



# Louisiana

Statewide Bicycle and Pedestrian Master Plan 2009



Louisiana Statewide Bicycle and  
Pedestrian Master Plan  
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Prepared for:

The Louisiana Department of  
Transportation and Development

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In association with:

**Toole** Design Group

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# FINAL REPORT

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Prepared for

The Louisiana Department of Transportation and Development

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## EXECUTIVE SUMMARY

The Louisiana Bicycle and Pedestrian Master Plan establishes new policies for the Louisiana Department of Transportation and Development which encourage a complete and multi-modal transportation system for the State of Louisiana. The Plan has been developed to ensure that bicycling and walking are fully integrated into the state's transportation system. The Plan is guided by the following vision statement:

***The vision for this plan is to enable people to regularly walk and bike safely and comfortably along and across Louisiana's roads to access schools, jobs, social services, shopping, and transit and for health and recreation.*** To this end, the Department will undertake the actions outlined throughout the plan on all transportation projects that involve **federal or state funding, jurisdiction or approval**. Additionally, the Department will encourage Metropolitan Planning Organizations, Cities, Parishes and local governments to do the same on other transportation projects across the state.

This plan provides a detailed policy and action plan that will guide the Department's actions to help achieve its vision. The following are high-level goals that have been established for this plan:

**Social Equity** – Plan, design and fund a transportation system that enables mobility and access for all residents whether or not the individual has access to a motor vehicle.

**Personal Safety** – Increase the safety of the walking and bicycling environment and reduce injuries and fatalities by providing a high level of care and consideration for these modes.

**Economic Development** – Support Louisiana's economic development by planning and maintaining a transportation system that supports walkable and bikeable local shopping districts, offers diversified travel options to visitors, and supports increased tourism and recreational opportunities.

**Public Health** – Improve the health of Louisiana residents by increasing opportunities for combining physical activity with transportation and recreation.

**Environmental Stewardship** – Preserve the health of the natural environment, improve air and water quality and reduce energy consumption by increasing the rates of walking and bicycling.

To realize the vision and achieve the goals of this plan, the Louisiana Department of Transportation has established the following policies.

## **EXECUTIVE SUMMARY**

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### **Policy 1: Pedestrian & Bicycle Accommodation Policy**

To varying extents, bicyclists and pedestrians are present on all highways and transportation facilities in Louisiana where permitted. Encouraging increased levels of bicycling and walking supports the Department's goals of increasing mobility, reducing congestion and improving the environment. Therefore, the Department will plan and design roadways that accommodate walking and bicycling. This does not mean that all roads require designated facilities to be compatible with walking and bicycling. Sidewalks and designated bikeways will generally not be provided in rural or undeveloped areas. The Department will consider the needs of pedestrians and bicycles at appropriate stages during all projects and use current nationally recognized planning and design guidelines, manuals and best practices to ensure facilities are built to appropriate standards.

The following exceptions and clarifications apply to the above policy:

- Where the cost of the accommodations is deemed by the Department to be excessive.
- Where bicycle and pedestrian use is prohibited.
- This policy does not mean that all roads require designated facilities to be compatible with walking and bicycling. Sidewalks and designated bikeways will generally not be provided in rural or undeveloped areas or on portions of the farm-to-market network where bicycle and pedestrian activity is expected to be minimal.
- On projects that are preservation only, DOTD will only consider improvements that do not require right-of-way acquisition, utility relocation, or major construction to provide bicycle or pedestrian accommodations, such as relocating or enclosing roadside drainage.

### **Policy 2: Pedestrian & Bicycle Safety Policy**

The Department will provide for the safety and comfort of pedestrians and bicyclists and make every effort to reduce crashes and injuries associated with these modes. All projects shall consider the impact that improvements will have on pedestrian and bicycle safety and make all reasonable attempts to mitigate negative impacts on these modes. Restricting bicycle and pedestrian access should not be considered as an appropriate strategy with the exception of those limited access facilities where pedestrians and bicycles are prohibited and other locations where allowing such access would endanger bicyclists and pedestrians.

### **Policy 3: Pedestrian Facility Policy**

The Department will plan, fund and design sidewalks on all new construction or reconstruction roadway projects that serve adjacent areas with existing or future development including, but not limited to, residences, apartment buildings, public transit facilities, schools and universities, shopping and employment centers, recreational facilities,

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community centers and public and governmental buildings provided that the respective local government executes an agreement with the Department whereby the maintenance of the sidewalk becomes the responsibility of the local government in perpetuity. The Department will strive to ensure projects do not become barriers to walking and bicycling by providing appropriate safe crossings and ensure transportation projects comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Public Right of Ways Accessibility Guidelines (PROWAG).

**Policy 4. Bicycle Facility Policy**

The Department will provide bikeways and bicycle accommodations on all projects where feasible and appropriate. In most cases, the provision of paved shoulders of sufficient width will suffice. Bike lanes are the preferred facility on urban and suburban arterials and collectors. The provision of bicycle paths separated from the roadway will require an agreement between the respective local government(s) and the Department whereby the maintenance of the path becomes the responsibility of the local government(s) in perpetuity.



## CHAPTER 1: INTRODUCTION

### PURPOSE OF THE PLAN

The Louisiana Department of Transportation and Development (LDOTD) has undertaken this plan to develop a comprehensive and integrated policy approach to guide decision-making on accommodating walking and bicycling on and along Louisiana's roads. This plan builds from the foundation of the 1998 Statewide Bicycle and Pedestrian Master Plan. It is recommended that this plan be adopted as part of the Statewide Transportation Plan.

The main focus of the plan is to provide direction to individual LDOTD divisions and programs. Achieving the goals of this plan, however, will also require coordination with other State and regional agencies, municipalities, organizations, businesses and residents. This plan provides a set of detailed policy recommendations, identifies the actions and actors necessary to achieve these objective within a specified timeframe.



***Walking and bicycling are healthy, economical and environmentally-friendly forms of transportation.***

### CHALLENGES

Walking and bicycling are fundamental forms of transportation and tens of thousands of people walk and bicycle daily in Louisiana. This plan has been undertaken with a degree of urgency given some of the challenges the State currently faces. At a series of public meetings held throughout the State in the summer and fall of 2008, the following concerns were voiced:

- There are few designated places to bicycle or walk safely and comfortably.
- When present, sidewalks are often narrow and provide no buffer from faster moving traffic.
- Intersections are often difficult to cross safely on foot and bike, and they often have no pedestrian accommodations such as pedestrian signals, marked crosswalks or sufficient crossing time.

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- There are few designated bike lanes and bicycle facilities.
- Some roads and sidewalks are poorly maintained making walking and bicycling difficult.
- Motorists are often not aware of their responsibility to share the road with pedestrians and bicyclists.
- Land use and development patterns are often not conducive to comfortable and convenient walking and bicycling.

***A review of existing programs and policies revealed the following findings:***

- There were a disproportionately high number of fatalities (107, 10.8% of all fatalities) on state highways in 2007 when compared to the pedestrian mode split (2% of all trips).<sup>1</sup>
- Historically, the number of walking and bicycling trips in Louisiana has well below the national average.
- LDOTD's current design standards and guidelines result in the construction of roadways that are often not compatible with bicycling and walking.
- There is limited and occasionally conflicting guidance on designing roadways that provide for the needs of people walking and bicycling.
- LDOTD's current sidewalk policy discourages their construction.
- Financial constraints make it difficult to fund transportation projects, causing bicycle and pedestrian accommodations to be seen as "extras," rather than an integral part of roadway design.
- Bicycling and walking facilities and accommodations are often perceived as unfunded amenities outside the scope of roadway projects.

## OPPORTUNITIES

Despite these challenges, there are significant opportunities for improvements.

- More people in Louisiana are walking and biking than ever before (2.2% of the population walk to work, and 0.4% bicycle to work).<sup>2</sup>
- The aging baby boomer population is looking for alternatives to driving and increased opportunities for physical activity.
- The growing awareness of environmental impacts of transportation has led to a high level of public support for increased accommodation for walking and bicycling.
- There is recognition of the cost effectiveness of making pedestrian and bicycle improvements integral parts of larger projects.

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<sup>1</sup> See Chapter 2 for additional details. Based on 2004 figures.

<sup>2</sup> See Chapter 2 for additional details.

- New resources on design strategies are available, and can help increase safety for pedestrians and bicyclists.
- Staff of LDOTD is supportive of these new measures.
- Build on and support the efforts of public health agencies which promote walking and bicycling as physical activities which reduce the risk of diabetes, heart disease and other chronic diseases.

## NATIONAL BICYCLE AND PEDESTRIAN POLICY

Federal policies clearly state that the needs of bicyclists and pedestrians should be considered in every transportation project. Statements on accommodating bicycles and pedestrians can be found in the most recent transportation law (SAFETEA-LU), and in policies issued by the United States Department of Transportation (USDOT).

### SAFETEA-LU

On August 10, 2005 the Safe Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU) became law. This bill added new language to the existing body of non-motorized transportation guidance. The bicycle and pedestrian provisions of SAFETEA-LU include the following policies:

- “Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction and transportation facilities, except where bicycle and pedestrian use are not permitted.” (23 U.S.C. Section 217(g)(1))
- “In any case where a highway bridge deck is being replaced or rehabilitated with Federal financial participation, and bicyclists are permitted on facilities at or near each end of such bridge, and the safe accommodation of bicyclists can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations.” (23 U.S.C. Section 217(e))

### USDOT

The United States Department of Transportation’s (USDOT) policy on bicycling and walking is included in its 2000 publication “Design Guidance Accommodating Bicycle and Pedestrian Travel.” The document states that “bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist.” It also states that in all urbanized areas bicycle and pedestrian ways “shall be established” with exception for situations where bicycles and pedestrians are prohibited, where the cost of accommodation exceeds 20% of the total project cost or where there is an absence of need. The policy also states that any exceptions to the policy should be approved at a senior level.

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The purpose of this plan is to develop a policy that meets the requirements outlined above and is both appropriate to the context of Louisiana and to the constraints of the LDOTD and also achieves the vision and goals set forth by the hundreds of citizens participating in this process.

### VISION & GOALS

It is the mission of the LDOTD “to deliver transportation and public works systems that enhance quality of life and facilitate economic growth and recovery.”

