The first step in developing the Louisiana Statewide Transportation Plan involved identifying current and future needs and opportunities, and then formulating policies, programs, and projects to address them. An analysis of current and future transportation demands, input obtained from stakeholders through the outreach program (principally through the Advisory Councils), consideration of the goals and objectives for the State's transportation system, and review of previous plans and studies served as the basis for accomplishing this task. This chapter is organized by mode beginning with highways.

HIGHWAYS

Pavement Preservation

The DOTD has adopted several strategic goals pertaining to the condition of highway pavements. The goal for Interstate highways is to eliminate pavements classified as "poor" or "very poor." The goal for State roads on the National Highway System (NHS) and those on the Statewide Highway System (SHS) is to hold the proportion classified as "poor" or "very poor" to no more than 5 percent at any given time. There is no strategic goal for the Regional Highway System (RHS), composed mostly of lower order, low volume rural and urban roads; therefore, the focus is on keeping the system from deteriorating.

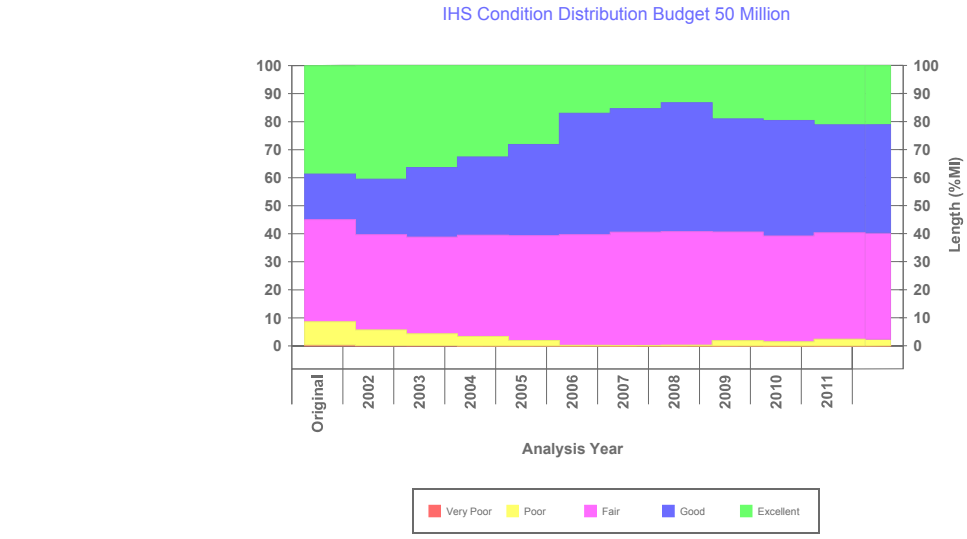
An extensive analysis of pavement preservation needs was conducted using the DOTD Pavement Management System. The results of this analysis are presented on the following pages for each of the four highway categories (i.e., Interstate, NHS, SHS, RHS). The recommended investment level is shown as the middle of three charts on each page. A summary of the recommended pavement preservation investment levels is provided in **Table 7.1**.

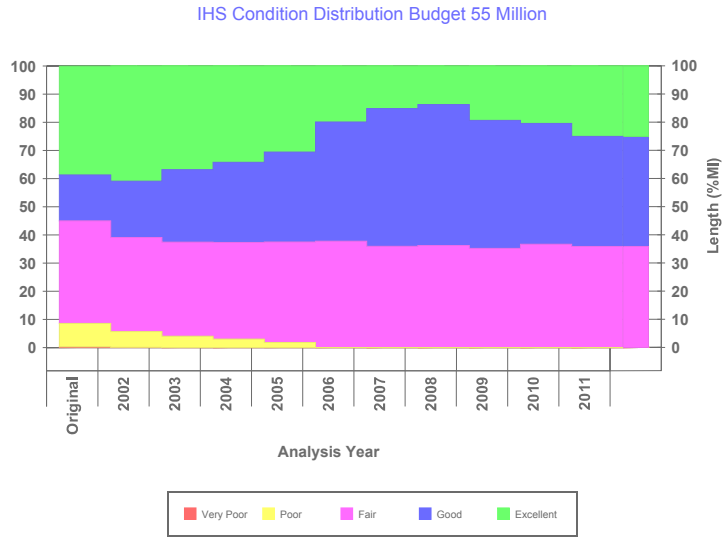
Table 7.1
Pavement Preservation and Rehabilitation Needs Summary

Highway System	Cost ($M/year)
Interstate System	$55
National Highway System	$36
Statewide Highway System	$72
Regional Highway System	$56
Total Pavement Rehabilitation Needs	**$219**

Figures 7.1 – 7.4 display pavement condition information for each highway system at different investment levels.

Figure 7.1
Pavement Preservation and Rehabilitation- Interstate





Recommended

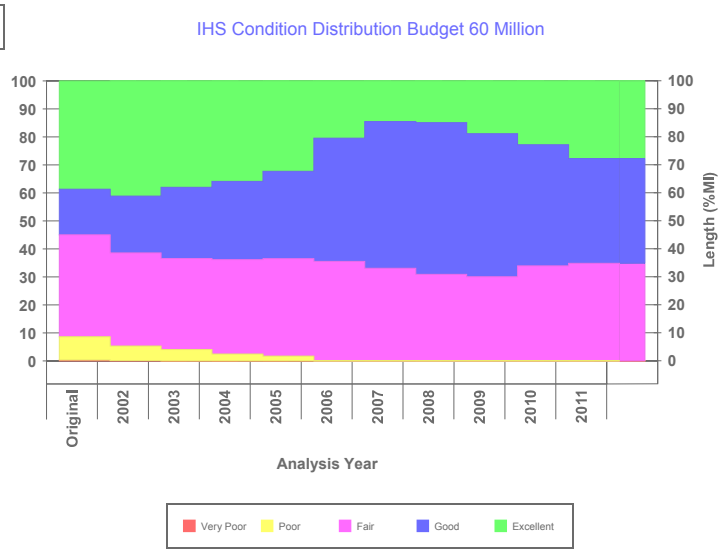
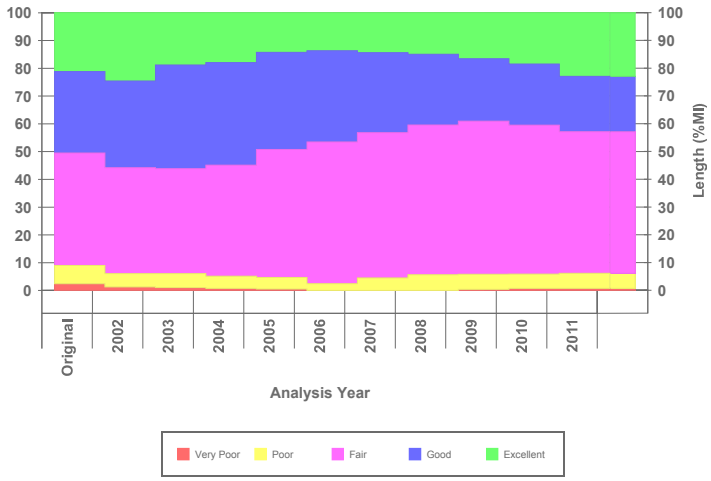


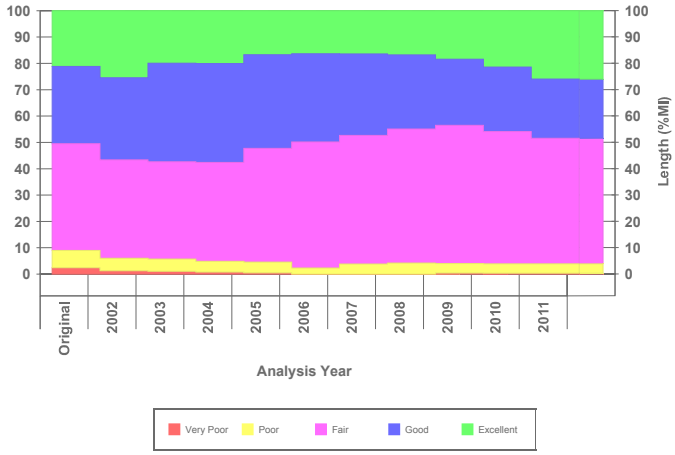
Figure 7.2
Pavement Preservation and Rehabilitation – NHS

NHS Condition Distribution Budget 32 Million



NHS Condition Distribution Budget 36 Million

Recommended



NHS Condition Distribution Budget 40 Million

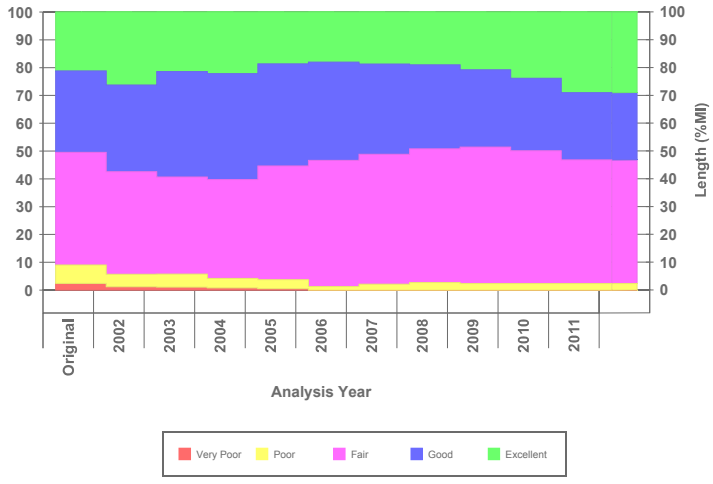
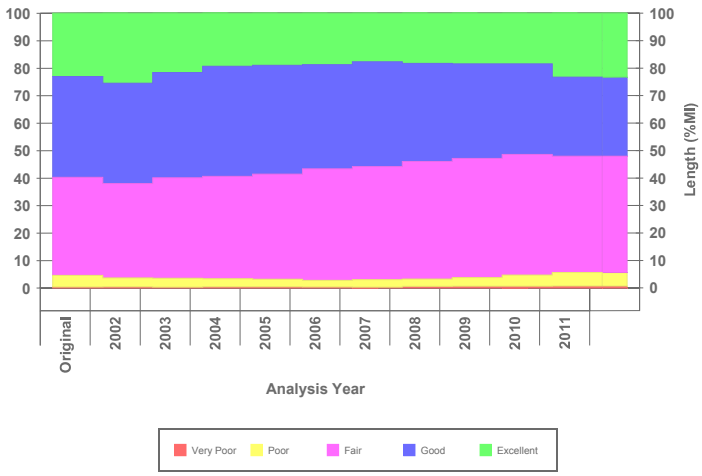


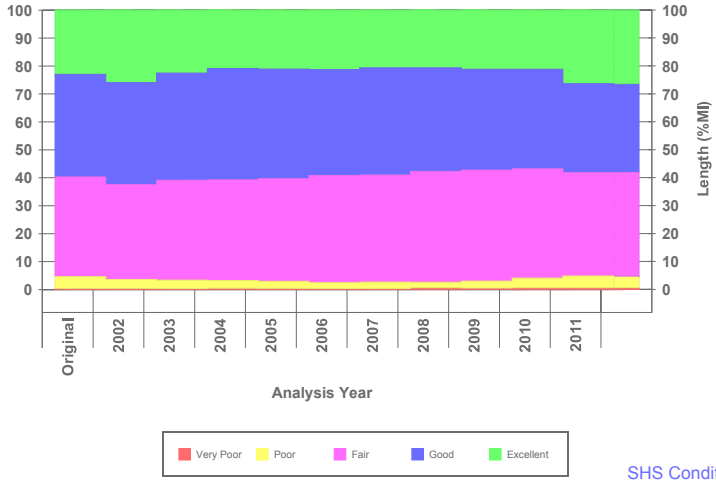
Figure 7.3
Pavement Preservation and Rehabilitation - SHS

SHS Condition Distribution Budget 64 Million



SHS Condition Distribution Budget 72 Million

Recommended



SHS Condition Distribution Budget 80 Million

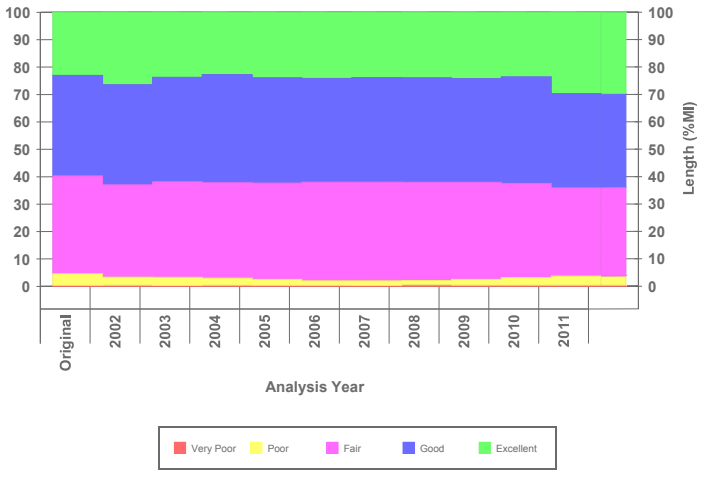
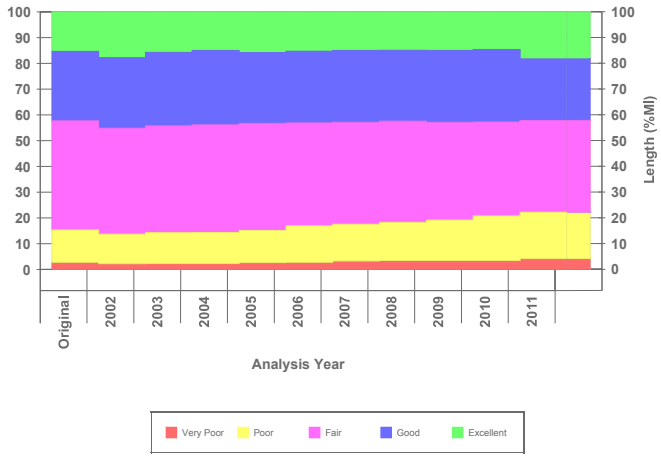


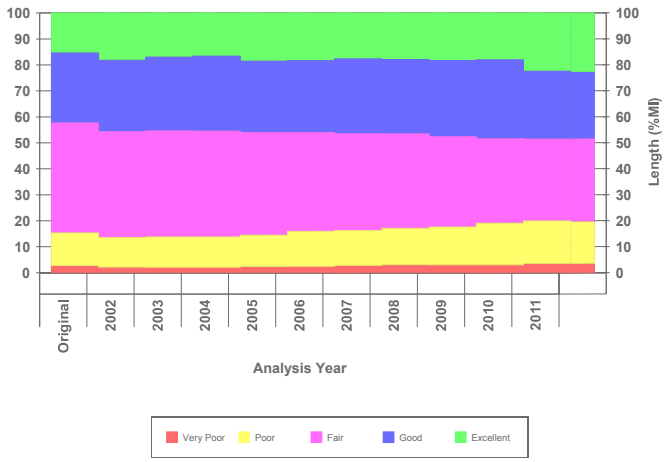
Figure 7.4
Pavement Preservation and Rehabilitation - RHS

RHS Condition Distribution Budget 48 Million

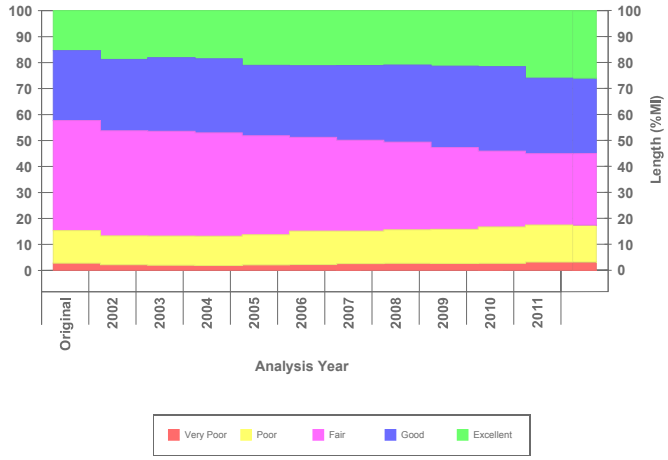


RHS Condition Distribution Budget 56 Million

Recommended



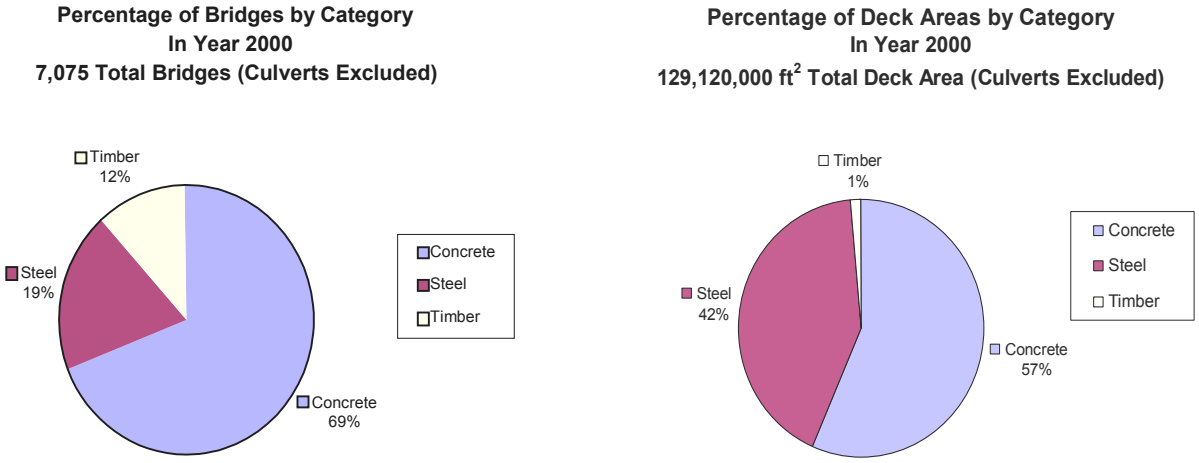
RHS Condition Distribution Budget 64 Million



Bridge Preservation

There are more than 13,000 bridges on public roads in Louisiana. Well over one-half are on State highways. Most of those on parish roads and city streets are relatively small in comparison to those on the State system. The analysis presented herein is limited to the 7,075 State system bridges. **Figure 7.5** displays the percentage of bridges and deck area by bridge type. Concrete bridges represent the largest category of bridges at 69 percent followed by steel at 19 percent and timber at 12 percent. The largest percentage of deck area consists of concrete (57 percent), followed by steel (42 percent), and timber (one percent).

Figure 7.5
Percentage of Bridges and Deck Areas by Category, 2000



Currently 3.4 percent of all deck area on State bridges is in poor condition, while 18.4 percent is projected to be in poor condition by the Year 2030, as shown in **Figure 7.6**. The largest percentage of bridge deck area currently in poor condition consists of timber (25.5 percent). Forty eight percent of bridge deck area composed of timber is projected to be in poor condition by the Year 2030. It should be noted that although current and projected bridge deck area composed of timber consists of the highest percentage in poor condition, timber bridge deck area only represents 1 percent of total deck area.

Figure 7.6
Louisiana Bridges in Poor Condition by Type

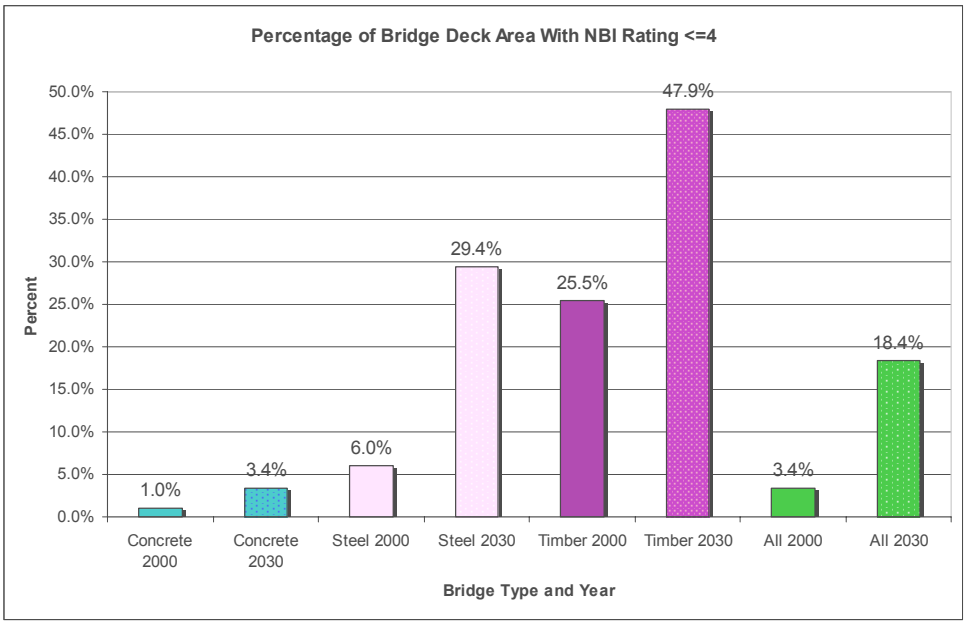


Table 7.2 displays the required budget to maintain current level of service for on-system bridges. Average annual funding from 1991 to 2002 was $48.3 million. Additional funding required to maintain current rating levels, including cost of replacement and cost of rehabilitation, is $32 million; therefore the total required annual budget to maintain current levels of service for on-system bridges is $80 million.

