Louisiana
Department of Transportation
And Development

Lafayette
Metropolitan Planning Organization

Lafayette Consolidated Government
Traffic & Transportation Department
Metropolitan Planning Organization
Comprehensive Planning Divison

2030 Transportation Plan

DRAFT FINAL REPORT

Prepared by

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

GLOSSARY

3-C Process	– Comprehensive, Cooperative and Coordinated Urban Transportation Planning
ADT	– Average Daily Traffic
CBD	– Central Business District
CAC	– Citizen Advisory Committee
Demo	– Federal Demonstration Fund
FHWA	– Federal Highway Administration
FTA	– Federal Transit Administration
HCM	– Highway Capacity Manual
ISTEA	– Intermodal Surface Transportation Efficiency Act of 1991
ITS	– Intelligent Transportation System
LA DOTD	– Louisiana Department of Transportation and Development
MPO	– Metropolitan Planning Organization
MTP	– Metropolitan Transportation Plan
NHS	– National Highway System
N-S	– Neel-Schaffer, Inc.
STP	– Surface Transportation Program
TTC	– Transportation Technical Committee
TEA-21	– Transportation Equity Act for the 21st Century
TIP	– Transportation Improvement Program
TPC	– Transportation Policy Committee
TRANPLAN	– Transportation Planning Computer Modeling Software
TransCAD	– Transportation Planning Computer Modeling Software
UTPS	– Urban Transportation Planning Software

CHAPTER 1: INTRODUCTION

1.0 Planning Area and Geographic Growth

The Lafayette Metropolitan Area is located in Lafayette Parish and portions of Acadia, Vermilion, Iberia and St. Martin Parishes.

The designated metropolitan study area previously contained only Lafayette Parish. However, the 2000 Census reclassified the "Urbanized Area" of Lafayette, through demographic criteria, to include the municipalities of Breaux Bridge and Maurice and portions of Acadia, Iberia, St. Martin and Vermilion parishes. The 2000 Census Lafayette Urbanized Area boundaries were adjusted by the MPO (Lafayette Metropolitan Planning Organization) and LA DOTD (Louisiana Department of Transportation and Development) to straighten alignments and identify consistent borders. The estimated extents of the Lafayette Urbanized Area through the year 2030 were mapped to encompass the long range transportation needs of the plan and study target area.

1.10 Historical Background

In response to the Federal Highway Act of 1962, the Comprehensive Transportation Plan for Lafayette Area was completed in 1967. The improvement program provided a foundation for the development of the transportation system over the past forty years. The Plan was last revised fully in 1990[1] and then reviewed and revised in 1995.[2] However, some of the improvements identified in the plan have not been implemented.[3] The situation has placed severe constraints on significant portions of the street and highway network as it exists today.

The 1967 plan was prepared based on a mainframe computer-model called *Planpac*. This model was developed by the Federal Highway Administration (FHWA) and was subsequently replaced by the Urban Transportation Planning Software (UTPS) model. These models were very time-consuming and costly and required several weeks or months to prepare a traffic assignment. In the late 1980's, LA DOTD purchased a multi-location license for the TRANPLAN Travel Demand Forecasting Model. At the time, it was the intent to update all of the urban plans in the State using the software package. In 1992, the Lafayette Metropolitan Area Transportation Plan was completed using TRANPLAN.

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[1] Wilbur Smith and Associates, and Sellers (Baton Rouge, LA) and Dubroc and Associates (Lafayette, LA), Lafayette Transportation Plan, Technical Memos No.1 - No. 5, 1990-1991.

[2] Neel-Schaffer, Inc. (Baton Rouge, LA), Lafayette Parish Metropolitan Transportation Plan, Tranplan Model User Manual, January 1995.

[3]The current state of the completion of the plan is posted on the Lafayette in a Century Web Site, operated by Lafayette Consolidated Government, Department of Traffic and Transportation, Metropolitan Planning Organization and Comprehensive Planning Division. See the Financially Constrained Transportation Plan (FCTP) at http://www.lafayettelinc.net/Maps/FCTP/intro.asp as existing as of the date of this publication.

Figure 1 – Map of Lafayette Study Area and 2000 Urbanized Adjusted Area

Due to advances in computer technology in the late 1990's, LA DOTD decided to convert to the TransCAD Travel Demand Forecasting Model. The computer modeling plan updates conducted by the MPO were performed in version 3.0 and continued through version 4.0. The current plan is being modeled in version 4.7 by the MPO and Neel-Schaffer, Inc.

1.20 Purpose

The purpose of this study is twofold. The first is to update the Metropolitan Transportation Plan (MTP) for the Lafayette Area as required by the Federal Highway Act of 1962 and its congressional revisions. The target years for this plan will be 2010 for the Short Range Stage, 2020 for the Intermediate Stage and 2030 for the Long Range Stage. The second purpose is to develop a PC-based travel demand computer model using the TransCAD software package.

1.30 Scope of Work

This study provides an update of area travel characteristics, an inventory and an evaluation of the existing transportation system. Potential improvements to the system will be developed and analyzed. A transportation plan and staged improvement program will be recommended. A computer travel demand model will be developed. Local planners and LA DOTD staff will be trained in the use of this model. The Caliper Corporation, the developers of TransCAD, are developing, as part of this project, a user friendly inter-face that will significantly enable many different types of users to use this plan on their personal computers.

1.40 Advisory Committee Structure

The Project Steering Committee is composed of two entities: The Study Team and the Consultant Team.

The Study Team is composed of members of the Lafayette Metropolitan Planning Organization (MPO) staff and includes the following individuals:

Tony Tramel, Director of Traffic and Transportation
Mike Hollier, Planning Manager, Metropolitan Planning Organization Division
Mike LeBlanc, Planner II, Metropolitan Planning Organization Division
Vijay Kunada, Engineer II, Metropolitan Planning Organization Division
Johnny Orgeron, Planner II, Metropolitan Planning Organization Division

The Consultant Team composed of Neel-Schaffer, Inc[4]. as Prime Consultant and Sub-Consultants consisting of Dubroc Engineering, Inc.[5], Caliper Corporation [6], Bernardin, Lochmueller Associates[7] and Dr. David C. Johnson[8] and include the following individuals:

[4]Neel-Schafer is a regional transportation consultant with offices in Lafayette, Baton Rouge and throughout the Southeastern United States. Neel-Schaffer provided the traffic modeling expertise for the project. See http://www.neel-schaffer.com/ for the internet webpage

[5] Dubroc, Engineering, Inc., 202 Rue Iberville, Lafayette, LA 70508 provided an analysis of local network streets.

L.P. Ledet, Senior Planner, Neel-Schaffer, Inc.
Raju Porandla, Planner, Neel-Schaffer, Inc.
Gerald Dubroc, Principal, Dubroc Engineering, Inc.
Chris Guilbeau, Engineer I, Dubroc Engineering, Inc.
Dr. David A Ripple, Chief of Transportation Land Use Planning, Bernardin, Lochmueller Associates
Dr. David Johnson, Consulting Demographer, University of Louisiana - Lafayette
Paul Ricotta, Transportation Engineer, Caliper Corporation.

The Project Steering Committee and the Consultant Team reported to the three Metropolitan Planning Organization (MPO) committees: Transportation Technical Committee (TTC), The Transportation Policy Committee (TPC), and The Citizens Advisory Committee (CAC).

The Transportation Technical Committee (TTC) provides review and evaluation of the technical aspects of planning activities and is made up of local, State and Federal transportation planners, engineers and other technically qualified persons with an interest in the transportation system.

The Transportation Policy Committee (TPC) provides decision-making with regard to the approval and adoption of transportation plans and programs and is composed of the principal elected officials in the metropolitan area, as well as State and Federal representatives.

Unique to the Lafayette MPO, the Citizens Advisory Committee (CAC) is composed of citizens appointed to review transportation plans from the point of view of a layman.

The review process begins with the CAC, and continues with the TTC. There is then a review by the TPC before submission to the Lafayette City-Parish Planning Commission. Upon review by Planning Commission, the Lafayette-City Parish Council reviews actions taken by the planning process and acts under federal guidelines as the Metropolitan Planning Organization.

Public participation in the planning process occurred with the presentation of the preliminary demographic findings of the report in March of 2004 and again with the presentation of this report in October of the same year. The MPO also received comments to the plan both from Committee members and the public at its meeting during the plan preparation beginning in July, 2003.

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[6]The Caliper Corporation, 1172 Beacon Street, Newton MA 02461-9926TransCAD is original developer of TransCAD which is a Geographic Information System (GIS) designed specifically for use by transportation professionals to store, display, manage, and analyze transportation data combining GIS and transportation modeling capabilities in a single integrated platform. The Caliper Corporation provided customized programming for the project. See http://www.caliper.com/tcovu.htm for the internet webpage.

[7] Bernardin, Lochmueller & Associates, 6200 Vogel Road, Evansville, IN 47715 provided video analysis of license plates for the External Station Survey. See http://www.blainc.com/home.html for the internet webpage

[8] Dr. David Johnson, formerly of the History and Geography Dept. of the University of Louisiana at Lafayette provided demographic analysis for the project.

1.50 Membership of MPO Committees

The members of MPO committees as of the date of this document are listed in the next three sections.

1.51 Transportation Policy Committee Membership

Representative	*Appointing Authority*
Chester Alleman	Town of Duson
Don Bertrand	City of Broussard
Mayor Glenn Brasseaux	City of Carencro
Byron Breaux	City-Parish Council Designee
John Broussard	City-Parish President Designee
Vernal Comeaux	City-Parish Council Designee
Bill Fontenot	La Dept of Transportation and Development
Lucien Gastineau	City-Parish Planning Commission
Howard Mczeal	City-Parish Council Designee
Purvis Morrison	City of Scott
Kevin Normand	City-Parish Council Designee
Jamie Setze	Federal Highway Administration
Tom Sammons	Town of Youngsville

1.52 Technical Transportation Committee

Representative	*Appointing Authority*
Tom Carroll	Director of Public Works
Eleanor Buoy	Director of Planning, Zoning and Codes
Tony Tramel	Director of Traffic and Transportation
Dawn Picard	Engineer, Department of Traffic and Transportation
Pat Logan	Associate Director of Public Works
Marie Larriviere	City of Broussard
Lynn Guidry	City of Carencro
LarryThibodeaux	Town of Duson
Gerald Trahan	City of Scott
Mayor Wilson Viator	Town of Youngsville
Henry Florsheim	Lafayette Economic Development Authority
Rob Guidry	Chamber of Commerce
Greg Roberts	Lafayette Regional Airport
Dan Broussard	La Dept. of Transportation and Development
Taylor Rock	City-Parish Grant Programs
Xiaoduan Sun	University of Louisiana at Lafayette
Bill Fontenot	La Dept. of Transportation and Development
Carol Cranshaw	La Dept. of Transportation and Development
Ken Villemarette	Lafayette Parish School Board

Brigitte Karr	Southwest Louisiana Independence Living Center
Jamie Sietz	Federal Highway Administration
Norma Dugas	Clerk, City-Parish Council
Cathy Webre	Lafayette Downtown Development Authority

1.53 Citizens Advisory Committee

Representative	*Appointing Authority*
Nelson Falcon	City-Parish Council District 1
James A. Hebert	City-Parish Council District 2
John Gabriel	City-Parish Council District 3
Dr. Raphael Baranco	City-Parish Council District 4
Luther J. Arceneaux	Area Mayors (Broussard, Maurice, Youngsville)
Roger Lehman	City-Parish Council District 6
Grover Dunphy	City-Parish Council District 7
Paul Leberg	City-Parish Council District 8
Elaine D.Abell	City-Parish Council District 9
Nancy Broussard	City-Parish President
William W. Rucks, III	Area Mayors (Breaux Bridge, Carencro, Duson, Scott)

1.60 TEA-21

The Transportation Equity Act for the 21st Century (TEA-21) continues the requirements for comprehensive transportation planning. It also requires that additional factors be considered in developing transportation plans and programs. These factors are:

1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2) Increase the safety and security of the transportation system for motorized and non-motorized users;
3) Increase the accessibility and mobility options available to people and for freight;
4) Protect and enhance the environment, promote energy conservation, and improve quality of life;
5) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
6) Promote efficient system management and operation;
7) Emphasize the preservation of the existing transportation system; and
8) All of these factors were considered in developing the recommendations for this Metropolitan Transportation Plan (MTP).

1.70 Goals and Objectives

One of the first tasks of the study is the formulation of a set of goals and objectives to provide a framework for the MTP and to maintain it as a viable document. The goals and objectives are also used as guidelines in preparing and evaluating potential improvements to the system.

The overall transportation goal is to develop a transportation system which will accommodate present and future needs for mobility of all people and goods traveling within and through the area. In addition, the transportation system must be safe, efficient, economically feasible, and in harmony with the character of the area.

To ensure that the recommended transportation plan meets the desires of the area, the following objectives have been established:

1.71 Transportation System Requirements

The transportation system should:

1) Meet the Lafayette Metropolitan Area's long-range transportation needs.
2) Be planned as a unified system of roadways based on function and relative importance, providing a proper balance of freeways, arterials, collectors, and local streets.
3) Encourage and accommodate through traffic on the classified street system (i.e., freeways, expressways, and arterials) and discourage it on collectors and local neighborhood streets.
4) Provide access among all developed areas of the Lafayette Metropolitan Area.
5) Improve overall accessibility to employment, education, public facilities, the central business district (CBD), and other major activity centers.
6) Make maximum use of existing highway and street facilities.
7) Provide for a high degree of safety for both motorists and pedestrians.
8) Provide for an orderly improvement and expansion of the roadway system at minimum cost as the need for improvement arises.
9) Minimize disruption of existing and planned developments and established community patterns.
10) Reduce air pollution, noise, and other environmental impacts associated with transportation improvements and new facility construction.

1.72 Metropolitan Transportation Plan

The MTP should:

1) Be viewed as a document that requires periodic updating and revision.
2) Provide sufficient flexibility to accommodate changes in land use planning for the Lafayette Metropolitan Area and other unforeseen changes and conditions.
3) Consider development potentials within and beyond the projected limits of the urbanized area to the year 2030.

1.73 Continuing Transportation Planning Activities

Continuing transportation planning activities should:

Be performed within the framework of comprehensive regional planning and support regional growth and development goals.

Provide continuity and coordination between jurisdictions.

CHAPTER 2: EXISTING TRANSPORTATION NETWORK

2.0 Introduction

For the purpose of this project, the Lafayette Metropolitan Study Area is that area expected to be urbanized by the year 2030. The general boundaries as established by the Lafayette MPO are the St. Landry Parish Line on the north, the Henderson/Parks Area to the east, the Cade/Coteau Area to the southwest, the Vermilion Parish Line and Maurice Area to the South, and the Acadia Parish Line and Mire Area to the West. The transportation study area is shown in Figure 1.

2.10 Federal and State Highways

Several Federal and State highways serve the study area. These facilities constitute the main network of roadways in the area. The most significant of the facilities are:

<u>I-10</u> This freeway is one of the major interstate highways in the United States running from Los Angeles, California to Jacksonville, Florida. It traverses the northern portion of the City of Lafayette in an east-west direction. It connects Lafayette Parish with urban areas in south Louisiana and the southern United States, including Baton Rouge and New Orleans on the east and Lake Charles and Houston, Texas on the west. Access to and from Interstate 10 in the Lafayette area is provided by its interchanges at Austria Rd, Apollo Rd (LA 93), Ambassador Caffery Parkway (LA 3184), University Avenue (LA 182), and Interstate 49/Evangeline Thruway (U.S 167). A new interchange was recently completed at Louisiana Avenue.

