
Capital Area Transit System	Annual Assistance	$29,000.00	5307 (FTA)
Capital Area Transit System	Discretionary Asst.(25 Replacement Buses and 15 Vans with GPS,AVL, Registering Fare boxes, and Security Systems)	$9,000.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist. (Surveillance/Security Equipment for Rolling Stock-600K, Fixed Facilities-CTC Terminal, DDD, Malls, Other-500K)	$1,100.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist. (Registering Fare boxes,AVL/GPS System Wide)	$2,000.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist (Passenger Fare Processing Equipment at 30)	$2,000.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist (Facility Expansion of Headquarters/Maintenance and Parking.	$2,000.00	5309 (FTA)
Capital Area Transit System	Operating Assistance	$6,000.00	CMAQ
Capital Area Transit System	Busway Feasibility	$500.00	DEMO (FTA)

Capital Area Transit System	Park and Ride	$1,875.00	CMAQ
Capital Area Transit System	Intermodal Station/Facility	$3,750.00	DEMO/5309 (FTA)
Capital Area Transit System	Busway Construction	$15,000.00	DEMO (FTA/DOT)
Capital Area Transit System	Fleet Replacement	$10,563.00	5309 (FTA)
Capital Area Transit System	ITS Projects	$6,250.00	ITS (DOT)
Capital Area Transit System	Job Access/Reverse Commute	$7,000.00	JA/RC (FTA)
Capital Area Transit System	Job Access/Reverse Commute	$3,000.00	JA/RC (DOTD)
Capital Area Transit System	Livable Corridors	$4,000.00	TCSP (DOT)
Capital Area Transit System	Busway Planning, Design/Enginering	$3,125.00	DEMO (DOT)
Capital Area Transit System	Short/Long Range Planning	$1,875.00	5307 (FTA)
Capital Area Transit System	Training	$500.00	5307 (FTA)
TOTAL		**$108,538.00**	

TABLE ES-10

CATS FLEET REPLACEMENT SCHEDULE

STAGE II

LONG RANGE PLAN EQUIPMENT

ACTIVITY	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bus Replacement					4	7	6	6	6	6
Bus Expansion	7	7	7	7	8	5				
Total Bus Fleet	**61**	**64**	**71**	**78**	**83**	**88**	**73**	**71**	**69**	**67**
Van Replacement	7	8	9	13	15	15	15	15	15	15
Van Expansion	1	1	1	8						
Total Vans	**37**	**38**	**39**	**47**	**47**	**47**	**47**	**47**	**47**	**47**
Busway Bus							20	2	2	2
Busway Replacement										
Total Busway Bus							**20**	**22**	**24**	**26**
Total Rail Cars									**20**	**20**
Total Stock	**98**	**102**	**110**	**125**	**130**	**135**	**140**	**140**	**160**	**160**

TABLE ES-11

STAGE – II (2012-2021)

LONG RANGE PLAN FUNDING

Name (Location)	Improvements	Total Cost (000)	Funding Source
Capital Area Transit System	Annual Assistance	$48,773.00	5307 (FTA)
Capital Area Transit System	Discretionary Assist.	$15,375.00	5309 (FTA)
Capital Area Transit System	Operating Assistance	$10,000.00	CMAQ
Capital Area Transit System	Park and Ride	$4,500.00	CMAQ/5309
Capital Area Transit System	Intermodal Station/Facilities	$5,625.00	DEMO/5309 (FTA)
Capital Area Transit System	Busway Construction	$45,000.00	New Startup (DOT)
Capital Area Transit System	Fleet Replacement	$23,250.00	5309 (FTA)
Capital Area Transit System	Its Projects	$11,250.00	ITS (DOT)
Capital Area Transit System	Job Access/Reverse Commute	$14,000.00	JARC (FTA)
Capital Area Transit System	Job Access/Reverse Commute	$10,000.00	JARC
Capital Area Transit System	Livable Corridors	$6,250.00	TCSP (DOT)
Capital Area Transit System	Rail Construction	$100,000.00	New Start
Capital Area Transit System	Rail Planning/Design/Eng.	$28,750.00	DEMO (DOT)
Capital Area Transit System	Busway Planning/Design/Eng.	$3,750.00	DEMO (DOT)
Capital Area Transit System	Short/Long	$4,438.00	5307 (FTA)
Capital Area Transit System	Training	$1,625.00	5307 (FTA)
TOTAL		**$332,586.00**	

TABLE ES-12

CATS FLEET REPLACEMENT SCHEDULE

STAGE III

LONG RANGE PLAN EQUIPMENT

	YEAR									
ACTIVITY	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
Bus Replacement	6	6	6	6	6	6	6	6	6	6
Bus Expansion										
Total Bus Fleet	**67**	**67**	**67**	**67**	**67**	**67**	**67**	**67**	**67**	**67**
Van Replacement	15	15	15	15	15	15	15	15	15	15
Van Expansion										
Total Vans	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**
Busway Bus										
Busway Replacement						2	2	2	2	2
Total Busway Bus	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**
Total Rail Cars	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Total Stock	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**

TABLE ES-13

STAGE – III (2022-2031)

LONG RANGE PLAN FUNDING

Name (Location)	Improvement	Total Cost (000)	Fund Source
Capital Area Transit System	Annual Assistance	$46,875.00	5307 (FTA)
Capital Area Transit System	Discretionary Assistance	$25,125.00	5309 (FTA)
Capital Area Transit System	Operating Assistance	$8,000.00	CMAQ
Capital Area Transit System	Park and Ride	$4,750.00	CMAQ/5309
Capital Area Transit System	Intermodal Station/Facilities	$3,750.00	DEMO/5309 (FTA)
Capital Area Transit System	Busway Construction	$30,000.00	New Startup (DOT)
Capital Area Transit System	Fleet Replacement	$22,500.00	5309 (FTA)
Capital Area Transit System	ITS Projects	$8,750.00	ITS (DOT)
Capital Area Transit System	Job Access/Reverse/Commute	$16,000.00	JARC (FTA)
Capital Area Transit System	Job Access/Reverse/Commute	$8,000.00	JARC (DOTD)
Capital Area Transit System	Livable Corridors	$4,000.00	TCSP (DOT)
Capital Area Transit System	Rail Construction	$325,000.00	New Start (DOT)
Capital Area Transit System	Rail Planning/Design/Eng.	$12,500.00	DEMO (DOT)
Capital Area Transit System	Busway Planning	$1,250.00	DEMO (DOT)
Capital Area Transit System	Short/Long	$4,000.00	5307 (FTA)
Capital Area Transit System	Training	$3,875.00	5307 (FTA)
TOTAL		**$524,375.00**	

Although it is often difficult to achieve because of budget constraints, the fleet replacement schedule aspires to create a regularly occurring (yearly) function. This is both good fiscal management as it is often difficult to find the resources to replace a large percentage of the fleet at one time, and it is good operationally as it ensures equipment dependability, reduced maintenance costs, and transit on-time performance - there are less breakdowns. Buses should be replaced at 12-year intervals and vans at approximately 3-year intervals. **Figure ES-4** presents the current routes serviced by CATS.

INSERT FIGURE ES-4
CATS ROUTE MAP

FIGURE ES-4 – CATS ROUTE MAP

(See CATS SYSTEM MAP 1.tif for this figure)

Figure must be re-numbered.

Description of Bus-Rapid-Transit Alternatives

For the purposes of this analysis the Capital Regional Planning Commission (CRPC) provided a proposed alignment and set of stop locations for the Bus Rapid Transit (BRT) Alternative. The service consists of two BRT routes connecting suburban areas with downtown Baton Rouge. Please refer to **Figures ES –5 and ES-6** for the BRT routes and station stops.

The first route (BRT Route A) begins in Walker, Louisiana at the intersection of US 190 and LA 447. The route provides stations / stops at: South Range Avenue and Florida Boulevard in Denham Springs, Florida Boulevard and O'Neal, Florida Boulevard and Sherwood Forest, Cortana Mall, and Downtown Baton Rouge.

The second route (BRT Route B) begins in Walker at US 190 and LA 447 with stops at O'Neal Lane, Millerville Road, Sherwood 2 and 3 depict the BRT routes and station stops.

It was assumed that the suburban stations would be served by park-and-ride lots that would allow drive access trips to access the station. It was also assumed that the in-town station would be walk up stops with no parking available.

Initial operating assumptions included 15-minute headways between BRT arrivals with one-minute dwell times at station locations. The BRT vehicles sometimes operate in mixed traffic and sometimes have some separation from general-purpose traffic.

For sections on which the BRT operated in traffic, operating speed was assumed to be the same as a standard bus, meaning the congested speed for the roadway weighed by the transit in-vehicle travel time weighting factor for the time period in question. This travel time is typically 1.25 to 1.5 times slower than the surrounding auto traffic.

For sections on which the BRT operates in a separate lane at least partially protected from general-purpose traffic, the BRT was assumed to operate at the uncongested speed for the adjacent roadway as reported by the model.

The BRT boarding fare was set at the same level as local bus fares ($1.25) and parking at the park-and-ride lots was assumed to be free.

The analysis year for the BRT is 2032. The transit ridership forecasts are based upon the demographic and employment forecast distribution used for all other phases of the MTP traffic and transit forecasting. The results of the analysis are provided in the following section.

Bus-Rapid-Transit (BRT) Ridership Forecasts

Results of the 2032 travel demand model runs for the two BRT routes showed an estimated forecast year ridership of approximately 500 daily riders for BRT Route A and 400 daily riders for BRT Route B.

Given that the current analysis is an early stage feasibility analysis with no effort to optimize routes, stations or service characteristics these ridership figures represent respectable values.

Although it is probably premature to include BRT in the pool of projects put forth for the financially constrained plan, there does seem to be enough evidence to suggest that BRT strategies could be successful if some additional planning were performed to optimize routes and station locations.

FIGURE ES-5 – PROPOSED BRT ROUTE A

(See Figure 49 for this figure)

FIGURE ES-6 PROPOSED BRT ROUTE B

(See Figure 50 for this figure)

Description of a Commuter Rail Alternative (Denham Springs to Baton Rouge)

The project team used the Baton Rouge Metropolitan Area Travel Demand Model developed as a part of the plan update study to develop traffic forecasts for a proposed Commuter Rail line from Denham Springs to downtown Baton Rouge. The purpose of this section of the report is to summarize the results of that analysis to determine if Commuter Rail represents a viable project option for inclusion in the Baton Rouge Financially Constrained Metropolitan Transportation Plan.

For the purposes of this analysis the Capital Regional Planning Commission (CRPC) provided a proposed alignment and set of station locations for the Commuter Rail alternative. The service begins at a point in Denham Springs near the intersection of Louisiana Highway 16 / North Range Avenue and the Canadian National Illinois Central Railroad (CNIC) Crossing and travels west along the CNIC railroad corridor towards downtown Baton Rouge. Three stations are contemplated. These include the Denham Springs station at North Range Avenue and the CNIC railroad, an intermediate station on Sherwood Forest Boulevard at the CNIC railroad crossing, and a near downtown station along Choctaw Street in the vicinity of DOTD headquarters, with the station located about one-quarter mile from the River. **Figure ES-7** on the following page depicts the general alignment and station locations.

It was assumed that the suburban stations would be served by park-and-ride lots that would allow drive access trips to access the station. It was also assumed that the in-town station, which is not located directly in the central business district, would be connected to activity centers in downtown Baton Rouge, and other locations in the central part of town, by means of connecting transit service in the form of a rubber tire shuttle.

Initial operating assumptions included, twenty (20) minute headways between train arrivals, five (5) minute dwell times at the stations, and an operating speed between stations of approximately 45 miles per hour. The Commuter Rail boarding fare was set at the same level as local bus fares ($1.25) and parking at the park-and-ride lots was assumed to be free.

The analysis year for the commuter alternative is 2032. The transit ridership forecasts are based upon the demographic and employment forecast distribution used for all other phases of the MTP traffic and transit forecasting.

FIGURE ES-7

COMMUTER RAIL ALIGNMENT AND STATION LOCATIONS

(See Figure 51 for this figure)

Baton Rouge Metropolitan Area Travel Demand Model

The Baton Rouge Metropolitan Area Travel Demand Model is a four-step travel-forecasting model. The model is a time of day model with four time periods: AM, PM, Midday and Night.

The mode choice model allocates trips among the modes using a probability function applied in what is known as a logit model. In the case of the Baton Rouge mode choice model, this function takes the form of a nested logit model. Nests are provided for auto, drive alone, shared ride 2, shared ride 3+ as well as nests for transit, walk access to transit and drive access to transit. .

Transit Route System

The transit route system used as the backdrop for the Commuter Rail analysis is the recommended financially constrained transit route system. This transit route system for the Baton Rouge travel demand model is based upon route system maps and attributes provided by the Capital Area Transit System (CATS). The financially constrained 2032 transit system consists entirely of local bus routes and university shuttles. There are no express routes or other premium service and park-and-ride activity other than at the proposed commuter rail park and ride lots and primarily at university parking lots.

Commuter Rail Ridership Forecasts

Results of the 2032 travel demand model runs for the Denham Springs to Baton Rouge Commuter Rail showed an estimated forecast year ridership of approximately 130 daily riders. There are several reasons why the Commuter Rail line did not attract a higher level of ridership. Only three station locations were provided. In addition, the downtown station was isolated and did not provide direct access to the primary activity centers that would be of interest to the majority of commuters.

Although a financial analysis of the Commuter Rail alternative was not a part of the current work effort, given the typical costs for service of this type and given the low ridership estimates obtained from the travel demand model, inclusion of the commuter rail alternative in the financially constrained plan does not appear to be justified at this time.

It is probable, however, that identification of additional stations and the optimization of station locations could appreciably improve ridership results. It would be worthwhile to continue feasibility analysis of Commuter Rail service with a variety of station plans to determine if there are viable strategies for increasing ridership.

The above sections on a commuter rail line from Baton Rouge to Denham Springs, and on bus rapid transit lines from Baton Rouge to Walker indicate that feasibility studies are warranted for these alternate modes of transit. It is recommended for this Plan Update that emphasis be placed on restoring the current bus service to that which existed before Hurricane Katrina.

Feasibility of Bicycle and Pedestrian Facilities

Introduction –The National Perspective

The following is an excerpt from the U.S. Department of Transportation Policy Statement Integrating Bicycling and Walking in Transportation Infrastructure**:**

"The Challenge: Balancing Competing Interests"

For most of the second half of the 20th Century, the transportation, traffic engineering and highway professions in the United States were synonymous. They shared a singular purpose**:** building a transportation system that promoted the safety, convenience and comfort of motor vehicles. The post-war boom in car and home ownership, the growth of suburban America, the challenge of completing the Interstate System, and the continued availability of cheap gasoline all fueled the development of a transportation infrastructure focused almost exclusively on the private motor car and commercial truck.

During the 1990s, Congress spearheaded a movement towards a transportation system that favors people and goods over motor vehicles with passage of the Intermodal Surface Transportation Efficiency Act (1991) and the Transportation Equity Act for the 21st Century (1998). The call for more walkable, liveable, and accessible communities, has seen bicycling and walking emerge as an 'indicator species' for the health and well-being of a community. People want to live and work in places where they can safely and conveniently walk and/or bicycle and not always have to deal with worsening traffic congestion, road rage and the fight for a parking space. Vice President Gore launched a Livability Initiative in 1999 with the ironic statement that "a gallon of gas can be used up just driving to get a gallon of milk."

The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel."

The Congress continued the above movement favoring people and goods through a bill entitled "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA – LU)". The President signed SAFETEA – LU into law August 10, 2005. This law authorizes the Federal surface transportation programs (STP) for highways, highway safety and transit for the five-year period 2005 – 2009.

Of particular relevance to the feasibility of bicycle and pedestrian facilities, SAFETEA – LU addressed Transportation Enhancement funds as follows:

"Transportation enhancement activities continue to be funded through a set-aside of 10%, or the amount set aside in FY 2005, whichever is greater, from STP funds"

Transportation Enhancement funds are a popular means of financing bicycle and pedestrian facilities. Hence, funds for these two modes of transportation have theoretically been extended for an additional five years. Bike paths and walkways have to compete with eleven other activities for Transportation Enhancement funds, and dedication of such funds to these two types of facilities falls to the whims of governmental agencies.

Statewide Perspective

The Louisiana Department of Transportation (LA DOTD) has a Statewide Bicycle and Pedestrian Master Plan dated May, 1998. (LA DOTD plans an update to its Master Plan in the near future.) An excerpt from the current Master Plan follows and relates some LA DOTD perspective.

"The State of Louisiana recognizes the bicycle as a vehicle, which gives cyclists the full rights and responsibilities for the use of the roadway. However, in most cases roadway design does not take into account the special needs of cyclists. While experienced cyclists will ride on almost any route, less experienced riders and children will be more comfortable and more likely to use their bikes for transportation as well as recreation if some level of special provisions for cyclists is incorporated into the design. Both motorists and cyclists can benefit from the use of integrated design, which facilitates bicycle travel and reduces possible conflicts between the two modes of travel."

LA DOTD has a Bicycle and Pedestrian Coordinator, a State Routes To School Coordinator, an Enhancements Coordinator, and an Enhancements Program Manger to plan and coordinate activities relative to bicycles and walkways.

LA DOTD has an internet web site that has links to bicycle maps, relevant Engineering Directives and Standards Manual, bicycle laws, pedestrian duties and rights, and related associations and organizations. A copy of the map covering the Baton Rouge area is presented as **Figure ES-8.**

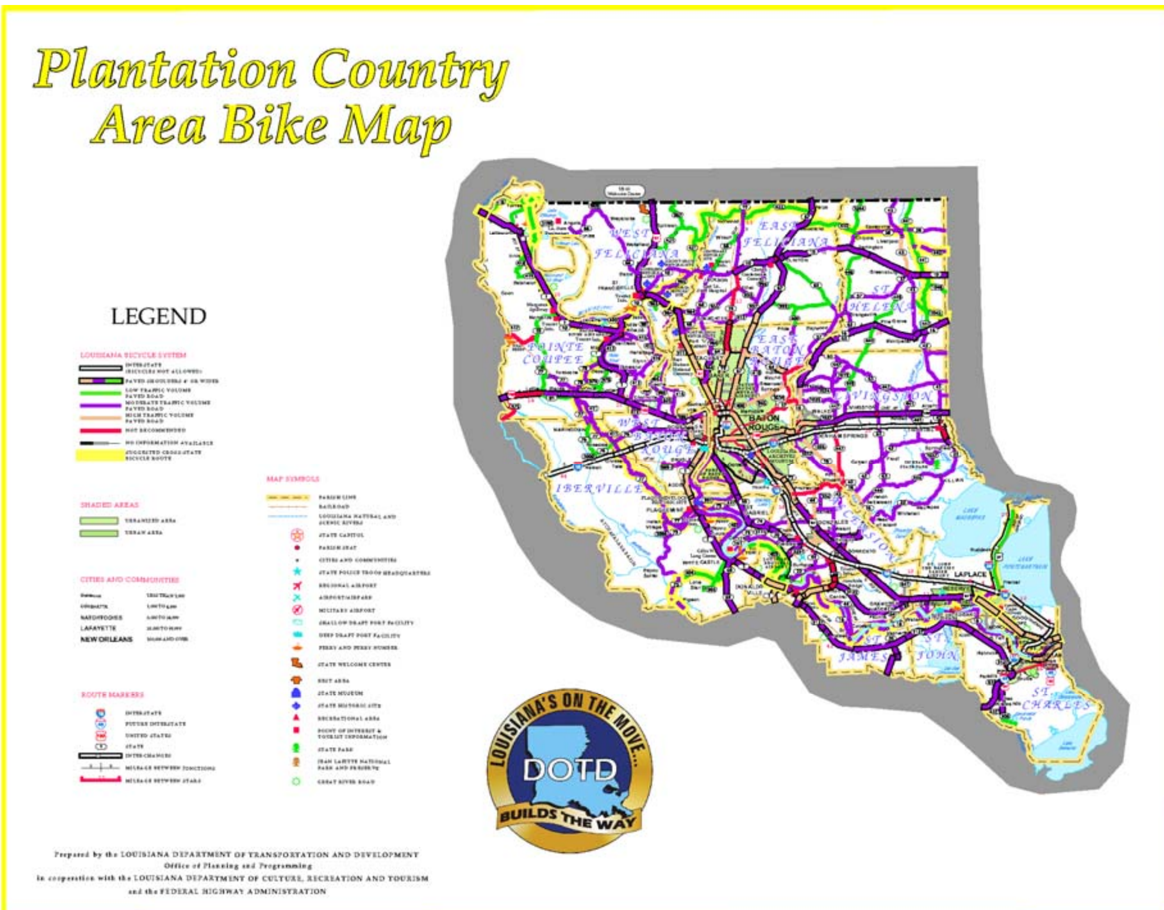
Local Perspective

There are active groups in the Baton Rouge study area that are promoting the development and use of bicycle and pedestrian facilities. Particularly noteworthy are the Capital Region Bicycle Pedestrian Advisory Committee (with its Projects Subcommittee), the Baton Rouge Bicycle Club, the Baton Rouge Advocates for Safe Streets, and the East Baton Rouge City-Parish Government (the Baton Rouge Recreation and Parks Commission, and the Department of Public Works with a person assigned to coordination for bicycle and pedestrian paths).

The Capital Region Bicycle Pedestrian Advisory Committee provides a forum for all the above groups to meet and discuss engineering, education, enforcement and encouragement issues related to these two non-motorized modes of transportation. The Advisory Committee stands ready with a tabulation of projects to recommend as funds become available.

The Consultants conclude that local, state and national perspectives regarding the use of bicycle and pedestrian facilities have much in common. Organizational structure, design information, funds and dedication are in place for the various levels of government. The Project Team anticipates further expansion and maintenance of bicycle and pedestrian facilities in the Baton Rouge area. The promotion of good health, recreation for all ages, wise economics, and the fervency of a core group of "vehicular cyclists" and walkers will demand such furtherance.

FIGURE ES-8



I. INTRODUCTION

The City of Baton Rouge, the state capital of Louisiana, is located on the Mississippi River in southeastern Louisiana, approximately 90 miles northwest of and upstream from New Orleans. The nearly 1600 square mile Baton Rouge Metropolitan Statistical Area is a large, complex area with approximately 600,000 people producing or attracting approximately 1.7 million vehicle trips a day. Many of the functions of state government are located in the City of Baton Rouge or its surrounding area. Baton Rouge is also home to oil and petro-chemical industries and related service industries. Given this mixture of governmental, industrial and service industries, travel and mobility is very important to the area.

The Baton Rouge Transportation Management Area encompasses: (1) all of East Baton Rouge Parish; (2) that portion of Ascension Parish on the left descending bank of the Mississippi River; (3) the Northeast portion of Iberville Parish on the left descending bank of the Mississippi River; (4) the western portion of Livingston Parish, and; (5) the eastern portion of West Baton Rouge Parish. The area contains thirteen (13) incorporated municipalities: Gonzales and Sorrento in Ascension Parish; Baton Rouge, Baker, and Zachary in East Baton Rouge Parish; St. Gabriel in Iberville Parish; Denham Springs, French Settlement, Port Vincent and Walker in Livingston Parish, and; Addis, Brusly and Port Allen in West Baton Rouge Parish, all as shown in **Figure 1** on the next page.

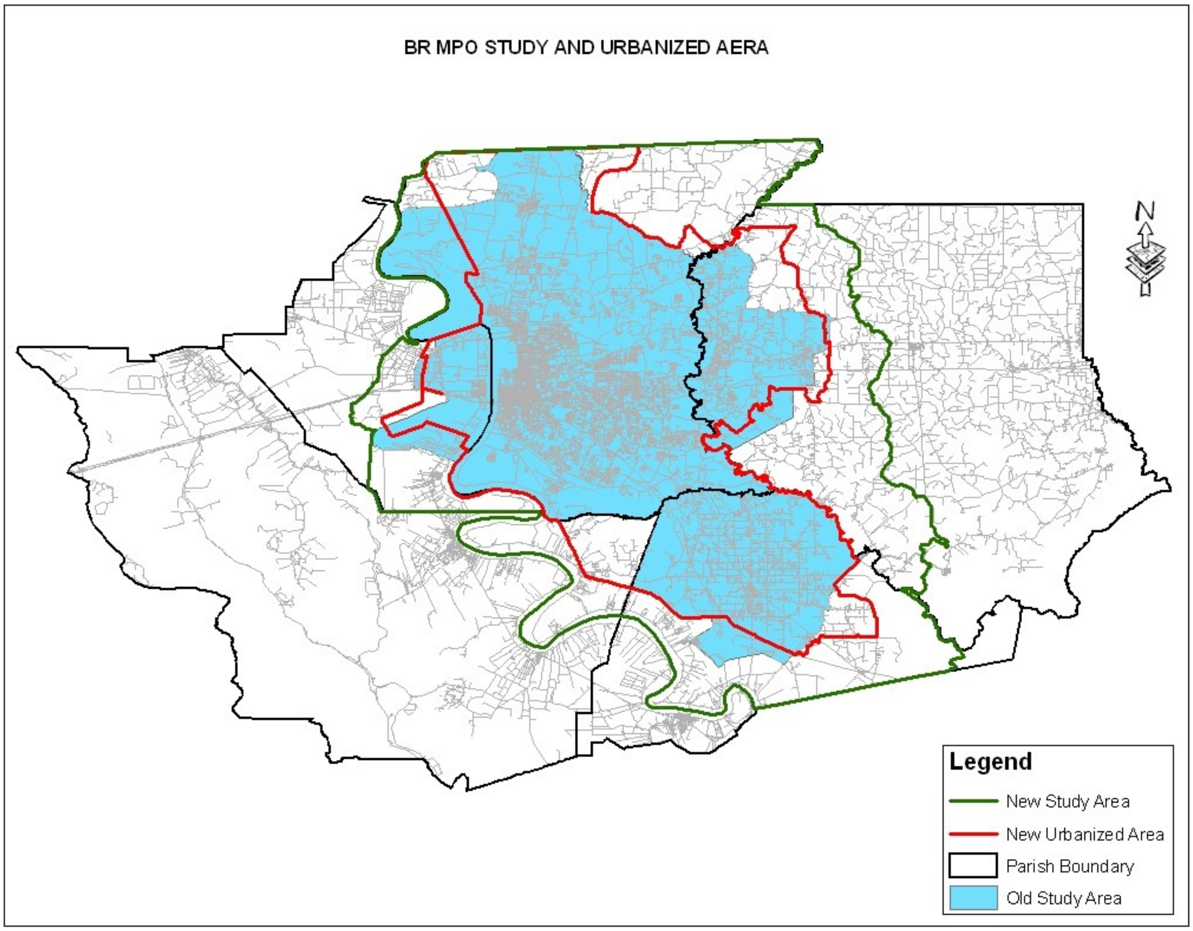


Figure 1 – Urbanized Area and Study Area Map

Background

The Federal Highway Act of 1962 required the implementation of a comprehensive transportation plan for all major cities within the United States, developed through a Continuous, Comprehensive, and Cooperative (3-C) Planning Process. The original Comprehensive Transportation Plan for the Baton Rouge Urbanized Area was completed in 1968. It was developed using mainframe computer model software called *Planpac*. Later, in 1992 the master transportation plan was updated, as required by the 1962 Act. As part of this updated plan, a PC-based Urban Transportation Planning Model software called TRANPLAN was developed to replace the mainframe model that had been in use since 1967. In the late 1990's LA DOTD converted to the travel demand forecasting model software called TransCAD. This current plan update was conducted using the TransCAD software package.

Concurrent with development of the PC-based models, responsibility for maintenance of long-range transportation plans shifted from state departments of transportation (equipped with expensive and massive mainframe computers) to the local metropolitan planning organizations (MPO's). The responsible agency for transportation planning activities for the Baton Rouge Metropolitan Area is the Capital Region Planning Commission (CRPC).

The previously presented List of References includes The Green Light Plan by the City of Baton Rouge and East Baton Rouge, and the Ascension Parish Transportation Study. These two studies overlapped this current Update time wise (both June 2005 reports) and provided insight regarding public sentiment and candidate transportation projects.

Purpose

The purpose of this study was: (1) to develop a long-range transportation plan (Year 2032) for the Baton Rouge Urbanized Area and, (2) to develop a travel demand forecasting model using the TransCAD Transportation GIS Software by Caliper Corp., Newton, Mass. The model was used to perform capacity deficiency analyses, future year demand analyses on multiple scenarios, and evaluation of individual needs in the study area up to the planning horizon year 2032. The needs analyses performed were delineated in three increments: from 2007 to 2012, from 2013 to 2022, and from 2023 to 2032.

Scope of Work

This study provided an update of area travel characteristics, inventoried and evaluated the existing transportation system, developed and analyzed alternative improvements to the system, and recommended an overall transportation plan and staged improvement program. A key element of the project was the development of a travel demand model and training local planners and the Louisiana Department of Transportation and Development (DOTD) staff in the use of the model. The work consisted of the following tasks.

- Establish a Project Steering Committee
- Public Involvement
- Update the Travel Demand Forecasting Model
- Validate and Calibrate the Transportation Model.
- Travel Forecasts and Deficiency Identification.
- Develop a Long-range Transportation Plan for both highway and transit networks.
- Develop a Staged Improvement Plan.
- Determine the Feasibility of Bicycle and Pedestrian Facilities.
- Develop and deliver a Model Management System to facilitate use of model.

Organization

The study was conducted under the Comprehensive, Continuous and Cooperative (3-C) Planning Process as mandated in the 1973 Federal Highway Act and all subsequent federal transportation bills including the current SAFETEA. CRPC, designated by the Governor as the Metropolitan Planning Organization (MPO) for the Baton Rouge Metropolitan Area, is the responsible agency for transportation planning activities. In cooperation with DOTD, the CRPC Transportation Policy Committee appointed a project steering committee with representation from each of the parishes within the Baton Rouge transportation planning area. The Study Team participated in one public meeting in each of the parishes early in the process to discuss transportation issues and specific ideas for the transportation system. This was to inform the public about the planning process and provide them with the opportunity for input and participation.

Requirement for Fiscal Constraint

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Transportation Equity Act for the 21st Century of 1998 (TEA-21), and now the Safe, Accountable, Flexible, and Efficient Transportation Equity Act : A Legacy for Users (SAFETEA-LU) OF 2005 have all required that metropolitan master transportation plans be financially constrained, based upon availability of federal, state, local and private funding. The current plan update uses funding projections expressed in 2006 dollars using recent information from LADOTD. In addition, the updated plan has been reorganized into three program intervals of five (5) years, ten (10) years and ten (10) years, with each interval accommodating the set of projects that are judged most needed and achievable. Funding projections were based on historic levels of funding from all sectors as well as capital, operating, and maintenance costs.

II. ESTABLISH PROJECT STEERING COMMITTEE

Members of LA DOTD, CRPC and the Consultant Team met in January, 2005, and discussed development of the Update's scope of services and related fees. LA DOTD issued the Notice to Proceed for the project on March 7, 2005. The three groups held a kickoff meeting on April 8, 2005, with a rigorous agenda to include the items of project goals and objectives, project Steering Committee membership, and exchange of base data.

The Plan Update's Scope of Services called for the organization of a Study Team or Steering Committee consisting of the selected Consultants and representatives of LA DOTD and CRPC. Accordingly, the CRPC mailed letters to its Transportation Policy Committee on April 14, 2005, recommending members for the Steering Committee. The Steering Committee membership was finalized on April 25, 2005. The initial list of members follows:

Tom Bartkiewicz, LA DOTD Plan Update Project Manager
Mike Schiro, LA DOTD Planning and Programming Engineer
Don Neisler, CRPC Executive Director
R.J. Goebel, CRPC Director of Planning
Huey Dugas, CRPC Chief of Planning
Dwight Brashear, CEO Capital Area Transit System
William Daniel, East Baton Rouge City-Parish Director of Public Works
Tom Fancett, Ascension Parish Director of Public Works
Brandon Ellzey, Livingston Parish Special Assistant to Parish President
Kevin Durbin, West Baton Rouge Parish Director of Public Works
Coan Bueche, KLL Consultants Inc.,Vice President
J.D. Allen, Alliance Transportation Group, Inc.,Vice President
L.P. Ledet, Neel-Schaffer Senior Transportation Planner

Steering Committee Meetings

The Consultant Team presented a power point presentation describing the Transportation Plan Update to the CRPC Transportation Policy Committee and the Steering Committee at the Bluebonnet Library in Baton Rouge on May 17, 2005. The next status reports were given at that same location to the CRCP Technical Advisory and Transportation Policy Committees on December 5, 2006, and December 12, 2006, respectively. (The Consultant Team waived scheduling a Steering Committee meeting in July, 2005, because, as documented, "No immediate action required at this time". The delay in scheduling the second and subsequent Steering Committee meetings was due primarily to the Team focusing on developing demographic and roadway network data and lacking results for review.)

In addition to the above meetings, a representative of the Consultant Team attended CRPC Technical Advisory Committee and Transportation Policy Committee meetings on April 5, April 12, May 3, June 7, and June 14, all in 2005.

III. PUBLIC INVOLVMENT

Visioning Meetings

The Consultant Team's approach to public involvement was to attend open meetings, to explain the concept of a long range transportation plan, and to invite comment from the public. The visioning meetings took various forms due to circumstances and opportunities. The following sections of this report present the meetings and findings by Parish.

Ascension Parish

The Ascension Parish Transportation Study ended June 30, 2005. This Baton Rouge Transportation Plan Update began March 7, 2005. Hence, the two long range transportation planning studies overlapped time wise. The Ascension Parish Government sponsored meetings in November, 2004, and in May, 2005, that provided opportunity for the public and its elected officials to express their views on quality of life and attendant transportation needs.

A map is presented to illustrate the results of public involvement for this Baton Rouge Metropolitan Transportation Plan Update. Ascension Parish Government has also provided its input to the public involvement process. These maps are presented as **Figures 2 and 3**.

East Baton Rouge Parish

Members of the Consultant Team and the Capital Region Planning Commission had personal visits with and email transmittals to members of the East Baton Rouge City-Parish Department of Public Works and explained the Plan Update.

The local general purpose governments affected by this Plan Update characteristically do not provide for local maintenance, continuity and minor capital projects through annual appropriations in a public works and/or capital improvement program. On November 8, 1994 voters in East Baton Rouge Parish decided not to renew a dedicated ½ cent "pothole" tax, and not to increase the sales tax by one cent for five years, to fund additional improvements to the infrastructure. However, on May 3, 1997 and again on November 17, 2001, voters did renew the ½ cent sales tax for transportation improvements. A major portion of these funds was used for local street maintenance and construction. The dedicated ½ cent pothole tax was to expire December 31, 2007.

In the spring of 2005, Baton Rouge Mayor Melvin L. "Kip" Holden initiated a drive to renew the pothole tax until the year 2030 and modify the allocations of the proceeds from the tax relative to new construction, rehabilitation and road beautification. The City-Parish Government conducted public meetings for each of the twelve Metropolitan Council Districts. Members of the CRPC and the Consultant Team attended a number of these meetings. Mayor Holden dubbed the plan "The Green Light Plan". Citizens approved the plan in an election on October 15, 2005. Maps illustrating both proposed road projects as well as proposed supplemental road projects from "The Green Light Plan" follow as **Figures 4 and 5**. Because of the extensive public involvement and due to the timing relative to the Baton Rouge Plan Update, the Consultant Team was authorized to use the Green Light documentation in this visioning process.

Livingston Parish

Representatives of Krebs, LaSalle, LeMieux Consultants, Inc., and the Capital Region Planning Commission attended an open meeting of the Livingston Parish Council on July 14, 2006. Mr. Coan Bueche made a presentation to the Council and public attendees explaining the Plan Update. Mr. Bueche offered public comment forms to the group regarding the project.

In April, 2006, Mr. L.P. Ledet of Neel-Schaffer, Inc., met with Mayor Travis Clark of Walker and explained the model and Plan Update. On January 23, 2007, Mr. Richard Kinchen had separate meetings with Mr. Mike Grimmer, Livingston Parish President, and Mr. Jimmy Durbin, Denham Springs Mayor, and asked their vision of transportation needs in their respective areas for the next 25 years.

A citizens group known as the Juban North Association is promoting expanded infrastructure in Livingston Parish. The primary concern is in the area of the new interchange on I-12 at Juban Road between Denham Springs and Walker. The Juban North Association endorses the following highway improvements:

1. Widening US 190 to five lanes from Denham Springs to east of Walker.

2. Widening LA 1026 (Juban Road) to five lanes from US 190 to I-12.

3. Extending LA 1026 (Juban Road) from US 190 northward to LA 1026 (Lockhart Road).

Finally, **Figure 6** is presented to illustrate Livingston Parish Government Concerns for this Baton Rouge Metropolitan Transportation Plan Update.

West Baton Rouge Parish

Representatives of Krebs, LaSalle, LeMieux Consultants, Inc., and the Capital Region Planning Commission attended an open meeting of the West Baton Rouge Parish Council on June 23, 2005. Mr. Coan Bueche made a power point presentation to the Council and public attendees explained the Update. Mr. Bueche offered public comment forms to those in attendance. A map is enclosed to reflect the comments from the public and the parish government in **Figure 7**.

Iberville Parish

The contract for this Baton Rouge Metropolitan Transportation Plan Update did not include Iberville Parish. However, a recent article in Baton Rouge's newspaper The Advocate indicates Iberville Parish will experience significant development and thus growth and activity in coming years. This growth and activity will impact East Baton Rouge and Ascension Parishes.

A map depicting that portion of Iberville Parish west of the Mississippi River and of interest to this Update is included as **Figure 8**.

FIGURE 2 – ASCENSION PARISH PUBLIC SAFETY CONCERNS

FIGURE 7 – WBR PARISH PUBLIC AND GOVERNMENT CONCERNS ....

FIGURE 8 – IBERVILLE PARISH AREA

IV. TRAVEL DEMAND FORECASTING MODEL DEVELOPMENT

Data Gathering and Reconciliation

The first step in any model development work should be to determine what data are available. Then each data set must be reviewed to determine whether it is correct and if it can be used in the process. Some data sets can be used for model estimation and others for validation.

The Project Team obtained the trip production rates, trip regression equations and "friction" or impedance factors by trip purpose that were used in the original TRANPLAN model for Baton Rouge. The team then reviewed those parameters for adequacy of use in the new model. The Project Team also collected rates and equations from other studies that used the mode choice function and reviewed that information for adaptability to Baton Rouge.

The Project Team used the Baton Rouge Personal Transportation Survey (BRPTS), a household survey in 1997, for determining:

- Trip production and attraction rates by household market segment;
- Average trip lengths and trip length frequency distributions;
- Mode of transportation
- Diurnal-directional split factors for time-of-day modeling

Where existing data on observed travel behavior were not available, the team used model parameters from other urbanized areas of similar size and character.

Existing traffic counts are of special importance in the validation of the model. The following traffic count information was requested from LA DOTD or other local sources:

- Vehicle Classification counts for special attention to truck model
- Time of Day counts to validate the time of day models.
- ATR station counts to adjust counts to average weekday (school season) counts

Digital ortho-photo quadrangle (DOQ) maps, or aerial photographs, were used to review the Traffic Analysis Zone (TAZ) structure and special generator locations. Other data used in model development includes previous travel time runs from CRPC conducted by CRPC and its subcontractors and the transit comprehensive operational analysis (COA) boarding and alighting survey conducted by Capital Area Transit System (CATS).

Review of Current Transportation Model

Documentation and reports associated with the TRANPLAN travel forecasting model were reviewed to assess the effectiveness of the model and to determine which data sources were used in its estimation. Both are important factors in determining what may be useable for comparison with or transfer to the new model. Based on comparison of the older model data and parameters with the data obtained from the CTPP, travel time surveys, transit survey and BRPTS, it was determined that very little of the previous model data was useful in the current effort. The one exception being highway network attributes such as number of lanes or other similar elements.

STUDY AREA AND TRAFFIC ANALYSIS ZONE BOUNDARIES

From a travel-demand modeling perspective, it is necessary to divide the Study Area into appropriate Traffic Analysis Zones (TAZ). Initial development of the TAZ geography was undertaken by the Capital Region Planning Commission (CRPC). The Project Team reviewed and refined the TAZ geography to resolve any boundary conflicts or address any physical constraints present in the zones. A set of general guidelines, shown to be very useful through experience, was used in the review and refinement of the TAZ boundary development. These guidelines are the following:

1) Follow census tract boundaries (with no substantive exceptions), since TAZs must combine to form Census Tracts;

2) Follow “physical” census block geography (with few exceptions—e.g., sometimes incorporate political boundaries where city limits abut), since this is the smallest level of geography at which census data are available;

3) Follow TAZ boundaries in the area (with few exceptions—e.g., when no census geography is available). Try to split existing TAZs instead of moving the old boundaries.

4) Use functionally classified roadways (with exceptions—e.g., where barriers such as streams, etc., make better zone boundaries);

5) Use fixed transit routes (with exceptions—e.g., where excessively small zones would be created given existing land use);

6) Avoid splitting park land and open spaces that generate few trips;

7) Split zones with excessive interior network;

8) Combine zones within the same special generator; and,

9) Consider one-way street network (e.g., in downtown areas).

The Study Area is shown in **Figure 9.** In general air quality boundaries were taken into consideration in defining the Study Area. This area is also designed to encompass the limits of large by-pass projects and transit fixed guideway projects that have been identified as possible alternatives for analysis using the model.

INSERT FIGURE 9
STUDY AREA

The TAZ layer within the Study Area is depicted in **Figure 10.** Not only were the general guidelines above used in the development of these TAZs, but the latest aerial photography and local knowledge guided the placement of centroids and centroid connectors within each TAZ. Transit walk and drive access data attributes were developed and included in the TAZ layer based on demographics, area type and zonal size. A TAZ database was created including all demographic data by TAZ as well as Parish and/or district tags, and trip productions and attractions.

The CATS network is presented in **Figure 11**.

INSERT FIGURE 10 – TRAFFIC ANALYSIS ZONES
SEE PDF FIGURE 4

INSERT FIGURE 11 – CATS MAP

DEVELOPMENT OF BASE YEAR 2004 SOCIO-DEMOGRAPHIC DATA

Base year demographic data were developed by CRPC in coordination with the Project Team. Forecast year demographics were developed by the Project Team under a supplemental agreement. Among others the following land use, demographic, and socio-economic characteristics are included in the TAZ layer attributes required for the travel demand model:

- Population
- Households
- Workers (from sub model)
- Employment (retail; and non-retail)
- School enrollment

Note that demographics can be stored in a separate table that can be joined to the TAZ layer. However, since demographics are commonly stored on the TAZ layer, attributes are presented in **Table 1** below.

TABLE 1
TAZ ATTRIBUTES

TAZ ATTRIBUTE	COMMENT
ID	TransCAD ID And also TAZ number
Area	TAZ Area in Square Miles
TAZ	TAZ Number
Parish	Parish Name
PLANNING_DIST	Planning District Number
AREA_TYPE_04	2004 Area Type
PUMA5	Census 5% PUMA ID
CTPP00_TAZ	TAZ number in 2000 CTPP Data
POP_04	Population in year 2004
SCHAGE_POP_04	School age population in year 2004
TOTDU_04	Total dwelling units in year 2004
OCCUDU_04	Occupied dwelling units in year 2004
HHS1_04	Households with 1-person
HHS2_04	Households with 2-persons
HHS3_04	Households with 3-persons
HHS4P_04	Households with 4 or more-persons
WRK0_04	Households with 0-worker
WRK1_04	Households with 1-worker
WRK2P_04	Households with 2 or more-workers
VEH0_04	Households with 0-vehicle
VEH1_04	Households with 1-vehicle
VEH2_04	Households with 2-vehicles

VEH3P_04	Households with 3 or more-vehicles
TOTEMP_04	Total number of employees in year 2004
RETEMP_04	Total number of retail employees in year 2004
OTHEMP_04	Total number of non-retail employees in year 2004
SCHATT_04	School Attendance in year 2004 excluding LSU
LSU_SCHATT_04	School Attendance for LSU in year 2004
HH1SCHP0_04	Households with 1-person and 0-school age* person
HH1SCHP1_04	Households with 1-person and 1-school age* person
HH2SCHP0_04	Households with 2-person and 0-school age* person
HH2SCHP1_04	Households with 2-person and 1-school age* person
HH2SCHP2_04	Households with 2-person and 2-school age* persons
HH3SCHP0_04	Households with 3-person and 0-school age* person
HH3SCHP1_04	Households with 3-person and 1-school age* person
HH3SCHP2_04	Households with 3-person and 2-school age* persons
HH3SCHP3_04	Households with 3-person and 3-school age* persons
HH4SCHP0_04	Households with 4-person and 0-school age* person
HH4SCHP1_04	Households with 4-person and 1-school age* person
HH4SCHP2_04	Households with 4-person and 2-school age* persons
HH4SCHP3_04	Households with 4-person and 3-school age* persons
WRK0VEH0_04	Households with 0-worker and 0-vehicle
WRK0VEH1_04	Households with 0-worker and 1-vehicle
WRK0VEH2_04	Households with 0-worker and 2-vehicles
WRK0VEH3_04	Households with 0-worker and 3 or more-vehicles
WRK1VEH0_04	Households with 1-worker and 0-vehicle
WRK1VEH1_04	Households with 1-worker and 1-vehicle
WRK1VEH2_04	Households with 1-worker and 2-vehicles
WRK1VEH3_04	Households with 1-worker and 3 or more-vehicles
WRK2VEH0_04	Households with 2-workers and 0-vehicle
WRK2VEH1_04	Households with 2-workers and 1-vehicle
WRK2VEH2_04	Households with 2-workers and 2-vehicles
WRK2VEH3_04	Households with 2-workers and 3 or more-vehicles
SG	Name of special generators in TAZ
SG_NOTE	Note on special generator in TAZ.
TerminalTime_04	Terminal Time for TAZ.

* School age persons are persons with age between and including 5 and 18 years

The TAZ layer will hold the area type data for each model year. For that reason and the fact that area type is used in several model steps it is talked about here. The following area types are used in the Baton Rouge Model:

1) Central Business District (CBD)
2) Urban
3) Suburban
4) Rural

These area types can generally be defined as follows:

1. **Central Business District (CBD)** refers to the principal urban activity center of the core community. Characteristics include:

   - High Employment Density with mix of retail, service, and other on all facility types
   - Residential uses are limited in number, and when present, are either associated with retail (mixed use) or are high-density such as apartments or condos.
   - Activities are close together, and there are typically parking restrictions or charges.

2. **Urban** refers to areas that are urban in character, but are less dense and have more balance between commercial and residential uses. This type would also be used for the central business districts of communities in the study area other than the core community. Activities are farther apart, making walking a less desirable alternative. Characteristics include:

   - Employment Density is less than in the CBD with less retail and more service activities, but is still present on all facility types and is intermixed with residential or in adaptive reuse on the edges of neighborhoods, and/or concentrated along arterials.
   - Residential neighborhoods are identifiable, but intermixed on neighborhood fringes and sometimes within are apartments, duplexes and single-family housing with low owner occupancy.

3. **Suburban** refers to areas that are primarily residential in nature and there is typically clearly defined separation between residential and other uses. There are some exceptions to this characterization based on emerging land use policy as noted below. Characteristics include:

   - Employment tends to be concentrated in malls, office parks or campuses, and strip commercial
   - Residential is primarily larger lot single or double family with limited multi-family apartment complexes. Home ownership is the norm with only some rentals.
   - Activities are separated by significant distances. Walking is rare. The exception to this characterization is in areas where Smart Growth or New Urbanism policies have been

instituted. These policies result in more walk friendly, mixed-use communities. However, these communities are still characterized as suburban because, although they have some urban characteristics, it is confined to their internal circulation. They are not integrated into or linked to the other urban environments and therefore in terms of regional travel, their trip making patterns match their more suburban neighbors.

4. **Rural** refers to areas that are characterized by agricultural uses or very large lot residential. Typically access to retail and service activities require trips to another area type. Characteristics include:

- Employment density is low with activities separated by long distances.
- Residential density is extremely low with single family housing surrounded by large acreage
- Road network consists mostly of the state arterial system and county collectors.

Base year and forecast year demographic data are included in tabular form in the Appendix. Data are grouped by parish, planning district and TAZ.

2004 BASE YEAR HIGHWAY AND TRANSIT NETWORKS

Data for the model is stored on several geographic layer including the TAZ, roadway network layers, and transit routes system. This section covers these layers and data.

Base Year Highway Network Development

The estimation of speeds and capacities is critical to the development of a successful model. Speeds, capacities, and travel times are stored on the network by direction and for each time period modeled: AM, Mid Day, PM, Off-peak.

The characteristics of the roadway network must be known for all run years. Characteristics include the alignment(s), type of facility, intersections, and the number of lanes for roadways. The Baton Rouge model relies on network attributes to provide information to its models

The Project Team converted the TRANPLAN Street and Highway Network to TransCAD format. CRPC edited the network with assistance from the Project Team to conform to actual roadway layout. The Project Team then added those links in the expanded study area and collected information on local Capital Improvement Programs in order to develop a list of projects to be included in the Existing plus Committed Network for estimating forecast traffic volumes. The historic funding database for the Baton Rouge study area was also updated with information provided by the LA DOTD Planning and Programming Division.

Network Attributes and Counts

CRPC thus provided the Base Year network with attributes in the form of reproducible maps and link data records. LA DOTD provided functional classifications and Average Daily Traffic counts for the network as shown in **Figures 12 and 13**, respectively, on the following pages.

INSERT FIGURE 12
FUNCTIONAL CLASSIFICATION
FIGURE 2 PDF LIST

INSERT FIGURE 13 ADT'S
FIGURE 3 PDF LIST

Network Attributes, continued

The Project Team staff conducted field data collection to develop the attribute data (lanes, speed, geometry, etc.) for the expanded street and highway network. The Team then added traffic count data to the appropriate network links. The network will contain almost 900 locations for comparing model volumes with actual counts in the calibration process.

The Team edited the connectors to be sure the connectors represented the local street access in a reasonable manner. And they added local street links to the network layer to account for the Capital Area Transit System (CATS) transit routes for use in the mode choice element of the travel demand model. The Project Team obtained and used maps and descriptions of the CATS bus routes to designate the transit routes on the network layer. **Table 2** lists some of the most critical network attributes for the base year. This is not a complete listing and similar attributes will be required for each forecast year.

TABLE 2
NETWORK ATTRIBUTES

NETWORK ATTRIBUTE	COMMENT
ID	TransCAD ID
Length	Length of link-internal to TransCAD.
Dir	Direction of Link-internal to TransCAD, but can be edited.
NAME	Name of roadway
HIGHWAY_NO	Highway number
DOTD_STATION	LADOTD traffic count station number.
ADT_04	2004 Vehicle count
SCREENLINE_ID	ID of ScreenLine crossing link
AB_DOTD_CLASS	LADOTD functional class
BA_DOTD_CLASS	LADOTD functional class
BUILT_YEAR	Year road built. 1950 can be entered for all existing roads.
REMOVED_YEAR	Year road removed from network. 3000 for all roads not planned to be removed.
NETWORK_04	Flag field to include or exclude a link in the model run.
FACILITY_TYPE_04	Facility type name in year 2004
FACILITY_TYPE_NUM_04	Facility type ID in year 2004
AREA_TYPE_04	2004 area type.
AB_LANES_04	Number of lanes in the BA direction in year 2004
BA_LANES_04	Number of lanes in the AB direction in year 2004
AB_SPEED_PK_04	AB direction speed in peak period for 2004.
BA_SPEED_PK_04	BA direction speed in peak period for 2004.
AB_SPEED_OP_04	AB direction Speed in off-peak period for 2004.
BA_SPEED_OP_04	BA direction Speed in off-peak period for 2004.
AB_TT_PK_04	Peak travel time in the AB direction in year 2004
BA_TT_PK_04	Peak travel time in the BA direction in year 2004
AB_TT_OP_04	Off-Peak travel time in the AB direction in year 2004
BA_TT_OP_04	Off-Peak travel time in the BA direction in year 2004
AB_CAPACITY_04	Roadway Capacity in the AB direction for 2004
BA_CAPACITY_04	Roadway Capacity in the BA direction for 2004
AB_CAPACITY_HR_04	Peak Roadway Capacity in the AB direction for 2004
BA_CAPACITY_HR_04	Peak Roadway Capacity in the BA direction for 2004
ALPHA_04	BPR function parameter
BETA_04	BPR function parameter
LastDailyFlow	Total 24 hr Assigned Volume from latest run.
MODE_CODE	Flag for modes. 1= auto (There are no other modes used in the 2004 network.)

Network Attributes, continued

The roadway network layer, like all line layers, has an end point or node layer with which it is associated. **Table 3** below lists the attributes of this layer.

TABLE 3
NODE ATTRIBUTES

NODE ATTRIBUTE	COMMENT
ID	TransCAD ID
Longitude	Longitude of node
Latitude	Latitude of node
CENTROID	TAZ number
TYPE_04	Field where Signals, Centroids, and Externals are noted. For future use
Node_Type_04	1=signal, 8=normal node, 9=Centroid or External. For future use.

The fields ID, Longitude, and Latitude are automatically provided by TransCAD and cannot be edited.

Any Park-and-Ride lots and their access will be coded in the highway network using a separate “mode code”. This eliminates the need for a separate layer.

Facility Types

Among others purposes, Facility Type is used to assign speeds and capacities to the network. **Table 4** on the next page provides a listing of the classification scheme chosen for use in the Baton Rouge model. Another possible scheme is to use the HPMS functional classification system. Selection of one scheme for use in determining speeds and capacities does not prevent other roadway hierarchies from being used to report, aggregate, or analyze output data for special applications such as air quality conformity analysis. Both Facility Types and DOTD functional class categories are present in the network attributes.

TABLE 4
FACILITY TYPES

Facility Type	Facility Type Number
Freeway	1
Major Arterial	2
Minor Arterial	3
Major Collector	4
Frontage Road	5
Ramp	6
HOV	7
HOV Ramp	8
Local Street	9
Centroid Connector	10

A definition of each facility type is provided below:

Freeway - A controlled access facility with ramps, no at grade intersections, and no signalization.

Major Arterial - Provides regional access, connects to other major arterials or freeways. In general, the largest non-freeway roads in the region.

Minor Arterial - Connects collectors and higher facility types. Connects to larger network of arterials.

Major Collector - Local in nature, connects only a few TAZ's. Most collectors are not in the model network, however some are required in rural area and smaller TAZ's without access to arterials, and includes local streets with bus routes. In dense areas, collectors can have high volumes of traffic.

Frontage Road - Access facility that parallels freeways and connects to the connecting arterial and collector roadways.

Ramp - Access facility between frontage roads or surface streets and freeway mainlanes.

HOV - High Occupancy Vehicle lane. None in the base year network.

HOV Ramp - Ramp to HOV facility. None in the base year network.

Local Streets – Links that do not fall under above facility types but used in the model for network connectivity or transit purposes.

Centroid Connector - Artificial link representing local street access to the transportation network from a zone.

Base Year Transit Network Development

The Capital Area Transit System (CATS) and its scheduling contractor provided transit route and stop information to the Project Team. Using the base year highway network explained above, and the transit information, the Team created the geometry for a base year transit network. Specifically, a transit network was developed for the area based on the ArcMap shapefiles provided by CATS. TransCAD represents the transit system with a series of geographic layers describing the actual locations of transit routes and transit stops. The transit network is constructed using the roadway network layer as a base. This allows the transit network access to highway characteristics utilized by the bus routes. The transit network provides a detailed description of the routes and facilities that comprise the local transit service. For each route, data describing the transit stops, runtimes, headways, fares, transfer restrictions, and other data are coded to the route system.

Network Attributes

The Project Team thus created a transit route file and a transit layer, populated the network with basic attribute data, and performed quality assurance/quality control review and diagnostics.

EXTERNAL CORDON STUDY

One means of ensuring that an effective model will be developed is to compile a sound database comprised of relevant observed data. A reliable method of collecting pertinent data on travel behavior, specific trip-making characteristics, and regional traffic patterns is to conduct travel surveys.

The Project Team (Krebs, LaSalle, LeMieux Consultants/Neel-Schaffer/Alliance Transportation Group) undertook and completed an external survey—the only data collection effort specified as part of this project. The external survey instrument was designed based on the understanding of model specifications at that time and was used to generate information on external travel which consists of external-internal (EI) trips and external-external (EE) trips. EI trips have one end of the trip inside the study area and the other outside. EE trips pass through the study area having no origin or destination within the study area.

In order to build the EI and EE trip tables, the Project Team and LA DOTD conducted roadside travel surveys and/or traffic counts of trips crossing the study area boundary on Interstate and non-Interstate routes as shown in **Table 5** and **Figure 14** on the following pages. The travel surveys included video of vehicle license plates for matching later in the day, and distribution of mail-back post cards for origin-destination information.

TABLE 5
BATON ROUGE STUDY AREA
EXTERNAL STATIONS (2005)

Highway	External Station No.	DOTD Station No.	DOTD ADT	Survey ADT	Survey Type
US 61 NORTH	901	208550	14241	16,627	Mail-back
LA 964	902	211080	2139	3,065	ADT Count
LA 19	903	208480	7360	8,952	Mail-back
LA 67	904	211260	7440	6,827	Mail-back
LA 409	905	211340	475	578	ADT Count
LA 37	906	211350	1880	2,852	ADT Count
LA 16	907	212390	6462	6,711	Mail-back
LA 449	908	212350	1046	1,870	ADT Count
LA 63	909	N/A	1000	1,595	ADT Count
US 190 East	910	213330	5746	9,583	Mail-back
I-12 East	911	213350	35855	43,856	License Plate Video
LA 42	912	213510	3112	3,162	ADT Count
LA 444	913	213220	2204	2,784	ADT Count
LA 22	914	213200	3014	6,729	ADT Count
I-10 East	915	205420	23172	31,036	License Plate Video
US 61 South	916	226030	9093	10,564	Mail-back
LA 70	917	205020	14635	14,709	Mail-back
LA 44	918	225460	3370	5,326	ADT Count
LA 1 South	919	203310	22774	25,326	Mail-back
I-10 West	920	203250	36253	36,253	License Plate Video
LA 76	921	202310	2574	2,365	ADT Count
US 190 West	922	202560	20000	28,950	Mail-back
LA 415	923	202530	1741	1,061	ADT Count

FIGURE 14 EXTERNAL STATIONS

Interstate External Stations

The Project Team conducted a license plate matching study at the three locations where Interstate Highways crossed the study area boundary. The Project Team surveyed potential sites and made final site selections, oriented and trained staff, and configured and tested equipment prior to official filming. On April 17-19, 2005 the Project Team made a one-day video capture of license plates for each lane of the in-bound and out-bound roadways of the three Interstate Highways. Afterwards the Project Team compiled, reviewed, performed quality assurance checks, processed, transcribed, post-processed and matched the video license plate survey data for use in determining the external-external trips on those routes. The field work was coordinated with LA DOTD's Planning and Programming Division. Data collection locations are shown in **Figures 15 through 17** on the following pages.

The license plate video matching study produced an indication of the number of vehicles making through trips in the Baton Rouge Urbanized Area. The Project Team differentiated between commercial and non-commercial vehicles.

Tables 6 and 7 summarize the results of the license plate video matching process. **Table 6** presents the number of images captured by location, day, date, direction and type of vehicle. The field survey captured the images of 111,145 license plates over data collection effort. **Table 7** relates the number and percentage of matches of license plates from one external station to another. The video provided 12,058 matches. The most significant matches were the 42.8% match of commercial vehicles from the I-12 East station to the I-10 West station, and the 32.00% match of commercial vehicles from the I-10 West station to the I-12 East station. This information was used in developing the External-External trip generation table.