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**Public Health** – Improve the health of Louisiana residents by increasing opportunities for combining physical activity with transportation and recreation.

**Environmental Stewardship** – Preserve the health of the natural environment, improve air and water quality and reduce energy consumption by increasing the rates of walking and bicycling.

## CHAPTER 2: EXISTING CONDITIONS: WALKING & BICYCLING IN LOUISIANA

Walking and bicycling are low cost transportation options with minimal environmental impacts and positive community health benefits. Louisiana ranks 4<sup>th</sup> in the nation in terms of the population without a driver's license.<sup>3</sup> Therefore, it is critical for the Louisiana Department of Transportation and Development to have clear, specific policies and procedures that address non-motorized transportation needs.

### CURRENT LEVELS OF BICYCLING AND WALKING IN LOUISIANA

The decision to walk or bike is often based on economics. With an average annual cost of over \$8,000 to own and operate a car, driving is simply not an option for many Louisianans.<sup>4</sup> According to the 2000 Census, 12% of households in Louisiana did not have access to an automobile.<sup>5</sup> In the same period, the state recorded the second highest rate of poverty (15.8%), and the fourth lowest median household income (\$32,566), nationally.<sup>6</sup>

Within Louisiana, it is not just the larger cities that have relatively high rates of households without cars. In the community of Lake Providence (pop. 5,026), nearly 30% of households do not have access to a car. Other examples include small- to medium-sized towns (Marksville, Franklin), communities within larger urbanized areas (Gretna and Bridge City, which are both within the Greater New Orleans area), and mid- to large-sized cities (Opelousas, Alexandria). These places represent urbanized (areas over 50,000 in population), and urban (areas between 5,000 and 50,000 population) where between 17% and 27% of the households do not have access to a car.<sup>7</sup>

According to the 2000 Census, nearly 47,000 (2.6%) people walked or bicycled to work in Louisiana. This number does not include the thousands who may have incorporated walking or bicycling into other means of transportation, such as public transportation or carpools. There are also many thousands of Louisiana residents who regularly walk or bicycle for recreation, exercise, to school and to shopping. A complete table assessing the travel modes of Louisiana's workforce may be found in Appendix Six.

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<sup>3</sup> Louisiana Department of Transportation and Development, Louisiana Statewide Transportation Plan, prepared by Wilbur-Smith Associations, Inc., 2003.

<sup>4</sup> The American Automobile Association (AAA) reported the national annual average cost of automobile ownership at \$8,121 in 2008 (that's \$6,583 in 2000 dollars).

<sup>5</sup> U.S. Bureau of the Census, 2000. SF-3 sample data. Combined owner occupied and renter occupied units.

<sup>6</sup> U.S. Bureau of the Census, 20000. SF-3 sample data.

<sup>7</sup> Car-free Database, Bikes at Work, Inc. <http://www.bikesatwork.com>. Based on 2000 Census data.

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### WHERE ARE PEOPLE WALKING?

Statewide, 2.4% of the workforce traveled as a pedestrian. The highest rates of Louisiana workers commuting on foot are not limited to the largest urbanized places in the state, nor are they necessarily correlated with access to automobiles. Fort Polk South has almost three times as many pedestrian commuters as any other place in Louisiana (16.9%), despite having a relatively high car ownership rate. This high percentage of pedestrians is common at military bases as the proximity between barracks and work areas lends itself to walking. As would be expected the two largest urbanized areas (New Orleans - 5.3% and Baton Rouge - 3.9%) have high rates of pedestrian commuters, however, several of the places with relatively high rates of pedestrian commuters are small cities, such as Donaldsonville (5.5%), Natchitoches (5.9%), and St. Martinville (4.3%). These statistics may be due in part to the physical form of these communities.<sup>8</sup>

In several cases, these communities are more ‘walkable’, meaning that they invite pedestrians to walk by doing one or more of the following: mixing land uses, so that origins and destinations are within close proximity to one another; and engineering a designated space for safe and comfortable pedestrian usage, such as sidewalks and crosswalks. These communities frequently provide relatively good connectivity, allowing pedestrians to get to their destinations without having to go too far out of their way. They often offer attractive walking environments because of the building scale, landscaping and street furniture. Furthermore, the traffic volumes and traffic speeds may be more compatible with walking.

### WHERE ARE PEOPLE BICYCLING?

Statewide, 0.6% of the workforce traveled by bicycle to work.<sup>9</sup> Bicycle-friendly communities, like walkable communities, have elements such as a mix of land uses in relative proximity, allowing for shorter trips; a connected system of streets and trails which facilitates getting between origins and destinations efficiently. Communities with higher rates of bicycling often provide bicycle infrastructure, such as bike lanes, parking and signage, which makes it safer and more comfortable for bicyclists to ride side-by-side with vehicular traffic.

Of the places in Louisiana with the highest rates of bicycle commuters, the top communities often are home to a college or university, and some have limited bicycle infrastructure in place (New Orleans – 1.19%, Hammond – 1.43%). Covington (0.82%), Lacombe (0.68%) and a few other smaller communities provide at least some bicycle infrastructure, or are characterized by traditional small scale urban form noted above (Ponchatoula - 0.67%). Other top scoring areas

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<sup>8</sup> U.S. Bureau of the Census, 2000. SF-3 sample data.

<sup>9</sup> U.S. Bureau of the Census, 2000. SF-3 sample data.

have military facilities, such as Belle Chase (1.52%) and Leesville (1.41%). As mentioned earlier, the compact arrangement of these communities lend themselves to travel by foot or bicycle. A table of the 20 communities with the highest rates of bicycle commuters may be found in Appendix Six.<sup>10</sup>

## WHERE ARE PEOPLE RIDING TRANSIT?

Most transit users start and end their trips as pedestrians or as bicyclists. Therefore, there should be an expectation that pedestrians will be present along transit routes.



*A pedestrian walks in the shoulder of LA 1/Youree Drive in Shreveport, LA to catch the Highland/#8 bus.*

In 2000, 43,277 (2.4%) Louisianans took public transportation to work. Generally, rates are highest in areas where transit is more widely available, and where parking availability may be limited or costly in the downtown. In New Orleans, 14.1% of the workforce used transit. This is three times the rate in the next highest scoring city. Other areas with relatively high rates of transit commuting are located within greater New Orleans, Baton Rouge or in cities with populations of 40,000 or more (Monroe, Shreveport, Alexandria and Lafayette). A table assessing the transit usage rates in the top 20 Louisiana communities may be found in the Appendix Six.

Fixed transit routes in Louisiana's urbanized areas are frequently located on major arterials (often state highways), where shopping, schools, community facilities and multifamily housing are present. Examples of state highways that are transit routes include Tulane Avenue (US 61) in New Orleans, Desiard (US 80) in Monroe, and MacArthur Drive (US 167) in Alexandria, LA.

## PEDESTRIAN AND BICYCLE CRASHES AND INJURIES<sup>11</sup>

Pedestrians and bicycle users are considered to be some of the most vulnerable users of the transportation system, and as such, extra care must be taken to ensure their safety and comfort.

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<sup>10</sup> U.S. Bureau of the Census, 2000. SF-3 sample data.

<sup>11</sup> Note: Crash data does not include unreported single bicycle crashes, bicycle-pedestrian, bicycle- bicycle crashes or any other crashes where police reports were not filed.

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Federal transportation policy is focused on increasing non-motorized transportation use, while reducing the number of non-motorized transportation users killed or injured in traffic crashes by at least 10 percent. In order to do this in Louisiana, it is essential to understand how and why crashes are occurring. The evaluation of Louisiana crash data from 2004 to 2006 indicates that:

- Pedestrian and bicycle crashes disproportionately result in fatalities compared to vehicle occupants.
- Evidence suggests that many of the places in Louisiana that contain bicycle infrastructure have higher rates of people bicycling to work, and lower crash rates. For example, Covington and Lacombe, which are both adjacent to the Tammany Trace, contained higher numbers of bicycle commuters.

### PEDESTRIAN CRASHES

Pedestrian crash data for the three-year period from 2004-2006 indicates that 4,143 pedestrian crashes were reported to the police, of which 1,462 or 35% occurred on the state highway network.

Discussions with LDOTD staff revealed the perception that pedestrian crashes could be overwhelmingly attributed to the influence of alcohol and/or drugs. Analysis shown in Table 2.1 indicates that while alcohol does play a role in pedestrian crashes, it is not the primary contributing factor.<sup>12</sup>

**Table 2.1: Presence of Alcohol or Drugs in Pedestrian Crashes**

Alcohol or Drugs Present	Local Streets	State Highway Network	
Neither Alcohol or Drugs	1,662	89%	786
Yes - Alcohol	135	7%	183
Yes - Drugs	7	0%	13
Yes - Alcohol and Drugs	7	0%	10
Unknown	53	3%	179

Source: Louisiana Department of Transportation and Development, Pedestrian Crash Data, 2004 – 2006.

Note: Actual totals of 2,681 (Local, 2004 - 2006) include 817 not coded; and 1,462 (State 2004 - 2006) include 291 not coded.

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<sup>12</sup> The presence of Alcohol or Drugs indicates when either the motorist or pedestrian (or both) are identified as under the influence.

Table 2.2 shows the pedestrian action at the time of crash. Trends are very similar for both local streets and the state highway network, with the exception of “Playing in the Road”, which occurs more frequently on local streets than the state highway network. Aside from playing in the road, the most common crash types are ‘Crossing at Intersections’, ‘Crossing not at Intersections’, ‘Walking in Road against Traffic’, ‘Walking in the Road with Traffic’, and ‘Standing in the Road’. Standing in the road is likely a combination of individuals waiting to cross and individuals waiting for transit.

Conversations with LDOTD staff and field observations revealed that significant contributors to the number of pedestrian crashes on local and state roads include a relative lack of pedestrian facilities at major intersections (crosswalks, pedestrian signal heads, and signage), relatively long distances between intersections, and a relative lack of sidewalks and adequate transit facilities.