<u>I-49</u> This freeway runs in north-south direction from its interchange with I-10 in Lafayette to Alexandria and Shreveport, Louisiana on the north. It provides access to the northern area of Lafayette Parish with interchanges provided at Pont Des Mouton Rd, Gloriaswitch Road (LA 98), North University Avenue (LA 182), as well as Bernard Street and Hector Conolly Road.

<u>US 90</u> Prior to the construction of the Interstate Highway System, this Federal Highway was the major east/west route in the southern United States. It traverses the Study Area parallel to I-10 East and West of Lafayette through the southern Louisiana cities of Lake Charles, Crowley, New Iberia, Morgan City, Houma, and New Orleans.

<u>US 167</u> This principle Highway follows the Interstate 49 alignment, continues south along Evangeline Thruway, and then Johnston Street, which runs in a northeast-southwest direction through Lafayette Parish.U.S.167 (Johnston St), which

borders the University of Louisiana on the north, continues to the southwest to Abbeville, Louisiana. On the north, US 167 connects Lafayette with the Louisiana cities of Opelousas, Alexandria and Ruston, and continues north to the State of Arkansas.

State Highways- There are numerous state highways, which serve Lafayette Parish and carry relatively high volumes of traffic. The major state highways include: LA 182, LA 3073/3184, LA 3095, LA3025, LA 733, LA 728-3 and LA 98.

2.20 Existing Street and Highway Functional Classifications

The street and highway network developed for the project was based on the functional classification system prepared by the Louisiana Department of Transportation and Development. The components of this network are freeways, major arterials, minor arterials, and collectors. The distribution of mileage in these categories is as follows:

TABLE 2.1 – EXISTING STREET AND HIGHWAY FUNCTIONAL CLASSIFICATIONS

Classification	Urban Miles	Percent Urban Miles	Rural Miles	Percent Rural Miles	Total Miles	Percent Total Miles
Freeway	37.77	15.17	3.70	5.5	56.64	13.6
Major Arterial	63.45	25.48	0.00	0.0	87.94	21.0
Minor Arterial	68.35	27.45	1.97	2.9	100.66	24.1
Collector	79.41	31.89	61.28	91.6	172.58	41.3
Total	**248.98**	**100.00**	**66.95**	**100.00**	**417.82**	**100.00**

Each type of facility provides separate and distinct traffic service functions and is best suited for accommodating particular demands. Their designs also vary in accordance with the characteristics of traffic to be served by the facility.

Freeways These facilities are divided highways with full control of access and grade separations at all intersections. The controlled access character of freeways results in high-lane capacities, which are three times greater than the individual lane capacities of standard urban arterial streets.

Expressways This type of facility provides for movement of large volumes of traffic at relatively high speed, and is primarily intended to serve long trips. Expressways have some grade-separated intersections while the majority of the intersections are widely spaced and may be signalized.

Arterials Arterial streets are important components of the total transportation system. They serve both as feeders to freeways and expressways, and as principal travel ways between major land use concentrations within the study area. Arterials are typically divided facilities with raised or flush medians (undivided where right-of-way limitations exist) with relatively high traffic volumes and traffic signals at major intersections. The primary function of arterials is moving traffic, and they are the main means of local travel. A secondary function of arterials is land access.

Collectors This type of facility provides both land service and traffic movement functions. Collectors serve as intermediate feeders between arterials and local streets and primarily accommodate short distance trips. Since collector streets are not intended to accommodate long through trips, they are generally not continuous for any great length.

Local Streets The intended sole function of a local street is to provide access to immediately adjacent land. Within the local street classification, three subclasses are established to indicate the type of area served: residential, industrial, and commercial. These streets are not included in the TransCAD modeling network.

The highway network functional classification used in this study is shown in Figure 2.

2.30 Existing Traffic Volume

Traffic volume, as indicated by traffic counts at various locations on the street system, is indicative of current travel patterns and how well the system is serving the travel demand. LA DOTD, the City of Lafayette, and Lafayette Parish and LCG's Traffic and Transportation Department regularly conduct traffic counts. This traffic count data, which is periodically collected by LCG along with special counts at certain locations (e.g., external stations), provides a basis for determining the overall travel patterns in the study area. Existing Average Daily Traffic (ADT) counts during the period of 1999 through or 2000 on selected routes are shown in Map 3. Traffic counts for locations not indicated may be obtained from the Lafayette MPO Planning Division.

The highest traffic volumes are on I-10 in the northern part of the Study Area where ADT ranges from 38,000 to 55,000 vehicles per day. Other areas of significant traffic volume are I-49, which runs in a north-south direction (54,310 ADT), Johnston Street in a northeast-southwest direction (45,000 ADT), Ambassador Caffery Parkway (45,000 ADT), Verot School Road (23,592 ADT), East University Avenue (27,000 ADT), Kaliste Saloom Road (33,684 ADT) and US 90 (22,943 ADT). Current traffic volumes on the major Vermilion River crossings are shown in table 2.2 on page 13:

Figure 2 – Map of Existing Functional Classification.

TABLE 2.2 – AVERAGE DAILY TRAFFIC COUNTS OF VERMILION RIVER CROSSINGS		
Route		**Traffic Volumes**
	I-10	55,000 ADT
Carmel Drive	LA 94	14,000 ADT
Lake Martin Rd.	LA 353	3,383 ADT
Surrey St		15,000 ADT
Evangeline Thruway	US 90	22,943 ADT
Pinhook Rd	LA 182	16,559 ADT
Ambassador Caffery Pkwy		45,000 ADT
E. Broussard Rd.	LA 733	12,198 ADT
Milton Ave.	LA 92	6,548 ADT

2.40 Roadway Capacity

The primary factor used in evaluating transportation plan alternatives was is the adequacy of the network in accommodating future travel demands and satisfying projected facility deficiencies. Year 2030 traffic forecasts, derived from the travel demand model developed as part of this study, will be assigned to alternative transportation networks. These future travel demands will be compared to the capacity of the roadways and associated levels of service to identify areas of deficiencies.

Roadway capacity is generally defined as the ability of a street or highway to accommodate traffic for a specific period of time; typically during a peak hour of travel. Generalized values or 24 hour traffic volumes also are utilized to measure the anticipated congestion and delay of motorists. The main determinant of street capacity is the number and width of travel lanes. However, other factors such as on-street parking, area type (e.g., CBD, commercial, industrial), vehicle mix, traffic signal operation, and speed can also have major influences on roadway capacity.

For this study, generalized capacity ranges were developed for the various roadway types based on travel lanes, the presence or absence of left turn lanes, and functional classification. The capacity calculations are in general accordance with the standards identified and prescribed in the *Highway Capacity Manual* (HCM).[9] The following capacity ranges represent volumes which will permit an acceptable level-of-service (LOS) “D” for Urban Areas and “C” for the non-urban areas

[9] Highway Capacity Manual 2000 (US Customary Version), Washington, DC: National Academy Sciences and Transportation Research Board. (ISBN#: 0-309-06746-4) 2000

Figure 3 – Map of Existing Average Daily Traffic

2.50 Level of Service

As defined in the HCM, the concept of levels of service is a qualitative measure describing operational conditions within a traffic stream for a specific time period. These conditions are generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience and safety.

Six levels of service were defined for each type of facility for which analysis procedures were available. They were given letter designations from A to F, with Level-of-Service "A" representing the best operating conditions and Level-of-Service "F" the worst.

The various Levels of Service were defined as follows for uninterrupted flow facilities:

- "**A**" represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.

- "**B**" is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable.

- "**C**" is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.

- "**D**" represents high-density, but still stable, flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- "**E**" represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult.

- "**F**" is used to define forced or breakdown flows. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable.

For urban areas such as the Lafayette Metropolitan Area, the goal of LA DOTD and local governments is to reach an overall Level of Service "C". However, Level of Service "D" is acceptable during peak periods in urban conditions at certain localities.

The generalized estimated 24-hour capacities of the facilities included in the area network are shown in Table 2.3. These volumes were calculated by determining the average design hour capacity by classification and lane configuration. Then, assuming a peak hour volume of 10%, the average design hour figure was divided by 0.10.

TABLE 2.3 – GENERALIZED ROADWAY CAPACITIES EXISTING AND FUTURE FACILITIES

FACILITY TYPE	24 HOUR CAPACITY (vehicles per day)
FREEWAY	
4 lane	68,000
6 lane	102,000
ARTERIAL	
2 lane (without left turn lanes)	11,000
2 lane (with left turn lanes)	15,000
4 lane Undivided	23,000
4 lane Divided	27,000
6 lane Divided	39,000
8 lane Divided	51,000
COLLECTOR	
2 lane (without left turn lanes)	10,000
2 lane (with left turn lanes)	12,000
4 lane Undivided	20,000
4 lane Divided	24,000
ONE WAY STREETS	
2 lane Arterial	12,500
3 lane Arterial	20,000
2 lane Collector	10,000
3 lane Collector	18,000

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

2.60 Network Definition

The simulation of travel patterns in a computer model requires a representation of the street and highway system in digital format. The TransCAD model creates such a network from a geographic line layer in GIS.[10]

The line layer data view records contain descriptive information including distance, posted speed, number of travel lanes, functional classification, and capacity. Turn prohibitions were then coded into the network at locations where certain movements are not allowed or physically cannot be made. A listing of the codes used for number of lanes and functional classification as well as other network attributes is included in the Appendix as standardized coding guides.

Following verification of the attribute information for all links, the resulting file contained the 2000 Base Year Network to be used as the initial input for model calibration.

[10] The line layer in the original TRANPLAN model network was transferred from a schematic map to a TransCAD geographically true map in 2000 by the MPO within Lafayette Parish. The areas within Lafayette Parish are generally within a meter between the digitized line work and the color 1998 aerial photographs. The geographic areas in Acadia, Iberia, St, Martin and Vermilion Parishes utilize TransCAD data that was originally derived from 2000 census maps by Neel-Schaffer. These areas were found to have a significant difference between the digitized line work and the infra-red 2001 aerial photographs.

CHAPTER 3: PLANNING DATA

3.0 Introduction

Travel demand is greatly influenced by the pattern of development or land use in the study area. Changes in land use and or intensity will create new travel demand or modify existing patterns. A definite relationship exists between trip making, land use and demographic data such as population, number of housing units, employment, and school attendance. This data was compiled by the Lafayette Metropolitan Planning Organization (MPO) Planning Division from several sources: population and housing from the 2000 Census, employment from the Louisiana Department of Labor, and school attendance from the Lafayette Parish School Board and individual private schools.[11] The Lafayette Parish Tax Assessor files and Lafayette Utility System from April of 2000 were also used as a data source to supplement these other institutional records.

The accuracy necessary for generating trips from planning data requires that the data be aggregated by small geographic areas called Traffic Analysis Zones (TAZ’s). These TAZ’s are generally homogeneous areas and were delineated based on factors such as population, land use, census tracts, physical landmarks, and governmental jurisdictions. The US Census Bureau, during the 2000 census, compiled statistics for TAZ's which were in some cases split during this project into smaller areas to increase modeling accuracy. The Study Area was expanded to include newly created TAZ's in portions of Acadia, Iberia, St. Martin, and Vermilion Parishes. The zone system was then renumbered. The resulting internal traffic zones and external stations for the Study Area are shown in Figure 4.Within this study; there are 599 traffic zones and 31 external stations used for this expanded area.

Throughout this report, there may be slight differences in the data totals. These apparent discrepancies are due to mathematical rounding, which takes place as a result of calculations by the computer modeling software.

[11] The National Center for Education Statistics website had comprehensive totals for the entire project area data using 2002-2003. The data source was cross checked to the original 2000 data which was revised in the case of five schools: Episcopal School of Acadiana and Coteau Elementary, Assembly Christian School on South College Road, Family Life Christian Academy on Dulles, and Volunteers of America School on Carmel.

Figure 4 – Map of Traffic Analysis Zones

3.10 Base Year (2000) Planning Data

The demographic data required as input into the trip generation programs can be subdivided into five major categories: occupied dwelling units, population, total employment, retail employment, and school attendance. These variables may be further described as:

Dwelling Units:

The largest single type of developed land use in the study area is residential land. The number of dwelling units plays a major role in trip generation since many trips have an origin and/or destination in residential areas. There are 89,000 total dwelling units located in the study area. Occupied dwelling units are allocated to Household Size Groups of 1-2 persons, 3-4 persons and 5+ persons based on the average population per dwelling unit in each TAZ. Of that total, 82,351 (92.53%) were occupied in 2000; however, that number is not static. For modeling purposes, dwelling units are differentiated into total dwelling units, occupied dwelling units, and households differentiated into 1-2, 2-3 and 5+ persons.

Population:

Population enters the trip generation equation in terms of calculating population per occupied dwelling unit by zone, which allows the distribution of units into household size categories. In 2000, for modeling purposes, the population of the Study Area was established as 219,000 persons.

Employment:

The location of employment centers has a major impact on travel in the area, particularly home-based work trips. Total employment in the Study Area in 2000 was 114,687 with 28,344 being in retail. For modeling purposes, employment variables were differentiated into total employment, retail employment and other employment.

School Attendance:

School attendance figures include public and private elementary, middle and high schools; colleges; universities; vocational and business schools. Total school attendance in the Study Area in 2000 was 55,677 students. For modeling purposes, school attendance is measured by the number of students attending a school in a traffic zone and *not* by the number of students residing in a traffic zone.

CHAPTER 4: DEVELOPMENT OF BASE YEAR MODEL

4.0 Introduction

This section includes a description of the procedures used in developing travel estimates, the relationship between planning data and trip making, and the calibration and testing of the models used in this study. The general relationships between the models and their inputs and outputs are presented in a schematic drawing in Map 5.0. When calibrating a model, the process contains several review and adjustment loops, which are not shown for the sake of clarity.

4.10 External Travel Model

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.

4.20 Travel Surveys

In order to build EI and EE trip tables, an origin/destination travel survey was conducted to obtain a sample of trips crossing the Study Area boundary. The survey consisted of two parts: a mail-back postcard method at non-interstate locations and a video license matching at the three interstate sites.

For the postcard survey, the seven highest traffic volume locations were surveyed. Neel-Schaffer provided supervision and survey crew-members. The LA DOTD provided the printed survey forms, signs, barrels, cones, trucks and other related equipment. Off-duty Louisiana State Police officers were hired to provide security during the operation, set-up and take down of the stations. Over 28,000 free mail-back forms were distributed to drivers as they rolled through each station. The surveys were conducted at one station per day from April 14-17 and April 28-30, 2003. The week of April 21 was not surveyed due to spring break at UL Lafayette and the public school systems. Approximately 4,100 usable forms were returned for a sample size of 14.5%.A breakdown by station as shown in Table 4.1.

TABLE 4.1 – ROADSIDE TRAVEL SURVEY RESULTS NON-INTERSTATE STATIONS

Highway	Traffic Count	Outbound Traffic	Cards Distributed	% of Vehicles Surveyed	Cards Usable	% Usable
LA 347 N	8,395	4,198	3,288	78.3%	225	6.8%
LA-31 S	4,655	2,328	1,578	67.8%	172	10.9%
LA 96 E	8,042	4,021	2,802	69.7%	382	13.6%
LA 182 S	13,217	6,609	3,543	53.6%	545	15.4%
US 90 E	32,511	16,606	9,608	57.9%	1,375	14.3%
US 167 S	16,339	1,947	5,288	66.6%	1,100	20.8%
US 90 W	6,078	1,642	2,153	70.8%	3098	14.49%
Total	89,237	44,737	28,260	63.2%	4,108	14.5%

Source: N-S, 2003

4.30 Calculation of External-Internal and External-External Trips

The travel patterns and magnitude of External-Internal and External-External trips were determined through the survey data. While expanding the survey data up to the actual ground counts, the external trips were separated into EI and EE trips.