Table 7.2
Required Budget to Maintain Current Level of Service for on-System Bridges

Historical Budget	$48 Million
Additional Required	$32 Million
Average Required	**$80 Million**

Highway Safety

The magnitude of the highway safety problem in Louisiana cannot be overstated. In addition to humanitarian concerns surrounding this issue, traffic crashes are a significant drain to the State's economy. The figures presented earlier in this report are repeated here (**Figures 7.7** and **7.8**). The majority of traffic crashes, and particularly fatal crashes, occur on State highways since this is where the majority of travel occurs and where vehicle speeds tend to be higher.

The State's highway safety needs are so great, this one program could easily consume the entire budget each year. Therefore, after considerable discussion, a consensus was reached in the Regional Planning Officials Advisory Council that a $50 million annual construction program for highway safety should be implemented. This is approximately double the Fiscal Year 2003 construction program. Further, it was agreed that the budget for safety improvements to highway/railroad at-grade crossings should be maintained at its Fiscal Year 2003 level of $9 million (this is approximately triple the historic level).

Figure 7.7
2001 Crashes: Total vs. State System

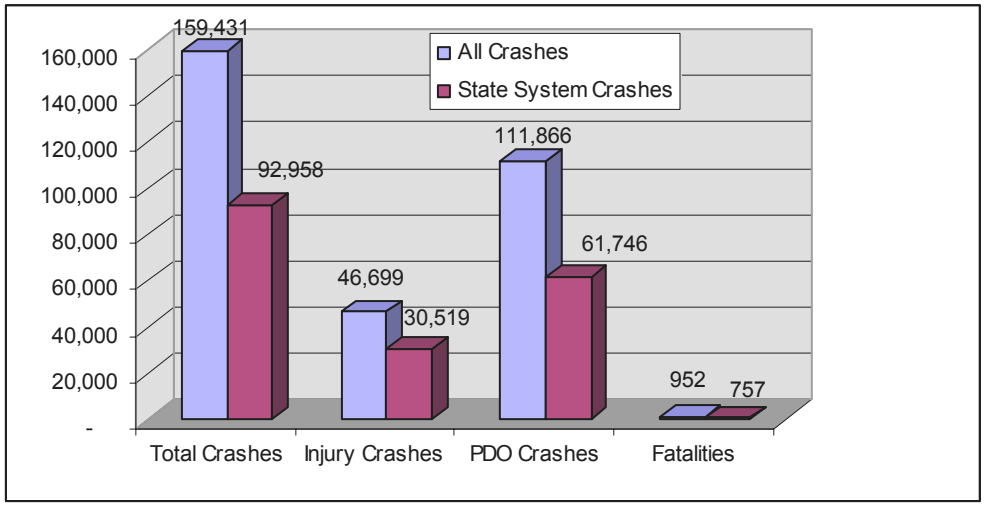
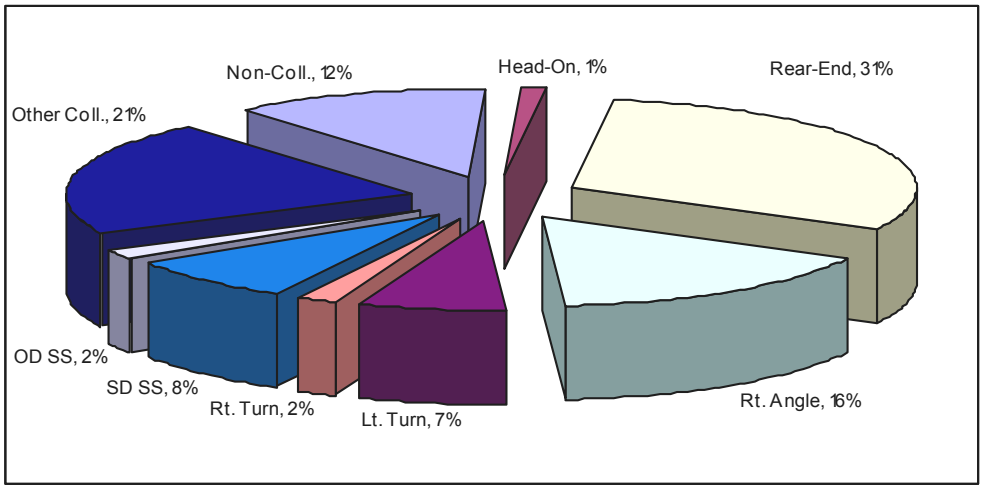


Figure 7.8
2001 Crashes by Type



Mobility

Statewide Travel Demand Model

To help identify future deficiencies on the highway network and test alternative improvement strategies, a statewide travel demand forecasting model was developed. This model is used to forecast auto and truck traffic on those portions of the State highway system that fall outside the nine major urbanized areas. These traffic forecasts are based on expected changes in both demographic and economic conditions within and outside Louisiana. Like traditional urban travel models, this statewide model is used to evaluate statewide transportation projects and issues, and to assist in developing and maintaining the Statewide Transportation Plan.

State of the art modeling approaches and techniques were used to develop the statewide travel demand model, including:

- A macro-micro modeling framework that allows DOTD to evaluate impacts of transportation projects that lie within or outside Louisiana. The nationwide macro model and the Louisiana-only micro model use different network coverages, zone structures and modeling procedures.
- An activity based zone structure allows accurate prediction of intercity auto and truck movements. The two-tiered macro model zone structure was designed to take advantage of American Travel Survey information and commercial commodity flow data. For the micro model, a Census Place and Block Group-based zone structure was designed to reflect population concentrations where the activities occur.
- Travel market segmentation techniques allow better understanding and prediction of each travel component. Trips are distinguished by purpose, length and other characteristics such as interstate vs. intrastate trips.
- Preservation of Linear Reference System linkages to DOTD legacy databases in network design allows for simplified updating of network attributes.

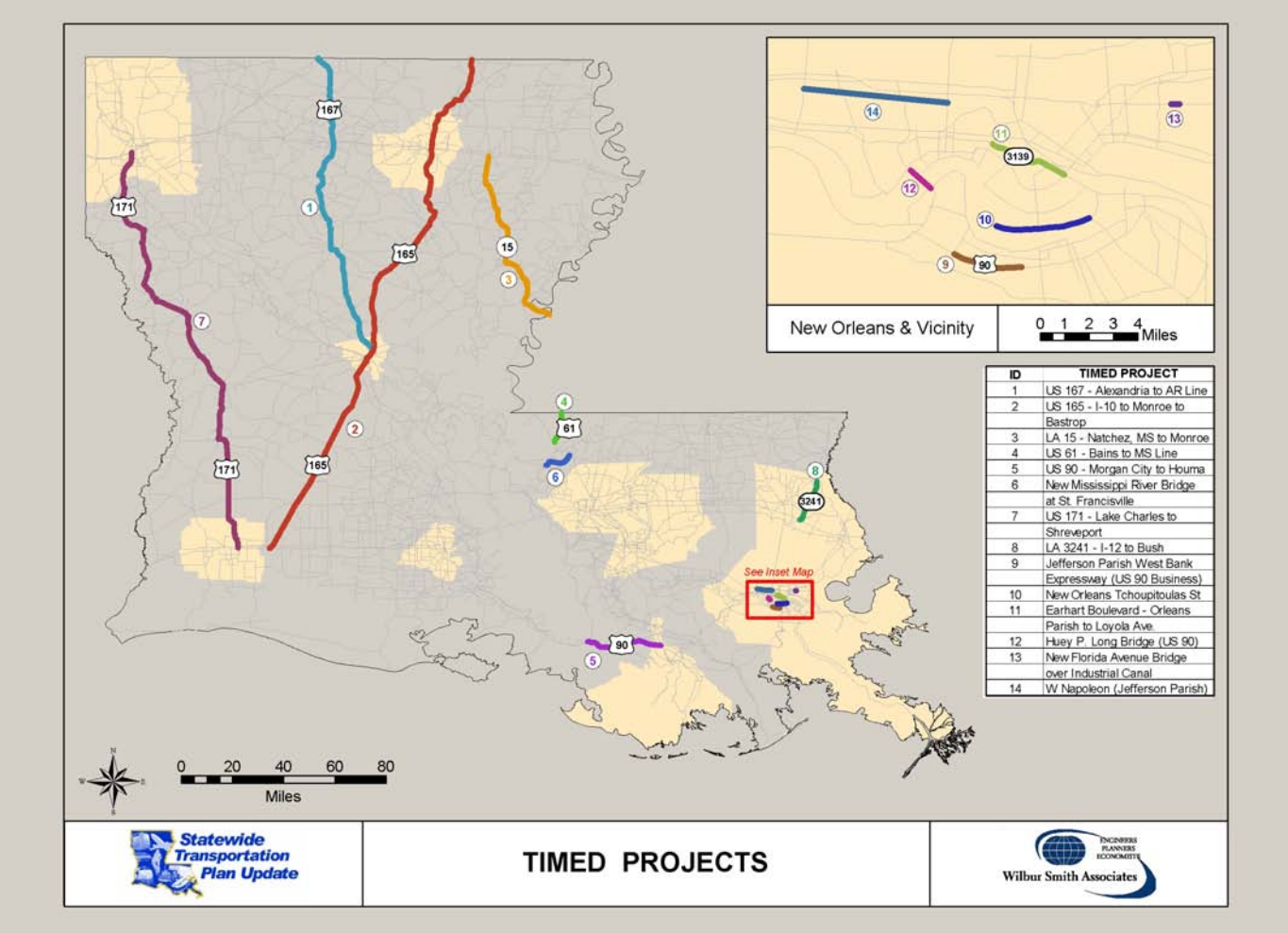
This new planning tool has been used to:

- Identify existing roadway deficiencies.
- Forecast future (Year 2030) roadway deficiencies with and without the planned TIMED projects.
- Analyze the need for and benefits of additional roadway improvements above and beyond the TIMED Program.

TIMED Program

The Transportation Infrastructure Model for Economic Development (TIMED) is a long-range transportation plan that includes extensive improvements to the highway system. TIMED projects in Louisiana are displayed in **Figure 7.9** and include improvements to US 61, US 90, US 165, US 167, US 171, LA 15, LA 3241 and other highways and bridges in the State. TIMED projects are funded by a dedicated four-cent per gallon fuel tax.

Figure 7.9: TIMED Projects



Traffic Forecasts

The Louisiana Statewide Travel Demand Model was used to forecast 2030 average daily traffic (both auto and truck) on the rural state highway system. This model complements and supports the nine urban travel demand models. The statewide travel demand model was used to forecast traffic to and through the metropolitan areas but did not forecast traffic within the metropolitan areas. **Figure 7.10** displays total daily traffic volumes along the rural state highway system in Louisiana. The greatest daily traffic volumes are along I-10 followed by I-20, I-12, I-55, I-59 and US 171 between LA 8 and US 190. The highest rural traffic volume is 59,000 vpd along I-10 between Lafayette and Baton Rouge.

Year 2030 trips are projected to total 16.11 million, which represents an increase of 26 percent from Year 2000. Auto and truck trips are projected to increase 26 percent and 36 percent respectively. Rural vehicle-miles of travel (VMT) are projected to increase 41 percent from 37.05 million in the Year 2000 to 52.38 million in the Year 2030. Rural vehicle hours of travel (VHT) are projected to increase by 40 percent from 709,000 in the Year 2000 to 989,000 in the Year 2030.

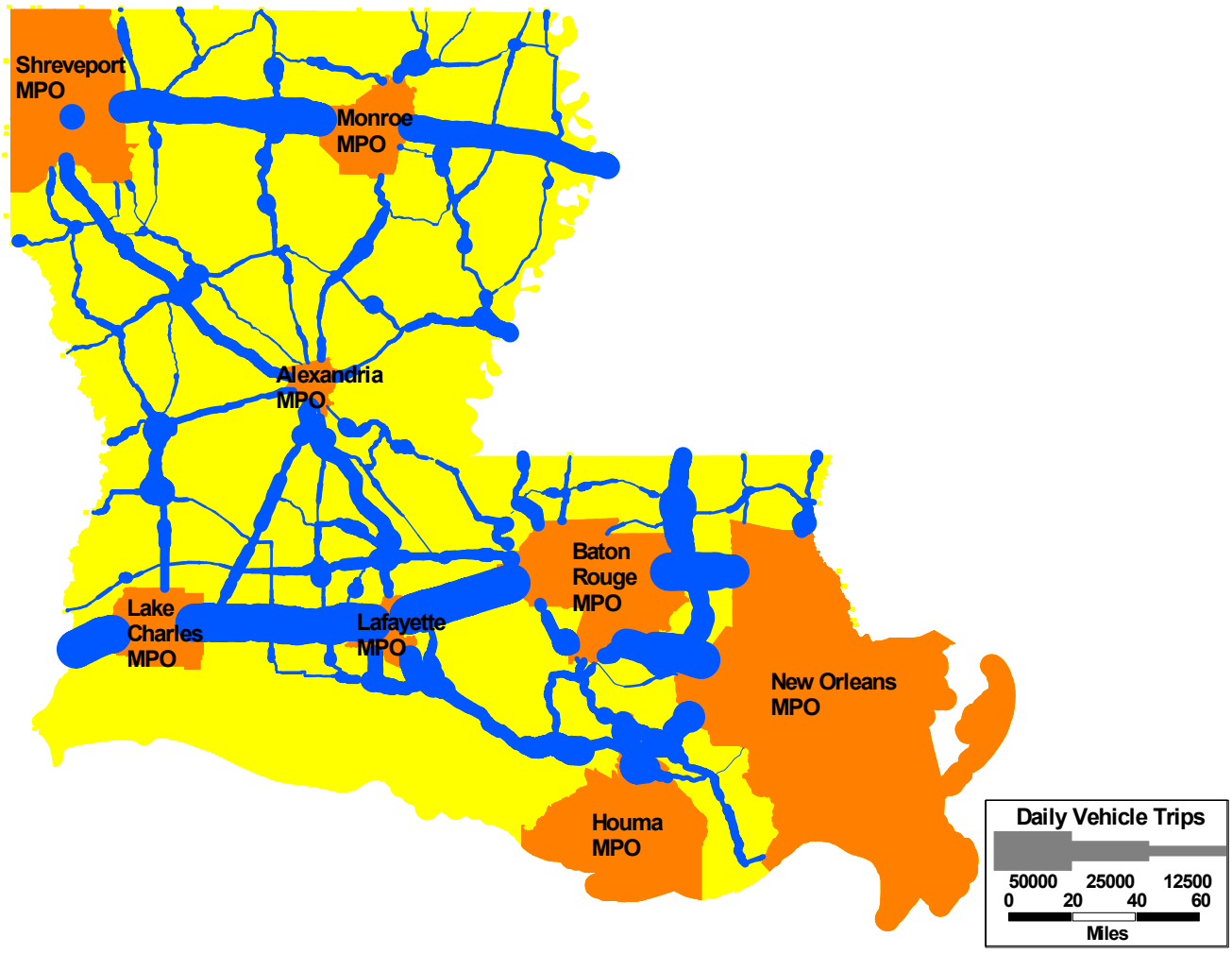


Figure 7.10: 2030 Daily Rural Vehicle Volume

Current and Future Highway Congestion

Figure 7.11 displays current (2000) Level of Service, and **Figure 7.12** displays LOS in Louisiana in the Year 2030 without implementing the TIMED projects. The majority of the highways in the State have a LOS of A-C, meaning they are operating below capacity, resulting in acceptable traffic operation. However, segments of several highways have a LOS of D-F, which is considered unacceptable on the rural highway system. The majority of capacity problems are occurring in urban areas where v/c ratios are equal to or greater than 1.0 (traffic volumes exceeding highway capacity).

On the rural highway system, the majority of capacity problems are occurring along I-10 and I-12 where the majority of segments along these highways have a LOS of E or F. I-20 also has congestion problems as the majority of segments along this highway have a LOS between D and F. Sections of other roadways experiencing some capacity problems, with a LOS D or E include: I-49 (north of Lafayette), I-55, US 84, US 165, US 171 (south of LA 28), LA 3 (north of Bossier City), LA 1 (North and South), LA 2, LA 28 (west of Alexandria) and LA 70.

Figure 7.13 displays LOS in the Year 2030 with the implementation of the TIMED projects. Improvements in LOS occur along those segments of highways where TIMED projects are implemented. For example segments of US 171 improve from a LOS D to a LOS A-C and segments of US 165 improve from a LOS D and E to a LOS A-C.

In addition to conventional, commuter- and shopping-based automobile traffic, two classes of auto trip warrant special attention: *Business Trips* and *Tourist Trips*. These trips comprise a significant portion of long-distance travel in Louisiana. The Louisiana Statewide Travel Demand Model forecasts these trips as part of its overall function. **Figures 7.14 and 7.15** depict daily business and tourist traffic forecasts, respectively, on Louisiana highways.

Further, the Statewide Travel Demand Model forecasts truck trips. **Figure 7.16** shows forecast 2030 daily truck trips from a national perspective. **Figure 7.17** shows the growth in freight tonnage from 2000 to 2030 by direction.

Overall, truck traffic is projected to grow by 105 percent by the Year 2030. Inbound truck tonnage is projected to grow by 101 percent, outbound by 68 percent, intrastate by 157 percent, and through truck traffic by 67 percent.