**Table 2.2 Pedestrian Action at time of Crash, 2004 - 2006**

Action	Local Streets	State Highway Network
Crossing at Intersection	550	25.9%
Crossing not at Intersection	725	34.1%
Walking in Road against Traffic	84	3.9%
Walking in Road w/ Traffic	212	10.0%
Standing in Road	157	7.4%
Not in Road	170	8.0%
Playing in Road	113	5.3%
Getting on or off vehicle	46	2.2%
Other Working in Road	53	2.5%
Pushing/Working on Vehicle	7	0.3%
Sleeping in Road	10	0.5%

Source: Louisiana Department of Transportation and Development, Pedestrian Crash Data, 2004 – 2006.

Note: Actual totals of 2,681 (Local, 2004 - 2006) include 554 not coded; and 1,462 (State 2004 - 2006) include 288 not coded.

On the state highway network, pedestrian crashes disproportionately result in fatal injuries, 14% of the time. They result in fatal or severe injuries 24% of the time, as compared to 9% on the local street network. This is due in part to the higher speeds that vehicles travel on state roads.

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**Table 2.3 Severity of Pedestrian Injuries**

Severity of Injury	Local	State
Fatal	83	3%
Incapacitating/Severe	170	6%
Non-incapacitating/Moderate	934	35%
Possible/Complaint	1,118	42%
No Injury	376	14%
	210	14%
	146	10%
	450	31%
	475	32%
	181	12%

*Source: Louisiana Department of Transportation and Development, Pedestrian Crash Data, 2004 – 2006.*

## BICYCLE CRASHES

Bicycle crashes for the years 2004 to 2006 were reviewed to expand the project team's knowledge of the distribution of crashes on Louisiana's road network. In 2004 to 2006, 1115 bicycle crashes were reported on local roads, whereas 543 were reported on the state highway network. Although there were twice as many bicycle crashes on local roads compared to the state network, 30% more of the crashes on state roads resulted in a fatality.

**Table 2.4: Bicycle Crashes, 2004 – 2006**

	Local	State
Fatal	21	1.9%
Incapacitating/ Severe	62	5.6%
Non-incapacitating/ Moderate	351	31.5%
Possible/ Complaint	487	43.7%
No injury	194	17.4%
	30	5.5%
	44	8.1%
	160	29.5%
	240	44.2%
	69	12.7%

*Source: Louisiana Department of Transportation and Development, Bicycle Crash Data, 2004 – 2006.*

## PUBLIC INPUT

During the course of the Louisiana Statewide Bicycle and Pedestrian planning process, over 250 people participated in six public meetings held around the state. LDOTD hosted a webpage at: [http://www.dotd.la.gov/planning/highway\\_safety/bike\\_ped/masterplan.asp](http://www.dotd.la.gov/planning/highway_safety/bike_ped/masterplan.asp) where citizens could find updates on the process, provide additional comments, or view the presentation and materials from the public meetings.



**A citizen at the Baton Rouge public meeting shares her group's concerns about biking in Baton Rouge.**

Participation at the meetings was higher than expected, nearly reaching that of the LDOTD Statewide Transportation Plan, despite the fact that no paid advertising was used to promote the meetings. Outreach efforts focused on active citizen groups, transportation planning committees, and bicycle and pedestrian advocacy groups. The public meeting format included a brief presentation on the Statewide Bicycle and Pedestrian Plan, followed by a participatory planning exercise where groups identified their concerns for walking or biking, then solutions were discussed.

## PUBLIC CONCERN

Citizens voiced their concerns about the difficulty they experience trying to walk or bike to get to work, school, shopping, or for exercise. The concerns heard most frequently include the following topic areas:

### **Concern #1 – There are few designated places to ride or walk safely and comfortably.**

One of the most frequently expressed concerns was about the lack of facilities and designated space for walking and biking. Participants noted that many roads do not have sidewalks or bicycle facilities, even if they have transit routes, and many destinations, such as schools, community facilities and shopping. Other frequently heard comments include:

- Sidewalks often end without notification or have gaps where pedestrians have to traverse across unpaved areas.
- Sidewalks which are located immediately adjacent to travel lanes are uncomfortable for pedestrians.
- Very few roads in Louisiana include bike lanes, or even wide outside lanes which would increase the separation between cars and bicyclists.

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- Signage and lane markings (even shared lane markings) would make them feel more confident that drivers are aware of bicyclists and should share the road.
- Bridges are a major barrier to non-motorized transportation throughout Louisiana.



**A ‘goat trail’ shows the pedestrian desire line on LA 838/New Natchitoches Road near Riser Junior High School in Monroe, LA**

### **Concern #2 – It is difficult to get across intersections safely**

Both bicyclists and pedestrians expressed difficulty getting across intersections for a number of reasons. Topics of particular concern included:

- Many major intersections, particularly in suburban areas, lack crosswalks, pedestrian signal heads, and don’t provide enough crossing time.
- The wider the street, the more difficult it is to cross, especially if there is no median to provide refuge.
- Automobile drivers may not understand Louisiana driving laws and behave as if the bicyclists are doing something incorrectly, even when they are not.

These issues seemed particularly troublesome to aging baby boomers participating, who expressed a desire to remain independent as they age and recognize that a car may not always be an option for them.



**A pedestrian waits on the downslope of a drainage swale to cross Airline (US 61) at Hemlock (LA 3224) in Laplace, LA.**

#### **Concern #3 – There are inadequate surfaces for riding and walking**

Participants in the walking and biking groups expressed that lack of maintenance results in cracked and broken pavement, which can be a trip hazard for pedestrians, and cause unplanned dismount for bicyclists. Other comments included:

- Debris in the roadway, including garbage, rocks, sand and glass can be very dangerous for bicyclists and require them to ride further from the curb than would be necessary on a clear roadway surface.
- Chip seal, an inexpensive paving treatment used most frequently in rural contexts is uncomfortable to ride on and can result in unplanned dismounts.
- Rumble strips, as well as the type of drainage grates and direction of their cross grates cause problems for cyclists.

#### **Concern #4 - Drivers can be inattentive and sometimes even aggressive. They don't know my rights and they aren't learning them.**

Bicyclists and pedestrians both had a lot to say about how they interact with drivers. One issue they described is that drivers are doing too many other things while they drive: talking on phones, eating, etc. This view is supported by the results of The Department's Strategic Highway Safety Plan. Even more disturbing to participants was driver etiquette (opening doors in bicyclists' path or making a right turn on red when the pedestrian in the crosswalk legally has the right of way) and at times intentionally aggressive behavior, such as intentionally passing cyclists closely.

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### **Concern #5: Land Use and Development patterns aren't geared towards biking and walking. It isn't comfortable or convenient to walk or bike.**

Bicyclists and pedestrians who participated in the meetings felt strongly that being able to walk and bike to get around should not be 'optional', or 'amenities'. At all six of the meetings, participants expressed the view that walking and biking are fundamental modes of travel, and pedestrians and bicyclists, whether by choice or necessity, have a right to get around safely. However, they observed that many Louisiana communities aren't geared towards biking and walking. Pedestrians desired an improved walking environment, with more trees, buffers between sidewalks and the street, bus shelters and connectivity between land uses. Bicycle users identified a lack of bike parking, a lack of contiguous routes and signed routes and the inability to actuate signals as problems which make biking more inconvenient.

## CHAPTER 3: THE PROGRAMS, POLICY, PLANNING AND DESIGN ENVIRONMENT

### LDOTD PEDESTRIAN & BICYCLE PROGRAM

The 1991 Federal Intermodal Surface Transportation Efficiency Act (ISTEA) mandated that each state Department of Transportation create a State Bicycle and Pedestrian Coordinator position. According to ISTEA, the job of the State Bicycle and Pedestrian Coordinator is to promote and facilitate the use of non-motorized modes of transportation by developing facilities for pedestrians and bicycle users, and through public education, promotion and safety programs for using such facilities.

Louisiana's State Bicycle and Pedestrian Program was established in 1992. Originally, it was housed in LDOTD's Transportation Planning Section, and the position of the Bicycle and Pedestrian Coordinator was a part-time position.

In 1998, the first Statewide Bicycle and Pedestrian Plan was prepared for the LDOTD. This plan assessed the state's bicycling and walking environment at that time, and provided direction both in terms of policy and design guidance based on the standards at that time. The 1998 plan was both comprehensive and innovative at that time, but was largely not implemented. The most successful outcomes of that plan were:

- The adoption of *Engineering Directives and Standards Manual* (EDSM) elements related to planning for bicycles and pedestrians (II.2.1.14, II.2.1.10, and II.3.1.4)
- The creation of bicycle goals maps

In 2002, the position of the State Bicycle and Pedestrian Coordinator became full-time and the Bicycle and Pedestrian Program moved to the Highway Safety Section. Other important milestones of the program are:

- **August 2004** - hosted the first Louisiana Bicycle and Pedestrian Safety Summit
- **July 2005** - contracted with the New Orleans RPC to develop a bicycle and pedestrian safety and healthy community education program. This program serves as a statewide model for bicycle and pedestrian awareness planning.
- **May 2006** - in partnership with CRT, completed and documented a comprehensive inventory of Louisiana bicycle facilities.
- **September 2006** - Bicycle and Pedestrian elements included as a high-priority emphasis in the Louisiana Strategic Highway Safety Plan.

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### TRANSPORTATION ENHANCEMENT PROGRAM

In addition to mandating the position of a State Bicycle and Pedestrian Coordinator, ISTEA also introduced the Transportation Enhancement Program (TEP). LDOTD began developing their program and has included more than \$104.5 million in projects from 1992 to 2006. The purpose of the TE Program is to provide a funding source for projects that enhance the historic, cultural, or aesthetic quality of the surface transportation experience and fall into one of the following 12 categories.