Because of the wording of the survey questions concerning the origin point of the trip, a large number of respondents only indicated a city or community name. Therefore the samples could not be coded to a specific TAZ. The TAZ's were grouped into city or community districts and the survey records are coded accordingly. The TAZ demographic data was aggregated by district.

The external trip table obtained from the expanded survey data was used to develop a multiple linear regression model for EI attractions. This regression analysis established a relationship between a dependent variable (trip attractions) and one or more independent variables (planning data).

The equation developed for estimating EI trips from the planning data produced a multiple correlation (R^2) value of 0.99. The coefficient measures the predictability of one random variable (EI trips) given knowledge of other random variables (planning data). The value of R^2 ranges from 0 to 1. The closer to 1, the more predictable the trips are, while the closer to 0, the more unpredictable they are. The EI equation used in the model is:

EI Attractions =0.065 (OCCDU) + 2.250 (RETEMP) + 0.302 (NONRET) + 29.67

Where: OCCDU = Occupied Dwelling Units

RETEMP = Retail Employment

NONRET = Non Retail Employment

4.40 Interstate External/External Video Surveying

For the video license matching at the interstate locations the firm of Bernardin, Lochmueller Associates[12] was added to the consultant team. Nearly 80,000 license plates were observed during the 12-hour taping period with successful matches made on almost 11,000 plates. The sample was then factored resulting in the development of an Interstate External/External trip table.

The EE trip table from the non interstate stations was then merged with the interstate stations to create the final EE trip table.

The trip tables created from the survey data indicated the number of trips at each station that were EE trips. The EI volumes were computed by subtracting the EE trips for a given station from the traffic count for that station. A summary of the External station volumes is shown in Table 4.2.

[12] Bernardin, Lochmueller & Associates, 6200 Vogel Road, Evansville, IN 47715

TABLE 4.2 – SUMMARY OF EXTERNAL TRIPS

Highway	Highway Name	Total Counts	External to External(EE)	EE%	External to Internal (EI)	EI%
I-49 N		37,130	5,019	13.5	32,111	86.50%
LA 182 N	N.University Ave	4,639	0	0	4,639	100.00%
LA 726 N		248	0	0	248	100.00%
LA 31 N	Main Hwy	4,671	156	3.3	4,515	96.70%
LA 328	Anse Broussard Hwy	3,599	0	0	3,599	100.00%
LA 347 N	Grand Point Hwy	8,395	784	9.3	7,611	90.70%
I-10 E		36,188	11,678	32.3	24,510	67.70%
LA 347 S		5,008	110	0.2	4,898	99.80%
LA 31 S		4,655	916	19.7	3,739	80.30%
LA 353	Cypress Island Rd	3,500	0	0	3,500	100.00%
LA 96	Terrace Rd	8,042	858	10.7	7,184	89.30%
LA 92 E		3,174	0	0	3,174	100.00%
LA 182 S		13,217	1,106	8.4	12,111	91.60%
US 90 E		32,511	3,605	11.1	28,906	88.90%
LA 88	Coteau Rd	3,522	0	0	3,522	100.00%
LA 339		5,371	20	0.4	5,351	99.60%
	Gallet Rd	756	0	0	756	100.00%
US 167 S		16,339	918	5.6	15,421	94.40%
LA 343		1,865	0	0	1,865	100.00%
LA 699		1,219	0	0	1,219	100.00%
LA 92 W		5,654	51	0.9	5,603	99.10%
LA 700		1,066	0	0	1,066	100.00%
LA 342	Chamberlin Rd	938	0	0	938	100.00%
	Congress St	417	0	0	417	100.00%
LA 720		2,199	0	0	2,199	100.00%
US 90 W	Cameron St	6,078	269	4.4	5,809	95.60%
I-10 W		40,676	10,472	25.7	30,204	74.30%
LA 98 W		1,941	0	0	1,941	100.00%
LA 95 N	Mire Hwy	3,387	110	3.2	3,277	96.80%
LA 365	Osage Trail	1,179	0	0	1,179	100.00%
LA 93 N		3,902	24	0.6	3,878	99.40%
Total		**312,486**	**36,096**		**276,390**	

Source: N-S, 2004

4.50 Three Step Modeling Process

Development of the models for estimating and predicting the internal-internal trips includes three steps: trip generation, trip distribution, and traffic assignment. The trip generation model determines how many trips are being made in the Study Area. The trip distribution model allocates the trips between origins and destinations. The final step is the traffic assignment process, which routes the trips through the network. Because of the low frequency of transit[13], pedestrian, and bicycle trips in the modeling area, the traditional third step -- *mode split* -- was not performed.

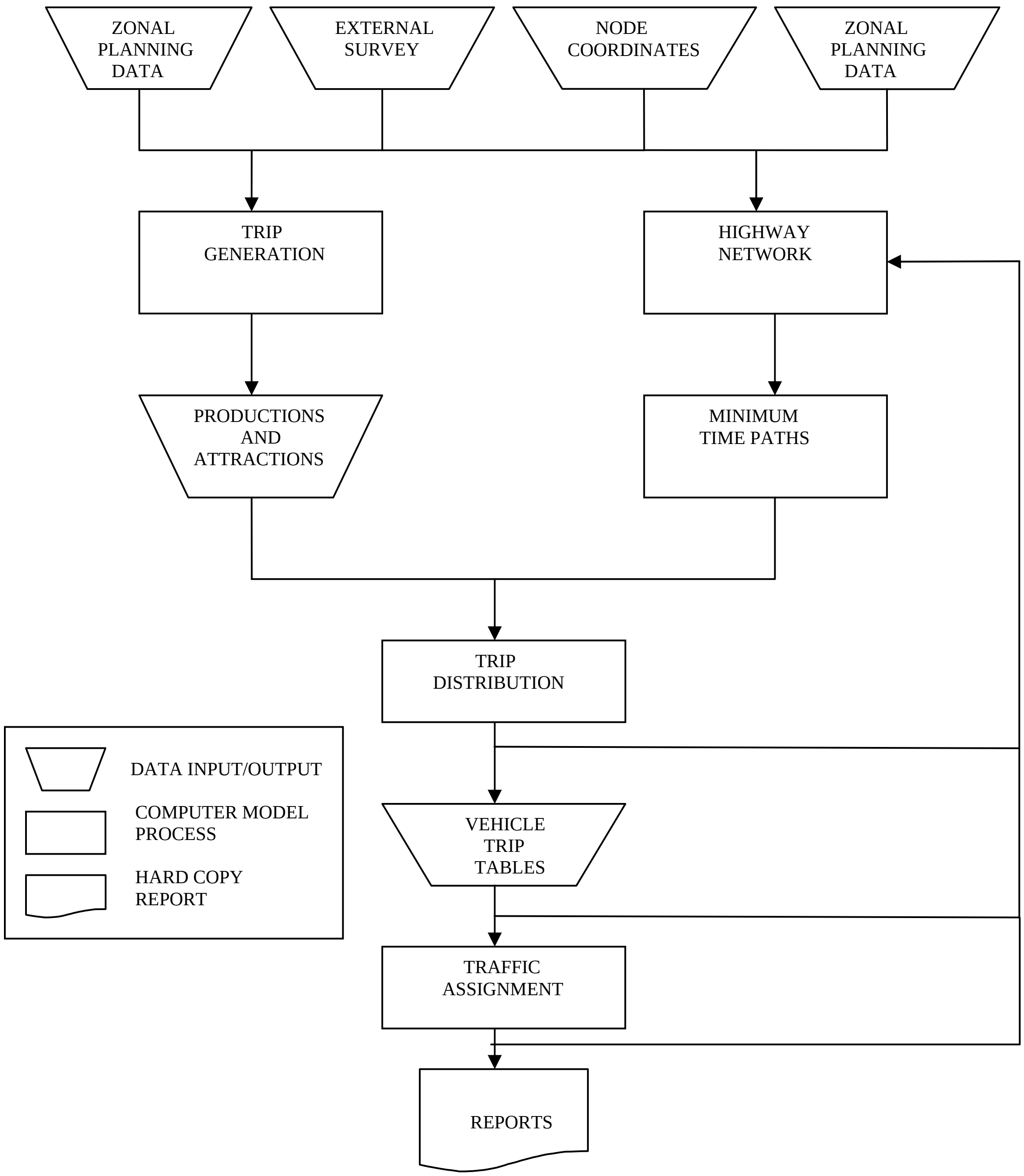
4.60 Trip Generation

This section describes the procedures used to determine the number of trips that begin or end in a given traffic zone. The identification of the other end of the trips occurs in the trip distribution models to be discussed in the next section. The TransCAD model generated trips for five purposes: home based work (HBW), home based other (HBO), non-home based (NHB), truck (CMVEH) and external/internal (EI). For the home-based trips, the productions refer to the home end and the attractions refer to the non-home end of the trip. For non-home based and commercial vehicle trips, productions and attractions refer to origin and destination respectively.

Existing planning data including population, dwelling units by household size groups, total employment, retail employment, and school attendance was used as input variables for each TAZ.

[13] Previous studies indicate that less than 1% of all trips are performed using transit facilities.

Figure 5 – Schematic Drawing of Modeling Process



4.61 Productions

A cross-classification method was then used to determine trips by purpose for the three household size groups for HBW, HBO and NHB purposes. A multiple regression equation was used to estimate truck productions (CMVEH) which is described later in the section on Attractions.

The application of the model required that the occupied dwelling units in each TAZ be allocated to household size categories of 1-2 persons, 3-4 persons and 5+ persons. This allocation was made by aggregating the 2000 census into household size groups. The resulting categories used in this model are as follows in Table 4.3:

TABLE 4.3 – 2000 MODEL STUDY AREA		
Household Size	**No of Units**	**Percent per HHS Category**
HHS 1-2	46,245	56.04%
HHS 3-4	27,984	34.02%
HHS 5+	8,122	9.87%
Total	**82,351**	**100%**

The appropriate production rates for each purpose were then applied to the units in each group producing the breakdown of total trips by purpose and household size.

The initial Trip Production rates and rates from other areas are shown in Tables 4.4. and 4.5. Total trips produced by purpose and household size for the Lafayette Area and rates for other urban areas are presented in Tables 4.6 and 4.7.

TABLE 4.4 – TRIP PRODUCTION RATES DAILY VEHICLE TRIPS PER HOUSEHOLD.				
HHS	**HHS**	**HHS**	**HHS**	**Weighted**
Trip Purpose	**1-2**	**3-4**	**5+**	**Avg trips/HH**
Home Based Work	0.777	1.824	1.912	1.245
Home Based Other	2.265	4.223	4.707	3.171
Non-Home Based	1.422	3.240	3.497	2.244
Total Trips	**4.464**	**9.287**	**10.116**	**6.660**

HHS = Household Size

TABLE 4.5 – DAILY VEHICLE TRIP RATES PER HOUSEHOLD FOR OTHERURBAN AREAS			
Total Trip Rate Area	**Year**	**Population**	**All HHS**
Lake Charles, LA	2001	158,969	7.7
Alexandria, LA	1993	97,012	7.9
Baton Rouge, LA	1992	427,520	6.2
Duluth, MN	1970	157,000	8.2
El Paso, TX	1970	362,800	7.7
Fresno, CA	1972	295,000	6.8
Greensboro, NC	1970	182,000	5.9
Huntington, W.VA	1972	215,000	8.3

Source: LMATS, 1992: Calibration and Adjustment of System Planning Models, FHWA, 1990

TABLE 4.6 – TOTAL TRIPS BY PURPOSE& HOUSEHOLD SIZE					
HHS Trip Purpose	**HHS 1-2**	**HHS 3-4**	**HHS 5+**	**ALL**	**%**
Home Based Work	35,932	51,043	15,529	102,504	18.69
Home Based Other	104,745	118,176	38,230	261,152	47.61
Non-Home Based	65,760	90,668	28,402	184,831	33.70
Total Trips	**206,437**	**259,887**	**82,162**	**548,487**	**100.0**

HHS = Household Size

TABLE 4.7 – TRIPS BY PURPOSE & HOUSEHOLD SIZE FOR OTHER URBAN AREAS					
Area	**Year**	**Population**	**Home Based Work**	**Home Based Other**	**Non-Home Based**
Lake Charles, A	2001	158,969	18.8	50.0	31.2
Alexandria, LA	1993	97,012	20.4	49.1	30.5
Baton Rouge, LA	1992	427,520	20.0	49.6	30.4
El Paso, TX	1970	362,800	19.7	55.9	24.4
Evansville, IN	1978	N/A	19.1	46.9	34.0
Louisville, KY	1975	N/A	26.6	54.1	19.3
Pensacola, FL	1970	N/A	14.8	59.2	26.0

Source: N-S, 2004: FHWA, 1990.

4.62 Attractions

The attractions functionality within TransCAD program computes trip attractions by traffic zone by running a series of multiple linear regression equations based on the zone planning data. Since an origin-destination survey was not conducted for the internal-internal trips, equations were borrowed from surveys in other urban areas using comparable planning data. Trip attractions were developed from the planning data file for four purposes: HBW, HBO, NHB, and CMVEH. The equations for these four purposes are shown in Table 4.8.

TABLE 4.8 – TRIP ATTRACTION EQUATIONS (INTERNAL – INTERNAL)	
Home Based Work	1.00 (TOTEMP)
Home Based Other	0.403 (OCCDU) + 1.45 (RETEMP) + 0.469 (OTHEMP) + 0.276 (SCHATT) + 0.5
Non-Home Based Work	0.719 (OCCDU) + 4.48 (RETEMP) + 0.862 (OTHEMP) + 0.137 (SCHATT) + 0.5
CMVEH	0.450 (OCCDU) + 0.860 (RETEMP) + 0.270 (OTHEMP) + 0.5

Independent Variables Entering the Equations

TOTEMP = Total Employment
OCCDU = Occupied Dwelling Units
RETEMP = Retail Employment
OTHEMP = Other Employment
SCHATT = School Attendance
CMVEH = Commercial Vehicles

Source: N-S

The external-internal attractions equation enters into the attraction model at this point as a fifth purpose. The equation for the external-internal trip attraction/production is given by:
EXT-INT = 0.0659 * OCCDU + 2.25 * RETEMP + 0.302 * OTHEMP + 29.7.

4.63 Trip Distribution

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.

This model employs two relationships, the first of which is indirect.

> The shorter the travel time to the destination zone, the greater the number of trips will be distributed to it from the origin zone.

The second relationship is a direct one:

The more attractions there are in a destination zone, the more trips will be distributed to it from the origin zone.

The generalized equation for this model is:

$$T_{ij} = (P_i)\frac{(A_j)(F_{ij})}{\sum_{j=1}^{n}(A_j)(F_{ij})}$$

Where: T_{ij} = Trips distributed between zones i and j

P_i = Trips produced at zone i

A_j = Trips attracted to zone j

F_{ij} = Relative distribution rate (friction factors) reflecting travel time between zone i and zone j

n = Total number of zones in study area

In a model of this type, friction factors determine the effect that spatial separation has on trip distribution between zones. These factors measure the probability of trip-making at one-minute increments of travel time. The initial friction factors for Home Based Work, Home Based Other, Non Home Based, and Commercial Vehicle trips were developed from various sources. The alpha, beta and gamma functions for these factors are shown in Table 4.9.