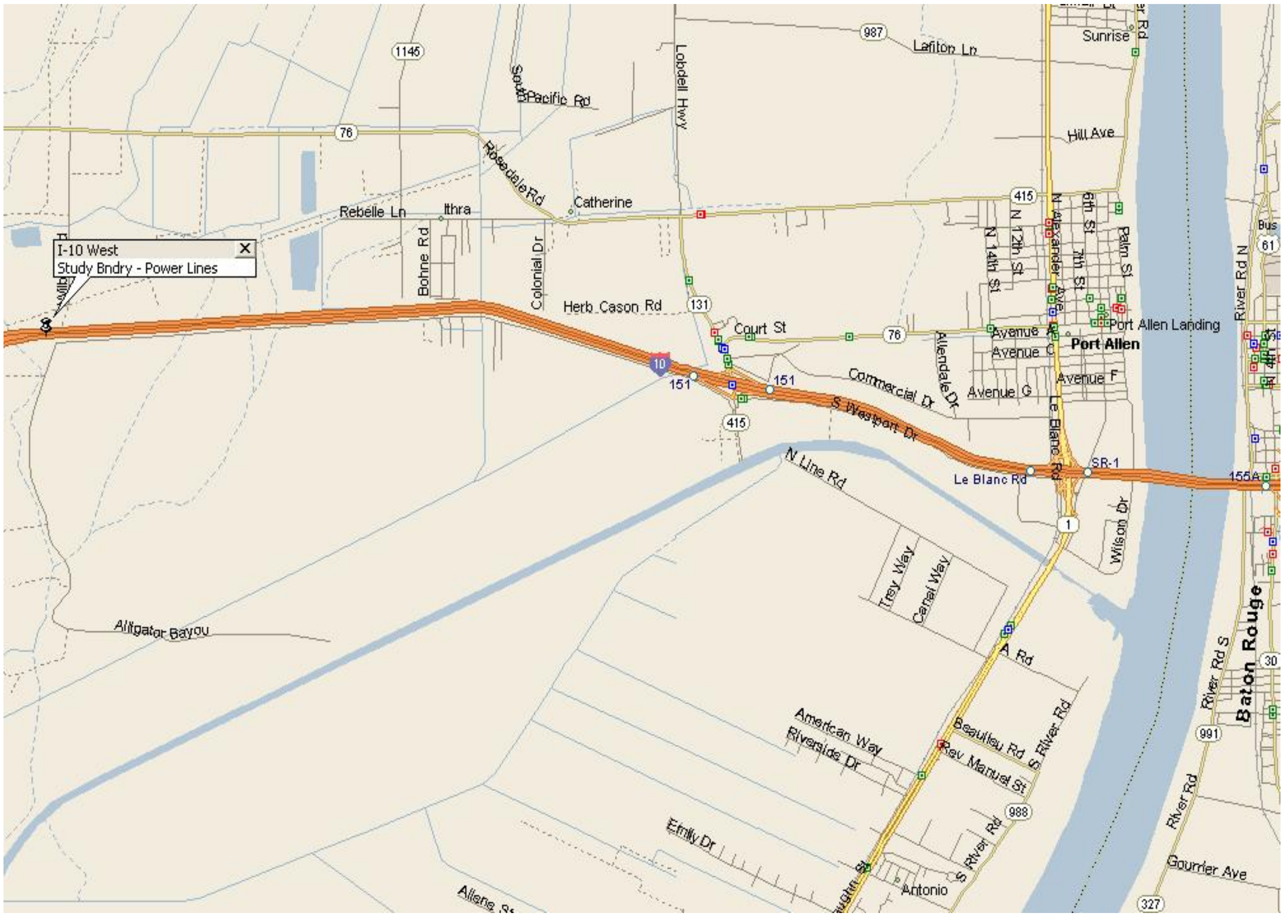


FIGURE 15
I-10 WEST SITE
(LICENSE PLATE VIDEO LOCATION)

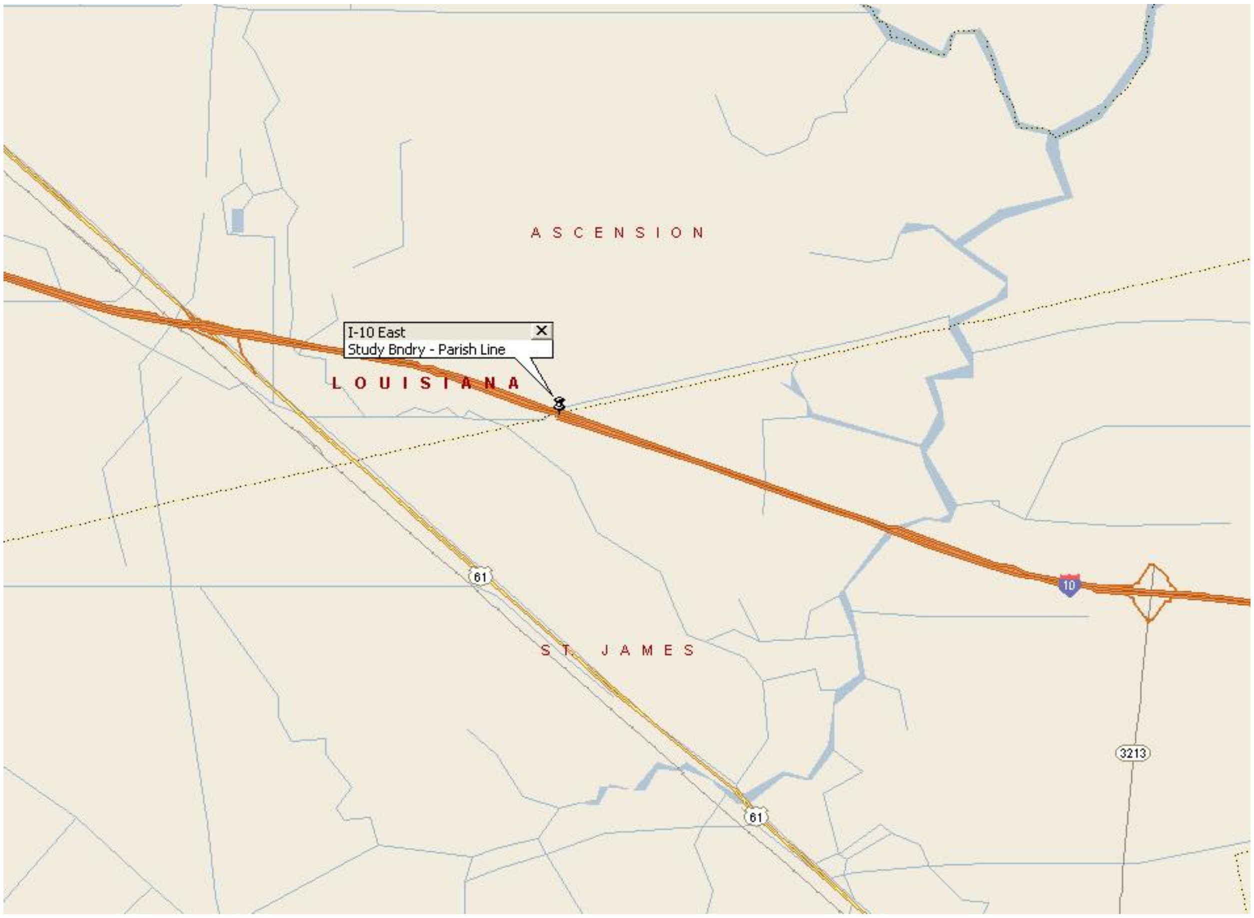


FIGURE 16
I-10 EAST SITE
(LICENSE PLATE VIDEO LOCATION)

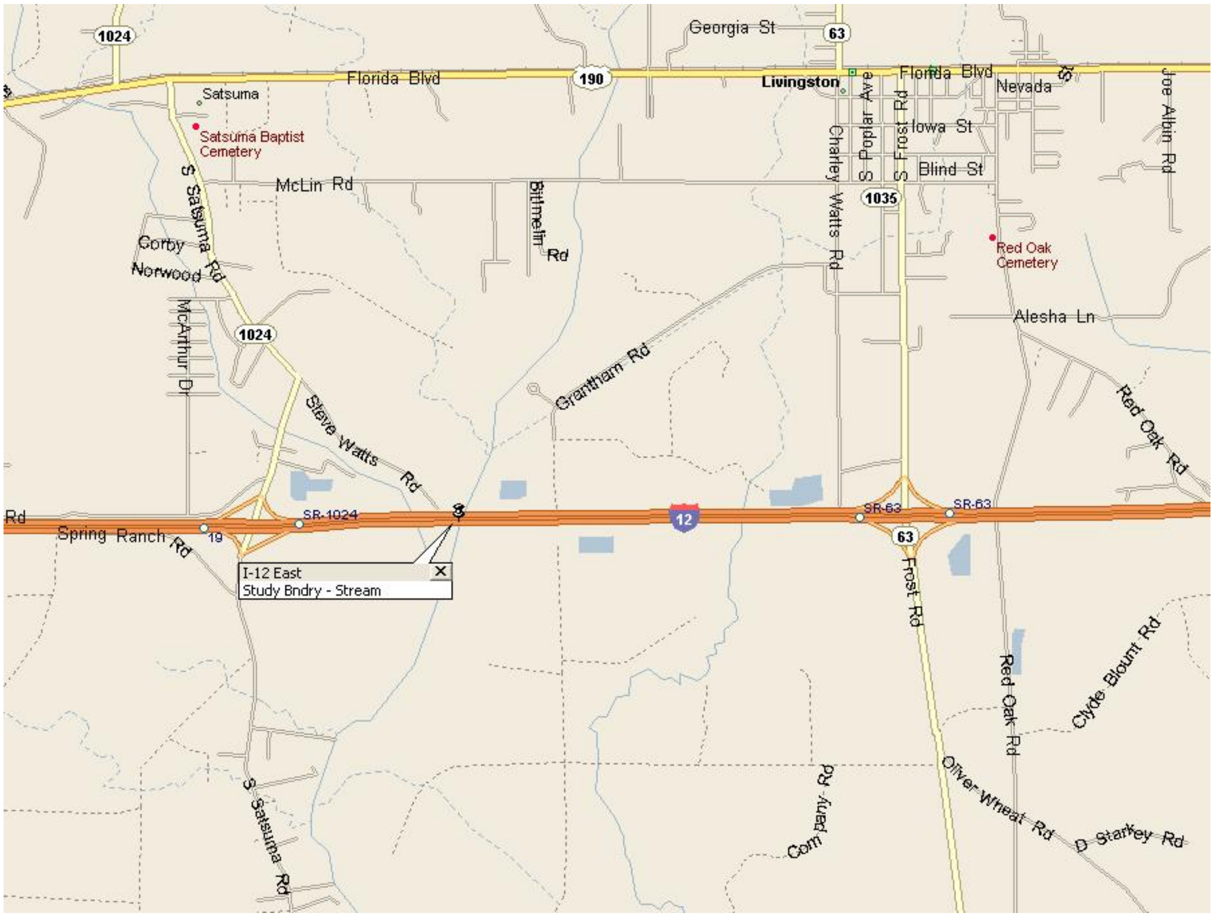


FIGURE 17
I-12 EAST SITE
(LICENSE PLATE VIDEO LOCATION)

Table 6
Interstate External Stations
Video License Plate Match

Location	Day	Date 2005	Direction	Non-Commercial	Commercial	Total	Total
I-10 E	Tuesday	19 Apr	East (bound)	13,170	2,167	15,337	31,036
			West (bound)	13,538	2,161	15,699	
I-10 W	Tuesday	19 Apr	East (bound)	12,899	5,629	18,528	36,253
			West (bound)	12,713	5,012	17,725	
I-12	Tuesday	19 Apr	East (bound)	16,968	4,418	21,386	43,856
			West (bound)	18,421	4,049	22,470	

Table 7
Video License Plate Match Results

EE 24-hour Trip Matrix			
Commercial	I-10 W	I-10 E	I-12
I-10 W	0.00%	6.01%	32.00%
I-10 E	17.50%	0.00%	2.66%
I-12	42.80%	0.78%	0.00%
Commercial	I-10 W	I-10 E	I-12
I-10 W	0	338	1,801
I-10 E	378	0	57
I-12	1,733	32	0
Non-Commercial	I-10 W	I-10 E	I-12
I-10 W	0.00%	13.22%	15.40%
I-10 E	12.13%	0.00%	1.36%
I-12	11.16%	0.79%	0.00%
Non-Commercial	I-10 W	I-10 E	I-12
I-10 W	0	1,705	1,986
I-10 E	1,643	0	184
I-12	2,055	146	0

Non-Interstate External Stations

The Project Team distributed mail-back, postage-paid postcards to motorists at nine other significant external stations in an origin-destination study. Motorists were asked to provide information regarding their trip origin, destination and purpose, and return the postcard to the Project Team. **Table 8** lists these stations. This was to aid in determining the characteristics of through trips and internal-external trips.

Preparation and actual execution of the field work were labor intensive, requiring the following coordination and assistance:

1. Reproduction and provision of 40,000 survey post cards and coordination with the U.S. Postal Service for postage by the LA DOTD Planning and Programming Division.

2. Classroom-type, in-house Project Team staff orientation and training for the origin-destination field survey.

3. Coordination with and assistance from LA DOTD District 61 for sign support on a day-to-day basis.

4. Coordination with and assistance from the LA Department of Public Safety, State Police, for law enforcement at the sites on a daily basis.

The Project Team conducted the survey effort over nine days for 11-hour periods each day, and expanded the data to 24-hour periods mathematically. **Figure 18** illustrates the origin-destination postcard hand-out procedure on the four-lane US 61 at the north east Baton Rouge Parish line.

TABLE 8
NON-INTERSTATE
EXTERNAL STATIONS
FOR MAIL-BACK POSTCARDS

Station Code	Highway	Location	Date
901	US 61 N	EBR North Parish Line	Thurs. – 4/14/05
903	LA 19	EBR North Parish Line	Wed. – 4/13/05
904	LA 67	EBR North Parish Line	Tues. – 4/12/05
907	LA 16	Livingston N. Parish Line	Wed. – 4/20/05
910	US 190 E	West of Livingston, LA	Thurs. – 4/21/05
916	US 61 S	Ascension Parish Line	Tues. – 4/26/05
917	LA 70	Ascension Parish Line	Wed. – 4/27/05
919	LA 1 S	South of Addis, LA	Thurs. – 4/28/05
922	US 190 W	West of Port Allen, LA	Tues. – 4/19/05

FIGURE 18
ORIGIN-DESTINATION TRAVEL SURVEY LAYOUT AND PROCEDURE
US 61NORTH AT EBR PARISH LINE

The Project Team collected, compiled and analyzed the following data from each of these nine (9) non-interstate external station sites:

- Trip Origin
- Trip Destination
- Trip Purpose
- Vehicle Type (truck, automobile)

Slightly more than 35,000 free mail-back forms were handed out at the nine survey stations. Approximately 16.59% or 5,814 forms were returned, of which 4739 (13.52%) were usable. Some of the forms were damaged in processing or not filled out properly. A breakdown by station is shown in **Table 9.** Refer to **Table 8 and Figure 14** for station locations.

The Project Team conducted forty-eight-hour bi-directional traffic counts at 11 other significant external stations. **Table 10** presents a summary of 24-hour traffic counts for all of the stations in the study.

TABLE 9
MAIL-BACK POSTCARD RESULTS

Station/ Location	24 Hour ADT Bi-Directional Count	24 Hour ADT Outbound Count	Survey Cards Distributed	Survey Cards Returned	% Returned	Cards Usable	% Usable
901 (US 61 N)	16,627	7,734	4,760	847	17.79%	687	14.43%
903 (LA 19)	8,952	4,435	2,966	579	19.52%	458	15.44%
904 (LA 67)	6,827	3,387	2,011	360	17.90%	301	14.97%
907 (LA 16)	6,711	2,911	1,127	129	11.45%	95	8.43%
910 (US 190 E)	9,583	4,988	2,218	370	16.68%	296	13.35%
916 (US 61 S)	10,564	4,890	2,614	458	17.52%	346	13.24%
917 (LA 70)	14,709	7,477	5,013	776	15.48%	630	12.57%
919 (LA 1)	25,326	10,891	7,910	1,394	17.62%	1,179	14.91%
922 (US 190 W)	28,950	13,249	6,429	901	14.01%	747	11.62%
Total	128,249	59,962	35,048	5,814	16.59%	4,739	13.52%

TABLE 10
SUMMARY OF 24-HOUR TRAFFIC COUNTS

Baton Rouge 2005 Study Area External Stations								
Highway	Parish	#	Dist	Letter	Number	DOTD #	ADT	Survey
US 61 N	EBR	17	61	A	901	208550	14,241	16,627
LA 964	EFEL	19	61	J	902	211080	2,139	3,065
LA 19	EBR	17	61	B	903	208480	7,360	8,952
LA 67	EFEL	19	61	C	904	211260	7,440	6,827
LA 409	EFEL	19	61	K	905	211340	475	578
LA 37	EFEL	19	61	L	906	211350	1,880	2,852
LA 16 N	LIV	32	62	D	907	212390	6,462	6,711
LA 449	STH	46	62	M	908	212350	1,046	1,870
LA 63	LIV	32	62	N	909	213560	1,000	1,595
US 190 E	LIV	32	62	E	910	213330	5,746	9,583
I-12 E	LIV	32	62	T	911	213350	35,855	43,856
LA 42	LIV	32	62	O	912	213510	3,112	3,162
LA 444	LIV	32	62	P	913	213220	2,204	2,784
LA 22	LIV	32	62	Q	914	213200	3,014	6,729
I-10 E	ASC	3	61	U	915	205420	29,483	31,036
US 61 S	STJ	47	61	F	916	226030	9,093	10,564
LA 70	ASC	3	61	G	917	205020	18,730	14,709
LA 44	STJ	47	61	R	918	225460	3,370	5,326
LA 1 S	WBR	61	61	H	919	203310	22,774	25,326
I-10 W	WBR	61	61	V	920	203250	36,253	36,253
LA 76	WBR	61	61	S	921	202310	2,574	2,365
US 190 W	WBR	61	61	I	922	202560	20,000	28,950
LA 415	WBR	61	61	W	923	202530	1,741	1,061
TOTALS							235,992	270,781

External Trip Table Development

The Project Team analyzed the Video License Plate database for EE trips and the mail back postcard data for EE and EI trips. The two resulting data sets were then combined to develop a set of EE and EI trip tables. These data were used in projecting/validating the external-external trips and external-internal trips within the Baton Rouge study area.

In this manner the Project Team determined the travel patterns and magnitude of EI and EE trips through the survey data. While expanding the survey data up to the actual ground counts, they separated the external trips into EI and EE trips. A summary of the EI and EE trips at the external stations is presented in **Table 11**.

TABLE 11
SUMMARY OF TRIPS

Station	Highway	2005 Total ADT	2005 EI	Percent EI	2005 EE	Percent EE
901	US 61 N	16,627	13,306	80.0%	3,321	20.0%
902	LA 964	3,065	3,065	100.0%	0	0.0%
903	LA 19	8,227	6,948	84.5%	1,279	15.5%
904	LA 67	6,827	6,116	89.6%	711	10.4%
905	LA 409	578	578	100.0%	0	0.0%
906	LA 37	2,852	2,576	90.3%	276	9.7%
907	LA 16 N	6,711	5,444	81.1%	1,267	18.9%
908	LA 449	1,870	1,870	100.0%	0	0.0%
909	LA 63	1,595	1,595	100.0%	0	0.0%
910	US 190 E	9,583	8,289	86.5%	1,294	13.5%
911	I-12 E	43,856	29,670	67.7%	14,186	32.3%
912	LA 42	3,162	3,054	96.6%	108	3.4%
913	LA 444	2,784	2,676	96.1%	108	3.9%
914	LA 22	6,729	5,911	87.8%	818	12.2%
915	I-10 E	31,036	21,302	68.6%	9,734	31.4%
916	US 61 S	10,564	8,650	81.9%	1,914	18.1%
917	LA 70	14,709	10,710	72.8%	3,999	27.2%
918	LA 44	5,326	5,134	96.4%	192	3.6%
919	LA 1 S	25,326	19,560	77.2%	5,766	22.8%
920	I-10 W	36,253	20,205	55.7%	16,048	44.3%
921	LA 76	2,365	2,329	98.5%	36	1.5%
922	US 190 W	28,950	20,938	72.3%	8,012	27.7%
923	LA 415	1,061	989	93.2%	72	6.8%
Total		270,056	200,915	74.4%	69,141	25.6%

EE Travel for Cities of Various Size
(Source: NCHRP 187, 1978)

Urban Area Population	% of External Trips that are EE
50,000 – 100,000	21%
100,000 – 250,000	15%
250,000 – 750,000	10%
750,000 – 2,000,000	4%

Note:
The Baton Rouge Study Area Population (2004 est.) is approximately 600,000 people. The area has significantly higher proportion of EE travel than other urban areas in its size range. This is pre-Hurricane Katrina trip data.

MODEL COMPONENTS

It is important to consider what the model will be tasked to do once operational. What future modes and transportation strategies will be tested? The following modes and strategies have been mentioned by CPRC:

- Toll roads or HOT lanes
    - Verify the traffic analyses conducted for the North Bypass (with and without tolls)
- HOV
- Highway Bypasses
    - Evaluate two cases of a South Bypass (I-10 to I-12 half loop, and I-10 to I-10 quarter loop)
    - Airline Highway as an elevated facility with at-grade frontage roads from I-12 to I-10 or other suitable termini
- Bus Rapid Transit
- Light Rail Transit
- Commuter Rail
    - Commuter rail from Denham Springs to downtown Baton Rouge

The structure of the individual models is a combination of the types of analyses to be conducted and the type and detail of the data available. This section presents a description of how the models are structured. **Figure 19** depicts the interrelationship of the individual models.

The Project Team met a number of times to coordinate the development of the model. This team developed a narrative model blueprint (See **Figure 19** for model configuration**)** dated April 7, 2005, that defined the data, components, and functionality for the travel demand forecasting model. The blueprint also identified issues related to the model architecture. The Team met on April 8, 2005, to discuss the Model Blueprint.

In order to better coordinate responsibilities for methodologies and procedures for the various tasks detailed in the Contract Scope of Work, the Project Team held a two-day technical working session in Austin, Texas (July 8-9, 2005). The meeting focused on data availability and reliability, the travel demand model blueprint, and coordination issues related to model development.

Later in the project (February, 2006), the Project Team met to develop trip generation procedures using the TAZ demographic data variables. They developed a spreadsheet methodology to merge household categories (persons per HH / vehicles per HH / workers per HH / vehicles per HH) using the Furness method. Data collected from the latest Baton Rouge Personal Transportation Survey was used as a seed matrix for this method.

In a subsequent meeting (April, 2006) the Project Team discussed miscellaneous technical items such as the use of TransCAD 4.8 (build 400) or better, the development of a scenario manager, and the exchange of information such as an area type layers, Transit Route file, LA DOTD traffic counts, and trip length frequencies (the latter for the development of "friction" or impedance factors).

Details regarding the trip generation, trip distribution, mode choice and travel assignment components of the travel demand model follow **Figure 19**.

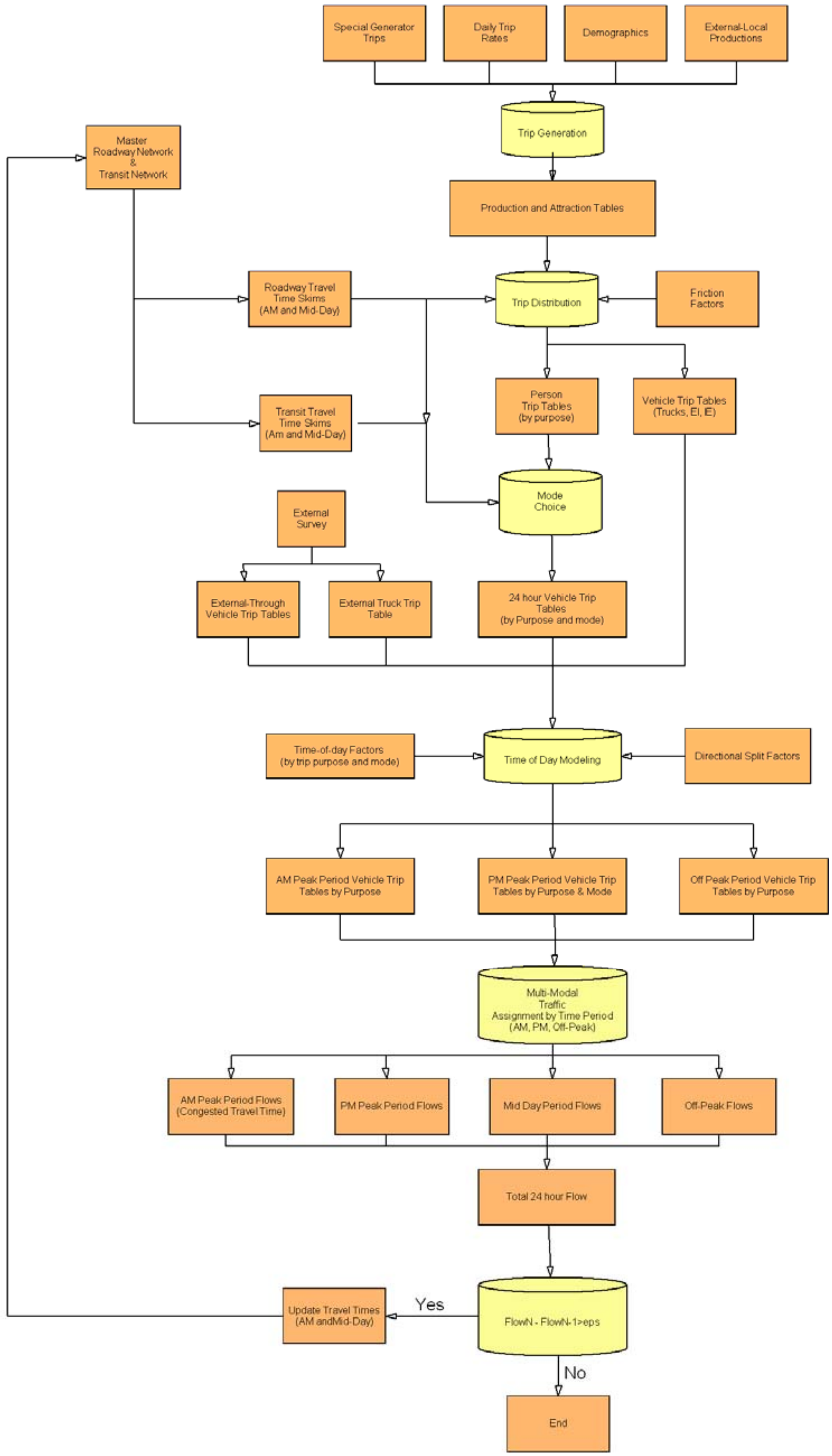


FIGURE 19 – MODEL STRUCTURE

Model Process and Interface

The Project Team developed a travel demand model capable of performing trip generation, trip distribution, mode choice, and A.M. and P.M. peak hour and 24 hour travel assignment models for use in the Baton Rouge Metropolitan Area. They constructed all model components in TransCAD version 4.8 (BUILD 400).

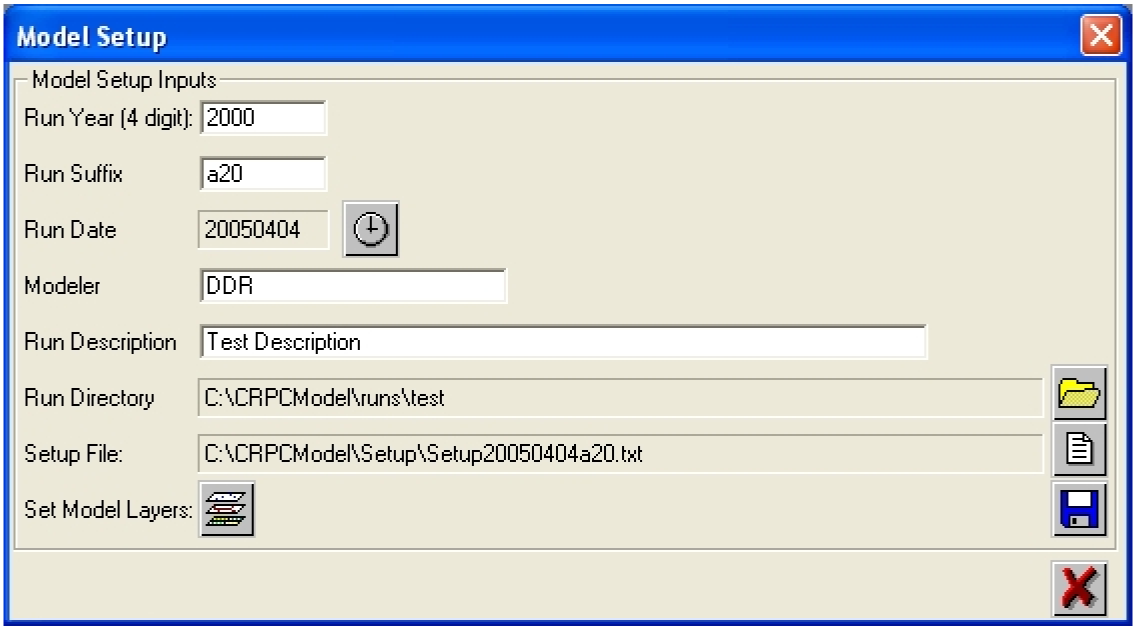
Although the development of the model interface is listed late in the scope of work, it is not simply a routine that is added on top of the model for convenience. Rather, it is a shell that coordinates and regulates the operation of the individual model components. The interface streamlines file architecture, optimizes the creation of scripts, and performs several critical value added steps that maintain internal consistency in the model logic and bridge the gaps from one "four-step" model component to the next.

The document "**Guidance for Team Members on Model Development and Working within the Operating Interface**" provides detailed instructions for working with the model interface during development. It is critical that the GISDK script for each individual model be written with the interface and other models in mind. Having a model interface architecture and a minimum set of operating interface components for use early in the modeling process provides common input protocols and will expedites the coordination process.

The model interface is designed to make running the Baton Rouge travel demand model straightforward and the results reproducible. The interface will be coded in GISDK, the macro language for TransCAD. Unlike many urban models that rely on a mixture of FORTRAN programs and use only some components of the chosen modeling software, the model will use only TransCAD function and custom GISDK macros to accomplish the entire travel demand modeling process.

The main screens (tabs) of the interface are the Setup Screen and the Model Steps Screen. The Setup Screen, sample is shown in **Figure 20,** is used to enter information related to the run including the run year, the date of the run, the person performing the run, where the run is stored, and what layers it will use.

FIGURE 20
SAMPLE MODEL SETUP INTERFACE



The model interface allows the user to control what steps of the model to run. The model step options are listed below:

- Run entire model WITH feedback loop.
    - This option will run trip generation, trip distribution, mode choice, and highway assignment within a feedback loop. The model will stop executing when either the number of model iterations or convergence is satisfied.
    - You are given the option to run a transit assignment by checking the “Run transit assignment” box.
- Run Trip Generation.
    - This option will only run the trip generation step of the model.
- Run Trip Generation & Trip Distribution.
    - This option will run trip generation & trip distribution before stopping.
- Run Trip Generation, Trip Distribution, & Mode Choice.
    - This option will run trip generation, trip distribution, and mode choice before stopping.

Trip Generation

Household Classifications

Trip generation is a state of the practice cross-classification model with households classified by the following:

- Number of persons in household
- Number of workers in household
- Number of school aged children in household
- Household income
- Number of autos owned

Trip Productions

Trip productions for the various trip purposes are based on household size, the number of workers, number of school aged children and/or auto ownership. The estimated trip production cross-classification tables for each trip purpose are listed in **Table 12.**

In **Table 12,** trip purposes are as described in the next section of this report. The variables are as defined in **Table 1, TAZ ATTRIBUTES**.

TABLE 12
TRIP PRODUCTION TABLES

HBW_P				
Workers	Vehicles			
	0	1	2	3+
0	0.00	0.03	0.05	0.15
1	0.90	0.95	1.04	1.29
2+	1.71	1.79	1.92	2.42

HBO_P				
HHSize	Children (5-18)			
	0	1	2	3+
1	1.36	1.00	0.00	0.00
2	2.31	2.33	0.00	0.00
3	2.38	3.15	1.82	0.00
4+	2.46	3.30	3.69	5.00

NHBW_P = 0.1*HBO_A + 0.002*HBSCH_A + 0.038*HBW_A + 0.192*NHBO_A + 0.058*NHBW_A
= 1.5854*RETEMP + 0.5067*OCCDU + 0.002*SCHATT + 0.1872*OTHEMP

NHBO_P = 0.398*HBO_A + 0.021*HBSCH_A + 0.078*HBW_A + 0.677*NHBO_A + 0.042*NHBW_A
= 5.4557*RETEMP + 1.8777*OCCDU + 0.0215*SCHATT + 0.4631*OTHEMP

HBSCH_P				
HHSIZE	Children (5-18)			
	0	1	2	3+
1	0.05	0.00	0.00	0.00
2	0.09	0.75	0.00	0.00
3	0.17	1.18	2.06	0.00
4+	0.15	1.24	2.15	3.58

Trip Purposes

The Baton Rouge Personal Transportation Survey was also very useful in the development of trip purposes including identification of trip activities with significantly different trip production rates or trip length frequency distributions. Based on examination of this survey data, and identifying additional trip classifications not typically contained in a household survey, the following trip purposes were classified:

- Home based work
- Home-based other
- Home-based school
- Non-home based
    - Work-based
    - Other-based
- Commercial vehicle (vehicle trips)
- Internal-external (vehicle trips)
- External-external (vehicle trips)

Trips to LSU were separated from those of other colleges in the area so that existing and planned shuttle/transit systems could be accurately modeled. Also, it is understood that the student population has a large effect on existing transit options and, therefore, it was deemed important that student destinations be as accurate as possible. External volumes and proportions of local and through volumes were determined from the External Survey conducted as part of this project.

Trip Attractions

The trip attractions model is an aggregate regression equation with employment and households as input.

It was necessary to first analyze the household survey data to determine which variables perform best for each trip purpose. Ultimately the trip generation model was designed around the variables that proved to be the most predictive.

The trip generation model for the non-home based trip purposes use an advanced state of the practice approach of including home-based other or home-based work attractions as predictor variables for non-home based trip productions. This approach provides the capability to take advantage of the trip chaining data captured in the travel diary-based survey.

TransCAD's native functions will be used to perform trip generation. Generation can be automated to allow for easy execution and any additional refinements. Predefined variables and rules will be followed to ensure the model fits into the overall model stream. **Table 13** presents the trip attractions equations.

TABLE 13
TRIP ATTRACTIONS

HBW_A = 1.5415 * RETEMP + 0.9503 * OTHEMP
HBO_A = 2.2059 * RETEMP + 1.9826 * OCCDU
NHBW_A = 0.8972 * TOTEMP
NHBO_A = 6.8406 * RETEMP + 0.5312 * OTHEMP + 1.6823 * OCCDU
HBSCH_A = 0.0342 * OTHEMP + 1.2049 * SCHATT**
** (Less LSU Enrollment of 31,561 in 2004)
CMVEH_A = 0.86 * RETEMP + 0.27 * OTHEMP + 0.45 * OCCDU
EI_A = 0.3514 * OTHEMP + 0.5095 * OCCDU

Workers per Household Sub-model

Among the variables identified as most predictive of home-based work trips was number of workers per household. To improve the accuracy of the trip generation model for work trips a worker sub-model is utilized to estimate workers based on forecast population and forecast data. The sub-model estimates households by workers per household categories (0, 1, 2, 3+) based on analysis of the Public Use Microdata Survey (PUMS) for the model area as well as CTPP data from the US Census. This allows for more predictive stratification for the HBW trip purpose.

Special Generators

Special generators will be used sparingly. However, it is likely that the following will warrant this attention:

- Primary schools (K-12)
- Colleges and Universities
- Airport
- Hospitals and medical centers

For each candidate special generator for which there is significant divergence between trips produced by the model and the traffic counts in the vicinity of the candidate special generators, an estimate of the person trips, by trip purpose, necessary to account for the divergence in the traffic counts and traffic assignments will be applied to the production and attraction trip table for each special generator TAZ.

The additional trip productions (P) or attractions (A) will be manually added to the specified zones on top of the P's and A's currently produced by the model using the routines provided in the trip generation model. The Trip Generation Model incorporates special generators by allowing the manual input of additional trip productions and / or trip attractions for land uses that have unique trip making characteristics that could be comprehensively estimated from the household survey data. The Trip Generation Model developed for CRPC allows the user to manually adjust the productions, attractions or both productions and attractions estimated in a TAZ from the model as an index of total trips produced by or attracted to the TAZ.

In order for the Trip Generation Model to work properly, the associated demographics for the Special Generator must be included in the TAZ along with the other demographics. The adjustment for the special generator is made by factoring up or down the number of trips estimated by the models. The resulting trip totals are then used in the balancing of productions and attractions. Thus the special generator portion of the program is performed after the trip productions and trip attractions are calculated, but before the productions and attractions are balanced.

Trucks (Commercial Vehicles)

Truck trips were produced using the procedure described in Chapter 4 of the Quick Response Freight Manual, September 1996, by the Travel Model Improvement Program (TMIP). Specifically, the Project Team used the example starting on page 4-20. The Team also reviewed existing data, including commercial trip rates in the old TranPlan model.

Trip Distribution Model

The next step in travel demand modeling is the trip distribution process. This function determines where the trips produced in the generation model want to go and conversely, where the attracted trips originated. Many models are available for this process. The one used for this effort was the Gravity Model, specifically a state-of-the-practice model developed within TransCAD. The model is doubly constrained for work purposes and singly constrained otherwise. Travel time plus terminal time are used for impedance. There are different impedance functions for each trip purpose. For example, work trips are distributed on peak highway skims using congested travel time. Other trip purposes are distributed on off-peak travel times.

Trip distribution will be by time of day. Congested travel times will be feedback from assignment by time of day. An initial set of travel times free flow and congested will be based on travel times stored on the network that are estimated from travel time surveys conducted by CRPC.

Trip length distributions were developed for the Baton Rouge model from the existing household survey for the area. Part 3 of the CTPP is being used in the calibration process to check the distribution of worker flows. Times for the off-peak and peak-period by facility type and area type were developed from the existing speed surveys.

The final product of trip distribution is a set of person trip tables that serve as inputs to the mode choice model.

Mode Split Model

A mode choice model was developed with the capability to accurately estimate ridership for existing modes and modes to be evaluated in the future. Local data, where it was available, was used to estimate the mode choice model. For modes that do not exist in the base year, coefficients will be asserted based on currently accepted norms for areas of similar size and character. This is standard practice for mode choice model where no stated preference survey is available.

The Baton Rouge Personal Transportation Survey contained too few transit trips to identify transit mode parameters. The survey did provide adequate basis for determining auto occupancy factors for each identified trip purpose.

Estimated auto occupancy factors are provided below in **Table 14**.

TABLE 14
ESTIMATED
AUTO OCCUPANCY FACTORS

TRIP PURPOSE	AUTO OCCUPANCY RATE
HBW	1.135
HBO	1.921
HBSCH	2.298
NHBO	2.041
NHBW	1.399
CMVEH	1.000
EI	1.000
EE	1.000

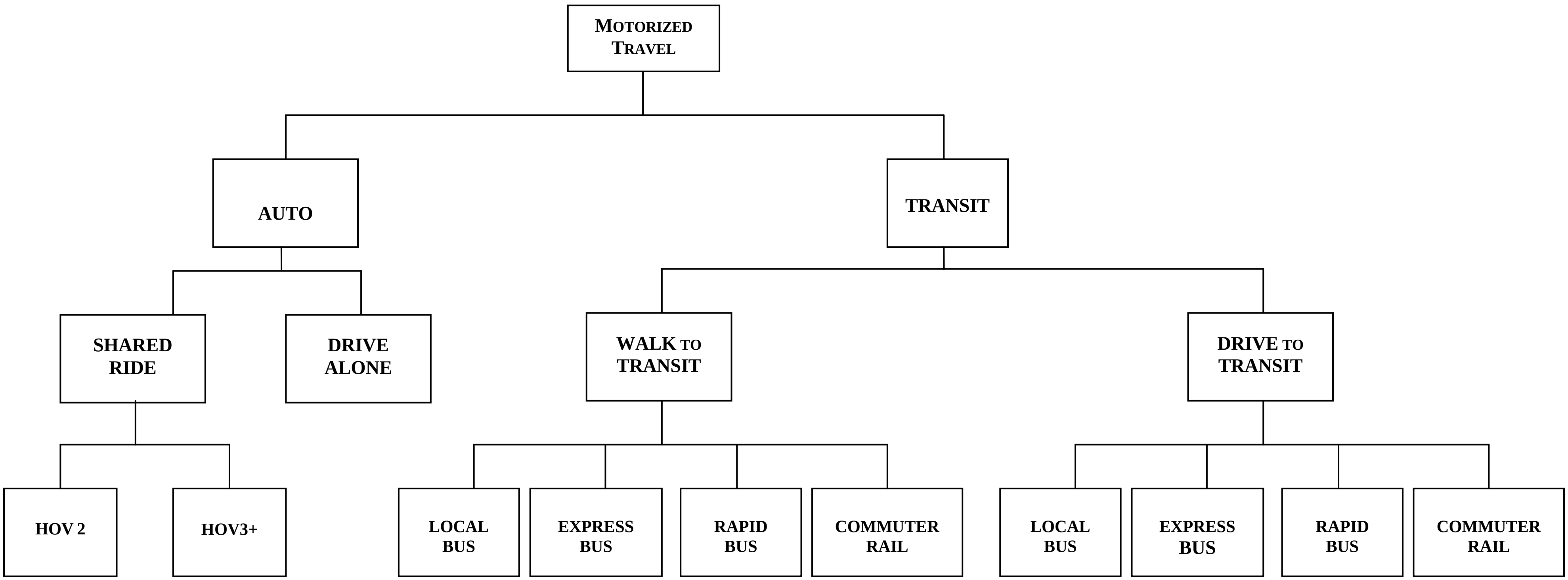
Because the BRPTS contained few transit trips, the development of the mode choice transit parameters relies on three elements:

1. The Capital Area Transit System (CATS) Comprehensive Operational Analysis (COA). The survey provides stop by stop boarding and alighting totals by time of day. This survey was used to impute trip purposes and accessible origin destination pairs.
2. The CTPP Part 3 zone-to-zone travel: The CTPP was used to assist in interpreting the COA survey data and will continue play a role in mode choice model
3. Recent FTA guidance on its quality control model, expected range of coefficients and other information on parameter values and limits. The FTA guidance was particularly useful in addressing future transit modes for which there are no current calibration or validation data.

The mode choice model has a simple nested logit model structure. The nested logit model structure assumes that travel modes, submodes, and access modes are distinctively different types of alternatives that present distinct choices to travelers. The nesting structure developed for the Baton Rouge Travel Demand Model is depicted in **Figure 21**.

FIGURE 21

Mode Choice Model Estimated Nesting Structure



Estimated utility equations for the mode choice model are as follows. The Project Team developed these utilities from a combination of local survey data, CTPP Part 3 data, and the FTA guidance on model coefficients and parameters.

Home Base Work Mode Choice Utilities

- Auto Utility = (-0.020*IVTT) + (-0.003*(operating cost + parking cost + toll cost)) + (-0.040*terminal time (OVTT))
  - Auto Nest log sum coefficient = 0.60
  - Drive Alone Utility = (-0.0334*IVTT) + (-0.005*(operating cost + parking cost + toll cost)) + (-0.0667*terminal time (OVTT))
  - Shared Ride 2 Utility = (-0.0334*IVTT) + (-0.005*((operating cost + parking cost + toll cost)/2)) + (-0.0667*terminal time (OVTT)) + market segment constant
  - Shared Ride 3+ Utility = (-0.0334*IVTT) + (-0.005*((operating cost + parking cost + toll cost)/3)) + (-0.0667*terminal time (OVTT)) + market segment constant

- Transit Utility = (-0.020*IVTT) + (-0.003*transit fare) + (-0.040*OVTT) + (-0.040*1st-wait) + (-0.100*transfer) + market segment constant (e.g. low income)
  - Transit Access nest log sum coefficient = 0.60
  - Transit Walk Utility = (-0.0334*IVTT) + (-0.0667*Walk Time (OVTT)) + (-0.0667*1st wait) + (-0.005*transit fare) + (-0.1667*transfer) + market segment constant
  - Transit Drive Utility = (-0.0334*IVTT) + (-0.0667*Drive Access Time + (-0.0667*1st wait) + (-0.005*transit fare) + (-0.1667*transfer) + market segment constant
    - Transit Path nest log sum coefficient = 0.40
    - Local Bus Utility = (-0.0835*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.0125*transit fare) + (-0.41675*transfer)
    - Premium Bus Utility = (-0.0835*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.0125*transit fare) + (-0.41675*transfer)
    - Commuter Rail Utility = (-0.066675*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.0125*transit fare) + (-0.41675*transfer)

Home Base Other Mode Choice Utilities

- Auto Utility = (-0.010*IVTT) + (-0.003*(operating cost + parking cost + toll cost)) + (-0.020*terminal time (OVTT))
  - Auto Nest log sum coefficient = 0.60
  - Drive Alone Utility = (-0.01667*IVTT) + (-0.01333*(operating cost + parking cost + toll cost)) + (-0.0334*terminal time (OVTT))
  - Shared Ride 2 Utility = (-0.01667*IVTT) + (-0.0133*((operating cost + parking cost + toll cost)/2)) + (-0.0334*terminal time (OVTT)) + market segment constant
  - Shared Ride 3+ Utility = (-0.01667*IVTT) + (-0.0133*((operating cost + parking cost + toll cost)/3)) + (-0.0334*terminal time (OVTT)) + market segment constant

- Transit Utility = (-0.010*IVTT) + (-0.0015*transit fare) + (-0.020*OVTT) + (-0.020*1st-wait) + (-0.050*transfer) + market segment constant (e.g. low income)
  - Transit Access nest log sum coefficient = 0.60
  - Transit Walk Utility = (-0.01667*IVTT) + (-0.0334*Walk Time (OVTT)) + (-0.0334*1st wait) + (-0.0025*transit fare) + (-0.08333*transfer) + market segment constant
  - Transit Drive Utility = (-0.01667*IVTT) + (-0.0334*Drive Access Time + (-0.0334*1st wait) + (-0.0025*transit fare) + (-0.08333*transfer) + market segment constant
    - Transit Path nest log sum coefficient = 0.40
    - Local Bus Utility = (-0.0416675*IVTT) + (-0.0835*OVTT) + (-0.0835*1st wait) + (-0.00625*transit fare) + (-0.208325*transfer)

        - Premium Bus Utility = (-0.0416675*IVTT) + (-0.0334*OVTT) + (-0.0334*1st wait) + (-0.00625*transit fare) + (-0.208325*transfer)
        - Commuter Rail Utility = (-0.03333*IVTT) + (-0.0334*OVTT) + (-0.0334*1st wait) + (-0.00625*transit fare) + (-0.208325*transfer)

Non-Home Based Mode Choice Utilities

- Auto Utility = (-0.020*IVTT) + (-0.003*(operating cost + parking cost + toll cost)) + (-0.040*terminal time (OVTT))
    - Auto Nest log sum coefficient = 0.60
    - Drive Alone Utility = (-0.0334*IVTT) + (-0.005*(operating cost + parking cost + toll cost)) + (-0.0667*terminal time (OVTT))
    - Shared Ride 2 Utility = (-0.0334*IVTT) + (-0.005*((operating cost + parking cost + toll cost)/2)) + (-0.0667*terminal time (OVTT)) + market segment constant
    - Shared Ride 3+ Utility = (-0.0334*IVTT) + (-0.005*((operating cost + parking cost + toll cost)/3)) + (-0.0667*terminal time (OVTT)) + market segment constant

- Transit Utility = (-0.020*IVTT) + (-0.0015*transit fare) + (-0.040*OVTT) + (-0.040*1st-wait) + (-0.100*transfer) + market segment constant (e.g. low income)
    - Transit Access nest log sum coefficient = 0.60
    - Transit Walk Utility = (-0.0334*IVTT) + (-0.0667*Walk Time (OVTT)) + (-0.0667*1st wait) + (-0.0025*transit fare) + (-0.1667*transfer) + market segment constant
    - Transit Drive Utility = (-0.0334*IVTT) + (-0.0667*Drive Access Time + (-0.0667*1st wait) + (-0.0025*transit fare) + (-0.1667*transfer) + market segment constant
        - Transit Path nest log sum coefficient = 0.40
        - Local Bus Utility = (-0.0835*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.00625*transit fare) + (-0.41675*transfer)
        - Premium Bus Utility = (-0.0835*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.00625*transit fare) + (-0.41675*transfer)
        - Commuter Rail Utility = (-0.066675*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.00625*transit fare) + (-0.41675*transfer)

Transit Paths

It is important to maintain consistency between parameters and weights in the mode choice model and the weights applied in calculating transit paths. The Baton Rouge Model will employ a simplified path builder routine that employs the weighting factors presented in **Table 15**.

TABLE 15
TRANSIT PATH IMPEDANCE WEIGHTS

Impedance	Units	Weight
In-vehicle time for non-guideway transit	Minutes	1.0
In-vehicle time for commuter rail	Minutes	0.8
All out-of-vehicle time	Minutes	2.0
Drive-access time	Minutes	2.0
Transfers	Number	5.0
Peak Period Fare	Cents	0.15
Off Peak Period Fare	Cents	0.075

The output of mode choice includes the number of trips for each mode, vehicle trip tables, and transit trip tables.

Time of Day Model

The Baton Rouge Travel Demand Model provides functionality for time of day modeling. The model parses the 24-hour daily P/A matrix and converts it into four vehicle O/D matrices (AM, MID, OP, PM) after model choice. Final time periods will be determined during calibration using the survey data and the travel time through the study area, but they will likely be similar to the following:

- A.M. Peak 6:30 - 9:30
- Mid-day Peak 12:00 - 1:30
- P.M. Peak 3:30 - 6:00
- Off-Peak All remaining hours

Based on the household travel survey data directional (P-to-A and A-to-P) and time-of-day factors are derived for each trip purpose and applied to the trip tables to obtain time of day origin-destination trip tables. Time-of-day factors for non-household trip tables (EI, IE, and Truck) are estimated based on external survey data and available classification counts.

Travel Assignment

The assignment methodology for the Baton Rouge model utilizes the advanced capabilities of the TransCAD™ Multi-Modal Assignment (MMA) architecture. The MMA routine allows trucks to be pre-assigned, and allows different classes of vehicle trips to be assigned simultaneously. Specifically, the model applies a User Equilibrium assignment with a Logit Delay Function that considers both link delay as well as intersection delay. The assignment process is set to a maximum of twenty iterations, and the convergence criterion is set to 0.01.

The traffic assignment is performed in two stages for each of the four time periods. First, the truck trip table is pre-loaded onto the highway network. The roadway capacities are reduced by the amount of roadway capacity that is utilized by truck traffic. Taking the link capacity and subtracting the number of trucks assigned to the individual link results in the adjusted roadway capacity. Second, the User Equilibrium assignment or the User Equilibrium with a Logit Delay Function is applied using the highway network with the adjusted capacities. The assignment process is repeated throughout the feedback loop process until the feedback loop convergence criteria are met.

The final product of assignment will be a loaded network.

Transit Assignment

Like the highway assignment the transit assignment will be by time of day for Baton Rouge. Transit assignment will provide base year transit ridership by route, and passenger boardings and alightings by stop location as well as by time of day.

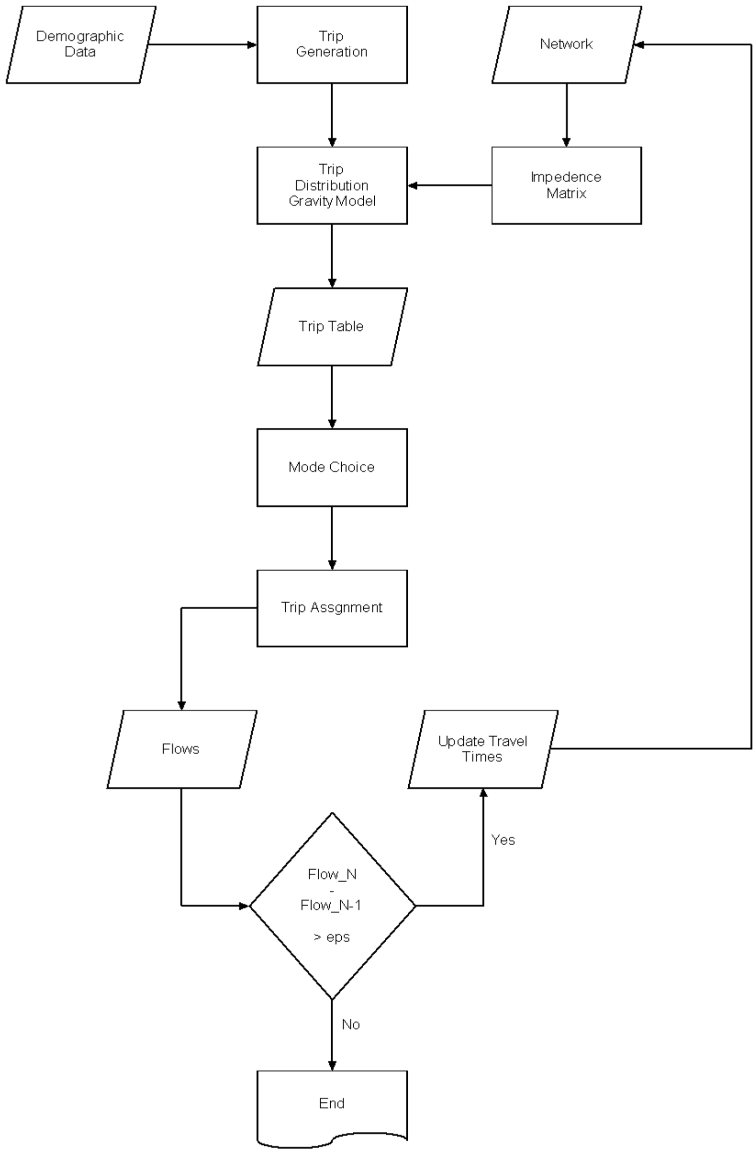
Feedback Loop

The Baton Rouge model includes a feedback loop from assignment to distribution. This dictates that distribution, mode choice, and assignment will be run several times for each model run.

A feedback loop from the assignment model to the distribution model is depicted in **Figure 22**. The purpose of the feedback is to take congested travel times from the assignment process and supply them for the next iteration of trip distribution. The feedback loop will iterate until the convergence criterion is met. To help define and operate the convergence criterion, the gap calculation capability within TransCAD is used.

The convergence test is commonly applied on assignment flows after trip assignment. The flows from the nth assignment iteration are compared with the flows from the nth-1 assignment iteration. If the relative differences of the flows are under an epsilon amount then feedback loop is stopped; otherwise, the model continues iterating. The convergence test is only applied from the second iteration onward, as the first iteration assignment result would have no previous result with which to compare. A common convergence criterion is point zero-one (.01).

FIGURE 22
FEEDBACK DIAGRAM



V. CALIBRATION AND VALIDATION

Calibration and validation of the components of Trip Generation, Trip Distribution, Mode Choice and Multi-Modal Traffic Assignments and relevant definitions are as follows.

Model Estimation

This is the use of survey data to estimate the values of model parameters and draw conclusions on the appropriate variables and structure for each component of the travel demand model.

Model Calibration

This is the implementation of each component model emerging from estimation in its application software and adjusting the parameters and coefficients to reproduce current travel behaviors.

Model Validation

This is the use of the calibrated model to iteratively compare and adjust the model highway and transit assignment results to replicate observed base year and/or known forecast year traffic flows or ridership volumes.

Although the principle of comparing traffic assignments to traffic count data is intuitively straightforward, subjective review of the travel demand model results and the observed traffic counts is not adequate. The comparative analysis must also be carried out in a structured manner using clearly defined benchmarks or measures of success. This allows the results of the validation analysis to be tabulated and quantitatively analyzed in a way that provides the user with a degree of confidence in the statistical foundation and structure of the model. The model will be thus validated at each stage (generation, distribution, mode choice).

The validation procedure for the model is similar to the procedure used in most MPO areas. The locations of year 2004 traffic counts provided by DOTD were coded to the roadway network and the counts themselves added to the base year network attributes. Traffic assignment results for the validation year (2004) were compared to these traffic counts in order to calculate a percent error value that was aggregated and tabulated across a variety of categories. These categories are listed below and discussed individually.

- Region-wide
- Facility Type
- Area Type
- Screenlines
- Volume range.

It is current state of the practice to also include a forecast run as part of validation in order to check for reasonableness.

Data files for survey, trip productions and trip attractions are provided as appendices with select copies of this report. The files are quite voluminous.

CALIBRATE TRIP PRODUCTIONS AND ATTRACTIONS

In developing the trip generation model for the Baton Rouge Travel Demand Model, the 1997 BRPTS was heavily utilized in defining the trip purposes, determining the trip production variables, estimation of trip production rates and attraction equations. The stratification curves for the household's variables were developed using the latest 5-percent Public Use Micro data Samples (PUMS) from the US Census Bureau along with the BRPTS survey data. Standard "State of the Practice" methodologies were used in all cases and are documented here.

Internal Trips

Trip Productions

Selection of trip purposes

A final determination of the trip purpose taxonomy was made after a thorough examination of trip duration frequency distributions, reported departure time, and reported land use of trip ends, as well as an analysis of the explanatory variables from the BRPTS. The original survey data had an initial characterization of trips into the principal trip purpose groupings of HBW, HBO, and NHB.

However, an extensive review and analysis of the travel characteristics of the individual survey trip records aggregated by activity codes revealed that the survey data warranted disaggregation of the principal trip purposes. In addition, review of the individual trip records also revealed that the survey contained a misclassification of a particular activity as HBO when in fact the activity is traditionally classified as HBW. The result of this analysis is trip purpose taxonomy of five internal person trip purposes that include:

- Home Based Work
- Home Based Other
- Home Based School
- Non Home Based - Work Related
- Non Home Based - Other

In order to assign a purpose to a reported trip from the Household Survey, the trip records were organized such that each trip had an origin location, destination location, and origin and destination activity associated with it. The place and activity were used in assigning the trip purpose to the record.

Selection of Variables

To determine the appropriate variable set for estimation of the home-based trip production rates, the Project Team used the household records from the BRPTS to derive an inventory of household characteristics associated with each trip maker in the survey. For each identified trip purpose, the variables were stratified into ranges and a set of candidate cross-classification tables was developed for likely variable pairs. The trip records from the survey were then assigned to the appropriate cross class cells based on the values of the marginal variables and a trip rate was calculated for each cell. A statistical analysis of the predictive value of each variable pair was then performed to select the optimal variable pairs for predicting trip production rates in each home-based trip purpose. Where necessary the ranges were collapsed and the rates smoothed to account for cells with insufficient observations in the survey.

Variable pairs examined by purpose included, but were not limited to:

- Household Size and Vehicles Available
- Household Size and Household Income
- Household Size and School Aged Children (Ages 5 through 18)
- Workers and Income
- Workers and Vehicles Available

The final sets of variables for each home-based cross classification table were:

- Home Based Work - Workers (0,1,2+) by Autos Available (0,1,2,3+)
- Home Based Other - Household Size (1,2,3,4+) by Number of School Age Children (0,1,2,3+)
- Home Based School- Household Size (1,2,3,4+) by Number of School Age Children (0,1,2,3+)

The home-based cross class tables and associated parameters obtained from this analysis of the household survey sample are shown in the **Table 16**.

TABLE 16
TRIP PRODUCTION TABLES AND EQUATIONS

HBW_P				
Workers	Vehicles			
	0	1	2	3+
0	0.02	0.06	0.06	0.15
1	1.23	**1**	1.23	1.71
2+	2.00	2.10	2.43	3.05
HBO_P				
HHSize	**Children (5-18)**			
	0	**1**	**2**	**3+**
1	1.90	0.00	0.00	0.00
2	3.40	3.96	0.00	0.00
3	3.40	5.91	4.18	0.00
4+	3.77	6.10	8.22	12.20
HBSCH_P				
HHSIZE	**Children (5-18)**			
	0	**1**	**2**	**3+**
1	0.00	0.00	0.00	0.00
2	0.11	0.67	0.00	0.00
3	0.20	1.10	1.37	0.00
4+	0.20	1.11	2.26	3.05

NHBW_P = 0.031*RETEMP + 1.526*OCCDU + 0.031*OTHEMP

NHBO_P = 0.296*HBO_A + 0.041*HBSCH_A + 0.31*NHBO_A + 0.055*NHBW_A
= 2.169*RETEMP + 1.289*OCCDU + 0.048*SCHATT + 0.223*OTHEMP

CMVEH_P = 0.86*RETEMP + 0.27*OTHEMP + 0.45* OCCDU

Trip Attractions

Because household survey data and Census data, the two primary data sources for model development, are rich with characteristics of the travelers household and family characteristics, but less so with the locations to which he or she traveled, the data available for analyzing and developing trip attraction parameters is usually not as robust as for trip productions. Therefore the approach to modeling trip attractions is typically different.

Due to the sparseness of variables at the attraction and non-home trip ends, the estimation of these trip ends is generally accomplished using simple regression models. In the case of the Baton Rouge travel demand model, initial trip attraction regression coefficients were developed based on information pertaining to the non-home trip ends, which was available from the household survey. The household survey records were geo-coded. Using GIS technology, these trip ends were located and assigned to a district within the Baton Rouge study area. The survey records were then expanded to the 2004 control totals for each district.

The attractions for each purpose were then tabulated by district and regressed against zonal employment totals (by major grouping), as well as zonal totals for school enrollment, households and population). The parameters obtained from this analysis of the expanded household survey data are presented in **Table 17** below.

TABLE 17
INTERNAL TRIP ATTRACTIONS EQUATIONS

HBW_A = 2.304 * RETEMP + 1.124 * OTHEMP
HBO_A = 3.865 * RETEMP + 3.485 * OCCDU
NHBW_A = 1.266 * TOTEMP
NHBO_A = 3.083 * RETEMP + 0.496 * OTHEMP + 1.6823 * OCCDU
HBSCH_A = 1.178 * SCHATT**
** (Less LSU Enrollment of 31,561 in 2004)
CMVEH_A = 0.86 * RETEMP + 0.27 * OTHEMP + 0.45 * OCCDU
EI_A = 0.3514 * OTHEMP + 0.5095 * OCCDU

External Trips

External travel consists of two types of trips: external-internal (EI) trips and external-external (EE) trips. EI trips have one end of the trip inside the Study Area and the other outside. EE trips pass through the study area having no origin or destination within the Study Area.

The Project Team conducted an extensive cordon survey of external trips. The Team conducted video-license plate matching surveys at locations at I-10 West, I-10 East and I-12 West. The Team conducted post-card mail-back surveys at nine locations. And the Team conducted 48-hour, bi-directional, automated traffic counts at eleven other locations. The Project Team used this data in developing external trip productions and attractions rates and presented equations for the determination of each. Trip purposes and selected variables are as explained above under “Internal Trips”. The External Trip Production Table and the External Trip Attractions Table are similar in format to previous Tables 16 and 17 respectively.