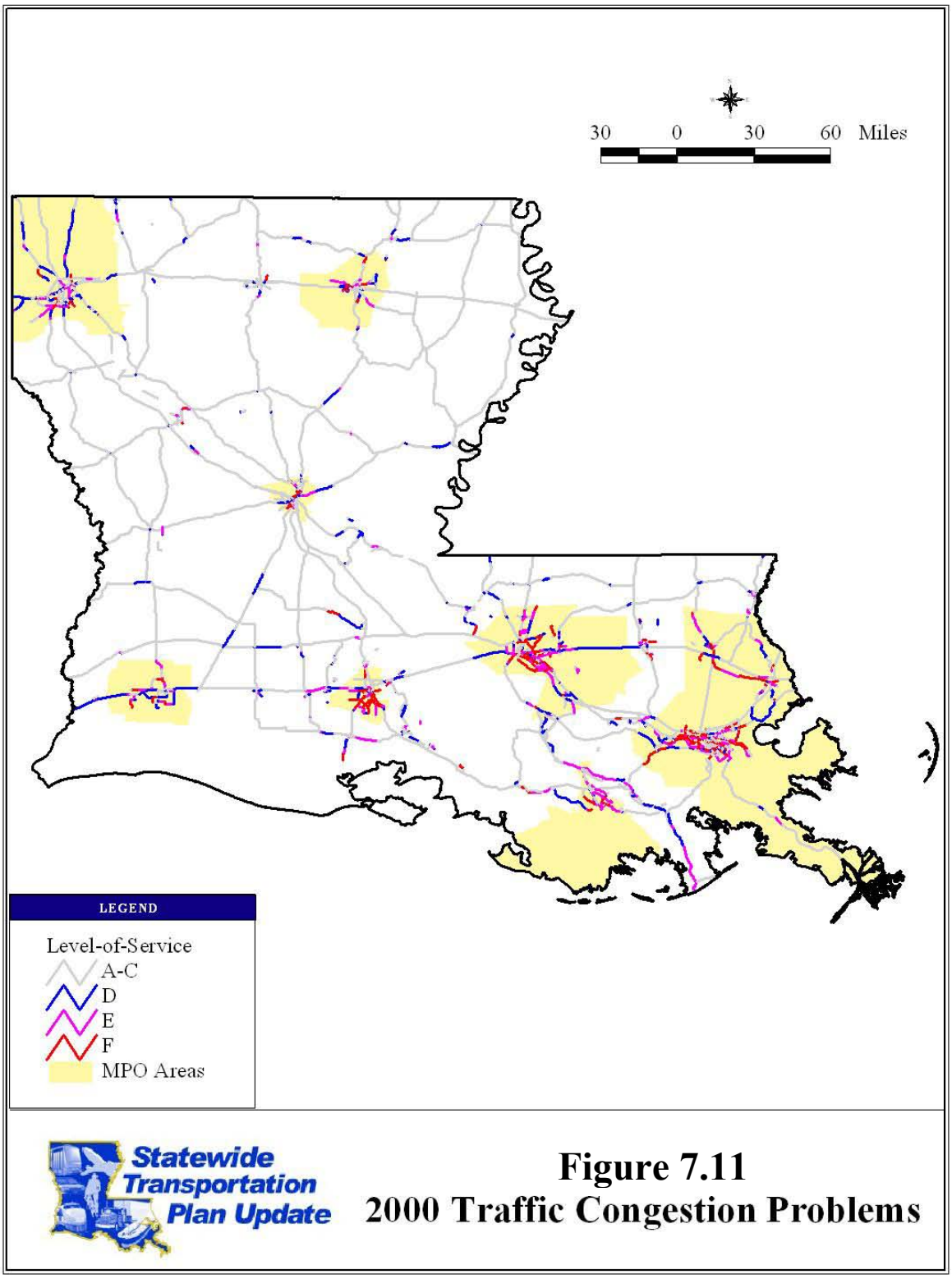


Figure 7.11
2000 Traffic Congestion Problems

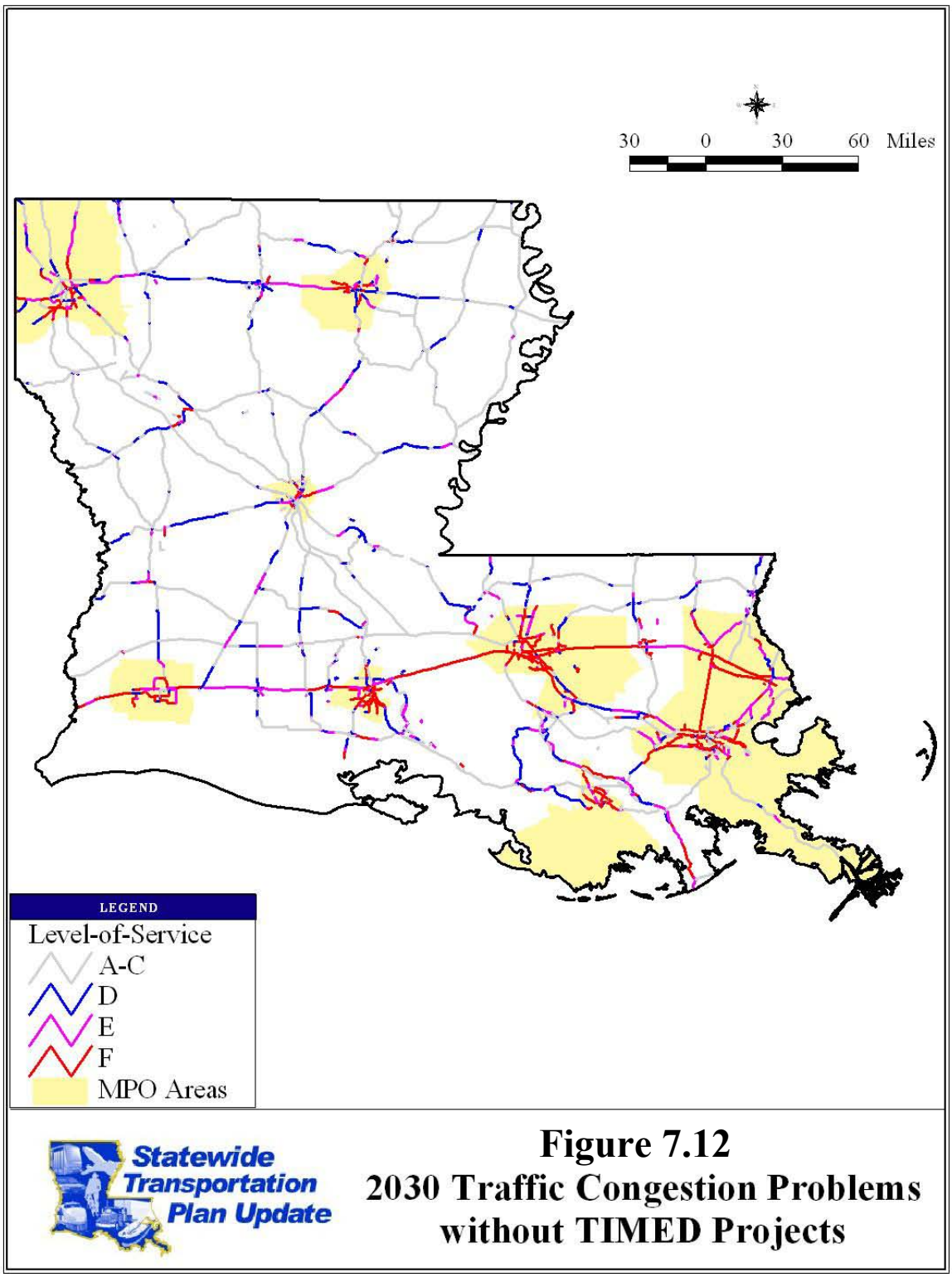


Figure 7.12
2030 Traffic Congestion Problems without TIMED Projects

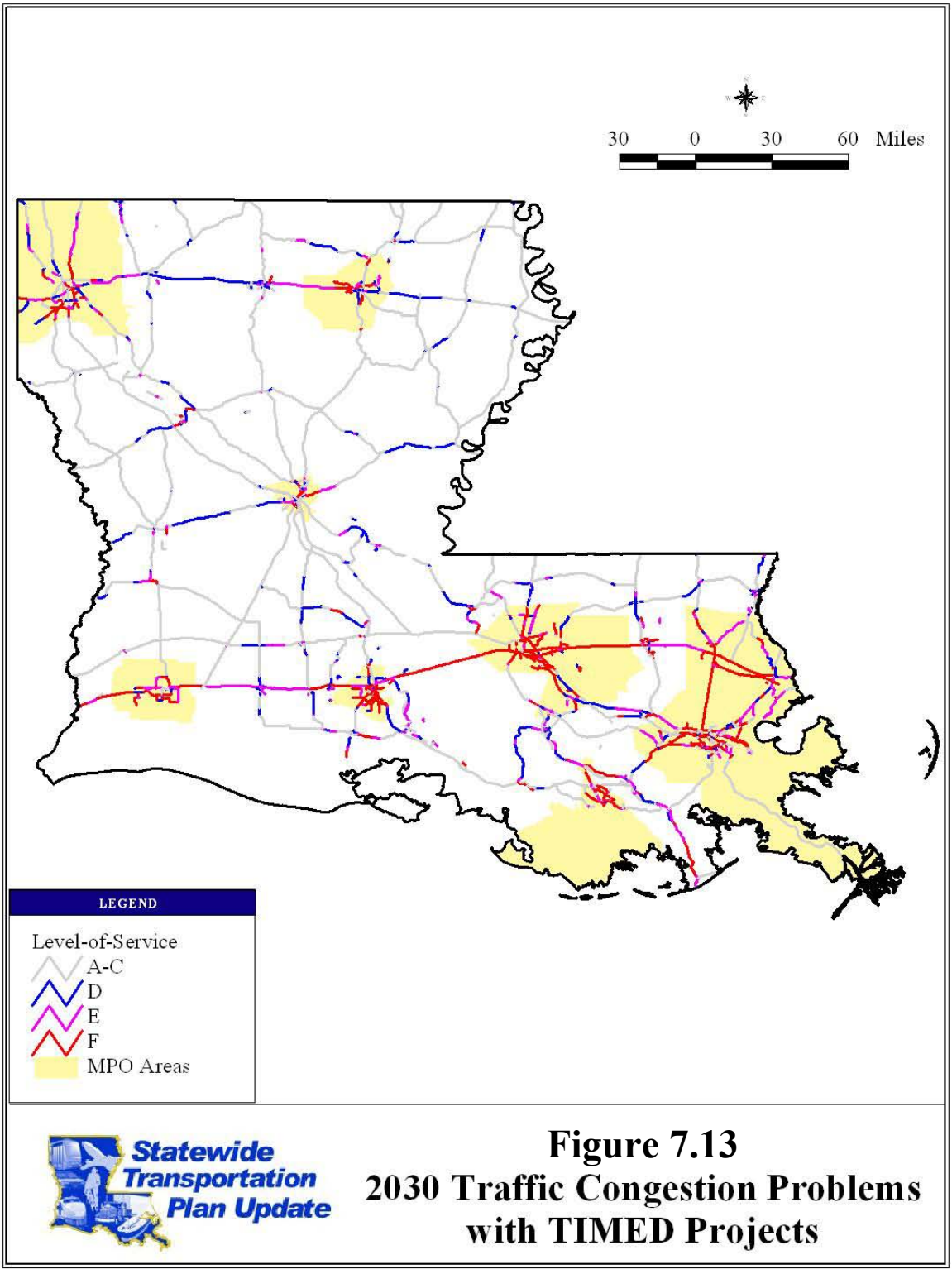


Figure 7.13
2030 Traffic Congestion Problems with TIMED Projects

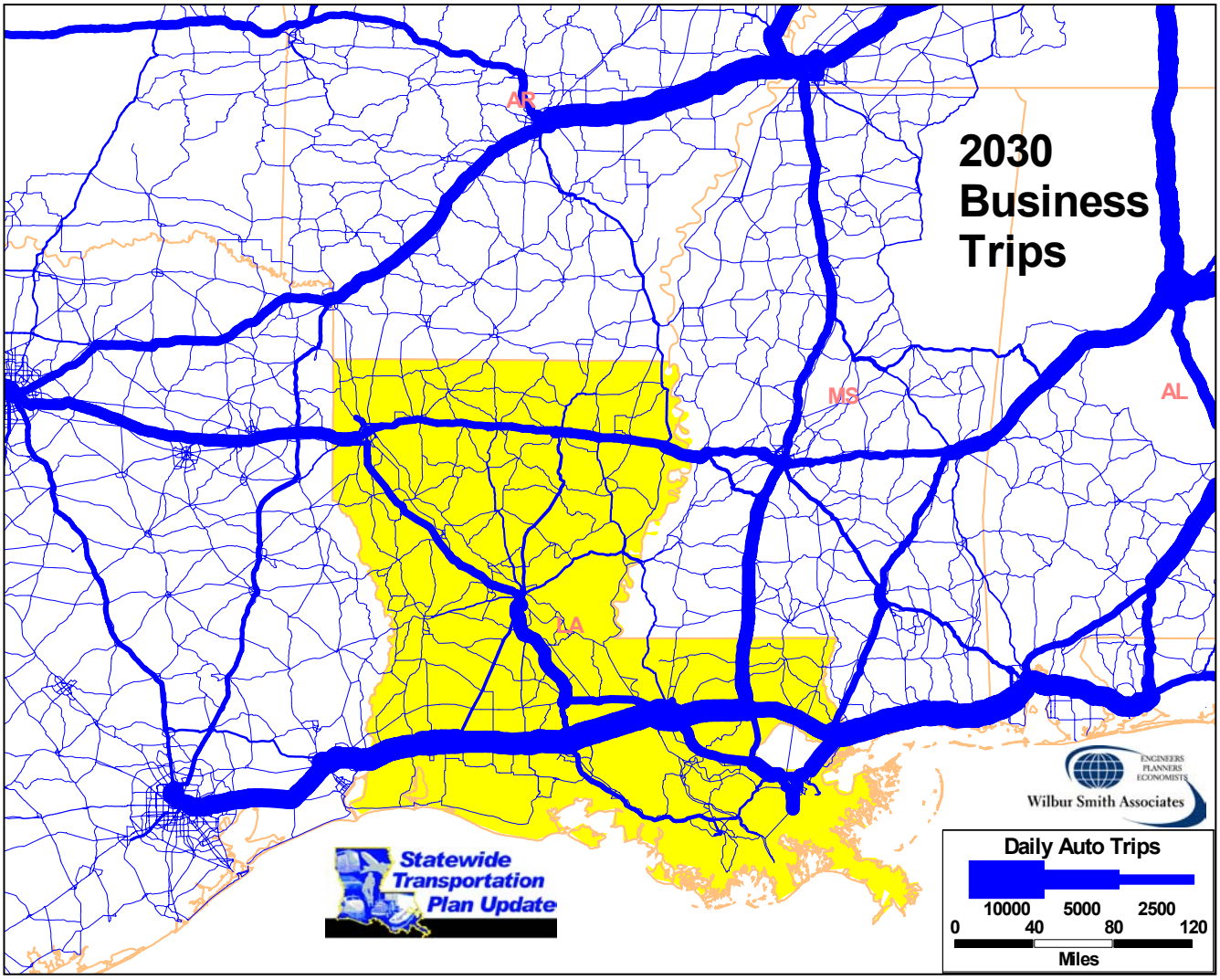


Figure 7.14: Total Daily Auto Business Trips

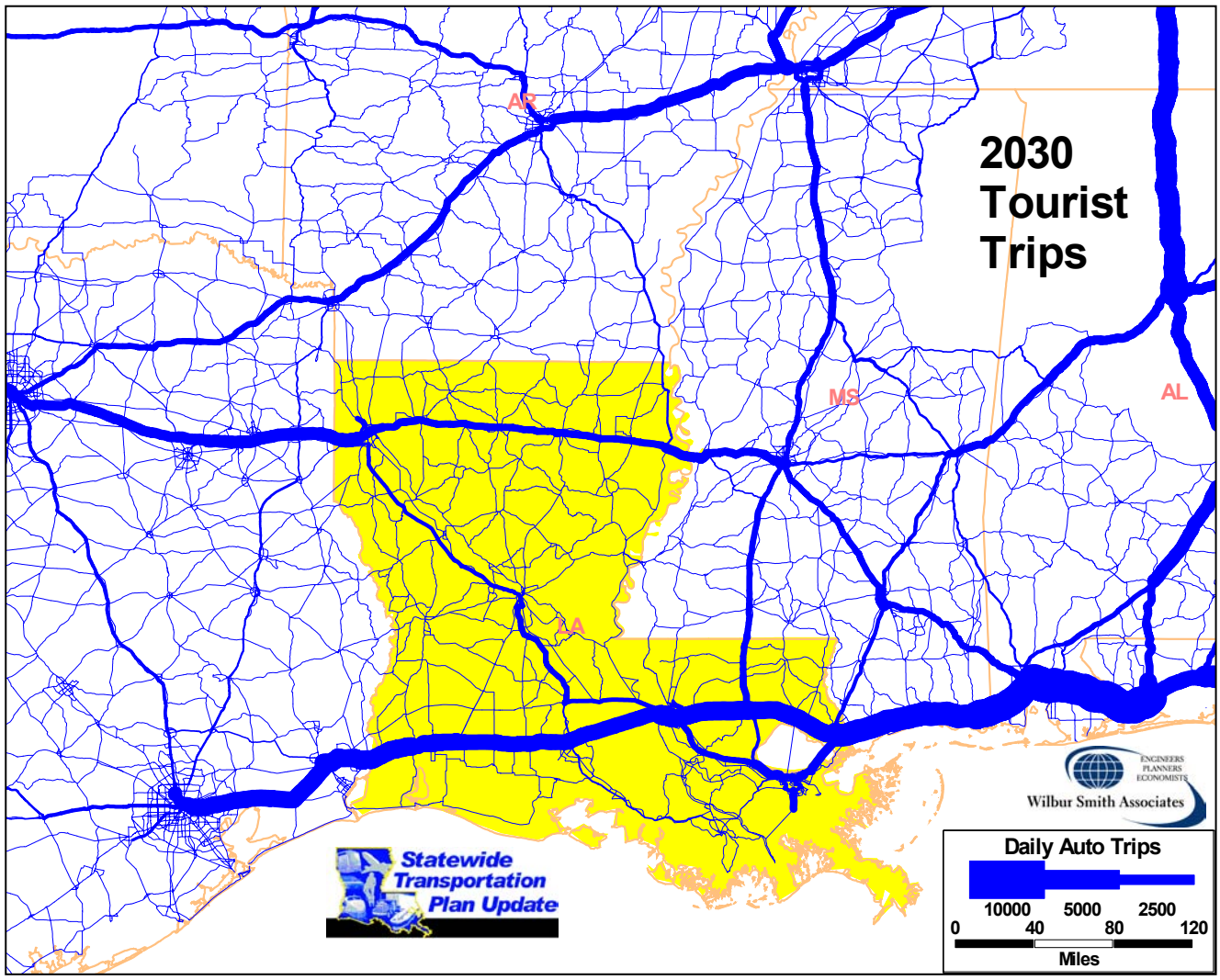


Figure 7.15: Total Daily Tourist Trips

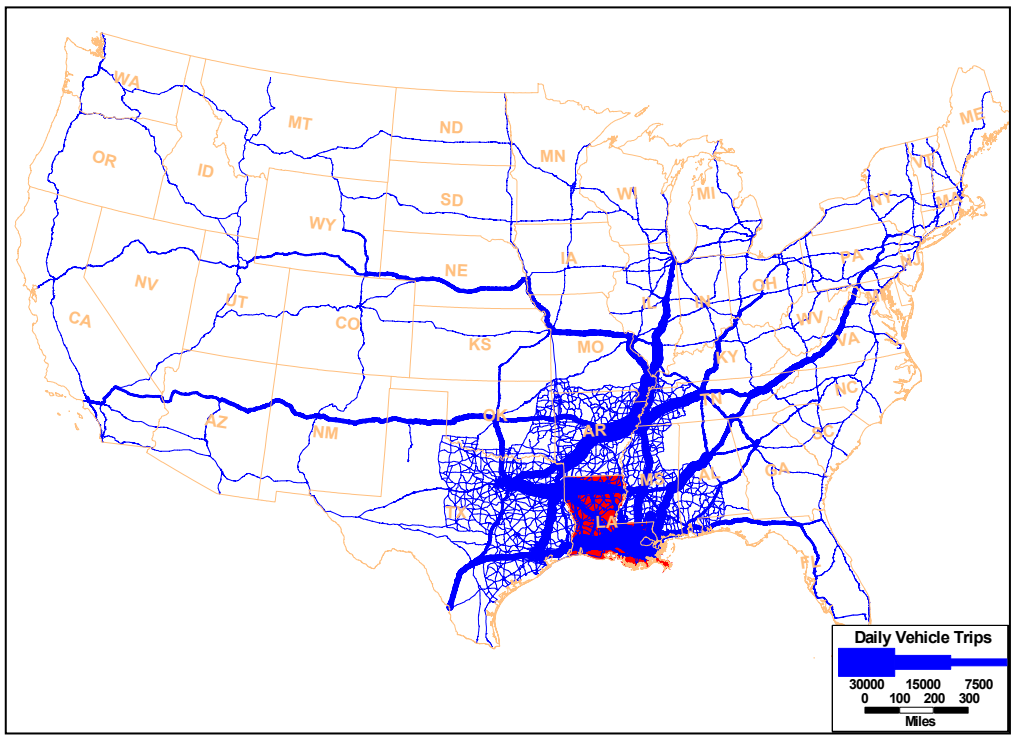


Figure 7.16: 2030 Daily Truck Trips

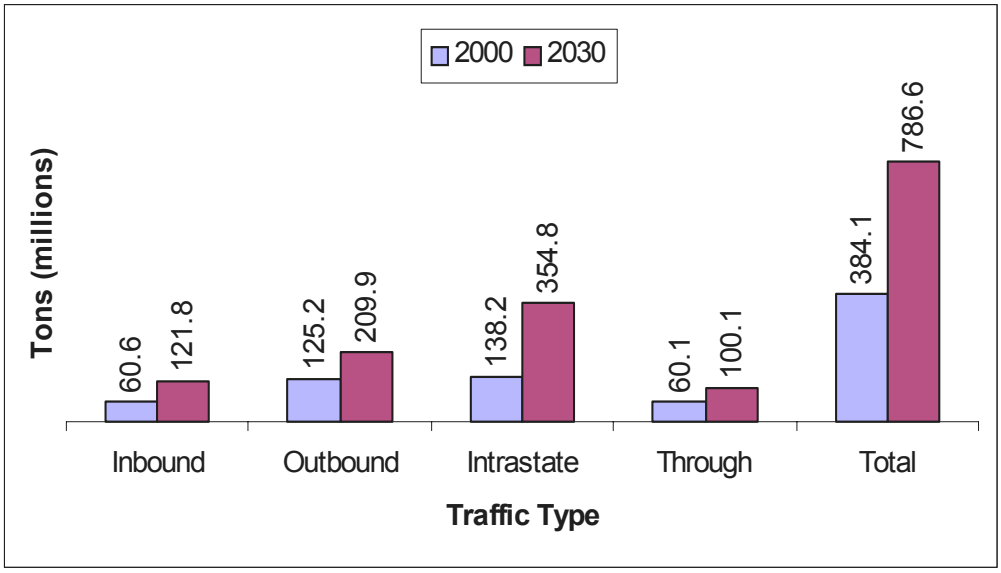


Figure 7.17: 2000 vs. 2030 Louisiana Truck Tonnage by Type of Movement

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) is a broad term that describes a wide variety of technology-driven techniques to improve traffic and transportation operations. Implementation of ITS improvements can improve utilization of existing transportation networks, and enhance their efficiency and safety.

DOTD has developed a statewide ITS plan. Implementation of this plan will cost approximately $17 million annually for 10 years (the Fiscal Year 2003 budget for ITS is $10 million). This cost includes the implementation of a Commercial Vehicle Information Systems Network (CVISIN) in Louisiana. CVISN comprises a subset of ITS technologies that focuses on maximizing the efficiency of commercial vehicle operations.

While highly effective at increasing the operational efficiency of transportation networks, ITS alone cannot overcome the current or projected congestion problems on Louisiana's highway system.

Consideration of "Mega" Highway Improvement Projects

In the spring of 2002, advocates of Louisiana's "megaprojects" were given the opportunity to present to the Regional Planning Officials Advisory Council reasons why their highway improvement project should be included in the updated Plan. **For purposes of this planning effort, "megaproject" is defined as a high-cost project or a project of high significance when viewed from a statewide perspective.** Project sponsors provided and presented specific information regarding their proposed project including its description, purpose, benefits, cost, importance to the State, potential funding sources, and other related information.