TABLE 4.9 – FRICTION FACTORS

Purpose	A	B	C	Source
HBW	1000	0.88	0.02	Using CTPP 2000
HBO	2000	1.25	0.1	Using NCHRP 365
NHB	2500	1.35	0.1	Using NCHRP 365
CMVEH	4000	0.7	0.1	Using previous Lafayette Model
EXTINT	133752	0.3	0.1	Using Lake Charles Survey

Abbreviations

HBW = Home Based Work
HBO = Home Based Others
NHB = Non-Home Based
CMVEH = Commercial Vehicles
EXTINT = External-Internal Trips

4.64 Traffic Assignment

The traffic assignment model determines which route the trips take to get from the origin zone to the destination zone. Beginning the assignment process requires the calculation of minimum time paths over the street and highway network from each traffic zone to all other traffic zones in the study area. Based on these calculated paths, an equilibrium loading technique was used to make the assignments.

"All-or-nothing" assignments determine the desired routes and are an effective measure of demand in relation to capacity. The all-or-nothing process does not take into account the fact that some roadway facilities become congested at various times during the day. To effectively model such situations, link loading techniques are used which consider demand in relation to capacity. The equilibrium assignment process contains this capability.

The equilibrium assignment technique consists of a series of all-or-nothing loadings with an adjustment of travel time according to delays encountered in the associated iteration. The assignments from each iteration are combined with the assignments for the previous iteration in such a way as to minimize the travel time of each trip. As a result of these time adjustments, the loadings of different iterations may be assigned to different paths. By combining information from various iterations, the number of iterations required to reach equilibrium is reduced. In summary, equilibrium occurs when no trip can be made by an alternate path without increasing the total travel time of all trips on the network.

CHAPTER 5: MODEL CALIBRATION

5.1 Model Calibration and Adjustment

Over the years since the original urban transportation studies were conducted, some standard practices have evolved. Today, planners have come to rely on census data, default values, and experience from similar areas for trip generation and distribution rates to update transportation studies. The process of calibration is undertaken in order to have the base model reproduce existing conditions as closely and as reasonably as possible.

Travel demand models are run to predict link volumes which are then compared to actual traffic counts at selected locations along screenlines and cutlines. Screenlines are established to intercept major traffic flows through a study area and are usually located along a physical barrier such as a river or railroad. Cutlines are shorter than screenlines and measure traffic volumes in a corridor. A review of the Preliminary Street and Highway Network for the study area determined that comparisons of model assignments to ground counts would be made along the study area boundary, two screen lines, and six cutlines. The screenlines are the Vermilion River and the Burlington Northern Santa Fe railway. The cutlines are described as follows:

CUTLINE "1"

The North/South movement north of I-10.

CUTLINE "2"

The East/West movement west of Ambassador Caffery Parkway.

CUTLINE "3"

The Northeast/Southwest movement east of Ambassador Caffery Parkway.

CUTLINE "4"

The North/South movement north of Youngsville.

CUTLINE "5"

The East/West movement east of University Avenue.

CUTLINE "6"

The East/West movement over Bayou Teche in St.Martin Parish

The locations of these screenlines and cutlines are shown in Figure 6.

Figure 6 – Screenline / Cutline Locations

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. This project calls for the ground count/model assignment error to be within ± 10% for each screenline and cutline.

After evaluating the results of each assignment test, the link volumes can then be raised or lowered by examining and changing one or more of the following parameters:

1. Planning Data - if it is determined that the values used were in error
2. Trip Generation Rates - by household size and trip purpose
3. Centroid Connectors - location and number
4. Intrazonal Times - to increase or decrease trips loaded on the network
5. Intersection Penalties - to reflect actual conditions
6. Trip Distribution Parameters (friction factors) - to adjust average trip lengths
7. Roadway Capacities - with consistency among functional classifications or cross-sections
8. Roadway Speeds - with consistency among functional classifications or areas
9. Network Configuration -with consistency related to functional classification

Using this standard procedure, the travel demand forecasting models for the Lafayette Metropolitan Area were applied to the existing network and planning data.

5.20 Key Adjustments

Initial runs indicated that an insufficient number of trips were being produced for the size of the area. Trip rates by household size and purpose were adjusted upward until an appropriate number of trips were generated. It was then noted that too many trips were crossing the Vermillion River. A time penalty was assessed to all river crossings to account for these physical and psychological barriers.

When the totals for the screenlines and cutlines were within appropriate ranges, "fine tuning" changes were made to adjust individual link assignments. These changes included moving centroid locations to realistically replicate the entrances and exits for zones and minor speed changes to various facilities.

5.30 Performance Indicators

When all of the reasonable adjustments and factors were included in the models, a final assignment run was made. As stated previously, the ground count / model assignment error was to be within ± 10% for all screenlines and cutlines. A comparison of the ground counts and the final model assignments for the screenlines, cutlines, and cordon lines are shown in Table 5.1.

TABLE 5.1 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN UPDATESCREENLINE/CUTLINE COMPARISONGROUND COUNT TO MODEL ASSIGNMENT

HIGHWAY/STREET	MODEL VOLUME	2000 ADT	DIFF	% DIFF
SCREENLINE 1				
E BROUSSARD RD	12923	12198	725	5.9%
AMBASSADOR CAFFERY PKWY	40158	44114	-3956	-9.0%
W PINHOOK RD	45282	49252	-3970	-8.1%
U S 90	36162	33010	3152	9.5%
LA 389	4101	3383	718	21.2%
CARMEL DR	16609	14000	2609	18.6%
I-10	38467	39030	-563	-1.4%
SCREENLINE 1 TOTAL	**193701**	**194987**	**-1286**	**-0.7%**
SCREENLINE 2				
S RICHFIELD RD	7814	5282	2532	47.9%
S FIELDSPAN RD	5206	5875	-669	-11.4%
WESTGATE RD	9514	11017	-1503	-13.6%
AMBASSADOR CAFFERY PKWY	38895	42878	-3983	-9.3%
W UNIVERSITY AV	24062	24280	-218	-0.9%
NE EVANGELINE THWY	49326	51200	-1874	-3.7%
SURREY ST	4169	3590	579	16.1%
SCREENLINE 2 TOTAL	**138986**	**144122**	**-5136**	**-3.6%**
CUTLINE 1				
MILLS ST	4358	3868	490	12.7%
LA 182	14432	14737	-305	-2.1%
I-49	53283	46798	6485	13.9%
LA 728-1	13875	13846	29	0.2%
CUTLINE 1 TOTAL	**85948**	**79249**	**6699**	**8.5%**
CUTLINE 2				
I-10	46165	41310	4855	11.8%

TABLE 5.1 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN UPDATESCREENLINE/CUTLINE COMPARISONGROUND COUNT TO MODEL ASSIGNMENT				
CAMERON ST	16096	15275	821	5.4%
DULLES DR	12140	15853	-3713	-23.4%
W CONGRESS ST	16660	15562	1098	7.1%
RIDGE RD	14625	14398	227	1.6%
CUTLINE 2 TOTAL	**105685**	**102398**	**3287**	**3.2%**
CUTLINE 3				
JOHNSTON ST	38252	42452	-4200	-9.9%
KALISTE SALOOM RD	29325	31176	-1851	-5.9%
VEROT SCHOOL RD	15884	17410	-1526	-8.8%
CUTLINE 3 TOTAL	**83460**	**91038**	**-7578**	**-8.3%**
CUTLINE 4				
VEROT SCHOOL RD	8914	7436	1478	19.9%
YOUNGSVILLE HWY	6975	6894	81	1.2%
U S 90	31201	29490	1711	5.8%
CUTLINE 4 TOTAL	**47090**	**43820**	**3270**	**7.5%**
CUTLINE 5				
CAMERON ST	10433	10049	384	3.8%
W CONGRESS ST	17527	14892	2635	17.7%
ST JOHN ST	6470	6942	-472	-6.8%
JOHNSTON ST	17515	17606	-91	-0.5%
W PINHOOK RD	20027	19661	366	1.9%
CUTLINE 5 TOTAL	**71972**	**69150**	**2822**	**4.1%**
CUTLINE 6				
I-10	38467	39030	-563	-1.4%
E MILLS AVE	15,508	13,400	2108	15.7%
E BRIDGE ST	8,617	11,154	-2537	-22.7%
RUTH BRIDGE HWY	3,449	2,523	926	36.7%
CUTLINE 6 TOTAL	**66041**	**66107**	**-66**	**-0.1%**
GRAND TOTAL OF ALL LINES	**792883**	**790871**	**2012**	**0.3%**

Source N-S. 2004,LA DOTD,LCG

The final assignment was also compared to the following performance measures based on national averages from studies of other urban areas:

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 Lafayette model is 0.06%.

Root Mean Square Error (RSME):
The Root Mean Square Error should be less than 30%. The RSME value for the Lafayette Model is 7.2%.

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 Lafayette model are as follows:

TABLE 5.2 – VALIDATION BY FUNCTIONAL CLASS

FUNCTIONAL CLASS	TOT_ASSIGN	TRAFFIC_CO	DIFF	%DIFF	GUIDE
FREEWAY	166168	176381	10213	6.1%	5.0%
PRINCIPAL ARTERIAL	466325	458047	-8278	-1.8%	7.0%
MINOR ARTERIAL	129222	123537	-5685	-4.4%	10.0%
COLLECTOR	29156	34918	5762	19.8%	20.0%

Source Neel-Schaffer, Inc 2004.

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 Lafayette model are as follows:

TABLE 5.3 – VALIDATION BY VOLUME GROUP

VOLUME GROUP	TOTAL VOLUME	TRAFFIC COUNT	DIFF	%DIFF	GUIDE
2500-5000	13,364	16,078	2,714	20.3%	50.0%
5000-10000	32,429	35,379	2,950	9.1%	25.0%
10000-25000	526,884	539,085	12,201	2.3%	20.0%
25000-40000	82,376	78,651	-3,725	-4.5%	15.0%
>40000	135,818	123,691	-12,127	-8.9%	10.0%

Source Neel-Schaffer, Inc 2004.

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 Lafayette model is 0.905.

5.40 Vehicle Miles Traveled (VMT) Measures

• VMT by Functional Classification for Lafayette Model is:

TABLE 5.4 – THE DISTRIBUTION OF 2000 VMT

Functional Class	VMT	%VMT
Freeway	1496463	23.76%
Principal Arterial	2167350	34.41%
Minor Arterial	1168089	18.55%
Collector	826755	13.13%
Total VMT	6298182	

Source Neel-Schaffer, Inc 2004.

• VMT by V/C ratio

TABLE 5.5 – THE DISTRIBUTION OF 2000 VMT BY V/C RATIO

	VMT	%VMT
TOTAL	5848383	
V/C>1.2	1434597	22.8%
V/C 1-1.2	659094	10.5%
V/C 0.5-1.0	2973516	47.2%
V/C<0.5	781174	12.4%

Source Neel-Schaffer, Inc 2004.

• Distribution of Lane Miles by V/C ratio

TABLE 5.6 – THE DISTRIBUTION OF LANE MILES BY V/C RATIO

	LANE_MILES	%LANE_MILES
TOTAL	1416	
V/C>1.2	225	11.9%
V/C 1-1.2	122	6.5%
V/C 0.5-1.0	511	27.0%
V/C>0.5	558	29.5%

Source Neel-Schaffer, Inc 2004

• **VMT per Person**

The 2000 VMT per person calculated for Lafayette is 25.8 miles. The average range is: for large urban areas – 20 to 24 miles, and for small urban areas – 15 to 18 miles.

• **VMT per Occupied Dwelling Unit**

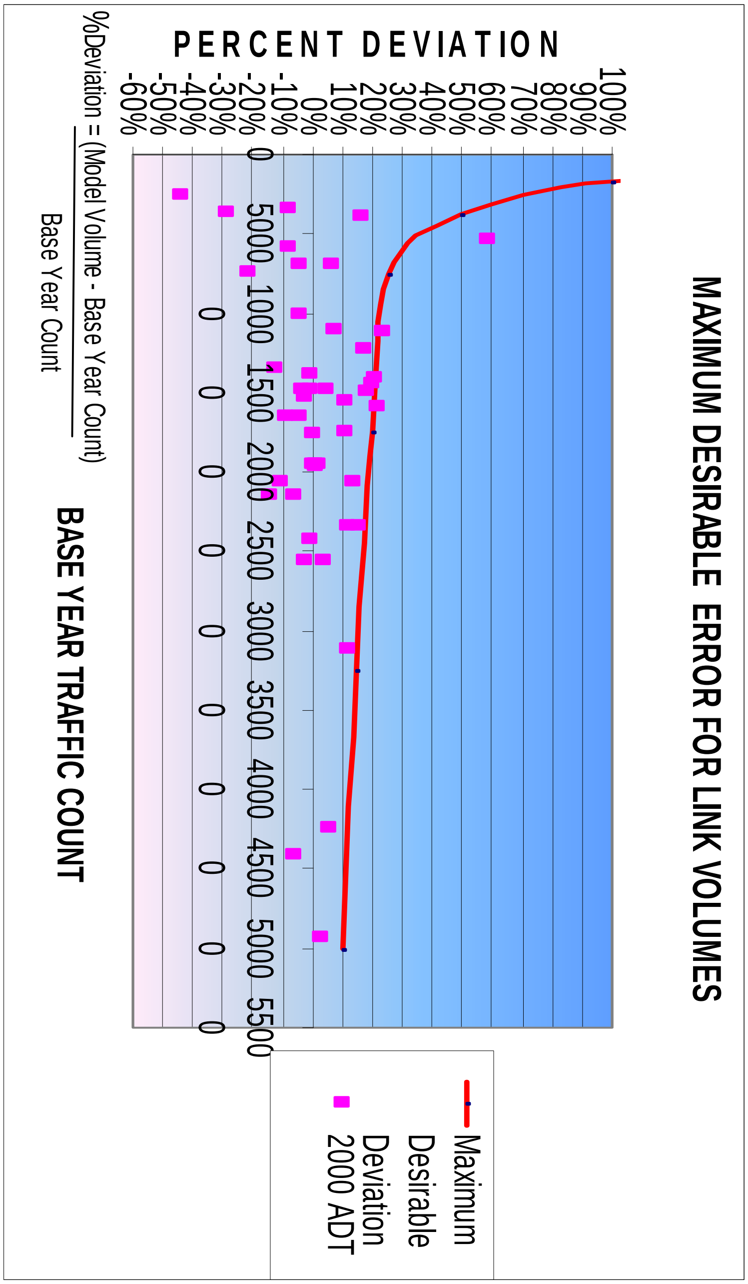
The average ranges for this measure are 60 to 65 miles for large urban areas, and 40 to 43 miles for small urban areas. The calculated value for Lafayette is 68.7 miles.

5.50 Summary

The comparison of the model assignments to the actual traffic counts indicated that the model was replicating the existing traffic conditions within acceptable degrees of accuracy. This level of accuracy is shown in Figure 7, which depicts the maximum desirable deviation from actual counts. Figure 7 also indicates the expected error in ground counts due to day-to-day variations in traffic. A well-calibrated model will have the link estimates clustered about the expected error in ground counts with about 1/3 of the points above the line and 2/3 below.

The quality of the calibration effort, as indicated by the screenline / cutline assignments, various performance measures, and the fact that adjustments were reasonable and consistent with actual traffic operations will prove meaningful when the model is ultimately applied to future conditions. Therefore, it is concluded that the model for the Lafayette Metropolitan Transportation Plan Update is properly calibrated for use in forecasting future travel demand.