Special Generators

Special generators are zones that exhibit trip making patterns that are not consistent with the production/attraction rates discussed above. Special generator zones typically include large or intense trip-attracting facilities where employment would not produce attractions of a magnitude actually experienced by the land use. Special generators typically include such land uses as universities, shopping malls, airports, etc. When identified as special generators, separate attraction models are utilized in addition to the model discussed in the previous section. Initial model runs included only Louisiana State University (LSU) as a special generator.

Trip Tally

The totals of trips by purpose from the survey are shown in **Table 18.**

TABLE 18
TALLY OF TRIPS GENERATED BY PURPOSE

Trip Purpose	Daily Person Trips
HBW-P	385,278
HBW-A	385,278
HBO-P	1,014,797
HBO-A	1,014,797
NHBW-P	376,705
NHBW-A	376,705
NHBO-P	518,394
NHBO-A	518,394
CMVEH-P	213,714
CMVEH-A	213,714
EI-P	200,915
EI-A	200,915
HBSCH-P	146,703
HBSCH-A	146,703

CALIBRATE TRIP LENGTH FREQUENCY DISTRIBUTIONS

Trip distribution is the step which distributes trips between all possible pairs of zones. Another way of looking at it is that the productions from each zone are allocated to the attractions in other zones. Distribution is based on the well known *gravity model*, in which the number of trips between zones O and D is a function of the trip productions in O, the trip attractions in D, and a measure of the separation between O and D. The measure of separation is a function of the impedance associated with traveling between O and D. In this model, this impedance is travel time. The separation function is called the *friction (or "F") factor curve* and it converts the travel time into a non-dimensional measure of the effort perceived by the traveler in going from O to D.

Calibrating the gravity model consists of evaluating the parameters of the impedance function (or the values in the friction factor table) so that the gravity model reproduces, as closely as possible, the base year productions and/or attractions and the base year trip length distribution. Hence, calibration effort involves developing observed trip length frequency curve by trip purpose from the survey and then calibrating the model to match the observed data.

Trip records in the BRPTS were analyzed by trip purpose and a statistical profile of the time of day patterns and trip length frequency distributions of the reported trips by trip purpose was developed using the reported trip departure, arrival and travel times,.

The surveyed trip length frequencies contain spikes at the five-minute intervals. This phenomenon requires that the trip length frequency curves be smoothed to remove artificial impacts of these spikes. Gamma distributions were used to match the general shape of the surveyed trip length frequencies, and remove the impacts of the self-reported five-minute spike phenomenon.

The gamma curve is expressed by the following equation:

$$f(t_{ij}) = a.t_{ij}^{-b}.\exp^{-c.(t_{ij})}$$

Where:
a = *coefficient; b = coefficient;* c = *coefficient; t = time interval; i, j = from zone i to zone j*

The gamma coefficients were estimated for each of the trip purposes based on the best fit to the surveyed data.

After the smoothened trip length frequency curves were developed, gamma impedance function used in the model was calibrated using an iterative procedure. Usually the iterative process stops when the trip length frequency curve closely matches the observed trip length frequency curves and the average trip length by trip purpose is within +/- 10 percent of observed average trip length.

Figures 23 through 27 show the actual and smoothed trip length frequency curves from the survey and calibrated curves from the model.

FIGURE 23
TRIP LENGTH FREQUENCY CURVES
HOME BASED WORK

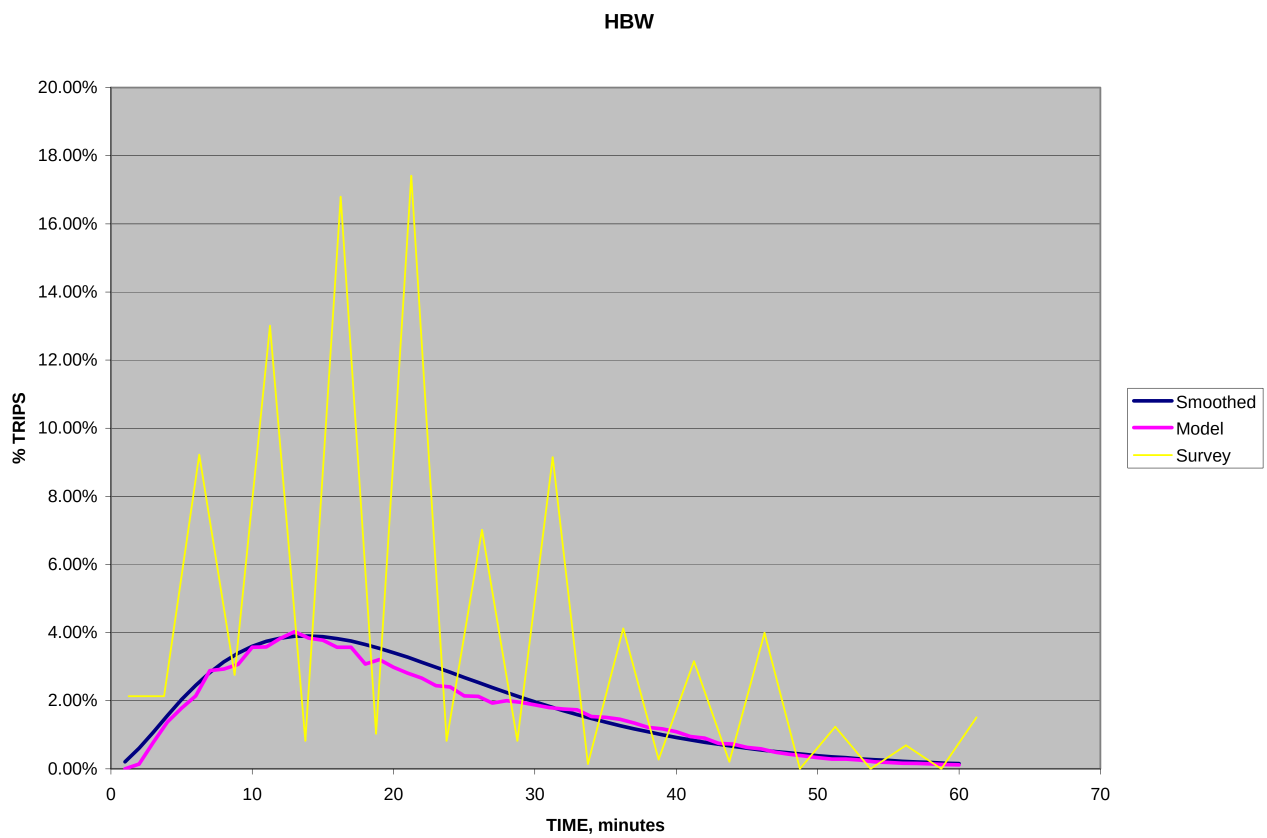


FIGURE 24
TRIP LENGTH FREQUENCY CURVES
HOME BASED – SCHOOL

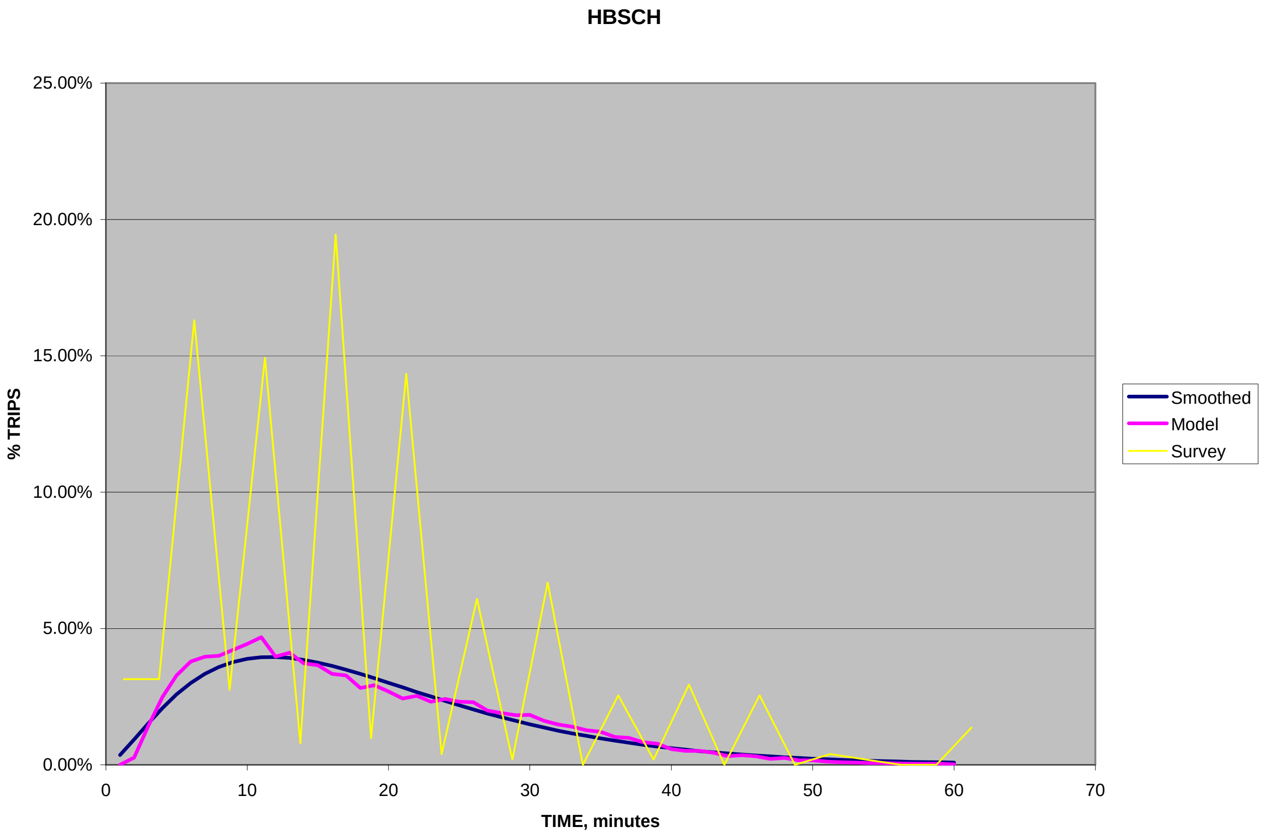


FIGURE 25
TRIP LENGTH FREQUENCY CURVES
HOME BASED – OTHER

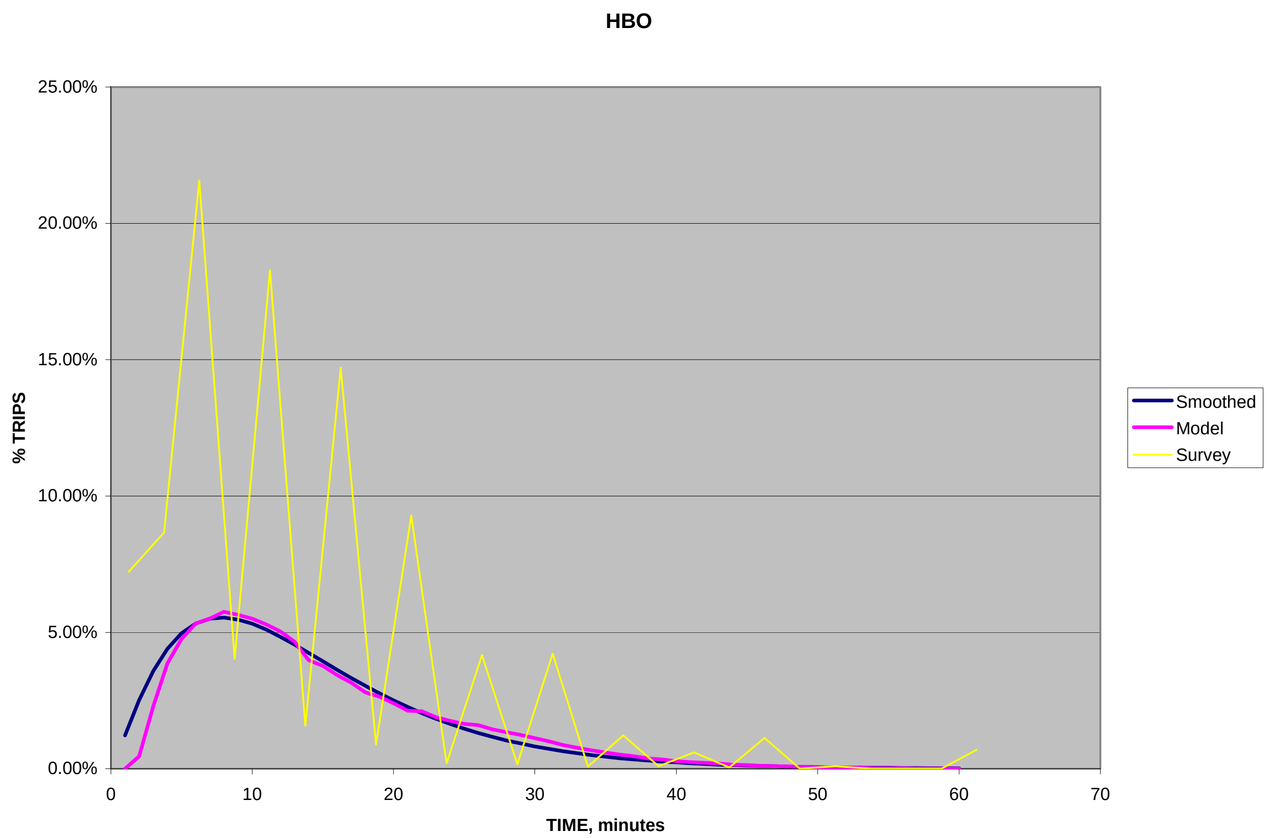


FIGURE 26
TRIP LENGTH FREQUENCY CURVES
NON – HOME BASED – WORK

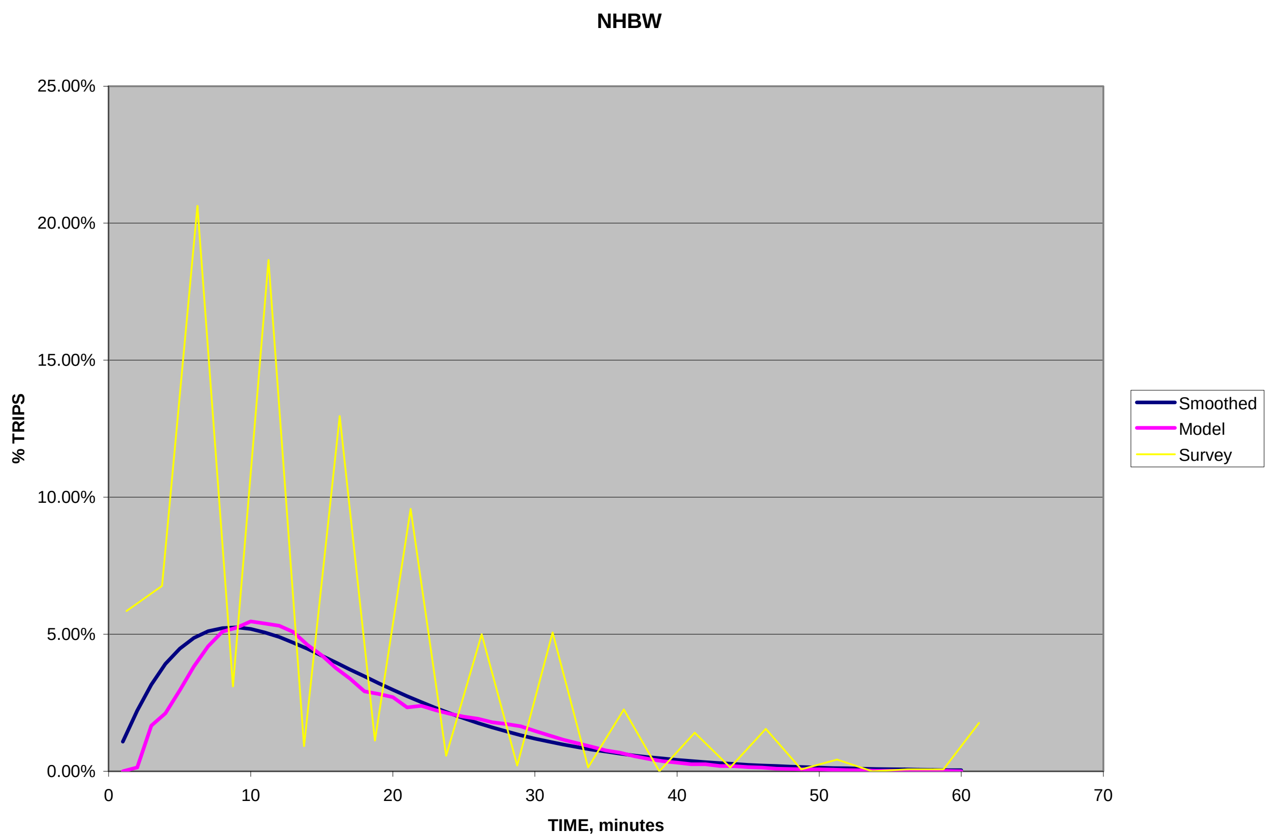


FIGURE 27
TRIP LENGTH FREQUENCY CURVES
NON – HOME BASED – OTHER

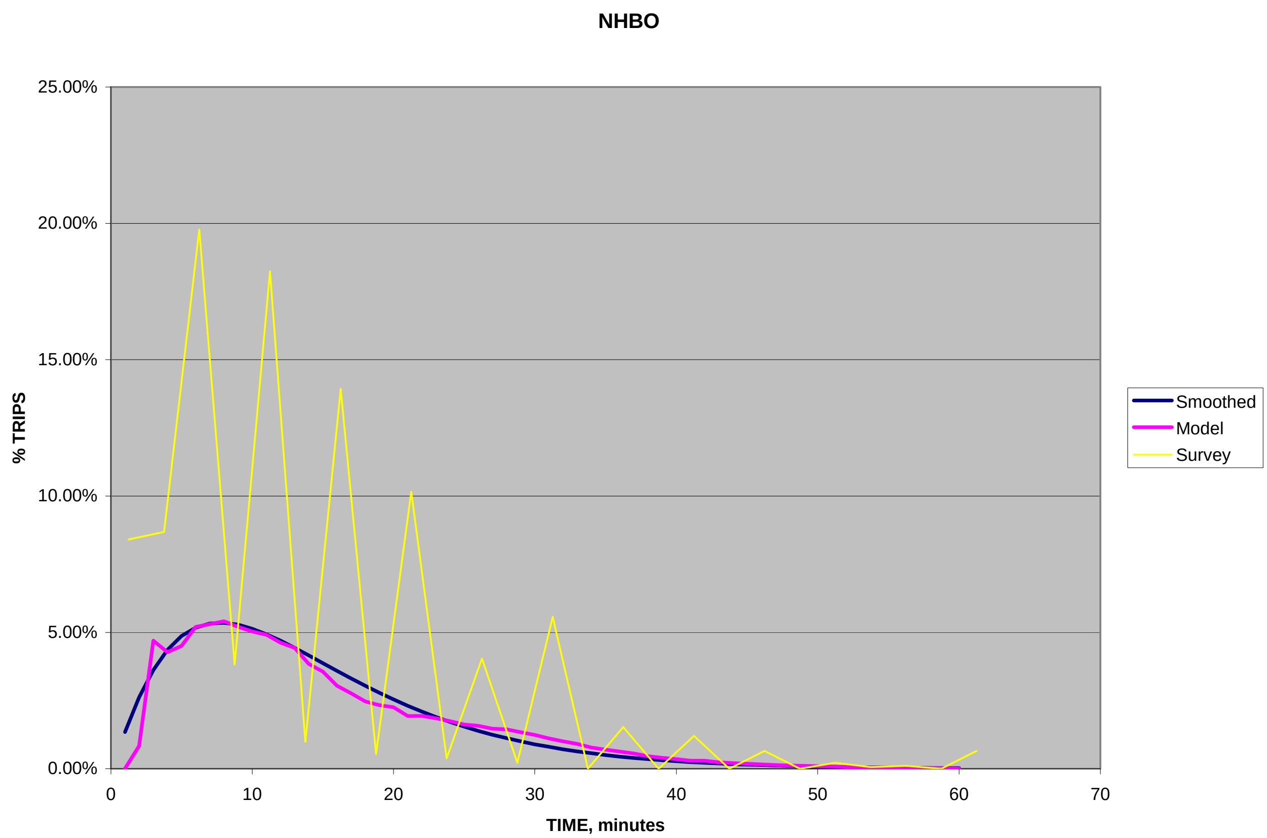


Table 19 below shows the calibrated gamma function coefficients and average trip lengths from the survey and from the model.

TABLE 19
SUMMARY OF
TRIP DISTRIBUTION CALIBRATION DATA

Trip Distribution Calibration						
Purpose	Gamma Function Parameters			Avg. Survey Trip Length, min	Avg. Model Trip Length, min	Coincidence Ratio
	a	b	c			
HBO	6692.34	1.1460	0.0515	14.18	14.48	0.89
HBSCH	0.60	1.1105	0.0084	18.59	17.96	0.88
HBW	0.29	0.5580	0.0355	22.49	21.33	0.90
NHBO	0.81	1.4279	0.0010	14.39	14.65	0.88
NHBW	0.26	0.4611	0.0533	16.87	15.97	0.85
CMVEH	4616.08	1.6368	0.0568	N/A	8.78	N/A
EI	45440.99	0.7120	0.0434	N/A	23.62	N/A

Note:

The coincidence ratio lies between zero and one, with zero indicating two disjoint distributions and one indicating identical distributions.

CALIBRATE THE MODE CHOICE MODEL

The mode choice model uses production and attraction person trip tables produced by the trip distribution program combined with traveler characteristics, origin and destination data from the TAZ layer, and zone to zone travel impedances to allocate the trips to the available modes of travel.

The mode choice model allocates trips among the modes using a probability function applied in what is known as a logit model. In the case of the Baton Rouge mode choice model, this function takes the form of a nested logit model.

In addition to the mode choice model itself, several components that are not developed in trip generation and trip distribution must also be developed to support the development, testing, and application of the mode choice model. These steps include:

Development of transit route systems and stop layers to depict the alignment and attributes of the Baton Rouge transit system
Building of transit paths to estimate the travel impedances (travel time, bus fares, transfers, etc.) between each transit accessible origin-destination pair
The development of transit assignments to predict and report anticipated transit ridership

The mode choice model combines these transit data elements with the highway networks, roadway paths, and auto related travel impedances developed in previous model steps to allocate the trips among competing modes. In the implementation of the base year Baton Rouge model, available modes include drive alone, shared ride, and transit bus. The Baton Rouge mode choice model was developed in TransCAD® Version 4.8 and scripted in the TransCAD internal macro language GISDK.

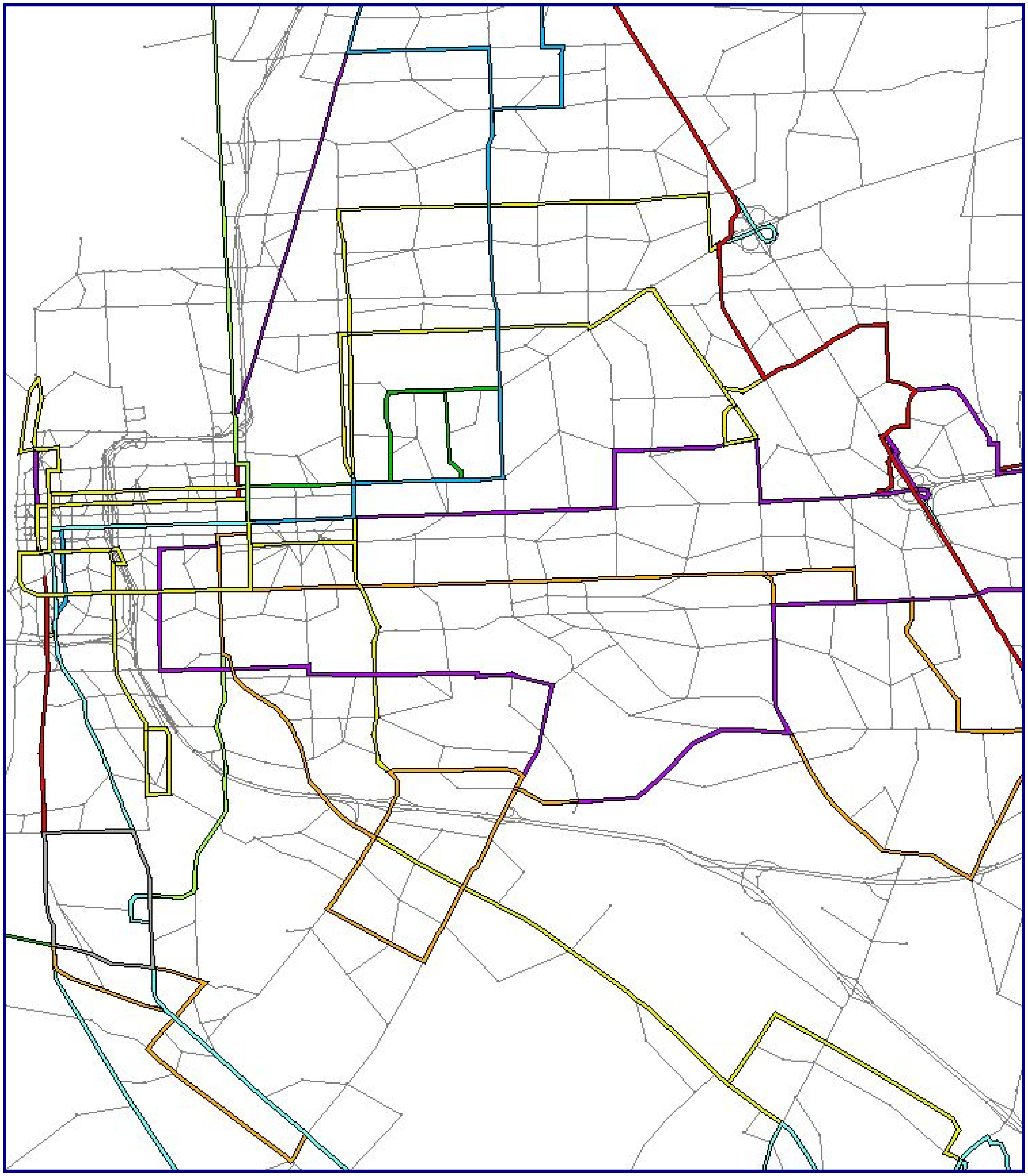
Transit Route System

TransCAD transit networks, referred to as route systems, must be built over an existing highway line layer. Transit route systems are inherently more complex than highway networks because they must account for a higher number of behavioral responses to a broader range of travel conditions related to walking or driving to a transit stop or station, wait time, transfer penalties, and transit fares as well as bus headways, schedules and stop locations.

The transit route system for the Baton Rouge travel demand model is based upon route system maps and attributes provided by the Capital Area Transit System (CATS). The base year transit system consists entirely of local bus routes and university shuttles. There are no base year express routes or other premium service and although there are some park and ride lots, they are not served by the transit system. Therefore, there is only drive access to transit for persons driving to the university parking lots and accessing transit at that point.

The CATS route system for the base year is contained completely within East Baton Rouge Parish. The route system developed for the Baton Rouge travel demand model is depicted in **Figure 28** on the following page.

FIGURE 28
CATS ROUTE SYSTEM



Transit Path-Building

The transit path building procedure uses the transit route system to estimate transit impedances in the form of travel times and costs. Because travelers have different sensitivity to time under different circumstances that must be captured by the model, the travel time components are divided into in-vehicle travel time (IVTT) and out-of-vehicle travel time (OVTT). In addition the OVTT is further stratified into walk time and wait time.

These impedances, also known as skims, are calculated from attributes along the various potential transit paths. The Baton Rouge mode choice model uses the TransCAD shortest path method to select the optimal transit path connecting each origin-destination (OD) zone pair. This method selects the single preferred route based on minimizing the generalized cost of travel.

Generalized cost is a composite variable that includes both times and costs, although Alliance structured this variable to minimize the impact of costs in the selection of the minimum path. The skim attributes, such as transit fares and transit in-vehicle times, were accumulated along these “time-based” minimum paths developed by the transit path-building routines.

Alliance developed the TransCAD controls to provide the necessary travel times and fares required by the mode choice model. In the Baton Rouge Model the transit network settings were set within the model script. The control performed the path-building procedures for existing eight “conditions”, where each condition as a combination of primary mode, access sub mode, and time-of-day. Alliance validated the path-building process and refined the path-building parameters as part of this effort. The following sections describe the path-building process and the impedance skim attributes. The walk-access and drive-access path-buildings are defined with examples.

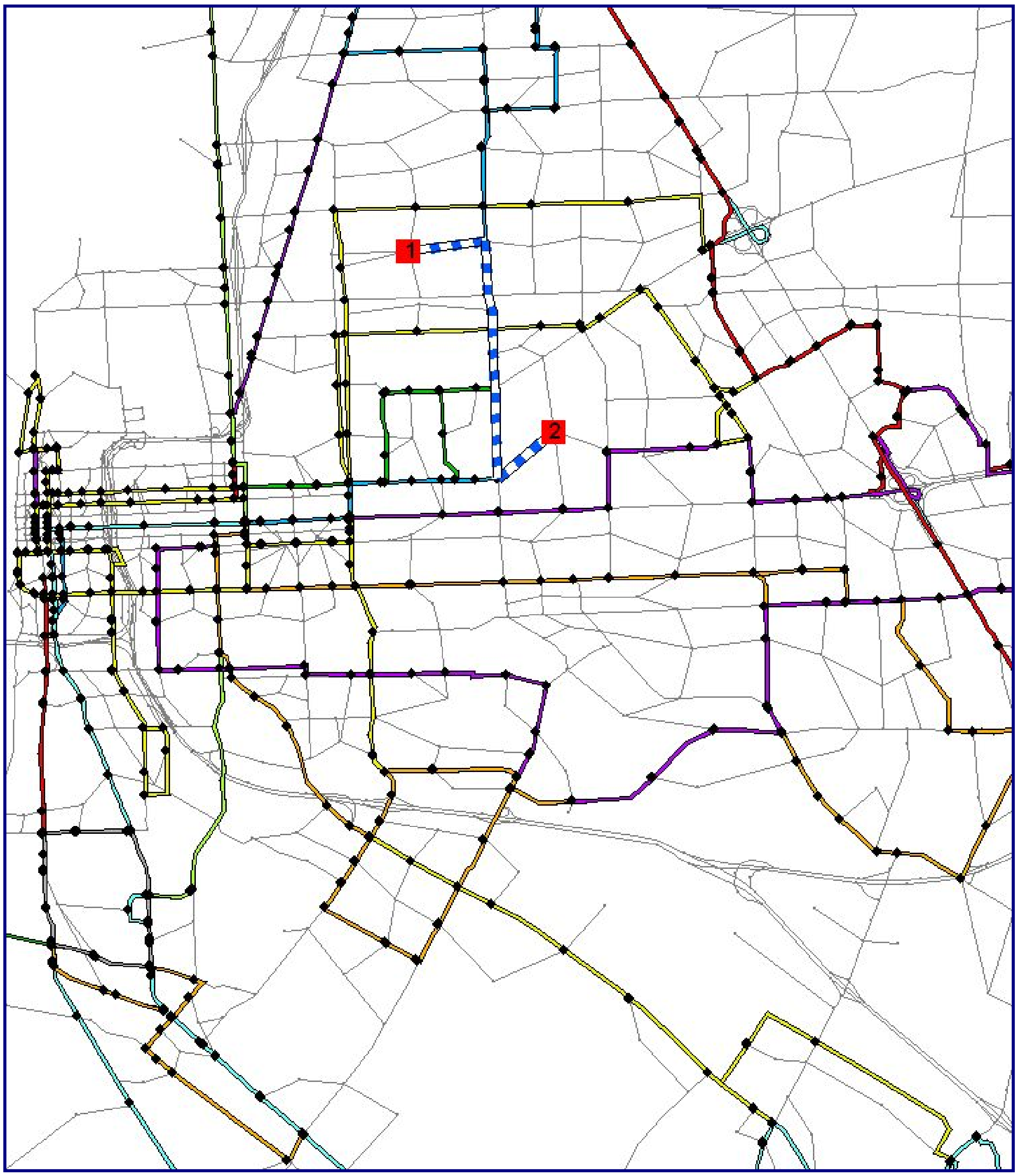
Path-Building Parameters

The path-building process in the model is performed separately for the walk-access and drive-access transit modes. Transit network settings were configured to perform the transit path-building procedures. The network setting parameters contained values used to control or limit general conditions used in the creation of transit paths. Each path-building process utilized the same parameters, but they were adjusted in accordance with the type of paths being developed. As an example, the maximum access time is 20 minutes for walk-access path building while the maximum access time is 30 minutes for drive-access path building. The egress walk times however are setup as 20 minutes for both processes.

Path-Building for Walk Access

The maximum walk time for access is limited to 20 minutes. Thus, the maximum distance is also limited to 1.0 mile from the transit services with an assumed average walk speed of 3.0 miles per hour. Alliance set this value for the walk limitation because the path-building process utilizes the centroid connectors and highway links to access the transit routes. The use of these abstract links distorts the actual walk distance since many transit patrons may be closer to the routes than the distance implied by the centroid connectors. **Figure 29** below shows an example of the shortest path generated by walk access "local bus" path building. The thick dashed line is a searched shortest path. The used transit network is peak walk-access local bus the transit rider can access to the transit stop from the origin location

FIGURE 29
WALK-ACCESS SHORTEST PATH



Mode Choice

A mode choice model was developed with the capability to accurately estimate ridership for existing modes and modes to be evaluated in the future. Local data, where it was available, was used to estimate the mode choice model. For modes that do not exist in the base year, coefficients were asserted based on currently accepted norms for areas of similar size and character. This is standard practice for mode choice model where no stated preference survey is available.

The Baton Rouge Personal Transportation Survey contained too few transit trips to identify transit mode parameters. Because the BRPTS contained few transit trips, the development of the mode choice transit parameters relies on three elements:

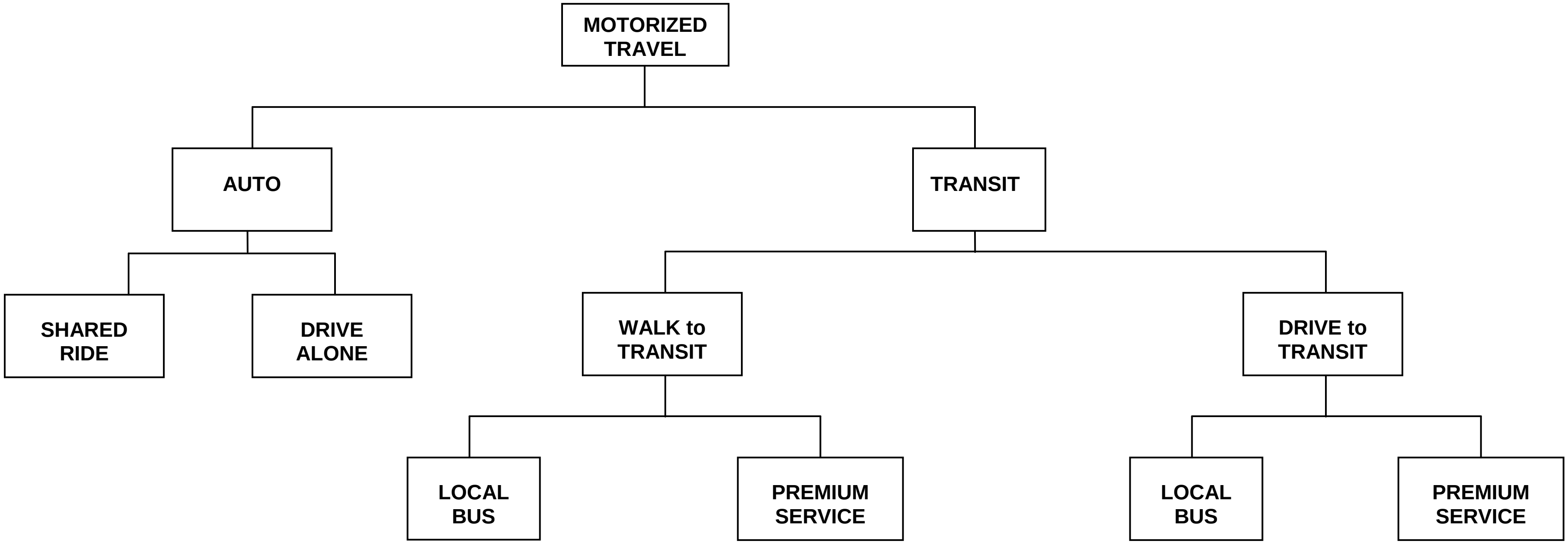
1. The Capital Area Transit System (CATS) Comprehensive Operational Analysis (COA). The survey provides stop by stop boarding and alighting totals by time of day. This survey was used to impute trip purposes and accessible origin destination pairs.

2. The CTPP Part 3 zone-to-zone travel: The CTPP was used to assist in interpreting the COA survey data and will continue play a role in mode choice model

3. Recent FTA guidance on its quality control model, expected range of coefficients and other information on parameter values and limits. The FTA guidance was particularly useful in addressing future transit modes for which there are no current calibration or validation data.

The mode choice model has a simple nested logit model structure. The nested logit model structure assumes that travel modes, submodes and access modes are distinctively different types of alternatives that present distinct choices to travelers. The nesting structure developed for the Baton Rouge Travel Demand Model is depicted as follows in **Figure 30**.

FIGURE 30
BATON ROUGE MODE CHOICE MODEL
NESTED LOGIT STRUCTURE



Transit Paths

It is important to maintain consistency between parameters and weights in the mode choice model and the weights applied in calculating transit paths. The Baton Rouge Model employs a simplified path builder routine that employs the weighting factors in **Table 20** below.

TABLE 20
TRANSIT PATH IMPEDANCE WEIGHTS

Impedance	Units	Weight
In-vehicle time for non-guideway transit	Minutes	1.0
In-vehicle time for commuter rail	Minutes	0.8
All out-of-vehicle time	Minutes	2.0
Drive-access time	Minutes	2.0
Transfers	Number	5.0
Peak Period Fare	Cents	0.15
Off Peak Period Fare	Cents	0.075

Transit Route Runtime Verification

The transit network in-vehicle times were validated through comparisons between the observed and estimated "run times" by route. The run time refers to the time it takes for a vehicle to traverse the entire route. In the case of bus lines, their run times are influenced by the type of highway facilities traversed by the route and the level of congestion on the highway network. The transit link travel times were estimated using factors relating highway and transit speeds by facility and area type combination.

The estimated travel times for each route were compared to the scheduled run times for peak and off-peak periods. The calibrated lookup factors minimized differences between the scheduled and estimated runtimes.

Mode Choice Analysis

The mode choice model was developed specifically to address the anticipated forecasting needs for the region. The objective of this effort was to develop a mode choice model fully capable of forecasting travel not only for the various auto and transit modes used for existing travel but also for a wide range of potential transit modes that may be introduced in the future.

The mode choice model was structured as a nested logit model. The basic logit model formulation essentially estimates percentage "shares" of travelers utilizing each of the available travel modes between individual origin zones and destination zones. It is formulated as follows:

$$p_i = \frac{e^{U_i}}{\sum_{1}^{n} e^{U_k}}$$

Where:
p_i = probability that trip will use mode i , (expressed as a percentage share)
U_i = utility of mode i, structured as a*$Time_i$ + b*$Cost_i$+ c*….+ K_i ,
(where a,b,c are coefficients which are generally negative, and K_i is a mode-specific constant)
e = the exponential function
Σ e^{U_k} = sum of e^U for all modes k from 1 to n

The model development effort included both the estimation and the implementation of the model within the TransCAD modeling package. The model was estimated using the Baton Rouge Personal Transportation Survey combined with CTPP part three date and boarding and alighting counts from CATS.

Estimation Data Set Development

To perform the estimation, Alliance utilized TransCAD's Logit Estimation Procedure to create the basic model formulation. The logit estimation procedure requires an estimation data set that was developed using the various travel times and costs associated with each competing mode, along with the mode actually selected by each traveler. Since the overwhelming majority of travel in the Baton Rouge region is currently made with the auto modes, the household survey provided a robust sample of observations for these modes. In contrast, the household survey had few observations for transit trips. Therefore for the home-based work purpose observed transit trips were synthesize from the CTPP part 3 data for the HBW trip purpose. These various data sets were combined to form the estimation data set that was used as the basis for all model estimation trials. This data set is presented in **Table 21**.

TABLE 21
ESTIMATION DATA SET VARIABLES

Variable	Description
AUTO IVTT	Auto In-Vehicle Time (min)
TRANSIT IVT	Transit In-Vehicle Time (min)
AUTO OVTT	Auto Out-of-Vehicle Time (min) including Terminal Time and SR Collecting Time
WALK TIME	Transit Walk Time (min) including Access, Egress, and Transfer
WAIT TIME	Transit Wait Time (min) including initial and transfer
AUTO COST	Auto Mode Costs (dollar) including Operating Cost , Parking Cost, Toll Cost
TRANSIT FARE	Transit Fares (dollar) including Boarding and Transfer
NUMBER OF TRANSFERS	Transit Number of Transfers
VEHICLES / HH	Auto-ownership per Household

Model Estimation Overview

The model estimation analysis was focused initially on the home-based work purpose since it had the most available data for the transit mode. The first element of the task was the development of a "minimally acceptable model" for each trip purpose. After the completion of the refinement trials, the estimation results were reviewed and summarized. A series of further refinements were implemented to ensure that the models had reasonable relationships among key variables.

Home-Based-Work Model

As noted above, the model estimation analysis was focused initially on the home-based work trip purpose. It was anticipated that it would be feasible to estimate at least a "minimally acceptable model" for this trip purpose.

The upper section of **Table 22** lists the coefficients estimated by TransCAD's multinomial logit estimation procedure, along with the converted values for the adopted nested structure. All the coefficients have the proper sign (+/-) and provide reasonable relationships among key level-of-service variables. The table also summarizes the overall fit statistics for the model including the Rho-Squared term, which is 0.59. The Rho-Squared term is calculated based on the difference of the log likelihood (0) for equal market shares, and the log likelihood (F) of the final model, including the mode specific constants. The Rho-squared values range from 0.0 to 1.0, with increasing values indicating that the estimated model is significantly different from a "default" model assuming equal shares.

TABLE 22
HOME BASED WORK MODEL
FINAL ESTIMATION TRIAL

Total Cases: 872
Cases with missing attribute values: 33 (Intrazonal Trips)
Valid Cases: 839

Choice Distribution

AUTO	751	89.5%
SR	78	9.3%
TRAN	10	1.2%

Iteration 0

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	0.000000	9337.105692	0.000000
OVTT	0.000000	6829.331749	0.000000
COST	0.000000	-277.259762	0.000000
Constant	0.000000	-274.000000	0.000000

Iteration 1

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.041068	-136.029348	-0.041068
OVTT	-0.030038	157.330796	-0.030038
COST	0.001219	-373.792693	0.001219
Constant	0.001205	-333.781202	0.001205

Iteration 2

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	0.012277	1813.466041	0.053345
OVTT	-0.109666	126.915131	-0.079628
COST	0.174183	-269.471447	0.172963
Constant	0.155681	-259.135568	0.154476

Iteration 3

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.048541	-13.197679	-0.060818
OVTT	-0.039178	476.790238	0.070488
COST	0.877259	-1.556423	0.703077
Constant	0.790169	-52.517836	0.634488

TABLE 22 (CONTINUED)

Iteration 4

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.044957	-152.541868	0.003583
OVTT	-0.041886	85.729325	-0.002708
COST	-0.161592	-29.546789	-1.038852
Constant	2.173482	-21.626334	1.383313

Iteration 5

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.034833	-144.432931	0.010124
OVTT	-0.061504	-40.383804	-0.019618
COST	0.056576	3.024691	0.218168
Constant	2.168478	-2.017255	-0.005004

Iteration 6

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.030867	-141.379473	0.003966
OVTT	-0.065513	-78.401947	-0.004008
COST	-0.073950	-0.698208	-0.130527
Constant	2.357868	0.820313	0.189390

Iteration 7

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.021705	-44.819852	0.009162
OVTT	-0.071115	-65.394464	-0.005602
COST	-0.053457	-2.071754	0.020493
Constant	2.299841	-1.495429	-0.058027

Iteration 8

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.022856	-7.136260	-0.001151
OVTT	-0.063168	-2.670880	0.007946
COST	-0.062957	-1.842338	-0.009500
Constant	2.302088	-1.995526	0.002247

Iteration 9

Parameter	**Estimate**	**Gradient**	**Change**
IVTT	-0.022423	1.537441	0.000433
OVTT	-0.063040	0.162954	0.000129
COST	-0.076705	-0.258371	-0.013748
Constant	2.344561	-0.099810	0.042472

TABLE 22 (CONTINUED)

Maximum likelihood reached at iteration 10

Parameter	**Estimate**	**Std. Err.**	**t Test**
IVTT	-0.022555	0.008416	-2.679939
OVTT	-0.063005	0.012190	5.168781
COST	-0.074296	0.141384	-0.525488
Constant	2.343100	0.204282	11.469953

Log-likelihood at zero:	-745.763853
Log-likelihood at end:	-302.819982
-2 (LL(zero) - LL(end)):	885.887742
Asymptotic rho squared:	0.593947
Adjusted rho squared:	0.588583

Parameter Correlation Table

	IVTT	**OVTT**	**COST**	**Constant**
IVTT	1.000000	0.316241	0.000013	0.000082
OVTT	0.316241	1.000000	0.054050	0.032291
COST	0.000013	0.054050	1.000000	0.660798
Constant	0.000082	0.032291	0.660798	1.000000

T-statistics indicating the significance of the individual coefficients are also provided. Generally speaking, t-statistics with an absolute value exceeding 1.65 (one-tailed test) are used to demonstrate statistical significance when there is an a priori expectation of the coefficient's sign. Variables such as the out-of-vehicle time (OVT) variables and in-vehicle time (IVT) variables are statistically significant at the 95% threshold. The cost variable was not regarded as statistically significant, but was retained because of policy analysis called for in the scope of service.

The estimation report also describes the mode-specific constant terms. The mode-specific constants reflect the travelers' perception of all immeasurable attributes of each mode. As an example while it is possible to measure the amount of time spent waiting for a transit vehicle and the time spent traveling in a transit vehicle, it is not possible to measure the variables such as comfort and safety that influence travelers' selection of a mode. The t-statistics for these constant terms indicate significance well above the 95% threshold. The significance of these values and the autos per household variable suggest that the model will be less sensitive to policy variables such as transit fares and service frequency.

As a final step log sum coefficients were adopted for the nested structure. Log sum coefficients range between value of 0.0 and 1.0. At one extreme, a log sum coefficient of 0.0 implies that an improvement in the utility of any transit mode (say bus or rail) in a transit nest would not result in a change in the overall transit share versus auto share in the uppermost nest. At the other extreme, a log sum coefficient of 1.0 indicates that changes in any transit mode competes directly against the upper nest choices as well as the individual transit modes, thus suggesting that nesting of these choices is not required. Therefore, log sum values closer to 0.0 imply competition within the modes of that specific nest with little influence on the choices in the upper nest. As a log sum value increased towards 1.0, improvements to modes in the lower nest influence both the choices within that nest as well as the choices in the in the upper nest.

With the log sum coefficients set, the mode-specific constants described above were adjusted for the nested structure and transformed to account for the use of choice-based surveys in the estimation data set. The mode-specific constants were then used as a starting point for the mode choice model calibration.

Although estimation of several models was attempted for HBO and NHB trips, there was simply not enough available survey data, particularly transit data to estimate a model for these purposes. Therefore, the models were asserted based upon parameters from similar areas and based on established standards. The constants and utility equations are listed below in **Table 23**.

TABLE 23
CONSTANTS FOR HBO/NHB TRIPS

	Drive Alone	Shared Ride	Walk-Access Local Bus
Home-Based Work	0.0	-4.37306	2.34310
Home-Based Other	0.0	0.35777	-0.52264
Non-Home Base	0.0	-1.20326	-12.08169

Utility equations for the HBO and NHB mode choice models are as follows in **Table 24** and **25,** respectively. These utilities are developed from a combination of BRPTS data, local survey data, CTPP Part 3 data, and the FTA guidance on model coefficients and parameters.

TABLE 24
HBO MODE CHOICE UTITILITES

- Auto Utility = (-0.010*IVTT) + (-0.003*(operating cost + parking cost + toll cost)) +
  (-0.020*terminal time (OVTT))
  - Auto Nest log sum coefficient = 0.60
  - Drive Alone Utility = (-0.01667*IVTT) + (-0.01333*(operating cost + parking cost + toll cost)) +
    (-0.0334*terminal time (OVTT))
  - Shared Ride Utility = (-0.01667*IVTT) + (-0.0133*((operating cost + parking cost + toll cost)/3)) +
    (-0.0334*terminal time (OVTT))

- Transit Utility = (-0.010*IVTT) + (-0.0015*transit fare) + (-0.020*OVTT) + (-0.020*1st-wait) +
  (-0.050*transfer) + market segment constant (e.g. low income)
  - Transit Access nest log sum coefficient = 0.60
  - Transit Walk Utility = (-0.01667*IVTT) + (-0.0334*Walk Time (OVTT)) + (-0.0334*1st wait) +
    (-0.0025*transit fare) + (-0.08333*transfer) [
  - Transit Drive Utility = (-0.01667*IVTT) + (-0.0334*Drive Access Time + (-0.0334*1st wait) +
    (-0.0025*transit fare) + (-0.08333*transfer)
    - Transit Path nest log sum coefficient = 0.40
    - Local Bus Utility = (-0.0416675*IVTT) + (-0.0835*OVTT) + (-0.0835*1st wait) +
      (-0.00625*transit fare) + (-0.208325*transfer)
    - Premium Bus Utility = (-0.0416675*IVTT) + (-0.0334*OVTT) + (-0.0334*1st wait) +
      (-0.00625*transit fare) + (-0.208325*transfer)
    - Commuter Rail Utility = (-0.03333*IVTT) + (-0.0334*OVTT) + (-0.0334*1st wait) +
      (-0.00625*transit fare) + (-0.208325*transfer)

TABLE 25
NHB MODE CHOICE UTILITIES

- Auto Utility = (-0.020*IVTT) + (-0.003*(operating cost + parking cost + toll cost)) + (-0.040*terminal time (OVTT))
    - Auto Nest log sum coefficient = 0.60
    - Drive Alone Utility = (-0.0334*IVTT) + (-0.005*(operating cost + parking cost + toll cost)) + (-0.0667*terminal time (OVTT))
    - Shared Ride Utility = (-0.0334*IVTT) + (-0.005*((operating cost + parking cost + toll cost)/3)) + (-0.0667*terminal time (OVTT)) + market segment constant

- Transit Utility = (-0.020*IVTT) + (-0.0015*transit fare) + (-0.040*OVTT) + (-0.040*1st-wait) + (-0.100*transfer) + market segment constant (e.g. low income)
    - Transit Access nest log sum coefficient = 0.60
    - Transit Walk Utility = (-0.0334*IVTT) + (-0.0667*Walk Time (OVTT)) + (-0.0667*1st wait) + (-0.0025*transit fare) + (-0.1667*transfer) + market segment constant
    - Transit Drive Utility = (-0.0334*IVTT) + (-0.0667*Drive Access Time + (-0.0667*1st wait) + (-0.0025*transit fare) + (-0.1667*transfer) + market segment constant
        - Transit Path nest log sum coefficient = 0.40
        - Local Bus Utility = (-0.0835*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.00625*transit fare) + (-0.41675*transfer)
        - Premium Bus Utility = (-0.0835*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.00625*transit fare) + (-0.41675*transfer)
        - Commuter Rail Utility = (-0.066675*IVTT) + (-0.1667*OVTT) + (-0.1667*1st wait) + (-0.00625*transit fare) + (-0.41675*transfer)

Model Implementation

After the model development process was completed, Alliance implemented the model within TransCAD. As part of the implementation process it was necessary to partition travel into three market segments in accordance with the availability of transit service. This market segmentation procedure is common in most models since transit service varies significantly across the region. While auto availability is assumed to be consistent throughout a zone, the accessibility of transit service is frequently not uniform. Areas of zones within walking distance of transit tend to have a greater transit mode share than trips from areas of a zone where only drive access to transit is possible. After implementation of the market segmentation process in TransCAD, the mode choice model was then calibrated to match regional control totals established from the household survey CTPP part 3 data and the CATS COA. Alliance also validated the model with respect to results of the transit assignment. This analysis was conducted in an iterative manner since the mode choice model was included within the overall model feedback process.

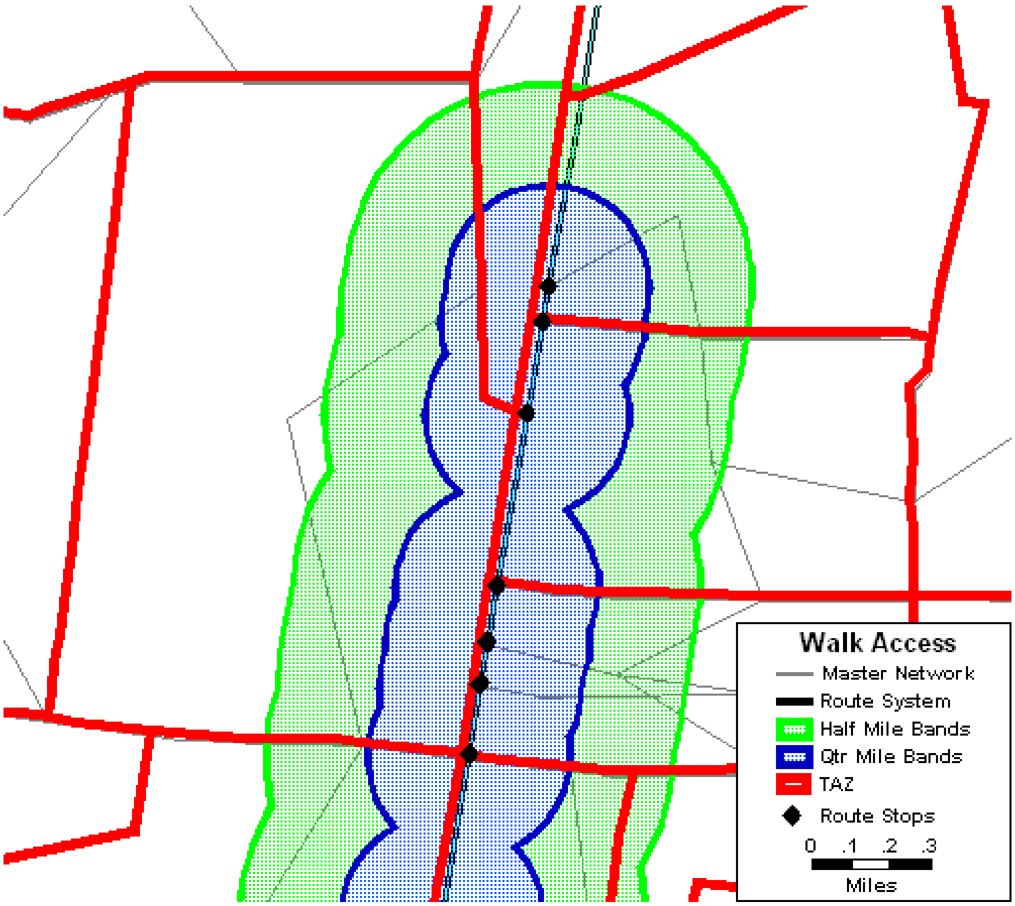
Access Market Segmentation

With this example, the mode choice model automatically partitions all travel from this origin-destination zonal pair into three distinct submarkets. The submarkets are defined as “walk access”, “drive access” and “no transit

The percentage allocation for each market segment is a cross product of the access conditions at each end of the trip. For example, 10 % of origin zone is within walking distance and 10% of the destination zone is also within walking distance. Therefore only 1 % (calculated by 0.10*0.10) of all trips traveling between these zones have the option of using walk-access to transit (walk-transit) in addition to the option of drive-access transit modes and the three auto modes. Similarly, the remaining 90% of the origin zone can drive to transit, but the destinations served by transit are limited by the same 10% walk coverage at the destination zone. This results in another 9 percent of the trips having the choice of using drive-access transit in addition to the auto modes. The final market segment (No-Transit) covering 90 % of market, can chose only among the auto modes. Note that this market segment is calculated solely based on the amount of the destination zone that does not have transit within walking distance.

Using this concept and the walk access coverage calculations performed by TransCAD's GIS functions, the mode choice model segments each zonal pair into these three defined market segments automatically during the course of the mode choice processing. **Figure 31** illustrates graphically the concept of the walk-access sub-market for a given segment of transit route.

FIGURE 31
WALK-ACCESS SUB-MARKET CONCEPT



VALIDATE ASSIGNMENT OUTPUT

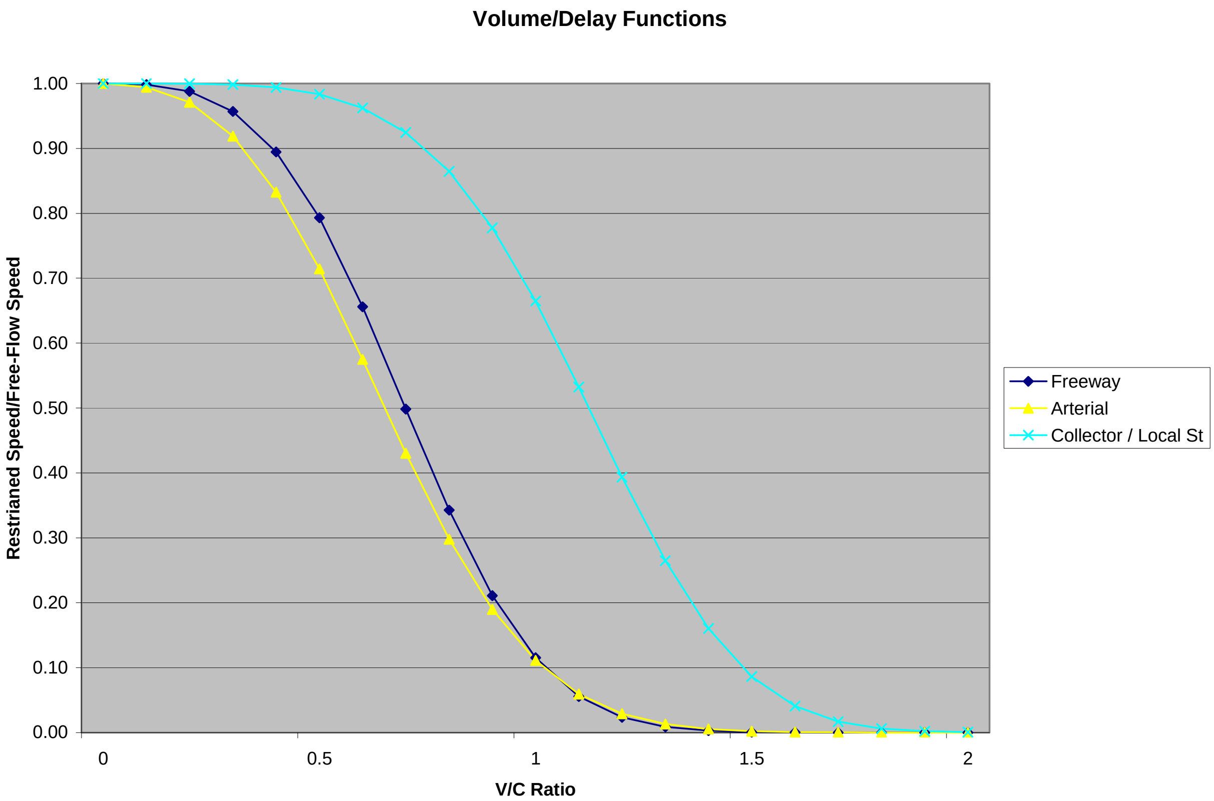
Traffic assignment models are used to estimate the flow of traffic on a network. These models take as input a matrix of flows that indicate the volume of traffic between origin and destination (O-D) pairs. The flows for each O-D pair are loaded onto the network based on the travel time or impedance of the alternative paths that could carry this traffic.

The assignment methodology for the Baton Rouge model utilizes the advanced capabilities of the TransCAD™ Multi-Modal Assignment (MMA) architecture. The MMA routine allows external-external trips to be pre-assigned, and allows different classes of vehicle trips to be assigned simultaneously. Specifically, the model applies a User Equilibrium assignment with functional class specific volume-delay functions. Initial volume-delay function parameters are shown in **Table 26** and **Figure 32**.