**Table 3-1. Transportation Enhancement Program (TEP) Categories and Funding Allocation Amounts, 1992 – 2008, State of Louisiana.**

Category	Description	Funding Allocated	
		1992 - 2008	
1	Provision of facilities for pedestrians and bicyclists	\$84,788,610	71.4%
2	Provision of safety and educational activities for pedestrians and bicyclists	\$142,616	0.1%
3	Acquisition of scenic easements and scenic or historic sites (including historic battlefields).	\$331,700	0.3%
4	Scenic or historic highway programs (including the provision of tourist and welcome center facilities).	\$8,849,336	7.5%
5	Landscaping and other scenic beautification.	\$17,043,751	14.3%
6	Historic preservation.	\$1,648,721	1.4%
7	Rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals).	\$2,474,068	2.1%
8	Preservation of abandoned railway corridors (including the conversion and use of the corridors for pedestrian or bicycle trails).	\$2,140,743	1.8%
9	Inventory, control, and removal of outdoor advertising.	\$119,120	0.1%
10	Archaeological planning and research.	\$77,577	0.1%
12	Establishment of transportation museum	\$1,158,900	1.0%
<b>TOTAL</b>		<b>\$118,775,142</b>	<b>100.0%</b>

*Source: National Transportation Enhancements Clearinghouse.*

Of the \$118.8 million noted above, approximately \$87,072,000 or about 73% were directly related to bicycle or pedestrian improvements.<sup>13</sup> This equates to approximately \$7 million per year on bicycle and pedestrian facilities.

As noted in the TEP guidelines, the first category, provision of facilities for bicycle and pedestrians, is for facilities that are not included or required as part of routine transportation projects. Eligible activities include the construction of facilities where none currently exist, or refurbishing or rehabilitating existing facilities to make them more usable for bicyclists and pedestrians. In summary, the purpose of this category is to *enhance*, rather than to provide a new funding source for elements which should be routinely included in new or ongoing projects, although it can be used to correct past oversights.

The second category, provision of safety education activities, is for the purpose of developing training, information and/or encouragement programs. One example of this type of project is the ‘Lafayette Pre-teen Peddlers’, which received \$142,000 in 2000. The eighth category, preservation of abandoned railway corridors can be used for rails to trails conversions. One of the first TEP projects in Louisiana, the Tammany Trace in St. Tammany Parish, received over \$1.6 million in 1992.



***The Tammany Trace in downtown Abita Springs.***

The TE Program has been identified by numerous sources throughout the key staff interview process as the primary way that bicycle and pedestrian facilities are funded in the state. Federal law allows bicycle and pedestrian facilities to be funded through a wide variety of programs, and federal guidance encourages bicycle and pedestrian facilities to be included as an incidental part of larger projects and to not rely primarily on Transportation Enhancement monies.

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<sup>13</sup> Categories 1, 2, and 8 combined.

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### SAFE ROUTES TO SCHOOL

The Safe Routes to School (SRTS) Program was established in August 2005 through the federal transportation reauthorization bill, SAFETEA-LU. The bill provided multi-year funding (2005 – 2009) for each state to establish a SRTS Program.

The purpose of the program is to increase the number of children who walk or bike to school by providing grants to local governments, schools, school boards and non-profit organizations. Program goals include reduced traffic around schools, reduced transportation costs for school districts and increase physical activity for kids. There are two types of eligible activities; infrastructure activities which involve the built environment surrounding a school; and non-infrastructure activities which involve soft side activities that ensure usage and adherence to ped/bike laws and regulations.

To date, the Louisiana SRTS program has funded 5 infrastructure projects, 6 non-infrastructure projects, and 20 comprehensive projects that involve both infrastructure and non infrastructure projects for a total of \$6,559,143.

### METROPOLITAN TRANSPORTATION PLANS

LDOTD has oversight of the Louisiana transportation systems and has the authority to plan and administer programs and projects on a state level. Likewise, the eight Metropolitan Planning Organizations (MPOs) have a special role in guiding funds and prioritizing transportation funds at the regional level. A mutually cooperative relationship is necessary between the LDOTD and each of the eight MPOs in the State. The LDOTD approves the disbursement of MPO funds, referred to as federal-aid dollars. Each of the four MPOs with population over 200,000 (New Orleans, Baton Rouge, Lafayette and Shreveport) must concur on state programming for the National Highway System and Bridge and Interstate Maintenance funds in their region.

As part of this relationship of mutual collaboration, LDOTD and MPOs share the responsibility for planning and designing roads that routinely accommodate pedestrians and bicycles. Doing so is essential for achieving the integration of safety, equity and environmental objectives as established through ISTEA, TEA-21 and SAFETEA-LU.

Transportation safety can be integrated into the metropolitan planning process through an emphasis on vehicle crash reduction and improved pedestrian and bicycle safety. One example of a way that this is being addressed locally is the Safety Advisory Committee formed by New Orleans RPC and LDOTD District 02. The purpose of this committee is to identify data collection needs and strategies as well as countermeasures to address incidences of vehicular, pedestrian and bicycle crashes.

Objectives for improving air quality can be tied to managing congestion. The New Orleans RPC uses pedestrian and bicycle improvements as a means of addressing performance-based goals of reducing Vehicle Miles Traveled (VMT), and the Lafayette MPO is in the process of updating their plan to do the same.

Although LDOTD administers the Transportation Enhancement Program as a statewide competition; MPOs are often heavily involved in the process. They often assist citizen groups with project identification and application processes.

**Table 3-2: Metropolitan Planning Organizations (MPO)s and their jurisdictions.**

MPO	Urbanized Area	Included Parishes
Capital Region Planning Commission (CRPC)	Baton Rouge	East Baton Rouge, West Baton Rouge, Livingston, Ascension
New Orleans Regional Planning Commission (NO RPC)	New Orleans	Orleans, Jefferson, Plaquemines, St. Bernard, St. Tammany, St. Charles
South Central Planning and Development Commission (SCPDC)	Houma-Thibodeaux	Terrebonne, Lafourche
Lafayette Consolidated Government (LCG)	Lafayette	Lafayette, Vermillion, Iberia, St. Martin, Acadia
Imperial Calcasieu Regional Planning and Development Commission (IMCAL)	Lake Charles	Calcasieu
Rapides Area Planning Commission	Alexandria	Rapides
North Delta Regional Planning and Development Commission	Monroe	Ouachita
Northwest Louisiana Council of Governments (NLCOG)	Shreveport-Bossier	Bossier, Caddo, DeSoto

*Source: Bureau of Transportation Statistics, 2009.*

One of the primary tasks of each MPO is to develop the Transportation Improvement Program (TIP). Despite guidance from FHWA, each has broad autonomy as to the level of detail they choose to provide in planning and programming for bicycle and pedestrian facilities. They are, at a minimum, required to:

- Consider all modes of transportation
- Provide for the development and implementation of an intermodal system

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- Include representatives of users of pedestrian walkways and bicycle transportation facilities in the list of interested parties.
- Give due consideration to bicyclists and pedestrians in the comprehensive transportation plans developed by each MPO and State

### PLANNING FOR BICYCLES AND PEDESTRIANS

The importance of planning and designing for pedestrians and bicyclists has been emphasized in many of the Department's strategic planning and policy development efforts. In addition, reducing crashes and injuries for these modes has been identified as a critical component of the Department's safety efforts. This section will review the significant role pedestrians and bicycles play in the following plan and policies:

- Louisiana Statewide Transportation Plan
- Strategic Highway Safety Plan
- LDOTD 2008-2013 Strategic Plan
- Context Sensitive Solutions Policy
- Environmental Policy Statement

### LOUISIANA STATEWIDE TRANSPORTATION PLAN

The Louisiana Statewide Transportation Plan includes numerous bicycle and pedestrian recommendations which "represent LDOTD's commitment to providing the planning and infrastructure necessary to make non-motorized modes a viable transportation option for Louisiana's citizens."

- BP-1: Develop a comprehensive policy for non-motorized transportation
- BP-2: Develop statewide bicycle suitability map
- BP-3: Develop statewide bicycle goals map
- BP-4: Provide for "routine accommodation" of bicycle/pedestrian needs in LDOTD planning and design processes
- BP-5: Support incorporation of bicycle and pedestrian improvements in transportation planning and in highway and transit projects

The bicycle and pedestrian objectives were recommended under all funding scenarios.

## STRATEGIC HIGHWAY SAFETY PLAN

Beginning with SAFETEA-LU, all states are required to create and adopt a Strategic Highway Safety Plan (SHSP). The purpose of the plan is help states reduce fatalities and injuries through a data-driven effort that brings together different agencies and stakeholders to focus on the common goal of making the transportation system safer.

Louisiana's SHSP identifies bicycle and pedestrian crash reduction as one of its core emphasis areas. Pedestrians, bicyclists, and motorcyclists are termed "vulnerable road users" because they are defenseless in a crash involving a motorized personal or commercial vehicle and often die or are seriously injured when these collisions occur. The plan recognizes that one out of every 10 traffic fatalities in Louisiana is a pedestrian.

A key recommendation of the SHSP plan is to integrate a safety focus into all transportation areas as a tool to leverage limited resources. Safety improvement projects at high crash locations can be funded through a variety of sources, including State Cash, STP-Flex, STP<5K and STP Hazard Elimination Funds. The Highway Safety Improvement Program policy and procedures are contained in EDSM VI.1.1.2. The EDSM outlines procedures for identifying and evaluating high crash locations. It also establishes priorities for implementation of safety improvement projects.

## LDOTD 2008-2013 STRATEGIC PLAN

The following are the key pedestrian and bicycle related recommendations from the Department's Strategic Plan and are key components of this plan.

3.3.1. Objective: To reduce the number of fatalities on Louisiana public roads by six percent each fiscal year through June 30, 2013.

3.3.1.1. Implement the Strategic Highway Safety Plan (SHSP) through a collaborative partnership with highway safety stakeholders such that the priorities, programs, and projects of each support the emphasis areas identified in the SHSP.

3.3.1.2. Improve the system utilized to track roadway departure fatalities, intersection-related fatalities, pedestrian fatalities, railroad crossing fatalities, and work-zone fatalities.

3.3.1.3. Identify crash locations and corridors involving roadway departure fatalities, intersection-related fatalities, pedestrian fatalities, railroad crossing fatalities, and work-zone fatalities.

3.3.1.4. Develop countermeasures to reduce roadway departure fatalities, intersection-related fatalities, pedestrian fatalities, railroad crossing fatalities, and work-zone fatalities.

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3.3.1.5. Program a minimum of \$20 million in highway safety construction projects each fiscal year including countermeasures to reduce roadway departures, improve intersections, and improve pedestrian safety.

### PUBLIC TRANSPORTATION

The Strategic Plan also articulates the Department's mission for public transportation: "To improve public transit in all areas of the state so that Louisiana's citizens may enjoy an adequate level of personal mobility regardless of geographical location, physical limitation or economic status."