Figure 7 – Maximum Desirable Deviation



CHAPTER 6: TRAVEL DEMAND FORECAST

6.0 Introduction

The first step in determining the transportation needs of the Study Area was the assignment of the target year trips to the Existing Plus Committed (E+C) Network. These estimates of future trips came from two sources. The External Trip Forecast was predicted from growth factors developed for each external station while the Internal Trip Forecast was predicted from the forecast of the Planning Data.

6.10 Existing Plus Committed Network

Once the Base Year Network was calibrated, the E+C Network was developed. The Base Year Network was defined as the street and highway system in 2000. Projects defined as committed were those improvements for which construction was either completed or begun since 2000, a contract for construction has been awarded, or projects for which funding has been dedicated such as through Legislative approval of the Proposed Construction Program. The Committed Projects are listed in Table 6.1 and shown in Figure 8.

TABLE 6.1 – LAFAYETTE METROPOLITAN AREA 2030 TRANSPORTATION PLANCOMMITTED PROJECTS TO BE ADDED TO 2000 BASE YEAR NETWORK

PROJECT	LOCATION	DESCRIPTION
Albertson pkwy	LA 89 to US HWY 90	Two Lane Extension
Ambassador Caffery Pkwy South	Verot to US HWY 90	4 Lane Blvd Extension
Ambassador Caffery Pkwy/ W. Congress Turn lanes	Ambassador Caffery Pkwy & W Congress Intersection	Intersection Improvements
Ambassador Caffery Pkwy / Ridge Rd intersection	Ambassador Caffery Pkwy & Ridge Intersection	Intersection Improvements
Ambassador Caffery Pkwy / Robley Dr intersection	Ambassador Caffery Pkwy & Robley Intersection	Intersection Improvements
Ambassador Caffery Pkwy 3 lanes	Cameron St to Bertrand Dr	Widen to 3 Lanes Southbound
Bendel Rd / Pinhook Rd intersection	Bendel & Pinhook Intersection	Intersection Improvements
Bluebird Dr extension (to camellia)	Extension to Camellia Blvd	2 Lane Blvd Extension
Camellia Blvd	Johnston St to Verot School Rd	4 Lane Blvd Extension
Congress / Bertrand improvements	Congress St & Bertrand Dr Intersection	Intersection Improvements
Coteau Rd / US HWY 90 overpass	Coteau Rd. & US HWY 90 Intersection	New Overpass
Devalcourt Rd	Bertrand Dr to UMC	2 Lane Extension
Doucet Rd	Johnston St to Clara Von Dr	Add CTL
Duhon Rd widening	Rue De Belier to Johnston St	Road Widening
Dulles Dr/ foreman intersection	Dulles & Foreman Intersection	Intersection Improvements
Dulles Dr extension (to la 93)	Ambassador Caffery Pkwy to Westagte	Road Widening
Dulles/ Bertrand/Billeaud realign	Dulles, Betrand, Billeaud Intersection	Intersection Improvements/ Realign
Eraste Landry Rd	Westgate to Cameron St	3, 5 Lane Construction
Evangeline Thrwy/Pinhook intersection	Evang Thrwy & Pinhook Intersection	Intersection Improvements
Evangeline Thrwy	I-49 to Railroad Crossing	Widen to 6 Lanes
Guilbeau Rd	Johnston St to Ambassador Caffery Pkwy	Restripe to 5 Lane w/ CTL
I-10 frontage Rd	Acadian Hills	2 Lane Construction
I-10 frontage Rd	I-49 to La. Ave.	2 Lane Construction
I-10 frontage Rd	Reading Ave to University	2 Lane Construction
I-10 frontage Rd	University Ave to I-49	2 Lane Construction
I-49 / Gloriaswitch Rd intersection (east)	I-49 Frontage Rd. & Gloriaswitch Rd	Intersection Improvements
I-49 / Gloriaswitch Rd on/off ramp	I-49 & Gloriaswitch Rd	Restripe on/off ramps
I-49 / Pont des Mouton on/off ramp	I-49 & Pont des Mouton	Restripe on/off ramps
Jefferson St/ Moss intersection	Jefferson St& Moss Intersection	Intersection Improvements
Johnston St/ E. Broussard intersection	Johnston St& E. Broussard Intersection	Intersection Improvements
Johnston St/ ridge intersection	Johnston St & Ridge Rd Intersection	Intersection Improvements
Johnston St / S.College intersection	Johnston St & S. College Intersection	Turn Lane Construction
Johnston St/ Westmark Blvd	Johnston St & Westmark Intersection	Intersection Improvements/ New Signal
Kaliste Saloom Rd / US HWY 90 intersection	Kaliste Saloom Rd & US HWY 90 Intersection	Restripe Intersection Improvements

TABLE 6.1 – LAFAYETTE METROPOLITAN AREA 2030 TRANSPORTATION PLANCOMMITTED PROJECTS TO BE ADDED TO 2000 BASE YEAR NETWORK

LA 182 / Albertson pkwy intersection	LA182 & Albertson Pkwy Intersection	Intersection Improvements
LA 182 / Morgan St intersection	LA 182 & Morgan St Intersection	Intersection Improvements
LA 328 (Rees St)	I-10 to Refinery St	5 Lane Constr. W CTL
La 347/ LA 352 intersection	LA 347 & LA 352 Intersection	New Signal Installed
LA 353 / LA 94 intersection	LA 353 & LA 94 Intersection	New Signal Installed
La 92 / US HWY 90 intersection	LA 92 & HWY 90 Intersection	Rt. Turn Lane Added/ New Signal
La 92 / US HWY 90 intersection	LA 92 & HWY 90 Intersection	New Signal
Louisiana Ave ext phase II-A	Willow St to Alexander St	5 Lane Constr. W CTL
Louisiana Ave ext phase II-B	Alexander St to Pont des Mouton	5 Lane Constr. W CTL
Louisiana Ave ext phase II-C	Pont des Mouton to Maryview Rd	5 Lane Constr. W CTL
Louisiana Ave ext phase II-D	Maryview Rd to Gloriaswitch Rd	5 Lane Constr. W CTL
Louisiana Ave interchange @ i-10	I-10 & Louisiana Ave Interchange	Interstate Overpass/on/off ramps
La 726 (Bernard)	I-49 to LA 182	Widen to 3 Lanes
Lebeseque Rd	Ambassador Caffery Pkwy To University	2 Lane Reconstruction
Luke St. Ph I	Eraste Landry Rd to Dulles	2 Lane Extension
Luke St. Ph II	Dulles Rd to Devalcourt	2 Lane Extension
Martial Ave turn lanes	Kaliste Saloom Rd & Martial Ave Intersection	Intersection Improvements
Moss St / Alexander St intersection	Moss & Alexander St Intersection	Intersection Improvements
Moss St.	Alexander St to Gloriaswitch Rd	Restripe to 5 Lane w/ CTL
N Antoine St	Extension to Pont Des Mouton	3 Lane Extension
Pinhook Rd	Verot School Rd to LA 89	5 Lane Widening w/ CTL
Pont des Mouton East	I-49 to Louisiana Ave	4 Lane Blvd
Pont des Mouton West	University Ave to I-49	4 Lane Blvd
Ridge Rd/ Rue de Belier Rd	Rue de Belier & Ridge Rd Intersection	New Traffic Circle
Ridge Rd	W. Broussard to Johnston	Widening to 4 Lanes
Robley Dr extension	Duhon to Robley	4 Lane Blvd Extension
Rue de belier Rd ph I	Ridge Rd to Duhon	4 Lane Blvd Extension
S. College Rd	Johnston St to Bendel Rd	Restripe to 5 Lane w/ CTL
S. College Rd phase I	Pinhook Rd to Kaliste	5 Lane Extension River Crossing
Settler's Trace	Farrel to Steiner	4 Lane Blvd Extension
Simcoe / Pinhook intersection	Simcoe & Pinhook Intersection	Intersection Improvements
South Domingue phase I	Extension to Ridge Rd.	2 Lane Blvd.
South Domingue phase II	S. Domingue to Walmart Rd.	3 Lane Constr. w/ CTL
Starling drive	Extension to Long Plantation Blvd.	2 Lane Blvd.
Surrey St	US HWY 90 to Fisher	Widen to 5 Lanes
Surrey St	Fisher St to Pinhook Rd	Widen to 3 Lanes
Teurlings Rd	Terminus Rd to E. Alexander St	4 Lane Blvd.
University Ave	Cameron St to I-10	Restripe to 5 Lane w/ CTL
US HWY 167 / LA 92 intersection	US HWY 167 & LA 92 Intersection	Intersection Improvements
US HWY 90 / LA 343 intersection	US HWY 90 & LA 343 Intersection	New Signal Installed
Verot School Rd / Beadle Rd intersection	Verot School Rd & Beadle Rd Intersection	Intersection Improvements

TABLE 6.1 – LAFAYETTE METROPOLITAN AREA 2030 TRANSPORTATION PLANCOMMITTED PROJECTS TO BE ADDED TO 2000 BASE YEAR NETWORK

Verot School Rd / Digby intersection	Verot & Digby Intersection	Intersection Improvements
Verot School Rd / Failla intersection	Verot School Rd & Failla Intersection	Intersection Improvements
Verot School Rd /La Neuville turn lanes	Verot School Rd & La Neuville Intersection	Intersection Improvements
Verot School Rd /Rue Louis intersection	Verot School Rd & Rue Louis Intersection	Intersection Improvements
Verot School Rd	Vincent Rd to Pinhook	4 Lane Blvd Widening
W. Congress realignment	W. Congress & Lagneaux Intersection	New Road Constr.
W. Willow St	Ambassador Caffery Pkwy To Sunbeam Coulee	Widen to 5 Lanes w/ CTL
Westminster turn lane	E. Broussard Rd	Add CTL
Willow / Teurlings intersection	Willow St & Teurlings Rd Intersection	Intersection Improvements

Figure 8 – Existing + Committed Network

6.12 Future Travel Demand

Using the travel demand estimation models developed during the base year calibration process, the forecast planning data, external trip forecasts and the E+C Network were used as input to predict link traffic volumes for the years 2010, 2020and 2030.

6.13 External Trip Forecast

As described in Chapter 4, there are two types of external trips, External-Internal (EI) and External-External (EE). The base year traffic counts at each external station were forecast to 2010, 2020 and 2030 by developing a growth factor based on a 10 year history of counts at the locations. The total traffic at each station was then divided into EI and EE trips with the assumption that there would not be a significant change in the distribution from the base year. The traffic forecast for each external station is shown in Table 6.2.

TABLE 6.2 – TRAFFIC FORECAST FOR EACH EXTERNAL STATION										
STA #	**HIGHWAY**	**2010 VOLUME**	**EI**	**EE**	**2020 VOLUME**	**EI**	**EE**	**2030 VOLUME**	**EI**	**EE**
2001	I-49 N	44,249	38,268	5,981	53,968	46,673	7,295	63,686	55,077	8,609
2002	LA 182 N	5,188	5,188	0	6,054	6,054	0	6,920	6,920	0
2003	LA 726	252	252	0	305	305	0	358	358	0
2004	LA 31 N	5,960	5,761	199	7,758	7,499	259	9,556	9,237	319
2005	LA 328 N	4,187	4,187	0	5,149	5,149	0	6,112	6,112	0
2006	LA 347 N	12,519	11,350	1,169	14,832	13,447	1,385	17,145	15,544	1,601
2007	I-10 E	43,131	29,212	13,919	53,375	36,151	17,224	63,618	43,088	20,530
2008	LA 347 S	6,508	6,365	143	8,305	8,123	182	10,103	9,881	222
2009	LA 31 S	6,754	5,425	1,329	8,758	7,035	1,723	10,762	8,644	2,118
2010	LA 353	4,827	4,827	0	5,876	5,876	0	6,925	6,925	0
2011	LA 96	10,493	9,374	1,119	13,041	11,650	1,391	15,590	13,927	1,663
2012	LA 92 E	3,990	3,990	0	5,082	5,082	0	6,173	6,173	0
2013	LA 182 S	16,144	14,793	1,351	20,014	18,339	1,675	23,885	21,886	1,999
2014	US 90 E	41,467	36,869	4,598	51,974	46,211	5,763	62,482	55,554	6,928
2015	LA 88	4,151	4,151	0	5,462	5,462	0	6,773	6,773	0
2016	LA 339	6,614	6,589	25	7,983	7,953	30	9,352	9,317	35
2017	Gallet Rd	933	933	0	1,124	1,124	0	1,316	1,316	0
2018	US 167 S	21,772	20,549	1,223	27,209	25,680	1,529	32,646	30,812	1,834
2019	LA 343 S	2,263	2,263	0	2,711	2,711	0	3,159	3,159	0
2020	LA 699	1,290	1,290	0	1,461	1,461	0	1,633	1,633	0
2021	LA 92 W	6,077	6,022	55	7,254	7,189	65	8,431	8,355	76
2022	LA 700	1,421	1,421	0	1,763	1,763	0	3,106	3,106	0
2023	LA 342	1,199	1,199	0	1,561	1,561	0	1,923	1,923	0
2024	W Congress	434	434	0	504	504	0	573	573	0
2025	LA 720	2,537	2,537	0	3,347	3,347	0	4,157	4,157	0
2026	US 90 W	6,934	6,627	307	8,246	7,881	365	9,558	9,135	423
2027	I-10 W	52,029	38,634	13,395	63,524	47,170	16,354	75,018	55,705	19,313
2028	LA 98 W	2,535	2,535	0	3,370	3,370	0	4,204	4,204	0
2029	LA 95 N	3,788	3,665	123	4,470	4,325	145	5,152	4,985	167
2030	LA 365 N	1,314	1,314	0	1,760	1,760	0	2,206	2,206	0
2031	LA 93 N	4,377	4,350	27	5,211	5,179	32	6,044	6,007	37
Total		325,337	280,374	44,963	401,451	346,032	55,419	478,566	412,691	65,875

EE External to External
EI External to Internal
Sta Station Number

6.14 Internal Trip Forecast

The trip generation program was run using the 2010, 2020 and 2030 data files. These programs calculated the productions and attractions by traffic zone. The comparison of trip productions by purpose for the base year and target years is shown in Table 6.3.

TABLE 6.3 – FORECAST TRIP PRODUCTION

Trip Purpose	2000	2010	2020	2030
Home Based Work	102505	115316	126511	137908
Home Based Other	261152	293430	321176	349768
Non Home Based	184831	207897	228046	248545
Commercial Vehicles	84804	97829	105511	114727
EI	225390	323653	346034	412692

The Gravity Model then distributed the trips between zone pairs. The equilibrium traffic assignment model loaded the trips on the network based on minimum time paths. The assigned volumes on each link were compared to the capacity of the links and volume/capacity (v/c) ratios were calculated. The resulting forecast traffic volume for each link was compared to the capacity of the respective link to determine areas of forecast capacity deficiency.

6.20 Projected Deficiencies

It is recommended that those facilities which show a projected v/c ratio of greater than 1.00 should be considered deficient. It is also recommended that emphasis be placed on those areas where the v/c ratio is greater that 1.20 or in terms of Level of Service (LOS), any facilities which has a LOS of E and higher based on those ratios. The facilities estimated to be deficient by 2010, 2020 and 2030 are shown in Figures 9, 10 and 11.