TABLE 26
VOLUME-DELAY FUNCTION PARAMETERS

	BPR Curve Coefficients	
Functional Class	**ALPHA**	**BETA**
Freeway	0.83	2.70
Major Arterial	0.71	2.10
Minor Arterial	0.71	2.10
Collector / Local Street	0.17	4.00

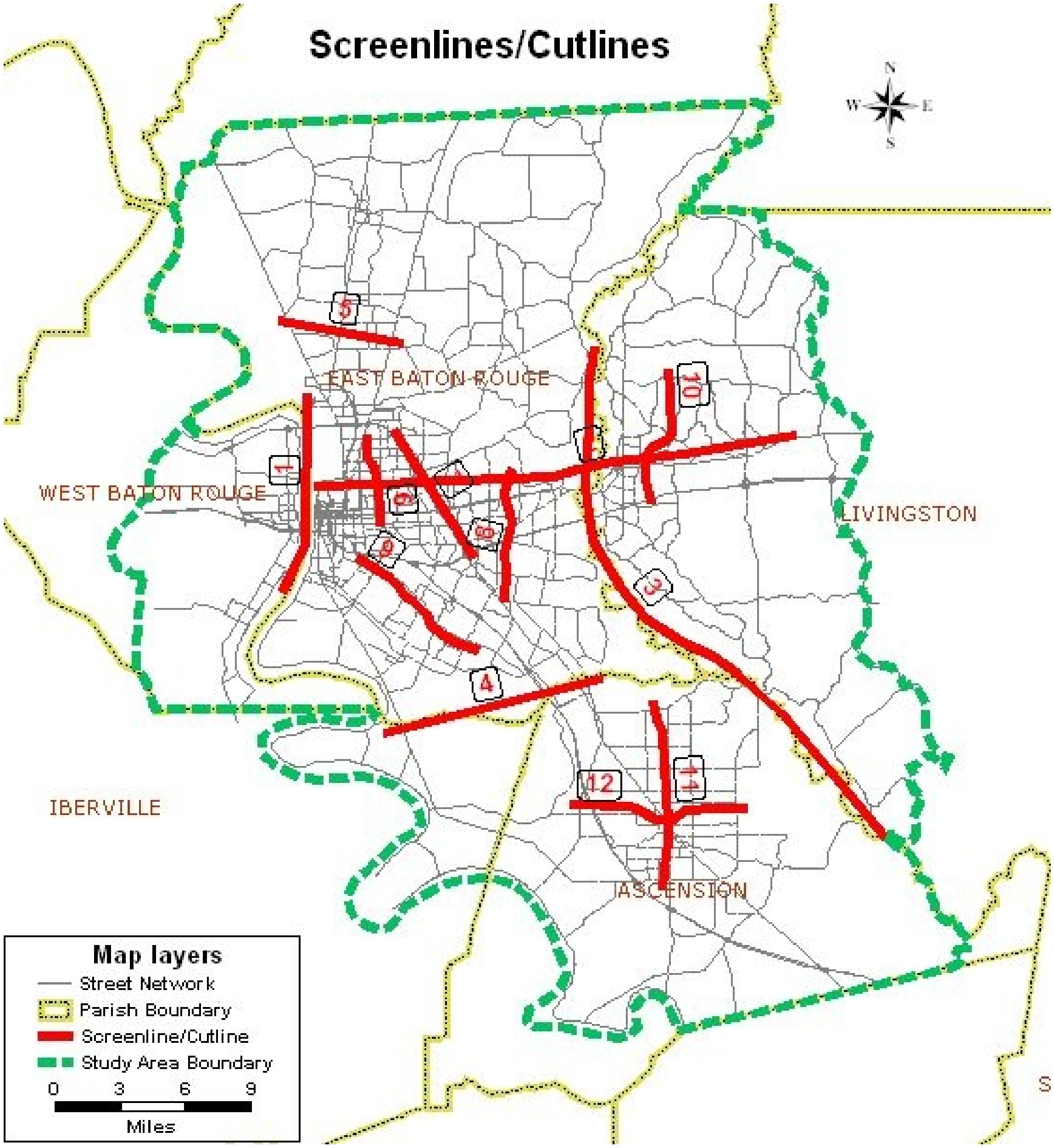
FIGURE 32
VOLUME/DELAY FUNCTIONS



The traffic assignment is performed in two stages for each of the four time periods. First, the external-external trip table is pre-loaded onto the highway network. Second, the User Equilibrium assignment is applied using the highway network with the preloaded network.

After the assignment run, estimated link volumes were compared systematically to actual traffic counts at selected locations along screenlines/cutlines. **Figure 33** shows the locations of the screenlines/cutlines used in the model.

FIGURE 33
LOCATIONS OF SCREENLINES AND CUTLINES



If there are significant differences between actual ground counts and assigned volumes, the model parameters are carefully adjusted until the model produces assignments within a specified degree of accuracy relative to the actual counts. However, when making modifications to the parameters, it is important to keep the values reasonable and not have the end justifying the means.

Performance Indicators

Screenline/Cutline Analysis:

Table 27 relates the percent difference between ground counts and assigned volumes screenlines. The percent differences range from -21% to +42%.

TABLE 27
SUMMARY OF DIFFERENCES
GROUND COUNTS TO ASSIGNED VOLUMES
BY SCREENLINES

SCREENLINE_ID	SUM OF COUNTS	SUM OF FLOWS	Percent Diff
1	133,046	141,080	6
2	294,544	290,741	-1
3	147,361	208,957	42
4	121,263	154,719	28
5	85,035	101,729	20
6	124,007	112,759	-9
7	245,824	287,010	17
8	216,550	213,752	-1
9	114,661	119,230	4
10	85,710	112,623	31
11	61,864	48,964	-21
12	116,143	133,846	15

Region-Wide Percent Error:

The total difference of the ground counts compared to the total of the model assignments for all of the screenline, cutline, and cordon line links should not be more than 5%. The error for the Baton Rouge model is 5%

Region-Wide Root Mean Square Error (RSME):

The Root Mean Square Error for regional model usually in the range of 30% to 40%. The initial RSME value for the Baton Rouge Model is 33.8%.

Functional Classification Percent Error:

This indicator checks on whether or not the model is loading trips among the functional classifications in a reasonable manner. The suggested error limits and the error for the Baton Rouge model are as shown in **Table 28**.

TABLE 28

VALIDATION BY FUNCTIONAL CLASS					
FUNCTIONAL CLASS	TOT_ASSIGN	TRAFFIC_CO	DIFF	%DIFF	GUIDE
FREEWAY	3,873,861	3,362,787	511,074	15	5.0%
MAJOR ARTERIAL	5,605,877	5,434,321	171,556	3	7.0%
MINOR ARTERIAL	2,856,161	2,730,311	125,850	5	10.0%
COLLECTOR & LOCAL STREET	1,316,410	1,450,548	-134,138	-9	20.0%

Volume Percent Error:

This indicator checks on whether or not the model volumes loaded among certain ranges in a reasonable manner. The suggested error limits and the error for the Baton Rouge model are shown in **Table 29**.

TABLE 29

VALIDATION BY VOLUME GROUP					
VOLUME GROUP	TOTAL VOLUME	TRAFFIC COUNT	DIFF	%DIFF	GUIDE
2500-5000	493,998	444,843	49,155	11	50.0%
5000-10000	1,389,637	1,333,657	55,980	4	25.0%
10000-25000	4,963,023	4,869,001	94,022	2	20.0%
25000-40000	3,204,641	3,005,111	199,530	7	15.0%
40000-60000	2,453,293	2,245,431	207,862	9	12.0%
>60000	916,823	898,276	18,547	2	10.0%

Correlation Coefficient:

The correlation coefficient, **R**, is calculated from a simple linear regression on the pairs of assigned and counted volumes. Typically this **R** value will be greater than 0.88. The **R** value for the Baton Rouge model is 0.90.

VI. TRAVEL FORECAST AND DEFICIENCY IDENTIFICATION

The Consultant Team applied the travel demand forecasting model previously developed in this study to project future travel. To run the model, the Team used base year and future socio-demographic data and identified and used the existing plus committed (E+C) transportation system for the Baton Rouge Metropolitan Transportation Plan study area. The Team then evaluated the adequacy of the system to meet projected travel demands in terms of volume-capacity-related deficiencies.

FORECAST FUTURE SOCIO-DEMOGRAPHIC DATA

2004 Base Year Demographic Data

Technical Memorandum Number 1 described development of the 2004 base year demographics. Among others, the following land use, demographic, and socio-economic characteristics are included in the Traffic Analysis Zone (TAZ) layer attributes required for the travel demand model:

- Population
- Households
- Retail Employment
- Total Employment
- School Attendance

The Consultant Team provided review, guidance and editing in working with the Capitol Region Planning Commission (CRPC) to develop the base year socio-demographic data base. The group used data bases from the Louisiana Department of Labor, local government building permit offices and parish school systems in developing this 2004 data base.

Post Hurricanes Katrina / Rita Population and Employment Data

The Consultant Team's report on Supplemental Agreement Number 1 provided methodology and results in an intense Delphi procedure to forecast population and employment data for the study area out to the horizon year. The Delphi process brings a group of experts together in a directed dialogue with the objective of building the best possible consensus on a question or issue. The methodology is particularly useful in an environment of uncertainty where historical trends are not likely to be indicative of future conditions. In this case the project team worked with Baton Rouge business and community leaders on the issue of post Katrina / Rita demographic forecasts for the Baton Rouge Metropolitan Area.
The specific objectives of the effort with the Delphi Committee were to:

1. Establish population and employment control totals for the Baton Rouge MTP Update study area for 2009, 2012, 2022, and 2032; and

2. Allocate these control totals to sub-parish planning districts.

The process was carried out between September 7, 2006 and October 9, 2006 in two stages consisting of an initial half-day kickoff meeting of the Delphi committee followed by a month-long series of weekly Delphi sessions carried out remotely via an interactive web-based interface.

At the kickoff meeting, the primary question put to the panel was “How will the Baton Rouge Region’s population and employment grow over the next two decades?” The kickoff meeting took the participants through three rounds of the Delphi process. The Delphi deliberations and feedback resulted in a working consensus for short-term milestone years 2009 and 2012 that could be used for the web-based process. It also produced a preliminary consensus on the 2022 and 2032 control totals that could be further deliberated and refined during the web-based process. The meeting also provided information on the growth potential of each of the Delphi districts and the constraints and opportunities present in each area.

The Baton Rouge Delphi Process also included an Internet based component for continuing the dialogue with the Delphi committee after the initial kickoff meeting. The web interface included interactive questions and maps, and provided participants the ability to dynamically allocate sub area demographic data to reach study area control totals. The web interface was used to carry out rounds 4-6 of the Delphi deliberations at which point it was judged that a working consensus had been reached. The process also met its objectives in terms of panel participation with participation rates growing by 25% over the kickoff meeting attendance.

With the completion of the final review and comment period on October 9, 2006, the Baton Rouge MTP Delphi Process had produced an informed consensus on population and employment control totals for milestone years 2009, 2012, 2022 and 2032. In addition the Delphi panel had allocated these control totals to sub area Delphi districts based on their local knowledge of the area and the group consensus on the growth potential of each district.

The Consultant Team statistically analyzed the district allocation totals for consistency with the consensus control totals and produced a set of district population and employment totals by Delphi district and milestone year. The Team used this data in carrying out the final two tasks in the supplemental services agreement: *Task 8 – Analyze the impact of the post-storm scenario on all model inputs* and *Task 9 – Develop final most likely ‘post-storm’ socioeconomic data set*.
These tasks produced the final forecasted demographic data, as described below.

Final Forecasted Demographic Data

The Consultant Team used the Plan Update base year 2004 demographic data and the post-hurricanes data described above along with individual TAZ maps to develop the final forecasted demographic data. The TAZ maps were produced using Geographic Information System mapping data that included recent aerial photography.

The volume of data generated by this study effort for TransCAD model input is significant for three reasons. First, the size of the study area produced 35 Planning Districts comprising nearly 700 Transportation Analysis Zones (TAZ). Second, each model variable had to be projected through four target years, 2009, 2012, 2022, and 2032. Finally, each TAZ file contains data on approximately 44 variables. Taken together the information in the demographic data file contains more than 121,000 data bits.

The methodological approach taken to develop data at the TAZ level through the year 2032 is detailed below.

Population

In order to develop population projections at the TAZ level, each TAZ map was scrutinized in order to develop a “coefficient of development”, a likely percentage of remaining developable land in each TAZ, taking into consideration existing land use, transportation access, degree and density of development, perceived timing of additional growth, adverse environmental factors that might limit development, such as perceived flood plains, adjacent noxious land uses (refineries, airports, etc.), and a population density map prepared for this effort. It should be noted that the “coefficient of development” was reduced in later target years to account for increased development in a particular TAZ over time.

For each Planning District the coefficients of development were summed and this number served as the denominator of a fraction whose numerator was the coefficient for a given TAZ in that respective district. This fraction was then multiplied by the total increase in population for the Planning District for the next target year. Through multiple iterations the population increase was distributed to each TAZ in a manner that reflected the ability of the TAZ to grow. Some did not grow, or grew only very little, reflective of the TAZ’s capacity to accommodate additional growth. In order to reflect growth in each TAZ, where appropriate, the coefficient of development was adjusted downward for each TAZ in subsequent target projection years. Rounding errors were adjusted at the end of the process for each Planning District to match the derived population projection with that produced through the Delphi method.

Employment

Projections of total employment for each TAZ relied on individual TAZ maps, 2004 base year data supplied by CRPC and Planning District employment projections developed through the Delphi process. The methodology required that each TAZ map be scrutinized so that 2004 base year total employment and retail employment figures (supplied by CRPC) could be assessed within the context of actual land use as shown on each map. Although this was a subjective, qualitative assessment, it was possible to adjust CRPC employment numbers up or down initially to account for the actual development situation in a particular TAZ. In assigning levels of total and retail employment to a particular TAZ, other factors were considered including population growth projections as well as a qualitative judgment of the TAZ’s employment growth potential. Those TAZ judged to be more likely to grow employment were assigned more employment (on a percentage basis) than TAZ judged likely to grow very, very slowly, very slowly, or not at all. The two factors given more weight in considerations about employment growth were population growth (see above) and existing land use. In this manner each TAZ was assessed and assigned employment growth, or not shown with employment growth, as the case may be.

School Enrollment

The discussion of school enrollment projection methodology needs to begin with the underlying assumptions. These provide a logical starting point as well as a way to focus the projection methodology. For this study the following assumptions were made:

1. Children will attend school in the Planning District in which they reside. Without this assumption there would be no way to project school attendance short of a 100% household survey. Obviously such a survey is not possible under this study effort. It should be noted that the design of Planning Districts used in this study was such that densely populated areas were not split.
2. If it becomes necessary to add a new school in a TAZ because of serious capacity constraints brought about by growth, then shifts in school attendance at existing schools will be adjusted in order to achieve a degree of balance. While all new growth may be assigned to the new school facility, it will attract some from other nearby schools which are experiencing overcrowding.
3. Placement of a new school facility will be steered to growth in the Planning Districts as identified by the Delphi process with actual location dictated by current and projected development patterns. New schools (with school attendance figures) will be assigned to a TAZ as appropriate.
4. School attendance projections will be focused on attendance at elementary and middle schools, junior high schools and high schools. Day care centers, adult educational facilities and the like will be ignored in terms of projections, although they are accounted for in the numbers for some TAZs
5. School attendance will be set as a constant initially; to equal eighty-five percent (85%) of school age population. This simply means that not all school age children attend school for whatever reason (drop-outs, etc.).
6. Regarding school size, elementary schools will have a capacity of 750 students; middle schools, 800; junior high schools, 1000; and high schools, 1500. Actual enrollments (2006 data-see below) were useful in setting these capacities.

7. Public school systems will tolerate a certain amount of overcrowding at a particular facility before the decision is made to build a new school. This figure will be set at 9% over capacity. Temporary classroom facilities will be used to accommodate school attendance up to the 9% overcapacity.
8. Private schools will also be included in projections. It is further assumed that private schools and parochial school systems have more flexibility in expanding to meet increasing attendance figures. In some cases it was assumed that there would be a new private/parochial school in a particular Planning District in a particular forecast year because of the size of the increase projected.

The starting point for the projection methodology is the 2004 base year data supplied by CRPC. Using population figures for the study area developed by the Delphi process for each Planning District, school age *population* figures for each target year were assigned using a constant percentage (82%) of total population in the 2004 data, then applied to Planning District population for each target projection year generated through the Delphi process. The result was school age population for each Planning District for each target year. A second distribution was then made to the TAZ level in each Planning District using ratios in the 2004 data applied on a pro-rata basis to projected figures supplied by Delphi. In this manner school age population figures were developed for each TAZ for each target year. Ratios in the 2004 data were used as the basis for projection and these ratios where held constant, then applied against population increases projected by Delphi. After school locations were identified and geo-coded on a base maps reflecting TAZ boundaries for each Planning District, manual school attendance adjustments were made to account for schools actually located in a different TAZ than shown in original data. Although a TAZ could have school age *population* (a function of total population), it could have school *attendance* only if a school were actually located in that particular TAZ.

Data for each individual school was obtained from two primary sources. One was the Louisiana Department of Education (www.doe.state.la.us) and the other was the National Center for Education Statistics (http://nces.ed.gov). These sites provided 2006 school attendance figures for each public school and provided location information such that each school could be geo-coded and shown on the Planning District/TAZ map. These data obviously included the “Katrina effect” in terms of school attendance increases caused by this storm. At the start there were a few TAZ with no schools and, consequently, no school attendance figures. Due to school attendance increases, however, new schools were added in some instances by forecast year 2032. It should be noted that projections of school attendance in some instances indicated that a new school would be necessary because of approaching capacity constraints. Since it would not necessarily be possible to bring this facility on line in that particular target/forecast year, say 2012, it would more than likely be built and become operational within the next few years, but prior to the next forecast year, 2022 in this case. In those circumstances the new school year would be shown as operational in the next forecast year.

Some discrepancies between the CRPC supplied data for 2004 and the 2006 school data were noted. In a few cases the former data source listed no schools in a given TAZ and, consequently, listed no school attendance for that particular TAZ. In those cases where a school does in fact exist in a particular TAZ, in contrast to the CRPC data, the school was geo-coded and school attendance figures were projected for all forecast years with the exception of the base year.

For each target or forecast year the number of students to be assigned to the Planning District was developed based on the technique described above and distributed to specific TAZ on the previously discussed pro-rata basis (note: no school; no school attendance figures). In those cases where a TAZ contained more than one school, new school attendance figures were distributed to each school on a pro-rata basis taking into account capacity constraints and balancing. For simplification the focus was on elementary, middle, junior highs, and high schools. No day care centers, adult education facilities, or similar educational facilities were given attendance figures or projections. These facilities, however, were accounted for in the final model data spreadsheet since they were contained in the 2004 base year data.

Household Data

Other variables contained in the TransCAD model input were projected based on ratios obtained from careful scrutiny of the 2004 base year data supplied by CRPC. These ratios were held constant for each target year projection and applied to the appropriate base number to obtain the specific projected variable. Data generated in this manner were subjected to one more scrutiny to ensure a reasonable "fit".

Final Revisions

CRPC advised that there were certain developments proposed for the study area that should be addressed in the data forecast. Some of these were residential only developments, while some included residential and retail and non-retail business facilities. The Consultant Team add essed these issues and endeavored to keep the Planning District totals (both population and employment) as close to the Delphi process-generated totals as possible with the assumption that the participants in the process were aware of these proposed developments when they made their population and employment assignments. One exception to this might be the Pinnacle Riverboat Casino development in Planning District 16, TAZ 79. This development might not have been widely anticipated in September - October, 2006, when the Delphi process was conducted. Additional employment was factored into that TAZ to account for the Casino.
A list of these proposed developments follows.

Also, **Table 30** on a following page summarizes the base year 2004 and the future years' socio-demographic data for the study area.

District 3/TAZ 352 and 353 show a great fluctuation in population during the plan period. Are TAZs 352 and 353 the site of "Renaissance Village" and if so, does that explain the fluctuation?

District 32/TAZs 534 and 536 include the Satsuma Interchange which is reported to contain the future Suma Crossing Development. This development is purported to include 985 new residences and substantial medical and retail space.

District 31and 32/TAZ 496 and 497 contains the Juban Road Interchange which is reported to contain the Juban Crossing, a proposed development which will include an elementary and middle school and 500 acres for a planned residential development.

District 1/TAZ 362 is on the north side of the Study Area near Zachary. The Meadows development containing 317 acres and 617 residences is proposed in this location.

District 17/TAZ 413 or 414 is in Port Allen. A large development of 690 homes is proposed in this area.

District 8/TAZ 3 is in downtown Baton Rouge near the river. A large high rise condo development is planned for this area.

District 8/TAZ 8 contains the new US Post Office will have 200 employees.

District 16/TAZ 79 is the site of the proposed Pinnacle Complex.

District 32/TAZs 534 and 536 are the Satsuma Interchange. A three (3) story $15million hospital is proposed for this area with 1.1 million square feet of medical office space and 610 thousand square feet of retail space.

District 22/TAZs 424, 425 and 426 are in District 22 on the map yet on the spreadsheet TAZ 424 is located in District 19. Please correct.

District 32/TAZ 496 and 497 is the Juban Interchange with a large scale retail complex planned in the near future.

TABLE 30
BASE YEAR AND FORECAST YEARS PLANNING DATA FOR THE STUDY AREA

DEMOGRAPHIC DATA VARIABLE	YEAR				
	2004	2009	2012	2022	2032
POPULATION	611,158	687,294	711,840	747,889	808,906
OCCUPIED DWELLING UNITS	232,634	261,168	270,459	284,174	307,320
RETAIL EMPLOYMENT	52,820	63,504	67,041	74,527	83,815
TOTAL EMPLOYMENT	287,290	328,694	345,897	382,665	430,244
SCHOOL ATTENDANCE	156,048	187,424	200,272	210,196	221,871

DEVELOP EXISTING PLUS COMMITTED (E+C) TRANSIT AND HIGHWAY NETWORK

Highways

The Consultant Team defined the base year highway network as the system in place in 2004. The Team defined the committed projects as those which would improve traffic capacity and which were completed, were under construction or were let for bidding in the years 2005 – 2006. The Team also included in this group projects for which lettings were imminent (proposed for letting in the first six months of 2007). LA DOTD and the East Baton Rouge City-Parish Department of Public Works provided input in this regard. The Team presents the committed projects in **Table 31** and **Figure 34** following.

TABLE 31
COMMITTED STREET AND HIGHWAY PROJECTS

PARISH	ROUTE	LOCATION	IMPROVEMENT
ASC	US 61	S JCT LA42 – LA 427	RT TURN LANE
ASC	LA 73	LA 74 -- I-10	WIDEN TO 3 LANES
ASC	LA 74	AT LA 73	INTERSECTION
ASC	LA 22	AT 1-10	WIDEN TO 3 LANES
ASC	LA 22	AT I-10	INTERSECTION
ASC	LA 73	LA 73 @ LA 621@ I-10	INTERCHANGE
EBR	LA 427	LA 3064 – LA 3246	WIDEN TO 5 LANES
EBR	LA 3064	I-10 -- I-12	WIDEN TO 5 LANES
EBR	I-12	ESSEN LN -- I-12 EB	NEW ON-RAMP
EBR	US 61	AT SIEGEN LANE	INTERSECTION(CFI)
EBR	US 61	AT JEFFERSON HWY	INTERSECTION
EBR	US61	JEFF HWY -- FLORIDA BLVD	WIDEN TO 6 LANES
EBR	LA 19	AT GROOM ROAD	INTERSECTION
EBR	GROOM ROAD	AT LA 964	INTERSECTION
EBR	LA 19	LAVEY LN -- TWIN OAKS	WIDEN TO 5 LANES
EBR	I-10	AT PICARDY AVE	NEW INTERCHANGE
EBR	I-10	BLUEBONNET-SIEGEN	FRONTAGE RDS
EBR	I-10	BLUEBONNET-SIEGEN	NEW OFF-ON RAMPS
EBR	MILLERVILLE ROAD	I-12 -- LA 426	WIDEN TO 5 LANES
EBR	LA 426	AT MILLERVILLE RD	INTERSECTION
EBR	BARRINGER-FOREMAN	AT US 61	INTERSECTION
EBR	LA 426	US 61-BLVD PROVINCE	WIDEN TO 5 LANES
EBR	LA 426	AT SHARP RD	INTERSECTION

TABLE 31, CONT'D.
COMMITTED STREET AND HIGHWAY PROJECTS

PARISH	ROUTE	LOCATION	IMPROVEMENT
EBR	LA 426	N HARRELL'S FERRY	NEW INTERSECTION
EBR	CENTRAL THRUWAY	FR. TOWN-SULLIVAN	NEW 4 LANE
EBR	SHERWOOD FOREST	SHERWOOD @ I-12	INTERCHANGE
EBR	LA 946	JONES BAY.-HOOPER	WIDEN TO 5 LANES
EBR	LA 946	LOVETT RD	INTERSECTION
EBR	GEORGE O'NEAL	JONES CREEK-ONEAL	WIDEN TO 5 LANES
EBR	NORTH BOULEVARD	N 22ND ST TO N 9TH ST	NEW RR OVERPASS
EBR	LOBDELL AVE	JEFF TO GOODWOOD	WIDEN TO 3 LANES
EBR	FLORIDA BLVD	AT OAK VILLA BLVD	INTERSECTION
EBR	JEFFERSON HWY	AT BARRINGER-FORE.	INTERSECTION
EBR	E PARKER ST	AT S STADIUM RD	INTERSECTION
EBR	COURSEY BLVD	AT S PARK AVE	INTERSECTION
EBR	HIGHLAND ROAD	AT KENILWORTH BLVD	INTERSECTION
EBR	MILLERVILLE RD	I-12 - HARRELLS FERRY	WIDEN TO 5 LANES
LIV	I-12	I-12 AT LA 1026	NEW INTERCHANGE
LIV	LA 1019	LA 1019 AT LA 16	INTERSECTION
LIV	I-12	I-12 AT LA 3002	INTERCHANGE
LIV	I-12	I-12 @ LA 447	INTERCHANGE
LIV	US 190	US 190 AT LA 1026 E	INTERSECTION
LIV	LA 16	LA 1025 TO WATSON	WIDEN TO FOUR LANES W / LT LANES

FIGURE 34
E+C ROAD NETWORK.
INSERT TRAVEL DEMAND MODEL

Transit

East Baton Rouge City-Parish has a viable and customer-oriented bus transit system. The system of 17 fixed-routes utilizes City-Parish roads and State of Louisiana highways and has a terminal at the intersection of US 190 Business (Florida Boulevard) and 22nd Street. This comprises the basic infrastructure of the system. The system serves the immediate Baton Rouge area. **Figure 35** on the following page illustrates the general system routes and the Central Business District route, respectively.

This transit system is named the Capital Area Transit System (CATS). The transit system provides an array of services to the citizens of Baton Rouge. Among those services are the following:

1. ***The 17 fixed-routes referred to above including free trolley service for the Central Business District***. It is noteworthy that Route 17-Bluebonnet extends its service to the Veterans Administration Clinic on Essen Park Lane on weekdays and to Citiplace retail and business office complex on Corporate Boulevard at nights and on Sundays.

2. ***Routes within the Louisiana State University and Southern University campuses, and to and from the Baton Rouge Community College Main Campus and its Frazier Building, all without fares***. Additionally, faculty members, staff members and students affiliated with these colleges may ride free on the 17 fixed-routes by presenting their school ID.

3. ***Special service for citizens with disabilities***. This service is named "CATS on Demand" and provides service for such people within three-quarters of a mile of the fixed-routes. It is noteworthy that most buses on the fixed routes can accommodate customers with wheel chairs.

4. ***Bike racks for cyclists.***

In an article in the July 27, 2007, edition of the Baton Rouge Advocate, CATS interim CEO and general manager John Denman reported that almost 12,000 riders used the transit system on June 21, 2007, during the "Dump the Pump" day. CATS charged no fares that day to encourage ridership. Mr. Denman also advised in the article that average daily ridership on the CATS system has been about 8,300 people in 2007. Ironically, in the April, 1992 Baton Rouge Metropolitan Area Transportation Plan Update, the consultant reported an annual daily ridership of 12,500 people. Hence, there is a need and thus a market for a transit system in Baton Rouge.

The Capital Region Planning Commission has proposed a concept of bus rapid transit (minimal stops) and light rail commuter lines between the cities of Baton Rouge and Walker. **Table 32** on the following pages relates possible alignments and bus stations and stops. Proposed bus rapid transit lines A and B as shown in **Table 32** would run concurrently. The concept requires further consideration of increasing congestion on the area's roads versus the popular one-person-per-vehicle trend versus available financing**.**

FIGURE 35
CATS NETWORK

TABLE 32
CONCEPTUAL ROUTES AND BOARDING STOPS
BUS RAPID TRANSIT ROUTE A
WALKER TO BATON ROUGE

BEGIN IN WALKER, US 190 AT LA 447 (STATION / STOP)

SOUTH ON LA 447 TO I-12

WEST ON I-12 TO DENHAM SPRINGS

NORTH ON LA 3002 (SOUTH RANGE AVENUE) TO US 190 (FLORIDA BOULEVARD) (STATION / STOP)

WEST ON US 190 (FLORIDA BOULEVARD) TO O'NEAL LANE (STOP)

WEST ON US 190 (FLORIDA BOLEVARD) TO SHERWOOD FOREST (STOP)

WEST ON US 190 (FLORIDA BOULEVARD) TO US 61 (AIRLINE HIGHWAY) FOR STATION / STOP AT CORTANA MALL

WEST ON US 190 (FLORIDA BOULEVARD) TO BATON DOWNTOWN DEVELOPMENT DISTRICT (STATION / STOP)

NORTH – SOUTH ON TROLLEY ROUTE (SEE CATS MAP)

BUS RAPID TRANSIT ROUTE B
WALKER TO BATON ROUGE

BEGIN IN WALKER, US 190 AT LA 447 (STATION / STOP)

SOUTH ON LA 447 TO I-12

WEST ON I-12 TO DENHAM SPRINGS

WEST ON I-12 TO O'NEAL LANE (STOP)

WEST ON I-12 TO MILLERVILLE ROAD (STOP)

WEST ON I-12 TO SHERWOOD FOREST BOULEVARD (STOP)

WEST ON I-12 TO BATON ROUGE DOWNTOWN DEVELOPMENT DISTRICT (STATION / STOP)

NORTH – SOUTH ON TROLLEY ROUTE (SEE CATS MAP)

TABLE 32, CONTINUED
CONCEPTUAL ROUTES AND BOARDING STOPS
COMMUTER RAIL LINE ROUTE
DENHAM SPRINGS TO BATON ROUGE

BEGIN IN DENHAM SPRINGS, LA 16 (NORTH RANGE AVENUE) AT CANADIAN NATIONAL ILLINOIS CENTRAL RAILROAD CROSSING (STATION / STOP)

WEST ALONG CNIC RAILROAD CORRIDOR TOWARDS BATON ROUGE

STATION / STOP AT CROSSING WITH NORTH SHERWOOD FOREST BOULEVARD

WEST ON CNIC RAILROAD CORRIDOR (ALONG CHOCTAW ROAD) TO DOWNTOWN BATON ROUGE, STATION / STOP NEAR LA DOTD HQ ALMOST TO MISSISSIPPI RIVER (ONE-QUARTER MILE OR SO)

TRANSIT CONNECTIVITY TO BATON ROUGE DOWNTOWN DEVELOPMENT DISTRICT

ASSIGN TO E + C NETWORK TRAFFIC FOR YEARS 2004 (BASE YEAR), 2009 (ATTAINMENT YEAR), 2012, 2022, AND 2032.

The Consultant Team applied the travel demand estimation model described in Technical Memorandum Number 1 and used the forecast planning data, external trip forecasts and the E+C Network to predict link traffic volumes for the above years. Forecast planning data and the E + C Network were described earlier above.

External Trip Forecast

The Consultant Team undertook and completed an external survey as described in Technical Memorandum Number 1 for this Update. The external survey instrument was designed based on the understanding of model specifications at that time. Furthermore, the survey was used to generate information on external travel which consists of external-internal (EI) trips and external-external (EE) trips. EI trips have one end of the trip inside the study area and the other outside. EE trips pass through the study area having no origin or destination within the study area. The Consultant Team analyzed the data and determined the magnitude of EI and EE trips at the 23 stations of the survey.

The Team developed and applied a ten-year traffic growth factor at each external station to project the survey counts to the years 2009, 2012, 2022 and 2032. The Team divided the traffic at each station into EI and EE trips and assumed there would not be a significant change in the distribution from the survey year. The traffic forecast for each external station is shown in **Table 33.**

TABLE 33
TRAFFIC ASSIGNMENT FORECAST
AT EXTERNAL STATIONS

STATION	HWY	2005 TRAVEL SURVEY			2009 FORECAST		
		COUNT	E – I	E – E	VOLUME	E – I	E - E
901	US 61	16,627	13,306	3,321	17,846	14,281	3,565
902	LA 964	3,065	3,065	0	3,170	3,170	0
903	LA 19	8,227	6,948	1,279	8,928	7,541	1,388
904	LA 67	6,827	6,116	711	7,259	6,503	756
905	LA 409	578	578	0	598	598	0
906	LA 37	2,852	2,576	276	3,009	2,717	291
907	LA 16	6,711	5,444	1,267	7,349	5,962	1,387
908	LA 449	1,870	1,870	0	1,985	1,985	0
909	LA 63	1,595	1,595	0	1,767	1,767	0
910	US	9,583	8,289	1,294	10,412	9,006	1,406
911	I-12 E	43,856	29,670	14,186	47,241	31,960	15,281
912	LA 42	3,162	3,054	108	3,484	3,365	119
913	LA 444	2,784	2,676	108	3,059	2,940	119
914	LA 22	6,729	5,911	818	7,214	6,337	877
915	I-10 E	31,036	21,302	9,734	33,746	23,162	10,584
916	US 61	10,564	8,650	1,914	11,492	9,410	2,082
917	LA 70	14,709	10,710	3,999	16,010	11,657	4,353
918	LA 44	5,326	5,134	192	5,799	5,590	209
919	LA 1 S	25,326	19,560	5,766	27,216	21,020	6,196
920	I-10 W	36,253	20,205	16,048	38,775	21,610	17,164
921	LA 76	2,365	2,329	36	2,524	2,486	38
922	190W	28,950	20,938	8,012	30,683	22,192	8,492
923	LA 415	1,061	989	72	1,085	1,012	74

TABLE 33, CONTINUED
TRAFFIC ASSIGNMENT FORECAST
AT EXTERNAL STATIONS

STATION	HWY	2012 FORECAST			2022 FORECAST		
		VOLUME	E – I	E – E	VOLUME	E – I	E - E
901	US 61	19,266	15,418	3,848	23,037	18,435	4,602
902	LA 964	3,267	3,267	0	3,556	3,556	0
903	LA 19	9,799	8,276	1,523	12,045	10,173	1,872
904	LA 67	7,735	6,929	806	9,032	8,091	941
905	LA 409	617	617	0	672	672	0
906	LA 37	3,173	2,866	307	3,632	3,281	351
907	LA 16	8,184	6,639	1,545	10,288	8,346	1,942
908	LA 449	2,110	2,110	0	2,454	2,454	0
909	LA 63	2,007	2,007	0	2,596	2,596	0
910	US	11,448	9,902	1,546	14,113	12,207	1,906
911	I-12 E	51,267	34,684	16,583	61,855	41,847	20,008
912	LA 42	3,921	3,787	134	5,006	4,835	171
913	LA 444	3,425	3,292	133	4,341	4,173	168
914	LA 22	7,776	6,831	945	9,271	8,144	1,127
915	I-10 E	37,147	25,496	11,651	45,877	31,488	14,389
916	US 61 S	12,660	10,367	2,293	15,653	12,817	2,836
917	LA 70	17,653	12,853	4,800	21,858	15,915	5,943
918	LA 44	6,397	6,166	231	7,163	6,905	258
919	LA 1 S	29,434	22,733	6,701	35,303	27,265	8,038
920	I-10 W	41,652	23,214	18,438	49,364	27,512	21,852
921	LA 76	2,704	2,663	41	3,189	3,140	49
922	US190	32,558	23,547	9,011	37,711	27,274	10,437
923	LA 415	1,106	1,031	75	1,170	1,091	79

TABLE 33, CONTINUED
TRAFFIC ASSIGNMENT FORECAST
AT EXTERNAL STATIONS

STATION	HWY	2032 FORECAST		
		VOLUME	E – I	E – E
901	US 61 N	26,808	21,453	5,355
902	LA 964	3,845	3,845	0
903	LA 19	14,292	12,071	2,221
904	LA 67	10,329	9,253	1,076
905	LA 409	727	727	0
906	LA 37	4,091	3,695	396
907	LA 16 N	12,392	10,053	2,339
908	LA 449	2,798	2,798	0
909	LA 63	3,184	3,184	0
910	US 190E	16,778	14,512	2,266
911	I-12 E	72,443	49,010	23,433
912	LA 42	6,090	5,882	208
913	LA 444	5,258	5,054	204
914	LA 22	10,767	9,458	1,309
915	I-10 E	54,608	37,481	17,127
916	US 61 S	18,647	15,269	3,378
917	LA 70	26,063	18,977	7,086
918	LA 44	9,459	9,118	341
919	LA 1 S	41,171	31,798	9,373
920	I-10 W	57,077	31,811	25,266
921	LA 76	3,674	3,618	56
922	US190	42,865	31,002	11,863
923	LA 415	1,235	1,151	84

Internal Trip Forecast

The Consultant Team applied the trip generation program using the 2009, 2012, 2022, and 2032 data files. The program calculated the productions and attractions by traffic zone. The comparison of trip productions by purpose for 2004 and for the target years is shown in **Table 34** below.

TABLE 34
FORECAST TRIP PRODUCTION

TRIP PURPOSE	2004	2009	2012	2022	2032
Home-Based Work	**385,993**	**433,515**	**449,359**	**471,938**	**510,074**
Home-Based Other	**1,014,797**	**1,141,594**	**1,182,518**	**1,241,813**	**1,342,283**
Non-Home Based Work	**370,305**	**415,458**	**430,373**	**453,165**	**490,761**
Non-Home Based Other	**501,544**	**572,839**	**597,062**	**641,252**	**703,935**
Commercial Vehicle	**213,417**	**243,739**	**254,647**	**275,157**	**303,893**
External - Internal	**200,915**	**216,272**	**234,696**	**282,218**	**331,220**
Home-Based School	**146,703**	**165,394**	**171,361**	**179,871**	**194,381**
Total	**2,833,675**	**3,188,811**	**3,320,016**	**3,545,415**	**3,876,546**

The Consultant Team distributed the trips between zone pairs. The Team used the equilibrium traffic assignment model to load the trips on the network based on minimum time paths.

Generalized Roadway Capacities

The Team compared the assigned volume to the capacity of each link and calculated volume/capacity (v/c) ratios for the network. **Table 35** below presents generalized roadway capacities used in the calculations.

TABLE 35
GENERALIZED ROADWAY CAPACITIES
Existing and Future Facilities

FACILITY TYPE	NUMBER OF LANES	24-HOUR CAPACITY (VEHICLES PER DAY)
FREEWAY	FOUR	68,000
	SIX	102,000
ARTERIAL	TWO (W/O LEFT TURN LANES)	11,000
	TWO (W/ LEFT TURN LANES)	15,000
	FOUR LANE UNDIVIDED	23,000
	FOUR LANE DIVIDED	27,000
	SIX LANE DIVIDED	39,000
	EIGHT LANE DIVIDED	51,000
COLLECTOR	TWO (W/O LEFT TURN LANES)	10,000
	TWO (W/ LEFT TURN LANES)	12,000
	FOUR LANE UNDIVIDED	20,000
	FOUR LANE DIVIDED	24,000
ONE-WAY STREETS	TWO (ARTERIAL)	12,500
	THREE (ARTERIAL)	20,000
	TWO (COLLECTOR)	10,000
	THREE (COLLECTOR)	18,000

Source: N-S, 1997, Derived from *1985 Highway Capacity Manual*

Identify Deficiencies

The Consultant Team compared the forecast traffic volume for each link with the capacity associated with that type of facility to forecast capacity deficiencies. The Team considers that those facilities with a projected v/c ratio greater than 1.00 are deficient. The Team also recommends that the appropriate jurisdictions place emphasis on correcting deficiencies for those facilities where the v/c ratio is greater than 1.20. Finally the Team presents **Figures 36 through 39** to reveal those roadways it estimates will be deficient by the years 2009, 2012, 2022, and 2032, respectively, based on excessive v/c ratios.

FIGURE 36
E+C NETWORK VOLUME TO CAPACITY 2009

FIGURE 37
E+C NETWORK VOLUME TO CAPACITY 2012

FIGURE 38
E+C NETWORK VOLUME TO CAPACITY 2022

FIGURE 39
E+C NETWORK VOLUME TO CAPACITY 2032

Summary of Deficiencies

Based on the methodology and results presented in this Technical Memorandum, the Consultant Team forecasts that the following major corridors will be deficient in the year 2009. This would include Interstate and principal arterial highways in the Baton Rouge Metropolitan Planning Office study area. These two functional classifications are as assigned by LA DOTD.

- US 61 (Scenic Highway) from I-110 to Old Scenic Highway
- US 61(Airline Highway) from US 190B(Florida Boulevard) to LA 44
- LA 19 from I-110 to Twin Oaks
- LA 19 from East Central Avenue to Port Hudson-Pride Road
- LA 67 (Plank Road) from US 61 (Airline Highway) to Lavey Lane
- LA 67 from Baker Boulevard to LA 64
- LA 37 (Greenwell Springs Road) from Lobdell Avenue to LA 64 (Magnolia Bridge Road)
- LA 37(Greenwell Springs Road) from LA 408(Hooper Road) to LA 64
- LA 16 from LA 1032 (River Road) to LA 1025 (Arnold Road)
- LA 16 for approximately three miles north of Watson
- US 190 (Florida Boulevard) from Fourth Street to Monterrey Boulevard
- US 190 (Florida Boulevard) from LA 3245 (O'Neal Lane) to LA 1032 (4-H Club Road)
- LA 426 (Old Hammond Highway) from South Sharp Road to approximately one-half mile west of South Sharp Road
- LA 426 (Old Hammond Highway) from Boulevard de Province to approximately three-fourths of a mile east of Millerville Road
- I-10 from LA 415 to I-12
- I-10 from I-12 to LA 73/LA 621
- I-12 from I-10 to LA 447
- Coursey Boulevard from US 61 (Airline Highway) to Sherwood Forest Boulevard
- LA 427 (Perkins Road) from I-10 to LA 1248 (Bluebonnet Boulevard)
- LA 427 (Perkins Road) from Siegen Lane to I-10
- LA 1248 (Bluebonnet Boulevard) from US 61 (Airline Highway) to I-10
- LA 1248(Bluebonnet Boulevard) from Picardy Avenue to North Oak Hills Parkway
- Lee Drive from Burbank to LA 427(Perkins Road)
- LA 3064(Essen Lane) from LA 427(Perkins Road) to LA 73(Jefferson Highway)
- LA 73(Jefferson Highway) from I-12 to LA 1248(Bluebonnet Boulevard)
- College Drive from LA 427(Perkins Road) to Foster Drive (+)
- Highland Road from Siegen Lane to US 61(Airline)
- Burbank Drive from Gourrier Avenue to Siegen Lane
- LA 30 (Nicholson Drive) from I-10 to LA 44
- LA 30(Nicholson Drive) from Gourrier Avenue to I-10 (Downtown BR)
- US 190 from LA 415 to approximately three miles west of LA 415
- US 190 from LA 1 to US 190B (Florida Boulevard)
- LA 415 from US 190 to I-10

- LA 1 from I-10 to approximately six miles south of I-10
- LA 42 from US 61(Airline Highway) to LA 44
- LA 44 from LA 931 to LA 935
- LA 64 (Magnolia Bridge Road) from LA 37 (Greenwell Springs Road) to LA 1028(Old River Road)

The Team forecasts that the following major corridors will be deficient by the year 2012, in addition to those listed above for the year 2009.

- LA 426 from approximately one-half mile south of South Sharp Road to Drusilla Lane
- LA 44 from LA 931 to LA 933
- LA 19 from Avenue A to East Central Avenue
- LA 16 from LA 1025(Arnold Road) to LA 1024(Hunstock Road)

The Team forecasts that the following major corridors will be deficient by the year 2022, in addition to those listed above for the years 2009 and 2012.

- US 61 (Scenic Highway) from Old Scenic Highway to Port Hudson-Plains Road
- LA 16 from LA 1024(Hunstock Road) to LA 1024(Cane Market Road)
- LA 3002(South Range Avenue) from I-12 to Highpoint Boulevard/Tate Street
- I-10 from LA 73/LA 621 to LA 44
- I-12 from LA 447 to Satsuma Road
- LA 1248 (Bluebonnet Boulevard) from I-10 to Picardy Avenue
- LA 1 from approximately six miles south of I-10 to approximately eight miles south of I-10
- LA 19 from its intersection with Port Hudson-Pride Road to a point approximately two miles north of Port Hudson-Pride Road

Finally, the Team forecasts that the following major corridors will be deficient by the year 2032, in addition to those listed above for the years 2009, 2012, and 2022.

- LA 37 (Greenwell Springs Road) from North Lobdell Boulevard to North Ardenwood Drive
- LA 37 from LA 64(Magnolia Bridge Road) to LA 408(Hooper Road)
- LA 16 from US 190(Florida Boulevard) to LA 1032(River Road)
- LA 426 (Old Hammond Highway) from its intersection with South Sherwood Forest Boulevard to approximately one-half of a mile east of that intersection
- I-10 from I-12 to LA 22
- I-12 from Satsuma Road to approximately one-half mile east of Satsuma Road
- LA 427 (Perkins Road) from LA 1248 (Bluebonnet Boulevard) to LA 42(Highland Road)
- LA 30 (Nicholson Drive) from I-10 to US 61
- US 190 from LA 415 to LA 1
- LA 1 from approximately eight miles south of I-10 to approximately ten miles south of I-10
- LA 44 from East Worthey Road to LA 935
- LA 64 (Magnolia Bridge Road) from LA 1028(Old River Road) to LA 16

VII. DEVELOP LONG-RANGE TRANSPORTATION PLAN

The Consultant Team used the Existing plus Committed (E + C) transportation network as a starting point in defining the test networks. **Figure 40** displays a map of the Baton Rouge Study Area with committed projects annotated in red. (The Team deemed as "E + C" those transportation projects which were completed, under construction or to be let to contract by June 31, 2007.)

The Team applied the developed TransCAD model to assign traffic to the Existing plus Committed transportation network for the milestone and horizon years. **Figure 41** displays the traffic forecast for the horizon year 2032.

The Consultant Team also compared the forecasted traffic volume for each link with the capacity associated with that type of facility to forecast capacity deficiencies. The Team considers that those facilities with a projected volume-to-capacity (v/c) ratio greater than 1.00 are deficient. The Team also recommends that the appropriate jurisdictions place emphasis on correcting deficiencies for those facilities where the v/c ratio is greater than 1.20. The Team identified highways which were deficient with the E + C network in place and with traffic volumes forecasted for the year 2032. The Team recommended improvements for these deficient facilities. The improvements might be in the form of an extension to an existing road, additional travel lanes, turn lanes, interchanges, or a new road. Many of the deficient highways are still listed in the Baton Rouge MPO's existing Long Range Plan, not yet having been improved. **Figure 42** displays the v/c ratios that can be expected in the year 2032 with the traffic forecasted and the Existing plus Committed transportation network in place.

Likewise, the Team reviewed future demographic growth and the projected ridership, operating budget, hours of service and rolling stock found in the updated Capital Area Transit System's (CATS') Fleet Replacement Tables and Strategic Plan. The Team made a recommendation regarding dedication of funds for the current transit system and for proposed Bus Rapid Transit and Commuter light rail systems for the Baton Rouge Area.

FIGURE 40

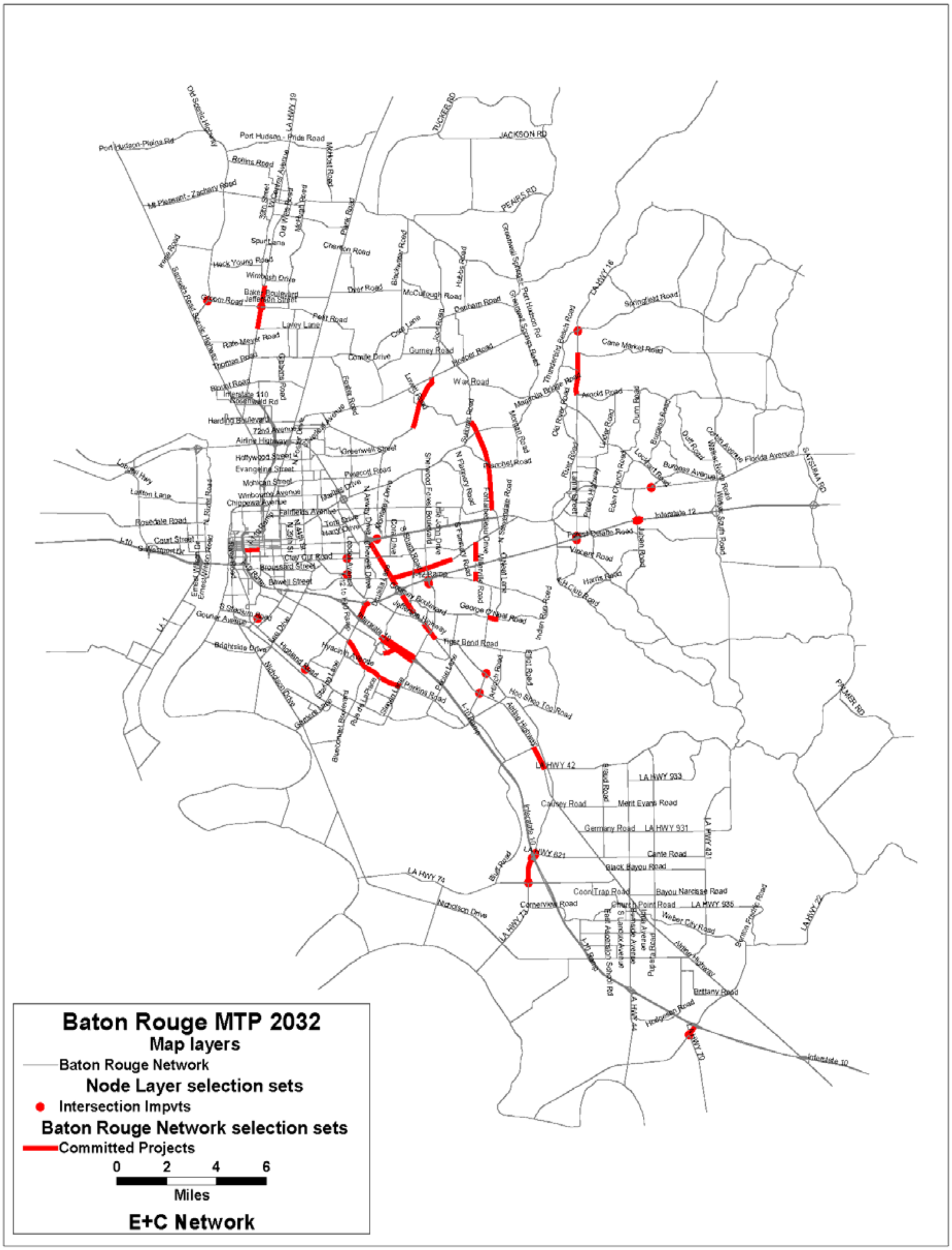

Baton Rouge MTP 2032
Map layers
Baton Rouge Network
Node Layer selection sets
Intersection Impvts
Baton Rouge Network selection sets
Committed Projects
0 2 4 6
Miles
E+C Network

FIGURE 41
E+C TRAVEL FORECAST FOR 2032

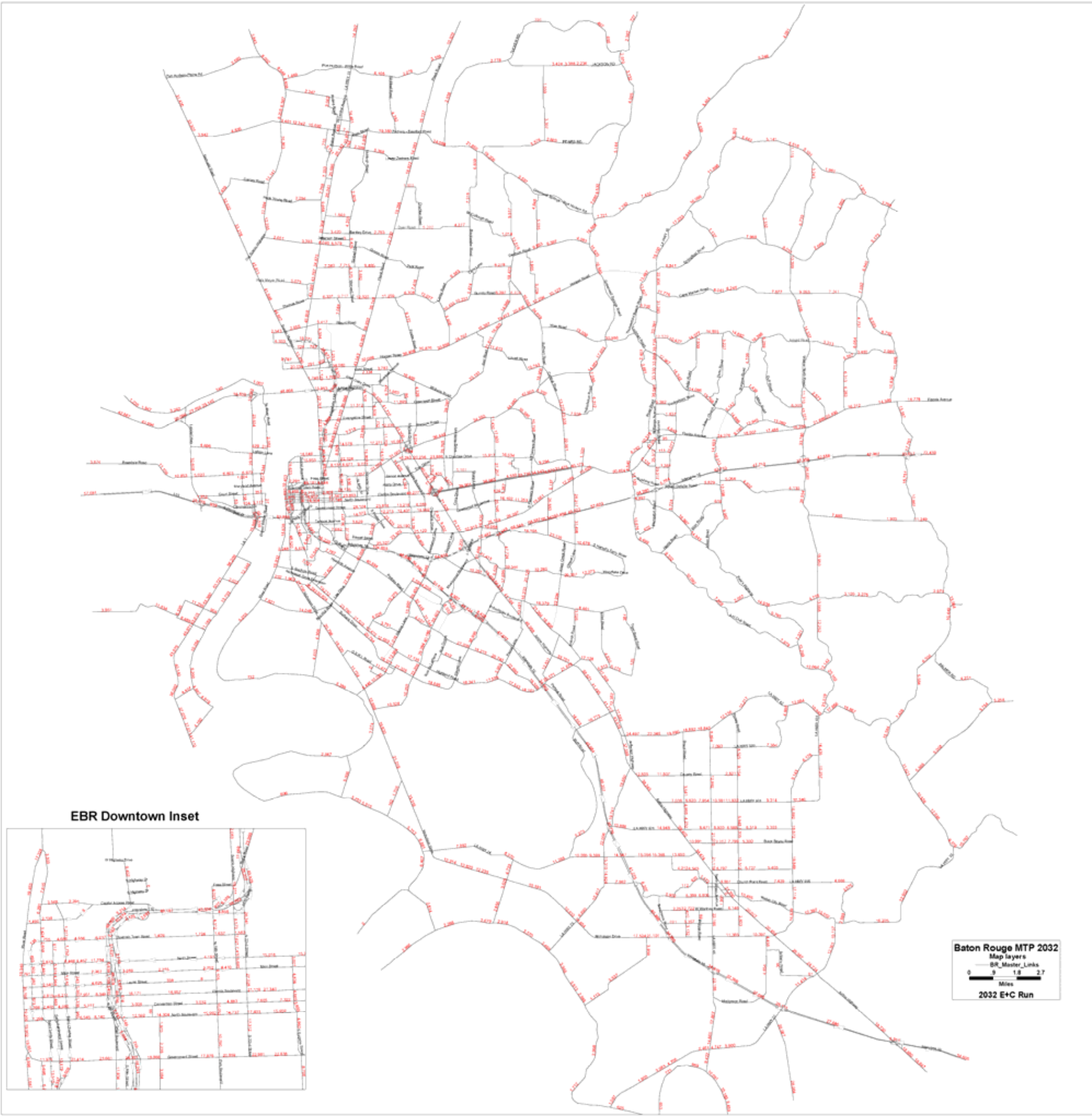
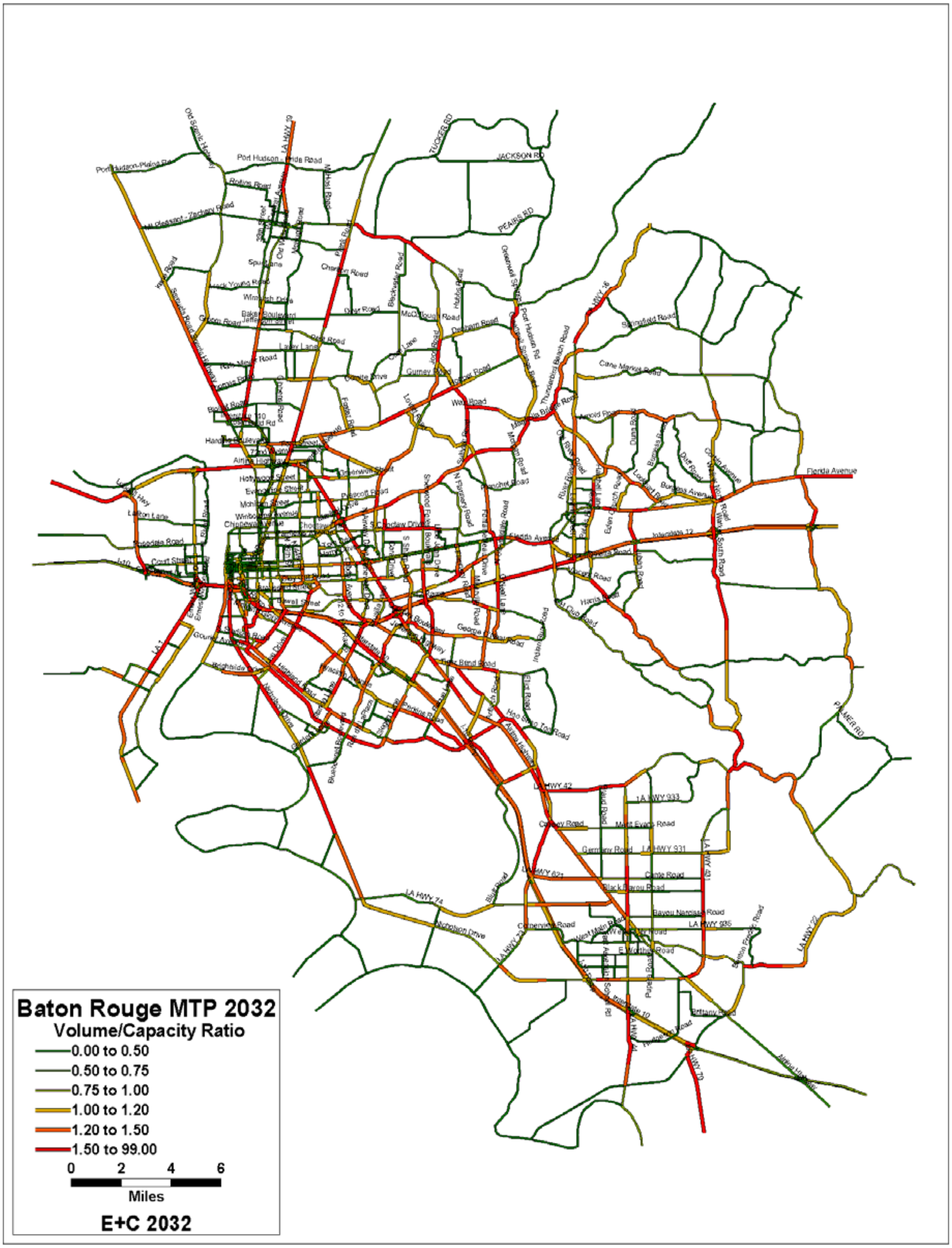


FIGURE 42


Baton Rouge MTP 2032
Volume/Capacity Ratio
0.00 to 0.50
0.50 to 0.75
0.75 to 1.00
1.00 to 1.20
1.20 to 1.50
1.50 to 99.00
0 2 4 6
Miles
E+C 2032

Develop Alternative Highway Networks

The Consultant Team developed a list of 100 projects to serve as candidates for improvements based on a detailed review of volume-capacity-related deficiencies shown in the previous **Figure 42** and on discussions with public officials. Many of these projects were eliminated from consideration because they represented special cases which would require an inordinate amount of funds to implement, or they were considered as possibly not being feasible due to physical constraints, or they were just considered as not needed relative to other candidate projects. Thus the Team reduced the list of potential projects to 39 and “mixed and matched” the projects to incorporate into three networks for further testing with the travel demand model.

In addition to the E + C highway network and projects remaining in the existing long range plan, the three test networks thus included various combinations of selected highway projects to widen to four and to six lanes, to construct two and four lane highways, and to construct new interchanges. Some projects were common to all three test networks because of previous authorization or because of the importance of the projects. Each group had to meet the State’s financial constraint.

The Consultant assigned the 2032 traffic volumes to each test network and determined the remaining deficiencies. The selected projects in the three networks and the deficiencies remaining following the traffic assignment process are described in greater detail below.

Test Network Number 1

The first network included selected new projects involving widening existing facilities. Major improvements under this category were the widening of:

- US 61 Airline Highway from Cedarcrest Drive to Perkins Road to six lanes.
- US 190 Florida Boulevard from LA 3245 O’Neal Lane to LA1032 4-H Club Road to six lanes
- LA 67 Plank Road from US 61 Airline Highway to LA 408 Hooper Road to six lanes.
- LA 42 Burbank Drive from LA 30 Nicholson Drive to 0.8 of a mile east thereof to six lanes.

Extensions included:

- LA 415 from I-10 to LA 1, new four-lane highway (connector road).
- LA 1026 Juban Road from US 190 to LA 1026 Lockhart Road, new two-lane highway.

New interchange:

- I-10 at Pecue Lane, joint project between LA DOTD and the City of Baton Rouge / Parish of East Baton Rouge.