The Plan calls for all parishes to have a public transportation system by 2020. Providing safe access to bus stops and transit hubs is a critical component of an effective public transportation system. Moreover, transit is especially important for the mobility of certain populations including children, the elderly, people with disabilities and others who do not operate, own or have access to private automobiles.

### CONTEXT SENSITIVE SOLUTIONS POLICY

In 2007, the Department adopted a Context Sensitive Solutions (CSS) policy. CSS focuses on developing transportation solutions that fit within the context of their surroundings. A key consideration of CSS is balancing the needs of highway system safety and capacity with a wide range of community needs such as cultural and historic preservation, community growth and sustainability, access, cohesion, aesthetics, safety, mobility, and cost effectiveness. In many cases, a CSS process may seek to identify ways to limit the impacts of a transportation project by lessening the overall footprint. In these cases, accommodations for bicycling and walking should not be compromised. Walking and bicycling are critical to a community's safety and mobility, and accommodation of these modes must be a fundamental aspect of any transportation solution.

### ENVIRONMENTAL POLICY STATEMENT

The Department is committed to preserving natural resources and encouraging conservation.

- It is the mission of the Louisiana Department of Transportation and Development to ensure that our customers those who live, work, and travel in Louisiana have a safe, efficient, and environmentally sound transportation system.

Creating safe places for walking and bicycling supports the Department's mission as walking and bicycling are inherently environmentally friendly modes if travel, with no emissions and a negligible footprint.

## PROJECT DEVELOPMENT

In 2005, the department adopted a new Project Delivery Process. The process is intended to ensure a comprehensive and streamlined approach to the planning, design and construction of transportation facilities. Pedestrians and bicyclists will be impacted by decisions made through this process. Understanding the needs of pedestrians and bicyclists and ensuring that projects provide the appropriate level of accommodation requires that they be considered throughout the development of a project.

In order to ensure that pedestrian and bicycle improvements are cost effective and do not negatively impact project schedules, this plan recommends that the Project Delivery Manual be updated as detailed below and illustrated in Appendix A.

### STAGE 0 – FEASIBILITY

During Stage 0, the Department determines the feasibility of a project. As bicycling and walking are fundamental modes of travel throughout Louisiana, consideration of these modes will be integrated into the Stage 0 process. Projects vary significantly in size and type and range from pavement preservation projects along a section of rural highway to the replacement of major bridges in an urban environment. As the complexity and cost differs from project to project, so does the type of pedestrian and bicycle accommodations which should be provided. On a pavement preservation project, purchasing additional right of way in order to provide bike lanes might not be feasible, while adjusting lane widths or providing a paved shoulder are decisions that may not significantly impact a project's overall cost or schedule.

Stage 0 determines the feasibility of projects, and ultimately results in a “go/no-go” decision for project advancement. There are six primary tasks that occur in Stage 0. These are:

1. Preliminary Purpose and Need
2. Preliminary Alternatives and Initial Feasibility Analysis
3. Design Criteria and Initial Context Determination
4. Preliminary Environmental Review
5. Agency and Public Involvement Plan
6. Preliminary Project Estimate and Budget

The development of the purpose and need should extend beyond the vehicular mode to identify the needs of non-motorized transportation users as well. This step is essential because it sets the benchmark for what the project aims to achieve. Preliminary alternatives can then be developed to address the needs of all users. The establishment of design criteria will further

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refine type and placement of bicycle and pedestrian facilities, as this is the step when the width of lanes, whether or not shoulders are present, etc. are established. The preliminary environmental review for Stage 0 is referred to as the Stage 0 Checklist. The Stage 0 Checklist should be modified to include reference to the LDOTD's Bicycle & Pedestrian policies. The agency and public involvement plan should be modified to require the LDOTD Bicycle and Pedestrian Coordinator to be included as a member of the "project team".

### STAGE 1 – ENVIRONMENTAL/PLANNING

The outcome of Stage 1 is the identification of a preferred alternative, including major design features. Stage 1 also includes detailed evaluation of a project's purpose, need, users, and the environment and community surrounding the project.

Pedestrian and bicycle travel are currently not included in the environmental review process. Large projects can have a negative impact on pedestrians and bicycles and their needs should be considered during the environmental review process.

There are a number of opportunities to seamlessly integrate bicycle and pedestrians into the Stage 1 Planning Process, including:

- Inclusion of Statewide Bicycle and Pedestrian Coordinator as member of project team.
- Expansion of Solicitation of Views list to include Bicycle and Pedestrian Advocacy Organizations, public health agencies, and agencies which advocate for senior citizens and persons with disabilities (similar to the environmental organizations currently included on the SOV list).
- Requirement to review for consistency with local MPO and/or City/Parish Plans.
- Consideration for inclusion in Purpose and Need Statement (falls into both FHWA recommended categories of modal interrelationships and safety).
- Development of Alternatives would include determining appropriate facilities.
- Environmental Determination Checklist should be updated to include reference to the Bicycle and Pedestrian Accommodation Checklist included in Appendix Two.

### STAGE 2 – FUNDING

By incorporation pedestrian and bicycle elements into Stages 0 and 1, they will be funded as an integrated element of a project.

## STAGE 3 – FINAL DESIGN

At the outset of the final design stage, a pre-design conference occurs. The pre-design conference, like previous processes at LDOTD, is guided by a Checklist, referred to as the Reconnaissance Evaluation/Pre-design Planning Conference. Minor adjustments to the checklist include:

- Inclusion of bicycle and pedestrian coordinator as member of project team.
- Traffic section: include pedestrian detour question.
- Road Design section and Bridge Design Sections: Delete existing questions regarding bicycle and pedestrian facilities and refer to new Bicycle & Pedestrian Design Checklist.

## DESIGN POLICY, MANUALS & STANDARDS

The Department has a duty to provide for the safety and accommodation of pedestrians and bicyclists. Pedestrian and bicycle facilities are less expensive when they are integrated into larger projects from the beginning as opposed to stand-alone retrofits. Integrating pedestrian and bicycle facilities into all projects can also help ensure that roadways do not become barriers to walking and bicycling.

The FHWA has issued policy guidance stating that “bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist.”

To ensure the highest standard of care for all travelers, projects should be designed and constructed using the most current appropriate national standards. Consulting current guidelines is especially critical for bicycling and walking transportation as the safety of these modes has benefited from a growing body of research and study. The following guidelines and standards should be consulted to ensure that all projects designed appropriately for bicyclists and pedestrians:

- A Policy on Geometric Design of Highways and Streets, AASHTO
- A Guide to the Development of Bicycle Facilities, AASHTO
- Guide for the Planning, Design and Operation of Pedestrian Facilities, AASHTO
- Manual on Uniform Traffic Control Devices, FHWA
- Americans with Disabilities Accessibility Guidelines, US Access Board
- Public Rights-of-Way Accessibility Guidelines, US Access Board
- Designing Sidewalks and Trails for Access, Part II: Best Practices Design Guide, FHWA
- Roadway Design Manual, LDOTD
- English Design Standards, LDOTD

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### PEDESTRIANS

Pedestrians can be one of most difficult travel modes to plan and design for. Pedestrians have the most freedom of movement of any mode, and will often travel along a desired path whether or not appropriate facilities have been provided. At the same time, pedestrians are the most sensitive to their travel environment as there is no protection between a person walking and their surroundings. In recognition of this relationship between pedestrians and their environment, the following guidance should be considered on all LDOTD projects:

- A Policy on Geometric Design of Highways and Streets, AASHTO
  - *Pedestrians are a part of every roadway environment, and attention should be paid to their presence in rural as well as urban areas. (Page 96)*
  - *Pedestrian facilities include sidewalks, crosswalks, traffic control features, and curb cuts (depressed curbs and ramped sidewalks) and ramps for the older walkers and persons with mobility impairments. Pedestrian facilities also include bus stops. (Page 96)*
  - *As a general practice, sidewalks should be constructed along any street or highway not provided with shoulders, even though pedestrian traffic may be light. Where sidewalks are built along a high-speed highway, buffer areas should be established so as to separate them from the traveled way. (page 358)*
- The Manual on Uniform Traffic Control Devices, FHWA
  - *Crosswalk markings provide guidance for pedestrians who are crossing roadways by defining and delineating paths on approaches to and within signalized intersections, and on approaches to other intersections where traffic stops. (Page 3B-27)*
  - *Crosswalk markings also serve to alert road users of a pedestrian crossing point across roadways not controlled by traffic signals or stop signs. (Page 3B-27)*
  - *At non-intersection locations, crosswalk markings legally establish the crosswalks. (Page 3B-27)*

The marking of the crosswalk alone at uncontrolled crossings should be done carefully in accordance with the findings of the FHWA's 2005 "Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations." At uncontrolled crossings of multilane roadways with speeds over 40 mph, additional engineering treatments to supplement the marked crosswalk should be included.

### BICYCLISTS

Some challenges arise from the unique operating characteristics of bicycles. Roadway deficiencies, which are minor problems for motor vehicles, can be major problems for bicyclists. Also, some roadway features that comply with design standards can be still be problems for bicyclists, such as rumble strips and bridge expansion joints. The manuals referenced in this

section reflect much of the latest research on this subject and should be referenced during LDOTD design and construction projects.

- A Policy on Geometric Design of Highways and Streets, AASHTO
  - *At certain locations or in certain corridors, it is appropriate to further supplement the existing highway system by providing specifically designated bikeways (for either exclusive or nonexclusive bicycle use). (Page 101)*
  - *Provisions for bicycle facilities should be in accordance with the AASHTO Guide for the Development of Bicycle Facilities. (Page 367)*
  - *Even if specific bicycle facilities are not provided, consideration should be given to other practical measures for enhancing bicycle travel on the highway. (Page 367)*

The Department therefore must consider bicycles and pedestrians whether or not specially designated facilities are provided. In regards to bicycles, the Department may be liable when it can be shown that it should have been aware of deficiencies that have been shown to contribute to crashes, such as wide expansion joints, sudden pavement drop-offs, unsafe drain grates, etc. Additional discussion on managing liability is included as Appendix 4.