As displayed in **Figures 7.18(a) and (b)**, a total of 57 "megaprojects" have been identified and include the widening of portions of Interstates 10, 20 and 12; widening of portions of US Highways 61, 65 and 190; construction of I-49 north and south extension and I-69; and other highway improvements throughout the State. The total cost of the 57 megaprojects is approximately $16.7 billion. Projects were identified as having a statewide, regional, or local impact, with the majority of projects having either a statewide or regional impact. A complete list of the megaprojects and their attributes can be found in the Appendix.

Traffic impacts of these highway improvements were evaluated using the statewide travel demand model. Criteria used in evaluating the projects included change in level of service and traffic utilization. Additionally, a subjective evaluation of the proposed highway improvements was performed by the consultant team and DOTD, which took into consideration the projects based on the goals and objectives of the Plan through the following criteria: Transportation Economics, Economic Development, Environment, and Safety:

Transportation Efficiency

1. Accommodation of present and future freight and passenger transportation demands
2. Efficiency in the movement of freight and passengers
3. Interurban, interstate, and international connectivity
4. Equitable accessibility to all regions of the state
5. Provision of basic passenger transportation services for all regions of the State
6. Transportation partnerships
7. Overhead costs/regulatory burden
8. Operations and maintenance costs
9. Capital costs
10. Financial viability

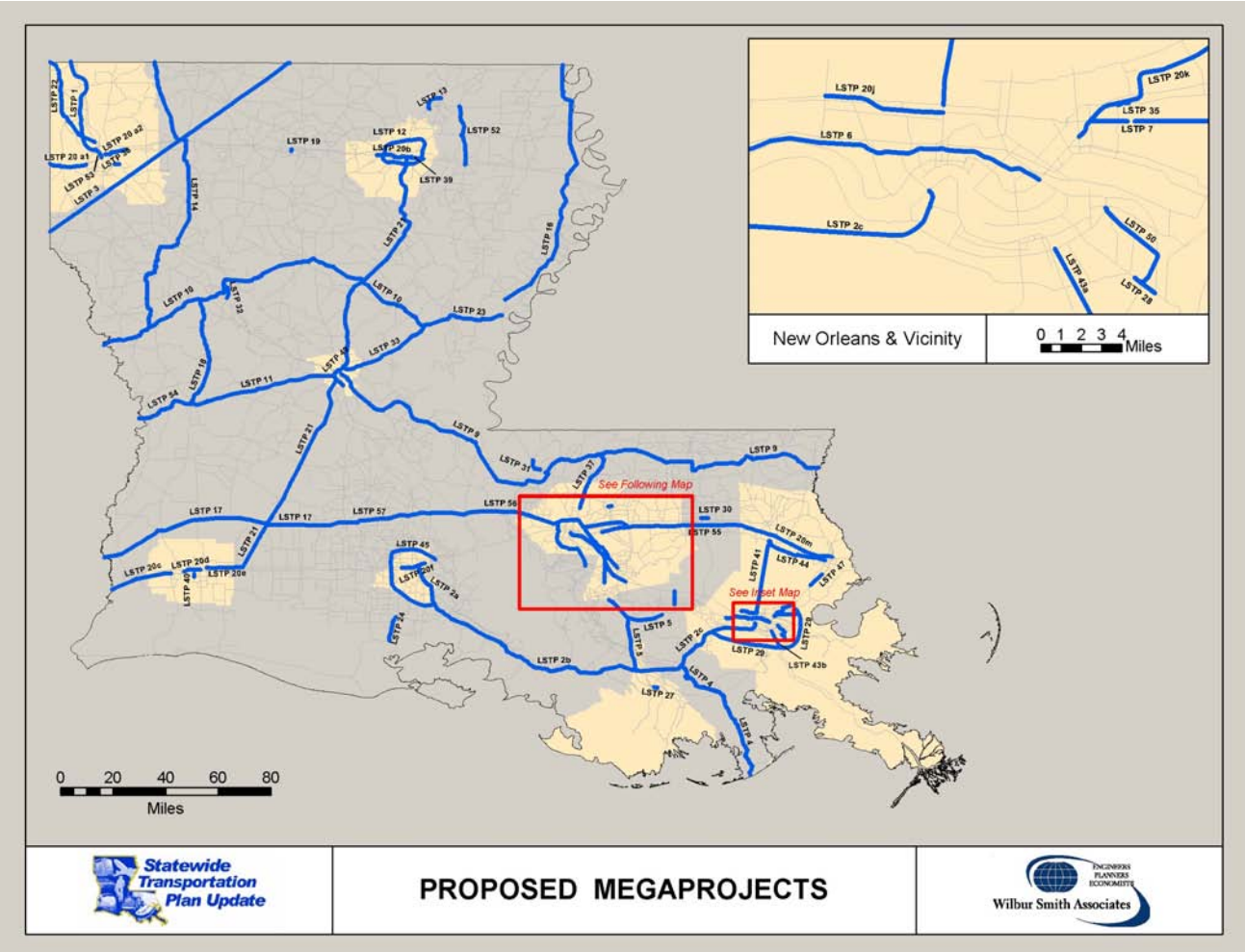


Figure 7.18(a): Megaprojects Proposed in the Statewide Transportation Plan Update* (See Appendix A for Details)

* The alignments shown for LSTP-3 and other "Build" projects are for illustrative purposes only and will likely change as the project(s) proceed through the initial engineering and environmental evaluation processes.

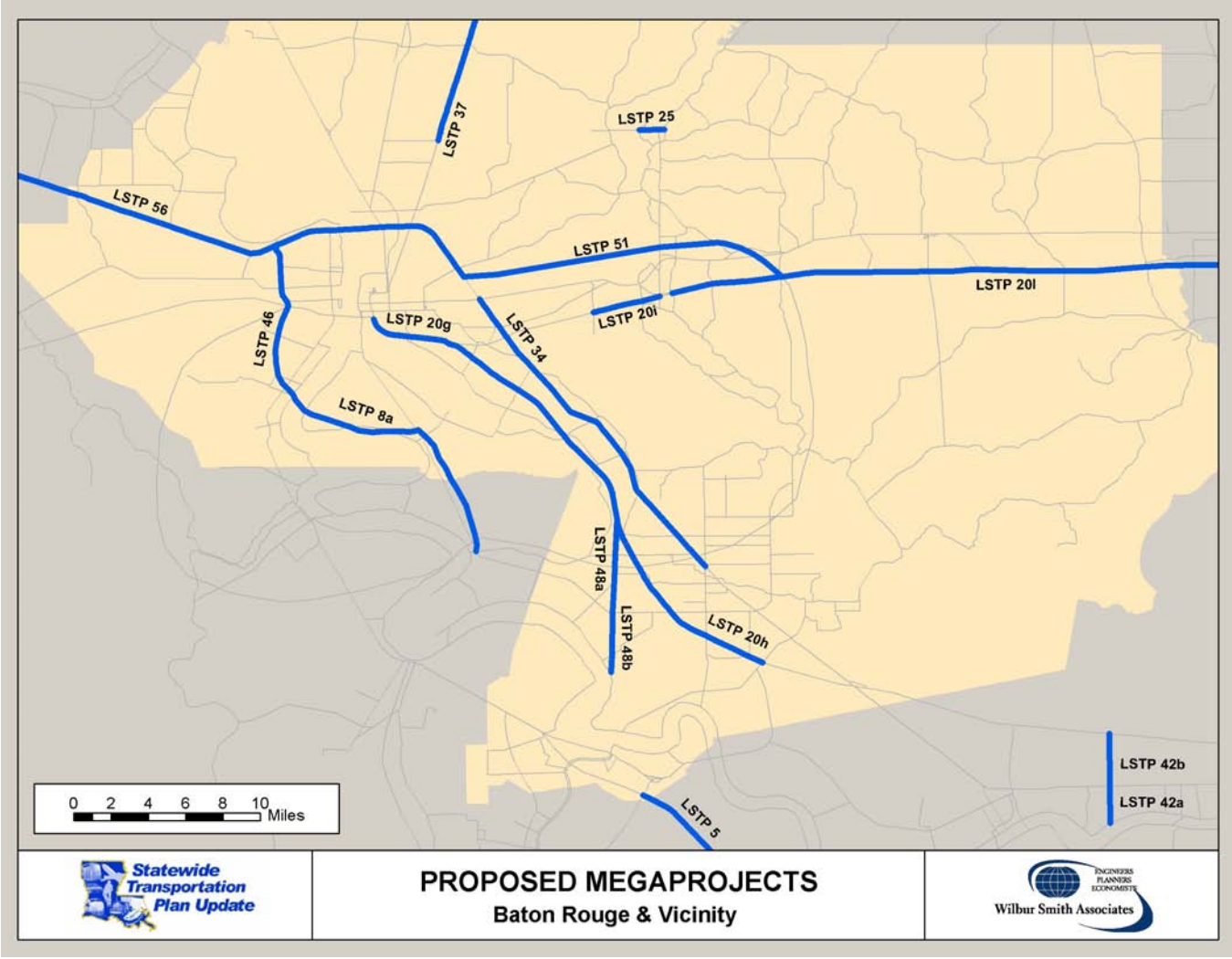


Figure 7.18(b): Megaprojects – Baton Rouge Area[*]
(See Appendix A for Details)

[*] The alignments shown for LSTP-51 and other "Build" projects are for illustrative purposes only and will likely change as the project(s) proceed through the initial engineering and environmental evaluation processes.

Economic Development

1. Attraction of new business and industry
2. Diversification of business and industry
3. Employment/personal income/population
4. Generation vs. relocation of opportunities
5. Tourism
6. Domestic and international trade – accessibility to markets
7. Existing state and local economic development programs
8. Potential to serve and promote Louisiana's transportation system as strategically important to the nation's energy supply
9. Access to educational institutions
10. Access to existing and new industrial and commercial areas

Environment

1. Air quality in nonattainment/maintenance areas
2. Water quality
3. Noise pollution
4. Energy consumption
5. Historic, cultural, and/or environmentally sensitive areas
6. Aesthetics, promotion of natural beauty
7. Demonstrating context-sensitive design and/or sound growth management principles

Safety

1. Reduction of collision potential
2. Potential to reduce collision severity
3. Reduction of hazardous materials spill potential
4. Emergency evacuation capabilities
5. Overall community safety
6. Transportation system security

Initially, megaprojects that scored and ranked high in both the quantitative (travel demand model results) and qualitative (plan goals and objectives) evaluation were considered to be the highest priority (Priority A). Megaprojects that scored and ranked high in either the quantitative or qualitative evaluation were considered to be the second highest priority (Priority B). The remaining megaprojects were included in Priorities C and D. The priorities were further refined by the Regional Planning Officials Advisory Council based on available revenue scenarios as discussed in Chapter 8.

The recommended improvements included in Priority A are summarized in **Table 7.3.** The recommended improvements included in Priority B are summarized in **Table 7.4**. Priority C and D megaprojects are listed in **Tables 7.5 and 7.6** and reflect those projects not included in one of the revenue scenarios discussed in the next chapter. **Table 7.7** displays intermodal projects that could be funded under the proposed Intermodal Access Program.

Note: Project ID Numbers are not assigned or listed in any order of priority.

Table 7.3
Priority "A" Megaprojects

Project ID	Area	Highway	Limits	Improvement Type	Total Project Cost ($m)	Unfunded Project Cost ($m)
LSTP – 001	Shreveport	I-49 North	I-220 to AR Line	New 4-lane Freeway	$363	$363
LSTP – 002a	I-49 Lafayette	I-49 South	Lafayette Urban	Upgrade to Freeway	$350	$350
LSTP – 004*	Lafourche Parish	LA 1 South	US 90 to Port Fourchon	Phase 1 (Leeville Bridge)	$125	$115
LSTP – 005*	Houma	N-S Hurricane Route	US 90 to LA 3127	Build new 2 Lanes	$150	$150
LSTP – 011	Leesville/ Alexandria	LA 28 West	US 171 to Alexandria	Widen 2 to 4 Lanes	$80	$40
LSTP – 020a	Shreveport	I-20	TX Line to I-220W, Red River Bridge, LA 3 to I-220E	Widen 4 to 6 Lanes	$175	$175
LSTP – 020b	Monroe	I-20	LA 546 to LA 594	Widen 4 to 6 Lanes	$150	$150
LSTP – 020c	Sulphur/Lake Charles	I-10	TX Line to Sulphur	Widen 4 to 6 Lanes	$80	$80
LSTP – 020d	Lake Charles	I-10	US 171 to Ryan St.	Widen 4 to 6 Lanes	$200	$200
LSTP – 020e	Lake Charles/Iowa	I-10	I-210E to US 165	Widen 4 to 6 Lanes	$50	$50
LSTP – 020f	Lafayette	I-10	LA 93 to Louisiana Ave.	Widen 4 to 6 Lanes	$60	$60
LSTP – 020g	Baton Rouge	I-10	I-110 to I-12	Widen 6 to 8 Lanes	$250	$250
LSTP – 020h	Baton Rouge	I-10	I-12 to LA 22 (includes new interchange between LA 42 and LA 73)	Widen 4 to 6 Lanes	$185	$145
LSTP – 020i	Baton Rouge	I-12	O'Neal to Denham Springs	Widen 4 to 6 Lanes	$60	$60
LSTP – 020j	New Orleans	I-10	Williams Blvd. to Causeway Blvd.	Widen 6 to 8 Lanes	$85	$0
LSTP – 020k	New Orleans	I-10	Bullard Ave. to Elysian Fields Ave.	Widen; implement ITS	$185	$185
LSTP – 20l	Hammond	I-12	LA 16 to I-55	Widen 4 to 6 Lanes	$150	$150
LSTP – 20m	Slidell	I-12	LA 21 to I-10/I-59	Widen 4 to 6 Lanes	$150	$150
LSTP – 028	New Orleans	LA 23	Belle Chase Tunnel	Build 4-Lane Bridge	$50	$50
LSTP – 031	St. Francisville	US 61	Thompson Creek to Baines	Widen 2 to 4 Lanes	$40	$20
LSTP – 034	Baton Rouge	US 61(Airline)	Gonzales to US 190	Widen 4 to 6 Lanes	$60	$40
LSTP - 047	New Orleans	I-10 Twin Span	US 11 to North Shore – Lake Pontchartrain	Widen 4 to 6 Lanes	$100	$100
TOTAL COST					**$3,098**	**$2,883**

* Magnitude of original proposed Megaproject modified, or separated into two separate funding scenarios.

Table 7.4
Priority "B" Megaprojects

Project ID	Area	Highway	Limits	Improvement Type	Total Project Cost ($m)	Unfunded Project Cost ($m)
LSTP – 002b	Lafayette/New Orleans	I-49 South	Lafayette to I-310	Upgrade to Freeway	$865	$865
LSTP – 003*	Shreveport	I-69	US 171 to 1-20	New 4-Lane Freeway	$380	$380
LSTP – 004*	Lafourche Parish	LA 1 South	Port Fourchon to US 90	Phase 2 (Four-Lane)	$545	$545
LSTP – 006*	New Orleans	LA 3139 (Earhart)	Hickory, Orleans Parish Line	Add Ramps at Each Limit to Airline Hwy. (US 61)	$125	$125
LSTP – 012*	Monroe	New Bridge	Ouachita River in Monroe Metro area	New Bridge	$50	$50
LSTP – 013	Bastrop	US 165/US 425 Bypass	US 425 to US 165	Build 4 Lanes	$20	$20
LSTP – 024	Abbeville/Esther	US 167	Abbeville to Esther	Build/Upgrade 0/2 to 4/2 Lanes	$25	$25
LSTP – 038	Shreveport/Bossier City	LA 511 (Jimmie Davis Bridge)	70th St. to Barksdale Blvd.	Replace 2 lane Bridge with 4 lane Bridge	$50	$50
LSTP – 041**	New Orleans	Pontchartrain Causeway	US 190 to I-10	Widen 4 to 6 Lanes/Transit	$425	$425
LSTP – 044	St. Tammany Parish	US 190	Pontchartrain Causeway to US 11	Widen 2 to 4 Lanes	$100	$75
LSTP – 051	Baton Rouge	North Bypass	I-10 to I-12	Build/Upgrade to 4-Lane Interstate Standards	$800	$800
TOTAL COST					**$2,960**	**$2,935**

* Magnitude of original proposed Megaproject modified, or separated into two separate funding scenarios

** Cost of LSTP 041 not included in total cost. This project is assumed to be totally financed by Toll Authority funds

Table 7.5
Priority "C" Megaprojects

Project ID	Area	Highway	Limits	Improvement Type	Total Project Cost ($m)	Unfunded Project Cost ($m)
LSTP – 002c	New Orleans	I-49 South	New Orleans Urban (I-310 to W. Bank Expwy)	Upgrade to Freeway	$750	$750
LSTP – 003*	Shreveport	I-69	TX to I-49/I-20 to AR	Build 4-Lane Freeway	$600	$600
LSTP – 005*	Houma	N-S Hurricane Route & LA 3127	LA 70 to LA 641 US 90 to LA 3127	Widen 2 to 4 Lanes Widen 2 to 4 Lanes	$250	$250
LSTP – 006*	New Orleans	LA 3139 (Earhart)	Hickory to I-310	Build New 6-Lane Freeway	$300	$300
LSTP – 8a	Baton Rouge	LA 1	LA 30	New Bridge	$500	$500
LSTP-010*	West Central LA	LA6 / US 84	Prioritization Tier I Projects from the El Camino Corridor Masterplan	Widen 2 to 4 Lanes	$100	$100
LSTP – 017	SW Louisiana	US 190/LA 12	TX Line to Basile	Widen 2 to 4 Lanes	$230	$230
LSTP – 018*	W Central Louisiana	LA 117	LA 8 to Military Training Ground	Reconstruct 2 Lanes with Full Shoulders	$20	$20
LSTP – 019	Rustin/Grambling	LA 149 & Tarbutton Rd. Interchange (No Frontage Rds)		Interchange/Widen	$30	$30
LSTP – 022*	NW Louisiana	LA 1 (Tri-State Corridor)	LA 169 to LA 538	Widen 2 to 4/5 Lanes	$40	$40
LSTP – 023	E Central Louisiana	US 84	Archie to Ferriday	Widen 2 to 4 Lanes	$80	$55
LSTP – 027	Houma	LA 30/40	Houma Tunnel	Build 4-Lane Bridge	$50	$50
LSTP – 033	Central Louisiana	LA 28 East	Alexandria to Archie	Widen 2 to 4 Lanes	$85	$79
LSTP – 037	N of Baton Rouge	LA 67 (Plank Rd)	Baker to Clinton	Widen 2 to 4 Lanes	$70	$70
LSTP – 045	Lafayette	Lafayette Beltway	I-10 to US 90	Build 4-Lane	$300	$300
LSTP – 046	W Baton Rouge Parish	I-10 – LA 1 Connector	I-10 to LA 1	Build 4-Lane	$75	$75
LSTP – 048a	Gonzales	Industrial Access Corridor	I-10 to LA 30	Build 4-Lane	$35	$35
LSTP – 049	Alexandria	McArthur Drive	I-49N to I-49S	Upgrade to Freeway	$60	$60
LSTP-053	Shreveport	I-49	I-20 to I-220	New 6-Lane Freeway	$150	$150
LSTP-054	West Central LA	LA 8	TX to US 171	Widen 2 to 4 Lanes	$65	$65
LSTP-055	New Orleans	I-12	I-55 to LA 21	Widen 4 to 6 Lanes	$125	$125
LSTP-056	W. of Baton Rouge	US 190	I-49 to Baton Rouge Bypass	Upgrade to Freeway	$500	$500
LSTP-057	NW of Lafayette	US 165/US 190	I-10 to US 190 US 190 to I-49	Upgrade to Freeway	$650	$650
				TOTAL COST	**$5,065**	**$5,034**

* Magnitude of original proposed Megaproject modified, or separated into two separate funding scenarios

Table 7.6
Priority "D" Megaprojects

Project ID	Area	Highway	Limits	Improvement Type	Total Project Cost ($m)	Unfunded Project Cost ($m)
LSTP – 007	New Orleans	Florida Ave. Expressway	I-10 to LA 47	Build 6-Lane Freeway	$350	$350
LSTP – 009	Alexandria/Bogalusa	Zachary Taylor Pkwy.	I-49 to I-59	Widen 2 to 4 Lanes	$970	$970
LSTP – 010*	West Central LA	LA 6/US 84 El Camino	TX Line to Archie	Widening 2 to 4 Lanes	$384	$384
LSTP – 012	Monroe	Ouachita Loop	I-20 to I-20	Build 2 Lanes	$245	$245
LSTP – 014	NW Louisiana	US 371 (Bi-State Corridor)	LA 6 to AR Line	Widen 2 to 4 Lanes	$295	$295
LSTP – 016	NE Louisiana	US 65	LA 15 to AR Line	Widen 2 to 4 Lanes	$225	$225
LSTP – 018*	W Central Louisiana	LA 117	LA 8 to LA 6	Widen 2 to 4 Lanes	$130	$130
LSTP – 021	Monroe/Lake Charles	US 165	I-20 to I-10	Upgrade to Freeway	$1,000	$1,000
LSTP – 022*	NW Louisiana	LA 1 (Tri-State Corridor)	LA 173 to AR Line	Widen 2 to 4 Lanes	$105	$88
LSTP – 025	Baton Rouge	LA 408 (Hooper Rd.)	LA 37 to LA 16	Build 2-Lane	$35	$35
LSTP – 029	New Orleans	Chalmette Bridge/I-510	MRGO to Westbank Expressway	Extend Fwy; build new Bridge	$1,000	$1,000
LSTP – 032	Natchitoches	East Bypass	LA 1 to LA 6	Build 2-Lane	$20	$20
LSTP – 048b	Gonzales	Industrial Access Corridor	LA 30 to LA 942	Build 4-Lane	$35	$35
LSTP – 050	New Orleans	Donner Rd.	Westbank Expwy. to Peters Rd.	Build 4-Lane	$80	$80
LSTP – 052	Monroe	LA 137/133	I-20 to Bastop	Widen 2 to 4 lanes	$100	$100
TOTAL COST					**$4,934**	**$4,917**