Within Test Network 1, significant areas of congestion still remained on I-10, US 61, LA 22, LA 73, LA 44, LA 427 and LA 431 in **Ascension Parish**; on I-10 from the I-10 / I-12 split west to the Mississippi River Bridge, I-12 from the I-10 / I-12 split to the Livingston Parish Line, US 61 from I-12 north and west to the Mississippi River Bridge, Nicholson Drive from downtown Baton Rouge to LSU, Dalrymple Drive, Stanford Avenue, Lee Drive/College Drive, Essen Lane, Perkins Road from Stanford to Essen Lane, Burbank Drive near LSU, O'Neal Lane from S Harrell's Ferry Road to I-12, Greenwell Springs Road (sporadically from US 61 northward), Hooper Road, Plank Road, LA 19 Baker-Zachary Road, and Scenic Highway in **East Baton Rouge Parish**; LA 16 north and east of Port Vincent, LA 16 north of Watson, LA 447, Vincent Road, and Lockhart Road in **Livingston Parish**; and I-10 from the Mississippi River Bridge to LA415, LA 1 south of I-10, LA 415, and US 190 in **West Baton Rouge Parish.**

A detailed description of Test Network Number 1 is presented in **Figure 43** and in **Table 36**. The remaining deficiencies are shown in **Figure 44.**

FIGURE 43

IMPROVEMENTS INCLUDED IN TEST NETWORK 1

TABLE 36
TEST NETWORK NO. 1
SELECTED NEW PROJECTS

Name	Limits	Description
Ascension Parish		
LA 621	LA 73 to US 61	Widen to 4 Lanes
LA 70	I-10 to Study Area Southern Boundary	Widen to 4 Lanes
LA 44	LA 621 to LA 42	Widen to 4 Lanes
LA 30	LA 3251 to LA 44	Widen to 4 Lanes
East Baton Rouge		
I-10	At Pecue Lane	New I-10 Ramps
LA 30 (Nicholson Dr)	Ben Hur Road to LA 74	Widen to 4 Lanes
LA 42 (Burbank Dr)	LA 30 (Nicholson Dr) to 0.8 of a Mile East	Widen to 6 Lanes
Mickens Road	LA 946(Joor Rd) to LA 408(Hooper Rd)	Widen to 4 Lanes
LA 64	LA 946(Joor Rd) to LA 67(Plank Rd)	Widen to 4 Lns
LA 327(River Rd)	South Blvd to Brightside Lane	Widen to 4 Lanes
US 61(Airline Hwy)	Cedarcrest Dr to Perkins Rd)	Widen to 6 Lanes
LA 42(Highland Rd)	US 61 Airline Hwy to LA 73(Jefferson Hwy)	Widen to 4 Lanes
LA 67(Plank Rd)	US 61(Airline Hwy) to LA 408(Hooper Rd)	Widen to 6 Lanes
LA 37(Greenwell Springs Rd)	LA 64(Magnolia Bridge Rd) to LA 408(Hooper Rd)	Widen to 4 Lanes
LA 42(Highland Rd)	LA 3246(Siegen Ln) to LA 427(Perkins Rd)	Widen to 4 Lanes
US 190(Florida Blvd)	LA 3245(O'Neal Ln) to LA 1032(4-H Club Rd)	Widen to 6 Lanes
Livingston		
LA 447(Walker South/North Rds)	Duff Road to Hood/Hammack Rds	Widen to 4 Lanes
LA 3003(Rushing Rd)	LA 16(Pete's Hwy) to 0.5 Mile West of LA 3002 (Range Ave)	Widen to 4 Lanes
LA 16 (Pete's Hwy)/LA 1031(Hatchell Ln)	LA 1034(Vincent Rd) to LA 1030(Cockerham Rd)	Widen to 4 Lanes
LA 1026(Juban Rd)	Wax Rd to US 190	Widen to 4 Lanes
LA 1026(Juban Rd Extension)	US 190 to LA 1026(Lockhart Rd)	New 2 Lane
US 190(Florida St)	LA 1027(Burgess Rd) to LA 63(Frost Rd)	Widen to 4 Lanes
LA 64	LA 16(Range Rd) to LA 37(Greenwell Springs Rd)	Widen to 4 Lanes
West Baton Rouge		
LA 415-LA 1 Connector Rd	LA 415-LA 1	New 4 Lane Rd

FIGURE 44

REMAINING DEFICIENCIES

TEST NETWORK NUMBER 1

YEAR 2032 TRAFFIC AND TRANSIT ASSIGNMENTS

Test Network 2

Test Network 2 included selected projects to widen existing facilities from two- to four-lanes. Additional capital improvements included the following:

- LA 1 from Brusly to Iberville Parish Line to six lanes.
- I-12 at LA 1032 4-H Club Road, new interchange
- LA 1026 Juban Road Extension from US 190 to LA 1026 Lockhart Road.

Within this network, significant areas of congestion still remained on I-10, US 61, LA 22, and LA 431 in **Ascension Parish**; on I-10 from Ascension Parish Line to Siegen Lane, on I-10 from the I-10 / I-12 split west to the Mississippi River Bridge, I-12 from the I-10 / I-12 split to the Livingston Parish Line, US 61 from Ascension Parish Line to Siegen Lane, US 61 from I-12 north and west to the Mississippi River Bridge, River Road from I-10 to Skip Bertman Drive, Nicholson Drive from downtown Baton Rouge to LSU, Burbank Drive near LSU, Dalrymple Drive, Stanford Avenue, Lee Drive/College Drive, Essen Lane, O'Neal Lane/Central Thruway from South Harrell's Ferry Road to Frenchtown Road, Greenwell Springs Road (sporadically from US 61 northward), Hooper Road from Mickens Road to Lovett Road, Plank Road, LA 19 Baker-Zachary Road, and Scenic Highway in **East Baton Rouge Parish**; I-12 from Pete's Highway to Satsuma Road, LA 16 in French Settlement, LA 447 north of Port Vincent and LA 447 in Walker, US 190 east of Walker, LA 16 Pete's Highway from LA 1033 to LA 1034, Lockhart Road, LA 16 north of Denham Springs and LA 16 north of Watson in **Livingston Parish**; and I-10 from the Mississippi River Bridge to LA 415, LA 1 south of I-10, LA 415 and the proposed connector road between I-10 and LA 1, and US 190 in **West Baton Rouge Parish.**

A detailed description of Test Network 2 is presented in **Figure 45** and **Table 37**. The remaining deficiencies are shown in **Figure 46**.

FIGURE 45

IMPROVEMENTS INCLUDED IN TEST NETWORK 2

TABLE 37
TEST NETWORK NUMBER 2
SELECTED NEW PROJECTS

Name	Limits	Description
Ascension Parish		
LA 621	LA 73 to US 61	Widen to 4 Lns
LA 70	I-10 to Study Area Southern Boundary	Widen to 4 Lns
LA 44	LA 22 to I-10	Widen to 4 Lns
LA 431	LA 931 to LA 42 in Port Vincent	Widen to 4 Lns
LA 427(Perkins Rd)	LA 73 in ASC to LA 42 in EBR	Widen to 4 Lns
East Baton Rouge		
LA 3034(Wax Rd)	LA 37(Greenwell Springs Rd) to Sullivan Rd	Widen to 4 Lns
LA 30 (Nicholson Dr)	Ben Hur Road to LA 74	Widen to 4 Lns
Tiger Bend Rd	Jones Creek Rd to Antioch Rd	Widen to 4 Lns
LA 64	LA 946(Joor Rd) to LA 67(Plank Rd)	Widen to 4 Lns
LA 42(Highland Rd)	LA 3246(Siegen Ln) to LA 427(PerkinsRd)	Widen to 4 Lns
Livingston		
LA 447(Walker South/North Rds)	Duff Road to Hood/Hammack Rds	Widen to 4 Lns
LA 3003(Rushing Rd)	LA 16(Pete's Hwy) to 0.5 Mile West of LA 3002(Range Ave)	Widen to 4 Lns
LA 16 (Pete's Hwy)/ LA 1031(Hatchell Ln)	LA 1034(Vincent Rd) to LA 1030(Cockerham Road)	Widen to 4 Lns
LA 1026(Juban Rd)	Wax Rd to US 190	Widen to 4 Lns
LA 1026(Juban Rd Ext)	US 190 to LA 1026(Lockhart Rd)	New 2 Lane
LA 1034(Vincent Rd)	LA 3002(S Range Rd) to LA 1032(4-H Club Rd)	Widen to 4 Lns
I-12	At LA 1032(4-H Club Rd)	New Interchange
LA 16	LA 444 to LA 42/LA 16(F Settlement-P Vincent)	Widen to 4 Lns
LA 16	LA 42 in Port Vincent to LA 1032(4-H Club Rd)	Widen to 4 Lns
LA 1027(Burgess Ave)/LA 26	US 190 to LA 447	Widen to 4 Lns
LA 64(Magnolia Bridge Rd)	LA 16 (N. Range Ave) to LA 37(Greenwell Springs Rd)	Widen to 4 Lns
West Baton Rouge		
LA 415-LA 1 Connector Rd	LA 415-LA 1	New 4 Ln Rd
LA 1	Brusly to Iberville Parish Line	Widen to 6 Lns

FIGURE 46

REMAINING DEFICIENCIES

TEST NETWORK 2

YEAR 2032 TRAFFIC AND TRANSIT ASSIGNMENTS

Test Network 3

Test Network Number 3 included selected new projects involving widening existing facilities from two- to four-lanes. Additional capital improvements included the following:

- LA 67 Plank Road from US 61 Airline Highway to LA 408 Hooper Road to six lanes.
- US 61 Airline Highway from Cedarcrest Drive to LA 427 Perkins Road to six lanes.

Extensions:

LA 1026 Juban Road Extension from US 190 to LA 1026 Lockhart Road with two lanes.

LA 415 from I-10 to LA 1 (connector road) with four lanes.

New Interchange

- I-10 at LA 74.

The assignment of 2032 trips and expanded service to Test Network 1 resulted in traffic volumes in the range of ……..

Within Test Network 3, significant areas of congestion still remained on I-10, US 61, LA 22, LA 73, LA 44, and LA 30 in **Ascension Parish**; on I-10 from the I-10 / I-12 split west to the Mississippi River Bridge, I-10 from Ascension Parish Line to Siegen Lane, I-12 from the I-10 / I-12 split to the Livingston Parish Line, two sections of Florida Boulevard, US 61 from Florida Boulevard north and west to the Mississippi River Bridge, River Road from I-10 to Skip Bertman Drive, Nicholson Drive from downtown Baton Rouge to LSU, Dalrymple Drive, Stanford Avenue, Lee Drive/College Drive, Essen Lane, Perkins Road from Stanford to Essen Lane, Burbank Drive near LSU, Highland Road from Siegen Lane to I-10, Barringer Foreman Road from Old Perkins to Jefferson Highway, on three sections of Greenwell Springs Road, Hooper Road from Mickens to Lovett Roads, Plank Road from Airline to Groom Road, two sections of LA 19 Baker-Zachary Road, and Scenic Highway in **East Baton Rouge Parish**; I-12 from Livingston Parish Line to LA 447, LA 16 north and east of Port Vincent, LA 16 north of Watson, LA 447 in Walker and from Hood Road to LA 16, LA 16 from Juban Road to Vincent Road, and a short section of Florida Boulevard from the Livingston Parish Line to 4-H Club Road in **Livingston Parish**; and I-10 from the Mississippi River Bridge to LA415, LA 1 south of I-10, LA 415 and the proposed connector road between I-10 and LA1, and US 190 in **West Baton Rouge Parish.**

A detailed description of Test Network 3 is presented in **Figure 47** and **Table 38**. The remaining deficiencies are shown in **Figure 48**.

FIGURE 47

IMPROVEMENTS INCLUDED IN TEST NETWORK NUMBER 3

TABLE 38
TEST NETWORK NUMBER 3
SELECTED NEW PROJECTS

Name	Limits	Description
Ascension Parish		
LA 74	LA 73 to US 61	Widen to 4 Lns
LA 70	I-10 to Study Area Southern Boundary	Widen to 4 Lns
I-10	At LA 74	New Interchange
LA 431	US 61 to LA 931	Widen to 4 Lns
LA 30	LA 3251 to LA 44	Widen to 4 Lns
East Baton Rouge		
LA 30 (Nicholson Dr)	Ben Hur Rd to LA 74	Widen to 4 Lns
Tiger Bend Rd	Jones Creek Rd to Antioch Rd	Widen to 4 Lns
LA 64	LA 946(Joor Rd) to LA 67(Plank Rd)	Widen to 4 Lns
LA 67(Plank Rd)	US 61(Airline Hwy) to LA 408(Hooper Rd)	Widen to 6 Lns
US 61(Airline Hwy)	Cedarcrest Dr to LA 427(Perkins Rd)	Widen to 6 Lns
LA 42	US 61(Airline Hwy) to LA 73(Jefferson Hwy)	Widen to 4 Lns
LA 37(Greenwell Springs Rd)	LA 408(Hooper Rd) to LA 64(Magnolia Bridge Rd)	Widen to 4 Lns
Livingston		
LA 447(Walker South/North Roads)	Duff Rd to Hood/Hammack Rds	Widen to 4 Lns
LA 3003(Rushing Rd)	LA 16(Pete's Hwy) to 0.5 Mile West of LA 3002(Range Ave)	Widen to 4 Lns
LA 16 (Pete's Hwy)/LA 1031(Hatchell Ln)	LA 1034(Vincent Rd) to LA 1030(Cockerham Rd)	Widen to 4 Lns
LA 1026(Juban Rd)	Wax Rd to US 190	Widen to 4 Lns
LA 1026(Juban Rd Extension)	US 190 to LA 1026(Lockhart Rd)	New Two Lane
LA 64	LA 16(Range Ave) to LA 37(Greenwell Springs Rd)	Widen to 4 Lns
US 190 (Florida St)	LA 1027(Burgess Ave) to LA 63(Frost Rd)	Widen to 4 Lns
LA 1026(Lockhart Rd)	LA 16(North Range Ave) to LA 1027	Widen to 4 Lns
West Baton Rouge		
LA 415-LA 1 Connector Rd	LA 415 to LA 1	New 4 Lane Rd

FIGURE 48

REMAINING DEFICIENCIES

TEST NETWORK NUMBER 3

YEAR 2032 TRAFFIC AND TRANSIT ASSIGNMENTS

Comparison of Alternative Networks

The analysis of the assignment of the year 2032 trips to the E + C Network (previous **Figure 41**) indicated a definite need for additional improvements to the Baton Rouge transportation system. Without capacity or continuity improvements, severe congestion will occur virtually throughout the system.

The overall level of service provided by each network can be measured not only in terms of assigned volumes and projected capacity deficiencies, but also in total vehicle miles traveled, total vehicle hours traveled, and average speed and network v/c ratio. A comparison of these characteristics for the three Test Networks Scenarios is shown in **Table 39**. As can be seen from the below table, incorporating the projects of the three test networks left room for improvement in terms of network average speed and percentage of vehicle miles traveled on network links with v / c ratios greater than 1.2.

TABLE 39
COMPARISON OF TEST NETWORK CHARACTERISTICS

TEST NETWORK NUMBER	NETWORK VMT	NETWORK VHT	NETWORK AVERAGE SPEED	NETWORK VHD	NETWORK AVERAGE MAX V / C *	% of VMT On Links with V / C > 1.2
1	26,352,822	848,442	31.06	224,434	0.59	37.9
2	26,364,602	854,901	30.84	230,473	0.59	40.9
3	26,318,801	849,457	30.98	226,644	0.58	38.5

RECOMMENDED PLAN

The Project Team observed that highway congestion would be reduced on the one hand but moved from one location to another on the other hand by implementation of the three test networks (See previous **Figures 44, 46 and 48**). The Team also concluded that volume/capacity deficiencies would remain on the highway system in the Baton Rouge Study Area in spite of the introduction of any of the three test networks or any similar network so financially constrained. The extent of the deficiencies was just too great to be overcome in one fell swoop with the funds available (See previous **Figure 42**).

Hence the Team further selected from the three test networks a group of affordable projects most likely to promote traffic flow in the Area. These selected projects were incorporated into the long range transportation plan. The list of these projects is presented in **Table 40**. The projects in **Table 40** plus the projects remaining in the existing Plan, in the STIP, and in the TIP comprise the long range transportation plan for this Update and are listed in stages in Section VIII of this report.

TABLE 40
RECOMMENDED SCENARIO - SELECTED NEW PROJECTS

Name	Limits	Description
Ascension Parish		
LA 621*	LA 73 to US 61	Widen to 4 Lns
LA 73	I-10 to LA 74	Widen to 4 Lns
LA 70	I-10 to Study Area Southern Boundary	Widen to 4 Lns
LA 44	LA 621 to LA 42	Widen to 4 Lns
LA 30*	LA 3251 to LA 44	Widen to 4 Lns
East Baton Rouge		
I-10*	At Pecue Ln	New Interchange Ramps
LA 30(Nicholson Dr)*	Ben Hur Rd to LA 74	Widen to 4 Lns
LA 42 (Burbank Dr)	LA 30 (Nicholson Dr) to 0.8 of a Mile East	Widen to 6 Lns
Mickens Rd	LA 946(Joor Rd) to LA 408(Hooper Rd)	Widen to 4 Lns
LA 64	LA 946(Joor Rd) to LA 67(Plank Rd)	Widen to 4 Lns
US 61(Airline Hwy)	Cedarcrest Dr to Perkins Rd)	Widen to 6 Lns
LA 67(Plank Rd)	US 61(Airline Hwy) to LA 408(Hooper Rd)	Widen to 6 Lns
Livingston		
LA 447 (Walker S & N Rds)	Duff Rd to Hood/Hammack Rds	Widen to 4 Lns
LA 3003(Rushing Rd)	LA 16(Pete's Hwy) to 0.5 Mile West of LA 3002(Range Ave)	Widen to 4 Lns
LA 16 (Pete's Hwy)/LA 1031(Hatchell Ln)	LA 1034(Vincent Rd) to LA 1030(Cockerham Rd)	Widen to 4 Lns
LA 1026(Juban Rd)	Wax Rd to US 190	Widen to 4 Lns
LA 1026(Lockhart Rd)*	LA 16(N. Range Ave) to LA 1030(Burgess Rd)	Widen to 4 Lns
US 190(Florida Ave)*	LA 1027(Burgess Rd) to LA 63(Frost Rd)	Widen to 4 Lns
LA 64	LA 16(Range Rd) to LA 37(Greenwell Springs Rd)	Widen to 4 Lns
West Baton Rouge		
LA 415-LA 1 Connector Rd	LA 415-LA 1	New 4 Ln Rd
*Relegated to Unmet Needs Because of Financial Constraint.		

TRANSPORTATION SYSTEM MANAGEMENT

The Recommended Transportation Plan provides capacity and continuity improvements to adequately handle most of the projected traffic to the year 2032. However, some street sections and isolated locations may still experience unacceptable levels of service during peak hours of traffic. The deficiencies could be mitigated by incorporating transportation system management (TSM) techniques in conjunction with the recommended Plan improvements.

TSM improvements are generally low cost, effective measures that improve traffic flow by making better use of the existing system. These measures include improvements such as intersection widening to provide left- and right-turn lanes, coordinated traffic signal phasing to coincide with travel demand fluctuations, channelization, parking management and turn restrictions. Other types of TSM measures involve attempts to reduce the number of vehicles on the network by encouraging the use of public transportation, employee ride sharing and vanpool programs, flexible work hours and the development of park and ride lots.

The TSM improvements listed herein are general and a more detailed study on a case by case basis would be required to identify specific locations and types of improvements which would be needed. Attention should be paid to such problem areas as more general construction projects are initiated in the areas.

Opportunities and Issues for Highways

The Metropolitan Planning Factors presented in the Transportation Equity Act for the 21st Century provides a forum for addressing opportunities and issues for the different transportation modes, as follows:

1. *Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.*

   The Baton Rouge Urban Area is located on I-10. This interstate highway is the major east-west route in the southern United States. Planned widening and street lighting on I-10 will improve mobility for through motorists. Planned new and improved interchanges and street lighting will enhance access to local traffic generators. Improved commerce would be expected, making land in this corridor more attractive for development and thus more valuable.

   Many of the recommendations of the Plan should promote "catching up" with development which has already occurred. The likely effect of most projects which add additional lanes will be to allow for continued use of existing properties and for in-fill development which may have been postponed or made not financially viable due to limited access.

   The primary issue with the seven items in this section is the availability of funds and other associated resources to address all of the deficiencies cited previously in this Plan Update.

2. *Increase the safety and security of the transportation system for motorized and nonmotorized users.*

   Numerous surface streets are scheduled for widening. Typically this includes widening from two- to four- or five-lanes with curb and gutters or shoulders. Signal system improvements should improve flow of the queues and produce more uniform speeds. Intersection improvements will provide turn lanes. The above measures should provide more efficient and safe travel for motorists, bicyclists and pedestrians.

3. *Increase the accessibility and mobility options available to people and for freight.*

   Planned widenings and surface improvements should increase the options for shipping and travel by providing better access to the Baton Rouge Metro Airport and the Port of Baton Rouge. Interstate improvements should serve better those who make long commutes to work and school from outside the MPO Area. Planned widenings and intersection improvements should enhance the efficiency of the busses for the Baton Rouge Capital Area Transit System and thus cause that System to attract patrons and serve better as "people movers".

4. *Protect and enhance the environment, promote energy conservation, and improve quality of life.*

   The Plan was prepared with the objective of reducing VMT, VHT and vehicle delay which reduces energy consumption. The Plan also reduces congestion which can be a substantial improvement in the quality of life.

5. *Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.*

   Viewing the recommendations at the network level, the Plan should enhance the connectivity between the Baton Rouge Metro Airport, the Port of Baton Rouge, the Greyhound Bus Terminal and the Baton Rouge Capital Area Transit System Terminal and its bus stops. Improvements to interchanges with I-10 and I-12 should improve the flow of freight to distribution terminals in the local areas. Improvements to Intermodal transportation service can thus be expected

   Thirteen of the 174 projects recommended in this Plan Update involve new roadways or roadway extensions totaling an additional 59.7 lane-miles. These projects will contribute to the alleviation of congestion, provide for an increase in total trips on the affected corridors, and especially provide for network connectivity, which is much needed for the Baton Rouge arterial system.

6. *Promote efficient system management and operation.*

   The TransCAD Travel Demand Model used in the analysis and preparation of the Plan was calibrated and validated to accurately forecast traffic volumes on the Study Area network. The traffic assignment to the future years could then reasonably be expected to identify congested areas in those years. Alternative improvements were then tested to determine their impact on the expected congestion. The ultimate project mix selected for inclusion in the Plan includes those projects selected to mitigate deficiencies and thus promote system management and operation.

7. *Emphasize the preservation of the existing transportation system.*

   Of the 174 projects recommended in this Plan, 58 involve the addition of travel lanes totaling 264.7 new lane-miles. These widening projects will contribute to the alleviation of congestion and provide for increases in the number of trips on the affected corridors.

   Seven projects involve interstate interchanges. One calls for the construction of a new interchange for I-12 at LA 16 Pete's Highway. Three call for ramp modifications on I-10 at Siegen Lane (under construction), on I-10 at LA 73 (under design) and on I-12 at Essen Lane (under design), respectively. Two call for intersection improvements on LA 408 Harding Boulevard at I-110 and on LA 3064 Essen Lane at I-10, respectively. A sixth project calls for reconstruction of Pecue Lane over and beyond I-10 in conjunction with a future project by LA DOTD to construct the ramps for a diamond interchange. These projects should provide relief from traffic congestion to adjacent interchanges and surface streets.

Sixteen projects provide for the addition of center turn lanes for a total of 23.6 lane miles. These turn lanes should promote traffic flow and safety by providing motorists who wish to make left turns with an exit and storage relative to the travel lanes

Thirteen projects call for intersection improvements. New or modified turn lanes would be called for.

Three projects call for signal improvements. This would involve signal operation and synchronization of traffic signals.

Fourteen projects call for reconstruction of the roadway or resurfacing of the existing facility.

The Plan Update recommends various miscellaneous projects such as bicycle and pedestrian facilities and park and ride lots. Of particular note are the construction of new bridges for the Central Thruway, replacement of bridges across the Amite River at its respective intersections with LA 42 and LA 64, and the rehabilitation of the Port Allen Canal Bridge across LA 1.

The above projects represent a long-term commitment to upgrading and maintaining the existing transportation system.

EVALUATE TRANSIT NETWORKS

The following is a brief overview of the status of other transportation related activities which were considered in the preparation of this Plan.

Mass Transportation

The Capital Area Transit System (CATS) provides mass transportation services to the Baton Rouge Area. CATS is a regional transportation authority funded primarily by the East Baton Rouge City-Parish Government. Its long range vision to provide bus, bus rapid transit, light rail, park-and-ride facilities, van pools, on-demand response, and special programs to the citizens of the Area is well on track. From 1999 to 2001, CATS developed eleven park and ride facilities, successfully implemented regional service from Tangipahoa Parish (approximately 40 miles east of Baton Rouge) to Iberville Parish on the west side of the Mississippi River. As the major transit provider, it has been awarded discretionary and demonstration grants by both federal and state agencies to implement innovative transportation programs in the capital region. Due to funding cutbacks, CATS had to discontinue commuter service to park and ride facilities and reduce overall transit service to approximately 193,400 service hours for CY 2003. This was a 25% decrease in service hours from Calendar Year (CY) 2001, and a 10% decrease from CY 2002. *However, after the impact of Hurricane Katrina, CATS now operates approximately 220,000 service hours annually.*

CATS is now embraced by public and private entities as a part of the transportation infrastructure. Its support is from grass root community riders, from special interest such as the Downtown Development District and from the social service entities that have developed a strong bond with CATS over the last ten years. Programs such as the Department of Transportation's Job Access/Reverse Commute provided funding for CATS to expand the geographical service area and the operational hours per day. This partnership with numerous public and private agencies drives the transportation type and amount of service. CATS now operates 364 days per year and an average of 18 hours per week-day. CATS now operates under an operating agreement with the City-Parish government so that CATS can directly apply and receive state and federal grants.

CATS has begun to have an expanded role in meeting the transportation trip demand for the area. The following tables show the projected ridership in unlinked trips, hours of service and operating budget levels.

TABLE 41
TRANSIT RIDERSHIP
(In Millions Per Year of Unlinked traveler Trips)

Year	2007	2010	2015	2020
Trips	6	7	12	15

TABLE 42
YEARLY OPERATING BUDGET
(In Millions Per Year)

Year	2007	2010	2015	2020	2025	2029	2032
Bus	12	16	22.5	28	30	33	37
Busway			0	6.9	7.6	7.8	9
Rail				13	13	16	20
Total	**12**	**16**	**22.5**	**47.9**	**50.6**	**56.8**	**66.6**

TABLE 43
TRANSIT SERVICE
(Yearly Hours)

Year	2007	2010	2015	2020	2025	2029	2032
Bus	220,000	250000	318000	315000	315000	315000	315000
Busway				32,000	80000	80000	80000
Rail				130000	130000	160000	160000
Total	**220,000**	**250,000**	**318,000**	**477,000**	**525,000**	**555,000**	**555,000**

Fixed Guideway Bus (Bus Rapid Transit)

CATS will begin in 2009 a planning feasibility study for fixed guideway buses with a target operational date of 2018. "Fixed Guideway Buses" are regular transit coaches that are allowed to travel on special pads in a transit only right of way. Planning work on feasibility of fixed guidelines will target the following corridors initially:

Walker to Baton Rouge – Route A
Begin in Walker, US 190 at LA 447 (Station / Stop)
South on LA 447 to I-12
West on I-12 to Denham Springs
North on LA 3002 (South Range Avenue) to US 190 (Florida Boulevard) (Station / Stop)
West on US 190 (Florida Boulevard) to LA 3245 (O'Neal Lane)(Stop)
West on US 190(Florida Boulevard) to Sherwood Forest Boulevard (Stop)
West on US 190 (Florida Boulevard) to US 61(Airline Highway) (Station / Stop at Cortana Mall)
West on US 190 (Florida Boulevard) to Baton Rouge Downtown Development District (Station / Stop)
North – South on Trolley route (See CATS map)

Walker to Baton Rouge – Route B (Concurrent with Route A above)
Begin in Walker, US 190 at LA 447 (Station / Stop)
South on LA 447 to I-12
West on I-12 to Denham Springs
West on I-12 to LA 3245 (O'Neal Lane) (Stop)
West on I-12 to Millerville Road (Stop)
West on I-12 to Sherwood Forest Boulevard (Stop)
West on I-12 / I-10 to Baton Rouge Downtown Development District (Station / Stop)
North – South on Trolley route (See CATS map)

The proposed time line for the above bus system is as follows:

2009 – 2013 Busway Demonstration grant for feasibility, design / rights-of-way and construction plans -- $600,000
2013 - 2017 Construct busways -- $77.8 million
2018 – Busway operation at 32,000 annual hours of service

Light Rail

Planning work will begin in 2011 on the feasibility of light rail for the following corridor:

Denham Springs to Baton Rouge

Begin in Denham Springs, LA 16 (North Range Avenue) at Canadian National Illinois Central Gulf railroad crossing (Station / Stop)
West along CNICG railroad corridor toward Baton Rouge
Station / Stop at crossing with North Sherwood Forest Boulevard
West on CNICG railroad corridor (along Choctaw Road) to downtown Baton Rouge, Station / Stop near LA DOTD HQ
Transit Connectivity to Baton Rouge Downtown Development District

Light rail would be used in existing rail corridors on purchased rights of ways. The proposed time line is as follows:

2011 – 2015 Rail Demonstration for feasibility, design / rights-of-way, construction plans $3.6 million
2015 – 2020 Construction of rail line and purchase of 20 cars $600 million
2020 Begin rail service of 130,000 annual hours of operation

Long Range Capital Budget

The CATS capital budgets presented reflect an ambitious commitment of development and resources from a number of federal, state, and local entities if CATS is to meet the projected passenger trip demand. Projects such as fleet replacement will be funded primarily from Federal Transit Administration discretionary funds. Busway and light rail will be funded primarily from new start DOT funds earmarked by Congress. CATS current fleet consists of 61 fixed route transit buses and 20 vans for a total of 81 vehicles. CATS is projected to increase its fleet gradually to 102 vehicles by 2013, and to 135 vehicles by 2017; and it is to begin fixed guideway service by 2018 with 20 busway vehicles, along with 73 buses and 47 vans as shown in the following Fleet Replacement Tables.

TABLE 44

CATS FLEET REPLACEMENT SCHEDULE

STAGE I

LONG RANGE PLAN EQUIPMENT

	YEAR				
ACTIVITY	**2007**	**2008**	**2009**	**2010**	**2011**
Bus Replacement	25	5	7	7	7
Bus Expansion					
Total Bus Fleet	**61**	**61**	**61**	**61**	**61**
Van Replacement	15	5	5	6	7
Van Expansion		10	1	1	1
Total Vans	**20**	**34**	**35**	**36**	**37**
Busway Bus					
Busway Replacement					
Total Busway Bus					
Total Rail Cars					
Total Stock	**81**	**95**	**96**	**97**	**98**

TABLE 45

STAGE – I (2007-2011)

LONG RANGE PLAN FUNDING

Name (Location)	Improvement	Total Cost (000)	Fund Source
Capital Area Transit System	Annual Assistance	$29,000.00	5307 (FTA)
Capital Area Transit System	Discretionary Asst.(25 Replacement Buses and 15 Vans with GPS,AVL, Registering Fare boxes, and Security Systems)	$9,000.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist. (Surveillance/Security Equipment for Rolling Stock-600K, Fixed Facilities-CTC Terminal, DDD, Malls, Other-500K)	$1,100.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist. (Registering Fare boxes,AVL/GPS System Wide)	$2,000.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist (Passenger Fare Processing Equipment at 30)	$2,000.00	5309 (FTA)
Capital Area Transit System	Discretionary Assist (Facility Expansion of Headquarters/Maintenance and Parking.	$2,000.00	5309 (FTA)
Capital Area Transit System	Operating Assistance	$6,000.00	CMAQ
Capital Area Transit System	Busway Feasibility	$500.00	DEMO (FTA)
Capital Area Transit System	Park and Ride	$1,875.00	CMAQ

Capital Area Transit System	Intermodal Station/Facility	$3,750.00	DEMO/5309 (FTA)
Capital Area Transit System	Busway Construction	$15,000.00	DEMO (FTA/DOT)
Capital Area Transit System	Fleet Replacement	$10,563.00	5309 (FTA)
Capital Area Transit System	ITS Projects	$6,250.00	ITS (DOT)
Capital Area Transit System	Job Access/Reverse Commute	$7,000.00	JA/RC (FTA)
Capital Area Transit System	Job Access/Reverse Commute	$3,000.00	JA/RC (DOTD)
Capital Area Transit System	Livable Corridors	$4,000.00	TCSP (DOT)
Capital Area Transit System	Busway Planning, Design/Enginering	$3,125.00	DEMO (DOT)
Capital Area Transit System	Short/Long Range Planning	$1,875.00	5307 (FTA)
Capital Area Transit System	Training	$500.00	5307 (FTA)
TOTAL		**$108,538.00**	

TABLE 46

CATS FLEET REPLACEMENT SCHEDULE
STAGE II
LONG RANGE PLAN EQUIPMENT

ACTIVITY	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bus Replacement					4	7	6	6	6	6
Bus Expansion	7	7	7	7	8	5				
Total Bus Fleet	**61**	**64**	**71**	**78**	**83**	**88**	**73**	**71**	**69**	**67**
Van Replacement	7	8	9	13	15	15	15	15	15	15
Van Expansion	1	1	1	8						
Total Vans	**37**	**38**	**39**	**47**	**47**	**47**	**47**	**47**	**47**	**47**
Busway Bus							20	2	2	2
Busway Replacement										
Total Busway Bus							**20**	**22**	**24**	**26**
Total Rail Cars									**20**	**20**
Total Stock	**98**	**102**	**110**	**125**	**130**	**135**	**140**	**140**	**160**	**160**

TABLE 47

STAGE – II (2012-2021)

LONG RANGE PLAN FUNDING

Name (Location)	Improvements	Total Cost (000)	Funding Source
Capital Area Transit System	Annual Assistance	$48,773.00	5307 (FTA)
Capital Area Transit System	Discretionary Assist.	$15,375.00	5309 (FTA)
Capital Area Transit System	Operating Assistance	$10,000.00	CMAQ
Capital Area Transit System	Park and Ride	$4,500.00	CMAQ/5309
Capital Area Transit System	Intermodal Station/Facilities	$5,625.00	DEMO/5309 (FTA)
Capital Area Transit System	Busway Construction	$45,000.00	New Startup (DOT)
Capital Area Transit System	Fleet Replacement	$23,250.00	5309 (FTA)
Capital Area Transit System	Its Projects	$11,250.00	ITS (DOT)
Capital Area Transit System	Job Access/Reverse Commute	$14,000.00	JARC (FTA)
Capital Area Transit System	Job Access/Reverse Commute	$10,000.00	JARC
Capital Area Transit System	Livable Corridors	$6,250.00	TCSP (DOT)
Capital Area Transit System	Rail Construction	$100,000.00	New Start
Capital Area Transit System	Rail Planning/Design/Eng.	$28,750.00	DEMO (DOT)
Capital Area Transit System	Busway Planning/Design/Eng.	$3,750.00	DEMO (DOT)
Capital Area Transit System	Short/Long	$4,438.00	5307 (FTA)
Capital Area Transit System	Training	$1,625.00	5307 (FTA)
TOTAL		**$332,586.00**	

TABLE 48

CATS FLEET REPLACEMENT SCHEDULE
STAGE III
LONG RANGE PLAN EQUIPMENT

	YEAR									
ACTIVITY	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
Bus Replacement	6	6	6	6	6	6	6	6	6	6
Bus Expansion										
Total Bus Fleet	**67**	**67**	**67**	**67**	**67**	**67**	**67**	**67**	**67**	**67**
Van Replacement	15	15	15	15	15	15	15	15	15	15
Van Expansion										
Total Vans	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**
Busway Bus										
Busway Replacement						2	2	2	2	2
Total Busway Bus	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**
Total Rail Cars	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Total Stock	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**

TABLE 49

STAGE – III (2022-2031)

LONG RANGE PLAN FUNDING

Name (Location)	Improvement	Total Cost (000)	Fund Source
Capital Area Transit System	Annual Assistance	$46,875.00	5307 (FTA)
Capital Area Transit System	Discretionary Assistance	$25,125.00	5309 (FTA)
Capital Area Transit System	Operating Assistance	$8,000.00	CMAQ
Capital Area Transit System	Park and Ride	$4,750.00	CMAQ/5309
Capital Area Transit System	Intermodal Station/Facilities	$3,750.00	DEMO/5309 (FTA)
Capital Area Transit System	Busway Construction	$30,000.00	New Startup (DOT)
Capital Area Transit System	Fleet Replacement	$22,500.00	5309 (FTA)
Capital Area Transit System	ITS Projects	$8,750.00	ITS (DOT)
Capital Area Transit System	Job Access/Reverse/Commute	$16,000.00	JARC (FTA)
Capital Area Transit System	Job Access/Reverse/Commute	$8,000.00	JARC (DOTD)
Capital Area Transit System	Livable Corridors	$4,000.00	TCSP (DOT)
Capital Area Transit System	Rail Construction	$325,000.00	New Start (DOT)
Capital Area Transit System	Rail Planning/Design/Eng.	$12,500.00	DEMO (DOT)
Capital Area Transit System	Busway Planning	$1,250.00	DEMO (DOT)
Capital Area Transit System	Short/Long	$4,000.00	5307 (FTA)
Capital Area Transit System	Training	$3,875.00	5307 (FTA)
TOTAL		**$524,375.00**	

Although it is often difficult to achieve because of budget constraints, the fleet replacement schedule aspires to create a regularly occurring (yearly) function. This is both good fiscal management as it is often difficult to find the resources to replace a large percentage of the fleet at one time, and it is good operationally as it ensures equipment dependability, reduced maintenance costs, and transit on-time performance - there are less breakdowns. Buses should be replaced at 12-year intervals and vans at approximately 3-year intervals.

Description of the Bus-Rapid-Transit Alternative

For the purposes of this analysis the Capital Regional Planning Commission (CRPC) provided a proposed alignment and set of stop locations for the Bus Rapid Transit (BRT) Alternative. The service consists of two BRT routes connecting suburban areas with downtown Baton Rouge. Please refer to **Figures 49 and 50**.

The first route (BRT Route A) begins in Walker, Louisiana at the intersection of US 190 and LA 447. The route provides stations / stops at: South Range Avenue and Florida Boulevard in Denham Springs, Florida Boulevard and O'Neal, Florida Boulevard and Sherwood Forest, Cortana Mall, and Downtown Baton Rouge.

The second route (BRT Route B) begins in Walker at US 190 and LA 447 with stops at O'Neal Lane, Millerville Road, Sherwood Forest Boulevard and Downtown Baton Rouge.

It was assumed that the suburban stations would be served by park-and-ride lots that would allow drive access trips to access the station. It was also assumed that the in-town station would be walk up stops with no parking available.

Initial operating assumptions included, 15-minute headways between BRT arrivals with one-minute dwell times at station locations. The BRT vehicles sometimes operate in mixed traffic and sometimes have some separation from general-purpose traffic.

For sections on which the BRT operated in traffic, operating speed was assumed to be the same as a standard bus, meaning the congested speed for the roadway weighed by the transit in-vehicle travel time weighting factor for the time period in question. This travel time is typically 1.25 to 1.5 times slower than the surrounding auto traffic.

For sections on which the BRT operates in a separate lane at least partially protected from general-purpose traffic, the BRT was assumed to operate at the uncongested speed for the adjacent roadway as reported by the model.

The BRT boarding fare was set at the same level as local bus fares ($1.25) and parking at the park-and-ride lots was assumed to be free.

The analysis year for the BRT is 2032. The transit ridership forecasts are based upon the demographic and employment forecast distribution used for all other phases of the MTP traffic and transit forecasting. The results of the analysis are provided in the following section.

Bus-Rapid-Transit (BRT) RIDERSHIP Forecasts

Results of the 2032 travel demand model runs for the two BRT routes showed an estimated forecast year ridership of approximately 500 daily riders for BRT Route A and 400 daily riders for BRT Route B.

Given that the current analysis is an early stage feasibility analysis with no effort to optimize routes, stations or service characteristics these ridership figures represent respectable values.

Although it is probably premature to include BRT in the pool of projects put forth for the financially constrained plan, there does seem to be enough evidence to suggest that BRT strategies could be successful if some additional planning were performed to optimize routes and station locations.

FIGURE 49 – PROPOSED BRT ROUTE A

FIGURE 50– PROPOSED BRT ROUTE B

Commuter Rail from Denham Springs to Downtown Baton Rouge

As a part of the development of transportation options and candidate transportation projects for inclusion in the Baton Rouge Metropolitan Transportation Plan, Alliance Transportation Group, Inc. used the Baton Rouge Metropolitan Area Travel Demand Model developed as a part of the plan update study to develop traffic forecasts for a proposed Commuter Rail line from Denham Springs, Louisiana to downtown Baton Rouge. The purpose of this report is to summarize the results of that analysis so that the information presented can be used to determine if Commuter Rail represents a viable project option for inclusion in the Baton Rouge Financially Constrained Metropolitan Transportation Plan.

Description of the Commuter Rail Alternative

For the purposes of this analysis the Capital Regional Planning Commission (CRPC) provided a proposed alignment and set of station locations for the Commuter Rail alternative. The service begins at a point in Denham Springs near the intersection of Louisiana Highway 16 / North Range Avenue and the Canadian National Illinois Central Railroad (CNIC) Crossing and travels west along the CNIC railroad corridor towards downtown Baton Rouge. Three stations are contemplated. These include the Denham Springs station at North Range Avenue and the CNIC railroad, an intermediate station on Sherwood Forest Boulevard at the CNIC railroad crossing, and a near downtown station along Choctaw Street in the vicinity of DOTD headquarters, with the station located about one-quarter mile from the River. **Figure 51** on the following page depicts the general alignment and station locations.

It was assumed that the suburban stations would be served by park-and-ride lots that would allow drive access trips to access the station. It was also assumed that the in-town station, which is not located directly in the central business district, would be connected to activity centers in downtown Baton Rouge, and other locations in the central part of town, by means of connecting transit service in the form of a rubber tire shuttle.

Initial operating assumptions included, twenty (20) minute headways between train arrivals, five (5) minute dwell times at the stations, and an operating speed between stations of approximately 45 miles per hour. The Commuter Rail boarding fare was set at the same level as local bus fares ($1.25) and parking at the park-and-ride lots was assumed to be free.

The analysis year for the commuter alternative is 2032. The transit ridership forecasts are based upon the demographic and employment forecast distribution used for all other phases of the MTP traffic and transit forecasting.

FIGURE 51 – COMMUTER RAIL ALIGNMENT AND STATION LOCATIONS

Baton Rouge Metropolitan Area Travel Demand Model

The Baton Rouge Metropolitan Area Travel Demand Model is a four-step travel-forecasting model. The model is a time of day model with four time periods: AM, PM, Midday and Night.

The mode choice model allocates trips among the modes using a probability function applied in what is known as a logit model. In the case of the Baton Rouge mode choice model, this function takes the form of a nested logit model. Nests are provided for auto, drive alone, shared ride 2, shared ride 3+ as well as nests for transit, walk access to transit and drive access to transit. .

Transit Route System

The transit route system used as the backdrop for the Commuter Rail analysis is the recommended financially constrained transit route system. This transit route system for the Baton Rouge travel demand model is based upon route system maps and attributes provided by the Capital Area Transit System (CATS). The financially constrained 2032 transit system consists entirely of local bus routes and university shuttles. There are no express routes or other premium service and park-and-ride activity other than at the proposed commuter rail park and ride lots is primarily at university parking lots.

Commuter Rail Ridership Forecasts

Results of the 2032 travel demand model runs for the Denham Springs to Baton Rouge Commuter Rail showed an estimated forecast year ridership of approximately 130 daily riders. There are several reasons why the Commuter Rail line did not attract a higher level of ridership. Only three station locations were provided. In addition, the downtown station was isolated and did not provide direct access to the primary activity centers that would be of interest to the majority of commuters.

Although a financial analysis of the Commuter Rail alternative was not a part of the current work effort, given the typical costs for service of this type and given the low ridership estimates obtained from the travel demand model, inclusion of the commuter rail alternative in the financially constrained plan does not appear to be justified at this time. It is probable, however, that identification of additional stations and the optimization of station locations could appreciably improve ridership results. It would be worthwhile to continue feasibility analysis of Commuter Rail service with a variety of station plans to determine if there are viable strategies for increasing ridership.

Issues and Opportunities for Transit

In an article in the July 27, 2007, edition of the Baton Rouge Advocate, CATS interim CEO and general manager John Denman reported that almost 12,000 riders used the transit system on June 21, 2007, during the “Dump the Pump” day. CATS charged no fares that day to encourage ridership. Mr. Denman also advised in the article that average daily ridership on the CATS system has been about 8,300 people in 2007. Ironically, in the April, 1992 Baton Rouge Metropolitan Area Transportation Plan Update, the consultant reported an annual daily ridership of 12,500 people. Hence, there is a need and thus a market for a transit system in Baton Rouge.

The above sections on a commuter rail line from Baton Rouge to Denham Springs, and on bus rapid transit lines from Baton Rouge to Walker indicate it is either not feasible or premature to incorporate those modes in the transit element of the Plan at this time. Feasibility studies and demonstrations are recommended. Some of the issues for implementation will be the relative importance of the tolerance of motorists regarding congestion on the Area's roads, the cost of fuel for citizens, the popular one-person-per-vehicle trend, and available financing for these two modes of transit.

On the other hand, the travel demand model indicates the ridership on the CATS fixed routes will increase by 20% between the base year and 2032. Hence it is recommended that efforts for transit be directed at stabilizing the financial base and increasing the proposed yearly hours of service and equipment for the fixed bus routes as proposed above in this section of the report.

EVALUATE OTHER SPECIAL SCENARIOS

In addition to analyzing the feasibility of commuter rail service from Denham Springs to downtown Baton Rouge as described above, the Study Team applied the updated TransCAD model to three other special scenarios. These three were to verify the traffic analysis conducted for the North Bypass (with and without tolls), to evaluate two cases of a South Bypass (an I-10 to I-10 quarter loop and an I-10 to I-12 half-loop), and to evaluate increasing the vehicular capacity on US 61 Airline Highway from I-12 to I-10 or other suitable termini. The results of these analyses are presented in **Appendix H.**

VIII. DEVELOP STAGED IMPROVEMENT PLAN

Implementation Costs

Estimates

The Consultant Team used construction cost estimates presented by LA DOTD's Office of Planning and Programming in its documents "Highway Program" and "Delivery Schedule" where possible. Where such construction estimates were not available, the Team prepared order-of-magnitude cost estimates in 2006 dollars based on data and discussions with LA DOTD's Road Design Section. The average cost estimates for the latter improvements are as follows:

Improvement Type	Average Cost
Widening (two additional lanes)	
Freeway/Expressway	$ 6,000,000/mile
Arterial	$ 4,000,000/mile
New two lane road	$ 2,000,000/mile
New four lane road	$ 7,000,000/mile
Continuous turn lane	$ 3,000,000/mile
Reconstruction	
2 lanes	$ 2,000,000/mile
3 lanes	$ 2,500,000/mile
New Interchange	$ 20,000,000 each
Traffic Signals	$ 100,000/signal
Right-of-way (rural)	$ 1,375,000/mile
Right-of-way (urban)	$ 3,000,000/mile

Financial Assessment

The financial feasibility of the Financially Constrained Plan can be assessed by comparing the estimated cost of the programmed improvements to the projected funds which could be available from the various funding sources cited later in this report. The projection of funding was made by analyzing historical data on expenditures for street and highway construction in the four-parish study area. For this plan update, current funding projections are in 2006 dollars.

Historical information obtained from LADOTD indicates that, on average, contracts totaling $34 million in 2006 dollars have been let for construction and maintenance of the transportation infrastructure within the Baton Rouge Metropolitan Area for the ten-year period 1997 through 2006. This historic figure was calculated excluding expenditures on interstate projects. The projects were grouped by year. The costs were then totaled by year and a Consumer Price Index factor was applied to that real dollar cost to convert to 2006 dollars. The 2006 dollars column was then totaled and divided by the number of years to obtain an average expenditure in 2006 dollars.

Funding for the first five years of the program was set by financially constrained projects. These projects include those in LA DOTD's State Transportation Improvement Program, those in East Baton Rouge City/Parish's Green Light Plan, and those funded by the 2007 State budget surplus.

For the remaining twenty years of the financially constrained plan, the Team used the ten-year historic data of $34 million per year to project funding. These funding projections were approved by CRPC. A summary of the historic funding data and the Consumer Price Index (CPI) factors for conversion to 2006 dollars are in the Appendix.

Funding Sources

The implementation of a financially constrained plan for the Baton Rouge Metropolitan Area will necessarily involve several sources of funding. These sources include various programs at the local, State and Federal levels. Since many of the improvement projects are located on the State and Federal Highway System, substantial financial assistance could be obtained through funding programs of the LA DOTD and the Federal Highway Administration (FHWA). Several of these funding programs are listed below. These are in addition to State funds for overlays, maintenance and other projects.

Potential Funding Sources - Federal

SAFETEA-LU

The *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* authorizes the Federal surface transportation programs for highways, highway safety, and transit for the five-year period 2005 – 2009. SAFETEA-LU builds on the firm foundation of the two previous landmark bills that brought surface transportation into the 21st century – the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA 21).

SAFETEA-LU will provide total funding of $244.1 billion nationally for the above five year period. This legislation includes several categories of funding, under which many of the projects in the financially constrained plan will be eligible for federal funding assistance. These categories are:

Interstate Maintenance (IM)

This category provides financing to restore, resurface, and rehabilitate the Interstate system. Reconstruction is also eligible if it does not add capacity.

National Highway System (NHS)

This category covers all Interstate routes and a large percentage of urban principal arterials. The Federal/Local funding ratio for arterial routes is 80/20. The Interstate System, although a part of NHS, will retain its separate identity and will receive separate funding at a 90/10 ratio. The U.S. Congress passed the National Highway System bill in 1996.

Priority or Demonstration Projects

This category provides special funds for projects selected by the U.S. Congress. These funds are prescriptive in availability and timing. The conflict in timing between needs and availability of funds for Priority Projects necessitates the use of an advanced construction technique for payment.

Surface Transportation Program (STP)

The STP is block grant funding program with subcategories for States and Urban Areas. These funds can be used for any road (including NHS) that is not functionally classified as a local road or rural minor collector. The State portion can be used on roads within an urbanized area and the urban portion can only be used on roads within an urbanized area. The funding ratio is 80/20.
Subcategories of the STP funds are:

STP greater than 200,000 population (STP>200K)
STP less than 5,000 population (STP <5K)
STP Flexible (STP-FLEX)
STP Hazard Elimination (STP-HAZ)
STP Enhancement (STP-ENH)

Bridge Replacement and Rehabilitation Program (FBR)

These funds can be used to replace or repair any bridge on a public road. The funding ratio is 80/20.

Congestion Mitigation and Air Quality (CMAQ)

Urban areas which do not meet ambient air quality standards are designated as non-attainment areas by the U.S. Environmental Protection Agency (USEPA). These funds are apportioned to those urban areas for use on projects that contribute to the reduction of mobile source air pollution through reducing vehicle miles traveled, fuel consumption or other identifiable factors. The matching ratio for this program is 80/20 except for traffic signal systems, park & ride lots and ridesharing projects which are 100% federally funded.

The eligibility of specific projects under these funding categories is based on the functional classification system mandated by ISTEA, TEA-21, and SAFETEA-LU. This system has been prepared for the Baton Rouge Urbanized Area by LA DOTD in consultation with CRPC

Potential Funding Sources - Local

Any costs not covered by Federal and State programs will be the responsibility of the local governmental jurisdictions. Local funding can come from a variety of sources including property taxes, sales taxes, user fees, special assessments and impact fees. Each of these potential sources is important and warrants further discussion.

Property Taxes

Property taxation has historically been the primary source of revenue for local units of government in the United States. More than 80 percent of all tax revenues at this level come from this tax. Property is not subject to federal government taxation, and state governments have in recent years shown an increasing willingness to leave this important source of funding to local governments.

General Sales Taxes

The general sales tax is also an important revenue source for local governments. The most commonly known form of the general sales tax is the retail sales tax. The retail sales tax is imposed on a wide range of commodities, and the rate is usually a uniform percentage of the selling price.

East Baton Rouge City-Parish has a one-half of one percent Sales and Use tax in place for street and highway improvements. This tax is effective from January 1, 2006, until December 31, 2030. The City-Parish is to spend this “pot-hole” tax for road construction in a disciplined approach entitled The Green Light Plan. This tax is to generate $493 million for transportation improvements throughout the Parish until 2030.

User Fees

User fees are fees which are collected from those who utilize a service or facility. The fees are collected for the purpose of paying for the cost of a facility, financing the cost of operations and/or generating revenue for other uses. Water and sewer services are the most commonly known public improvements for which a user fee is charged. This method of generating revenue to finance public improvements has also been employed to finance the cost of public parks, transit systems and solid waste facilities. The theory behind the user fee is that those who directly benefit from the public improvement pay for the cost of the improvement.

Special Assessments

Special assessment is a method of generating funds for public improvements, whereby the cost of a public improvement is collected from those who directly benefit from the improvement. In many instances, new streets are financed by special assessment. The owners of property located adjacent to the new streets are assessed a portion of the cost of the new streets, based on the amount of footage they own adjacent to the new streets. Special assessments have also been used to generate funds for general improvements within special districts, such as central business districts. In some cases, these assessments are paid over a period of time, rather than as a lump sum payment.

Taxes from Gambling Outlets

East Baton Rouge Parish received approximately $10 million in fees annually (from July 1, 2006-June 30, 2007) from the two river boat casinos and the video poker. Patrons pay a tax of $2.50 per boarding for the river boat casinos.

Impact Fees

Development impact fees have been generally well received in other states and municipalities in the United States. New developments create increased traffic volumes on the streets around them. Development impact fees are a way of attempting to place a portion of the burden of funding improvements on developers who are creating or adding to the need for improvements.

Bond Issues

Property tax and sales tax funds can be used on a pay-as-you go basis, or the revenues from them can be used to pay off general obligation or revenue bonds. These bonds are issued by local governments upon approval of the voting public.

The Plan projects for the 25-year period were allocated to appropriate funding programs to develop an estimated need by fund source for the Plan.

Financially Constrained Plan

Taking into account the funding limitations, the street and highway projects in the Plan were allocated to a financially constrained Staged Improvement Program. Projects were programmed in three stages as follows:

Stage 1	2007 - 2012
Stage 2	2013 - 2022
Stage 3	2023 – 2032

Tables 50, 51 and **52** and **Figures 52, 53** and **54** follow and present the Plan in stages.