## ENGINEERING DIRECTIVES AND STANDARDS MANUAL

According to the *Engineering Directives and Standards Manual* (EDSM) No: II.2.1.14, “pedestrian and bicycle facilities are valuable components of the intermodal transportation network.” In addition, the following EDSMs provide LDOTD policy guidance for staff at key decision points in the planning and engineering design:

EDSM I.1.1.14 - Policy for Resurfacing Projects

EDSM II.2.1.10 - Requirements for Construction of Bicycle and Pedestrian Facilities

EDSM II.2.1.14 - Bicycle and Pedestrian Facilities

EDSM II.2.1.7 - Curb Policy

EDSM IV.3.1.3 - Sidewalks in Highway Rights-of-Way By Permit

It is recommended that these EDSMs be updated based on the policy recommendations included in Chapter 4.

## ROAD DESIGN MANUAL

The Road Design Manual is the primary document of the Road Design Section of LDOTD for use internally, by consultants and for guidance to local jurisdictions. It is intended to be a convenient guide of acceptable policies and procedures for the development of roadway construction plans. It is meant to be used in conjunction with other more detailed resources noted therein.

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According to the Road Design Manual: “The main objective of intersection design is to reduce the severity of potential conflicts between passenger cars, buses, trucks, bicycles, and pedestrians. In addition, the intersection design should facilitate the movement of people traveling through the intersection.” A key consideration is reducing the exposure of bicyclists and pedestrians to crashes with motor vehicles.

In many cases, increasing accommodations for pedestrians and bicyclists may require a reduction in space for motor vehicles, often in the form of narrower travel lanes and smaller intersections. Narrower travel lanes can provide increased space for paved shoulders or bicycle lanes and reduce the distance that pedestrians must travel to cross the road. Shorter crossing distances are especially important for children, the elderly and persons with disabilities. ***The Road Design Manual should be revised to provide more guidance on these pedestrian- and bicycle-supportive design elements.***

### DESIGN STANDARDS

The LDOTD uses a set of design standards that govern critical roadway elements. The “English Design Standards” govern state roads and “Design Standards for Freeways, Arterial, Collector and Local Highways under the Jurisdiction of Political Subdivisions and Not in the State Maintained System” governs all other roads. Design Standards should be updated based on policy recommendations included in Chapter 4.

## CHAPTER 4. POLICY AND PROGRAM RECOMMENDATIONS

The following is set forward as the Department's official policy with respect to bicycle & pedestrian provisions. The following policies shall be applied on all transportation projects that involve federal or state funding, approval or jurisdiction is involved. It includes four separate policies addressing accommodations, safety and the provision of infrastructure.

### **Policy 1: Pedestrian & Bicycle Accommodation Policy**

To varying extents, bicyclists and pedestrians are present on all highways and transportation facilities in Louisiana where they are permitted. Encouraging increased levels of bicycling and walking supports the Department's goals of increasing mobility, reducing congestion and improving the environment. Therefore, the Department will plan and design roadways that accommodate walking and bicycling. The Department will consider the needs of pedestrians and bicycles at appropriate stages during all projects and use current nationally recognized planning and design guidelines, manuals and best practices to ensure facilities are built to appropriate standards.

The following exceptions and clarifications apply to the above policy:

- Where the cost of the accommodations are deemed by the Department to be excessive.
- Where bicycle and pedestrian use is prohibited.
- This policy does not mean that all roads require designated facilities to be compatible with walking and bicycling. Sidewalks and designated bikeways will generally not be provided in rural or undeveloped areas or on portions of the farm-to-market network where bicycle and pedestrian activity is expected to be minimal.
- On projects that are preservation only, DOTD will only consider improvements that do not require right-of-way acquisition, utility relocation, or major construction to provide bicycle and pedestrian accommodations such as relocating or enclosing roadside drainage.

### **Policy 2: Pedestrian & Bicycle Safety Policy**

The Department will provide for the safety and comfort of pedestrians and bicyclists and make every effort to reduce crashes and injuries associated with these modes. All projects shall consider the impact that improvements will have on pedestrian and bicycle safety and make all reasonable attempts to mitigate negative impacts on these modes. Restricting bicycle and pedestrian access should not be considered as an appropriate strategy with the exception of those limited access facilities where pedestrians and bicycles are prohibited and other locations where allowing such access would endanger bicyclists and pedestrians.

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### **Policy 3: Pedestrian Facility Policy**

The Department will plan, fund and design sidewalks on all new construction or reconstruction roadway projects that serve adjacent areas with existing or future development including, but not limited to, residences, apartment buildings, public transit facilities, schools and universities, shopping and employment centers, recreational facilities, community centers and public and governmental buildings provided that the respective local government executes an agreement with the Department whereby the maintenance of the sidewalk becomes the responsibility of the local government in perpetuity. The Department will strive to ensure projects do not become barriers to walking and bicycling by providing appropriate safe crossings and ensure transportation projects comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Public Right of Ways Accessibility Guidelines (PROWAG).

### **Policy 4. Bicycle Facility Policy**

The Department will provide bikeways and bicycle accommodations on all projects where feasible and appropriate. In most cases, the provision of paved shoulders of sufficient width will suffice. Bike lanes are the preferred facility on urban and suburban arterials and collectors. The provision of bicycle paths separated from the roadway will require an agreement between the respective local government(s) and the Department whereby the maintenance of the path becomes the responsibility of the local government(s) in perpetuity.

## POLICY ACTION PLAN

**In order to implement each of the above policies, the Department will undertake the following actions:**

### **Actions to Support Policy #1: Pedestrian & Bicycle Accommodations**

**The Department will:**

- A. Update the Road Design Manual and English Design Standards to reflect current national guidelines and best practices and provide appropriate guidance to staff.
- B. Upgrade existing pedestrian and bicycle facilities to meet current standards as part of all transportation projects where appropriate.
- C. Develop an action plan to that identifies deficiencies in current pedestrian and bicycle facilities and programs improvements.
- D. Allow greater flexibility to design projects that better meet the needs of all travelers.
- E. Reduce travel speeds on urban and suburban collectors and select arterials that serve pedestrians and bicyclists through setting of appropriate design speed which

take into account the needs of all users. Geometric design will be the primary tool to set appropriate speeds.

- F. Collect and analyze the data necessary to measure progress towards achieving the goals of this plan. Data should include walking and bicycling mode splits and crash and injury rates.
- G. On a project specific basis, when improvements are being considered to intersections or corridors, include bicycle and pedestrian counting as part of traffic counting requirements.
- H. Require the collection and analysis of pedestrian and bicycle related data as a part of the Traffic Impact Analysis requirement in the LDOTD driveway permitting and access management program. Require the provision of appropriate pedestrian bicycle facilities as a condition of approval.
- I. On roadways where bicycling and walking is not specifically prohibited, new bridges and bridge reconstruction projects should accommodate bicycles and pedestrians. The specific type of accommodation will be determined based on the type of roadway and type of bicycle and pedestrian accommodations provided on the bridge approaches, however the presence of bicycle and pedestrian facilities on the approaches will not be a prerequisite for the provisions of bicycle and pedestrian facilities on the bridge. Accommodations will typically include bike lanes or shoulders, and sidewalks on both sides of the bridge. Bicycle and pedestrian facilities may be separated from the adjacent traffic by a barrier on longer bridges that carry high speed traffic.
- J. Train staff and consultants to plan and design for walking and bicycling.
- K. Work with local governments and private developers to ensure that sidewalk and pedestrian accommodations are provided where appropriate.

#### **Actions to Support Policy #2: Pedestrian & Bicycle Safety**

The Department will:

- L. Secure and program safety spending for pedestrians and bicyclists at a level recognizing the high percentage of fatalities and serious injuries that these modes comprise.
- M. Incorporate bicycle and pedestrian safety considerations into other safety projects and ensure that safety projects improve safety for all modes where feasible.
- N. Annually identify corridors and intersections with disproportionate number of pedestrian & bicycle crashes and injuries. Fund the analysis, planning and design of infrastructure improvements to address problem areas and reduce crashes and injuries.
- O. Work with partners to identify common behavioral and environmental factors that contribute to crashes and injuries and educate the public on increasing bicycling and pedestrian safety.

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- P. Work with partner agencies to include the appropriate laws and principles for safely sharing the road with pedestrians and bicyclists as a part of driver education manuals, classes and license testing procedures.

### **Notes on Action to Support Policy #3 and #4:**

The policies and actions below are provided to address design issues that commonly arise on roadways owned and managed by LDOTD. This list is not intended to be comprehensive, and IS NOT intended to address every design issue that may arise. Other standards and guidelines should be consulted, including the Manual on Uniform Traffic Control Devices (MUTCD), the AASHTO Guide for the Development of Bicycle Facilities, the AASHTO Guide to the Planning, Design and Development of Pedestrian Facilities, the ADA Accessibility Guidelines and the Public Rights-of-Way Accessibility Guidelines.

### **Actions to Support Policy #3: Pedestrian Facilities**

The Department will:

- Q. Develop a program to upgrade pedestrian infrastructure on transit routes to include accessible sidewalks and appropriate crossing treatments.
- R. Work with local governments and private developers to ensure that sidewalk and pedestrian accommodations are provided where appropriate.
- S. Provide appropriate pedestrian accommodations on all projects whether or not sidewalks are provided. The absence of a sidewalk is not the determining factor as to whether pedestrians will be present and other pedestrian accommodations, including crossings, landings and accessible ramps, should be provided. Intersection improvement projects in areas with existing or planned development should include pedestrian accommodations whether or not sidewalks are present.
- T. In reconstruction projects, upgrade existing sidewalks and ramps, where necessary, and include crossing improvements as appropriate.
- U. Develop and implement consistent policies for marking crosswalks and providing pedestrian signals.
- V. Ensure crosswalks that are marked at uncontrolled locations be high-visibility ladder-style crosswalk markings.
- W. Provide appropriate crossings at uncontrolled locations that utilize design measures to improve pedestrian safety, particularly those on roadways with three or more travel lanes. In designing these locations, the Department will follow guidance issued by the Federal Highway Administration (*Safety of Marked and Unmarked Crosswalks at Uncontrolled Intersections*, FHWA 2003, and Memorandum regarding Interim Approval for Rectangular Rapid Flashing Beacons dated July 16, 2008).
- X. Provide marked crosswalks at all four legs of signalized intersections, where appropriate.