* Magnitude of original proposed Megaproject modified, or separated into two separate funding scenarios

Table 7.7
Preliminary List of High Priority Projects to be Funded Under the Proposed Intermodal Access Program

Project ID	Area	Highway	Limits	Improvement Type	Total Project Cost ($m)	Unfunded Project Cost ($m)
LSTP – 030	Hammond	LA 3234 (University Ave.)	LA 1065 to Hammond Airport	Build 2-Lane	$8	$8
LSTP - 035	New Orleans	Almonaster Br.		New Bridge	$45	$12
LSTP – 039	Monroe	Garrett Rd.	I-20 to Kansas Lane	Widen 2 to 4 Lanes	$25	$25
LSTP – 040	Lake Charles	Port Access Rd.	Prien Lake Rd. to Marine St.	Build 4 Lanes	$25	$25
LSTP – 042a	LaPlace	Port of S. LA Connector	LA 44 to Airline Hwy.	Build 2 Lanes	$10	$10
LSTP – 042b	LaPlace	Port of LA Connector	Airline Hwy. to I-10	Build 4 Lanes	$25	$25
LSTP – 043	New Orleans	LA 3017 (Peters Rd.)	Westbank Expwy. to LA 23	Widen/Build 2/0 to 3/2 Lanes	$80	$80
TOTAL COST					**$218**	**$185**

Impacts of Priority A and B Improvements

Figures 7.19 and **7.20** display Level of Service (LOS) in the Year 2030 with the implementation of the TIMED projects and Priority A and Priority B projects. Improvements in LOS occur along those segments of the highway system where projects were implemented. For example with the implementation of Priority A projects, segments of LA 28 West (Leesville to Alexandria) improve from a LOS D to a LOS A-C, segments of I-12 improve from a LOS F to LOS D-E, and segments of I-10 west of Lake Charles improve from a LOS F to a LOS D. With the implementation of Priority A and B projects, segments of LA 1 south of US 90 improve from a LOS D-F to LOS A-C, and the Lake Pontchartrain Causeway improves from an LOS F to a LOS E. Although improvements do occur with the implementation of the megaprojects, many segments of rural highways still experience congestion problems (LOS D-F), including portions of I-10, 1-12, I-20, US 84, LA 2, LA 70 and LA 1. Additionally, many urban highways and relatively small segments of rural highways also experience congestion problems. **Therefore, an annual program to address congestion is still needed even with the implementation of TIMED, Priority A, and Priority B projects.**

AVIATION

In identifying the needs for the airport system in Louisiana, the existing demand for aviation services was measured. Once this was accomplished, the existing system's performance and ability to meet this demand was evaluated.

Forecasts

The development of aviation activity projections for the airports included in Louisiana's aviation system was an essential step in assessing the need for and phasing of future development requirements. Activity projections were used in determining the role for each airport within the State system, evaluating the ability of the system to accommodate future activity levels, and planning future airside and landside facilities.

Commercial Service Activity Projections

As shown in **Table 7.8**, the State's market share of total U.S. enplanements has decreased over the past nine years from 0.901 percent in 1991 to 0.890 percent in 2000. The average market share over the nine-year period was 0.893 percent. Statewide enplanements are projected to increase from 6,287,718 in 2000 to 10,246,100 in 2015 and 16,892,900 in 2030. This growth in enplanements represents an overall statewide average annual growth rate of 3.35 percent. This rate is considered to be in line with national projections, which project enplanements to increase at an average annual rate of 3.47 percent from 2000 to 2015. Even though the Louisiana increases are significant, the overall national market share for the State is expected to decrease slightly.

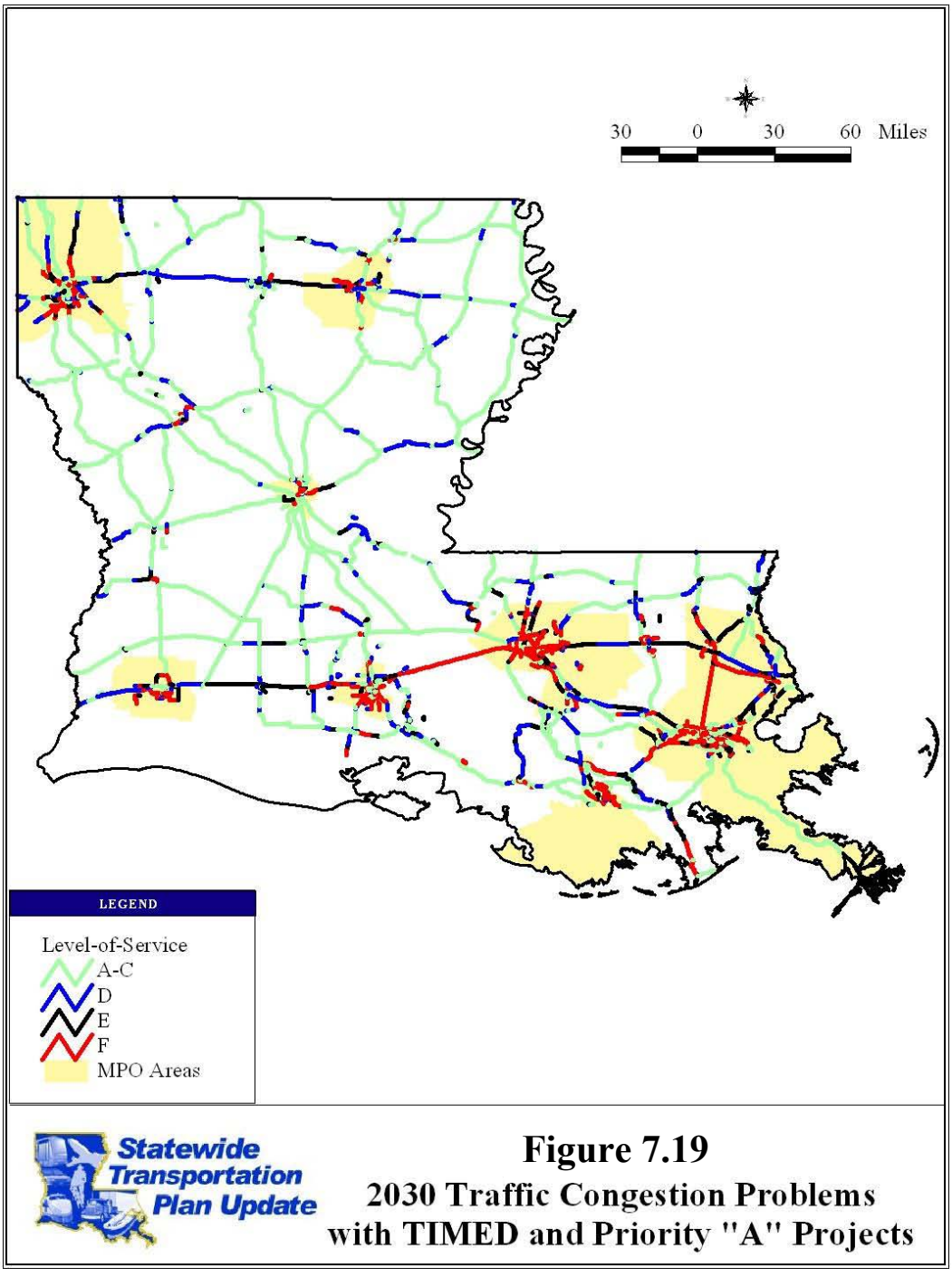


Figure 7.19
2030 Traffic Congestion Problems with TIMED and Priority "A" Projects

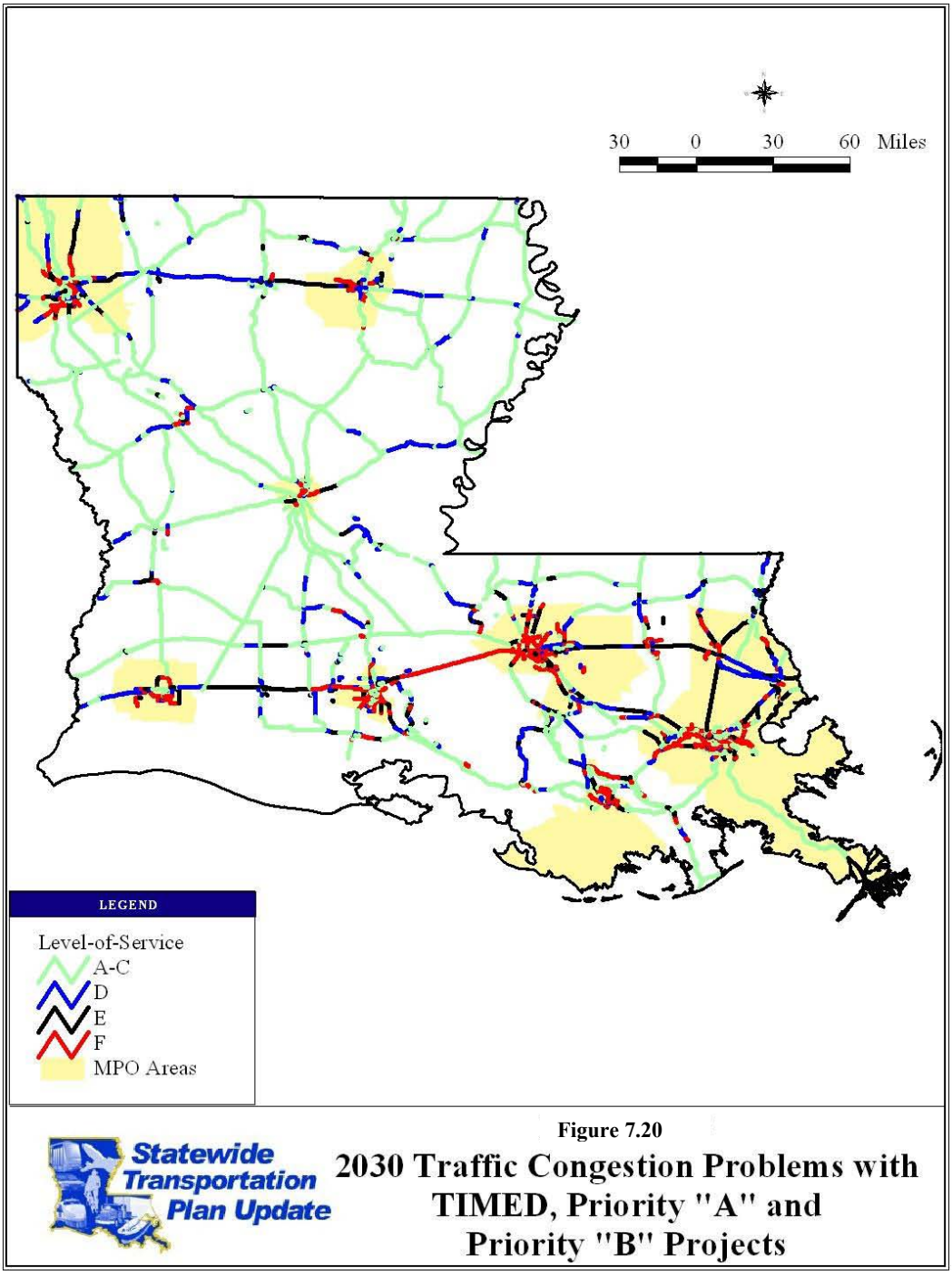


Figure 7.20

2030 Traffic Congestion Problems with TIMED, Priority "A" and Priority "B" Projects

Capacity analysis for Louisiana's commercial service airports indicates that only New Orleans International Airport will experience capacity problems within the 30-year planning horizon.

Table 7.8
Projected Enplanements

Year	All LA Airports Enplanements	US Enplanements	Louisiana Share	Growth Rate
2000	6,287,718	706,106,300	0.890%	3.55%
2005	7,670,400	866,242,200	0.885%	4.06%
2010	8,999,700	1,022,142,500	0.880%	3.65%
2015	10,246,100	1,177,707,200	0.870%	3.31%
2020**	12,011,300	1,396,667,700	0.860%	3.29%
2030**	16,892,900	1,964,285,400	0.860%	3.35%

** US Total Enplanement data for 2020 and 2030 based on WSA growth rate estimates.
Sources: FAA Terminal Area Forecasts, FAA Aerospace Forecast, FY 2000-2011, Airport Management Records, WSA

Preferred Based Aircraft Projection

The results from two based aircraft projection methodologies developed in the Louisiana Airport Systems Plan were compared for each airport. In 2000, the Louisiana airports examined as part of this analysis accommodated 2,526 based aircraft. The bottom up methodology produced a 2030 projection of 3,583 based aircraft, an average annual growth rate of 1.17 percent. The top down methodology produced a 2030 projection of 3,342 based aircraft, an average annual growth rate of 0.94 percent. After comparing the results and the average annual growth rates of the two methodologies, the bottom up growth rate methodology, as shown in **Table 7.9**, was chosen as the preferred methodology because it more closely mirrors the growth in based aircraft that has been experienced in the recent past at Louisiana's airports.

Table 7.9
General Aviation Based Aircraft Forecast

		Historic	Based Aircraft Forecast					Forecast
1992	2000	AAGR	2005	2010	2015	2020	2030	AAGR
1,953	2,526	3.3%	2,670	2,825	2,993	3,174	3,583	1.17%

Sources: FAA Terminal Area Forecast and WSA

Air Cargo Tonnage Projections

Air cargo tonnage was identified for those system airports that accommodate air cargo on a regular basis. Air cargo is measured in metric tons. One metric ton is the equivalent of 2,204 pounds. The volume of air cargo tonnage at Louisiana airports is projected to increase at an annual average rate of 3.9 percent. This is considered a moderate annual growth rate when in the early 1990s the air cargo industry was experiencing double digit growth rates. The growth rate used for this analysis is based on Boeing's 1999 World Air Cargo Forecast and is applied throughout the forecast period. This growth rate is slightly lower than the US gross domestic product (GDP) 1995-2000 annual growth rate of 4.4 percent. Projections of air cargo tonnage are presented in **Table 7.10.**

Table 7.10
Air Cargo Tonnage Forecast

Associated City	Airport Name	2000	AAGR	2005	2010	2015	2020	2030
Alexandria	Alexandria International	71	3.90%	73	91	114	142	222
Baton Rouge	Baton Rouge Regional	3,106	3.90%	3,211	3,995	4,972	6,191	9,707
Lafayette	Lafayette Regional	1,211	3.90%	1,252	1,558	1,938	2,414	3,785
Lake Charles	Lake Charles Regional	161	3.90%	166	207	258	321	503
Monroe	Monroe Regional	79	3.90%	82	102	126	157	247
New Orleans	New Orleans International	85,815	3.90%	89,271	111,090	138,337	172,362	270,245
Shreveport	Shreveport Regional	30,020	3.90%	31,039	38,610	48,054	59,838	93,819
Total		**120,463**		**125,095**	**155,652**	**193,799**	**241,424**	**378,528**

Sources: Airports Council International, airport management, WSA

Demand Analysis

The Louisiana airport system was structured based on demand for aviation services. Following the demand evaluation, functional roles were developed for the airports, and facility and service standards were established. Airports were classified as being in one of six functional classifications: Commercial Service, General Aviation - Reliever, General Aviation - National, General Aviation - Regional, General Aviation - Local, and General Aviation - Limited.

System Adequacy Analysis

The process to evaluate the existing performance of the Louisiana airport system is based on goals or criteria and specific objectives or benchmarks. Three system performance criteria were identified:

- Access
- Economic
- Physical

Within these three categories, specific benchmarks were developed for each objective as a way of measuring the airport system's performance.

Access

Figure 7.21 depicts the overall coverage provided by the six airport classifications with shading demonstrating the various coverages provided by the six airport classifications. As identified, when combining the airports and discounting overlaps, the 71 public airports serve 98 percent of the State's population and 79 percent of the State's land area. This indicates that nearly all of the State's population as well as developable areas have adequate airport access to general aviation airport services through the existing airport system. The largest areas without reasonable access include many of the coastal parishes of Cameron, Vermilion, Terrebonne and Plaquemine, and sparsely populated portions of the following parishes:

- East Feliciana
- Assumption
- St. Bernard
- Allen
- Beauregard
- St. Helena
- Lafourche
- Bienville
- Iberville
- Concordia
- Vernon

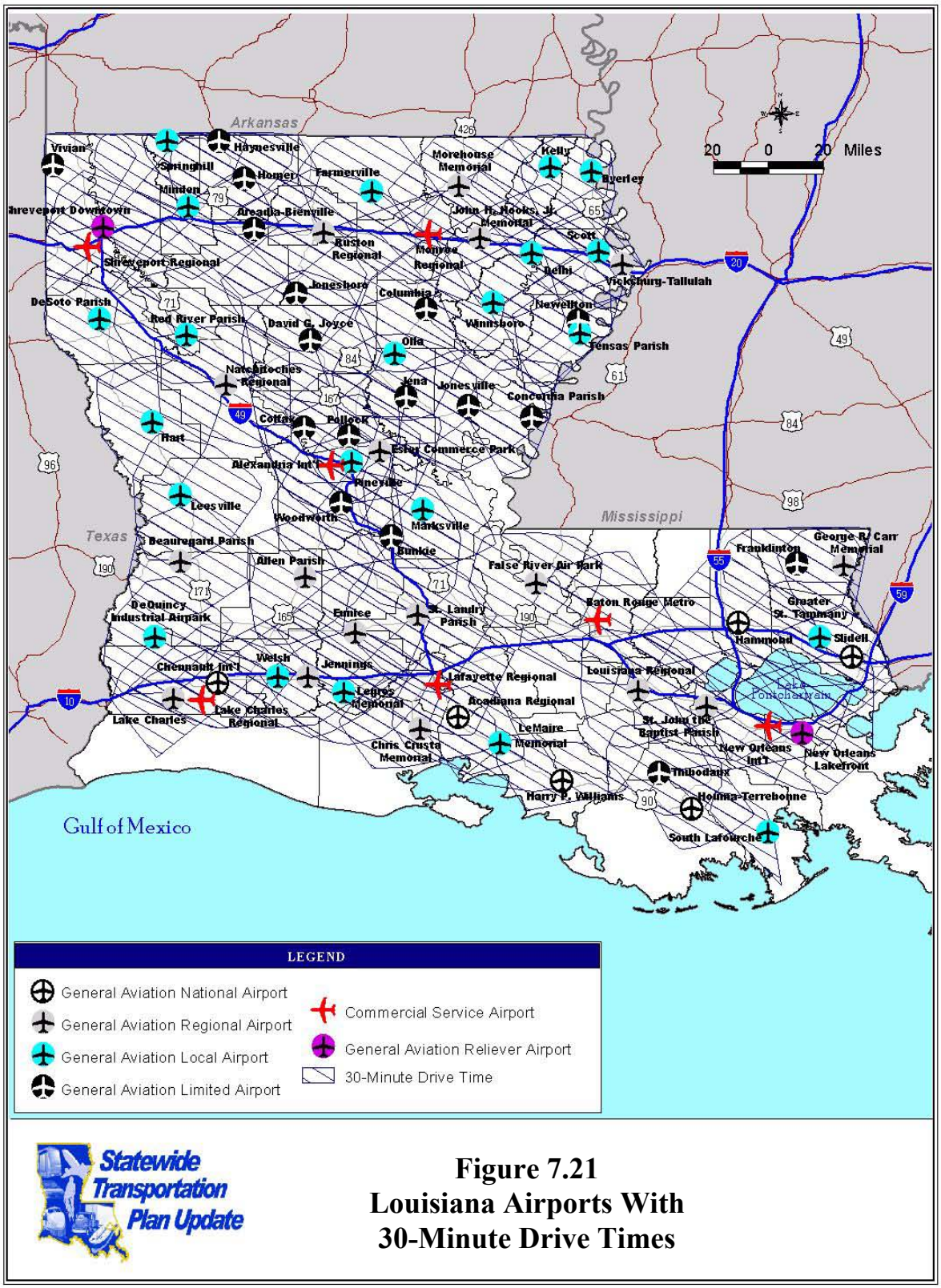


Figure 7.21
Louisiana Airports With
30-Minute Drive Times

Economic

Much of the State's population is distributed across eight Metropolitan Statistical Areas (MSAs) throughout Louisiana, in descending order of population:

- New Orleans
- Baton Rouge
- Shreveport/Bossier City
- Lafayette
- Houma/Thibodaux
- Lake Charles
- Monroe
- Alexandria

The distribution of population among these areas, however, is disproportional. Nearly one-third of the State's 2000 population of 4,468,976 is concentrated in the New Orleans area. According to US Census Bureau County Estimates for Median Household Income (1997), approximately 44 percent of Louisiana's median household income is concentrated in the eight MSAs. Most of the MSAs have more than one airport. Houma-Thibodaux lacks a commercial service airport, however, demand is likely satisfied by facilities in New Orleans as it is within the 60-minute drive time radius. Louisiana's rural composition suggests coverage could be improved through surface transportation infrastructure improvements, such as improved highways, to offer better connectivity.