TABLE 50
STAGE I (2007 - 2012)

S. No	Project Number	Parish	Name (Location)	Improvement	Total Cost (000)	Funding Source
1	742-17-MAP8	EBR	Transfer CMAQ Funds to STPHAZ	City's Share of M.A.P.	1,750	CM
2	077-02-0019	ASC	LA 73 (LA 74 - LA 30)	Three Lane	9,850	STPHAZ, STPFLEX, CM
3	077-05-0043	EBR	Br Computer Sig. Sync Phase V	Signal Synchronization @ 44 Intersections	10,916	DEMO
4	050-07-0066	WBR	LA 1 - Port Allen Canal Bridge	Bridge Rehabilitation	19,714	FBRON
5	077-04-0019	EBR	LA 73 (Old Jeff. Hwy @ Antioch Rd)	Intersection Improvement	1,189	CM
6	254-02-0040	EBR	LA 37 (Magnolia Bridge Rd - Indian Mound)	Reconstruction W/Geometric Improvements	18,704	OTHER
7	260-01-0020	ASC	LA 42 - Amite River Relief Bridge	Bridge Replacement	2,340	FBRON
8	262-31-0016	LIV	LA 64 - Amite River Br .& Relief @ Magnolia	Bridge Replacement, 2 to 4 Lanes	23,187	FBRON
9	273-03-0025	LIV	LA 1026 - Turn Lanes at LA 64 & LA 1026	Intersection Improvement	3,084	STPHAZ
10	414-01-0036	EBR	LA 30 (Nicholson Drive @ Brightside Lane)	Intersection Improvement	2,650	CM
11	450-10-0108	EBR	I-10 (I-10/I-12 Split to Siegen)	Reconstruction and Widening to 6 Lanes	57,500	IM, STGEN, OTHER
12	454-01	EBR	I-12 (Millerville Rd to Livingston Parish Line)	Patch and Overlay	5,294	IM
13	450-08-0051	WBR	I-10 (La 1 in Port Allen to I-110)	Interstate Signing	855	IM
14	742-06-0044	EBR	Millerville Rd (I-12 to Harrells Ferry Rd)	Widen from 2 to 5 Lanes	7,313	STP>200K
15	742-17-0008	EBR	Flannery @ Florida	Intersection Improvement	2,653	CM
16	742-17-0118	EBR	Sherwood Forest Blvd (Choctaw - Greenwell Spgs Rd)	Widen to 5 Lanes	12,200	STP>200k
17	742-17-0131	EBR	Jones Creek Rd (Tigerbend Rd - Coursey Rd)	Widen to 5 Lanes	13,755	STP>200K
18	742-17-0150	EBR	Central Thruway	Comite and Beaver Bayou #1 Bridges	23, 830	City/Parish/DEMO*
19	742-17-0143	EBR	Central Thruway	Frenchtown-Sullivan,C&G & Embank	3,066	STP>200K/DEMO
20	254-02-0051	EBR	Central Thruway	LA 37 at Central Thruway	6,800	DEMO, STP>200K, LOCAL
21	742-17-05TR	EBR	Flex to Transit	Operating	5,000	CMAQ
22	817-41-0008	EBR	LA 3245 O'Neal Lane, I-12 to US 190 Florida Boulevard	Widen to 5 Lanes	17,250	STPFLEX
23	832-11-0008	LIV	La 1031 (Hatchell) @ Us 190 & La1030	Left Turn Lanes	3,777	STPHAZ
24	City	EBR	Picardy Avenue (Summa - Essen)	Extension of Road	1,083	City/Parish
25	City	EBR	Comite Drive (Plank Rd - Comite River)	Widening to 3 lanes	7,460	City/Parish
26	City	EBR	O'Neal Lane (George O'Neal Rd - S Harrells Ferry Rd)	Widening to 4/5 lanes	5,712	City/Parish
27	City	EBR	S.Choctaw Rd (Flannery Rd - Central Thruway)	Widen to 4 Lanes	6,664	City/Parish
28	City	EBR	S.Harrell's Ferry Rd. Ph I(Sherwood forest - Millerville)	Widen to 4 Lanes	9,044	City/Parish
29	077-02-0020	ASC	LA 73 (I-10 to US 61)	Widen to 4 Lane	14,000	DEMO/OTHER
30	019-02-0051	EBR	US 61 (I-110 to LA 964)	Rubblize and Overlay	7,633	NHS
31	832-22-0019	LIV	LA 1032 River Road	Realign with LA 1032 4-H Clu Rd	880	STPHAZ
32	253-02-0024	EBR	Zachary Ped Paths and Sidewalks	New Sidewalks	200	STPENH

33	742-17-0146	EBR	S. Sherwood Forest Blvd. at S.Harrell's Ferry Road	Intersection Improvements	8,655	STP>200K
34	077-02-0017	ASC	LA 621 / LA 73 / @ I-10	Intersection Improvements	1,700	CM
35	265-01-0043	ASC	LA 44 in Gonzales	Signal Improvements	1,200	CM
36	742-17-ATM	EBR	Advanced Traffic Management Center	Operations	1,500	CM
37	257-04-0025	EBR	LA 42 Burbank at West Lee Drive	Intersection Improvements	279	STPHAZ
38	260-02-0037	LIV	LA 16 @ LA 22	Realign Curve	590	STPHAZ
39	007-07-0048	ASC	US 61 in Ascension and East Baton Rouge Parishes	Signal Improvements	4,762	STPFLEX
40	262-02	LIV	LA 16 (Range Avenue) at Jackson Street	Turn Lanes	1,200	CM
41	267-02-B	ASC	LA 431 at Gold Place in Gonzales	Turn Lanes	600	CM
42		EBR	CATS -- Bus Rapid Transit	Study	3,000	DEMO
43	742-32-0002	LIV	Walker Park and Ride	Ped/Bike Pathway/Park & Ride	625	CM
44	253-02-0025	EBR	LA 64 (LA 19 to McHugh Road)	Center Turn Lane	2,850	STPHAZ
45	737-99-0595	EBR	Baton Rouge ITS Deployment (Phase 3)	Baton Rouge ITS	2,500	CM
46	742-17-K	EBR	B.R. Levee Bike Path (S. Bertman Dr.-Farm)	B.R. Levee Bike Path	2,200	CM
47	737-96-0039	EBR	Baton Rouge ITS (Phase 4)	Baton Rouge ITS	2,500	STPFLEX
48	737-17-0010	EBR	Information Center at Southern University	Information Center at Baton Rouge	1,804	DEMO/OTHER
49	736-96-0016	EBR	Regional Rideshare Program	Administration	1,000	CM
50		ASC	LA 22 in Ascension Parish	Plan,Design & Construct Rdwy Improvements	200	DEMO
51	744-17-0015	EBR	Bicycle/Pedestrian Path Improvement Dalrymple Drive	Bicycle/Pedestrian Path Improvement	906	STPENH, CITY/PARISH*
52		EBR	Burbank Dr. (Lee Dr. to Bluebonnet)	Complete 4 Lanes	17,316	City/Parish
53		EBR	Burbank Dr. (Bluebonnet to Siegen Ln)	Complete 4 Lanes	9,031	City/Parish
54		EBR	Jones Creek (S. Harrell's Rd. – Coursey Blvd.)	Widen to 5 Lanes	21,529	City/Parish
55		EBR	Staring Ln. (Highland Rd. – Burbank Dr.)	New 5 Lanes	10,097	City/Parish
56		EBR	Brightside Dr. (River Rd. – Nicholson Dr.)	Widen to 3 Lanes	31,159	City/Parish
57		EBR	Veterans Memorial Blvd Extension (Quimby-Blount)	New 4 Lanes	6,517	City/Parish
58		EBR	Essen Lane @ I-10	Intersection Improvements	6,804	City/Parish
59		EBR	Pecue Ln Imp. (Perkins Rd to Airline Hwy)	Widen 2 to 5 Lanes	30,836	City/Parish
60		EBR	Ford Street (Plank Rd to Mickens Rd)	2 Ln Blvd.	20,291	City/Parish
61		EBR	Perkins Road @ Stanford/Acadian	Intersection Improvements	8,548	City/Parish
62		EBR	Foster Drive at Government Street	Intersection Improvements	3,903	City/Parish
63		EBR	Downtown Signal Upgrades (30)	Upgrades and Interconnect	10,258	City/Parish
64		EBR	Sherwood Forest Blvd at Coursey Blvd	Intersection Improvements	5,197	City/Parish
65		EBR	Staring Ln (Perkins Rd to Highland Rd)	Widen to 4 Lanes	49,765	STP>200K
66		EBR	Siegen Ln (Perkins to Highland Rd.)	Widen to 4 Lanes	18,611	STPFLEX
67		EBR	Old Hammond (BlvdDe Provence - MillervilleRd.)	Widen to 4 Lanes	12,996	City/Parish

68		EBR	Old Hammond (Millerville to O'Neal)	Widen to 4 Lanes	6,599	City/Parish
69	817-41-0007	EBR	O'Neal (Harrell's Ferry - I-12)	Widening Letting	20,524	LOCAL*
70		EBR	S.Harrell's Ferry Rd. Ph II (Millerville - O'Neal Ln)	Widen to 4/5 Lanes	6,652	STP>200K
71		EBR	Lobdell Ave (Florida Blvd -- Jefferson Hwy)	Widen to 4 Lanes	6,101	STP>200K
72		EBR	Sharp Rd. (Florida Blvd to O.HammondHwy)	Widen to 4 Lanes	6,480	STP>200K
73		EBR	N Harrell's Ferry Rd (Old Hammond-Sherwood Forest)	Widen to 3 Lanes	1,797	STP>200k
74		EBR	Sullivan Road (Central Thruway to Wax Road)	Widen to 4 Lanes	31,981	STP>200K
75	259-01-93	EBR	LA 42 Highland Road (Perkins to Airline)	Widen to 4 Lanes	31,374	City/Parish
76		EBR	US 61 Airline (From LA 427 Perkins to Pecue Lane)	Removing old surface/Resurface	6,580	STCASH
77		ASC	LA 74 (Iberville Parish Line to US 61)	Removing old surface/Resurface	2,485	STCASH
78		ASC	I-10	Installing roadway lightingat La30 & La 44	820	STCASH
79		EBR	I-10 (Washington Street to Acadian Thruway)	Patch and Overlay	1,000	STCASH
80		EBR	I-110 (I-10 to Chippewa)	Patch and Overlay	1,000	STCASH
81		EBR	LA 3246 (Siegen overpass south of I-10)	Modify rampw/turning lanes	438	STCASH
82		LIV	LA 63 (Weiss Rd from W.LA 449 to LA 1023)	Patch and Overlay	2,035	STCASH
83		WBR	LA 989-1 (LA 989-2 to end of control section)	Patch and Overlay	2,167	STCASH
84		WBR	LA 989-1 (LA 1 to LA 989-2) Combine w/project above	Patch and Overlay	0	STCASH
85		ASC	LA 73	Rights-of-way and utilities for widening	1,000	STCASH
86		ASC	I-10 (I-10 at LA 74)	Feasibility/traffic analysis of new interchange	500	STCASH
87		ASC	LA 42 (US 61 to LA 44)	Engineering for widening	1,000	STCASH
88		EBR	Baton Rouge Bypass	Feasibility/environmental study	1,000	STCASH
89		EBR	LA 427 (from Siegen to Highland)	Environmental Impact Study of Widening	100	STCASH
90		EBR	I-10 (I-10 Bridge to the 10/12 split)	Feasibility/environmental study	1,000	STCASH
91		EBR	I-10 (from Siegen to LA 22)	Feasibility/Environmental study widen to 6 lns	100	STCASH
92		EBR	I-12 (O'Neal to Juban Rd)	Environmental Impact Study of Widening	1,000	STCASH
93			Federal Off-System Bridges	Bridge Replacement	2,500	DEMO
94			Bridge Rail and Guard Rail	Bridge Rehabilitation	1,000	FBR
95			Bridge Painting	Bridge Maintenance	1,000	FBR
96			Federal Bridge Inspection Programs	Bridge Inspection	1,000	FBR
97			Interstate Preventive Maintenance	Maintenance	5,000	FBR
98			Interstate Maintenance	Maintenance	10,000	IM
99			Pavement Maintenance Projects	Maintenance	5,000	IM
100			Overlay	Overlay	10,000	OLAY
101			Bridge Repair	Bridge Repair	1,000	STPFLEX
102			Federal Enhancement Projects	Enhancement	1,250	STCASH

103			Hazardous Elimination Projects	Safety	2,500	STPENH
				Total	756,435	
				Total	306,772	City/Parish/Local

FIGURE 52

STAGE I (2007-2012)
IMPROVEMENT PROGRAM

TABLE 51
STAGE II (2013 - 2022)

S. No	Project Number	Parish	Name (Location)	Improvement	Total Cost (000)	Funding Source
1	258-01-0033	EBR	LA 427 Perkins Rd (Pecue - Highland)	Widen to 5 Lanes	17,500	DEMO
2	454-02-0025	LIV	I-12 (O'Neal Lane to Pete's Highway Overpass)	Pavement Replacement and Widening	125,000	IM,NHS,FBRON
3		EBR	Cedarcrest (Airline to Old Hammond)	Widen to 4 Lanes	5,640	STP>200K
4		EBR	LA 1068 Drusilla (Jefferson Hwy to Old Hammond)	Widen to 4/5 Lanes	4,000	STPFLEX
5		LIV	US 190 Florida Ave (Pete's Hwy to LA 1027)	Widen to 4/5 Lanes	19,360	NHS
6		LIV	Juban Road Extension (US 190 - Lockhart Rd)	New 4 Lanes	7,000	STPFLEX
7		EBR	Central Thruway (Florida Blvd – Sullivan Rd)	Widen 2 to 4 Lanes	13,600	City/Parish
8		EBR	Airline Hwy Ph I-C (Florida Blvd to Florline)	Widen to 6 Lanes	1,800	NHS
9		EBR	Airline Hwy Ph III (Florline to Greenwell Spg)	Widen to 6 Lanes	9,300	NHS
10		EBR	Airline Hwy Ph II-B (Greenwell Spg to I-110)	Widen to 6 Lanes	23,220	NHS
11		EBR	Florida Blvd (Airline to Monterrey)	Widen to 8 Lanes	4,620	NHS
12		EBR	Florida Blvd (Monterry to Sherwood Frst Blvd.)	Widen to 8 Lanes	11,340	NHS
13		LIV	LA 64 (LA 16 to LA 37) in LIV and EBR Parishes	Widen to 4 Lanes	10,920	STPFLEX*
14		WBR	LA 1(I-10 to Brusly)	Widen to 6 Lanes	23,940	DEMO
15		EBR	LA 42 Burbank Dr (Nicholson Dr. to 0.8 mile east)	Widen to 6 Lanes	4,800	STP>200K*
16		EBR	LA 67 Plank Rd (Airline to Hooper)	Widen to 6 Lanes	4,500	STP>200K*
17	260-01-0026	ASC	LA 42 (US 61 to LA 44)	Widen to 4 Lanes	25,000	DEMO
18		EBR	LA 64 (Joor Rd to LA 67 Plank Rd)	Widen to 4 Lanes	15,200	STPFLEX*
19		EBR	Lee Dr. (Perkins Rd. to Highland)	Widen to 4 Lanes	7,360	STP>200K
20		EBR	S. Sherwood Forest (Fla Blvd to Old Hammond Hwy)	Widen to 4 Lanes	6,000	STP>200K*
21		LIV	LA 1026 Juban Rd (Wax Rd to US 190)	Widen to 4 Lanes	17,500	STPFLEX*
22		EBR	Nicholson Dr. (Gourrier Ave. – Ben Hur Rd.)	Widen to 5 Lanes	42,417	City/Parish
23		EBR	Highland Road to Burbank Drive Connector	New 4 Lanes	4,409	City/Parish
24		EBR	Stumberg Extension (Airline Hwy to Jefferson Hwy)	New 5 Lanes	22,002	City/Parish
25		EBR	Jones Creek Extension (Jefferson Hwy to Tiger Bend)	New 5 Lanes	21,387	City/Parish
26		EBR	LA 64 Mt Pleasant-Zachary Rd(US 61 to LA 964)	Widen to 4 Lanes	28,595	City/Parish
27		EBR	Picardy Avenue to Perkins Rd Connector	New 4 Lanes	40,204	City/Parish
28		EBR	Glen Oaks Drive (Plank Rd to McClelland Dr)	Widen to 3 Lanes	8,812	City/Parish
29		EBR	McHugh Road (Wimbush Dr to Lower Zachary Rd)	2 Lanes	11,142	City/Parish
30		EBR	Elm Grove Garden (Fairchild to Rosenwald Rd)	2 Lanes	4,526	City/Parish
31		EBR	Fairchild-Badley Road (Scenic to Veterans)	2 Lanes	9,926	City/Parish
32		EBR	Perkins Road (Siegen Lane to Pecue Lane)	Widen to 4 Lanes	25,928	City/Parish

33	255-02-0027	EBR	Hooper Rd. (Blackwater - Devall Rd.)	Widen to 4 Lanes	41,472	STPFLEX
34		EBR	Old Hammond Hwy (O'Neal Lane to Florida Blvd)	Widen to 4 Lanes	5,000	STPFLEX
35		EBR	Flannery Rd (Fla Blvd to Old Hammond Hwy)	Widen to 4 Lanes & Re-align w/ Millerville	5,500	STP>200K
36		ASC	LA 73 (I-10 to LA 74)	Widen to 4 Lanes	3,000	STPFLEX*
37		LIV	LA 3003 Rushing Rd (LA 16 to 0.5 Mi West of LA 3002)	Widen to 4 Lanes	7,700	STP<5K*
38		LIV	LA 16/LA1031 (Vincent Rd to Centerville St)	Widen to 4 Lanes	20,000	STP<5K*
39	454-02-0047	LIV	I-12 - Pete's Hwy Interchange	New Interchange	17,500	DEMO,OTHER
40	736-17-03A	EBR	Baton Rouge CMS Study	Study	300	CM
41	736-17-03C	EBR	Quick Response Team	Planning / Engr	250	CM
42	742-17-MAP	EBR	Transfer CMAQ funds to STPHAZ	City's Share of M.A.P.	3,500	CM
43	742-17-ATM	EBR	Advanced Traffic Management Center	Operations	3,000	CM
44	742-17-TR	EBR	Flex to Transit	Operating	10,000	CM
45	736-96-0016	EBR	Regional Ride Share Program	Administration	2,000	CM
46	742-00-UU	EBR	Highland Park & Ride	Park & ride	180	CM
47	742-00-VV	EBR	O'Neal Park & Ride	Park & ride	225	CM
48	742-00-WW	EBR	Baker Park & Ride	Park & ride	180	CM
49	742-07-O	EBR	EBR Pavement Markings	Replace Striping	255	STP>200K
50	007-10-	EBR	US 190 MS River Bridge	Repairs	375	NHS
51	450-92-0036	EBR	I 110 (I 10 - US 61)	Reconstruct at Grade Concrete Pvmt.	27,000	DEMO
52	255-01-99B	EBR	LA 408 (Harding Blvd @ I-110)	Intersection Improvemment 255-01-99B	500	CM
53	454-01-0068	EBR	I-12 @ Essen Ln Ph-II	New Ramp	11,500	NHS
54		WBR	I-10 / LA 1 Connector Study	Study	1,000	DEMO
55		EBR	Baton Rouge Loop Study	Engineering	500	DEMO
56			Federal Off-System Bridges	Bridge Replacement	5,000	DEMO
57			Bridge Rail and Guard Rail	Bridge Rehabilitation	2,000	FBR
58			Bridge Painting	Bridge Maintenance	2,000	FBR
59			Federal Bridge Inspection Programs	Bridge Inspection	2,000	FBR
60			Interstate Preventive Maintenance	Maintenance	10,000	IM
61			Interstate Maintenance	Maintenance	20,000	IM
63			Overlay	Overlay	20,000	OLAY
64			Bridge Repair	Bridge Repair	2,000	STPFLEX
65			Federal Enhancement Projects	Enhancement	2,500	STCASH
66			Hazardous Elimination Projects	Safety	5,000	STPENH
67			Incidence Management	Incidence Management	5,000	STPHAZ
68			Traffic Management Center	Operations & Maint.	2,000	CMAQ

69			Railroad Crossing Improvements	Railroad Safety	5,000	NHS
				Total	820,385	

*Funding category to be determined by LA DOTD / CRPC.

FIGURE 53

STAGE II (2013-2022) IMPROVEMENT PROGRAM

TABLE 52
STAGE III (2023 - 2032)

S. No	Project Number	Parish	Name (Location)	Improvement	Total Cost (000)	Funding Source
1		ASC	LA 70 (I-10 to Assumption Parish Line)	Widen to 4 Lanes	17,500	STPFLEX*
2		EBR	US 61 Airline (Cedarcrest to Perkins Rd)	Widen to 6 Lanes	25,000	STPFLEX*
3		LIV	LA 447 Walker North/South (Duff to Hood Rds)	Widen to 4 flanes	30,000	STP<5K*
4		WBR	WBR Connector Road (LA 415 - LA 1)	New 2-Lane Road	16,900	STP<5K*
5		EBR	Hooper Rd (Plank to Mickens Rd.)	Widen to 6 Lanes	8,740	STPFLEX
6		EBR	Plank Rd. (Groom Rd to LA 64)	Widen to 4 Lanes	19,640	STPFLEX
7		LIV	LA 408 Extenstion (From Devall Rd to 0.4Miles East of LA 16)	New 4 lane extension	50,000	DEMO
8		ASC	LA 44 (LA 621 to LA 42)	Widen to 4 Lanes	15,000	STP<5K*
9	254-02-0039	EBR	LA 37 Greenwell Springs Rd (Sullivan - Magnolia)	Widen to 5 Lanes	33,900	STPFLEX
10		EBR	Rolins Rd (Ext to LA 19)	New 2 Lane Extension	3,000	STP<5K*
11		EBR	Mickens Rd (From LA 946 Joor Rd to LA 67 Plank Rd)	Widen to 4 Lanes	21,000	STPFLEX*
12		EBR	Signal Synchronization Stage -VI	Signal Synchronization	5,500	CMAQ
13		EBR	Traffic Management Center	Operations & Maintenance	3,000	CMAQ
14		EBR	Transfer CMAQ funds to STPHAZ	City's Share of M.A.P.	3,500	CMAQ
15		EBR	Flex to Transit	Operating	10,000	CMAQ
16		EBR	Regional Rideshare Program	Administration	2,000	CMAQ
17			Various Locations	Intersection Improvements	6,000	CMAQ
18			Various Locations	ITS Deployment	48,000	CMAQ, NHS, IM
19			Various Locations	Bridge Replacements	8,000	FBR
20			Various Locations	Maintenance	8,000	IM
21			Various Locations	Overlay	8,000	OLAY
22			Various Locations	Enhancements	2,000	STPENH
23			Various Locations	HAZ/Design/Engineering	8,000	STPHAZ
24			Various Locations	Signal Synchronization	16,000	CMAQ
25	742-17-0016	EBR	Bluebonnet Blvd	Landscaping	52	STP>200K
26		EBR	US 190 - Mississippi River Bridge	Painting	68,350	NHS
27	744-17-0004	EBR	I-10 (I-10 @ Essen)	Landscaping @ Entr/Exit	25	STPENH
				Total	437,107	

FIGURE 54

STAGE III (2023-2032) IMPROVEMENT PROGRAM

The Plan projects for the 25-year period were allocated to appropriate funding programs as follows:

IM	$154,610,000
CM	$113,302,000
NHS	$223,106,000
STPCASH	$55,975,000
STP<5K	$92,600,000
STP>200K	$180,466,000
STPENH	$10,386,000
STPFLEX	$268,495,000
STPHAZ	$27,760,000
FBR	$89,572,000
DEMO	$189,356,000
OVERLAY	$38,000,000
OTHER	$30,508,000
CITY/PARISH	$537,265,000
TRANSIT FUNDING	$965,499,000
TOTAL	**$2,976,800,000**

UNMET NEEDS

As mentioned previously in Section VII of this report, the Consultant Team developed a list of 100 projects to serve as candidates for improvements based on a detailed review of volume-capacity-related deficiencies shown previously in **Figure 42** and on discussions with public officials. The following is a selection of projects from that list which would improve traffic flow but which were not included in the recommended Plan because adequate funds were not available.

TABLE 53
UNMET NEEDS

Parish	Name (Location)	Improvement	Total Cost (000)
ASC	LA 621 (LA 73 to US 61)	Widen to 4 Lanes	10,000
EBR	I-10 / I-110	On - Off Ramp Improvements	50,000
LIV	US 190 Florida (From LA 1027 to LA 63 Frost Rd)	Widen to 4 Lanes	23,500
LIV	LA 1026 Lockhart Rd (From LA 16 North Range to Burgess Rd)	Widen to 4 Lanes	14,000
EBR	LA 30 Nicholson Drive (Ben Hur to LA 74)	Widen to 4 Lanes	59,600
ASC	I-10 (From Siegen Lane to LA 44)	Widen to 6 Lanes	114,954
ASC	US 61 (LA 44 to EBR Parish Line)	Widen to 8 Lanes	56,000
ASC	LA 30 (LA 3251 to LA 44)	Widen to 4 Lanes	10,000
EBR	I-10 at Pecue Lane	New Interchange Ramps	10,000
EBR	LA 427 Perkins(Acadian to Essen)	Widen to 6 Lanes	19,200
EBR	Acadian/Stanford(Bawell to W Lakeshore)	Widen to 6 Lanes	10,200
ASC	LA 22(Weber City Rd to LA 16 at Head of Island)	Widen to 4 Lanes	45,600
LIV	LA 16(LA 444 in F Settlement to LA 42/LA 16 in P Vincent)	Widne to 4 Lanes	22,000
LIV	LA 16(LA 42/LA 16 in P Vincent to 4-H Club Road)	Widen to 4 Lanes	14,000
EBR	US 190 Florida(O'Neal Ln to 4-H Club Rd)	Widen to 6 Lanes	13,800
LIV	I-12(Pete's Highway to Frost Rd)	Widen to 6 Lanes	72,000
EBR	S Sherwood Forest(Airline to Old Hammond)	Widen to 6 Lanes	16,800
EBR	College Drive(Perkins to I-10)	Widen to 6 Lanes	3,000
EBR	College Drive(I-10 to Foster)	Widen to 6 Lanes	6,000
EBR	LA 327 River Road(South Blvd to Brightside Ln)	Widen to 4 Lanes	13,200
ASC	Industrial Access Corridor(I-10 @ LA 73 to LA 942)	New 4 Lanes	70,000
EBR	Coursey Blvd(Airline to O'Neal Lane)	Widen to 6 Lanes	23,400
EBR	Highland Rd(Chimes to Perkins Rd)	Widen to 4 Lanes	43,200
EBR	Dalrymple Drive(I-10 to Highland Rd)	Widen to 4 Lanes	4,400
EBR	LA 3236 Siegen Ln(Perkins to Airline)	Widen to 6 Lanes	15,000
EBR	Jefferson Hwy(Lobdell to Bluebonnet)	Widen to 6 Lanes	15,600
EBR	LA 37 Greenwell Springs(Airline to Sullivan)	Widen to 6 Lanes	34,800
EBR	US 61 Scenic Highway(I-110 to Irene)	Widen to 6 Lanes	35,400
EBR	I-10(Mississippi R Bridge to I-10/I-12 split)	Widen to 8 Lanes, ramps	90,000
EBR	US 61 Airline(Cedarcrest to Florida)	Widen to 8 Lanes	19,200
ASC	LA 431(Airline to LA 931)	Widen to 4 Lanes	37,800
WBR	LA 1(Brusly to Iberville Parish Line)	Widen to 6 Lanes	30,000
EBR	LA 1248 Bluebonnet(Highland to Airline)	Widen to 6 Lanes	27,600
		TOTAL	1,030,254

PLAN ADOPTION AND MAINTENANCE

Once the Recommended Transportation Plan is developed, efforts should continue toward adoption, maintenance and periodic updating.

Adoption

It is understood that unanticipated development and changes in the economic climate of an area call for periodic revisions to the Plan. These situations do not invalidate the need for the Plan to be officially adopted and enforced. Adoption by local governing bodies will officially recognize and confirm the status of the Plan as a part of the policies and procedures of planning and development for all governing bodies within the Study Area.

Continuing Transportation Planning

A continuing transportation planning process is an important part of overall planning. It is also an essential requirement to ensure that the transportation system is serving the travel demand in an efficient and effective manner. In addition, an annual evaluation of the Plan is required by the 3-C Planning Process. The Capital Region Planning Commission as the MPO for the Baton Rouge area is the agency responsible for conducting continuing transportation planning. The process is coordinated with other local and State planning activities through the Technical Advisory Committee and the Policy Committee.

Implementation of the Plan should be continually monitored to determine any necessary revisions in the Program resulting from changes in urban development and travel patterns that were not determined when the Plan was prepared. Maintenance of current information on land use planning data and travel demand – and how they interrelate – will permit a continuing evaluation of the transportation needs of the area. This continuing transportation planning process will protect the local, State and Federal governments’ investment in necessary improvements.

The continuing transportation planning process should contain at least the following three steps:

1. Collect, maintain and annually update key land use and planning data, system characteristics and travel demand information. This Plan was prepared based on specific land uses, population and socio-economic data. An annual update of this data is essential to maintain an up-to-date transportation plan. Information should be maintained and collected in order to update travel demands as they pertain to the transportation system. Information from the land use and planning data collection should be compared with forecasts from this study to determine the continued validity of the projections. Information concerning the use, capacity, finances, and level of service of the transportation system should be maintained and collected periodically in order to provide current knowledge of the total system operation for evaluation with respect to future need and possible change.

2. Evaluate the current Plan. Based on updated data, annual projections of future travel demands should be made. This data should then be compared with projections estimated in the original Plan. It must then be determined if the Plan needs revision.

3. Revise and update the Plan as needed based on new projections of travel demand, the results of sample surveys, and current transportation system data.

CRPC when fully staffed has the capability of conducting the continuing transportation planning process.

Conclusion

Once formally adopted the Plan will provide a framework for rational implementation of a transportation system to satisfy the travel demand as the Baton Rouge Metropolitan Area continues to develop and grow into the future. The realization of the recommended improvements will require the continued coordination and cooperation of local, State and Federal officials in making decisions concerning the availability and use of transportation improvement funds. The ultimate improvement and fulfilling of the mobility and access needs of the traveling public in the Baton Rouge area will depend on the degree of compliance with the Recommended Transportation Plan.

IX. FEASIBILITY OF BICYCLE AND PEDESTRIAN FACILITIES

Introduction –The National Perspective

The following is an excerpt from the U.S. Department of Transportation Policy Statement Integrating Bicycling and Walking in Transportation Infrastructure**:**

"The Challenge: Balancing Competing Interests"

For most of the second half of the 20th Century, the transportation, traffic engineering and highway professions in the United States were synonymous. They shared a singular purpose**:** building a transportation system that promoted the safety, convenience and comfort of motor vehicles. The post-war boom in car and home ownership, the growth of suburban America, the challenge of completing the Interstate System, and the continued availability of cheap gasoline all fueled the development of a transportation infrastructure focused almost exclusively on the private motor car and commercial truck.

During the 1990s, Congress spearheaded a movement towards a transportation system that favors people and goods over motor vehicles with passage of the Intermodal Surface Transportation Efficiency Act (1991) and the Transportation Equity Act for the 21st Century (1998). The call for more walkable, liveable, and accessible communities, has seen bicycling and walking emerge as an 'indicator species' for the health and well-being of a community. People want to live and work in places where they can safely and conveniently walk and/or bicycle and not always have to deal with worsening traffic congestion, road rage and the fight for a parking space. Vice President Gore launched a Livability Initiative in 1999 with the ironic statement that "a gallon of gas can be used up just driving to get a gallon of milk."

The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel."

The Congress continued the above movement favoring people and goods through a bill entitled "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA – LU)". The President signed SAFETEA – LU into law August 10, 2005. This law authorizes the Federal surface transportation programs (STP) for highways, highway safety and transit for the five-year period 2005 – 2009.

Of particular relevance to the feasibility of bicycle and pedestrian facilities, SAFETEA – LU addressed Transportation Enhancement funds as follows:

"Transportation enhancement activities continue to be funded through a set-aside of 10%, or the amount set aside in FY 2005, whichever is greater, from STP funds"

Transportation Enhancement funds are a popular means of financing bicycle and pedestrian facilities. Hence, funds for these two modes of transportation have theoretically been extended for an additional five years. Bike paths and walkways have to compete with eleven other activities for Transportation Enhancement funds, and dedication of such funds to these two types of facilities falls to the whims of governmental agencies.

State of Louisiana and East Baton Rouge City-Parish governments have integrated cycling and walking into the mix for transportation as well as for recreation in the Baton Rouge Urbanized Area. Bicycle and pedestrian Plans have been developed to address the feasibility of facilities for these activities (See List of References).

Statewide Perspective

The Louisiana Department of Transportation (LA DOTD) has a Statewide Bicycle and Pedestrian Master Plan dated May, 1998. (LA DOTD plans an update to its Master Plan in the near future.) An excerpt from the current Master Plan follows and relates some LA DOTD perspective.

"The State of Louisiana recognizes the bicycle as a vehicle, which gives cyclists the full rights and responsibilities for the use of the roadway. However, in most cases roadway design does not take into account the special needs of cyclists. While experienced cyclists will ride on almost any route, less experienced riders and children will be more comfortable and more likely to use their bikes for transportation as well as recreation if some level of special provisions for cyclists is incorporated into the design. Both motorists and cyclists can benefit from the use of integrated design, which facilitates bicycle travel and reduces possible conflicts between the two modes of travel."

LA DOTD has a Bicycle and Pedestrian Coordinator, a State Routes To School Coordinator, an Enhancements Coordinator, and an Enhancements Program Manger to plan and coordinate activities relative to bicycles and walkways.

LA DOTD has produced a 26-inch by 27-inch, glossy document entitled "Louisiana Bicycle Map". One side of the document has a map of the State of Louisiana with yellow-highlighted, suggested cross-state bicycle routes (State highways). The other side of the document has similarly highlighted maps of Baton Rouge and New Orleans, and narrative information regarding recommended bicycle practices, locations and characteristics of river ferries, etc.

LA DOTD has an internet web site that has links to bicycle maps, relevant Engineering Directives and Standards Manual, bicycle laws, pedestrian duties and rights, and related associations and organizations. A copy of one of the maps is presented as **Figure 55**. LA DOTD works with other agencies to provide classroom instruction and field exercises regarding bicycling and walking. LA DOTD co-sponsored such a program on June 25 – 28, 2007, at the offices of the New Orleans Regional Planning Commission. Class participants received copies of the AASHTO documents "Guide for the Development of

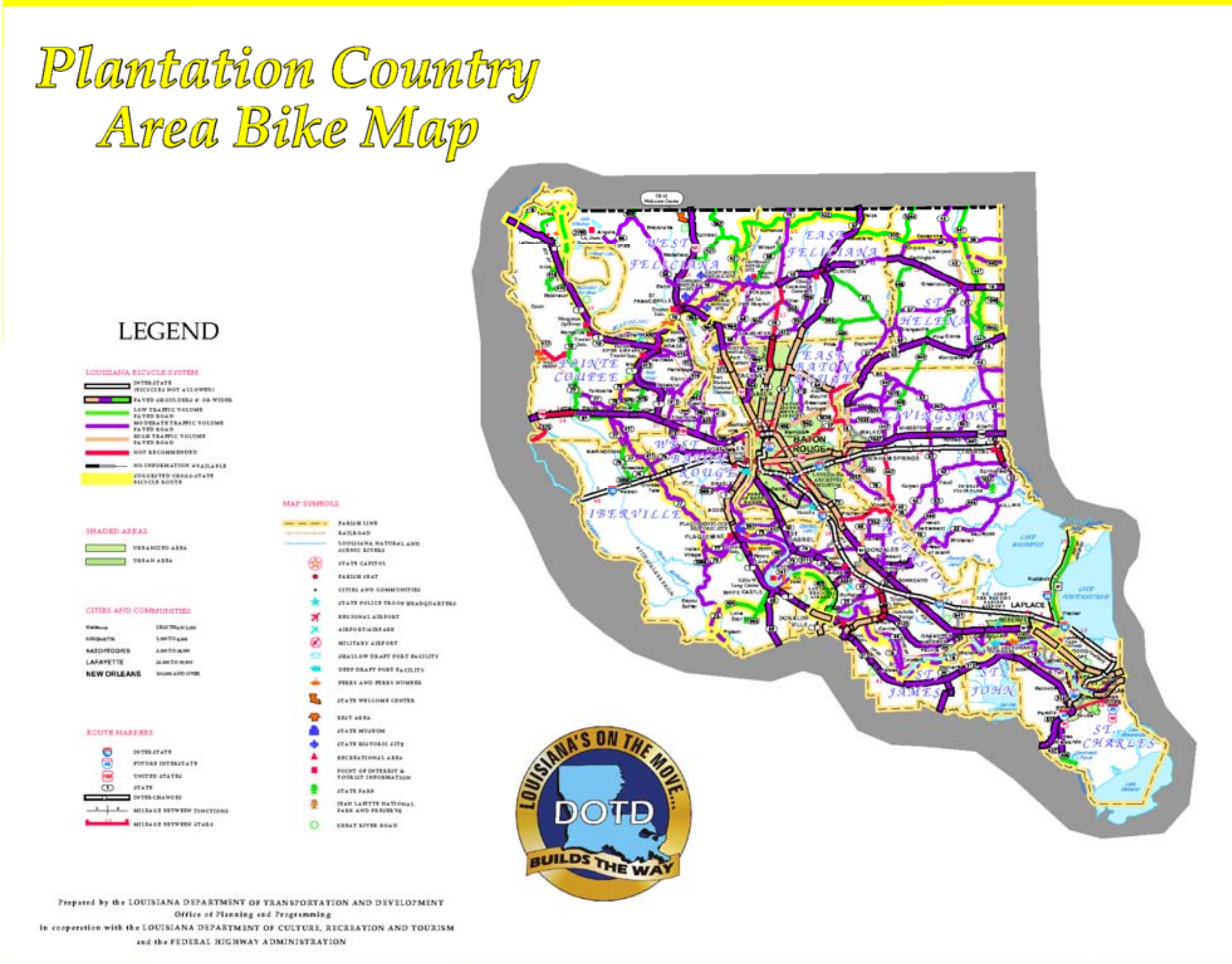
Bicycle Facilities", 1999, and "Guide for the Planning, Design, and Operation of Pedestrian Facilities", 2004.

LA DOTD is participating in the federally sponsored Safe Routes to School Program (SRTS or SR2S). From the internet Program page:

"Safe Routes to School programs all share one common goal – to improve the health of kids and the community by making walking and bicycling to school safer, easier and more enjoyable." This goal is achieved by providing funds for infrastructure and non-infrastructure projects. Louisiana received approximately $9 million to fund Safe Route to School projects throughout the State over a three-year period. The Safe Routes to School program will have the traditional four goals for bicycle and pedestrian facilities ("Four E's) engineering, education, encouragement and enforcement plus an Evaluation element (Fifth "E").

The non-profit corporation America Bikes reports, with reference to SAFETEA-LU and Transportation Enhancements, respectively, "If spending follows the pattern from the past two bills, about 55% of this total will go to bicycle and pedestrian projects,…But state funding decisions for Transportation Enhancements vary widely." Hence, the feasibility of building bicycle and pedestrian facilities in Louisiana depends on LA DOTD's selective use of the Transportation Enhancement funds.

FIGURE 55


Plantation Country
Area Bike Map
LEGEND
LOUISIANA ON THE MOVE...
DOTD
BUILDS THE WAY
Prepared by the LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Office of Planning and Programming
in cooperation with the LOUISIANA DEPARTMENT OF CULTURE, RECREATION AND TOURISM
and the FEDERAL HIGHWAY ADMINISTRATION

Local Perspective

Typical generators of bicycle and pedestrian traffic in the Baton Rouge area are the central business districts in Baton Rouge and the smaller surrounding communities. The areas around Louisiana State University, local and private schools, public libraries and recreational parks are also primary locations. Some facilities in these areas are shared by cyclists and pedestrians, some are designed just for pedestrians (sidewalks) and others are provided just for bicycles (e.g., special lanes along streets).

There are active groups in the Baton Rouge study area that are promoting the development and use of bicycle and pedestrian facilities. Particularly noteworthy are the Capital Region Bicycle Pedestrian Advisory Committee (with its Projects Subcommittee), the Baton Rouge Bicycle Club, the Baton Rouge Advocates for Safe Streets, and the East Baton Rouge City-Parish Government (the Baton Rouge Recreation and Parks Commission, and the Department of Public Works with a person assigned to coordination for bicycle and pedestrian paths).

The Capital Region Bicycle Pedestrian Advisory Committee provides a forum for all the above groups to meet and discuss engineering, education, enforcement and encouragement issues related to these two non-motorized modes of transportation.

On June 21, 2007, the Capital Region Bicycle Pedestrian Advisory Committee met in an irregular session. (The Advisory Committee normally meets the second Thursday of each month.) The June 21 Advisory Committee meeting was attended by representatives of the Capital Region Planning Commission, the Baton Rouge Bicycle Club, the Sierra Club, the Baton Rouge Recreation and Parks Commission, the Baton Rouge Advocates for Safe Streets, and the GPOA. Two visitors attended to provide verbal support for the Essen Lane / I-12 Overpass Bypass Trail.

The Advisory Committee chairman addressed the Project Subcommittee at its June 7 meeting regarding the selection of candidate bike-ped construction projects with these words, "I appreciate the fast and effective response that this committee of dedicated volunteers has responded to this opportunity. **It demonstrates again the interest and commitment that abounds in Baton Rouge to make this a more bicycle and pedestrian friendly community for the benefit of us all."**

Conclusions

The Consultants conclude that local, state and national perspectives regarding the use of bicycle and pedestrian facilities have much in common. The sentiments and actions reflected above in relation to the June 2007 meetings of the Advisory Committee indicate that it is indeed feasible to expect the further expansion and maintenance of bike -ped facilities in the Baton Rouge area. The promotion of good health, recreation for all ages, and wise economics, and the fervency of a core group of "vehicular cyclists" and walkers will demand it.

From the U.S. Department of Transportation (See List of References):

"There is no question that conditions for bicycling and walking need to be improved in every community in the United States; it is no longer acceptable that 6,000 bicyclists and pedestrians are killed in traffic every year, that people with disabilities cannot travel without encountering barriers, and that two desirable and efficient modes of travel have been made difficult and uncomfortable.

Every transportation agency has the responsibility and the opportunity to make a difference to the bicycle-friendliness and walkability of our communities. The design information to accommodate bicyclists and pedestrians is available, as is the funding. The United States Department of Transportation is committed to doing all it can to improve conditions for bicycling and walking and to make them safer ways to travel."

X. APPENDIX

APPENDIX A

TRAFFIC ANALYSIS ZONES

INSERT TAZ MAP

APPENDIX B

2004 PLANNING DATA

2004 Planning Data

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
1	933	499	199	293	20
2	818	340	0	13	0
3	1469	579	16	240	964
4	278	139	367	870	30
5	397	250	218	821	0
6	376	157	464	2949	0
7	2698	1480	236	1510	106
8	2515	1229	190	1397	30
9	3230	1356	232	3311	0
10	3642	1650	145	516	0
11	546	210	12	171	94
12	1367	572	0	362	2001
13	967	364	0	62	0
14	1157	419	196	655	0
15	548	164	73	211	0
16	477	186	0	115	1051
17	1914	724	1	337	514
18	953	458	66	236	191
19	2572	942	208	1032	15
20	3802	1293	132	1602	2097
21	3131	1220	380	1222	0
22	3455	1208	213	657	428
23	1245	476	14	43	0
24	1466	680	31	130	0
25	681	293	14	54	0
26	1962	826	9	70	184
27	2040	771	26	545	0
28	988	394	106	355	826
29	963	309	358	728	595
30	796	299	30	161	0
31	1393	521	22	402	1065
32	2254	857	322	517	0
33	2153	825	11	143	0
34	2420	939	224	689	0
35	692	267	2	77	0
36	2795	901	318	542	15

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
37	3146	1125	16	699	1790
38	424	139	0	493	0
39	2921	1081	6	190	0
40	889	297	0	73	0
41	2197	883	33	179	4
42	17	6	0	0	0
43	998	347	20	190	647
44	2698	886	19	235	513
45	1157	405	0	386	1137
46	686	241	730	849	0
47	990	373	49	247	879
48	2613	914	20	105	0
49	173	68	6	22	0
50	1604	581	0	175	0
51	644	232	3	63	0
52	1692	584	7	135	0
53	194	78	82	364	0
54	2447	859	278	331	0
55	534	189	0	0	0
56	6515	2045	14	290	569
57	124	38	0	9	0
58	1397	462	0	146	536
59	2308	821	748	1997	807
60	1818	696	41	682	0
61	1034	430	236	931	0
62	1517	514	36	649	0
63	46	18	0	0	0
64	834	279	0	23	0
65	1896	647	0	573	319
66	277	95	54	1735	0
67	2294	1013	285	667	0
68	6	2	0	0	0
69	2648	971	283	490	527
70	1092	401	0	158	390
71	281	110	38	860	0
72	1485	424	3	477	343
73	1505	575	71	270	879
74	1003	320	0	146	394

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
75	2028	638	1	18	0
76	279	102	0	10	0
77	828	291	56	70	0
78	1663	609	0	55	0
79	197	58	3	23	0
80	274	87	0	18	0
81	436	150	0	164	0
82	1860	650	39	390	0
83	572	195	1	276	761
84	1782	612	6	62	0
85	867	322	6	144	372
86	1059	424	260	593	666
87	949	327	1	19	0
88	2757	991	547	658	0
89	219	92	0	315	1294
90	1492	549	66	177	0
91	897	301	69	376	0
92	1115	388	240	353	0
93	1091	416	63	135	0
94	0	0	65	412	0
95	205	147	173	694	317
96	1797	697	125	199	0
97	1712	645	24	765	0
98	2468	859	88	663	1075
99	2237	691	89	394	30
100	305	99	25	267	0
101	507	178	23	134	0
102	0	0	0	1688	0
103	2	1	0	602	0
104	0	0	0	1469	0
105	0	0	0	1	0
106	499	228	66	2037	0
107	2451	850	140	348	0
108	1832	601	2	87	291
109	521	194	11	127	0
110	174	53	0	20	0
111	412	156	3	82	698
112	664	281	0	39	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
113	199	80	0	0	0
114	1580	529	17	51	0
115	667	226	0	100	0
116	558	208	0	10	0
117	432	147	60	181	0
118	957	332	0	3	0
119	479	163	24	121	0
120	280	104	0	18	0
121	166	59	0	19	0
122	550	173	0	58	0
123	167	56	0	24	0
124	250	83	0	0	0
125	704	247	0	1	0
126	1255	463	3	262	393
127	1668	317	13	81	0
128	144	49	2	649	0
129	7	2	0	323	0
130	145	66	3	385	1100
131	2731	938	2	18	0
132	2163	862	1	114	391
133	2471	1236	0	46	9449
134	192	65	0	80	0
135	1227	392	0	29	0
136	603	191	0	23	0
137	318	107	0	10	0
138	516	161	2	3	0
139	496	164	0	26	0
140	942	352	0	43	0
141	380	130	0	3	0
142	319	109	0	250	1657
143	177	58	0	0	0
144	276	88	18	19	0
145	205	69	0	2	0
146	283	120	0	8	0
147	788	268	0	8	0
148	83	30	0	1	0
149	349	128	0	7	0
150	27	9	0	0	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
151	91	34	0	3	0
152	453	136	0	0	0
153	227	89	0	0	0
154	296	132	272	376	0
155	299	91	195	984	0
156	1133	361	1	759	0
157	686	227	22	1047	493
158	96	31	2	14	0
159	2269	725	48	181	0
160	3539	1221	7	251	531
161	1708	529	0	216	707
162	550	189	23	420	0
163	682	221	557	764	15
164	1918	619	8	204	1450
165	1847	655	163	358	389
166	711	331	2	261	187
167	587	208	136	170	0
168	5	3	104	180	0
169	1131	386	85	196	0
170	2643	882	29	214	885
171	3247	997	71	1193	0
172	2112	783	204	301	0
173	1503	560	152	409	608
174	110	39	4	8	0
175	773	241	727	921	0
176	1908	589	2	465	1096
177	3890	1191	8	93	410
178	1368	457	10	119	503
179	976	399	95	232	0
180	543	172	40	110	0
181	1483	501	14	73	0
182	839	250	0	114	482
183	2022	645	18	82	0
184	650	229	122	457	498
185	333	126	0	24	0
186	997	366	62	196	0
187	1659	621	263	364	0
188	1628	512	91	128	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
189	2839	968	8	322	1319
190	2551	855	19	434	323
191	686	259	25	138	148
192	904	299	0	43	0
193	1609	583	7	177	528
194	368	136	42	168	0
195	114	39	0	0	0
196	601	218	10	42	0
197	1062	359	0	5	0
198	132	44	5	6	0
199	176	61	12	56	18
200	829	303	55	291	805
201	2798	874	0	320	1719
202	1269	442	57	374	0
203	596	191	0	76	0
204	1097	372	0	91	732
205	136	48	0	35	0
206	53	17	0	7	0
207	21	9	0	0	0
208	21	7	0	0	0
209	28	9	0	5	0
210	827	310	0	3	0
211	563	214	218	442	0
212	468	158	0	27	0
213	85	25	0	31	0
214	811	257	95	266	251
215	859	332	8	139	0
216	998	360	0	167	0
217	1074	386	26	37	0
218	1960	786	0	35	0
219	748	287	4	432	0
220	2172	761	14	70	0
221	1847	681	244	2127	0
222	2301	958	217	426	0
223	671	244	0	790	0
224	135	64	445	4069	337
225	1418	730	92	562	354
226	830	323	9	227	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
227	659	235	289	634	0
228	1945	768	25	1666	0
229	821	342	153	362	0
230	1427	517	250	443	774
231	825	383	64	804	0
232	584	211	286	1459	320
233	1178	449	247	1680	2259
234	1702	710	184	619	206
235	1677	872	151	1098	0
236	246	103	49	99	0
237	482	200	7	54	0
238	660	277	266	1225	571
239	664	278	190	581	257
240	1316	519	173	662	580
241	540	211	2	22	0
242	764	343	108	219	0
243	249	89	46	416	0
244	255	121	2320	2822	0
245	85	44	236	1224	30
246	1321	467	36	480	433
247	876	352	18	604	1478
248	0	0	841	1412	0
249	1399	696	117	162	0
250	1109	467	24	242	0
251	449	221	378	714	0
252	1184	630	2	378	0
253	421	187	286	2471	21
254	732	368	277	588	0
255	2721	1415	183	1598	125
256	1153	670	21	6892	0
257	2288	871	66	626	473
258	1397	778	340	4117	0
259	296	134	157	952	0
260	608	237	75	1448	0
261	986	350	79	405	166
262	1056	413	28	250	424
263	1651	602	0	10	0
264	1119	564	53	1087	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
265	633	164	39	88	0
266	896	391	107	251	0
267	490	144	91	953	835
268	2575	983	20	247	0
269	0	0	2282	2485	0
270	608	212	126	239	884
271	2733	895	2	43	0
272	5962	2484	650	3162	561
273	198	82	540	4200	30
274	345	136	231	1155	0
275	225	96	774	3059	0
276	8	3	1374	1627	0
277	2184	776	130	372	0
278	5217	1944	34	528	0
279	0	0	0	0	0
280	815	256	0	43	0
281	1708	597	39	816	0
282	1017	329	387	2331	0
283	0	0	0	166	0
284	850	267	493	2224	0
285	1132	427	66	406	442
286	317	111	31	108	0
287	2559	949	45	1573	1577
288	2522	907	43	121	0
289	2197	731	1	143	395
290	2629	971	41	701	800
291	539	251	7	614	1250
292	440	251	144	298	908
293	1353	648	220	921	779
294	1490	746	200	707	849
295	3468	1365	241	3378	0
296	443	168	69	458	251
297	1231	626	91	1292	249
298	2492	870	1	96	0
299	1547	741	206	503	375
300	118	50	185	371	39
301	88	74	3	3	0
302	5718	2102	74	310	74

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
303	17	6	0	0	0
304	3156	1057	0	340	0
305	1917	841	19	156	621
306	561	211	16	180	790
307	806	324	73	126	0
308	1214	513	73	171	30
309	270	122	159	223	0
310	1320	599	708	864	248
311	65	22	0	12	0
312	4419	2209	38	1412	2201
313	2859	1429	420	6080	29626
314	851	434	0	570	416
315	3847	2167	99	513	0
316	6214	2889	626	1070	0
317	1105	497	1	50	0
318	915	517	32	67	0
319	1344	634	81	411	0
320	694	270	0	8	0
321	1488	586	0	94	410
322	0	0	2	5317	0
323	940	667	8	64	0
324	20	13	68	1592	0
325	57	41	54	2261	0
326	34	26	2	1311	0
327	0	0	6	89	0
328	0	0	40	749	277
329	0	0	0	557	0
330	0	0	2	781	0
331	5	3	15	728	0
332	209	110	25	494	140
333	3	3	8	884	0
334	40	30	0	155	0
335	303	134	111	1061	244
336	203	114	0	2262	0
337	28	14	2	6532	0
338	1446	481	18	268	132
339	307	114	50	470	0
340	398	144	1	150	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
341	470	158	4	508	29
342	647	200	7	884	0
343	395	136	0	127	0
344	699	279	10	46	0
345	818	331	9	78	231
346	900	395	36	51	0
347	1190	484	22	145	0
348	614	215	0	174	0
349	154	50	30	145	0
350	1269	727	403	2258	1083
351	338	181	17	1151	30
352	181	40	284	9930	0
353	35	8	9	11	0
354	528	111	0	541	0
355	2598	1292	119	892	0
356	8	2	139	1708	85
357	690	343	450	960	0
358	1207	571	320	795	16
359	0	0	76	1105	30
360	1689	802	30	1592	140
361	1382	592	56	140	165
362	3644	1603	51	485	1420
363	1457	720	38	143	0
364	1356	691	3	42	0
365	1189	591	0	159	741
366	1089	510	660	1271	1407
367	214	78	172	415	0
368	974	335	167	793	98
369	787	320	0	488	403
370	989	387	2	27	0
371	1042	554	172	488	15
372	2053	869	153	4143	536
373	2015	938	221	402	526
374	1111	372	19	221	0
375	2101	754	65	1432	1201
376	1121	546	487	3612	2577
377	420	225	142	439	0
378	642	362	0	720	773

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
379	588	259	0	12	0
380	1037	694	70	539	420
381	0	0	703	1964	0
382	1486	531	0	19	0
383	350	147	1409	2637	42
384	2340	971	146	558	1201
401	711	257	13	660	0
402	67	23	9	145	0
403	83	41	0	5	0
404	18	6	164	488	0
405	58	27	0	55	0
406	22	7	0	32	0
407	333	149	0	1	0
408	285	108	0	60	0
409	174	62	35	86	0
410	481	162	19	137	532
411	63	24	10	153	0
412	9	3	0	0	0
413	158	56	397	572	0
414	1034	326	4	184	252
415	17	8	0	65	0
416	1156	479	7	910	1031
417	1229	427	231	325	0
418	848	382	41	292	0
419	1486	547	8	266	0
420	0	0	49	669	0
421	312	149	141	1101	0
422	0	0	0	493	0
423	776	263	27	628	0
424	1148	431	176	520	1340
425	617	220	2	8	0
426	1094	384	0	173	375
427	29	10	0	0	0
428	276	93	0	53	0
429	1004	299	53	435	0
430	106	42	0	0	0
431	24	8	4	150	0
432	56	23	0	0	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
433	71	18	16	16	0
434	87	29	0	221	0
435	901	319	0	54	0
436	798	262	0	101	0
437	1381	474	0	92	0
438	209	83	14	111	0
439	0	0	0	0	0
440	2	2	0	0	0
441	377	148	50	237	0
442	644	230	3	8	0
443	50	24	0	0	0
444	22	10	33	276	0
451	514	172	0	11	0
452	1792	602	30	218	725
453	4010	1276	51	411	2294
454	1615	561	75	256	512
455	1309	466	18	102	0
456	2422	804	0	123	0
457	3185	1106	86	186	0
458	893	300	202	253	0
459	1256	458	0	94	0
460	1285	484	0	24	0
461	2289	784	6	60	0
462	995	332	0	10	0
463	1050	366	0	3	0
464	1071	366	0	4	0
465	1288	435	2	34	0
466	1047	375	3	315	603
467	786	262	0	46	0
468	544	176	0	51	106
469	374	158	13	54	0
470	306	124	760	874	0
471	695	236	4	20	0
472	325	126	0	24	0
473	332	113	0	67	0
474	949	347	16	106	0
475	356	113	171	202	0
476	623	201	0	0	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
477	938	387	13	555	2845
478	496	181	2	22	0
479	766	264	1	241	0
480	1198	419	9	292	514
481	293	106	0	159	0
482	2453	849	13	63	0
483	1670	541	51	189	534
484	446	153	0	10	0
485	333	149	16	106	0
486	495	216	2	49	121
487	846	307	22	287	1784
488	663	275	0	364	1854
489	215	100	68	231	0
490	205	85	28	34	0
491	169	69	0	39	0
492	738	263	106	573	0
493	583	230	201	741	469
494	1153	430	194	309	0
495	156	64	0	5	0
496	196	76	16	103	0
497	711	269	77	132	0
498	1107	383	0	9	0
499	234	74	0	5	0
500	314	125	1	23	0
501	116	56	549	874	0
502	935	334	162	646	0
503	261	113	50	268	0
504	366	136	138	194	0
505	242	87	213	629	0
506	260	82	0	20	0
507	491	166	65	229	523
508	976	451	151	585	812
509	2092	695	7	58	0
510	451	129	0	39	0
511	1048	367	0	17	0
512	2412	839	7	33	0
513	706	268	0	94	298
514	2134	752	18	93	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
515	191	67	1	29	0
516	2357	940	0	2	0
517	573	230	14	25	0
518	585	237	0	70	456
519	590	204	0	59	388
520	661	224	0	0	0
521	609	215	6	21	0
522	410	165	57	77	0
523	181	61	0	0	0
524	499	180	0	0	0
525	821	290	128	266	0
526	847	291	15	51	0
527	419	155	11	171	500
528	433	124	0	21	0
529	1534	535	0	83	0
530	376	118	6	21	0
531	276	95	0	0	0
532	1669	593	0	59	0
533	1326	449	0	113	559
534	470	161	0	0	0
535	495	167	0	1	0
536	1033	367	0	0	0
537	393	114	0	0	0
538	544	186	5	162	0
539	146	50	4	7	0
540	104	34	0	2	0
541	960	349	0	87	405
542	1514	497	0	66	0
543	1025	342	0	85	0
544	1253	422	0	36	0
545	638	234	51	56	0
546	474	166	0	12	0
547	313	99	0	0	0
548	96	35	0	0	0
549	548	185	0	3	0
550	715	250	2	109	0
551	1963	631	0	76	0
552	503	168	0	0	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
553	243	72	34	71	0
554	31	12	0	0	0
555	70	19	0	0	0
601	2207	797	328	1324	953
602	1701	653	122	175	0
603	447	168	1	7	0
604	324	125	1	17	0
605	138	46	76	136	0
606	698	259	21	21	0
607	860	345	18	507	0
608	1051	470	0	350	0
609	267	104	162	535	0
610	1855	781	160	332	0
611	1042	433	0	162	617
612	1571	597	16	115	0
613	534	221	28	222	0
614	1321	448	0	18	0
615	801	303	40	146	0
616	1472	596	2	83	714
617	1684	620	3	146	732
618	757	328	0	44	0
619	1259	475	0	201	1031
620	1062	403	7	25	0
621	1778	673	4	101	0
622	380	135	0	179	1366
623	1067	348	7	18	0
624	515	170	0	20	0
625	488	148	94	106	0
626	806	372	0	38	0
627	891	389	0	53	0
628	1067	481	54	122	0
629	684	280	1	16	0
630	693	304	3	233	0
631	311	162	0	59	0
632	317	110	0	4	0
633	40	17	11	11	0
634	2	1	0	30	293
635	506	211	0	6	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
636	661	236	0	5	0
637	516	201	53	67	0
638	541	194	0	39	0
639	498	204	0	235	1297
640	114	46	53	131	0
641	923	310	48	160	133
642	837	275	0	119	0
643	339	123	45	667	0
644	112	35	0	31	0
645	110	40	0	22	0
646	447	141	0	9	0
647	606	189	0	131	0
648	123	34	0	6	0
649	0	0	0	31	0
650	496	160	26	291	0
651	212	74	0	311	0
652	40	10	52	317	0
653	2599	850	100	1116	0
654	834	268	28	93	0
655	23	6	0	323	606
656	676	166	33	256	0
657	487	170	27	300	0
658	501	135	0	20	0
659	585	128	0	125	0
660	220	76	0	7	0
661	160	61	33	412	1017
662	84	23	6	255	0
663	3	1	209	235	0
664	493	168	45	257	0
665	51	17	44	99	0
666	10	3	799	891	0
667	1329	462	146	543	0
668	4	1	4	9	0
669	115	38	0	0	0
670	66	21	242	373	0
671	11	1	0	66	644
672	414	127	0	146	591
673	168	84	120	186	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
674	18	7	368	488	0
675	658	243	110	327	158
676	462	156	0	9	0
677	139	49	0	6	0
678	134	55	70	236	724
679	576	190	18	32	0
680	189	65	0	0	0
681	470	174	1	54	0
682	548	187	0	118	0
683	350	128	14	30	0
684	301	109	42	141	0
685	437	158	66	99	0
686	63	28	77	131	0
687	164	56	0	69	0
688	907	353	11	212	0
689	742	278	40	475	843
690	775	259	0	43	0
691	1634	579	0	249	1005
692	941	279	70	79	0
693	501	178	2	65	0
694	474	161	0	44	0
695	1222	400	0	62	0
696	210	86	24	173	0
697	50	23	52	55	0
698	1104	448	0	13	0
699	1450	599	14	198	0
700	206	94	39	161	0
701	950	351	0	60	0
702	97	42	4	71	0
703	9	5	14	118	0
704	755	285	5	21	0
705	427	165	69	266	1209
706	413	143	19	304	1665
707	730	289	9	47	0
708	259	91	6	192	0
709	725	289	0	180	0
710	4	1	0	224	0
711	662	245	6	397	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
712	79	29	0	46	0
713	0	0	686	756	0
714	0	0	0	267	0
715	6	3	0	33	0
716	0	0	0	0	0
717	35	11	199	338	0
718	0	0	0	0	0
719	4	1	0	919	0
720	0	0	0	0	0
721	0	0	0	0	0
722	272	98	0	54	0
723	160	65	0	1	0
724	321	114	0	0	0
725	289	93	0	50	180
726	75	29	0	0	0
727	217	97	73	328	0
728	49	20	0	2	0
729	0	0	92	365	0
730	0	0	0	113	0
731	113	52	0	12	0
732	0	0	0	0	0
733	59	25	0	0	0
734	7	1	0	0	0
735	0	0	0	0	0
736	291	115	2	11	0
737	451	192	0	15	0
738	562	226	0	46	0
739	236	91	0	0	0
740	145	60	0	2	0
741	655	260	0	2	0
742	25	12	0	0	0
801	0	0	0	0	0
802	265	93	1	284	0
803	216	74	0	600	0
804	0	0	0	411	0
805	271	97	7	1198	0
806	110	44	0	16	0
807	148	55	7	23	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
808	377	141	0	326	0
809	635	220	0	54	0
810	775	264	0	54	0
811	113	36	3	202	477
812	436	159	0	65	0
813	583	215	0	8	0
Totals	611,158	232,634	52,820	287,290	156,048

APPENDIX C

2009 PLANNING DATA

2009 Planning Data

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
1	0		0.00	5800	
2	951	674.81	9.10	70	
3	20	13.00	69.48	1737	
4	68	48.91	48.62	2431	
5	34	26.00	0.00	1430	
6	0		□Ā79	97	
7	0		40.85	817	366
8	0		0.00	708	
9	0		0.00	1419	
10	0	0.00	15.88	794	
11	239	125.79	26.95	539	150
12	37	37.00	7.24	362	
13	51	38.25	0.00	169	
14	314	138.86	115.70	1157	311
15	214	120.18	0.00	3345	
16	28	14.00	0.00	7126	
17	1480	492.31	20.44	292	148
18	364	135.17	56.43	513	
19	432	156.30	1.64	164	
20	500	168.09	5.54	554	39
21	681	210.51	9.64	964	380
22	430	148.05	0.00	139	
23	699	279.00	11.00	50	
24	829	335.45	10.20	85	298
25	934	409.92	39.76	56	
26	1224	497.83	23.70	158	
27	694	243.01	0.00	190	
28	184	59.74	33.18	158	
29	1689	802.00	33.16	829	160
30	1393	596.71	61.20	153	209
31	3674	1616.20	58.19	529	1798
32	1457	720.00	45.36	168	
33	1356	691.00	3.43	49	
34	1197	451.52	76.32	477	508
35	347	121.50	34.22	118	
36	2592	961.24	55.50	1850	1563

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
37	2522	907.00	51.12	142	
38	2197	731.00	1.63	163	428
39	2629	971.00	49.44	824	802
40	572	266.37	7.22	722	1284
41	440	251.00	168.00	350	932
42	1353	648.00	259.92	1083	1207
43	270	122.00	184.60	260	
44	1366	619.87	826.56	1008	259
45	111	37.57	0.00	14	
46	4465	2231.99	49.44	1648	2299
47	2859	1429.00	496.58	7094	31169
48	851	434.00	0.00	665	484
49	4310	2427.81	113.81	599	
50	6631	3082.87	736.32	1248	
51	1198	538.83	1.16	58	
52	1425	805.16	37.44	78	
53	1391	656.17	96.00	480	
54	1606	798.27	0.00	186	965
55	1089	510.00	771.16	1483	1419
56	443	161.47	200.08	488	
57	1072	368.71	195.93	933	122
58	787	320.00	0.00	574	428
59	1022	399.91	2.24	32	
60	1042	554.00	200.90	574	25
61	2086	882.97	194.88	4872	549
62	2080	968.26	260.15	473	533
63	1111	372.00	22.23	247	
64	2259	810.70	160.00	1600	1221
65	1121	546.00	524.55	4035	2600
66	452	242.14	156.80	490	
67	674	380.04	0.00	804	824
68	621	273.54	0.00	14	
69	1219	815.80	76.44	588	480
70	0		771.12	2142	
71	1512	540.29	0.00	21	
72	376	157.92	1,524.28	2876	50
73	2392	992.58	158.34	609	1238
74	2675	933.89	1.05	105	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
75	1625	778.36	225.09	549	508
76	579	245.34	56.00	112	300
77	576	484.36	3.00	3	
78	6367	2340.58	86.88	362	95
79	288	101.65	0.00	300	
80	3427	1147.76	0.00	427	
81	2134	936.20	20.76	173	750
82	587	220.78	17.64	196	1085
83	632	254.05	79.46	137	
84	1240	523.99	80.41	187	40
85	720	280.12	0.00	9	
86	1514	596.24	0.00	103	554
87	1347	771.69	443.34	2463	1117
88	390	208.85	12.55	1255	35
89	233	51.49	324.93	10831	
90	375	85.71	9.84	12	
91	710	149.26	0.00	590	
92	2624	1304.93	126.49	973	
93	429	179.62	52.92	108	
94	545	226.14	7.80	60	
95	1141	480.48	27.00	270	
96	1522	762.02	221.20	790	889
97	3563	1402.39	565.95	3773	
98	760	288.22	76.80	512	299
99	1294	658.04	101.01	1443	301
100	8	2.00	152.64	1908	91
101	912	453.36	503.84	1072	
102	1238	585.67	355.20	888	25
103	0		86.38	1234	40
104	199	94.34	499.95	4545	358
105	1481	762.43	100.48	628	362
106	861	335.06	10.16	254	
107	876	352.00	20.25	675	1682
108	0		946.20	1577	
109	528	259.88	412.87	779	
110	1210	643.83	4.12	412	
111	448	198.99	323.40	2695	30
112	758	381.07	301.27	641	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
113	2747	1428.52	191.73	1743	181
114	1209	702.54	0.00	7518	
115	2314	880.90	75.13	683	588
116	1579	879.36	359.28	4491	
117	426	192.85	166.08	1038	
118	608	237.00	78.95	1579	
119	1090	386.92	88.40	442	184
120	1082	423.17	30.03	273	580
121	1782	649.77	0.00	11	
122	1302	656.24	59.30	1186	
123	850	220.22	21.12	48	
124	1085	473.48	141.47	329	
125	2656	1013.92	21.92	274	
126	2868	939.21	2.40	48	
127	2232	895.08	1.95	39	
128	775	297.36	2.79	279	
129	2199	770.46	15.60	78	
130	1874	690.96	248.60	2260	
131	2301	958.00	241.23	473	
132	861	313.09	43.85	877	
133	707	207.77	100.70	1007	1050
134	108		2,674.44	2907	
135	770	268.49	140.45	265	920
136	6043	2517.75	757.68	3608	750
137	198	82.00	615.55	4735	40
138	427	168.32	266.40	1332	
139	388	165.55	854.75	3419	
140	117	43.88	1,516.20	1805	
141	2401	853.10	144.55	413	0
142	5271	1964.12	35.16	586	300
143	0		0.00	0	
144	896	281.44	31.20	48	
145	1735	606.44	45.25	905	
146	1261	407.93	435.37	2561	
147	81		0.00	184	
148	1039	326.37	537.46	2443	
149	560	183.58	0.00	547	
150	849	302.75	323.38	703	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
151	1999	789.32	36.48	1824	
152	825	383.00	71.36	892	
153	828	299.16	318.80	1594	380
154	1348	513.80	285.00	1900	2567
155	1758	733.36	210.00	700	224
156	1714	891.24	169.54	1211	
157	702	294.63	297.22	1351	621
158	789	330.33	211.53	641	293
159	1482	584.47	189.80	730	631
160	581	227.02	2.16	24	
161	805	361.41	118.58	242	
162	582	208.02	50.49	459	
163	297	140.93	2,551.84	3112	
164	85	44.00	256.50	1350	40
165	1321	467.00	42.32	529	464
166	1482	737.29	128.88	179	
167	975	521.46	219.64	323	30
168	859	357.04	0.00	14	
169	1510	595.16	18.55	265	1051
170	403	201.50	402.78	959	40
171	522	328.72	316.75	905	
172	543	226.73	520.32	3252	
173	2864	1571.06	266.40	1665	110
174	2515	1229.00	221.20	1580	40
175	3343	1403.44	262.08	3744	
176	3857	1747.41	170.80	610	
177	599	230.38	14.14	202	100
178	1408	589.16	0.00	399	2177
179	1050	395.24	0.00	68	
180	1199	434.21	216.60	722	
181	655	196.02	87.15	249	
182	531	207.06	0.00	136	1059
183	1997	755.40	0.00	372	548
184	1078	518.07	72.80	260	221
185	2625	961.41	244.00	1220	25
186	3963	1347.75	151.52	1894	2141
187	3185	1241.04	447.64	1444	495
188	3724	1302.05	248.64	777	433