Figure 9 – 2010 Deficiencies

Figure 10 – 2020 Deficiencies

Figure 11 – 2030 Deficiencies

Major corridors forecast to be deficient by the year 2010 are:

- US 167 from US 90 to LA 92
- US 90 from Coteau Road to I-49
- W. Pinhook Road. from S Morgan Avenue to US 90.
- Morgan Avenue from W.Pinhook Road to Albertson Parkway
- E. Broussard from US 90 Johnston Street to Vincent Road.
- Kaliste Saloom from E.Broussard to US 90.
- Surrey Street from US 90 to E Simcoe Street.
- LA 93 from Dulles Dr to Ridge Road.
- Ambassador Caffery Parkway from Dulles Dr to Kaliste Saloom of I-10
- Portions of LA 182 between W.Gloriaswitch Road and W. Pont Des Mouton
- University Avenue from US 90 to I-10
- Areas in the following Interchanges
  - I-10 @ NW Evangeline
  - I-49 @ NW Evangeline
  - I-10 @ Rees Street in Breaux Bridge
  - I-10 @ N. University Avenue
  - I-10 @ Ambassador Pkwy
  - I-10 @ LA 93

In addition to those listed above, major corridors forecast to be deficient by the year 2020 are:

- LA 92 from Kirk Road. to Gallet Road.
- Portions of I-10 between E Butcher Switch Road and Sawmill Hwy
- LA 389 & LA 94 in Breaux bridge
- LA 96 from US 90 to Duchamp Road
- LA 182 from US 90 to the Iberia Parish Line
- W Congress from LA 93 to Ambassador Parkway
- Verot School Road from Fortune Road to La Neuville Road

In addition to those listed in 2010 and 2020, major corridors forecast to be deficient by 2030 are:

- US 167 from US 90 to the Vermilion Parish Line
- Cameron Street from N University Ave to Mire Hwy(Austria Road)
- Ambassador Caffery Parkway South Extension to US 90
- S. Main Street between the portions of I-10 and Ruth Bridge Hwy
- Sawmill Hwy in Breaux Bridge.

- I- 49 over I-10 to Gloriaswitch Road
- S Richfield Road from W Congress to I-10
- Camellia Boulevard between Johnston Street and Kaliste Saloom Road

CHAPTER 7: RECOMMENDED PLAN

7.0 Potential Improvements

Once all improvements have been identified, they must be tested in the transportation model to determine their effect on alleviating capacity deficiencies throughout the network. These tests will determine if the planned improvement is sufficient to attain the desired result and/or determine the priority of a planned improvement and/or determine if additional or alternate improvements are equally effective. As testing of all planned improvements would be too time consuming, selected improvements are grouped and tested for certain areas of the network.

These model tests will demonstrate if the deficiency presently being experienced will be corrected by the planned improvement and/or the consequences of not implementing the planned improvement. The model tests also forecast future deficiencies based upon existing conditions and expected growth patterns. The model tests assist in determining the timing of planned improvements as well which assists in the establishment of the various implementation stages.

7.10 Analysis/Modification of Test

As the selected planned improvements are tested, their results are analyzed to determine their ability to attain the intended result. For example, a deficient two lane roadway may have been planned for improvement to a three lane roadway and tested in the transportation model. The test analysis, however, indicates that a three lane roadway will only be effective for a five year period, and then the roadway will be deficient again. By completing this test and subsequent analysis, the MPO is now in a position to reconsider its previously planned improvement and initiate appropriate action. Just as critical to the actual testing of the selected planned improvements is the analysis that follows the testing, as the analysis demonstrates the effectiveness of the planned improvements individually and collectively. This testing and analysis process, albeit time consuming, is a tremendous asset to the MPO in assessing the effectiveness of planned improvements, prioritizing them and finally funding the planned improvements.

7.11 Final Improvements Test

Once all selected planned improvements have been tested, analyzed, and modified if necessary, the overall effectiveness of the entire program is tested. The final test is to insure that collectively all improvements are attaining the desired results within acceptable budgetary and time constraints. This final improvement test results in the recommended final transportation plan.

7.12 Final Transportation Plan

The Final Transportation Plan consists of planned improvements for all network deficiencies until 2030.
The **"2030 Transportation Plan"** analyzed the existing and committed transportation network improvements and planned improvements to which facilities have a v/c ratio greater than 1.00 as these would be considered deficient. The plan recommends that greater emphasis be placed on these projects as well as those where the v/c ratio is greater that 1.20 and those facilities with a Level of Service (LOS) of E or higher based on those ratios.

A LOS of E represents operating conditions at or near the capacity level. All speeds are reduced to a low, but, relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult. Further explanations on the LOS can be found in Chapter 2.

The Final Transportation Plan is separated into three stages based upon need, impact, funding, and timing. All planned improvements are included in these three stages which are addressed in the following sections.

7.20 Staged Improvement Program

As the **"2030 Transportation Plan"** can not be implemented at once because of fiscal constraints, it is planned to be implemented in three stages: Stage I (2005-2010), Stage II (2011-2020) and Stage III (2021-2030). Annual reviews of the progress of the **"2030 Transportation Plan"** insures that changes in the Plan can be addressed and added or deleted based upon external factors that affect the timing of the individual infrastructure improvements in the Plan.

Utilizing these factors, the **"2030 Transportation Plan"** separated all the planned improvements and available funding levels into three stages. These stages of improvements are shown in the figure 12. An explanation of each of these stages follows.

7.21 Stage I (2005-2010)

Stage I is planned for improvement in the years 2005 to 2010 and consists of fourteen projects and twelve line items, as shown in Table 7-1. These projects are funded with local, State and Federal funds; and, some of the projects are funded by all three sources, local dollars as a match with State and Federal funding. The planned improvements in Stage I are projected to cost $226,881,000 and represent improvements consisting of intersection improvements, roadway widening, new roadway construction, new bridge construction, bikeway facilities, roadway maintenance, railroad crossing, enhancements and corridor preservation projects, for example.

Figure 12 – Staged Improvements

TABLE 7.1 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN
MTP 2030 STAGE I (2005-2010)

PROJECT	LOCATION	IMPROVEMENT	COST(000's)	P.NO
Pinhook Rd	Bendel Rd	Intersection Improvement	$1,731	101
Doucet Rd	Johnston St to Clara Von Dr	Continuous Turn Lane	$2,054	102
Louisiana Ave	Pont des Mouton Rd to Gloriaswitch Rd	New 4 Lane	$13,541	103
N. St. Antoine St	I-10 to Pont des Mouton Rd	New 3 Lane	$7,518	104
Pont des Mouton Rd	University Ave to Louisiana Ave	Widen to 4 lanes	$27,864	105
Eraste Landry Rd	Sunbeam Coulee to Cameron St	Widen to 3/5 lanes	$5,200	106
Eraste Landry Rd	Ambassador Caffery Pkwy to LA 93	New 3 Lane	$3,000	114
I-10	Apollo Road to Louisiana Ave	Frontage Roads	$5,100	113
S.College Rd	Pinhook Road to Kaliste Saloom Rd	New 5 Lane w/Bridge	$15,500	107
Camellia Blvd	Johnston St to Eastland St	Reconstruct 4 Lane	$1,500	108
Camellia Blvd	Starling to Verot School Rd	New 4 Lane	$7,800	109
Verot School Rd	Pinhook Rd to Vincent Road	Widen to 4 Lanes	$14,500	110
Ambassador Caffery Pkwy	Verot School Rd to US 90	New 4 Lane	$35,000	111
Rue du Belier	Ridge Rd to Duhon Rd	New 4 Lane	$8,233	112

TABLE 7.1 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN MTP 2030 STAGE I (2005-2010)			
I-49	I-10 to South Study Boundary	Corridor Preservation	$18,000
Line Items	Various Locations	Bikeway Facilities	$1,250
Line Items	Various Locations	Drainage	$1,800
Line Items	Various Locations	Maintenance	$3,000
Line Items	Various Locations	Signs/Striping	$500
Line Items	Various Locations	Scoping/Environmental	$900
Line Items	Various Locations	Enhancement	$450
Line Items	Various Locations	Hazard Elimination	$1,350
Line Items	Various Locations	Railroad crossings	$1,740
Line Items	Various Locations	ITS	$22,950
Line Items	Various Locations	Overlay	$24,000
Line Items	Various Locations	Bridge Replacement	$2,400
		Total Stage I	**$226,881**

7.22 Stage II (2011-2020)

Stage II is planned for improvement in the years 2011 to 2020 and consists of three projects and eleven line items, as shown in Table 7-2. These projects are funded with local, State and Federal funds; and, some of the projects are funded by all three sources, local dollars as a match with State and Federal funding. The planned improvements in Stage II are projected to cost $131,500,000 and represent improvements consisting of roadway widening, new roadway construction, corridor preservation, bikeway facilities, hazard elimination, railroad crossing and bridge replacement projects, for example.

TABLE 7.2 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN
MTP 2030 STAGE II (2010-2020)

PROJECT	LOCATION	IMPROVEMENT	COST(000's)	P.NO
Johnston St	E. Broussard Rd at Johnston St	Intersection Capacity Improvements	$3,000	202
E. Broussard Rd	Vermilion River	Bridge Replacement 4 Lanes	$17,000	201
Rue du Belier	Johnston to I-10(Scott)	New 4 Lane Roadway and Widen to 4 Lanes	$20,000	203
I-49	I-10 to Study Area Boundary	Corridor Preservation	$30,000	
Line Items	Various Locations	Bikeway Facilities	$1,250	
Line Items	Various Locations	Drainage	$3,000	
Line Items	Various Locations	Maintenance	$5,000	
Line Items	Various Locations	Signs/Striping	$800	
Line Items	Various Locations	Scoping/Environmental	$1,500	
Line Items	Various Locations	Enhancement	$800	
Line Items	Various Locations	Hazard Elimination	$2,250	
Line Items	Various Locations	Railroad crossings	$2,900	
Line Items	Various Locations	Overlay	$40,000	
Line Items	Various Locations	Bridge Replacement	$4,000	
		Total Stage II	**$131,500**	

7.23 Stage III (2021-2030)

Stage III is planned for improvement in the years 2021 to 2030 and consists of three projects and ten line items, as shown in Table 7-3. These projects are funded with local, State and Federal funds; and, some of the projects are funded by all three sources, local dollars as a match with State and Federal funding. The planned improvements in Stage III are projected to cost $107,000,000 and represent improvements consisting of new roadways, four new interchanges, road widening, railroad crossing, hazard elimination, and maintenance projects, for example.

TABLE 7.3 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN MTP 2030 STAGE III (2020-2030)				
PROJECT	**LOCATION**	**IMPROVEMENT**	**COST(000's)**	**P.NO**
E.Broussard Rd	Johnston St to Kaliste Saloom Rd	Widen to 4 Lanes	$6,000	301
Kaliste Saloom Rd	Ambassador Caffery to E. Broussard	Widen to 4 Lanes	$17,500	302
University Ave	I-10 to I-49	Four Lane Blvd	$22,000	303
Line Items	Various Locations	Bikeway Facilities	$1,250	
Line Items	Various Locations	Drainage	$3,000	
Line Items	Various Locations	Maintenance	$5,000	
Line Items	Various Locations	Signs/Striping	$800	
Line Items	Various Locations	Scoping/Environmental	$1,500	
Line Items	Various Locations	Enhancement	$800	
Line Items	Various Locations	Hazard Elimination	$2,250	
Line Items	Various Locations	Railroad crossings	$2,900	
Line Items	Various Locations	Overlay	$40,000	
Line Items	Various Locations	Bridge Replacement	$4,000	
		Total Stage III	**$107,000**	

7.30 Vision Plan

The previous sections have addressed Stages I, II, and III transportation improvements which are funded and included in the FCTP, however, a great many other transportation improvements are needed. The Vision Plan identifies those necessary but unfunded transportation improvements.

Whereas the **"2030 Transportation Plan"** identifies all the existing and future needed transportation improvements, and, the FCTP identifies all funded transportation improvements, the Vision Plan identifies and focuses on the remaining unfunded transportation projects. The funded transportation improvements, which are not more important than the unfunded transportation improvements, are the projects that can best alleviate or eliminate transportation network deficiencies today with available funding. The FCTP represents the best combination of transportation improvements within available funding to address existing transportation deficiencies. The remaining unfunded transportation improvements are not any less important or effective, they just can not commence at this point in time.

All of the projects in the Vision Plan are important to the future efficiency of the transportation network, but, remain unfunded for various reasons. Delayed funding for a transportation improvement project may be the result of the projects' size, its cost, its design complexity, acquisition difficulties, jurisdictional concerns, and/or environmental concerns. A project may be delayed because its efficiency is minimized until other projects are completed or it does not alleviate existing transportation deficiencies that will only exacerbate over time.

The remaining unfunded transportation improvements are included in the Vision Plan so that they can be a constant reminder of future needs, and annually re-analyzed to determine in adjustments or changes are needed. The extent and distribution of the network improvements included in the Vision Plan are depicted in Figure 13 and the vision projects are shown in the table 7.4. Funding and implementation of the Vision Plan will have tremendous impact on the transportation network of the community. As the community continues to grow and re-define itself, regular and routine review of the Vision Plan is necessary to be responsive to changes.

TABLE 7.4 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN MTP 2030 VISION-PLAN

PROJECT	LOCATION	IMPROVEMENT	P.NO
I-49	I-10 to Study Area Boundary	New Interstate	402
BreauxBridge Hwy	Sawmill Hwy to Bernard St	Widen to 4 Lane	410
North/South Beltway(PH-II)	Johnston St to LA 95	Reconstruction and Widening	411
North/South Beltway(PH III)	LA 95 to I-49	Reconstruction and Realignment	412
LA 93	I-10 to W.Gloriaswitch Road	Widen to 4 Lane	414
Renuad Dr	Elmira Dr to Hancock Dr	New 3 Lane Road and Reconstruction	415
W.Congress St	Rue Du Belier to S.FieldSpan	New Alignment and Reconstruction	416
Johnston St	LA 92 to Study Area Boundary	Widen to 6 Lanes	408
Verot School Rd	Vincent Rd to Study Area Boundary	Widen to 4 Lane	404

TABLE 7.4 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN MTP 2030 VISION-PLAN			
Ridge Rd	W. Broussard Rd to S. FieldSpan	Widen to 4 Lane	417
Vincent Rd	Verot School Rd to E.Broussard Rd	Widen to 3 Lane	405
LA 182	S. Morgan to Study Area Boundary	Widen to 3 Lane	407
Youngsville Hwy	Albertson Pkwy to Youngsville Pkwy	Widen to 4 Lane	406
Youngsville Pkwy	Kaliste Saloom to US 90	Reconstruction and New Roadway	401
Amb Caffery Pkwy	at W.Congress	Intersection Impvts	419
Guilbeau Rd	at W.Congress	Intersection Impvts	420
Rue Du Belier	Dulles Dr to Westgate Rd	New Alignment	421
Cameron St	Nelrose Rd to Jerkins Rd	Widen to 4 Lanes	423
Eraste Landry	LA 93 to Apollo Rd	New Construction	437
Sawmill Hwy	Hebert Ave to Breaux Bridge Hwy	New 2 Lane	409
Verot School Rd	W. Pinhook Rd to US 90	Widen to 4 Lanes	422
BreauxBridge Hwy	Carmel Dr to Sawmill Hwy	Widen to 4 Lanes	424
Amb Caffery Pkwy	I-10 to I-49	New 3 Lane	425
Ridge Rd	W. Broussard Rd to Johnston St	Widen to 4 Lane	426
Surrey St	Fisher Road to Pinhook Rd	Widen to 3 Lane	427
Frontage Rd	Pont des Mouton Rd to Louisiana Ave	New 2 Lane	437
Frontage Rd	Ambassador Caffery Pkwy to	New 2 Lane	428

TABLE 7.4 – LAFAYETTE METROPOLITAN TRANSPORTATION PLAN MTP 2030 VISION-PLAN

(North of I-10)	University Ave		
Frontage Rd (South of I-10)	Ambassador to Pvt. Rd	New 2 Lane	429
Frontage R (South of I-10)	Apollo Rd to Ambassador Caffery Pkwy	New 2 Lane	430
Frontage Rd (North of I-10)	Apollo Rd to to Ambassador Caffery Pkwy	New 2 Lane	431
Pinkhook Rd	Southpark Rd to S. Morgan	Widen to 5 Lane	432
Youngsville Hwy	Pinhook Rd to Ambassador Caffery South Ext	Widen to 5 Lane	413
LA-92	Johnston St to Youngsville Pkwy	Center Turn Lane	433
I-10	At Sawmill Hwy	New Interchange	434
Johnston St	Johnston St at Amb Caff Pkwy	Interchange	435
Kaliste Saloom Rd	From W. Pinhook Rd to Camelia Blvd	Widen to 6 Lanes	439
New Alignments	Connecting to I-49	New alignments	450
Camelia Blvd	From Verot School Rd to Tolson Rd	New 3 Lane Road Construction	440

Figure 13 – Vision Plan

7.40 Bicycle and Pedestrian Plan

In January, 2005 the MPO prepared the 2030 Bikeway Plan which is incorporated herein by reference and made part of the **"2030 Transportation Plan"**. Bikeways are an important component in the overall transportation network of a community and must be included in all transportation planning efforts.
The MPO recognized this and created the MPO Bikeway Committee, charged with the responsibility to make Lafayette a more bike friendly community. The Committee adopted three primary goals:

1. Promote bicycling and reduce dependency on single-occupancy vehicles.
2. Provide safe bicycle transportation
3. Plan, construct, and maintain connected bikeway facilities.