While agricultural aviation is needed to ensure the success of numerous Louisiana agricultural crops, which are important to the state's economy, the actual facility needs for aerial applicators are minimal in contrast to other industry requirements. Aerial applicators can operate with basic provisions, such as turf strip runways or smaller General Aviation – Limited airports, but need to be based near agricultural crops targeted for application as depicted by the 10-mile radius around airports that reported agricultural spraying activity. During periods of heavy rainfall in the State, many agricultural aerial operators relocate their operations from privately owned turf airstrips to publicly owned airports. Although these operations are generally welcome at these airports, it does create increased "wear and tear" on the facilities and increased demand for aircraft and support.

Physical

Physical performance of the aviation system is determined by examining the ability of the airports to meet at least minimum standards. Minimum standards can be defined in terms of facilities and services. These minimum standards were developed as part of the previous chapter for each of the six functional classifications.

Figure 7.22 displays a summary of the existing Commercial Service airports' compliance with standards promulgated for facilities and services. All of the Commercial Service airports meet the minimum required facilities and services identified in this study.

Figure 7.22
Commercial Service Airports

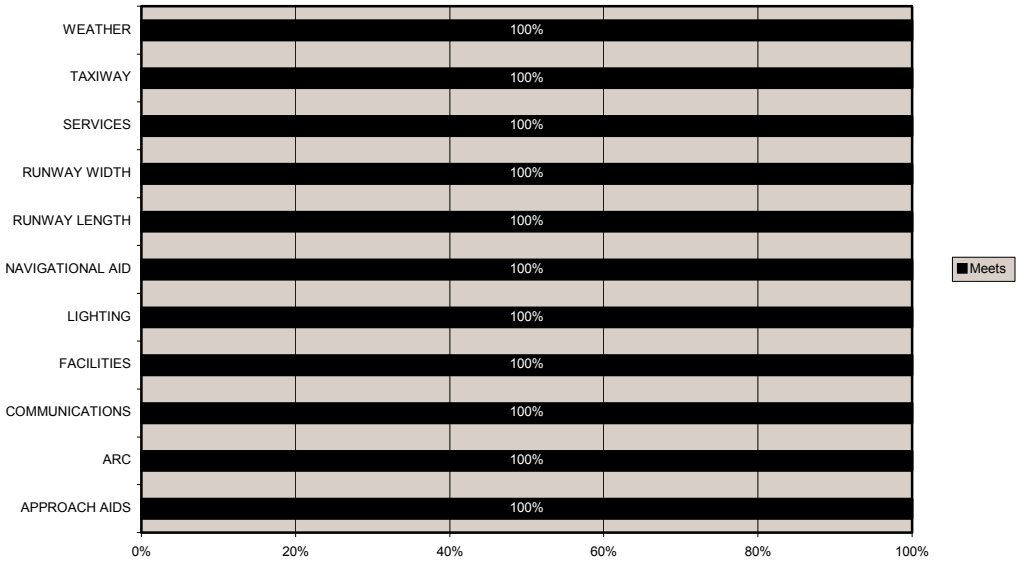


Figure 7.23 presents a summary of the existing GA – Reliever airports' ability to meet the minimum standards set as part of this study for facilities and services. As evidenced by the figure, both facilities, Shreveport Downtown Airport and the New Orleans Lakefront Airport, meet or exceed the standards with the exception of the Airport Reference Code (ARC) at the Shreveport Downtown Airport.

Figure 7.23
General Aviation – Reliever Airports

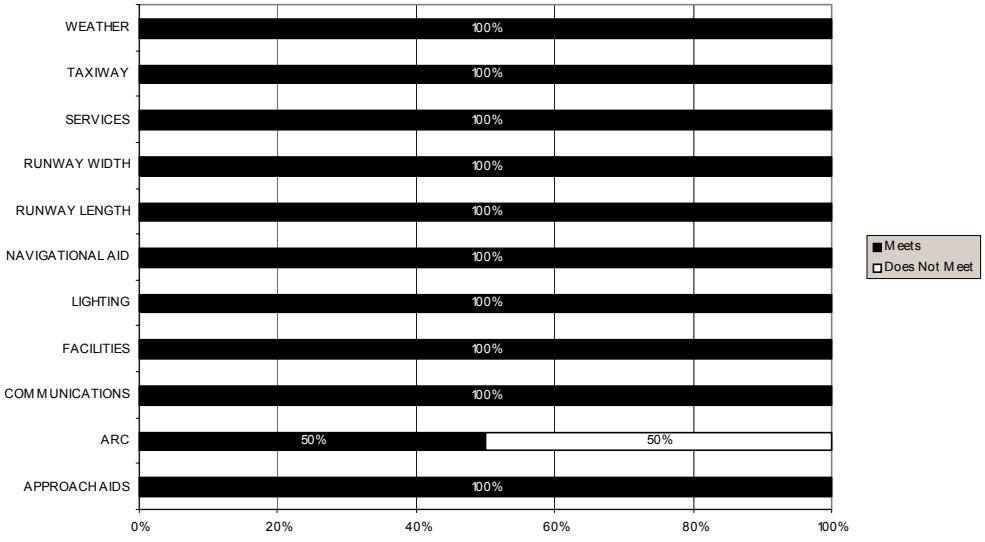


Figure 7.24 provides a summary of the existing General Aviation - National airports' ability to meet the minimum standards set for facilities and services. In contrast to the previously referenced airport classifications, Louisiana's General Aviation - National airports as a whole meet fewer of the objectives. As indicated in the figure, all six General Aviation - National airports meet minimum criteria for services, runway width, navigational aids, lighting and facilities.

Figure 7.24
General Aviation - National Airports

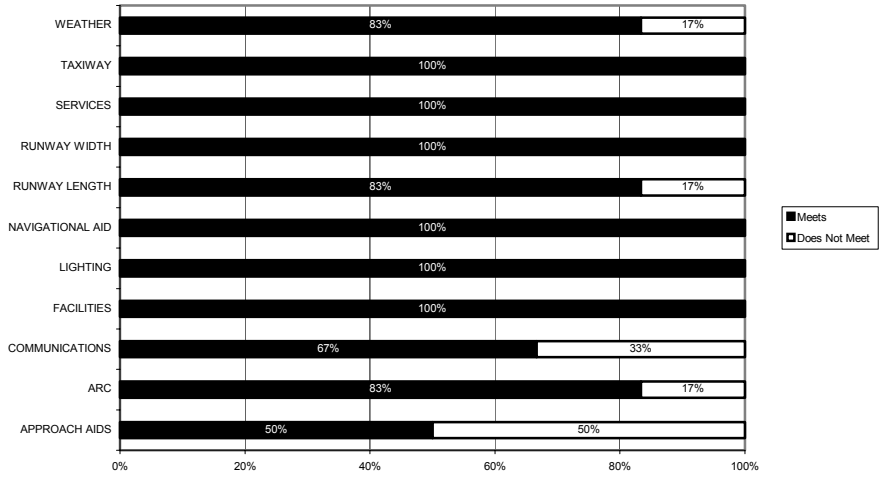


Figure 7.25 presents a summary of the existing General Aviation - Regional airports' abilities to meet the minimum standards set as part of this study for facilities and services. As shown, the majority of airports meet the minimum objectives, with the exception of communications, where only 18 percent of General Aviation - Regional airports meet the criteria.

Figure 7.25
General Aviation – Regional

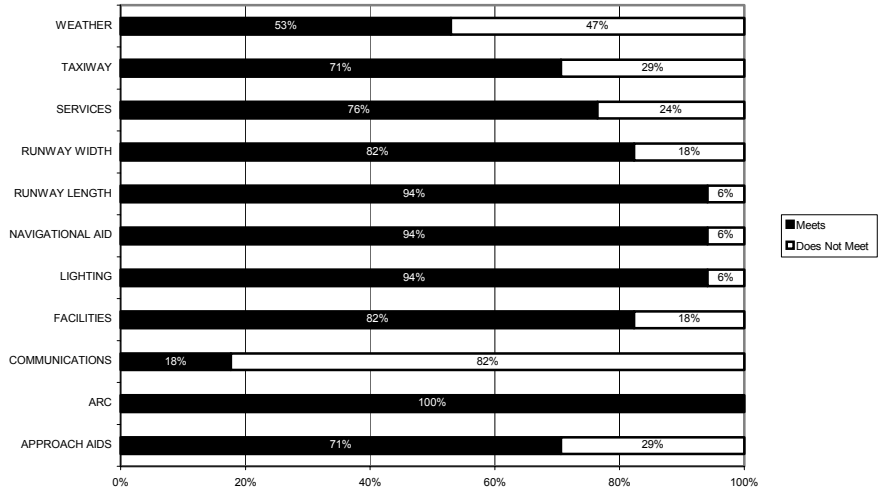


Figure 7.26 presents a summary of the existing General Aviation - Local airports' abilities to meet the minimum standards set as part of this study for facilities and services. As shown, none of General Aviation - Local airports meet criteria for communications and very few meet the criteria for facilities and approach aids. Most General Aviation - Local airports meet the minimum criteria for runway width, runway length, and lighting.

Figure 7.26
General Aviation – Local

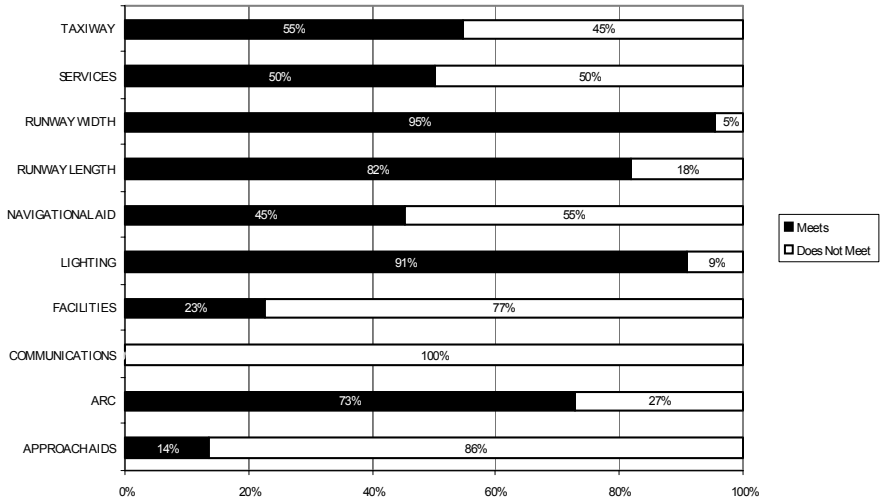
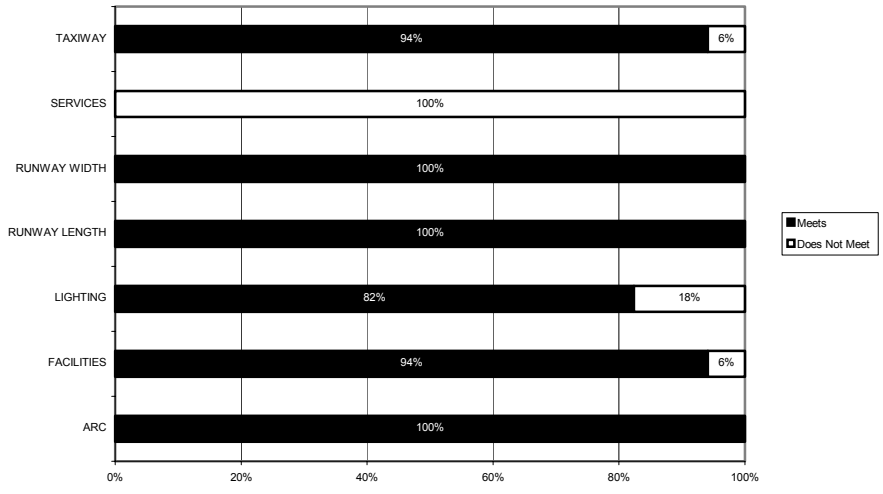


Figure 7.27 presents a summary of the existing General Aviation - Limited airports' abilities to meet the minimum standards set for facilities and services as part of this study. As shown all General Aviation - Limited airports meet the minimum criteria for runway length, runway width and ARC. None of the airports meet the criteria for services.

Figure 7.27
General Aviation – Limited



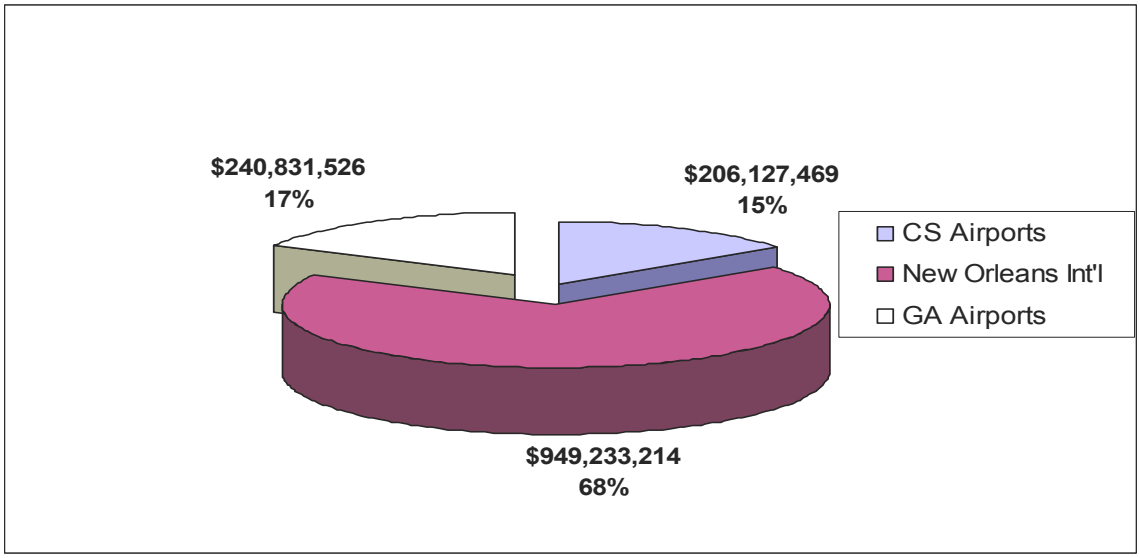
Summary of Options Analysis

The options analysis revealed that, for the most part, the existing Louisiana Aviation System meets the objectives set for the LASP. The analysis showed that the stratification system used to determine the airport roles resulted in many airports providing overlapping coverage and services to the same areas.

Overall Aviation Needs

The cost of addressing the needs of Louisiana aviation infrastructure total approximately $1.4 billion. The cost for each category of aviation facilities is illustrated in **Figure 7.28**. These costs include all aviation infrastructure improvements necessary to accommodate the increase in enplanements and air cargo shipments over the planning horizon.

Figure 7.28: Costs to Address Louisiana Aviation System Needs, by Airport Category



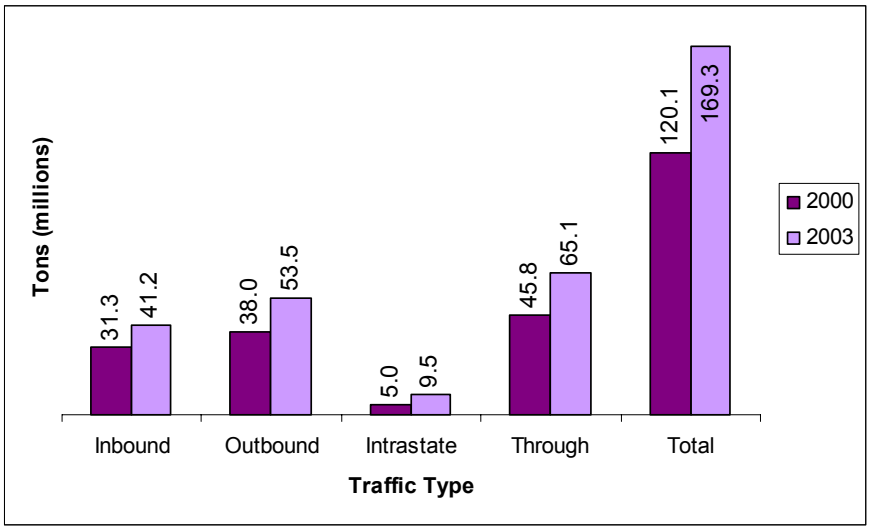
The package of improvements that address the needs identified for the Louisiana aviation system are detailed in **Chapter 9**. Some of the primary improvements are detailed below:

- Addressing infrastructure deficiencies for existing airports
- Acquisition of easements for obstruction removal
- Update of intrastate air service study
- Supporting continued development of passenger and air cargo facilities at all Louisiana commercial service airports
- Statewide funding of airfield and terminal capacity improvements
- Support of GA and Reliever Maintenance Program (GRF)
- Funding of a Statewide Aviation Marketing Program
- Increasing State support for aviation
- New runway at Louis Armstrong New Orleans International Airport

FREIGHT RAIL

Figure 7.29 contains the forecasted rail tonnage for the Year 2030. Overall, rail is projected to grow by 40 percent, though there is a great variance across commodities and regions. Food is projected to grow by 130 percent, chemicals by 35 percent, miscellaneous mixed shipments by 23 percent, and clay/concrete/glass by 180 percent. Commodities moving by rail and expecting a decline from current volumes include farm products (-45 percent) and coal (-11 percent). The largest growth in inbound rail traffic is expected to come from Mississippi (112 percent), with growth in inbound also from New England (101 percent), East South Central (74 percent), and Arkansas (71 percent). A decline of 15 percent is anticipated from the West Central Region (IA, KS, MN, MO, NE, ND, OK, SD) due to a reduction in grain moves. Outbound growth is expected for all regions with Arkansas (103 percent), West Central (75 percent), Texas (70 percent), and Mountain (60 percent) being the fastest growing. Intrastate rail tonnage is forecast to grow by 91 percent.

Figure 7.29
Forecasts of Louisiana Rail Tonnages[1]



Source: TRANSEARCH 2000, DRI-WEFA Forecasts

There are several potential impacts associated with the forecast increase in Louisiana rail traffic. Increased congestion on rail lines will directly affect the operational efficiency of the shippers and carriers that utilize Louisiana's rail network. Additionally, these forecasts direct attention to safety considerations at Louisiana's many rail-highway grade crossings. As rail traffic increases over the forecast period, care must be taken to mitigate hazards at key, high volume crossings. The issue of safety at these crossings was raised repeatedly during meetings of the Freight Rail Advisory Council.

The importance of small railroads to the Louisiana economy, particularly in rural areas, should not be underestimated. Small railroads serve a key niche in that they provide rail access to light-

[1] As through rail tonnages were not provided through the TRANSEARCH database, the 2030 through tonnage shown in **Figure 7.29** were derived from applying the proportion of through to total tonnage in 1999 (the year of the STB Waybill sample [which does include through rail tonnage] used in the Louisiana Statewide Rail Plan,) to total tonnage in 2030. A new total tonnage value for 2030 was then calculated, reflecting the addition of through tonnage.

industrial areas, typically found in rural or exurban environments, that otherwise would not have this service. As the shipping chain for light-industrial commercial enterprises requires rail access at some point, small railroads are extremely important for this sector of economic development. Small railroads also provide an extremely important service to the agricultural sector, serving as the primary means by which these commodities are brought to market.

Small Railroad Survey

As part of the *Louisiana State Rail Pl*an, all of Louisiana's short line and terminal/switching railroads were surveyed to determine future unfunded capital needs. The survey also sought to capture what short line and terminal/switching railroad operators thought of the overall service provided by their Class 1 connections, and to uncover their chief concerns. DOTD conducted the survey by mail. Follow-up efforts were made by telephone to encourage responses. DOTD received responses from all inquiries.

Small Railroad Unmet Capital Needs

Expressed needs consisted principally of rehabilitation of track and bridges. Much of the rehabilitation need was related to 286,000-pound cars. Total loaded car weights of 286,000 pounds represent about a 10 percent increase over previous maximum car weights. These cars are popular with shippers and Class 1 railroads as they represent opportunities to maximize loads and minimize operating costs. However, many short lines do not have the underlying track and structures capable of supporting these heavier cars.

One short line, Ouchita Railroad, cited a $13 million need to restore service to Bernice and Ruston. The line is a former Chicago Rock Island & Pacific Railroad line, and its southern extension from Lillie was abandoned several years ago. Ouchita Railroad officials related that resumption of service to these points would provide a rail alternative to shippers in Bernice, and a competitive alternative to the KCS for shippers in Ruston.

In contrast with the short lines, the switching and terminal railroads, the Lake Charles Harbor and Terminal District and the New Orleans Public Belt Railroad, cited comparatively few needs that were related directly to upgrades for handling 286,000-pound cars. LCHTD's needs pertained mostly to relieving congestion and handing increasing traffic. NOPB's largest projects are for a new rail deck on the Huey P. Long Bridge and upgrading switch and signal operations – neither of which is exclusively related to heavier cars. In all, short line and terminal/switching unfunded capital needs total $102.6 million, as shown in **Table 7.11**.