- Y. The minimum width of sidewalks installed by the Department is to be 5'. Wider sidewalks may be appropriate in areas with higher pedestrian volumes. The assumption is that a minimum of a 5' grass buffer will be provided between the sidewalk and the adjacent roadway, however a wider buffer will be provided where possible on higher speed roadways such as urban arterials.
- Z. Provide countdown pedestrian signal heads at signalized intersections where sidewalks are present, where appropriate.
- AA. Provide a pedestrian phase at all signalized intersections with high pedestrian volumes. Provide push button activation at all other signals.
- BB. Ensure all pedestrian facilities installed by the Department will comply with the Americans with Disabilities Act Accessibility Guidelines, specifically the Public Rights-of-Way Accessibility Guidelines issued in 2005. Existing pedestrian facilities on roadways will be brought into compliance during resurfacing and reconstruction projects.
- CC. Where appropriate, work with local governments to ensure future maintenance of sidewalk network.

#### **Actions to Support Policy #4: Bicycle Facilities**

- DD. Provide appropriate bicycle compatible features (i.e. bicycle safe drainage grates, rumble strips, expansion joints, etc) on all projects whether or not officially designated bikeways are provided.
- EE. Avoid chip-sealed surfaces where possible on roadways that are either designated as bicycle routes, or are frequently used by bicyclists.
- FF. Provide bike lanes or paved shoulders where adequate space exists, as they are the preferred facilities on major roadways. Bike lanes are preferred on urban and suburban roadways, and paved shoulders are preferred on rural roadways.
- GG. Use the following methods to retrofit bike lanes (or paved shoulders) on urban and suburban roadways:
  - Reducing travel lane widths (referred to as road diet) – lane widths may be reduced per the flexibility defined in AASHTO's Policy on the Geometric Design of Highways and Streets and based on engineering judgment.
  - Reducing the number of travel lanes – an engineering analysis may be done on roadways with excess capacity to determine if they are candidates for this treatment.
  - Reconfiguring or reducing on-street parking – this method is a last resort, as changes to parking are often opposed by adjacent landowners.
- HH. Provide bicycle detection at actuated traffic signals, where appropriate.
- II. At T-intersections where a bypass lane is provided to facilitate left turns, provide a minimum 5-foot shoulder in order to facilitate safe bicycle passage.
- JJ. Avoid using rumble strips on shoulders used by bicyclists unless there is a minimum clear path of 4 feet from the rumble strip to the outside edge of the

## CHAPTER 4

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paved shoulder, or 5 feet to the adjacent guardrail, curb or other obstacle. Gaps (12-foot gap every 40 to 60 feet) in the rumble strip should be provided to accommodate left turn and merging movements, and to enable bicyclists to avoid debris in the shoulder and to pass other bicyclists.

- KK. Design standards of bikeways and bicycle accommodations will be based on the most current available national guidelines and best practices.
- LL. Work with partner agencies, including MPOs and local governments to support the use of innovative and state of the art bicycle facilities when appropriate.
- MM. Utilize bicycle level-of-service analysis techniques to determine the appropriate level of bicycle accommodation on a roadway.

**To support these policies & related recommendations the Department will also undertake the following programmatic recommendations.**

The Department will:

- NN. Assign a pedestrian and bicycle liaison at each district office to help ensure that the recommendations of this plan are fully implemented in each district.
- OO. The Department's bicycle and pedestrian coordinator will collect and disseminate an annual report of bicycle and pedestrian activities, including activities of the Departments District Offices and addressing progress toward the goals of this plan.
- PP. Encourage local and partner agencies and jurisdictions to use or adopt policy and design guidelines similar to the Departments Pedestrian & Bicycle Policies.
- QQ. Work with partner agencies and to develop and implement targeted encouragement and education programs to that seek to increase levels of walking and bicycling. Encourage the participation of non-governmental organizations in areas including health care and health insurance providers and economic development.
- RR. Convene a statewide pedestrian and bicycle advisory committee to provide advice and recommendations on an ongoing basis. The committee should include individuals and/or organizations representing public health, persons with disabilities, transit providers and riders, children, senior citizens, parks and recreation, schools, the environment, tourism and the business community.
- SS. Work with partner agencies and jurisdictions to actively promote land use and development principles that contribute to a safe and comfortable walking and bicycling environment.

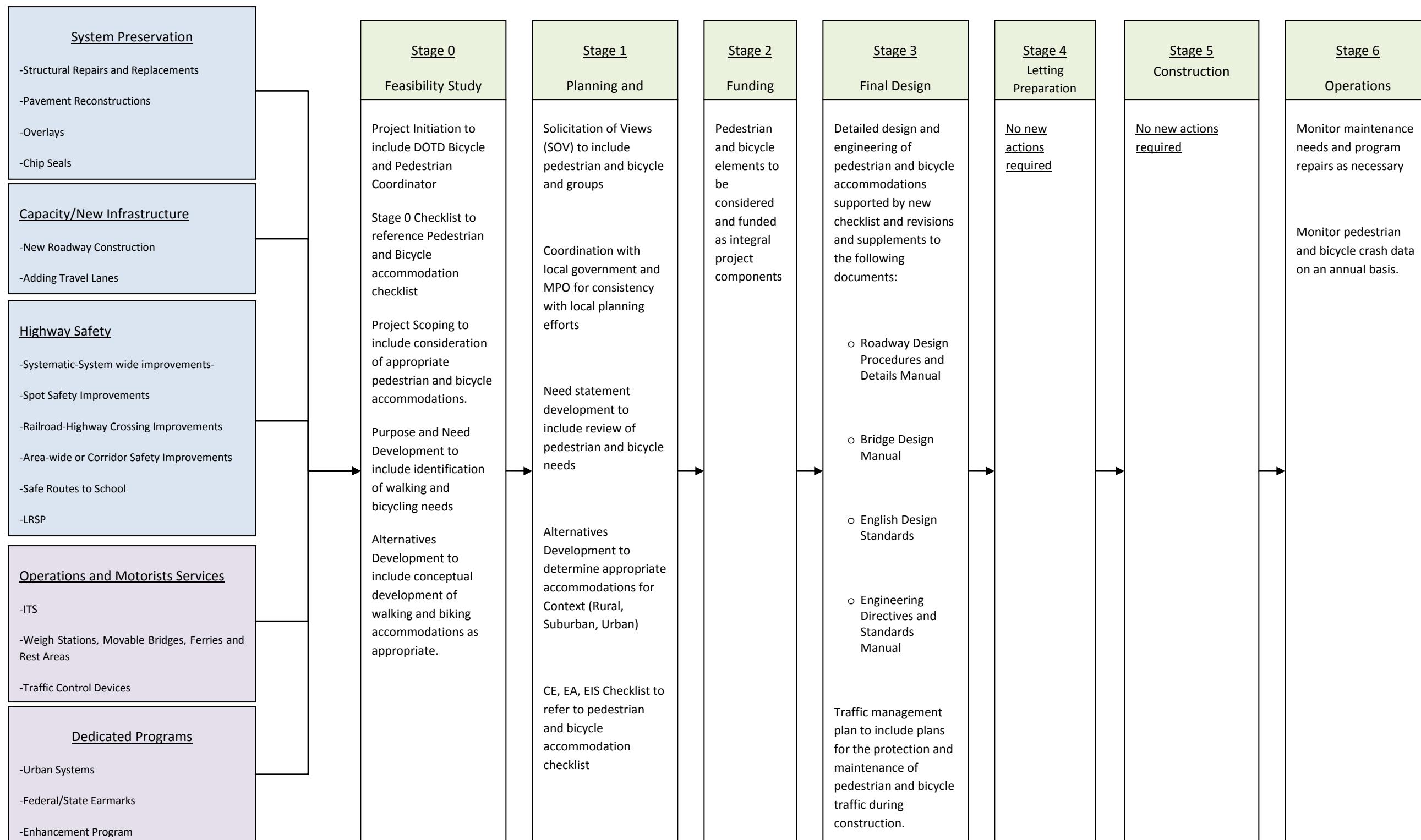
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## APPENDIX 1: INTEGRATING BICYCLE & WALKING INTO PROJECT DEVELOPMENT PROCESS

Federal guidance states that, 'to varying extents, bicyclists and pedestrians will be present on all highways and transportation facilities where they are permitted and it is clearly the intent of Federal surface transportation law that all new and improved transportation facilities be planned, designed and constructed with this fact in mind'. To be consistent with the federal intent, the 2003 Statewide Transportation Plan, and the objectives reinforced by citizens participating in the public outreach process, bicycle and pedestrian interests must be incorporated throughout the LDOTD Project Delivery Process.

The Project Delivery Process illustrates how projects move through the Department from concept to operation. Every stage must be amended to include bicycle and pedestrian consideration. Figure A-1 (next page) illustrates the incorporation of bicycle and pedestrian consideration throughout the process.

**APPENDIX**



## APPENDIX 2: PEDESTRIAN & BICYCLE ACCOMODATION CHECKLIST

The following checklist has been developed to help ensure appropriate accommodations are made for pedestrians and bicycles. This checklist should be completed at the beginning of Stage 3 of all Department projects. Additional sheets may be attached as necessary.

Have following pedestrian & bicycle friendly strategies been employed?	Y/N	Comments
Minimize travel lane widths on urban and suburban arterials and collectors, where appropriate. <sup>14</sup>		
Minimize design speed on urban and suburban arterials and collectors, where appropriate. <sup>15</sup>		
Minimize intersection curb radii on urban and suburban arterials and collectors, where appropriate. <sup>16</sup>		

Have the following bicycle accommodations been provided?	Y/N	Comments
Bike lanes?		
Paved shoulders?		
Multi-use path? <sup>17</sup>		
Bicycle-compatible drainage grates?		
Bicycle-compatible rumble strips?		
Bicycle-compatible expansion joints?		
Appropriate signage?		

<sup>14</sup> Consideration should also be given to % truck traffic and arterials which serve an interurban function.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> Requires formal agreement whereby the maintenance of the sidewalk or separate bike path becomes the responsibility of the local government in perpetuity.