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
189	1353	517.29	16.83	51	
190	1573	729.63	36.96	154	
191	734	315.80	16.64	64	
192	2177	916.51	64.50	258	250
193	2094	791.41	23.45	469	
194	1384	551.92	120.30	401	939
195	1020	327.29	403.27	823	676
196	1305	490.19	34.58	182	
197	1903	711.75	22.75	455	1211
198	1145	441.78	2.61	87	
199	1330	554.03	171.78	409	
200	1710	619.53	280.56	501	924
201	2254	857.00	362.70	585	
202	2209	846.46	12.96	162	
203	2420	939.00	257.07	779	
204	2852	919.37	361.67	613	25
205	3278	1172.20	15.52	776	2100
206	3138	1161.31	10.55	211	
207	1215	405.91	4.05	81	
208	2386	958.96	35.82	199	15
209	71	25.06	0.00	0	
210	6571	2062.58	16.40	328	647
211	124	38.00	0.00	10	
212	1850	611.81	0.00	165	612
213	2761	982.14	835.46	2258	893
214	2087	798.98	113.40	756	
215	1411	586.78	287.50	1150	
216	2055	696.29	76.70	767	88
217	59	19.67		0	
218	161	63.00		0	
219	1082	361.96	0.00	28	
220	2068	705.69	13.82	691	512
221	411	140.96	62.79	2093	
222	2351	1038.17	346.15	805	
223	0		124.25	497	
224	214	153.45	283.15	809	320
225	1890	733.07	146.16	232	
226	1712	645.00	26.76	892	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
227	2468	859.00	98.02	754	1159
228	2237	691.00	103.04	448	770
229	305	99.00	26.19	291	
230	519	182.21	24.82	146	
231	0		0.00	1885	
232	2	1.00	0.00	684	
233	0		0.00	1670	
234	0		0.00	35	
235	873	398.89	69.45	2315	
236	2472	857.28	164.00	410	
237	1853	607.89	2.04	102	352
238	1203	383.30	0.00	863	
239	943	312.04	23.80	1190	536
240	119	38.43	2.24	16	
241	2292	732.35	55.62	206	39
242	3562	1228.94	8.55	285	536.31
243	1778	550.68	0.00	246	791
244	667	229.21	23.85	477	
245	729	236.23	633.64	868	25
246	1988	641.59	9.28	232	1356
247	1847	655.00	191.82	417	569
248	758	352.88	3.04	304	297
249	657	232.80	154.40	193	
250	296	177.60	122.96	212	
251	1159	395.56	98.47	229	
252	2662	888.34	34.86	249	900
253	3247	997.00	83.46	1391	
254	2121	786.34	238.68	351	
255	1512	563.35	176.49	477	800
256	1377	460.01	11.12	139	719
257	1041	425.57	110.70	270	
258	655	207.48	46.08	128	1478
259	2031	647.87	21.12	96	
260	687	242.04	143.91	533	677
261	1908	589.00	0.00	542	1511
262	3890	1191.00	9.72	108	597
263	1539	519.92	16.15	85	
264	979	291.72	0.00	133	700

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
265	436	164.97	0.00	28	
266	1062	389.86	73.28	229	
267	1678	628.11	316.08	439	573
268	1712	538.42	105.79	149	
269	2858	974.48	7.76	388	1397
270	2608	874.10	20.92	523	728
271	742	280.14	28.98	161	182
272	1038	343.32	0.00	52	
273	1819	659.09	21.30	213	1089
274	945	299.46	115.56	321	1104
275	994	384.18	10.08	168	
276	1036	373.71	10.05	201	
277	1209	434.52	31.50	45	
278	1151	400.20	25.19	229	854
279	2833	930.33	28.30	283	515.565
280	1348	471.86	23.30	466	1142.685
281	896	314.78	880.64	1024	
282	1143	430.65	59.60	298	883.395
283	2785	974.16	24.13	127	
284	211	82.94	7.29	27	
285	1629	590.06	9.80	196	
286	688	247.85	3.55	71	
287	1728	596.43	7.55	151	
288	256	102.93	93.84	408	
289	2472	867.78	311.64	371	
290	559	197.85	0.00	0	
291	1674	613.03	0.00	62	
292	2677	981.63	318.42	549	585
293	1110	407.61	0.00	177	413
294	302	118.22	40.48	1012	
295	1568	447.70	5.61	561	407
296	1567	598.69	82.68	318	956
297	1148	366.26	0.00	172	479
298	2053	645.86	1.26	21	
299	1901	664.33	26.10	261	
300	630	214.77	40.10	401	912
301	1823	626.08	7.30	73	
302	883	327.94	8.80	220	518

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
303	1067	427.20	363.44	826	758
304	990	341.13	1.10	22	
305	2782	999.99	728.74	878	
306	277	116.37	0.00	373	1616
307	1533	564.09	77.33	209	617
308	922	309.39	80.10	445	
309	1159	403.31	269.28	396	
310	1131	431.25	70.97	151	
311	554	206.29	12.78	142	
312	236	71.89	0.00	22	
313	445	168.50	3.68	92	702
314	700	296.23	0.00	44	
315	257	103.32	0.00	0	
316	1605	537.37	18.81	57	
317	711	240.91	0.00	112	
318	605	225.52	0.22	11	
319	472	160.61	66.99	203	
320	1064	369.12	0.00	4	
321	586	199.41	28.60	143	
322	407	151.17	10.00	20	
323	293	104.14	0.00	21	
324	640	201.31	19.20	64	
325	371	165.45	299.52	416	
326	374	113.83	217.60	1088	
327	245	86.86	4.50	9	
328	825	257.21	805.01	1019	
329	443	163.72	46.50	186	
330	241	82.45	0.00	0	
331	683	247.74	11.04	46	
332	1129	381.65	0.60	6	0
333	267	89.00	5.81	7	768
334	191	66.20	13.02	62	30
335	836	305.56	61.18	322	810
336	2813	878.69	20.40	204	1767
337	1291	449.66	69.60	464	
338	701	224.65	0.00	84	
339	1172	397.43	0.00	51	759
340	834	312.62	7.80	78	145

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
341	585	222.36	276.36	564	
342	535	180.62	0.00	30	
343	205	60.29	0.00	34	
344	384	140.39	0.00	11	
345	880	309.28	61.60	77	
346	332	97.75	3.25	25	
347	386	122.56	0.00	20	
348	511	175.80	0.00	181	
349	294	98.59	0.00	27	
350	382	126.82	0.00	0	
351	795	278.93	0.00	1	
352	1337	493.25	8.00	160	457
353	1742	331.06	15.36	96	
354	210	71.46	0.00	768	
355	15	4.29	0.00	382	
356	145	66.00	4.53	453	1344
357	2731	938.00	2.31	21	872
358	2184	870.37	1.34	134	467
359	2575	1288.02	0.00	54	9555
360	244	82.60	0.00	88	
361	1287	411.17	0.00	32	
362	655	207.47	0.00	25	
363	400	134.59	0.00	11	
364	591	184.40	2.01	3	
365	521	172.27	0.58	29	
366	989	369.56	0.00	48	
367	442	151.21	0.00	3	
368	355	121.30	5.60	280	1679
369	235	77.01	0.00	0	
370	334	106.49	19.95	21	
371	256	86.17	0.00	2	
372	345	146.29	4.50	9	
373	824	280.24	2.70	9	
374	119	43.01	0.00	1	
375	393	144.14	4.00	8	
376	132	44.00		0	
377	143	53.43	0.00	3	
378	508	152.51	0.00	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
379	278	109.00	0.00	0	
380	180	63.53	3.90	39	
381	71	22.77	0.00	8	
382	39	16.71	0.00	0	
383	39	13.00	0.00	0	
384	53	17.04	0.00	6	
401	828	299.29	17.58	879	
402	251	86.16	11.58	193	
403	334	164.99	0.00	7	
404	118	39.33	219.30	645	
405	108	50.28	0.00	73	
406	206	65.55	2.15	43	
407	551	246.54	3.00	6	
408	484	183.41	2.30	115	
409	329	117.23	67.24	164	
410	746	251.25	36.54	261	874
411	411	156.57	12.88	184	
412	314	104.67	0.00	0	
413	397	140.71	474.72	688	
414	1317	415.22	4.42	221	298
415	17	8.00	0.00	78	
416	1177	487.70	10.94	1094	1208
417	1294	449.58	277.61	391	302
418	848	382.00	49.14	351	
419	1508	555.10	32.00	320	
420	0		56.35	805	
421	552	263.62	172.12	1324	
422	0		0.00	593	
423	1097	371.79	59.76	996	
424	1252	470.05	281.52	828	2150
425	806	287.39	5.25	21	
426	1304	457.71	22.40	448	396
427	258	88.97	0.00	0	
428	597	201.16	0.00	84	
429	1413	420.80	103.50	690	
430	283	112.13		6	
431	90	30.00	8.40	280	
432	144	59.14	0.00	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
433	71	18.00	31.00	31	
434	219	73.00	0.00	102	
435	1034	366.09	1.92	96	
436	960	315.19	2.29	229	
437	1513	519.31	0.00	223	
438	283	112.39	35.36	272	
439	29		0.00	30	
440	2	2.00	0.00	75	
441	481	188.83	88.20	420	
442	836	298.57	5.32	14	
443	50	24.00	0.00	0	
444	675	306.82	70.32	586	
451	549	183.71	0.28	14	
452	2073	696.40	40.18	287	933
453	4105	1306.23	64.92	541	2300
454	1755	609.63	97.73	337	622
455	1555	553.58	24.12	134	
456	2738	908.90	3.24	162	0
457	3382	1174.41	102.58	223	
458	1003	336.95	221.60	277	
459	1340	488.63	2.26	113	
460	1482	558.20	0.58	29	
461	2486	851.47	7.20	72	
462	1248	416.42	0.00	12	558
463	1163	405.39	0.04	4	
464	1188	405.98	0.25	5	
465	1642	554.56	2.76	46	
466	1430	512.18	19.60	392	981
467	1051	350.33	1.86	62	
468	750	242.65	2.07	69	238
469	580	245.03	112.45	173	
470	453	183.57	920.46	1058	
471	902	306.29	5.40	27	
472	443	171.75	0.99	33	
473	449	152.82	1.82	91	
474	978	357.60	21.60	144	
475	563	178.71	54.75	219	
476	741	239.07	0.00	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
477	968	399.38	101.70	678	2812
478	584	213.11	2.70	30	
479	973	335.34	39.84	332	
480	1338	467.96	10.50	350	586
481	490	177.27	1.91	191	1053
482	2537	878.07	15.96	76	603
483	1726	559.14	61.29	227	566
484	531	182.16	0.12	12	
485	445	199.11	19.05	127	
486	495	216.00	2.36	59	619
487	874	317.16	39.40	394	587
488	691	286.61	24.35	487	1998
489	215	100.00	80.33	277	
490	205	85.00	33.62	41	
491	253	103.30	1.41	47	
492	766	272.98	123.66	687	
493	611	241.05	253.53	939	528
494	1209	450.88	233.73	371	
495	213	87.38	0.06	6	
496	309	119.82	97.50	150	
497	918	347.32	152.40	254	
498	1372	474.68	0.36	12	
499	346	109.42	0.00	6	
500	511	203.42	1.12	28	
501	398	192.14	628.74	998	
502	1019	364.01	181.25	725	
503	374	161.92	60.99	321	
504	507	188.39	165.43	233	
505	411	147.76	256.36	754	
506	401	126.47	0.00	24	
507	716	242.07	77.00	275	589
508	1005	464.40	169.52	652	920
509	2148	713.60	8.40	70	
510	507	145.02	0.00	47	
511	1160	406.22	0.20	20	
512	2676	930.83	13.02	62	0
513	1024	388.71	43.25	173	456
514	2219	781.95	21.28	112	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
515	376	131.90	3.10	31	
516	2640	1052.86	3.00	6	
517	857	344.00	19.60	35	
518	747	302.63	49.50	99	1795
519	995	344.03	30.21	159	412
520	944	319.90	2.50	10	
521	852	300.79	13.92	48	
522	694	279.29	65.86	89	
523	366	123.35	0.00	0	
524	621	224.01	3.00	6	
525	1104	389.96	133.44	278	
526	1058	363.49	23.20	80	
527	604	223.44	64.75	259	579
528	717	205.33	8.75	35	
529	1719	599.52	19.65	131	
530	508	159.43	6.67	23	
531	434	149.38	0.00	0	
532	1933	686.80	9.30	93	
533	1443	488.62	2.42	121	558
534	705	241.50	30.00	100	
535	643	216.93	0.10	1	
536	1269	450.85	35.00	100	
537	452	131.11	0.00	0	
538	722	246.86	4.95	165	
539	390	133.56	5.13	9	
540	350	114.42	1.50	3	
541	1276	463.88	2.28	114	495
542	1795	589.24	1.74	87	
543	1200	400.39	2.24	112	
544	1499	504.85	0.47	47	
545	909	333.39	67.34	74	
546	685	239.89	0.16	16	
547	559	176.81	0.00	0	
548	166	60.52	0.00	0	
549	654	220.78	2.00	4	
550	820	286.71	2.86	143	
551	2244	721.33	2.00	100	0
552	644	215.09	0.00	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
553	384	113.78	44.64	93	
554	100	38.71	0.00	0	
555	140	38.00		0	790
601	2433	878.61	849.75	1545	986
602	1852	710.97	142.80	204	0
603	579	217.61	1.12	8	
604	569	219.52	1.20	20	
605	459	153.00	159.00	159	
606	811	300.93	24.00	24	
607	878	352.22	88.65	591	
608	740	330.92	40.80	408	
609	510	198.65	187.20	624	
610	1874	789.00	185.76	387	0
611	1231	511.54	22.68	189	736
612	1627	618.28	67.00	134	
613	742	307.08	33.67	259	
614	1396	473.44	1.05	21	
615	1009	381.68	25.50	170	
616	1755	710.58	1.94	97	836
617	1816	668.60	3.40	170	836
618	984	426.36	1.02	51	
619	1485	560.27	46.80	234	1373
620	1195	453.47	7.84	28	
621	1925	728.64	28.25	113	
622	553	196.46	0.00	200	1456
623	1294	422.04	8.19	21	
624	685	226.12	0.00	23	
625	601	182.27	80.60	124	
626	912	420.92	2.40	48	
627	984	429.60	2.95	59	
628	1231	554.93	64.24	146	
629	844	345.50	1.26	21	
630	853	374.19	14.30	286	
631	458	238.57	3.30	66	312
632	357	123.88	0.00	4	
633	53	22.53	12.00	12	
634	2	1.00	0.00	34	357
635	572	238.52	0.00	7	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
636	701	250.28	0.00	6	
637	623	242.68	59.25	75	
638	635	227.71	22.00	44	
639	681	278.96	15.45	309	1366
640	260	104.91	68.80	172	
641	1179	395.98	84.40	211	167
642	984	323.30	47.10	157	
643	522	189.40	61.46	878	
644	312	97.50	17.50	35	
645	397	144.36	0.58	29	
646	634	199.99	5.00	10	
647	779	242.96	36.75	147	
648	190	52.52	1.75	7	
649	0		0.00	48	
650	536	172.90	29.34	326	
651	252	87.96	31.32	348	
652	53	13.25	56.80	355	
653	2639	863.08	183.60	1224	
654	927	297.88	31.20	104	
655	143	37.30	0.00	361	694
656	850	208.73	37.18	286	
657	567	197.93	30.24	336	
658	688	185.39	0.00	22	646
659	732	160.16	1.10	55	
660	260	89.82	74.40	93	
661	174	66.34	55.32	461	1084
662	97	26.56	5.70	285	
663	3	1.00	234.07	263	
664	613	208.89	72.00	288	
665	117	39.00	52.36	119	
666	23	6.90	897.30	997	
667	1435	498.85	211.40	604	
668	4	1.00	5.72	13	
669	169	55.84		0	
670	68	21.64	271.05	417	
671	11	1.00	0.00	74	656
672	454	139.27	8.15	163	619
673	168	84.00	135.20	208	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
674	18	7.00	408.00	544	
675	658	243.00	123.42	363	686
676	515	173.90	0.00	10	
677	152	53.58	0.00	7	
678	160	65.67	79.20	264	761
679	804	265.21	20.16	36	
680	403	138.60	0.00	0	
681	577	213.61	3.00	60	
682	748	255.25	6.60	132	
683	551	201.51	15.98	34	
684	395	143.04	79.00	158	
685	584	211.15	74.37	111	
686	77	34.22	86.73	147	
687	284	96.98	1.54	77	
688	1107	430.84	11.60	232	
689	835	312.84	41.28	516	885
690	1096	366.28	5.00	50	
691	1748	619.40	14.50	290	1136
692	1149	340.67	81.88	92	
693	822	292.05	26.60	76	
694	682	231.65	10.20	51	
695	1430	468.09	0.00	72	
696	494	202.30	28.28	202	
697	239	109.94	60.80	64	
698	1237	501.97	0.00	15	
699	1582	653.53	34.65	231	
700	357	162.90	28.20	188	
701	1026	379.08	0.00	70	
702	135	58.45	4.98	83	
703	9	5.00	16.56	138	
704	802	302.74	6.24	26	
705	948	366.32	85.02	327	2296
706	935	323.74	37.40	374	1665
707	1157	458.05	11.02	58	
708	590	207.30	7.08	236	
709	1057	421.34	11.05	221	
710	99	24.75	0.00	275	
711	899	332.71	24.40	488	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
712	269	98.75	2.85	57	
713	0		769.86	846	
714	0		0.00	328	
715	100	50.00	0.00	41	
716	0			0	
717	35	11.00	245.44	416	
718	0		0.00	0	
719	0	0.00	18.10	905	
720	0		3.50	175	
721	0		1.00	50	
722	381	137.27	0.00	57	
723	312	126.75	0.00	1	
724	474	168.34		0	
725	485	156.07	0.00	63	220
726	184	71.15	0.00	0	
727	457	204.28	73.48	334	
728	113	46.12	0.00	3	
729	65		123.50	494	
730	0		0.00	177	
731	222	102.16	0.00	15	
732	0		0.00	0	
733	59	25.00	0.00	0	
734	65	9.29	0.00	0	
735	0		0.00	0	
736	401	158.47	11.00	11	
737	634	269.91	0.40	20	
738	701	281.90	17.50	35	
739	374	144.21	0.00	15	
740	145	60.00	8.00	8	
741	793	314.78	9.00	15	
742	58	27.84	0.00	2	
801	0		0.00	30	
802	413	144.94	0.00	348	
803	258	88.39	0.00	734	
804	0		14.66	1466	
805	419	149.97	5.03	503	
806	216	86.40	0.00	60	
807	297	110.37	8.40	28	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
808	440	164.56	0.00	329	
809	762	264.00	0.00	66	
810	923	314.42	0.00	66	
811	241	76.78	2.47	247	644
812	563	205.31	0.00	80	
813	731	269.58	0.00	10	
Totals	687,294	261,168.18	63,504.50	328,694	187,424

APPENDIX D

2012 PLANNING DATA

2012 Planning Data

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
1	0		0	5996	
2	952	675.51	9.36	72	
3	20	13.00	71.84	1796	
4	69	49.63	49.82	2491	
5	34	26.00	0	1478	
6	0		7	100	
7	0		42.25	845	367
8	0		0	758	
9	0		0	1468	
10	0	0.00	16.42	821	
11	240	126.32	27.85	557	155
12	38	38.00	7.48	374	
13	52	39.00	0	175	
14	315	139.31	119.6	1196	312
15	215	120.74	0	3459	
16	28	14.00	0	7362	
17	1481	492.64	21.14	302	156
18	365	135.54	58.3	530	
19	433	156.66	1.7	170	
20	501	168.42	5.73	573	40
21	682	210.82	10	1000	381
22	431	148.39	0	144	
23	849	338.87	11.44	52	
24	830	335.86	10.56	88	299
25	935	410.36	41.18	58	
26	1225	498.24	24.45	163	
27	695	243.36	0	196	
28	185	60.06	34.23	163	
29	1689	802.00	34.28	857	170
30	1394	597.14	63.2	158	210
31	3675	1616.64	60.17	547	1804
32	1457	720.00	47.79	177	
33	1356	691.00	3.64	52	
34	1201	453.03	80.8	505	541
35	348	121.85	35.38	122	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
36	2594	961.98	57.75	1925	1605
37	2522	907.00	53.64	149	
38	2197	731.00	1.7	170	430
39	2629	971.00	52.02	867	803
40	574	267.30	7.67	767	1286
41	440	251.00	176.64	368	934
42	1353	648.00	273.36	1139	1209
43	270	122.00	195.25	275	
44	1399	634.85	873.3	1065	274
45	144	48.74	0	16	
46	4498	2248.49	51.72	1724	2348
47	2859	1429.00	519.4	7420	31323
48	851	434.00	0	724	518
49	4643	2615.38	124.45	655	
50	6930	3221.88	809.48	1372	
51	1264	568.51	1.22	61	
52	1791	1011.96	46.56	97	
53	1425	672.21	101.4	507	
54	1905	946.89	0	186	1244
55	1089	510.00	810.68	1559	1434
56	459	167.30	214.43	523	
57	1079	371.11	206.22	982	134
58	787	320.00	0	604	429
59	1024	400.70	2.38	34	
60	1042	554.00	211.4	604	30
61	2088	883.81	204.96	5124	550
62	2086	971.05	273.35	497	534
63	1111	372.00	23.85	265	
64	2280	818.24	171	1710	1224
65	1121	546.00	540.67	4159	2800
66	456	244.29	160	500	
67	678	382.30	0	814	831
68	624	274.86	0	15	
69	1308	875.36	78.13	601	510
70	0		781.2	2170	
71	1529	546.37	0	21	
72	394	165.48	1540.18	2906	55

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
73	2421	1004.61	158.34	609	1701
74	2764	964.96	1.05	105	0
75	1667	798.48	230.01	561	524
76	695	294.49	57	114	645
77	700	588.64	6	6	
78	6834	2512.25	91.92	383	100
79	356	125.65	0	350	
80	3495	1170.54	0	441	
81	2188	959.89	21.12	176	1095
82	604	227.17	18	200	1119
83	649	260.89	81.2	140	
84	1258	531.59	82.13	191	45
85	737	286.73	0	9	
86	1531	602.93	0	103	571
87	1389	795.75	453.42	2519	1134
88	419	224.38	12.83	1283	40
89	262	57.90	332.28	11076	
90	537	122.74	9.84	12	
91	799	167.97	0	603	
92	2641	1313.38	126.49	973	
93	519	217.30	56.84	116	
94	553	229.46	8.06	62	
95	1145	482.16	27.9	279	
96	1527	764.52	223.44	798	896
97	3576	1407.51	585.6	3904	
98	802	304.14	82.5	550	323
99	1302	662.11	105.14	1502	327
100	8	2.00	154.24	1928	91
101	941	467.77	550.84	1172	
102	1242	587.56	361.2	903	30
103	0		89.39	1277	45
104	208	98.61	516.01	4691	361
105	1490	767.07	102.56	641	365
106	865	336.62	10.52	263	
107	876	352.00	20.94	698	1696
108	0		969.6	1616	
109	569	280.06	422.41	797	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
110	1227	652.88	4.12	412	
111	466	206.99	332.04	2767	35
112	775	389.62	307.85	655	
113	2764	1437.36	194.92	1772	187
114	1227	713.00	0	7665	
115	2331	887.37	75.13	683	606
116	1668	928.92	370.16	4627	
117	492	222.73	170.72	1067	
118	618	240.90	80.05	1601	
119	1143	405.73	94.2	471	193
120	1100	430.21	30.03	273	598
121	1847	673.47	0	11	
122	1391	701.09	65.55	1311	
123	905	234.47	22.44	51	
124	1132	493.99	144.05	335	
125	2677	1021.94	22.64	283	
126	2902	950.34	2.7	54	
127	2301	922.75	2.1	42	
128	782	300.05	2.88	288	
129	2206	772.91	16	80	
130	1881	693.54	251.35	2285	
131	2301	958.00	245.31	481	
132	909	330.55	45.3	906	
133	761	223.64	102.5	1025	1740
134	135		2720.44	2957	
135	811	282.78	142.57	269	1920
136	6064	2526.50	770.7	3670	1293
137	198	82.00	626.08	4816	45
138	448	176.60	270.8	1354	
139	429	183.04	861	3444	
140	144	54.00	1541.4	1835	
141	2456	872.64	149.45	427	345
142	5285	1969.34	36.3	605	645
143	0		0	0	
144	916	287.73	33.8	52	
145	1743	609.23	46.75	935	
146	1323	427.99	443.7	2610	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
147	102		0	190	
148	1087	341.45	546.48	2484	
149	594	194.73	0	565	
150	897	319.87	328.9	715	
151	2014	795.25	37.54	1877	
152	825	383.00	73.68	921	
153	889	321.20	323	1615	410
154	1390	529.80	298.35	1989	2632
155	1771	738.78	221.4	738	228
156	1719	893.84	175.84	1256	
157	707	296.73	313.06	1423	628
158	805	337.03	223.41	677	311
159	1503	592.75	196.56	756	638
160	587	229.36	2.25	25	
161	810	363.65	122.99	251	
162	626	223.75	53.02	482	
163	302	143.30	2642.04	3222	
164	85	44.00	266	1400	45
165	1321	467.00	42.72	534	469
166	1493	742.76	136.08	189	
167	981	524.67	223.04	328	35
168	864	359.12	0	15	
169	1516	597.52	18.83	269	1062
170	419	209.50	426.3	1015	45
171	538	338.79	330.05	943	
172	566	236.34	538.56	3366	
173	2886	1583.13	276.32	1727	120
174	2515	1229.00	230.44	1646	45
175	3371	1415.19	274.12	3916	
176	3901	1767.34	182	650	
177	609	234.23	20.65	295	110
178	1415	592.08	0	404	2201
179	1062	399.76	0	71	
180	1205	436.38	222.9	743	
181	676	202.31	90.65	259	
182	542	211.35	0	140	1065
183	2009	759.94	0	377	552

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
184	1095	526.24	75.6	270	224
185	2635	965.07	253.6	1268	30
186	3995	1358.64	158.08	1976	2194
187	3196	1245.33	454.77	1467	513
188	3780	1321.63	262.4	820	451
189	1375	525.70	17.82	54	
190	1594	739.37	38.88	162	
191	744	320.11	17.68	68	
192	2221	935.04	71.75	287	252
193	2106	795.94	24.85	497	
194	1482	591.00	125.4	418	963
195	1034	331.78	422.38	862	694
196	1430	537.15	35.91	189	
197	2028	758.50	23.7	474	1241
198	1255	484.23	2.7	90	
199	1454	605.69	181.02	431	
200	1779	644.53	292.32	522	947
201	2254	857.00	377.58	609	
202	2224	852.21	13.52	169	
203	2420	939.00	267.96	812	
204	2867	924.21	376.42	638	30
205	3314	1185.08	16.02	801	3254
206	3193	1181.66	10.9	218	
207	1298	433.64	4.2	84	
208	2434	978.25	36.36	202	20
209	84	29.65	0	0	
210	6586	2067.29	17.1	342	663
211	124	38.00	0	12	
212	1961	648.52	0	172	627
213	2871	1021.27	870.61	2353	936
214	2142	820.04	120.15	801	
215	1488	618.80	302.75	1211	
216	2165	733.56	80.9	809	90
217	70	23.33		0	
218	189	73.96		0	
219	1143	382.37	0	30	
220	2110	720.03	14.84	742	523

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
221	443	151.93	67.29	2243	
222	2365	1044.35	371.52	864	
223	0		133.25	533	
224	215	154.17	292.6	836	330
225	1903	738.11	151.2	240	
226	1712	645.00	27.48	916	
227	2468	859.00	102.18	786	1165
228	2237	691.00	107.41	467	774
229	305	99.00	27.09	301	
230	520	182.56	25.67	151	
231	0		0	1967	
232	2	1.00	0	713	
233	0		0	1741	
234	0		0	35	
235	908	414.88	72.42	2414	
236	2475	858.32	176	440	
237	1856	608.87	2.18	109	354
238	1209	385.22	0	900	
239	967	319.98	24.82	1241	538
240	121	39.07	2.38	17	
241	2294	732.99	58.05	215	39
242.00	3564	1229.63	8.91	297	542
243	1785	552.85	0	256	795
244	675	231.95	24.85	497	
245	733	237.53	660.65	905	30
246	1995	643.85	9.68	242	1362
247	1847	655.00	203.32	442	575
248	764	355.67	3.15	315	298
249	664	235.28	160.8	201	
250	338	202.80	131.66	227	
251	1164	397.26	103.63	241	
252	2664	889.01	35.56	254	920
253	3247	997.00	85.5	1425	
254	2122	786.71	246.84	363	
255	1513	563.73	182.78	494	800
256	1380	461.01	11.36	142	721
257	1049	428.84	122.59	299	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
258	670	212.23	48.6	135	1480
259	2032	648.19	21.78	99	
260	692	243.80	147.42	546	677
261	1908	589.00	0	550	1517
262	3890	1191.00	10.08	112	605
263	1546	522.28	17.67	93	
264	998	297.38	0	138	705
265	450	170.27	0	29	
266	1071	393.17	75.84	237	
267	1683	629.98	339.12	471	586
268	1723	541.88	109.34	154	
269	2863	976.18	8.26	413	1427
270	2621	878.46	22.04	551	743
271	750	283.16	30.06	167	199
272	1071	354.24	0	56	
273	1870	677.57	22.9	229	1110
274	977	309.60	128.16	356	1126
275	1027	396.93	10.8	180	
276	1045	376.95	10.8	216	
277	1241	446.02	33.6	48	
278	1188	413.06	27.06	246	872
279	2866	941.17	30.4	304	518
280	1395	488.31	25.35	507	1148
281	948	333.04	942.56	1096	
282	1181	444.96	64	320	888
283	2827	988.85	25.84	136	
284	220	86.47	7.83	29	
285	1632	591.14	10.45	209	
286	691	248.93	3.8	76	
287	1732	597.81	8.05	161	
288	261	104.94	99.82	434	
289	2476	869.18	331.8	395	
290	561	198.56	0	0	
291	1677	614.13	0	66	
292	2681	983.10	339.3	585	616
293	1113	408.71	0	188	440
294	305	119.40	43.44	1086	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
295	1580	451.12	6.02	602	439
296	1576	602.13	88.66	341	958
297	1169	372.96	0	185	482
298	2078	653.73	1.32	22	
299	1943	679.01	29.1	291	
300	688	234.55	43	430	958
301	1865	640.51	7.8	78	
302	899	333.88	9.24	231	545
303	1075	430.41	384.12	873	796
304	1032	355.60	1.2	24	
305	2807	1008.97	771.9	930	
306	336	141.15	0	398	1697
307	1575	579.54	82.88	224	648
308	947	317.78	84.96	472	
309	1164	405.05	286.96	422	
310	1135	432.78	75.67	161	
311	557	207.40	13.59	151	
312	242	73.71	0	23	
313	448	169.63	3.92	98	707
314	703	297.50	0	47	
315	262	105.33	0	0	
316	1609	538.71	20.13	61	
317	714	241.93	0	120	
318	610	227.38	0.24	12	
319	475	161.63	71.28	216	
320	1173	406.93	0	5	
321	695	236.50	30.6	153	
322	479	177.91	12.5	25	
323	365	129.73	0	22	
324	691	217.35	21	70	
325	413	184.18	315.36	438	
326	417	126.91	228.8	1144	
327	321	113.81	5.5	11	
328	854	266.25	838.19	1061	
329	485	179.24	49	196	
330	314	107.42	0	0	
331	729	264.43	11.76	49	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
332	1167	394.49	1.2	12	563
333	344	114.67	8.3	10	563
334	199	68.97	13.65	65	35
335	840	307.02	64.6	340	852
336	2822	881.50	22.4	224	1846
337	1303	453.84	73.2	488	
338	760	243.56	0	89	
339	1215	412.01	0	57	563
340	838	314.12	8.3	83	167
341	598	227.30	291.55	595	
342	573	193.45	0	32	
343	273	80.29	0	36	
344	444	162.32	0	14	
345	910	319.82	66.4	83	
346	408	120.12	3.38	26	
347	450	142.88	0	21	
348	553	190.25	0	186	
349	366	122.73	0	28	
350	516	171.31	0	2	
351	887	311.21	0	2	
352	1421	524.24	8.65	173	475
353	1817	345.32	17.6	110	
354	277	94.26	0	815	
355	24	6.86	0	408	
356	145	66.00	4.93	493	1353
357	2731	938.00	2.53	23	878
358	2187	871.56	1.36	136	470
359	2591	1296.02	0	58	9558
360	273	92.42	0	93	
361	1321	422.03	0	34	
362	747	236.61	0	26	
363	447	150.41	0	12	
364	634	197.82	2.68	4	
365	523	172.93	0.62	31	
366	994	371.43	0	51	
367	446	152.58	0	3	
368	358	122.33	5.96	298	1708

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
369	241	78.97	0	0	
370	338	107.77	20.9	22	
371	260	87.51	0	2	
372	351	148.83	5	10	
373	828	281.60	3	10	
374	122	44.10	0	1	
375	397	145.60	4.5	9	
376	138	46.00		0	
377	147	54.92	0	3	
378	512	153.71	0	0	
379	282	110.56	0	0	
380	183	64.59	4.3	43	
381	73	23.42	0	9	
382	41	17.57	0	0	
383	41	13.67	0	0	
384	55	17.68	0	6	
401	890	321.70	19.84	992	
402	347	119.12	13.08	218	
403	465	229.70	0	13	
404	170	56.67	247.52	728	
405	134	62.38	0	116	
406	302	96.09	3.25	65	
407	665	297.55	12	24	
408	605	229.26	2.9	145	
409	423	150.72	93.89	229	
410	906	305.14	47.74	341	1081
411	496	188.95	13.58	194	
412	402	134.00	0	0	
413	511	181.11	520.95	755	
414	1423	448.64	5.08	254	321
415	17	8.00	0	90	
416	1183	490.19	11.93	1193	1272
417	1314	456.53	310.27	437	319
418	848	382.00	54.88	392	
419	1516	558.04	35.8	358	
420	0		62.02	886	
421	612	292.27	184.08	1416	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
422	0		0	632	
423	1289	436.86	73.56	1226	
424	1303	489.19	345.1	1015	2635
425	898	320.19	8.5	34	
426	1407	493.86	26.25	525	425
427	395	136.21	0	0	
428	789	265.86	0	104	
429	1659	494.06	128.1	854	
430	390	154.53		17	
431	130	43.33	11.01	367	
432	198	81.32	0	0	
433	71	18.00	51	51	
434	259	86.33	0	155	
435	1075	380.60	2.62	131	
436	1011	331.93	2.93	293	
437	1554	533.38	0	284	
438	306	121.52	45.89	353	
439	38		0	30	
440	2	2.00	0	80	
441	514	201.78	108.36	516	
442	895	319.64	7.6	20	
443	50	24.00	0	0	
444	1019	463.18	95.88	799	
451	551	184.38	0.36	18	
452	2090	702.11	46.34	331	938
453	4111	1308.14	76.08	634	2400
454	1763	612.41	111.94	386	642
455	1569	558.56	28.62	159	
456	2757	915.21	3.34	167	404
457	3469	1204.62	102.58	223	
458	1136	381.63	221.6	277	
459	1381	503.58	2.26	113	
460	1569	590.97	0.76	38	
461	2577	882.64	8.3	83	
462	1358	453.12	0	18	583
463	1216	423.86	0.06	6	
464	1216	415.55	1	20	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
465	1730	584.28	3.72	62	
466	1524	545.85	23	460	1024
467	1115	371.67	2.22	74	
468	798	258.18	2.49	83	270
469	630	266.15	118.95	183	
470	487	197.35	942.21	1083	
471	950	322.59	7	35	
472	471	182.60	1.26	42	
473	475	161.67	2.02	101	
474	984	359.80	23.85	159	
475	611	193.94	58.5	234	
476	769	248.10	0	0	
477	973	401.44	105.45	703	2933
478	605	220.78	3.33	37	
479	1026	353.61	41.28	344	
480	1402	490.35	10.95	365	622
481	577	208.74	2	200	1101
482	2582	893.65	17.01	81	630
483	1756	568.86	64.53	239	582
484	572	196.22	0.14	14	
485	488	218.35	21.3	142	
486	483	210.76	2.6	65	647
487	886	321.52	42.9	429	614
488	710	294.49	25.85	517	2089
489	213	99.07	83.52	288	
490	203	84.17	36.9	45	
491	284	115.95	1.56	52	
492	788	280.82	133.56	742	
493	630	248.54	272.7	1010	552
494	1240	462.45	257.67	409	
495	244	100.10	0.08	8	
496	413	160.14	178.75	275	
497	1029	389.31	227.4	379	
498	1441	498.56	0.48	16	
499	403	127.44	0	8	
500	588	234.08	1.52	38	
501	521	251.52	688.59	1093	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
502	1061	379.01	204.25	817	
503	427	184.87	71.44	376	
504	575	213.66	204.48	288	
505	487	175.08	279.14	821	
506	466	146.97	0	34	
507	805	272.16	89.6	320	616
508	1023	472.72	183.82	707	962
509	2182	724.90	10.92	91	
510	537	153.60	0	58	
511	1203	421.28	0.28	28	
512	2783	968.05	17.22	82	0
513	1153	437.68	53.25	213	629
514	2261	796.75	24.89	131	
515	451	158.20	3.7	37	
516	2700	1076.79	5.5	11	
517	918	368.48	21.28	38	
518	782	316.81	53.5	107	1894
519	1083	374.46	31.73	167	424
520	1005	340.57	3.25	13	
521	904	319.15	15.66	54	
522	754	303.44	71.78	97	
523	441	148.62	0.2	4	
524	647	233.39	7	14	
525	1164	411.16	144.48	301	
526	1144	393.04	26.68	92	
527	679	251.18	78.5	314	664
528	778	222.80	10	40	
529	1794	625.68	25.65	171	
530	562	176.37	9.28	32	
531	497	171.07	0.6	6	
532	2040	724.82	11	110	
533	1473	498.78	2.84	142	582
534	766	262.40	120	400	
535	682	230.09	0.2	2	
536	1331	472.87	70	200	
537	468	135.76	0	0	
538	768	262.59	5.25	175	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
539	405	138.70	7.98	14	
540	364	119.00	3.5	7	
541	1295	470.79	2.7	135	540
542	1811	594.50	2.06	103	
543	1210	403.73	2.68	134	
544	1514	509.90	0.55	55	
545	926	339.63	78.26	86	
546	697	244.10	0.18	18	
547	573	181.24	0	0	
548	171	62.34	0	0	
549	660	222.81	3.5	7	
550	826	288.81	3.42	171	
551	2260	726.47	2.36	118	0
552	652	217.77	0	0	
553	393	116.44	53.28	111	
554	104	40.26	0	0	
555	145	39.36		0	822
601	2518	909.31	893.75	1625	2211
602	1915	735.15	149.8	214	362
603	634	238.28	1.26	9	
604	662	255.40	1.26	21	
605	575	191.67	169	169	
606	860	319.11	25	25	
607	896	359.44	92.4	616	
608	796	355.97	43.8	438	
609	602	234.49	202.2	674	
610	1894	797.42	200.64	418	0
611	1305	542.29	24.12	201	800
612	1658	630.06	72.5	145	
613	820	339.36	36.27	279	
614	1434	486.32	1.15	23	
615	1090	412.32	29.85	199	
616	1860	753.10	2.1	105	836
617	1870	688.48	3.68	184	637
618	1072	464.49	1.1	55	
619	1570	592.34	48.8	244	1124
620	1225	464.85	8.4	30	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
621	1957	740.75	30.25	121	
622	590	209.61	0	214	1508
623	1382	450.74	8.97	23	
624	752	248.23	0	25	
625	652	197.74	87.1	134	
626	936	432.00	2.8	56	
627	1005	438.77	3.1	62	
628	1269	572.06	68.64	156	
629	879	359.82	1.62	27	
630	889	389.98	16.15	323	
631	490	255.24	3.55	71	323
632	365	126.66	0	4	
633	55	23.38	13	13	
634	2	1.00	0	36	389
635	586	244.36	0	7	
636	710	253.49	0	6	
637	646	251.64	67.15	85	
638	655	234.88	23.5	47	
639	707	289.61	15.85	317	1507
640	280	112.98	70.4	176	
641	1218	409.08	90.8	227	184
642	1004	329.87	50.4	168	
643	550	199.56	65.24	932	
644	356	111.25	18.5	37	
645	434	157.82	0.62	31	
646	675	212.92	5.5	11	
647	818	255.12	40.5	162	
648	204	56.39	1.75	7	
649	0		0	50	
650	544	175.48	31.32	348	
651	261	91.10	33.48	372	
652	56	14.00	60.64	379	
653	2648	866.03	194.85	1299	
654	948	304.63	34.8	116	
655	169	44.09	0	386	738
656	888	218.06	39.78	306	
657	584	203.86	32.31	359	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
658	728	196.17	0	24	669
659	763	166.95	1.16	58	
660	269	92.93	79.2	99	
661	176	67.10	59.76	498	1123
662	100	27.38	6.2	310	
663	3	1.00	256.32	288	
664	638	217.41	78.25	313	
665	132	44.00	59.84	136	
666	25	7.50	910.8	1012	
667	1459	507.19	227.85	651	
668	4	1.00	7.92	18	
669	180	59.48		0	
670	68	21.64	289.9	446	
671	11	1.00	0	74	662
672	462	141.72	8.7	174	641
673	168	84.00	144.3	222	
674	18	7.00	423	564	
675	658	243.00	130.22	383	711
676	527	177.95	0	13	
677	155	54.64	0	7	
678	166	68.13	85.2	284	788
679	855	282.03	22.4	40	
680	450	154.76	0	0	
681	600	222.13	3.3	66	
682	791	269.92	7.15	143	
683	594	217.23	17.86	38	
684	415	150.28	85.5	171	
685	616	222.72	81.07	121	
686	80	35.56	93.81	159	
687	310	105.85	1.66	83	
688	1152	448.35	12.1	242	
689	856	320.71	43.52	544	916
690	1214	405.71	6	60	
691	1798	637.11	16	320	862
692	1228	364.09	95.23	107	
693	940	333.97	28.7	82	
694	762	258.82	11	55	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
695	1510	494.27	0	78	
696	598	244.90	32.76	234	
697	315	144.90	75.05	79	
698	1293	524.70	0	19	
699	1638	676.66	39.15	261	
700	418	190.74	32.25	215	
701	1065	393.49	0	76	
702	166	71.88	5.4	90	
703	9	5.00	18.24	152	
704	818	308.78	6.96	29	
705	1126	435.11	93.6	360	2356
706	1112	385.03	41.2	412	2291
707	1303	515.85	12.16	64	
708	702	246.65	7.86	262	
709	1171	466.78	12.4	248	
710	131	32.75	0	303	
711	980	362.69	28.35	567	
712	333	122.24	3.35	67	
713	0		822.64	904	
714	0		0	369	
715	133	66.50	0	49	
716	0			4	
717	35	11.00	270.22	458	
718	0		0	0	
719	0	0.00	18.6	930	
720	0		3.94	197	
721	0		1.3	65	
722	395	142.32	0	57	
723	332	134.88	0	2	
724	495	175.79		0	
725	513	165.08	0	64	240
726	199	76.95	0	0	
727	490	219.03	73.92	336	
728	122	49.80	0	4	
729	74		124	496	
730	0		0	178	
731	237	109.06	0	16	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
732	0		0	0	
733	59	25.00	0	0	
734	86	12.29	0	0	
735	0		0	0	
736	413	163.21	13	13	
737	659	280.55	0.42	21	
738	751	302.00	37	74	
739	424	163.49	0	20	
740	145	60.00	11	11	
741	843	334.63	12	20	
742	70	33.60	0	4	
801	0		0	35	
802	473	166.00	0	358	
803	278	95.24	0	745	
804	0		15.23	1523	
805	480	171.81	5.28	528	
806	259	103.60	0	61	
807	358	133.04	17.7	59	
808	466	174.29	0	334	
809	815	282.36	0	67	
810	984	335.19	0	68	
811	293	93.35	2.75	275	1113
812	615	224.28	0	86	
813	791	291.71	0	14	
Totals	711,840	270,459.01	67,040.80	345,897	200,272

APPENDIX E

2022 PLANNING DATA

2022 Planning Data

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
1	0		0	6231	
2	952	675.51	9.75	75	
3	20	13.00	74.72	1868	
4	69	49.63	51.88	2594	
5	34	26.00	0	1538	
6	0		7.28	104	
7	0		43.95	879	376
8	0		0	808	
9	0		0	1529	
10	0	0.00	17.08	854	
11	255	134.21	28.85	577	160
12	63	63.00	7.78	389	
13	52	39.00	0	182	
14	315	139.31	124.4	1244	320
15	215	120.74	0	3600	
16	28	14.00	0	7642	
17	1506	500.96	21.98	314	164
18	410	152.25	60.61	551	
19	458	165.71	1.77	177	
20	521	175.14	5.96	596	41
21	707	218.55	10.4	1040	391
22	456	157.00	0	150	
23	999	398.74	11.88	54	
24	830	335.86	11.04	92	307
25	960	421.33	42.6	60	
26	1250	508.40	25.5	170	
27	755	264.37	0	204	
28	200	64.94	35.7	170	
29	1689	802.00	35.68	892	180
30	1394	597.14	65.6	164	215
31	3690	1623.24	62.59	569	1849
32	1457	720.00	52.11	193	
33	1356	691.00	4.83	69	
34	1353	510.36	93.6	585	574
35	363	127.11	36.83	127	
36	2594	961.98	63.63	2121	1656

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
37	2522	907.00	62.28	173	
38	2197	731.00	1.86	186	451
39	2629	971.00	61.8	1030	820
40	574	267.30	8.78	878	1345
41	440	251.00	193.44	403	977
42	1353	648.00	311.04	1296	1264
43	270	122.00	220.81	311	
44	1399	634.85	999.58	1219	292
45	144	48.74	0	18	
46	4498	2248.49	57.78	1926	2397
47	2859	1429.00	578.9	8270	31502
48	851	434.00	0	832	552
49	4976	2802.96	150.67	793	
50	7229	3360.89	948.13	1607	
51	1331	598.65	1.38	69	
52	2158	1219.33	58.56	122	
53	1425	672.21	114.8	574	
54	2205	1096.01	0	186	1571
55	1089	510.00	921.96	1773	1452
56	993	361.93	259.12	632	
57	1308	449.88	256.2	1220	146
58	787	320.00	0	670	449
59	1024	400.70	3.08	44	
60	1042	554.00	246.05	703	35
61	2088	883.81	227.12	5678	575
62	2239	1042.27	308.55	561	558
63	1111	372.00	27.09	301	
64	2428	871.35	189.9	1899	1240
65	1121	546.00	571.22	4394	3200
66	456	244.29	164.16	513	
67	678	382.30	0	831	871
68	624	274.86	0	25	
69	1469	983.11	80.73	621	540
70	0		807.12	2242	
71	1529	546.37	0	21	
72	394	165.48	1574.63	2971	60
73	2467	1023.70	158.34	609	1754
74	2925	1021.17	1.05	105	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
75	1736	831.53	237.8	580	550
76	938	397.46	59	118	685
77	957	804.75	8	8	
78	7300	2683.56	103.92	433	105
79	499	176.12	0	390	
80	3638	1218.43	0	485	
81	2302	1009.90	21.84	182	1135
82	604	227.17	18.63	207	1175
83	649	260.89	84.1	145	
84	1258	531.59	84.71	197	50
85	737	286.73	0	9	
86	1531	602.93	0	103	599
87	1458	835.28	468.36	2602	1151
88	465	249.01	13.25	1325	45
89	307	67.85	343.26	11442	
90	836	191.09	9.84	12	
91	960	201.82	0	623	
92	2641	1313.38	126.49	973	
93	680	284.72	64.68	132	
94	612	253.94	8.84	68	
95	1145	482.16	29.7	297	
96	1527	764.52	226.8	810	939
97	3664	1442.15	630.75	4205	
98	1098	416.40	91.95	613	347
99	1361	692.11	115.01	1643	353
100	8	2.00	156.48	1956	96
101	1148	570.67	626.51	1333	
102	1242	587.56	372.4	931	35
103	0		96.6	1380	50
104	267	126.58	556.49	5059	378
105	1550	797.95	107.04	669	383
106	865	336.62	11.24	281	
107	876	352.00	22.68	756	1777
108	0		1019.4	1699	
109	637	313.53	436.19	823	
110	1227	652.88	4.12	412	
111	466	206.99	342.96	2858	40
112	775	389.62	318.19	677	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
113	2764	1437.36	200.31	1821	196
114	1227	713.00	0	7865	
115	2331	887.37	75.13	683	636
116	1829	1018.58	383.52	4794	
117	607	274.79	177.44	1109	
118	618	240.90	82.3	1646	
119	1235	438.39	107.8	539	202
120	1100	430.21	30.03	273	627
121	1962	715.40	0	11	
122	1551	781.74	73.85	1477	
123	1020	264.27	23.76	54	
124	1232	537.63	150.07	349	
125	2720	1038.35	24.96	312	
126	2973	973.59	2.95	59	
127	2451	982.90	2.25	45	
128	782	300.05	3.17	317	
129	2206	772.91	16.6	83	
130	1881	693.54	261.8	2380	
131	2301	958.00	254.49	499	
132	1009	366.91	49.85	997	
133	875	257.14	106.8	1068	1820
134	192		2828.08	3074	
135	897	312.77	147.87	279	1992
136	6107	2544.41	801.57	3817	1357
137	198	82.00	648.7	4990	50
138	491	193.55	281.4	1407	
139	515	219.73	896.5	3586	
140	201	75.38	1601.88	1907	
141	2570	913.15	155.05	443	395
142	5313	1979.77	39.9	665	685
143	0		0	0	
144	959	301.23	35.1	54	
145	1743	609.23	51.4	1028	
146	1452	469.72	458.66	2698	
147	145		0	208	
148	1187	372.86	568.04	2582	
149	666	218.33	0	621	
150	997	355.53	341.78	743	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
151	2043	806.70	41.34	2067	
152	825	383.00	80.96	1012	
153	1017	367.44	335.8	1679	440
154	1483	565.25	324.75	2165	2768
155	1771	738.78	240.9	803	236
156	1719	893.84	183.54	1311	
157	707	296.73	346.06	1573	659
158	901	377.23	246.84	748	329
159	1631	643.23	204.36	786	669
160	587	229.36	2.34	26	
161	810	363.65	129.85	265	
162	883	315.61	57.31	521	
163	302	143.30	2801.12	3416	
164	85	44.00	279.3	1470	50
165	1321	467.00	43.52	544	493
166	1557	774.60	147.6	205	
167	981	524.67	227.8	335	40
168	864	359.12	0	17	
169	1516	597.52	19.32	276	1115
170	515	257.50	459.06	1093	50
171	634	399.24	350.7	1002	
172	694	289.78	557.92	3487	
173	3015	1653.89	291.68	1823	130
174	2515	1229.00	250.88	1792	50
175	3439	1443.74	298.41	4263	
176	4052	1835.75	211.68	756	
177	609	234.23	21	300	120
178	1415	592.08	0	410	2310
179	1126	423.85	0	75	
180	1205	436.38	234	780	
181	752	225.05	99.05	283	
182	542	211.35	0	144	1075
183	2074	784.52	0	389	572
184	1192	572.86	79.8	285	235
185	2635	965.07	277.2	1386	35
186	4109	1397.41	173.84	2173	2282
187	3196	1245.33	499.1	1610	544
188	3969	1387.71	322.88	1009	483

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
189	1450	554.38	19.14	58	
190	1670	774.62	45.6	190	
191	744	320.11	19.24	74	
192	2372	998.61	90.75	363	256
193	2106	795.94	29.7	594	
194	1699	677.54	136.5	455	1012
195	1034	331.78	459.62	938	729
196	1708	641.57	39.14	206	
197	2306	862.47	25.8	516	1305
198	1502	579.53	2.94	98	
199	1733	721.91	196.98	469	
200	1934	700.69	318.08	568	997
201	2254	857.00	411.06	663	
202	2224	852.21	14.72	184	
203	2420	939.00	291.72	884	
204	2867	924.21	410.05	695	35
205	3385	1210.47	17.6	880	3439
206	3308	1224.22	11.95	239	
207	1470	491.10	4.35	87	
208	2535	1018.85	37.62	209	25
209	112	39.53	0	0	
210	6586	2067.29	18.75	375	697
211	124	38.00	0	13	
212	2208	730.20	0	187	659
213	3114	1107.71	947.94	2562	979
214	2331	892.40	147	980	
215	1752	728.59	353	1412	
216	2543	861.64	97.7	977	93
217	70	23.33		0	
218	258	100.96		0	
219	1292	432.22	0	39	
220	2213	755.17	17.48	874	549
221	523	179.37	79.08	2636	
222	2399	1059.37	436.02	1014	
223	0		157.25	629	
224	215	154.17	331.1	946	340
225	1973	765.26	173.25	275	
226	1712	645.00	30.51	1017	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
227	2468	859.00	111.67	859	1220
228	2237	691.00	117.53	511	811
229	305	99.00	28.17	313	
230	520	182.56	26.69	157	
231	0		0	2154	
232	2	1.00	0	780	
233	0		0	1904	
234	0		0	35	
235	1269	579.82	79.17	2639	
236	2475	858.32	204	510	
237	1856	608.87	2.42	121	370
238	1276	406.56	0	984	
239	1215	402.05	27.1	1355	564
240	121	39.07	2.66	19	
241	2294	732.99	63.45	235	41
242	3564	1229.63	9.75	325	547
243	1853	573.91	0	280	833
244	788	270.79	27.15	543	
245	778	252.11	722.7	990	35
246	2062	665.47	10.6	265	1427
247	1847	655.00	237.82	517	591
248	799	371.97	3.52	352	304
249	732	259.38	176	220	
250	677	406.20	154.86	267	
251	1185	404.43	120.4	280	
252	2678	893.68	36.4	260	950
253	3247	997.00	93.9	1565	
254	2122	786.71	276.08	406	
255	1513	563.73	209.05	565	800
256	1380	461.01	11.76	147	740
257	1097	448.47	145.55	355	
258	753	238.52	55.08	153	1509
259	2032	648.19	24.42	111	
260	720	253.66	167.13	619	715
261	1908	589.00	0	560	1551
262	3890	1191.00	11.25	125	614
263	1587	536.13	20.71	109	
264	1102	328.37	0	154	711

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
265	527	199.41	0	32	
266	1120	411.15	84.8	265	
267	1683	629.98	398.16	553	616
268	1786	561.69	129.93	183	
269	2863	976.18	9.6	480	1499
270	2656	890.19	24	600	780
271	792	299.02	35.46	197	216
272	1152	381.03	0	66	
273	1996	723.22	26.5	265	1159
274	1057	334.96	155.16	431	1185
275	1108	428.24	12.66	211	
276	1068	385.25	12.7	254	
277	1321	474.77	39.9	57	
278	1280	445.05	31.79	289	914
279	2947	967.77	35.7	357	521
280	1510	528.57	29.8	596	1154
281	1075	377.66	1132.62	1317	
282	1273	479.63	75.2	376	892
283	2931	1025.23	29.26	154	
284	243	95.51	9.18	34	
285	1646	596.21	11.4	228	
286	715	257.58	4.15	83	
287	1752	604.71	8.8	176	
288	295	118.61	108.79	473	
289	2486	872.69	362.04	431	
290	575	203.51	0	0	
291	1683	616.32	0	72	
292	2697	988.97	369.46	637	656
293	1123	412.38	0	205	474
294	305	119.40	50.16	1254	
295	1677	478.82	6.73	673	471
296	1649	630.02	101.92	392	978
297	1339	427.20	0	212	505
298	2103	661.59	1.5	25	
299	1985	693.68	36.5	365	
300	747	254.66	49.5	495	1004
301	1907	654.93	9	90	
302	916	340.20	10.32	258	571

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
303	1075	430.41	436.48	992	835
304	1075	370.42	1.4	28	
305	2832	1017.96	883.12	1064	
306	396	166.36	0	453	1782
307	1617	595.00	97.31	263	680
308	973	326.50	98.64	548	
309	1188	413.40	312.8	460	
310	1157	441.17	82.72	176	
311	575	214.11	14.85	165	
312	277	84.37	0	25	
313	466	176.45	4.28	107	713
314	723	305.97	0	51	
315	294	118.19	0	0	
316	1623	543.40	22.11	67	
317	739	250.40	0	131	
318	636	237.08	0.26	13	
319	497	169.12	77.88	236	
320	1283	445.10	0	6	
321	806	274.28	36.4	182	
322	519	192.77	15.5	31	
323	405	143.95	0	24	
324	711	223.64	23.7	79	
325	429	191.31	342.72	476	
326	433	131.78	242.6	1213	
327	366	129.76	6.5	13	
328	859	267.81	884.8	1120	
329	501	185.15	52.5	210	
330	355	121.45	0	0	
331	748	271.32	12.48	52	
332	1179	398.55	2.4	24	607
333	389	129.67	10.79	13	607
334	203	70.36	14.7	70	40
335	840	307.02	68.59	361	899
336	2826	882.75	24.7	247	1934
337	1310	456.28	77.85	519	
338	790	253.17	0	95	
339	1232	417.78	0	64	607
340	838	314.12	9.2	92	197