This Bikeway Plan includes a project list based upon estimated Roadway capital improvement plans for the Lafayette Parish. The plan lists multiple projects and ranks the projects based upon need, funding and timing with roadway projects. The focus of the bikeways presented on the plan is to connect schools, libraries, museums, parks and business districts within the Lafayette area.

Most bikeways are striped while other paths are separated from the road. The projects also consider the installation of bike and pedestrian bridges over the Vermilion River. The plan also includes bikeways for the future developments of parks within the area.

The 2030 Bikeway Plan, list of proposed projects, and maps of the bikeways are available at www.lafayettelinc.net.

In January, 2005 the MPO prepared the 2030Pedestrian Plan which is incorporated herein by reference and made part of the **"2030 Transportation Plan".** Sidewalks are important to Community's transportation network and should be made available throughout the community especially to high pedestrian oriented facilities, such as schools, parks, playgrounds, libraries, etc.

The goal of the Pedestrian Plan is to design, plan, and build a "walkable community". Planning principles dictate a schematic design and implementation of a comprehensive pedestrian plan as a necessary and critical component in urban development.

The Pedestrian Plan contains significant information on the design, timing, funding and location of sidewalks in the community. The Pedestrian Plan recommends that sidewalks be constructed as part of planned infrastructure improvements and funded as part of the improvement.

7.50 Adoption

In order to insure the greatest extent of public notification and public participation, the MPO provides the public with many opportunities through its lengthy adoption process. No fewer than five (5) public meetings will be conducted to adopt the Plan, but more likely, eight (8) public hearings will be conducted. Pubic Notice of the meetings will be placed in the local official paper of record for the Metropolitan Area.

7.51 Public Participation

The Lafayette Metropolitan Planning Organization has always utilized a very extensive public participation process in an attempt to insure receipt of the greatest amount of public input and involvement. This process was utilized in the preparation of the **“2030 Transportation Plan”**.

7.52 Public Outreach

All Transportation Plans and Transportation Improvement Program (TIP) developments, adoptions, and amendments are and will be subject to public notification procedures as follows:

A. The MPO will give general public notice in the local official paper of record for the Metropolitan Area. The notice will briefly explain the requested development or amendment and the tentative date of the public meetings.

B. The CAC will conduct a public meeting on the requested action in accordance with their Rules of Policy regarding public notice and meetings.

C. The CAC will consider all public input received and make their recommendation to the TTC.

D. The TTC will also conduct a public meeting on the requested action in accordance with their Rules of Policy regarding public notice and meetings.

E. The TTC will consider all public input received and make their recommendation to the TPC.

F. The TPC will also conduct a public meeting on the requested action in accordance with their Rules of Policy regarding public notice and meetings.

G. The TPC will consider all public input received and make their recommendation to the MPO.

H. The MPO will also conduct a public meeting on the requested action in accordance with their Rules of Policy regarding public notice and meetings.

I. The MPO will consider all public input received and make a final determination on the requested action.

The MPO will maintain a list of civic, community, and special interest organizations which will also be notified in writing of all impending actions. This list will be initially developed by the MPO staff and will be reviewed and updated annually. Organizations wishing to be added to or deleted from the list may notify the MPO in writing.

In addition, public notice of each CAC, TTC, TPC, and MPO Meeting is placed in the local official journal of record for the MPO. This notice includes the time/date/location of the meeting and a brief description of every action to be discussed and acted upon at the Meeting.

Copies of all official documents are available for public review in the MPO office.

7.53 Public Hearing

A public hearing will be conducted by the CAC, TTC, TPC, and the MPO prior to the amendment or adoption of any plan or program. All public input will be carefully considered prior to any action whatsoever. For additional information on public hearings, past or in the future, contact the MPO office.

7.60 Transportation Technical Committee

As stated in Chapter 1, the Transportation Technical Committee (TTC) is comprised of twenty one (21) members and provides review and evaluation of the technical aspects of planning activities and is made up of local, State, and Federal transportation planners, engineers, and other technically qualified persons with an interest in the transportation system. These members also represent a myriad of socio-economical backgrounds and diverse elements of our community.

7.70 Transportation Policy Committee

The Transportation Policy Committee (TPC) provides decision-making with regard to the approval and adoption of transportation plans and programs and is composed of the principal elected officials in the metropolitan area, as well as State and Federal representatives. The TPC is comprised of thirteen (13) members.

More information on the CAC, TAC, and TPC makeup can be found in Chapter 1.

7.80 Continuing Transportation Planning

The Lafayette Metropolitan Planning Organization has had a long history of vibrant and active transportation planning which will continue with the **"2030 Transportation Plan".** 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 is required by the 3-C Planning Process. The MPO is responsible for conducting continuing transportation planning which is coordinated with other local, State, and Federal planning activities.

The **"2030 Transportation Plan"** will also be used in the annual budget preparation processes as it so greatly affects capital improvement programs. The MPO does receive and will continue to receive periodic status reports on the progress of infrastructure improvement projects. This information assists the MPO in evaluating its progress and future planning activities.

7.90 Conclusion

The Lafayette Metropolitan Planning Organization recommends that the **"2030 Transportation Plan"** be accepted, adopted and implemented. The plan provides the necessary data and direction to meet the growing transportation needs of the metropolitan area well into the future.

The transportation needs of today and tomorrow can only be met if **"2030 Transportation Plan"** is utilized only a daily basis. The plan needs to be consulted when new development is proposed; it needs to be consulted annually during the budget adoption process; it needs to be consulted as new public facilities such as parks and recreation areas are planned; it needs to be consulted as new educational facilities are planned; and the plan needs to reassessed on a regular basis to measure the community's effectiveness in implementation and to adjust to land use changes throughout the metropolitan planning area.

APPENDIX

Appendix 1.0: Coding Guide

Standardized coding procedures are developed for coding both existing and future networks. These procedures will be developed into a "Coding Guide" for future use by the MPO staff.

The following attributes were reviewed for applicability, accuracy, and connectivity for each network link. Additional data fields were added/edited if model parameters warranted their change.

Appendix 1.1: Demographic Variables

There are ten transportation modeling variables as listed below. The first six variables (1 to 6) are standard demographic figures were taken from the 2000 Census. The next three variables (7-9) were derived from a survey using Louisiana Department of Labor records from the first quarter of 2000. There is a separate discussion within the demographic report concerning the methodology of how the data was collected. The final variable (10) was derived using telephone surveys of surrounding area schools.

Each of the ten demographic variables is listed in this appendix for each TAZ.

The ten demographic variables are listed below:

1) Population
2) Household Size 1-2 persons
3) Household Size 3-4 person
4) Household Size five plus persons
5) Total Dwelling Units
6) Occupied Dwelling Units
7) Retail Employment
8) Other Employment
9) Total Employment
10) School Attendance

TOTDU_00	Total number of Dwelling Units in 2000
OCCDU_00	Total number of Occupied Dwelling Units in 2000
RETEMP_00	Total Retailed Employment in 2000
TOTEMP_00	Total Employment in 2000
SCHATT_00	Total School Attendance in 2000

Appendix 1.2: Network Segment Coding

The network-coding guide for network segment coding is included in this section of the appendix. For each segment attribute, a brief definition and a complete list of ranges of numeric codes are presented enabling a user to code network links using a replicable methodology.

1. Number of Lanes

Code Description

02 centroid connectors
11 one lane, one way
12 one lane (each. dir.), two way
14 one lane (each. dir.), two way with left turn lanes, median or boulevard
16 one lane (each. dir.), two way with center turn lane
21 two lanes, one way
22 two way (each. dir.), two way
24 two lanes (each. dir.), two way with left turn lanes, median or boulevard
26 two lanes (each. dir.), two way with center turn lane
31 three lanes, one way
32 three lanes (each. dir.), two way

2. DOTD Functional Class

Code Description

01 Rural Interstate
02 Rural Principal Arterial
06 Rural Minor Arterial
07 Rural Major Collector
08 Rural Minor Collector
09 Rural Local
11 Urban Interstate
12 Urban Expressway
14 Urban Principal Arterial
16 Urban Minor Arterial
17 Urban Collector
19 Urban Local

LENGTH	TransCAD length of a roadway link.
DIR	TransCAD direction of a roadway link.
TYPE	MPO legacy type of a roadway link.
AB_SPEED	The model speed in mph in the drawn direction of a segment.
BA_SPEED	The model speed in mph in the drawn direction of a segment
AB_LANES	The number of lanes code in the drawn direction of a segment.
BA_LANES	The number of lanes code in the drawn direction of a segment.
AB_CAPACITY	The model capacity in the drawn direction of a roadway segment.
AB_TT	The time to travel in the drawn direction of a roadway segment.
BA_TT	The time to travel in the alternate direction of a roadway segment
AB_SPEED	The model speed in MPH in the drawn direction of a segment.
BA_SPEED	The model speed in MPH in the alternate direction of a segment.
AB_LANES	The number of lanes code in the drawn direction of a segment.
BA_LANES	The number of lanes code in the alternate direction of a segment.
AB_DOTD	The simplified functional classification in the drawn direction.
BA_DOTD	The simplified functional classification in the alternate direction
AB_CAPACITY	The model capacity in the drawn direction.
BA_CAPACITY	The model capacity in the alternate direction.
AB_TT	The time to travel in the drawn direction of a roadway segment
BA_TT	The time to travel in the alternate direction of a roadway segment.
CEN_CONNECT	A model centroid connecter being 1 else equal to 0.
LOCAL_STREET	A model local roadway being 1 else equal to 0.
NO_LANES	Number of Lanes.
AB_NOM_CAP	The nominal capacity of the AB lane
AB_SICRF	The timing signal capacity reduction based on green time
AB_LL	The number of AB left turn lanes at signalized intersection
AB_TL	The number of AB thru turn lanes at a signalized intersection
AB_RL	The number of AB right turn lanes at a signalized intersection
BA_NOM_CAP	The nominal capacity of the BA lane
BA_SICRF	The timing signal capacity reduction based on green time
BA_LEFT_LANES	The number of BA left turn lanes at a signalized intersection
BA_TL	The number of BA thru turn lanes at a signalized intersection
BA_RL	The number of BA right turn lanes at a signalized intersection
TRAF_COUNT	The seasonally adjusted annual traffic LA DOTD counts.

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
1	8	5	25	160	0
2	17	14	40	203	0
3	39	19	4	116	328
4	26	21	7	98	202
5	0	0	0	1248	0
6	860	36	0	362	0
7	19	3	25	445	0
8	38	18	26	302	0
9	266	124	11	652	827
10	256	117	0	43	0
11	271	115	46	125	0
12	15	7	1	336	0
13	216	76	0	11	0
14	142	38	3	84	0
15	277	97	5	150	0
16	296	99	0	98	0
17	232	27	0	82	0
18	70	68	74	452	0
19	16	6	11	124	0
20	32	10	20	76	0
21	52	21	100	265	0
22	128	66	33	83	0
23	299	147	28	130	0
24	86	40	232	420	0
25	126	37	194	372	0
26	309	173	54	58	0
27	281	148	75	125	0
28	163	103	55	244	0
29	85	41	0	22	0
30	727	329	285	1653	0
31	105	53	71	696	0
32	306	194	145	303	0
33	40	19	159	745	0
34	16	8	13	289	0
35	2	2	232	3049	0
36	0	0	117	884	0
37	637	266	61	178	0
38	351	39	0	8	0
39	541	282	1	616	0
40	368	178	0	535	0
41	882	373	28	219	929
42	5	1	0	29	0
43	502	119	132	805	5780
44	1017	44	0	1103	5780