Table 7.11
Survey Results – Immediate Unfunded Capital Needs of Small Railroads

Short Line Railroad	Project Description	Purpose	Estimated Cost	Total Need
Acadiana Railway	Tie installation	Upgrade for 286,000-pound cars	3,750,000	
	Bridge upgrade	Upgrade for 286,000-pound cars	1,750,000	
	New rail	Upgrade for 286,000-pound cars	2,100,000	
	New ballast	Upgrade for 286,000-pound cars	1,100,000	8,700,000
Arkansas, Louisiana & Mississippi Railway	Bridge upgrade	Upgrade for 286,000-pound cars	1,000,000	1,000,000
Delta Southern	General rehabilitation of facilities	Upgrade for 286,000-pound cars	15,000,000	15,000,000
Gloster Southern Railroad	Bridge maintenance	Remove decay	200,000	200,000
Louisiana and Delta Railroad	Trackwork upgrade	Not reported	3,467,480	
	Locomotive upgrade	Not reported	175,000	
	Other equipment and maintenance items	Not reported	114,000	3,756,480
Louisiana & North West Railroad	New rail	Upgrade for 286,000-pound cars	7,500,000	7,500,000
New Orleans & Gulf Coast Railway	Track upgrade, Madison Street	Improve residential street on which railroad runs	700,000	
	Bridge repair, Belle Chase Lift Bridge	Repair bridge over Intracoastal Waterway Canal	200,000	
	Highway-rail crossing improvements	Improve crossings	250,000	
	Tie installation	Improve track	400,000	1,550,000
Ouchita Railroad	Bernice Extension	Restore track for rail service to Bernice, LA	3,000,000	
	Ruston Extension	Restore track for rail service to Ruston, LA	10,000,000	13,000,000
Timber Rock Railroad	New rail	Upgrade for 286,000-pound cars	7,000,000	7,000,000

Table 7.11 (Continued)
Survey Results – Immediate Unfunded Capital Needs of Small Railroads

Short Line Railroad	Project Description	Purpose	Estimated Cost	Total Need
New Orleans Public Belt Railroad	Paint removal, Huey P. Long Bridge	Remove lead base paint	500,000	
	Ballasted deck, Huey P. Long Bridge	Eliminate renewing of 35,000 timber bridge ties	12,000,000	
	Upgrades, East Bridge and West Bridge Jct.	Upgrade interlocking plants; consolidate towers	6,000,000	
	Continuous welded rail, Huey P. Long Bridge	Replace curve worn track	16,000	
	Main track improvement	Renew and upgrade 11.5 miles of main track	1,250,000	
	Rail yard tie replacements	Replace 21,000 ties for 286,000-pound cars	650,000	
	Rail yard lead switch replacement	Renew 35 yard lead switches	1,750,000	
	Bulk Yard Terminal near-term improvements	Replace ties, switches; return tracks to service	1,100,000	
	Bulk Yard Terminal long-term improvements	Add tracks for a new classification yard	5,500,000	
	France Yard long-term improvements	Increase capacity	1,000,000	
	New Alvar Yard	Build a new classification and intermodal yard	4,000,000	33,766,000
Terminal/Switching Railroads				
Lake Charles Harbor & Terminal District	New storage yard	Decrease congestion in existing yards	3,800,000	
	Track rehabilitation, Industrial Canal lead	Accommodate sugarcane shipments	3,400,000	
	Track rehabilitation, Bulk Terminal No. 1	Accommodate customer shipments	1,400,000	
	Track rehabilitation, City Docks	Accommodate increasing rail traffic	2,500,000	11,100,000
Total			**102,572,480**	**102,572,480**

Notes:
Class 1 Railroads were not surveyed to assess their needs.
This list of unfunded needs will be updated periodically.

PORTS & WATERWAYS

In 2001, the total value of trade handled by the Louisiana port system was more than $80 billion, with $50 billion in imports and $30 billion in exports. Most of the traffic, about 80 percent, is a transit for foreign trade. Major trading area for Louisiana in the US is defined as East North Central (IL, IN, MI, OH, WI) and East South Central (AL, KY, TN) regions. These regions account for 20 percent of total tonnage crossing Louisiana. Cargo movement generated within Louisiana (originated and destined in the State) amounts to about 13 percent of total.

In this planning effort, capacity is estimated at the overall, statewide level. Therefore, even if at the State level capacity appears to be sufficient, it does not exclude the possibility that at specific locations and for specific types of cargoes, there is a need for expansion of existing facilities or the creation of new facilities. The summary of capacity utilization is shown in **Table 7.12**.

Table 7.12
Capacity Utilization Factors

Existing Capacity in Tons *(Containers in TEUs)*

Commodity	2001	2005	2010	2015	2020	2025	2030
Coal	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000
Coal and Other Bulk	65,000,000	65,000,000	65,000,000	65,000,000	65,000,000	65,000,000	65,000,000
Containers (Louisiana)	700,000	710,000	860,000	860,000	860,000	860,000	860,000
Containers (Port of New Orleans)	500,000	510,000	660,000	660,000	660,000	660,000	660,000
General Cargo	21,000,000	21,500,000	21,500,000	21,500,000	21,500,000	21,500,000	21,500,000
Grain	100,000,000	100,000,000	100,000,000	125,000,000	140,000,000	140,000,000	140,000,000
Capacity Utilization							
Coal	5.9%	6.2%	8.4%	11.0%	15.4%	22.7%	35.2%
Coal and Other Bulk	49.0%	53.0%	70.0%	92.0%	118.0%	155.0%	206.0%
Containers (Louisiana)	44.0%	54.2%	57.4%	73.5%	94.9%	123.7%	162.5%
Containers (Port of New Orleans)	61.7%	75.5%	74.8%	95.8%	123.7%	161.2%	211.8%
General Cargo	99.4%	116.8%	146.0%	182.0%	229.2%	290.1%	368.8%
Grain	69.5%	79.9%	93.0%	88.8%	95.9%	116.2%	141.1%

Demand Capacity Relationship

Coal and Other Bulk Terminals

The cargo projections indicate minimal growth of coal exports and moderate increase of coal imports in the 2001-2030 period. In light of the recent trends in the world coal markets, these are still relatively optimistic assumptions. They reflect possibilities of disturbances in the world oil markets, and relatively quick improvement of economic conditions in the Latin American markets.

Even at these optimistic assumptions, the capacity of the Louisiana coal terminals significantly exceeds the projected coal trade volumes. The total capacity of coal terminals amounts to 50 million tons annually. The total coal trade volumes projected for the year 2030 are about 17.5 million tons. There will be, therefore, a significant long-term oversupply of coal handling terminals in the State. Facility utilization indices for coal terminals are: 11 percent in the year 2015, and less than 40 percent in the year 2030.

In that situation, it is projected that the trend to diversify cargo handled by these terminals will continue. As a result, all Louisiana coal terminals will continue to be minor coal terminals. Other commodities will constitute the majority of handled cargo, and their share in total shipments via coal terminals will continue to grow.

Other bulk commodities are expected to increase at a more substantial pace and reach about 42 million tons by 2010. Still existing coal and other dry bulk terminals provide sufficient capacity to accommodate all types of dry bulk at least up to 2010.

Grain Terminals

As shown in **Figure 7.30**, total grain exports (imports volumes are minimal) are projected to grow by about 3.5 percent annually in the period 2001-2030. According to this assumption, the demand for grain terminals will increase to 110 million tons in the year 2015, and 160 million tons in the year 2025. The current capacity of the Louisiana grain terminals amounts to about 100 million tons, annually.

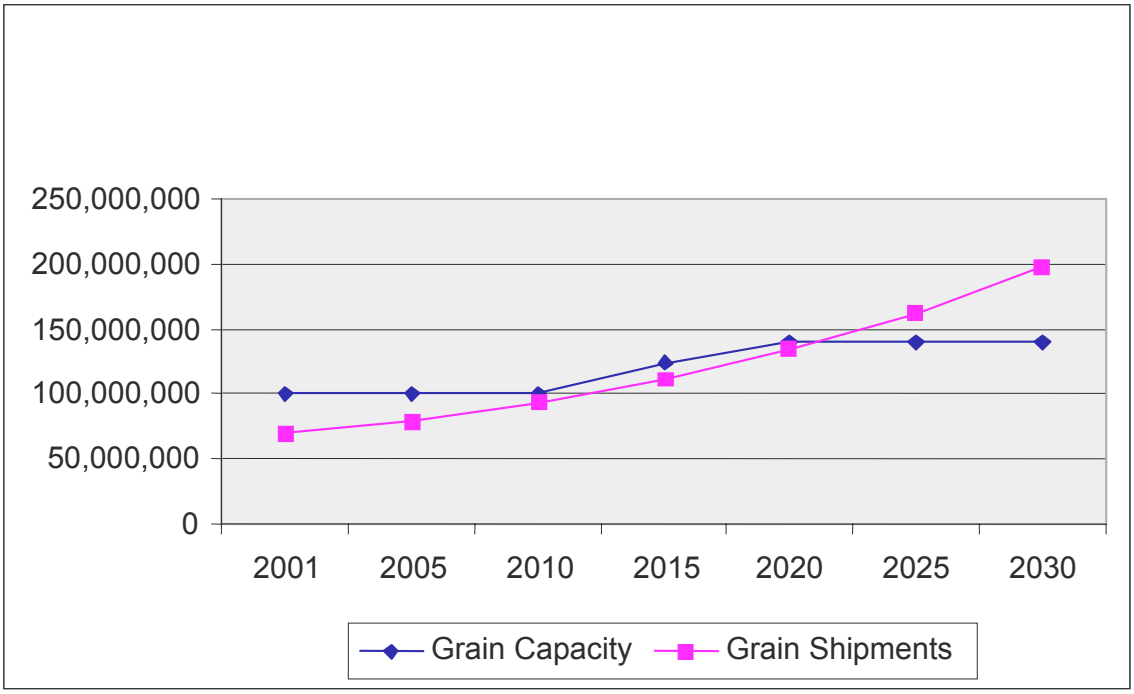
Review of existing facilities and operations indicate that:

- Capacities of land grain terminals may be increased by modernization and upgrades of the existing equipment up to about 20 to 25 percent. This will involve relatively limited investment. Additional capacity increases will necessitate more substantial investments in storage and blending facilities.
- The capacities of mid-stream operations may be quickly expanded at limited cost. Survey respondents indicated that a 50 percent increase is possible.

This leads to the conclusion that Louisiana grain terminals will be able to accommodate the projected cargo volumes under the following conditions:

- In the period 2001-2015, the projected grain trade may be handled by the existing infrastructure.
- Louisiana grain terminals utilization indices will amount to about 90 percent after 2010.
- In the years 2015-2030, some moderate expenditure will have to be made to expand the capacities of these terminals and mid-stream operations.
- Even in that period, there will be no need for building new terminals to handle the projected grain volumes until the year 2030; the needed capacity can be achieved by increased productivity, additional storage space, and other minor structural and non-structural changes.

Figure 7.30
Louisiana Grain Maritime Shipments and Capacities



General Cargo Terminals

In a long-term perspective, a significant increase of general cargo shipments is projected. General cargo export is projected to grow by about 3.5 to 4 percent annually, while imports will grow by about 5.4 percent annually.

In the year 2001, Louisiana shipments of general cargo amounted to almost 21 million tons. They are expected to increase to 30 million tons in 2010, and 50 million tons in 2020. If the projected trends materialize, in the year 2030, the demand for Louisiana general cargo facilities will amount to almost 80 million tons, as shown in **Figure 7.31**.

To be capable of utilizing these opportunities, the State's ports will have to significantly expand their general cargo terminals. Currently, general cargo utilization levels are almost 100 percent.

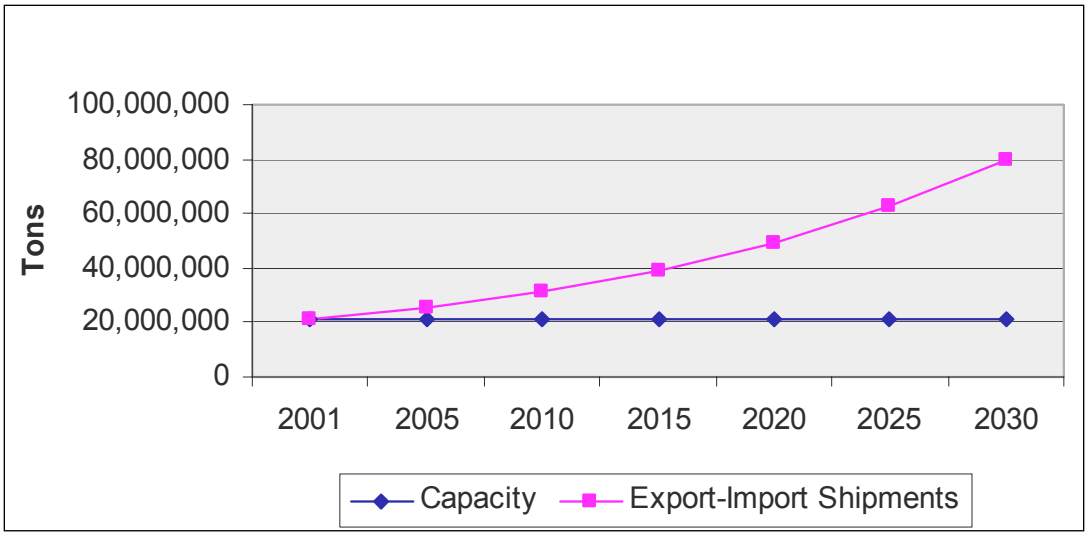
The expansion plans for general cargo terminals must be closely related to changes in the market place and respond to changes in cargo flows structure, as well as new cargo opportunities.

At current estimates, the total capacity of the Louisiana general cargo ports amounts to 23 million tons annually. The comparison of demand and supply data leads to the following conclusions:

- Louisiana ports will have to increase their general cargo handling capacities as an immediate priority to facilitate the projected cargo volumes. This conclusion stands valid even if additional capacities provided by private terminals are taken into account.
- Ports will also have to modify their existing facilities to accommodate changes in general cargo commodity structure.

- In the period 2001-2015, the total capacity of Louisiana general cargo terminals will have to be almost doubled.

Figure 7.31
Louisiana General Cargo Shipments and Capacity, 2001 – 2030



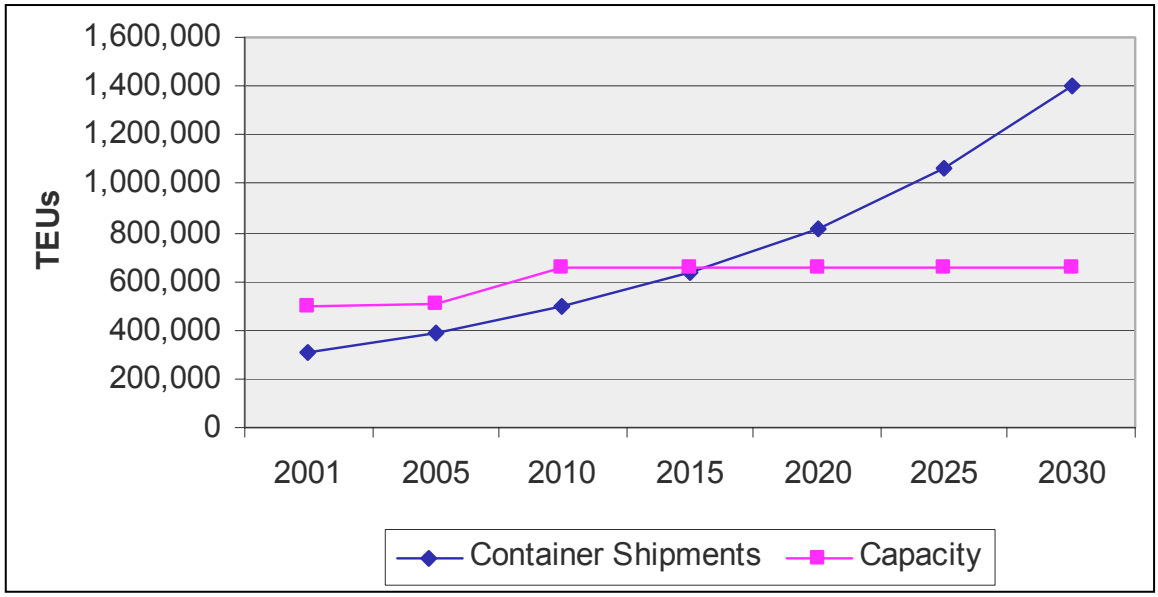
Containerized Cargo Terminals

The following conclusions emerge regarding demand and supply of container handling capacities in Louisiana:

- Container handling capacities at the Port of New Orleans, (Napoleon Terminal Phase I and Phase II) are adequate to facilitate short and medium term needs. Timing for implementation of Phase II expansion, depends on how long and to what extent container operations will continue at the France Road terminal. It is expected that these operations will be phased out by 2010 or possibly sooner. In the latter case, the Port of New Orleans may experience capacity deficits as early as 2005. Accordingly, Phase II of the Napoleon Terminal needs to be initiated without delay. In the year 2015, the utilization of the Port of New Orleans container terminal will amount to about 96 percent. This indicates that additional container handling capacities will have to be created in the Lower Mississippi River in the long term to accommodate the projected demand. This new terminal should eventually provide additional capacity equal to both phases of the Napoleon Terminal. **Figure 7.32** illustrates projected container shipments and capacities at the Port of New Orleans.
- At this time, container shipments at the Port of South Louisiana are small. The port has recently entered this business. It is possible that in the future when container activities develop, this facility will attract additional volumes of containers.
- The Port of Lake Charles is intending to significantly increase its container business. Basically, the emphasis is to attract short sea and expand barge services operating in the Gulf.

The projections presented equate to about a 5.4 percent annual growth in container trade. However, it is possible that structural changes in international container trade may provide additional cargo opportunities for the Gulf and Louisiana ports, e.g., diversion of Asian containers from landbridge to all water services. The detailed impact of market changes on cargo possibilities for Louisiana will require continued assessment of container shipping patterns.

Figure 7.32
Port of New Orleans, Container Exports and Imports, 2001-2030



Port Development Needs

Needs for expanding Louisiana port facilities result from:

- Necessity to provide sufficient capacity to handle projected cargo volumes.
- Need for increasing quality and efficiency of port facilities to insure the competitiveness of the Louisiana maritime industry and its capacity to capture new cargo opportunities.

Louisiana port projects that require public (state and federal) funding fall into several groups:

- Rehabilitation or expansion projects to assure sufficient capability (capacity) to meet projected demand.
- Projects related to technological advancement, increased productivity, and ability to capture emerging opportunities.
- Projects related to modernization and expansion of intermodal connectors.
- Projects to expand ports providing support for the supply and manufacturing needs of OCS (Outer Continental Shelf) exploration.
- Federal projects for safety, maintenance, and improvements of the State's waterways, which also require local cost sharing.

A number of examples of such projects are provided below. The following listing is shown as an illustration of the overall industry funding needs. The presented examples are neither prioritized

nor evaluated. The decision on their funding will be made according to rules and regulations of appropriate funding agencies or programs.

- Phase II of the development of the Napoleon Container Terminal at the Port of New Orleans.
- The second phase of the Port of South Louisiana strategic development plan involves a number of capacity increasing projects. For example, the Port plans to develop a second bulk cargo dock including a conveyor and adjacent storage facilities.
- The Port of Lake Charles developed plans to introduce an automated bag handling and loading terminal at the Contraband Bayou. A $15 million transit shed with associated automated bag handling and loading equipment is planned for construction at Berth 9A.
- Niche cargo markets, including LME metals, rubber, cotton, plywood and coffee require substantial warehousing in the vicinity of water terminals for storage and value-added processing. The demolition of transit sheds related to the development of Napoleon Container Terminal combined with the overall scarcity of warehousing space at the Port has created an urgent demand for developing additional warehousing areas. To respond to this demand the Port of New Orleans plans to initiate a series of investment projects with a total cost of about $24 million.
- A number of riverfront multi-purpose terminal improvements at the total cost of about $31 million planned by the Port of New Orleans to improve the capacity and efficiency of the port's multi-purpose terminals.
- A new $20 million container on barge terminal initiated by the Port of Baton Rouge will be critical for successfully launching and operating this service.
- Port Fourchon is creating conditions for capturing new offshore oil business. For that purpose, it initiated an $11 million Northern Expansion Project.
- The Port of Lake Charles proposes to create container-handling capacities at the City Docks location. The project includes the construction of a Roll On-Roll Off ramp, and related container yard improvements.
- To provide adequate access to the new container facility at the Port of New Orleans outside of downtown, an Intermodal Container Transfer Facility (ICTF) is proposed. The total cost of this project is estimated to be about $30 million.
- The Port of Lake Charles has for many years sought the development and construction of a direct truck access road from Interstate 210 to City Docks. In addition to improving access to port facilities this project will also open for development about 550 acres of waterfront property owned by the port. The total estimated cost of this project is $25 million.
- Maintenance and Operations of Louisiana waterways such as: the Atchafalaya River, Houma Navigation Channel, Bayou Lafourche, or Red River Waterway have critical importance to insure safe navigation and uninterrupted barge movements to/from Louisiana shallow draft ports.
- Deepening of the Atchafalaya River Navigation Channel to 35 feet from Morgan City to the Gulf of Mexico for providing direct access to Port of Iberia by also,

incorporating improvements to the Acadian Navigation Channel.