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
341	605	229.96	309.68	632	
342	586	197.84	0	34	
343	311	91.47	0	39	
344	475	173.66	0	20	
345	920	323.33	72	90	
346	448	131.90	3.64	28	
347	480	152.41	0	22	
348	569	195.76	0	191	
349	426	142.85	0	30	
350	652	216.46	0	4	
351	980	343.84	0	4	
352	1528	563.72	10.4	208	494
353	1894	359.95	22.24	139	
354	345	117.40	0	889	
355	24	6.86	0	473	
356	145	66.00	5.68	568	1416
357	2731	938.00	2.86	26	919
358	2187	871.56	1.57	157	492
359	2712	1356.55	0	67	9586
360	299	101.22	0	100	
361	1350	431.30	0	36	
362	1204	381.37	0	28	
363	487	163.86	0	13	
364	671	209.36	3.35	5	
365	538	177.89	0.68	34	
366	1020	381.15	0	56	
367	480	164.21	0	3	
368	378	129.16	6.48	324	1745
369	274	89.79	0	0	
370	370	117.97	22.8	24	
371	288	96.94	0	2	
372	385	163.25	5.5	11	
373	848	288.41	3.3	11	
374	143	51.69	0	1	
375	421	154.41	5	10	
376	173	57.67		0	
377	181	67.63	0	3	
378	543	163.02	0	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
379	311	121.93	0	0	
380	207	73.06	4.7	47	
381	83	26.62	0	10	
382	42	18.00	0	0	
383	52	17.33	0	0	
384	69	22.18	0	7	
401	914	330.38	24.16	1208	
402	384	131.82	15.9	265	
403	516	254.89	0	42	
404	190	63.33	301.24	886	
405	144	67.03	0	141	
406	340	108.18	9.7	194	
407	710	317.69	39	78	
408	648	245.56	4.9	245	
409	456	162.48	122.59	299	
410	963	324.34	77.14	551	1154
411	556	211.81	14.28	204	
412	427	142.33	0	10	
413	947	335.65	634.11	919	
414	1708	538.50	5.86	293	344
415	17	8.00	0	104	
416	1183	490.19	13.63	1363	1340
417	1329	461.74	377.72	532	337
418	848	382.00	66.78	477	
419	1516	558.04	41.4	414	
420	0		71.68	1024	
421	637	304.21	224.12	1724	
422	0		0	730	
423	1362	461.61	109.56	1826	
424	1345	504.96	511.7	1505	2820
425	973	346.94	13.75	55	
426	1491	523.35	44	880	449
427	450	155.17	0	0	
428	863	290.79	0	204	
429	1752	521.76	172.95	1153	
430	428	169.58		33	
431	144	48.00	17.61	587	
432	217	89.13	0	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
433	71	18.00	103	103	
434	304	101.33	0	223	
435	1120	396.54	4.74	237	
436	1066	349.99	4.3	430	
437	1599	548.82	0	397	
438	331	131.45	72.02	554	
439	48		0	46	
440	2	2.00	0	130	
441	549	215.52	157.71	751	
442	960	342.86	24.7	65	
443	50	24.00	12.5	25	
444	1119	508.64	156.96	1308	
451	551	184.38	0.36	18	
452	2184	733.69	61.04	436	1025
453	4147	1319.59	97.32	811	2450
454	1810	628.74	137.17	473	702
455	1652	588.11	35.82	199	
456	2863	950.39	4.52	226	536
457	3544	1230.66	118.68	258	
458	1266	425.31	265.6	332	
459	1411	514.52	2.76	138	
460	1644	619.22	1.16	58	
461	2652	908.33	11.3	113	
462	1463	488.16	0	34	614
463	1256	437.81	0.14	14	
464	1226	418.97	1.65	33	
465	1750	591.03	4.56	76	
466	1549	554.80	25.75	515	1083
467	1133	377.67	3.06	102	
468	814	263.35	3.45	115	330
469	644	272.06	128.05	197	
470	495	200.59	964.83	1109	
471	962	326.66	9	45	
472	476	184.54	1.5	50	
473	480	163.37	2.26	113	
474	984	359.80	26.55	177	
475	621	197.12	82	328	
476	774	249.72	3	30	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
477	973	401.44	109.2	728	3104
478	609	222.24	4.05	45	
479	1038	357.74	42.72	356	
480	1457	509.59	13.08	436	658
481	652	235.88	2.13	213	1159
482	2607	902.30	18.9	90	664
483	1776	575.34	71.82	266	598
484	602	206.52	0.2	20	
485	528	236.25	27.3	182	
486	483	210.76	3.08	77	681
487	886	321.52	51.4	514	646
488	710	294.49	29.6	592	2200
489	213	99.07	92.22	318	
490	203	84.17	41	50	
491	314	128.20	1.8	60	
492	788	280.82	157.68	876	
493	630	248.54	297	1100	581
494	1260	469.90	282.87	449	
495	264	108.31	0.13	13	
496	963	373.41	260	400	
497	1429	540.65	314.4	524	
498	1465	506.86	0.78	26	
499	448	141.68	0	16	
500	673	267.91	2.72	68	
501	641	309.45	757.89	1203	
502	1096	391.51	233	932	
503	472	204.35	95.19	501	
504	635	235.96	257.73	363	
505	562	202.04	308.04	906	
506	526	165.89	0	83	
507	890	300.90	122.08	436	649
508	1023	472.72	207.74	799	1013
509	2202	731.54	16.2	135	
510	557	159.32	0	97	
511	1248	437.04	0.47	47	
512	2868	997.62	27.3	130	581
513	1256	476.78	69.75	279	472
514	2296	809.09	34.39	181	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
515	510	178.90	7.1	71	
516	2771	1105.11	14.5	29	
517	990	397.38	33.04	59	
518	823	333.42	61.5	123	2011
519	1185	409.73	41.61	219	436
520	1076	364.64	6.5	26	
521	966	341.03	20.3	70	
522	826	332.41	84.36	114	
523	501	168.85	0.8	16	
524	678	244.57	20	40	
525	1235	436.24	184.8	385	
526	1212	416.40	45.82	158	
527	738	273.01	100.75	403	498
528	850	243.42	14.25	57	
529	1854	646.60	37.95	253	
530	605	189.87	12.47	43	
531	548	188.62	1.5	15	
532	2126	755.37	17.4	174	
533	1481	501.48	3.24	162	615
534	1166	399.42	360	1200	
535	694	234.14	1.8	18	
536	1731	614.98	140	400	
537	471	136.63	0.62	31	
538	778	266.01	5.55	185	
539	487	166.78	10.83	19	
540	447	146.13	5	10	
541	1401	509.32	3.5	175	585
542	1906	625.68	2.76	138	
543	1269	423.41	3.38	169	
544	1596	537.52	0.8	80	
545	1020	374.11	93.73	103	
546	768	268.96	0.23	23	
547	656	207.49	5	10	
548	194	70.73	5	10	
549	695	234.63	5.5	11	
550	862	301.40	4.3	215	
551	2355	757.01	3.06	153	0
552	699	233.46	7.5	15	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
553	441	130.67	68.16	142	
554	128	49.55	0	0	
555	168	45.60		0	899
601	2601	939.28	1025.75	1865	2305
602	1970	756.27	159.6	228	384
603	682	256.32	1.54	11	
604	752	290.12	1.38	23	
605	693	231.00	184	184	
606	901	334.33	32	32	
607	896	359.44	106.65	711	
608	845	377.88	50.7	507	
609	692	269.54	222.6	742	
610	1894	797.42	230.88	481	800
611	1374	570.96	27.48	229	800
612	1679	638.04	82.5	165	
613	896	370.82	41.34	318	
614	1462	495.82	1.65	33	
615	1166	441.07	34.05	227	
616	1964	795.21	2.38	119	836
617	1918	706.15	4.2	210	659
618	1155	500.45	1.22	61	
619	1653	623.65	55.6	278	1168
620	1272	482.69	9.24	33	
621	2009	760.44	33	132	
622	652	231.63	0	233	1592
623	1465	477.81	13.26	34	
624	814	268.70	0	30	
625	694	210.48	99.45	153	
626	974	449.54	3.8	76	
627	1038	453.18	3.4	68	
628	1330	599.56	79.64	181	
629	936	383.16	2.7	45	
630	946	414.98	18.85	377	
631	542	282.33	3.85	77	341
632	379	131.51	0	4	
633	55	23.38	14	14	
634	2	1.00	0	39	421
635	609	253.95	0	8	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
636	724	258.49	0	7	
637	684	266.44	72.68	92	
638	688	246.71	27.5	55	
639	749	306.82	17.1	342	1628
640	314	126.70	75.2	188	
641	1277	428.89	140.8	352	201
642	1038	341.04	80.1	267	
643	592	214.80	78.19	1117	
644	427	133.44	21.5	43	
645	493	179.27	0.74	37	
646	741	233.74	8	16	
647	880	274.46	44	176	
648	228	63.02	7	28	
649	0		0	58	
650	558	180.00	35.28	392	
651	275	95.99	36.54	406	
652	56	14.00	66.08	413	
653	2663	870.93	203.85	1359	
654	981	315.24	37.8	126	
655	211	55.04	0	421	782
656	949	233.04	46.28	356	
657	612	213.63	35.19	391	
658	795	214.22	0	26	706
659	815	178.32	1.26	63	
660	283	97.76	88.8	111	
661	176	67.10	65.04	542	1185
662	100	27.38	6.74	337	
663	3	1.00	291.92	328	
664	681	232.06	88	352	
665	155	51.67	69.52	158	
666	25	7.50	919.8	1022	
667	1497	520.40	248.5	710	
668	4	1.00	12.32	28	
669	199	65.76		0	
670	68	21.64	327.6	504	
671	11	1.00	0	81	668
672	476	146.02	9.5	190	677
673	168	84.00	157.3	242	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
674	18	7.00	451.5	602	
675	658	243.00	137.7	405	750
676	546	184.36	0	14	
677	155	54.64	0	8	
678	176	72.24	94.2	314	832
679	936	308.75	24.08	43	
680	526	180.90	0	0	
681	638	236.20	3.6	72	
682	862	294.15	7.8	156	
683	665	243.20	19.27	41	
684	449	162.59	93	186	
685	669	241.88	88.44	132	
686	80	35.56	105.61	179	
687	352	120.20	1.8	90	
688	1224	476.37	12.35	247	
689	889	333.08	45.12	564	967
690	1331	444.81	6.9	69	
691	1839	651.64	18.25	365	884
692	1304	386.63	106.8	120	
693	1058	375.90	30.1	86	
694	838	284.64	13	65	
695	1587	519.48	0	92	
696	701	287.08	38.08	272	
697	384	176.64	96.9	102	
698	1341	544.17	0	25	
699	1687	696.91	44.7	298	
700	473	215.83	36.75	245	
701	1092	403.47	0	85	
702	180	77.94	6.18	103	
703	9	5.00	20.76	173	
704	818	308.78	8.4	35	
705	1232	476.07	122.2	470	2980
706	1219	422.08	50.4	504	2401
707	1390	550.29	15.2	80	
708	770	270.54	9.48	316	
709	1239	493.89	15.05	301	
710	150	37.50	0	353	
711	1028	380.45	33.85	677	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
712	372	136.56	4.15	83	
713	0		904.54	994	
714	0		0	428	
715	153	76.50	0	57	
716	0			12	
717	35	11.00	332.17	563	
718	0		0	0	
719	0	0.00	21.74	1087	
720	0		4.88	244	
721	0		1.56	78	
722	414	149.16	0	68	
723	358	145.44	0	4	
724	522	185.38		0	
725	548	176.35	0	86	260
726	218	84.29	0	0	
727	532	237.81	91.52	416	
728	133	54.29	0	8	
729	86		143.75	575	
730	0		0	224	
731	256	117.81	0	19	
732	0		0	0	
733	59	25.00	0	0	
734	103	14.71	0	0	
735	0		0	0	
736	439	173.49	19	19	
737	702	298.86	0.52	26	
738	792	318.49	62.5	125	
739	465	179.30	0	34	
740	145	60.00	18	18	
741	885	351.30	19.8	33	
742	70	33.60	0	7	
801	0		0	35	
802	513	180.03	0	413	
803	290	99.35	0	900	
804	0		17.78	1778	
805	520	186.13	6.23	623	
806	288	115.20	0	67	
807	399	148.28	19.2	64	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
808	483	180.64	0	414	
809	849	294.14	0	79	
810	1024	348.82	0	78	
811	328	104.50	3.14	314	1317
812	649	236.68	0	101	
813	831	306.46	0	20	
Totals	747,889	284,174.38	74,527.26	382,665	210,196

APPENDIX F

2032 PLANNING DATA

2032 Planning Data

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
1	0		0	6704	
2	952	675.51	10.53	81	
3	20	13.00	80.4	2010	
4	69	49.63	55.9	2795	
5	34	26.00	0	1655	
6	0		7.84	112	
7	0		47.3	946	400
8	0		0	858	
9	0		0	1647	
10	0	0.00	18.38	919	
11	296	155.79	31.05	621	165
12	145	145.00	8.38	419	
13	52	39.00	0	196	
14	315	139.31	133.8	1338	340
15	215	120.74	0	3875	
16	28	14.00	0	8223	
17	1588	528.24	23.66	338	172
18	574	213.15	65.23	593	
19	540	195.38	1.9	190	
20	562	188.93	6.41	641	43
21	789	243.89	11.19	1119	416
22	538	185.24	0	161	
23	999	398.74	12.76	58	
24	830	335.86	11.88	99	326
25	1042	457.32	46.15	65	
26	1333	542.16	27.45	183	
27	1001	350.51	0	219	
28	241	78.25	38.43	183	
29	1689	802.00	38.16	954	190
30	1394	597.14	70.4	176	229
31	3731	1641.27	67.32	612	1966
32	1457	720.00	59.67	221	
33	1356	691.00	6.93	99	
34	1509	569.21	115.2	720	607
35	404	141.46	39.73	137	
36	2594	961.98	71.88	2396	1731

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
37	2522	907.00	76.32	212	
38	2197	731.00	2.07	207	482
39	2629	971.00	71.1	1185	845
40	574	267.30	10.78	1078	1431
41	440	251.00	214.08	446	1038
42	1353	648.00	349.92	1458	1347
43	270	122.00	251.34	354	
44	1399	634.85	1137.34	1387	315
45	144	48.74	0	20	
46	4498	2248.49	65.85	2195	2446
47	2859	1429.00	648.27	9261	31322
48	851	434.00	0	971	586
49	5520	3109.39	188.1	990	
50	7712	3585.45	1117.46	1894	
51	1392	626.09	1.58	79	
52	2762	1560.61	76.8	160	
53	1425	672.21	130.8	654	
54	2689	1336.58	0	186	1350
55	1089	510.00	1051.96	2023	1475
56	1933	704.55	324.72	792	
57	1622	557.87	298.41	1421	158
58	787	320.00	0	748	478
59	1024	400.70	3.43	49	
60	1042	554.00	271.6	776	40
61	2088	883.81	254.12	6353	612
62	2396	1115.36	335.5	610	594
63	1111	372.00	31.05	345	
64	2667	957.12	214.8	2148	1264
65	1121	546.00	629.2	4840	3400
66	456	244.29	172.48	539	
67	678	382.30	0	865	932
68	624	274.86	0	29	
69	1715	1147.74	86.19	663	570
70	0		862.2	2395	
71	1529	546.37	0	21	
72	394	165.48	1627.63	3071	65
73	2508	1040.71	158.34	609	1841
74	3171	1107.05	1.05	105	0

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
75	1818	870.81	253.79	619	591
76	1370	580.51	61	122	685
77	1416	1190.73	12	12	
78	8086	2972.50	118.32	493	110
79	742	261.88	0	430	
80	3880	1299.48	0	601	
81	2491	1092.82	22.56	188	1135
82	604	227.17	19.89	221	1262
83	649	260.89	89.9	155	
84	1258	531.59	90.3	210	55
85	737	286.73	0	9	
86	1531	602.93	0	103	644
87	1540	882.25	505.26	2807	1168
88	506	270.96	14.22	1422	50
89	348	76.91	367.62	12254	
90	1328	303.54	9.84	12	
91	1206	253.53	0	665	
92	2641	1313.38	126.49	973	
93	926	387.72	80.36	164	
94	672	278.84	10.4	80	
95	1145	482.16	33.3	333	
96	1527	764.52	231.84	828	1006
97	3784	1489.38	694.65	4631	
98	1636	620.42	105.75	705	371
99	1421	722.62	130.34	1862	379
100	8	2.00	159.6	1995	103
101	1507	749.13	720.98	1534	
102	1242	587.56	388	970	40
103	0		106.96	1528	55
104	327	155.02	611.71	5561	405
105	1610	828.84	115.84	724	410
106	865	336.62	12.76	319	
107	876	352.00	25.35	845	1902
108	0		1088.4	1814	
109	719	353.90	465.34	878	
110	1227	652.88	4.12	412	
111	466	206.99	366	3050	45
112	775	389.62	339.81	723	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
113	2764	1437.36	214.06	1946	211
114	1227	713.00	0	8315	
115	2331	887.37	75.13	683	684
116	2075	1155.58	413.12	5164	
117	771	349.03	191.36	1196	
118	618	240.90	87.2	1744	
119	1358	482.05	131.6	658	211
120	1100	430.21	30.03	273	674
121	2126	775.20	0	11	
122	1797	905.73	87.05	1741	
123	1209	313.23	25.08	57	
124	1394	608.32	155.23	361	
125	2774	1058.97	30.88	386	
126	3080	1008.64	3.15	63	
127	2694	1080.35	2.4	48	
128	782	300.05	3.93	393	
129	2206	772.91	17.4	87	
130	1881	693.54	271.59	2469	
131	2301	958.00	263.16	516	
132	1171	425.82	60.55	1211	
133	1063	312.39	110.8	1108	2395
134	273		2940.32	3196	
135	1032	359.84	155.82	294	2043
136	6161	2566.91	830.76	3956	1460
137	198	82.00	672.1	5170	55
138	545	214.84	291.4	1457	
139	649	276.91	929	3716	
140	282	105.75	1659	1975	
141	2759	980.30	160.3	458	787
142	5340	1989.83	49.44	824	685
143	0		0	0	
144	1013	318.19	37.05	57	
145	1743	609.23	63.7	1274	
146	1668	539.60	475.32	2796	
147	198		0	257	
148	1348	423.43	588.5	2675	
149	774	253.74	0	770	
150	1159	413.30	353.74	769	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
151	2070	817.36	51.4	2570	
152	825	383.00	100.32	1254	
153	1232	445.12	348	1740	470
154	1600	609.85	360.75	2405	2987
155	1771	738.78	267.6	892	248
156	1719	893.84	194.04	1386	
157	707	296.73	387.64	1762	708
158	1042	436.26	276.21	837	347
159	1843	726.84	216.58	833	719
160	587	229.36	2.52	28	
161	810	363.65	144.06	294	
162	1378	492.54	64.79	589	
163	302	143.30	3095.5	3775	
164	85	44.00	299.63	1577	55
165	1321	467.00	44.88	561	529
166	1628	809.93	172.8	240	
167	981	524.67	235.28	346	45
168	864	359.12	0	21	
169	1516	597.52	20.37	291	1197
170	657	328.50	518.28	1234	55
171	775	488.04	398.3	1138	
172	906	378.30	586.88	3668	
173	3228	1770.73	322.56	2016	140
174	2515	1229.00	278.88	1992	55
175	3498	1468.51	331.59	4737	
176	4283	1940.40	258.72	924	
177	609	234.23	21.35	305	130
178	1415	592.08	0	417	2481
179	1197	450.58	0	82	
180	1205	436.38	252.3	841	
181	829	248.09	116.55	333	
182	542	211.35	0	148	1085
183	2145	811.38	0	405	605
184	1334	641.10	87.92	314	252
185	2635	965.07	304.4	1522	40
186	4263	1449.78	191.6	2395	2377
187	3196	1245.33	560.48	1808	616
188	4277	1495.40	365.44	1142	558

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
189	1527	583.82	21.12	64	
190	1747	810.34	56.16	234	
191	744	320.11	21.32	82	
192	2603	1095.86	122.25	489	266
193	2106	795.94	36.85	737	
194	2050	817.51	151.8	506	1092
195	1034	331.78	510.58	1042	787
196	2176	817.37	43.51	229	
197	2774	1037.51	28.65	573	1409
198	1911	737.34	3.27	109	
199	2201	916.86	218.82	521	
200	2168	785.46	353.36	631	1076
201	2254	857.00	456.94	737	
202	2224	852.21	16.32	204	
203	2420	939.00	324.39	983	
204	2867	924.21	456.07	773	40
205	3492	1248.73	21.82	1091	3594
206	3497	1294.17	14.8	296	
207	1767	590.33	5.35	107	
208	2697	1083.96	38.88	216	30
209	139	49.06	0	0	
210	6586	2067.29	20.8	416	753
211	124	38.00	0	14	
212	2618	865.80	0	208	712
213	3523	1253.20	1052.65	2845	1022
214	2640	1010.69	176.1	1174	
215	2215	921.13	407	1628	
216	3237	1096.78	113.6	1136	100
217	70	23.33		0	
218	364	142.43		0	
219	1546	517.19	0	58	
220	2382	812.84	20.42	1021	591
221	649	222.58	92.43	3081	
222	2441	1077.91	509.98	1186	
223	0		183	732	
224	215	154.17	372.75	1065	350
225	2211	857.58	192.15	305	
226	1712	645.00	34.44	1148	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
227	2468	859.00	124.41	957	1304
228	2237	691.00	130.87	569	867
229	305	99.00	30.33	337	
230	520	182.56	28.73	169	
231	0		0	2403	
232	2	1.00	0	869	
233	0		0	2121	
234	0		0	35	
235	1890	863.57	88.08	2936	
236	2475	858.32	236.4	591	
237	1856	608.87	2.66	133	396
238	1358	432.69	0	1096	
239	1629	539.04	30.18	1509	603
240	121	39.07	2.94	21	
241	2294	732.99	70.74	262	44
242	3564	1229.63	10.86	362	553
243	1936	599.62	0	312	890
244	954	327.83	30.25	605	
245	820	265.72	805.19	1103	40
246	2144	691.94	11.8	295	1524
247	1847	655.00	272.32	592	644
248	905	421.32	3.97	397	322
249	815	288.79	196	245	
250	1237	742.20	184.44	318	
251	1238	422.52	144.48	336	
252	2704	902.36	37.38	267	975
253	3247	997.00	105.12	1752	
254	2122	786.71	310.76	457	
255	1513	563.73	234.95	635	800
256	1380	461.01	12.4	155	803
257	1255	513.06	185.32	452	
258	1044	330.70	68.76	191	1602
259	2032	648.19	27.5	125	
260	799	281.49	188.19	697	777
261	1908	589.00	0	570	1663
262	3890	1191.00	12.69	141	665
263	1719	580.73	26.79	141	
264	1472	438.62	0	173	772

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
265	791	299.30	0	36	
266	1279	469.52	95.36	298	
267	1683	629.98	465.12	646	663
268	1998	628.36	145.55	205	
269	2863	976.18	11.22	561	1613
270	2699	904.60	26.76	669	839
271	925	349.23	39.78	221	233
272	1279	423.03	0	83	
273	2207	799.68	30.6	306	1237
274	1183	374.88	186.48	518	1272
275	1235	477.32	14.82	247	
276	1089	392.83	15.05	301	
277	1447	520.06	51.8	74	
278	1428	496.51	37.18	338	986
279	3074	1009.48	41.7	417	523
280	1701	595.42	34.85	697	1160
281	1287	452.14	1320.1	1535	
282	1421	535.39	87.8	439	897
283	3100	1084.35	33.82	178	
284	264	103.77	10.8	40	
285	1675	606.72	12.75	255	
286	769	277.03	4.65	93	
287	1796	619.90	9.85	197	
288	373	149.97	121.67	529	
289	2515	882.87	404.88	482	
290	605	214.13	0	0	
291	1693	619.99	0	80	
292	2731	1001.44	415.86	717	702
293	1142	419.36	0	229	501
294	305	119.40	57.32	1433	
295	1806	515.65	7.66	766	503
296	1735	662.87	121.42	467	1008
297	1597	509.51	0	245	539
298	2134	671.35	1.74	29	
299	2047	715.35	46.2	462	
300	841	286.70	57.8	578	1078
301	1970	676.57	10.7	107	
302	932	346.14	11.84	296	613

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
303	1075	430.41	502.04	1141	896
304	1137	391.78	1.6	32	
305	2863	1029.10	1008.45	1215	
306	490	205.84	0	522	1912
307	1680	618.18	117.66	318	730
308	1005	337.24	113.22	629	
309	1242	432.19	348.16	512	
310	1206	459.85	94.94	202	
311	614	228.63	16.56	184	
312	355	108.13	0	28	
313	505	191.21	4.8	120	722
314	767	324.59	0	57	
315	367	147.54	0	0	
316	1652	553.11	24.75	75	
317	792	268.35	0	146	
318	694	258.70	0.3	15	
319	546	185.79	86.79	263	
320	1470	509.97	0	7	
321	994	338.25	42.4	212	
322	594	220.63	21	42	
323	480	170.60	0	26	
324	761	239.37	27	90	
325	469	209.15	377.28	524	
326	473	143.96	260.4	1302	
327	451	159.90	8	16	
328	884	275.61	948	1200	
329	541	199.93	57.75	231	
330	430	147.11	0	0	
331	788	285.83	13.68	57	
332	1214	410.38	4.8	48	669
333	464	154.67	14.94	18	669
334	203	70.36	16.17	77	45
335	840	307.02	75.62	398	964
336	2826	882.75	28.9	289	2057
337	1317	458.72	86.85	579	
338	840	269.19	0	105	
339	1267	429.65	0	76	669
340	838	314.12	10.9	109	239

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
341	611	232.25	338.59	691	
342	619	208.98	0	37	
343	376	110.59	0	43	
344	530	193.76	0	29	
345	940	330.36	81.6	102	
346	513	151.04	4.03	31	
347	545	173.05	0	24	
348	609	209.52	0	196	
349	501	168.00	0	33	
350	887	294.48	0	6	
351	1137	398.92	0	6	
352	1669	615.73	11.4	228	524
353	2019	383.71	28	175	
354	455	154.83	0	979	
355	24	6.86	0	545	
356	145	66.00	6.61	661	1512
357	2731	938.00	3.3	30	981
358	2187	871.56	1.82	182	525
359	2884	1442.58	0	77	9627
360	329	111.38	0	110	
361	1385	442.48	0	40	
362	1984	628.43	0	31	
363	532	179.01	0	14	
364	716	223.40	4.02	6	
365	567	187.48	0.76	38	
366	1079	403.19	0	63	
367	558	190.89	0	3	
368	422	144.19	7.02	351	1842
369	347	113.71	0	0	
370	444	141.57	25.65	27	
371	352	118.48	0	2	
372	464	196.75	6	12	
373	892	303.37	3.6	12	
374	187	67.59	0	1	
375	475	174.21	5.5	11	
376	221	73.67		0	
377	259	96.77	0	3	
378	612	183.74	0	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
379	375	147.03	0	0	
380	260	91.76	5.2	52	
381	103	33.04	0	11	
382	61	26.14	0	0	
383	72	24.00	0	0	
384	99	31.82	0	8	
401	960	347.00	29.34	1467	
402	460	157.91	20.46	341	
403	623	307.75	0	77	
404	228	76.00	380.12	1118	
405	159	74.02	0	176	
406	417	132.68	12.15	243	
407	802	358.85	49	98	
408	736	278.91	6.76	338	
409	522	186.00	173.84	424	
410	1084	365.09	107.24	766	1301
411	656	249.90	15.68	224	
412	527	175.67	0	20	
413	1575	558.23	753.48	1092	
414	2136	673.44	6.78	339	367
415	17	8.00	0	122	
416	1183	490.19	15.75	1575	1462
417	1349	468.69	455.82	642	369
418	848	382.00	80.5	575	
419	1516	558.04	48.6	486	
420	0		82.81	1183	
421	702	335.25	268.06	2062	
422	0		0	844	
423	1495	506.68	146.76	2446	
424	1410	529.36	685.1	2015	3180
425	1104	393.65	20	80	
426	1638	574.95	59.6	1192	489
427	539	185.86	0	66	
428	1041	350.77	0	284	
429	1930	574.77	210.15	1401	
430	505	200.09		43	
431	166	55.33	23.91	797	
432	250	102.68	0	0	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
433	71	18.00	123	123	
434	382	127.33	0	301	
435	1199	424.51	6.4	320	
436	1164	382.17	5.8	580	
437	1677	575.60	0	527	
438	370	146.94	98.02	754	
439	58		0	66	
440	2	2.00	0	186	
441	608	238.68	212.73	1013	
442	1078	385.00	29.64	78	
443	50	24.00	15	30	
444	1339	608.64	217.68	1814	
451	551	184.38	0.46	23	
452	2353	790.46	73.64	526	1120
453	4196	1335.19	115.32	961	2500
454	1883	654.09	174.87	603	771
455	1797	639.73	56.16	312	
456	3057	1014.79	5.92	296	577
457	3694	1282.75	139.84	304	
458	1531	514.33	317.6	397	
459	1451	529.11	3.26	163	
460	1794	675.72	1.36	68	
461	2802	959.71	13.3	133	
462	1648	549.89	0	40	664
463	1331	463.95	0.17	17	
464	1266	432.64	2.2	44	
465	1875	633.25	5.16	86	
466	1567	561.25	26.75	535	1187
467	1213	404.33	3.66	122	
468	874	282.76	4.2	140	374
469	704	297.41	138.45	213	
470	549	222.47	1012.68	1164	
471	1022	347.04	11.6	58	
472	511	198.11	1.8	60	
473	510	173.58	2.56	128	
474	984	359.80	34.8	232	
475	681	216.16	93.25	373	
476	804	259.40	4.3	43	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
477	973	401.44	116.55	777	3403
478	634	231.36	7.47	83	
479	1113	383.59	46.32	386	
480	1552	542.81	15.51	517	694
481	802	290.14	2.51	251	1255
482	2652	917.88	22.26	106	718
483	1796	581.82	84.78	314	614
484	647	221.95	0.24	24	
485	603	269.81	32.4	216	
486	483	210.76	3.64	91	737
487	886	321.52	60.8	608	700
488	710	294.49	35.1	702	2381
489	213	99.07	108.75	375	
490	203	84.17	48.38	59	
491	359	146.57	2.13	71	
492	788	280.82	186.66	1037	
493	630	248.54	350.73	1299	629
494	1276	475.87	333.9	530	
495	280	114.87	0.16	16	
496	1625	630.10	325	500	
497	1929	729.82	404.4	674	
498	1545	534.54	1.14	38	
499	523	165.39	0	19	
500	818	325.64	3.2	80	
501	886	427.72	889.56	1412	
502	1141	407.59	266.5	1066	
503	547	236.82	114	600	
504	735	273.11	304.59	429	
505	677	243.38	363.46	1069	
506	621	195.85	0	98	
507	1080	365.13	145.6	520	702
508	1023	472.72	245.96	946	1097
509	2227	739.85	19.08	159	
510	582	166.47	0	114	
511	1323	463.30	0.55	55	
512	3023	1051.53	35.91	171	572
513	1446	548.91	92	368	598
514	2341	824.94	40.66	214	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
515	613	215.03	9.4	94	
516	2901	1156.95	18	36	
517	1121	449.97	41.44	74	
518	888	359.75	91.5	183	2223
519	1381	477.50	51.87	273	448
520	1206	408.69	8.5	34	
521	1075	379.52	22.04	76	
522	957	385.13	94.72	128	
523	604	203.56	1.1	22	
524	722	260.44	25.5	51	
525	1365	482.16	225.6	470	
526	1333	457.97	60.32	208	
527	842	311.48	133	532	681
528	981	280.93	19	76	
529	1957	682.53	50.1	334	
530	674	211.52	16.53	57	
531	634	218.22	2	20	
532	2281	810.45	22.8	228	
533	1521	515.03	3.94	197	675
534	1666	570.69	607.5	2025	
535	724	244.26	5	50	
536	2231	792.62	210	600	
537	486	140.98	1.42	71	
538	828	283.10	6.51	217	
539	633	216.78	16.53	29	
540	592	193.54	13.5	27	
541	1594	579.49	4.36	218	630
542	2076	681.49	3.44	172	
543	1366	455.78	4.26	213	
544	1742	586.69	1.03	103	
545	1189	436.09	102.83	113	
546	889	311.34	0.31	31	
547	801	253.35	12.5	25	
548	218	79.48	10	20	
549	743	250.83	8.5	17	
550	911	318.53	5	250	
551	2525	811.65	3.48	174	369
552	771	257.51	10	20	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
553	514	152.30	71.04	148	
554	152	58.84	0	0	
555	192	52.11		0	808
601	2746	991.65	1160.5	2110	2173
602	2062	791.58	191.1	273	384
603	761	286.01	2.66	19	
604	910	351.08	1.92	32	
605	904	301.33	219	219	
606	967	358.82	46	46	
607	896	359.44	121.8	812	
608	924	413.21	58.9	589	
609	850	331.09	250.8	836	
610	1894	797.42	268.8	560	800
611	1493	620.41	31.68	264	800
612	1705	647.92	95	190	
613	1028	425.45	47.32	364	
614	1502	509.38	2.65	53	
615	1297	490.63	38.85	259	
616	2148	869.71	2.78	139	836
617	1997	735.24	4.84	242	578
618	1300	563.28	1.4	70	
619	1798	678.36	63.4	317	1068
620	1354	513.81	10.64	38	
621	2099	794.50	38.75	155	
622	761	270.36	0	260	1734
623	1609	524.77	21.06	54	
624	919	303.36	0	39	
625	759	230.19	114.4	176	
626	1038	479.08	5.8	116	
627	1092	476.75	3.85	77	
628	1439	648.70	101.2	230	
629	1036	424.09	4.98	83	
630	1046	458.85	24.2	484	
631	633	329.73	4.5	90	372
632	397	137.76	0	4	
633	55	23.38	19	19	
634	2	1.00	0	46	453
635	645	268.96	0	9	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
636	742	264.92	0	8	
637	747	290.98	82.16	104	
638	743	266.44	36.5	73	
639	826	338.36	20.6	412	1762
640	372	150.11	90.4	226	
641	1393	467.85	169.6	424	218
642	1096	360.10	96.6	322	
643	669	242.73	94.15	1345	
644	554	173.13	27.5	55	
645	609	221.45	0.9	45	
646	859	270.96	13	26	
647	989	308.45	49.25	197	
648	264	72.98	17.25	69	
649	0		0	67	
650	576	185.81	40.32	448	
651	293	102.27	40.77	453	
652	56	14.00	73.92	462	
653	2682	877.15	213	1420	
654	1035	332.59	42.6	142	
655	283	73.83	0	471	826
656	1058	259.80	51.74	398	
657	657	229.34	39.69	441	
658	913	246.02	0	30	769
659	905	198.02	1.38	69	
660	301	103.98	20	25	
661	176	67.10	74.64	622	1291
662	100	27.38	7.56	378	
663	3	1.00	333.75	375	
664	754	256.94	101.25	405	
665	192	64.00	89.32	203	
666	25	7.50	999	1110	
667	1561	542.65	286.3	818	
668	4	1.00	17.6	40	
669	226	74.68		0	
670	68	21.64	372.45	573	
671	11	1.00	0	81	674
672	494	151.54	11.1	222	738
673	168	84.00	182.65	281	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
674	18	7.00	492.75	657	
675	658	243.00	147.9	435	818
676	573	193.48	0	15	
677	155	54.64	0	9	
678	185	75.93	100.5	335	906
679	1081	356.58	26.88	48	
680	663	228.02	0	0	
681	701	259.52	4	80	
682	989	337.49	8.7	174	
683	792	289.65	24.44	52	
684	504	182.51	100.5	201	
685	760	274.78	98.49	147	
686	80	35.56	117.41	199	
687	424	144.78	1.86	93	
688	1352	526.19	12.35	247	
689	943	353.31	46.32	579	1054
690	1541	514.99	7.9	79	
691	1905	675.03	20.8	416	784
692	1436	425.76	122.82	138	
693	1269	450.86	33.95	97	
694	969	329.13	14.2	71	
695	1719	562.68	0	104	
696	886	362.84	44.38	317	
697	502	230.92	111.15	117	
698	1420	576.23	0	35	
699	1766	729.54	51	340	
700	565	257.82	42.6	284	
701	1131	417.87	0	102	
702	193	83.57	7.02	117	
703	9	5.00	23.28	194	
704	818	308.78	12.96	54	
705	1455	562.24	149.5	575	3679
706	1443	499.63	58.6	586	2525
707	1569	621.15	19	100	
708	904	317.62	10.83	361	
709	1373	547.31	17.3	346	
710	172	43.00	0	421	
711	1117	413.39	39.8	796	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
712	440	161.52	4.95	99	
713	0		1012.83	1113	
714	0		0	489	
715	176	88.00	0	65	
716	0			24	
717	35	11.00	444.86	754	
718	0		0	0	
719	0	0.00	25.26	1263	
720	0		5.62	281	
721	0		1.86	93	
722	449	161.77	0	79	
723	411	166.97	0	10	
724	575	204.21		0	
725	619	199.19	0	99	280
726	254	98.21	0	0	
727	621	277.59	111.54	507	
728	150	61.22	0	15	
729	104		167.25	669	
730	0		0	259	
731	291	133.91	0	22	
732	0		0	0	
733	59	25.00	0	0	
734	123	17.57	0	0	
735	0		0	0	
736	478	188.90	23	23	
737	780	332.06	0.62	31	
738	870	349.86	92	184	
739	543	209.38	0	50	
740	145	60.00	26	26	
741	964	382.66	28.8	48	
742	70	33.60	0	11	
801	0		0	40	
802	589	206.71	0	481	
803	303	103.81	0	1047	
804	0		20.69	2069	
805	597	213.69	7.25	725	
806	339	135.60	0	81	
807	475	176.52	23.1	77	

Traffic Analysis Zone	Population	Occupied Dwelling Units	Retail Employment	Total Employment	School Attendance
808	509	190.37	0	482	
809	913	316.31	0	91	
810	1101	375.05	0	88	
811	392	124.88	3.65	365	1542
812	712	259.65	0	117	
813	907	334.49	0	24	
Totals	808,906	307,319.94	83,815.35	430,244	221,871

APPENDIX G

HISTORIC FUNDING AND FORECAST

HISTORIC STATE AND FEDERAL FUNDING AND FORECAST

NON-INTERSTATE PROJECTS

YEAR	PROJECT LETTING COSTS REAL DOLLARS	CPI INDEX	PROJECT LETTING COSTS 2006 DOLLARS
1997	26,082,778	1.224	31,925,320
1998	18,998,506	1.211	23,007,190
1999	25,169,091	1.189	29,926,049
2000	16,436,642	1.154	18,967,884
2001	12,712,478	1.130	14,365,100
2002	11,739,830	1.118	13,125,129
2003	42,000,252	1.095	45,990,275
2004	25,759,674	1.066	27,459,812
2005	41,919,337	1.033	43,302,675
2006	89,459,013	1.000	89,459,013
TEN-YEAR TOTAL	310,277,601		337,528,447
ANNUAL AVERAGE	31,027,760		33,752,845

APPENDIX H

SPECIAL SCENARIOS ANALYSES

SPECIAL MODEL RUNS

1. INTRODUCTION

The Study Team used the updated TransCAD travel demand forecasting model for the Baton Rouge Study Area to analyze traffic-related issues for several scenarios named in Task 6.0 of the contract for the Plan Update. The results of these special model runs follow.

II. NORTH BYPASS (WITH AND WITHOUT TOLLS)

The task was to verify traffic analyses conducted for the North Bypass (with and without tolls). A consortium of consultants had conducted the North Baton Rouge Bypass Study for the Louisiana Department of Transportation & Development and the Capital Region Planning Commission. The report for that Study documented the impact on traffic of a North Baton Rouge Bypass out to the year 2029. The consortium had applied the TRANPLAN travel demand forecasting model in its Study. A map delineating the route favored in the Study follows as **Figure SMR-1.** The report for the North Baton Rouge Bypass Study is dated November, 2004.

For this special model run, the Baton Rouge Plan Update Team applied the TransCAD travel demand model it had recently developed and reported in December, 2007, to three scenarios out to the year 2032. The scenarios include forecasting daily traffic volumes on the network of highways in the Baton Rouge area relative to implementation of the North Baton Rouge Bypass. The three scenarios are as follows:

1. No Build
2. Build but don't apply tolls
3. Build and apply tolls

Central to the traffic analyses are the forecasted daily traffic volumes in the North Baton Rouge Bypass Study. **Table 6.1 (page 6-3)** and **Figure 5.7 (page 5-13)** from the report for the Bypass Study follow for reference.

The BR Plan Update Team revised and used **Table 6.1** to compare traffic volumes forecasted in the North Baton Rouge Bypass Study with the volumes generated by the new TransCAD model. The **Table 6.1 Revised** follows. Traffic volumes for the No Build and Build Without Tolls scenarios are well documented in the original **Table 6.1.** Hence, traffic volumes for the horizon years 2029 and 2032 for the two respective studies can be readily compared. However, traffic volumes for the year 2029 in the Bypass Study for a number of locations are not provided in **Figure 5.7** and are thus documented as "No Count" in the **Table 6.1 Revised**.

Figures SMR-2, SMR-3 and SMR-4 present the traffic volumes forecasted by the TransCAD model for the "No Build", "Build Without Tolls" and "Build With Tolls" scenarios, respectively.

INSERT FIGURE SMR-1

to decrease

daily volume. Demand on almost all of the major routes in the study area is forecast by the model, except for US 190, LA 3034 (Sullivan / Wax Road) and Range Road. A slight increase in demand on I-110 north of US 190 and on I-10 east of the I-10 / I-12 split is also predicted. Results of the comparison are provided in a tabular form in **Table 6.1**.

Table 6.1
Comparison of Build and No-Build Volume

Route	Location	Daily Volume 2029 No-Build	Daily Volume 2029 Build	Difference	Percent Difference
I-10	MS Bridge	124,220	96,326	-27,894	-22.5%
I-10	South of I-110	171,190	154,778	-16,412	-9.6%
I-10	East of I-12	151,609	157,021	5,412	3.6%
I-110	North of US 190	104,964	110,889	5,925	5.6%
LA 67	South of US 61/190	22,367	38,219	15,852	70.9%
I-12	East of I-10	119,847	94,196	-25,651	-21.4%
US 61	South of LA 67	56,084	51,445	-4,639	-8.3%
US 190	East of US 61	59,469	54,327	-5,142	-8.6%
US 190	MS Bridge	38,430	70,448	32,018	83.3%
US 190	West of US 61	60,166	47,356	-12,810	-21.3%
LA 3034	Between LA 37 & 408	15,314	24,949	9,635	62.9%
LA 37	Between LA 946 & 3034	44,336	38,697	-5,639	-12.7%
LA 19	South of LA 423	35,943	34,897	-1,046	-2.9%
LA 67	North of LA 3006	24,394	22,761	-1,633	-6.7%
I-10	West of LA 415	51,608	40,842	-10,766	-20.9%
US 190	West of LA 1	23,654	34,329	10,675	45.1%
LA 1	South of I-10	61,500	61,627	127	0.2%
LA 415	North of I-10	15,850	6,274	-9,576	-60.4%
I-12	Over Amite River	118,054	93,552	-24,502	-20.8%
I-12	East of Range Road	105,470	72,866	-32,604	-30.9%
US 190	Over Amite River	38,080	28,720	-9,360	-24.6%
Range Rd	North of I-12	30,368	37,625	7,257	23.9%
LA 64	Magnolia Bridge	25,675	15,734	-9,941	-38.7%

6.1.4 Daily Congestion

A common measure of congestion is the calculation of a "volume to capacity ratio" (v/c ratio). The v/c ratio measures the level of congestion, or level of mobility, by dividing the roadway's traffic volume with its vehicular capacity. Usually a v/c ratio of 0.85 or less is considered stable. A v/c ratio greater than 1.0 represents a high level of congestion Review of the Baton Rouge Travel Demand Model reveals that the daily v/c

INSERT **Figure 5.7 (page 5-13)**

INSERT TABLE 6.1 REVISED

INSERT FIGURE SMR-2

INSERT FIGURE SMR-3

INSERT FIGURE SMR-4

Analysis of the data in the **Table 6.1 Revised** reveals the following findings.

A. Baton Rouge TransCAD Year 2032 Daily Traffic Volumes.

1. No Build Versus Build (Without Tolls)

The travel demand model indicates that building the North Baton Rouge Bypass **without applying tolls** will reduce the traffic volumes on many of the State-maintained highways in the area. For the sample of 30 locations listed in the table, 23 experienced a reduction in traffic volumes by an average of 5,340 vehicles per day (12% per location). The model forecasted a traffic volume of 41,177 vehicles per day with no tolls applied on the proposed North Baton Rouge Bypass at its crossing of the Amite River.

2. No Build Versus Build (With Tolls)

The travel demand model indicated similarly that building the North Baton Rouge Bypass **and applying tolls** will reduce the traffic volumes on many of the State-maintained highways in the area, but to a less extent than without tolls. For the sample of 27 locations (counts were not available for three of the locations cited above) listed in the table, 22 experienced a reduction in traffic volumes by an average of 2660 vehicles per day (6%). Five of the 27 will experience an increase in traffic volumes by an average of 7,415 vehicles per day (11%). The model forecasted a traffic volume of 7,292 vehicles per day with tolls applied on the proposed North Baton Rouge Bypass at its crossing of the Amite River.

B. Baton Rouge TRANPLAN Year 2029 Daily Traffic Volumes

1. No Build Versus Build (Without Tolls)

The travel demand model indicates that building the North Baton Rouge Bypass **without applying tolls** will reduce the traffic volumes on many of the State-maintained highways in the area. For the sample of 30 locations listed in the table, 22 experienced a reduction in traffic volumes by an average of 12,093 vehicles per day (24% per location). The model forecasted a traffic volume of 46,816 vehicles per day without tolls applied on the proposed North Baton Rouge Bypass at its crossing of the Amite River.

2. No Build Versus Build (With Tolls)

The travel demand model indicated similarly that building the North Baton Rouge Bypass **and applying tolls** will reduce the traffic volumes on many of the State-maintained highways in the area, but to a less extent. For the sample of 16 locations (counts were not provided on the traffic volume map for fourteen of the locations cited above) listed in the table, nine experienced a reduction in traffic volumes by an average of 6159 vehicles per day (12%). Conversely, seven of the 16 will experience an increase in traffic volumes by an average of 2,850 vehicles per day (6%). The model forecasted a traffic volume of

21,652 vehicles per day with tolls applied on the proposed North Baton Rouge Bypass at its crossing of the Amite River.

C. Overall Comparison of TransCAD Traffic Volumes Versus TRANPLAN Traffic Volumes.

The correlation for verification for the various sets of traffic volume data is not good. This can be attributed in part to the use of different travel demand models in the respective studies, and the fact that the effects of Hurricane Katrina on the demographic data were factored into the TransCAD model. Review of the data in the **Table 6.1 Revised** previously presented does indicate an increase in variation of traffic volumes between the two data sets for given locations as the traffic volumes increase (greatest variation for Interstates, with the higher volumes).

D. Overall Comparison of Volume/Capacity Ratios, TransCAD Versus TRANPLAN Model Runs

The North Baton Rouge Bypass Study reports volume-to-capacity ratios in bar graph form for highway corridors in the network. The values reported are not site-specific. Traffic projections and thus v/c ratios in fact vary along the length of highway corridors. However, the report from the Bypass Study in which the consortium of consultants used the TRANPLAN model does state "…the daily v/c ratio is at or near 1.0 for most of the major routes in the study area…Due to increase in demand, those v/c ratios are likely to exceed 1.0 to nearly 1.9 along some sections of major arterials. The proposed North Bypass will substantially reduce v/c ratios on most major arterials…"

The v/c bar graphs from the results of the TRANPLAN analysis indicate that 14 of 23 State routes (basically those routes presented in the original **Table 6.1**) will have v/c ratios greater than or equal to 1.5 in the year 2032 for the "No Build" scenario. The bar graphs also relate that only four of those 23 routes will have v/c ratios greater than or equal to 1.5 in the year 2032 for the "Build Without Tolls" scenario. This TRANPLAN analysis provided no v/c ratios for the "Build With Tolls" scenario.

Figures SMR -5, **SMR-6**, and **SMR-7** relate the year 2032 TransCAD model run results in terms of v/c for the "No Build", "Build Without Tolls" and the "Build With Tolls" scenarios, respectively.
Visual review of these maps indicate that 11 of 23 State routes (those routes presented in the original **Table 6.1**) will have v/c ratios greater than or equal to 1.5 in the year 2032 for the "No Build" scenario. The maps also relate that nine of those 23 routes will have v/c ratios greater than or equal to 1.5 in the year 2032 for the "Build Without Tolls" scenario.

INSERT FIGURE SMR-5

INSERT FIGURE SMR-6

INSERT FIGURE SMR-7

E. Summary

Traffic volumes forecasted by the results of the North Baton Rouge Bypass Study (2004) and the Baton Rouge Plan Update (2007), respectively, do not correlate well. Primary reasons are that the former study utilized the TRANPLAN model while the latter study applied the TransCAD model. The TransCAD model reflected the impact of Hurricane Katrina on the demographic area for the four-parish area.

Both models predict benefits from implementation of the North Baton Rouge Bypass. However, the TransCAD model forecasts much smaller benefits than the TRANPLAN model in terms of reduction of traffic on roads in the vicinity of the Bypass and reduction of congestion in terms of v/c ratios.

III. SOUTH BYPASS (I-10 TO I-10 QUARTER LOOP AND I-10 TO 1-12 HALF LOOP)

This Task was to evaluate two cases of a South Bypass (I-10 to I-10 quarter loop and I-10 to I-12 half loop).

A. I-10 to I-10 Quarter Loop

Figure SMR-8 presents the route for the I-10 to I-10 Quarter Loop of the South Bypass.

Figure SMR-9 and **Figure SMR-10** present the results of TransCAD model runs in terms of traffic volumes for the "No Build" and "Build" scenarios, respectively. **Table SMR-1** presents a summary of these traffic volumes for "No Build" and "Build" scenarios at a sample of locations for the Quarter Loop scenario. Analysis of the data in this table indicates an overall reduction in traffic volumes for other roads in the area by an average of 2,523 vehicles (11%) per location. Highways with the functional class "Collector" exhibited an average reduction in traffic volumes of 1,147 vehicles (16%) per location. Review of the data in the table indicated an average reduction of traffic volumes on "Arterials" of 2,883 vehicles (14%). And the data indicated an average decrease in traffic for the sample of Interstates of 2,959 vehicles (2%) per location.

Figures SMR-11 and **SMR-12** are maps relating the ratios of volume to capacity for the "No Build" and the "Build" scenarios, respectively. Visual review of these maps indicate that 11 of a sample of 18 State routes (those routes in **Table SMR-1)** will have v/c ratios greater than or equal to 1.5 in the year 2032 for the "No Build" scenario. Nine of the 18 exhibited v/c ratios equal to or greater than 1.5 under the "Build" scenario. The number of locations with v/c ratios greater than 1.5 increased under the "Build scenario" by one for the Collectors, decreased by three for the Arterials, and remained the same at four for the Interstates.

B.. I-10 West to I-12 East Half Loop

Figure SMR-13 presents the route for the I-10 to I-12 Half Loop of the South Bypass.

Figure SMR-14 and **Figure SMR-15** present the results of TransCAD model runs in terms of traffic volumes for the "No Build" and "Build" scenarios, respectively. **Table SMR-2** presents a summary of these traffic volumes for "No Build" and "Build" scenarios at a sample of locations for the Half Loop scenario. Analysis of the data in this table indicates an overall reduction in traffic volumes for other roads in the area by an average of 6,523 vehicles (8 %) per location. Highways with the functional class "Collector" actually exhibited an average increase in traffic volumes by 592 vehicles (6 %) per location. Review of the data in the table indicated an average reduction of traffic volumes on "Arterials" of 5,536 vehicles (19 %). And the data indicated an average decrease in traffic for the sample of Interstates of 15,534 vehicles (10 %) per location.

Figures SMR-16 and **SMR-17** are maps relating the ratios of volume to capacity for the "No Build" and the "Build" scenarios, respectively. Visual review of these maps indicate that 20 of a sample of 33 State routes (those routes in **Table SMR-2)** will have v/c ratios greater than or equal to 1.5 in the year 2032 for the "No Build" scenario. Fifteen of those 33 locations exhibited v/c ratios equal to or greater than 1.5 under the "Build" scenario. The number of locations with v/c ratios greater than 1.5 remained the same at three under the "Build scenario" for the Collectors, decreased by four for the Arterials, and increased by one for the Interstates.

C.. Summary

The updated Baton Rouge TransCAD model forecasts small benefits in terms of reduction of traffic volumes and volume-to-capacity ratios overall for the network in the vicinity of the proposed Quarter Loop and Half Loop South Bypass scenarios. Relative to reduction in traffic volumes and v/c ratios, Arterials benefited most.

INSERT FIGURE SMR-8

INSERT FIGURE SMR-9

INSERT FIGURE SMR-10

TABLE SMR-1

SPECIAL TRAVEL DEMAND MODEL RUNS
EVALUATION OF 2032 TRAFFIC VOLUMES
SOUTH BYPASS QUARTER LOOP I-10W TO I-10E
BUILD VERSUS NO-BUILD SCENARIOS

	Functional	2032 Traffic Volumes		2032 Traffic Volumes No Build vs. Build	
Route and Location	**Class**	**No-Build**	**Build**	**Difference**	**Percent Difference**
LA 1 at LA 989-2 (Outside Loop)	Arterial	55,236	66,262	11,026	20%
LA 1 South of I-10 (Inside Loop)	Arterial	71,591	51,176	-20,415	-29%
LA 30 North of Bluebonnet	Arterial	12,186	5,766	-6,420	-53%
LA 30 North of LA 74 (Outside Loop)	Arterial	14,089	16,927	2,838	20%
LA 30 at Bayou Paul Lane (Inside Loop)	Arterial	15,043	4,852	-10,191	-68%
US 61 North of Highland Rd.	Arterial	56,242	57,472	1,230	2%
LA 73 North of Bluff Rd.	Arterial	15,135	14,315	-820	-5%
LA 42 East of US 61	Arterial	32,189	31,876	-313	-1%
Brightside West of LA 30	Collector	16,115	17,898	1,783	11%
LA 1248 East of LA 30 (Outside Loop)	Collector	9,223	4,350	-4,873	-53%
LA 74 East of LA 30	Collector	6,318	4,794	-1,524	-24%
LA 931 East of US 61	Collector	6,579	6,605	26	0%
I-10 West of LA 415	Interstate	57,092	51,490	-5,602	-10%
I-10 Southeast of I-110	Interstate	162,384	151,776	-10,608	-7%
I-10 West of Split With I-12	Interstate	211,144	197,434	-13,710	-6%
I-10 South of LA 73 (Outside of Loop)	Interstate	90,388	97,532	7,144	8%
I-10 Bluebonnet to Siegen(Inside Loop)	Interstate	99,002	100,772	1,770	2%
I-12 West of Airline	Interstate	124,220	127,470	3,250	3%

INSERT FIGURE SMR-11

INSERT FIGURE SMR-12

INSERT FIGURE SMR-13

INSERT FIGURE SMR-14

INSERT FIGURE SMR-15

SPECIAL TRAVEL DEMAND MODEL RUNS
EVALUATION OF 2032 TRAFFIC VOLUMES
SOUTH BYPASS HALF LOOP I-10W TO I-12E
BUILD VERSUS NO-BUILD SCENARIOS

TABLE SMR-2

	Functional	2032 Traffic Volumes		2032 Traffic Volumes No Build vs. Build	
Link	**Class**	**No-Build**	**Build**	**Difference**	**Percent Difference**
LA 1 South of I-10	Arterial	71,591	51,242	-20,349	-28%
LA 1 South of LA 989-2	Arterial	47,716	51,622	3,906	8%
LA 30 Gardere to Bluebonnet	Arterial	12,186	7,179	-5,007	-41%
LA 30 North of LA 74 (Outside Loop)	Arterial	14,089	17,048	2,959	21%
LA 30 South of Bayou Paul Lane (Inside Loop)	Arterial	15,043	5,964	-9,079	-60%
LA 42 Jefferson to Braud Rd	Arterial	32,189	18,586	-13,603	-42%
LA 431 at LA 931 (Outside Loop)	Arterial	10,217	9,274	-943	-9%
LA 447 South of I-12	Arterial	32,351	22,669	-9,682	-30%
LA 73 LA 42 to Hoo Too Shoo (Inside Loop)	Arterial	15,135	12,006	-3,129	-21%
US 190 Florida at Amite River	Arterial	41,845	39,625	-2,220	-5%
US 61 at LA 929 Causey Rd.	Arterial	44,737	40,135	-4,602	-10%
US 61 Highland to Bluff (Inside Loop)	Arterial	56,242	51,556	-4,686	-8%
LA 1248 West of Burbank (Inside Loop)	Collector	15,501	25,657	10,156	66%
LA 16 at LA 447 (Inside Loop)	Collector	23,617	10,644	-12,973	-55%
LA 16 Pete's Hwy North of LA 1033	Collector	12,665	9,673	-2,992	-24%
LA 16/LA 42 In Port Vincent (Inside Loop)	Collector	18,776	7,114	-11,662	-62%
LA 16/LA 42 West of Port Vincent (Outside Loop)	Collector	16,708	25,482	8,774	53%
LA 327 River Rd North of Brightside	Collector	11,472	17,800	6,328	55%
LA 327 Spur West of Burbank (Inside Loop)	Collector	10,441	23,718	13,277	127%
LA 44 at LA 42 (Inside Loop)	Collector	14,686	13,272	-1,414	-10%
LA 44 at LA 931 (Outside Loop)	Collector	29,748	32,824	3,076	10%
LA 74 East of LA 30	Collector	6,318	3,839	-2,479	-39%
LA 931 Germany Rd East of Airline	Collector	6,579	3,004	-3,575	-54%
I-10 West of LA 415	Interstate	57,092	52,084	-5,008	-9%
I-10 North of LA 73 (Outside Loop)	Interstate	90,152	84,986	-5,166	-6%
I-10 Siegen to Bluebonnet (Inside Loop)	Interstate	104,342	102,734	-1,608	-2%
I-10 Southeast of I-110	Interstate	161,360	149,338	-12,022	-7%
I-10 West of Split with I-12	Interstate	204,294	92,698	-111,596	-55%
I-12 at Amite River	Interstate	124,444	119,762	-4,682	-4%
I-12 O'Neal to Millerville	Interstate	118,734	105,274	-13,460	-11%
I-12 Walker South Rd. to Juban Rd. (Inside Loop)	Interstate	93,378	95,870	2,492	3%
I-12 Walker South Rd. to Satsuma (Outside Loop)	Interstate	82,510	79,152	-3,358	-4%
I-12 West of US 61 Airline	Interstate	127,200	126,266	-934	-1%

INSERT FIGURE SMR-16

INSERT FIGURE SMR-17

IV. U.S 61 AIRLINE HIGHWAY

This task was to evaluate increased capacity for Airline Highway from I-12 to I-10 or other suitable terminals.

A. Description of Improvement

The Study Team and the Capital Region Planning Commission established the limits of the Airline Highway corridor for study to be from just southeast of the intersection with Greenwell Springs Road to a point southeast of the intersection with Highland Road. The existing Airline Highway is generally a four-lane, two-way divided highway at ground level. That portion of Airline Highway between its intersections with Florida Boulevard and with Cedarcrest Drive has been widened to six lanes. The Team supplemented the existing ground level pavement of US 61 with a four-lane, two-way elevated section of highway. The study group proposed interchanges at the following intersections with Airline Highway:

1. Choctaw Drive
2. Florida Boulevard
3. Old Hammond Highway
4. I-12
5. Jefferson Highway
6. Siegen Lane
7. Highland Road

This corridor of Airline Highway for study is portrayed in **Figure SMR-18** on a following page.

B. Traffic Volumes

The Study Team applied the updated TransCAD model to forecast traffic volumes to the year 2032 with “No Build” and “Build” conditions. **Figures SMR-19** and **SMR-20** present these respective traffic volumes as annotated on area maps. **Table SMR-3** summarizes the forecasted traffic data. The table indicates quantitatively that building the elevated section on Airline Highway would significantly increase the use of the facility. This table also indicates that building the elevated section on Airline Highway would reduce the traffic volumes on I-10 and on Sherwood Forest Boulevard by 11% to 15%.

C. Volume-To-Capacity Ratios

Figures SMR-21 and **SMR-22** present volume-to-capacity ratios for the “No Build” and “Build” conditions relative to the elevated section on Airline Highway. Visual review indicates there would be generally little relief from congestion with this capital improvement.

D. Summary

Increasing the capacity of the existing ground-level Airline Highway by adding a four-lane, two-way, elevated section would significantly increase that facility's use. However, that traffic attracted to the combined ground level and high-rise facility would offset the added capacity such that little relief from congestion would be gained. The improved Airline Highway would reduce traffic volumes on I-10 and on Sherwood Forest Boulevard on the order of 11% to 15%.

INSERT FIGURE SMR-18

INSERT FIGURE SMR-19

INSERT FIGURE SMR-20

TABLE SMR-3

SPECIAL TRAVEL DEMAND MODEL RUNS
YEAR 2032 MODEL TRAFFIC VOLUMES
NO-BUILD VERSUS BUILD CONDITIONS
FOUR-LANE, TWO-WAY ELEVATED AIRLINE HIGHWAY
FROM SOUTH CHOCTAW DRIVE TO HIGHLAND ROAD

	2032 DAILY TRAFFIC VOLUMES					
		Build			Difference,	% Difference,
Link	No-Build	Airline Ground	Airline Elevated	Total Volume	No-Build/Build Total	No-Build/Build Total
Airline Highway South of Tom Drive	55,572	34,558	68,229	102,787	47,215	85
Airline Highway South of Goodwood Blvd.	73,398	55,511	91,772	147,283	73,885	101
Airline Highway North of Coursey Blvd.	72,383	59,576	84,937	144,513	72,130	100
Airline Highway South of Siegen Lane	66,213	56,955	49,962	106,917	40,704	61
I-10 South of Essen Lane	125,847			112,457	-13,390	-11
I-10 South of Siegen Lane	91,530			80,778	-10,752	-12
Sherwood Forest Blvd. South of Goodwood Blvd.	29,118			24,973	-4,145	-14
Sherwood Forest Blvd. North of Coursey Blvd.	37,048			31,479	-5,569	-15

INSERT FIGURE SMR-21

INSERT FIGURE SMR-22