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
45	362	58	17	24	0
46	402	228	30	79	0
47	23	13	13	99	0
48	231	108	0	92	543
49	1125	602	84	2645	0
50	460	234	3	4	0
51	208	79	153	418	0
52	267	79	391	921	0
53	33	20	281	601	0
54	3	1	30	146	2500
55	26	0	202	838	0
56	417	166	95	1903	0
57	484	230	0	24	0
58	679	335	8	43	0
59	249	120	67	117	0
60	257	132	3	262	354
61	627	283	25	285	0
62	143	65	9	169	0
63	0	0	29	90	0
64	268	110	50	233	0
65	219	77	58	432	140
66	484	160	26	158	0
67	674	176	0	0	0
68	182	63	161	724	0
69	1293	433	79	576	432
70	887	370	72	170	0
71	1131	380	22	84	0
72	528	186	0	13	0
73	462	165	162	217	0
74	410	142	522	768	0
75	257	96	0	38	0
76	1384	417	132	444	0
77	387	138	0	0	0
78	238	75	202	262	0
79	482	163	0	109	648
80	883	312	33	294	0
81	359	206	104	221	549
82	494	168	41	88	0
83	0	0	0	0	0
84	732	286	3	14	0
85	916	347	0	221	1290
86	477	169	75	285	989
87	183	66	175	559	0
88	132	51	95	480	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
89	1012	325	54	82	0
90	243	90	0	0	0
91	1078	397	0	200	0
92	1048	362	36	327	698
93	768	261	16	61	0
94	5	2	0	40	10
95	285	101	38	196	0
96	620	253	145	250	0
97	98	34	0	125	407
98	405	160	76	95	0
99	149	61	7	21	0
100	77	8	13	107	0
101	17	7	14	21	0
102	15	9	4	69	0
103	0	0	16	100	0
104	117	26	42	46	0
105	106	17	0	37	0
106	72	26	0	0	0
107	457	194	28	816	0
108	430	156	7	83	80
109	173	61	63	69	0
110	113	51	82	82	0
111	414	143	7	41	0
112	872	331	0	221	0
113	779	363	1	22	0
114	727	277	7	156	0
115	215	77	0	0	0
116	792	267	0	121	197
117	893	357	3	63	0
118	272	102	339	467	0
119	186	65	0	7	0
120	411	155	0	308	974
121	487	219	249	845	0
122	668	300	0	0	0
123	7	3	0	0	0
124	37	2	298	1108	0
125	44	18	28	949	0
126	5	3	0	215	0
127	52	28	16	372	0
128	135	57	50	808	0
129	17	8	0	257	0
130	50	28	11	51	0
131	20	12	585	1159	0
132	43	0	337	1525	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
133	139	55	7	394	0
134	75	31	150	849	0
135	9	4	0	18	0
136	188	95	0	627	0
137	0	0	0	37	0
138	129	54	217	618	0
139	23	7	257	1847	0
140	1869	801	82	455	0
141	482	162	0	7	0
142	1010	420	0	38	0
143	1395	799	18	84	0
144	35	3	372	2392	0
145	5	2	76	304	0
146	1107	569	16	610	0
147	1382	523	459	1663	272
148	782	334	25	57	0
149	408	162	0	12	0
150	827	373	101	401	0
151	329	112	17	119	0
152	1195	447	121	2096	2392
153	710	376	101	989	350
154	685	406	92	99	0
155	542	146	278	559	0
156	484	247	0	91	0
157	0	0	0	0	0
158	553	251	3	4	0
159	98	41	78	150	0
160	1854	869	142	808	851
161	496	181	0	16	0
162	1180	447	0	22	0
163	2070	811	145	411	800
164	934	357	204	332	0
165	1814	734	4	98	0
166	1697	568	9	265	601
167	0	0	323	1028	0
168	2175	807	9	233	718
169	127	43	1060	2006	0
170	1380	691	800	979	0
171	1380	565	987	1351	0
172	521	206	0	34	0
173	676	280	399	655	0
174	1758	797	326	774	0
175	466	214	188	351	0
176	364	169	165	333	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
177	193	79	111	299	0
178	1971	735	20	117	0
179	0	0	3	406	0
180	1968	1009	82	564	2724
181	859	353	71	123	0
182	1336	819	270	614	825
183	1715	731	5	43	0
184	379	111	69	1927	0
185	287	146	304	940	0
186	67	28	291	364	0
187	704	367	94	855	0
188	59	24	33	36	0
189	0	0	0	75	0
190	6	3	22	320	0
191	173	61	0	0	0
192	181	78	30	358	0
193	4	2	0	119	0
194	5	1	0	216	0
195	0	0	76	519	0
196	673	256	0	12	0
197	404	120	0	28	0
198	180	67	0	709	0
199	143	58	29	112	0
200	248	97	43	76	0
201	12	5	43	94	0
202	49	17	0	58	0
203	1432	532	0	14	0
204	410	158	0	16	0
205	31	12	0	0	0
206	59	26	3	55	0
207	521	191	41	406	2185
208	129	41	157	362	0
209	236	85	49	105	325
210	218	81	0	145	0
211	168	55	538	597	0
212	1733	725	291	1147	1316
213	836	277	111	181	0
214	364	131	0	63	0
215	810	297	5	24	0
216	588	204	0	18	0
217	669	261	79	170	0
218	140	53	0	17	0
219	325	109	1	4	0
220	879	317	0	9	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	**POPULATION**	**OCCUPIED DWELLING UNITS**	**RETAIL EMPLOYMENT**	**TOTAL EMPLOYMENT**	**SCHOOL ATTENDENCE**
221	292	114	59	275	0
222	211	67	0	59	0
223	4	2	0	66	0
224	70	23	0	214	0
225	576	224	57	714	522
226	6	4	188	252	0
227	22	11	0	289	0
228	434	184	0	4	0
229	583	216	21	867	0
230	42	18	26	278	0
231	255	100	57	1849	0
232	148	67	202	314	0
233	1839	652	4	224	0
234	347	109	0	14	0
235	1065	413	61	175	456
236	132	48	0	129	0
237	927	355	70	84	0
238	125	44	0	29	0
239	10	4	0	323	0
240	0	0	0	82	0
241	300	91	0	254	689
242	19	6	0	76	0
243	391	123	0	419	0
244	258	82	0	26	0
245	628	206	0	17	0
246	300	110	0	348	0
247	47	15	0	13	0
248	1013	345	25	111	0
249	646	218	0	181	0
250	133	50	3	11	0
251	12	4	0	0	0
252	35	13	0	0	0
253	4	1	0	0	0
254	375	121	0	0	0
255	74	29	0	0	0
256	264	76	0	0	0
257	532	182	0	0	0
258	47	15	0	0	0
259	251	92	0	0	0
260	181	63	0	0	0
261	252	91	0	0	0
262	441	171	0	4	0
263	161	56	0	0	0
264	748	246	0	101	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
265	437	154	0	38	0
266	192	69	0	0	0
267	106	35	0	289	0
268	422	157	0	188	1134
269	231	84	26	83	0
270	1564	549	4	116	0
271	235	76	0	286	0
272	593	258	0	24	0
273	572	207	49	299	0
274	33	17	0	0	0
275	216	74	0	20	0
276	1208	382	0	8	0
277	1195	436	5	149	0
278	876	316	0	0	0
279	558	214	0	30	0
280	101	36	0	0	0
281	558	181	0	0	0
282	738	248	0	108	743
283	430	202	0	0	0
284	1550	552	12	82	0
285	2423	856	33	532	1021
286	0	0	405	540	0
287	124	43	7	36	19
288	88	32	0	0	0
289	1125	420	49	240	0
290	50	19	0	1	0
291	455	145	0	0	0
292	613	208	0	0	0
293	588	189	0	115	792
294	152	47	0	0	0
295	939	273	174	244	0
296	229	67	0	62	0
297	583	343	2575	3041	0
298	572	189	1	7	0
299	1194	392	8	22	0
300	1402	456	0	34	0
301	649	215	0	0	0
302	1019	320	0	21	0
303	529	196	0	8	0
304	79	29	1	1	0
305	120	44	0	0	0
306	471	164	0	0	0
307	567	192	0	0	0
308	257	95	0	0	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	**POPULATION**	**OCCUPIED DWELLING UNITS**	**RETAIL EMPLOYMENT**	**TOTAL EMPLOYMENT**	**SCHOOL ATTENDENCE**
309	91	29	0	0	0
310	168	55	0	75	516
311	250	82	0	7	0
312	191	66	0	0	0
313	695	243	109	119	0
314	265	106	0	90	0
315	5	5	1431	1895	0
316	769	343	0	188	28
317	201	80	0	173	0
318	218	76	0	170	589
319	597	211	0	74	0
320	1450	561	0	21	0
321	338	115	0	12	0
322	763	246	66	84	0
323	662	215	219	423	764
324	1147	352	25	75	0
325	1007	471	72	1111	0
326	678	331	9	311	1919
327	1716	656	0	18	0
328	271	98	0	0	0
329	60	26	0	0	0
330	258	89	0	26	0
331	850	301	0	0	0
332	351	122	1	67	0
333	435	150	0	0	0
334	1117	411	14	235	1309
335	1222	448	4	4	0
336	771	334	29	61	0
337	456	155	260	262	0
338	443	177	0	266	0
339	159	68	38	272	0
340	370	142	0	42	0
341	658	250	38	409	466
342	253	105	53	69	0
343	287	129	0	33	0
344	221	92	33	294	0
345	73	28	0	51	0
346	415	153	0	0	0
347	70	26	0	0	0
348	151	46	0	0	0
349	130	44	0	0	0
350	98	36	0	0	0
351	385	137	0	33	0
352	288	86	0	76	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	**POPULATION**	**OCCUPIED DWELLING UNITS**	**RETAIL EMPLOYMENT**	**TOTAL EMPLOYMENT**	**SCHOOL ATTENDENCE**
353	100	33	0	0	0
354	371	117	0	8	0
355	102	38	0	32	0
356	57	22	0	0	0
357	410	135	0	175	0
358	468	161	0	9	0
359	142	42	0	30	0
360	406	153	16	55	0
361	25	11	0	0	0
362	78	30	0	0	0
363	338	119	0	0	0
364	214	74	0	0	0
365	1126	359	0	204	739
366	532	155	0	0	0
367	322	112	0	0	0
368	72	28	0	0	0
369	206	83	0	0	0
370	334	130	0	13	0
371	609	219	0	88	0
372	616	205	0	41	0
373	747	257	9	32	0
374	1308	446	43	282	1380
375	723	247	12	49	0
376	384	133	0	0	0
377	985	309	0	0	0
378	256	95	30	30	0
379	63	24	0	0	0
380	445	149	0	0	0
381	258	82	0	17	0
382	165	59	0	13	0
383	97	37	0	0	0
384	346	114	0	32	0
385	234	85	24	24	0
386	45	17	0	153	0
387	161	77	103	170	0
388	352	135	13	21	0
389	248	108	16	113	0
390	389	144	0	11	0
391	990	320	185	820	0
392	389	127	3	83	508
393	389	149	4	4	0
394	216	75	4	30	0
395	241	91	0	0	0
396	413	139	144	316	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	**POPULATION**	**OCCUPIED DWELLING UNITS**	**RETAIL EMPLOYMENT**	**TOTAL EMPLOYMENT**	**SCHOOL ATTENDENCE**
397	48	19	0	0	0
398	1296	578	229	357	0
399	856	291	40	51	0
400	283	126	258	461	0
401	728	256	0	254	0
402	479	185	138	268	0
403	270	100	0	50	0
404	711	248	0	0	0
405	378	125	0	0	0
406	315	107	0	0	0
407	322	95	0	0	0
408	474	164	0	1	0
409	303	106	0	0	0
410	88	30	0	0	0
411	110	36	0	0	0
412	601	208	0	1	0
413	89	35	0	0	0
414	465	161	0	7	0
415	353	119	0	1	0
416	217	77	0	3	0
417	5	1	0	0	0
418	140	51	0	29	0
419	53	24	0	0	0
420	221	73	0	0	0
421	83	28	0	0	0
422	120	47	0	0	0
423	572	199	0	0	0
424	426	150	0	0	0
425	0	0	0	0	0
426	799	274	0	0	0
427	225	78	0	0	0
428	152	46	0	91	630
429	382	132	0	0	0
430	211	66	0	0	0
431	108	42	0	0	0
432	126	39	0	0	0
433	104	39	0	0	0
434	144	45	0	0	0
435	173	56	0	0	0
436	65	26	0	0	0
437	280	107	0	3	0
438	902	357	13	58	280
439	103	44	61	61	0
440	60	22	0	0	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
441	51	15	0	0	0
442	120	44	0	0	0
443	54	19	0	0	0
444	124	43	0	20	0
445	90	30	0	0	0
446	93	37	0	0	0
600	835	307	0	137	0
601	412	143	0	3	0
602	51	18	0	1	0
603	91	43	0	11	0
604	153	55	17	36	0
605	278	89	0	17	0
606	406	148	0	42	0
607	213	82	14	14	0
608	136	42	5	7	0
609	200	78	0	0	0
610	97	38	125	385	0
611	342	123	137	137	0
612	234	95	95	148	0
613	148	51	41	47	0
614	4	2	34	49	0
615	977	284	169	863	0
616	202	85	525	568	0
617	101	37	17	117	0
618	80	27	0	7	0
619	56	20	0	8	0
620	262	85	9	12	0
621	120	42	3	51	0
622	672	237	0	65	0
623	24	7	0	0	0
624	13	4	0	115	0
625	170	65	0	99	0
626	717	250	7	75	0
627	1809	549	99	378	470
628	10	5	0	9	0
629	435	78	78	105	0
630	42	19	11	11	0
631	244	97	80	104	0
632	87	41	33	69	0
633	40	12	0	29	0
634	38	16	0	4	0
635	1	1	24	82	312
636	200	79	0	0	0
637	61	22	0	0	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
638	108	57	0	119	0
639	147	59	0	26	0
640	67	29	103	166	0
641	42	16	50	61	0
642	146	51	0	7	0
643	39	16	0	0	0
644	87	37	3	3	0
645	58	29	3	3	0
646	175	61	55	210	790
647	182	84	0	7	0
648	294	108	0	25	0
649	64	23	0	0	0
650	363	146	22	41	0
651	358	127	0	14	0
652	183	68	0	1	0
653	159	59	8	40	0
654	45	20	0	3	0
655	87	24	0	0	0
656	249	81	0	170	880
657	162	58	0	1	0
658	37	16	0	1	0
659	151	58	0	0	0
660	73	26	0	0	0
661	52	22	0	0	0
662	384	138	0	17	0
663	128	41	0	0	0
664	671	232	3	7	0
665	189	70	16	16	0
666	404	153	0	43	0
667	194	68	0	0	0
668	223	67	3	5	0
669	544	202	5	12	0
670	112	41	0	61	0
671	253	84	28	82	0
672	310	108	0	63	0
673	2	1	0	0	0
674	393	151	8	16	0
675	79	27	0	0	0
676	90	34	0	1	0
677	35	11	0	0	0
678	4	2	0	0	0
679	33	15	0	0	0
680	2	1	0	0	0
681	25	10	0	0	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	POPULATION	OCCUPIED DWELLING UNITS	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT	SCHOOL ATTENDENCE
682	65	27	0	1	0
683	4	1	0	0	0
684	78	21	0	0	0
685	149	42	0	0	0
686	126	44	0	0	0
687	346	118	0	0	0
688	495	175	0	3	0
689	319	118	0	17	0
690	43	15	0	0	0
691	155	64	0	0	0
692	0	0	0	0	0
693	17	8	7	7	0
694	218	66	0	0	0
695	232	86	54	505	0
696	101	38	0	58	0
697	1	1	0	86	0
698	23	9	0	84	0
699	19	8	0	297	0
700	68	25	0	33	0
701	337	141	55	72	0
702	117	48	0	9	0
800	143	60	4	7	0
801	211	67	0	3	0
802	114	40	0	0	0
803	283	96	0	4	0
804	522	182	0	140	485
805	85	26	0	0	0
806	121	39	0	0	0
807	130	44	0	65	0
808	59	25	0	0	0
809	49	18	0	161	0
810	80	23	0	0	0
811	97	35	0	0	0
812	222	80	0	0	0
813	11	5	0	0	0
850	265	86	0	0	0
851	52	17	0	0	0
852	98	35	0	0	0
853	209	75	0	78	0
854	147	55	0	0	0
855	75	26	1	269	0
856	546	157	0	32	0
857	391	121	0	0	0
858	186	65	11	11	0

2000 DEMOGRAPHIC PLANNING VARIABLES					
TAZ	**POPULATION**	**OCCUPIED DWELLING UNITS**	**RETAIL EMPLOYMENT**	**TOTAL EMPLOYMENT**	**SCHOOL ATTENDENCE**
859	103	36	0	0	0
860	241	80	0	4	0
861	134	55	0	8	0
862	238	91	9	30	0
863	347	112	0	40	0
864	378	120	1	5	0
900	29	13	0	0	0
901	100	34	0	12	0
902	80	21	0	8	0
903	47	16	0	0	0
904	163	58	41	65	0
905	95	40	8	11	0
906	317	114	1	17	0
907	186	70	9	22	0
908	75	28	5	5	0
909	174	66	1	75	450
910	52	21	0	13	0
911	92	46	0	40	0
912	198	68	0	0	0
913	54	19	0	0	0
914	113	37	0	0	0
915	100	38	0	1	0
916	7	1	0	0	770
917	157	56	0	54	0
918	61	23	0	46	0
919	154	40	0	0	0
920	324	137	0	17	0
TOTAL	**218,895**	**82,351**	**28,344**	**114,687**	**55,677**