- Enlargement of the Calcasieu Ship Channel. This is needed to improve safety due to increasing commerce in the channel, particularly due to significant expansion of LNG terminals in the area.

Estimates of Investment Requirements

The recommendations presented below have been formulated based on the summary of the following factors:

- Development trends presented in the preceding sections of this report.
- Review of recommendations included in original SITP, published in 1996.
- Definition of the future needs, summarized above in five groups.
- Projected growth of demand.
- Recommendations provided by the Ports and Waterways Advisory Council.
- Examination of the various ports' financial capabilities.

A level and structure of annual investments in port development, is shown in the **Table 7.13**. Public funds are provided mostly by the Port Priority Program at the level of $24.5 million per year and by the State Capital Outlay Program. The latter program does not guarantee any specific funds for ports; and it fluctuates from year to year, depending on the competitive infrastructure needs in the State. Based on the past history of Capital Outlay appropriations, it can be assumed that this program on average contributes about $17 million to ports annually.

Table 7.13
Estimated Investment Needs

	Year 2002		Average 2003-2007		Year 2007	
Source of Funds	**000s**	**share**	**000s**	**share**	**000s**	**share**
Port Priority Program	24.5	7%	37.3	8%	50.0	9%
Capital Outlay Program	17.0	5%	17.0	4%	17.0	3%
Self-Generated Funds	91.0	24%	109.0	24%	127.0	24%
Subtotal	**132.5**	**35%**	**163.3**	**36%**	**194.0**	**36%**
Private Investments	244.0	65%	292.5	64%	341.0	64%
Total	**376.5**	**100%**	**455.8**	**100%**	**535.0**	**100%**

Self-generated funds have been obtained from a survey of actual expenditures by the State's ports commissions and average amount $91 million per year. It is well established that the ratio between private investments by port users and port commissions is about 1.8; this yields about an expected $244 million in private funds dedicated to port facilities and equipment. In total, therefore, in the recent past, the State ports have been investing more than $376 million per year, with public funds constituting 12 percent of this amount.

In the consensus reached by the Advisory Council, it is recommended that:

- In the short-term it is imperative that the Louisiana Port Priority Program funding be restored to $24.5 million.

- Subsequently, this program funding must be increased at a minimum, by $5 million increments in the next 5 years to reach in 2007, the amount of $50 million. This assumes that no more than $17 million annually will be available from the State General Fund (Capital Outlay).

This recommendation is also consistent with conclusions of the original SITP, made in 1996. It should be noted that out of the average annual investments by ports over the next five years of $163 million, about $117 million (or more than 70 percent) have been already dedicated by individual port commissions to specific projects.

There is currently a backlog, estimated at about $1.5-1.7 billion, for improvements in federally-maintained waterways in Louisiana, expected to be implemented in the next 5 years. In accordance with the existing federal cost sharing regulations, the State might need to contribute about $250-300 million as a matching share. It is expected that each of these projects will be assessed by the State individually with funding provided based on benefits to Louisiana.

Similarly connectors to ports are expected to be evaluated, based on their merits, by the DOTD and MPOs, and, most probably, funded by partnerships between Federal, State, and local sources.

Strategic Issues Relating to Ports and Waterways

A summary of the initiatives and issues discussed at the Ports and Waterways Advisory Council meetings are listed below.

Marketing

- *Public Awareness Program*- Louisiana ports cooperating with other economic development agencies in the State need to conduct a public awareness program emphasizing the benefits of water transportation and the economic impacts of the maritime sector.
- *Market Promotion* - Two broad areas of market promotion were identified. The first category is business negotiations and providing incentives to prospective clients to locate at individual ports, which is the responsibility of that port. Second, is a statewide marketing effort to attract industrial tenants, publicizing the location advantages, tax incentives, and facilities and services provided at public ports. This effort is the collective responsibility of statewide economic development agencies (principally the Department of Economic Development) and the Louisiana Ports Association.

National Policy Issues

- *Cost Sharing – COE Projects*- It is recommended that a major lobbying effort be undertaken to change the new federal cost sharing requirements for dredging projects. The requirement that the state or local sponsor must agree to pay 50 percent of the channel maintenance cost is a long-term commitment that most state or local governments are unable to comply with.
- *Maintenance Costs* – It was suggested that waterways maintenance should remain a federal responsibility, and local matching requirements on channel deepening should not exceed 25 percent of project costs.
- *Environmental Policies*- The Council noted that national environmental policies and concerns constrain waterway projects, mainly because these studies fail to consider the environmental benefits of water transportation. The development of a cohesive

industrial development policy with more involvement from DEQ and other federal agencies was recommended.

- *Monitoring National Policies* – The Advisory Council suggested that because of the vital importance of the maritime industry to the state economy, more concerted efforts should be directed to provide input in the formulation of national policies. An effective system should be developed in close communication with the Louisiana Congressional Delegation and by building coalitions with states in the Midwest.

Infrastructure Issues

- *The Offshore Oil and Gas Industry* – The State must pay adequate attention to the intermodal transportation needs of the rapidly expanding offshore oil and gas industry.
- *Upgrading the Mississippi River System* – The Advisory Council expressed support for the lock extension projects on the Upper Mississippi and in Louisiana and noted that these measures are needed to maintain the efficiency of inland barge transportation.
- *Connectors and Port Access*- The ports with access roads which are not in the State maintained highway system should explore the possibility of exchanging the roads in question with other roads within the same parish that are currently maintained by the DOTD.

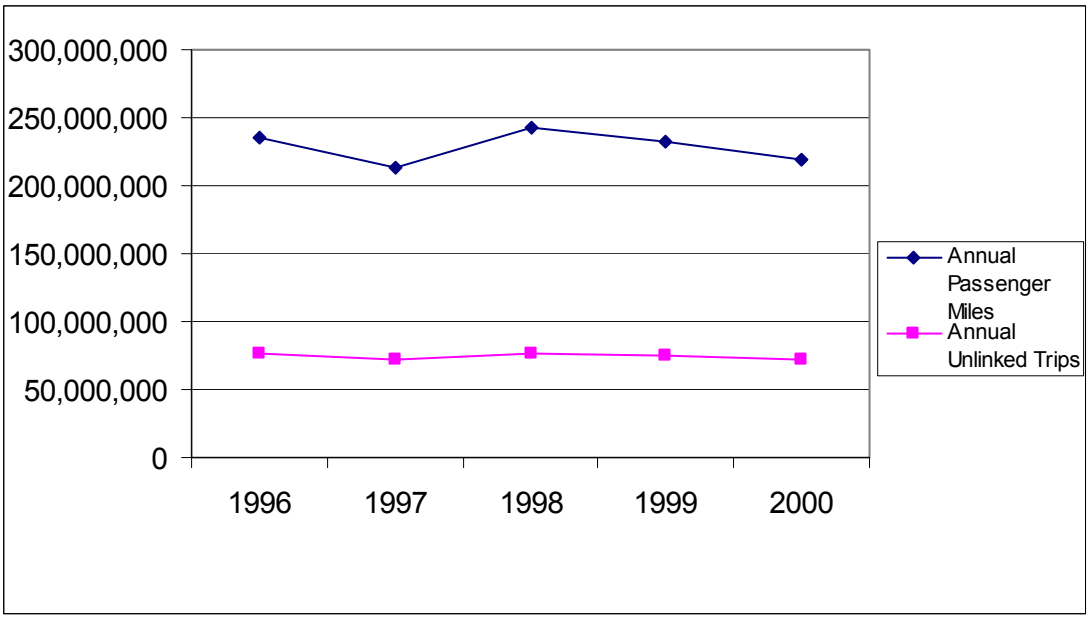
SURFACE PASSENGER

Transit Issues

Ridership

Based on figures for urban public transit systems in Louisiana that have more than nine vehicles, it can be concluded that ridership continues a downward trend. During the last four years annual unlinked passenger trips decreased by 5 percent. With the exception of the Baton Rouge Capital Transportation Corporation (CTC), which has shown strong growth in recent years, and ATRANS in Alexandria, all other systems had a downward ridership trend including the New Orleans Regional Transit Authority (RTA), Jefferson Parish Department of Transit Administration (Jet), City of Lafayette Transit (COLT), Shreveport Area Transit System (SporTran), City of Monroe Transit Systems (MTS) and Terrebonne Consolidated Government. **Figure 7.33** shows annual passenger miles and annual unlinked trips, based on the urban systems which have more than nine vehicles.

Figure 7.33
Louisiana Ridership Figures Annual Unlinked Passenger Trips



Local Match Requirements for Transit

A major issue in Louisiana is inadequate local match monies for transit, which is currently 20 percent for capital projects. It should be noted, however, that pending federal legislation is proposing increasing the local match requirement to either 40 or 50 percent rather than at its current level. This is especially important for Louisiana cities, given the high level of poverty and weak economic conditions.

Service Coordination

In many parishes service is so limited (or non-existent), that transit is not an option for many people. One of the major concerns remains the low service level in rural areas. Further, many times coordination has been lacking between the adjacent urban systems or between urban areas and surrounding rural areas. Examples can be found in the New Orleans and Alexandria areas. The urban transit system in New Orleans, the RTA, mainly provides service in Orleans Parish; however, there has been negligible cooperation with surrounding parishes, especially Jefferson Parish although it has improved in recent years. The service within the Alexandria urban areas is adequate, however there hardly exists any connectivity to the rural areas. This leaves people in the rural areas with no alternative but to use private automobiles.

Parishes Without Public Transit

In 1999, the State adopted *Louisiana: Vision 2020* as its economic development master plan. Vision 2020 has three primary goals and nearly 30 objectives. Progress is measured through benchmarks, some of which are directly related to transportation. Benchmark 2.3.7 is especially focused on surface passenger transportation, and is summarized in **Table 7.14.**

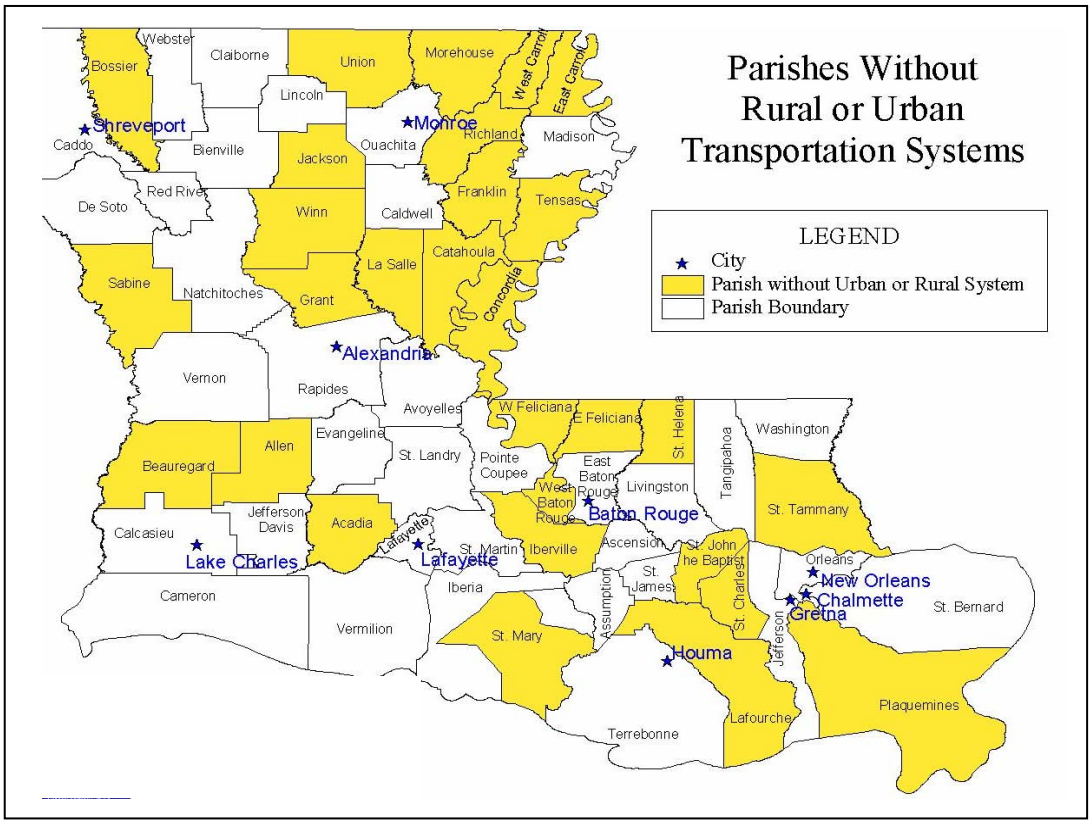
Table 7.14
Louisiana Vision 2020 Benchmark 2.3.7

	Baseline Statistic Used	2003	2008	2013	2018
	1997				
Number of parishes with a public transportation system	**42**	**47**	**52**	**58**	**64**

Source: Vision 2020 Master Plan for Economic Development

The number of transit systems in the above table includes both urban and rural systems. Urban systems include fixed route bus, streetcar and demand response services. Vision 2020 calls for every parish to have a transit system by 2018. However, the number of transit systems has declined to 39 (as of 2001): 10 urban and 29 rural systems (There are four parishes who have both an urban and rural system). Currently, there are 29 parishes, primarily rural, without a system, many of them are located in the northeast part of the State. The total population in parishes without transit is 1,014,447 (2000 census). The parishes without rural or urban transportation systems are shown in **Figure 7.34.**

Figure 7.34
Parishes Without Rural or Urban Transportation Systems



Costs of Service Provision

The following are estimates of the annual costs, by government sector, required to provide basic public transportation services in each parish:

- Federal: $12 million/year
- State: $6 million/year
- Local: $6 million/year

These costs represent those required to provide the necessary physical and administrative resources so that all Louisiana parishes are served by public transit.

Passenger Rail Issues

Operating and Financial Characteristics of Amtrak

In recent years, with the introduction of new management techniques and the Acela High Speed Rail system serving the Northeast Corridor, Amtrak ridership and revenues have increased significantly. Unfortunately, so too have operating costs. **Table 7.15** summarizes the 1996-2000 operating and financial characteristics of Amtrak.

Table 7.15
Amtrak Performance and Financial Characteristics 1996 - 2000
(Numbers are Millions of People or Dollars)

	1996	1997	1998	1999	2000
Intercity Ridership	19.7	20.2	21.1	21.5	22.5
Contract Commuter	45.9	48.5	54.0	58.3	61.6
Total Ridership	65.6	68.7	75.1	79.8	84.1
Total Revenues	$1,555	$1,674	$2,285	$2,011	$2,111
Total Expenses	$2,318	$2,436	$2,638	$2,744	$2,875
Operating Loss	($736)	($762)	($353)	($702)	($768)

Source: Amtrak Annual Reports

The Political Debate

Originally formed under the Nixon Administration in 1971, Amtrak was charged with the provision and maintenance of the passenger rail system nationwide. From its earliest years, Amtrak suffered from no clear mandate from Congress on its fundamental role: service provider or business unit. Consequently, over its 31 year history, it has done neither well. It has suffered and continues to suffer from inadequate levels of funding to address basic capital and operating needs. Of significant importance today are: infrastructure maintenance and upgrade (bridges, tunnels, track) and equipment refurbishment and replacement. Although its performance characteristics are improving, a national debate is still occurring among various elected officials, at all levels of government, concerning the role of Amtrak, if any, and of the national passenger rail system and the role government needs to play in addressing its operating and capital needs.

In Congress, Amtrak is always a hotly debated topic. In 2002, DOT Inspector General Ken Mead noted that Amtrak's "cash loses have not decreased and Amtrak is no closer to operational self-sufficiency now than … in 1997." Amtrak supporters maintain that factors other than operational self-sufficiency should be considered. They especially point out the role that Amtrak played in the immediate aftermath of the September 11, 2001 terrorist attack, in which Amtrak provided a viable and valuable alternative to air travel.

With the on-going debate in Congress, little actual progress is being made in the development of High Speed Rail (HSR) Corridors. Currently the only HSR service operating in the country is the recently opened Acela service along the Northeast Corridor (Washington to Boston). However, a total of eleven HSR corridors have been designated by the US Department of Transportation, including the Gulf Coast Corridor that is envisioned to connect New Orleans, with Houston, Birmingham, and Jacksonville. The Southern Rapid Rail Transit Commission, responsible for the Gulf Coast HSR Corridor, continues to advance various small projects regarding track and route analysis for selected portions of the corridor, evaluates grade crossing enhancements, and continues with strategic planning initiatives affecting the Commission and the Corridor.

Private Bus Carriers Issues

In addressing issues regarding private motor carriers, the operations of Greyhound Lines, Inc. were analyzed as it is the largest North American provider of intercity bus transportation, serving over 3,700 destinations with 21,000 daily schedules in the US and Canada and connections with all major bus lines in Mexico. The company also offers charter, package express, and food services. "We are the glue that binds rural and small towns and America's urban centers" a Greyhound executive recently stated. Greyhound today is actively engaging the public sector to raise awareness of the unique role the company can play in the provision of regional and statewide transportation services. Currently Greyhound is a major player in intermodal transportation, being a tenant in over 100 rural, small urban and urban intermodal centers throughout the US with planning and development for over 100 more.

<u>New Initiatives</u>

New areas of involvement by the company include the following:

- Commuter service
- Planning and development of regional intermodal transportation plans
- Service linkages with existing and planned air-rail-bus-train networks
- ITS applications and provision of applied information services

According to company literature, "Greyhound is now able to enter cost-sharing arrangements with local and state governments that minimize public outlay while sharing the risks and the rewards. We always hope that operating costs are borne by the farebox; but when that's not possible, a much smaller subsidy is required because in most areas Greyhound already has an investment in infrastructure and overhead."

Greyhound has expanded rural service in the last five years. The company is normally more cost competitive in rural areas. Currently they or their subsidiaries receive subsidies - either directly or indirectly - for rural intercity bus service in 15 states. As one example, Greyhound partners with South Central Arkansas to provide a local match for their state operating grant to provide feeder services and then Greyhound pays them a commission for each ticket they sell into the Greyhound system. Greyhound has been provided capital, operating, marketing and/or planning assistance, either directly or indirectly, from about 25 states. **Table 7.16** displays the passenger load analysis for Greyhound Lines.

Table 7.16
Greyhound Lines
1991, 1995, & 2000

	1991			1995			2000		
	Total Buses	Pass. Inbound	Pass. Outbound	Total Buses	Pass. Inbound	Pass. Outbound	Total Buses	Pass. Inbound	Pass. Outbound
Alexandria, LA	4,198	68,099	68,707	*			*		
Baton Rouge, LA	5,694	169,327	168,260	11,667	297,642	296,076	13,202	383,921	384,522
Lafayette, LA	4,024	110,732	111,735	*			*		
New Orleans, LA	12,954	296,230	296,135	10,270	197,402	182,837	9,048	191,816	183,529
Shreveport, LA	7,636	158,553	158,268	7,643	162,868	160,145	7,305	197,985	196,833

*Note-Greyhound discontinued using Alexandria & Lafayette as Control Points in 1992 and by-passed New Orleans, LA on selected schedules in 1999, thus reducing the number of passengers through New Orleans, LA (Baton Rouge, LA to Mobile, AL)

Ridership Profile

Greyhound, the nation's largest private bus carrier is representative of overall market trends in the motor carrier industry. Up until 9/11/01, the company was experiencing a roughly 8 percent annual growth rate during the period 1994 through 2000. Post 9/11 this rate of growth has declined: peak period travel is down 1 to 4 percent; off-peak travel is substantially worse. Company executives believe that the fundamental cause of this decline is the decision by potential riders to make discretionary trips by car. With regards to their ridership profile, according to Craig Lenzsch, president and CEO, "more riders are Latino (20-25 percent) and there has been a shift to an average younger age, however, senior citizens continue to be a significant part of the company's overall market."

Bicycle and Pedestrian Issues

One of the provisions of TEA-21 is to make bicycling and walking safer and more viable way of travel. States have been using the funding available through the federal Transportation Enhancement Program to make considerable improvements to their bicycle and pedestrian infrastructure. Louisiana has only recently begun to address these issues. DOTD has a staff person who coordinates bicycle projects at the State level; metropolitan planning organizations (MPOs) and various municipalities have been increasing their efforts to acquire TEA-21 Enhancement funds to provide bicycle and pedestrian facilities in their areas. Stronger efforts should be made to acquire funds available for bicycle and pedestrian uses and to continue efforts at providing the necessary infrastructure. Improving bicycle and pedestrian facilities relates to a planning factor of TEA-21; protecting and enhancing the environment, promoting energy conservation, and improving quality of life.

An important element in improving bicycle and pedestrian facilities in the State is the consideration of bicycle and pedestrian infrastructure, where feasible, as an integral part of the design process for highways and transit projects. In other words, consideration of those for whom bicycling and walking are their main forms of transportation should be routine procedure. For many states, this is already standard policy. For example, state highway projects should consider the feasibility of wide shoulders for use by bicycles; the replacement of bridges should consider dedicated bike lanes and pedestrian walkways; transit projects should consider getting bicycles onto buses or improving bicycle facilities at transit hubs. Doing so might encourage more Louisiana citizens to make trips by bicycle or on foot.