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Have the following pedestrian accommodations been provided?	Y/N	Comments
Sidewalks? <sup>18</sup>		
Appropriate width buffer?		
Pedestrian countdown signals heads?		
Marked crosswalks?		
Transit stop access?		
Crossing islands?		
High-visibility crosswalks?		
ADA compliant ramps?		

Have guidance from the appropriate sections of the following been followed:	Y/N	
LDOTD Pedestrian & Bicycle Policy?		
Guide for the Development of Bicycle Facilities, AASHTO?		
Guide for the Planning, Design and Operation of Pedestrian Facilities, AASHTO		
Manual on Uniform Traffic Control Devices, FHWA?		
Public Rights of Way Accessibility Guidelines (PROWAG)		

Has the following been provided?		
Maintenance of traffic plans that accommodate bicycles and pedestrians?		
Maintenance Agreement?		

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<sup>18</sup> Requires formal agreement whereby the maintenance of the sidewalk or separate bike path becomes the responsibility of the local government in perpetuity.

## APPENDIX 3: LANE WIDTHS

### INTRODUCTION

It is the policy of the LDOTD to reasonably provide for the mobility and safety of all appropriate users of the state highway system, including motorists, pedestrians and bicyclists. This memorandum presents recent research on selecting travel lanes widths and illustrates how increased flexibility may benefit pedestrian and bicycles and help the Department achieve other policy objectives.

### COMPETING INTERESTS ON HIGHWAY PROJECTS

Available right-of-way is often limited and it can be challenging to accommodate all users. While pedestrians and bicyclists currently comprise a relatively small percentage of system users, they are also more vulnerable users and therefore their safety is important in the planning, design and maintenance of the system.

Due to constrained rights-of-way, increasing accommodations for pedestrians and bicyclists may require re-allocating existing or proposed pavement space. Narrower travel lanes can increase space for paved shoulders or bicycle lanes and reduce the distance that pedestrians must travel to cross the road. Shorter crossing distances are especially important for children, the elderly and persons with disabilities. If narrower lanes are considered, the safety of all users, including the operators of large vehicles, should be taken into account.

In addition, the appropriate use of narrower lanes may help the LDOTD achieve the Department's Context Sensitive Solutions (CSS) policy. CSS is focused on developing transportation solutions that fit within the context of their surroundings. A key consideration of CSS is balancing the needs of highway system safety and capacity with a wide range of community needs such as cultural and historic preservation, community growth and sustainability, access, cohesion, aesthetics, safety, mobility, and cost effectiveness.

### RECENT RESEARCH AND ITS IMPACT ON ACHIEVING POLICY OBJECTIVES

In the past, concerns about safety and congestion may have prevented engineers from selecting narrower travel lane widths, especially on higher speed, higher volume arterials. Comprehensive new research, however, indicates that the use of travel lanes between 10 feet and 12 feet on urban, suburban and rural arterials and collectors does not negatively impact overall motor vehicle safety or operations.

As the CSS policy states, the Department strives to address and comply with the current American Association of State Highway and Transportation Officials (AASHTO) guidelines when applying CSS principles. According to AASHTO's A Policy on the Geometric Design of Highways

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(1), lane widths on arterial roadways should in general be between 10 wide and 12 feet wide. While narrower lane widths have often been seen to potentially increase crash rates, a study by the Midwest Research Institute (2) on lane widths found no indication that in general the use of narrower lanes resulted in increased crash frequencies.

The study compared urban and suburban arterials under state and local jurisdictions in two states. The dataset included a total of 408 miles of roadway and included the following types:

- Two-lane undivided arterials
- Three-lane arterials including a center TWLTL
- Four-lane undivided arterials
- Four-lane divided arterials
- Five-lane arterials including a center TWLTL

Narrower lanes were found to have no significant affect or to result in lower rather than higher crash frequencies. The study concludes that “There is no indication that crash frequencies increase as lane width decreases for arterial roadway segments or arterial intersection approaches.”

The study found three cross section situations in which the results were inconclusive:

- Lane widths of 3.0 m (10 ft) or less on four-lane undivided arterials;
- Lane widths of 2.7 m (9 ft) or less on four-lane divided arterials; and
- Lane width of 3.0 m (10 ft) or less on approaches to four-leg STOP-controlled arterial.

It goes on to state, however, that this does not mean narrower lanes should not be used in this situation, but instead that caution should be used.

The LDOTD should consider the use of narrow lanes when appropriate to help achieve the goals of better providing for all users of the state’s transportation system and achieving CSS principles.

## WORKS CITED

1. **AASHTO.** *A Policy on Geometric Design of Highways and Streets.* Washington, D.C. : American Association of State Highway and Transportation Officials, 2004.

2. **Potts, Ingrid B, Harwood, Douglas W and Richard, Karen R.** *Relationship of Lane width to Safety for Urban and Suburban Arterials*. Washington, D.C. : Transporation Research Board, 2007.
3. **FHWA.** *Design Guidance Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*. Washington, D.C. : Federal Highway Administration, 1999.
4. **AASHTO.** *Guide for the Planning, Design, and Operation of Pedestrian Facilities*. Washington, D.C. : American Association of State Highway and Transportation Officials, 2004.
5. **FHWA.** *Manual on Uniform Traffic Control Devices*. Washington, D.C. : Federal Highway Administration, U.S. Department of Transportation, 2003.
6. **United States Access Board.** *Public Rights-Of-Way Accessibility Guidelines*. Washington, D.C. : United States Access Board, 2005.
7. **AASHTO.** *Guide for the Development of Bicycle Facilites*. Washington, D.C. : American Association of State Highway and Transportation Facilites, 1999.



## APPENDIX 4: MANAGING LIABILITY

### LIABILITY AND BICYCLE AND PEDESTRIAN ACCOMMODATIONS

People regularly walk and bike along and across Louisiana's state roads to access school, jobs, shopping, transit and for health and recreation. Various policy statements of AASHTO, the MUTCD, FHWA and this Department make it clear that it is the responsibility of the Department to provide reasonably safe accommodations for these pedestrians and bicyclists. There have been questions as to whether or not the Department will expose itself to liability risks by encouraging bicycling and walking along and across it road when it designates facilities for their preferential or exclusive use.

The purpose of this memorandum is to clarify that in general the Department **does not increase** its liability by providing well planned and well designed pedestrian and bicycle accommodations and facilities. In many cases, liability exposure should be reduced when the Department can demonstrate that it has a systematic way to improve safety for these users. In addition, the Department may increase its exposure to liability if it does not plan and design facilities using appropriate state and national guidelines, standards and directives. It is also the purpose of this memorandum to clarify that the Department will provide a basic level of accommodation for pedestrians and bicyclists where practical. *NOTE: This memorandum does not constitute a legal opinion.*

### DESIGN IMPERATIVES

The Department is concerned with managing exposure to liability for all of its programs and activities. Similar to other modes of travel, the Department has a duty to provide for the safety and accommodation of pedestrians and bicyclists. With the exception of those roads where pedestrians and bicyclists are legally forbidden, pedestrians and bicyclists should be expected on all state roads. To determine how the Department should consider providing for pedestrians and bicycles, this section considers established state and national guidance.

According to the *Engineering Directives and Standards Manual* (EDSM) No: II.2.1.14, it is the policy of the Department that "pedestrian and bicycle facilities are valuable components of the intermodal transportation network." EDSM No: II.2.1.14 also states that the Department shall consider guidance from the Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials (AASHTO).

The FHWA policy on bicycling and walking is included in its 2000 publication "Design Guidance Accommodating Bicycle and Pedestrian Travel." (3) The document states that "bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist."

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AASHTO's *A Policy on the Geometric Design of Highways and Streets* (1), also known as the Green Book, provides the following design guidance:

### Pedestrians

- *Pedestrians are a part of every roadway environment, and attention should be paid to their presence in rural as well as urban areas.* (Page 96)
- *Pedestrian facilities include sidewalks, crosswalks, traffic control features, and curb cuts (depressed curbs and ramped sidewalks) and ramps for the older walkers and persons with mobility impairments. Pedestrian facilities also include bus stops [.]* (Page 96)

### Bicyclists

- *At certain locations or in certain corridors, it is appropriate to further supplement the existing highway system by providing specifically designated bikeways (for either exclusive or nonexclusive bicycle use).* (Page 101)
- *Provisions for bicycle facilities should be in accordance with the AASHTO Guide for the Development of Bicycle Facilities.* (Page 367)

*Even if specific bicycle facilities are not provided, consideration should be given to other practical measures for enhancing bicycle travel on the highway.* (Page 367)

The Department therefore needs to consider bicycles and pedestrians whether or not specially designated facilities are provided and the Department may face liability exposure on roads that do not have special facilities. In regards to bicycles, the Department may be liable when it can be shown that it should have been aware of other deficiencies that have been shown to contribute to crashes, such as wide expansion joints, sudden pavement drop-offs, unsafe drain grates, etc.

## **THE LIABILITY CONTEXT**

Whether a person is operating a motor vehicle, walking or bicycling along a state road, the possibility exists for injury. Not all of these injuries will necessarily result in liability exposure for the State. Louisiana courts have ruled that the degree to which the LDOTD can be found liable for personal injury depends on the following factors:

- (1) *LDOTD owned or had custody of the element that caused damage;*
- (2) *That the element was defective in that it created an unreasonable risk of harm to others;*

(3) LDOTD had actual or constructive knowledge of the defect or the risk of harm imposed thereby and failed to take corrective measures within a reasonable time; and

(4) The defective element caused the injury.

## STRATEGIES TO MANAGE LIABILITY EXPOSURE

A prudent approach to reducing the Department's liability risk with regards to walking and bicycling involves designing facilities appropriately and establishing a mechanism to respond to problems within a reasonable time. The following is recommended:

- **Develop and implement a process to identify and record reported deficiencies and make repairs within a reasonable timeframe.** Liability can be effectively managed by having a mechanism to identify and log problems and design and program improvements in a reasonable timeframe.
- **Use and adopt pedestrian and bicycle facility planning and design standards and guidelines and apply uniformly to all transportation projects.** A primary strategy for ensuring that facilities do not present an unreasonable risk of harm is using the appropriate planning and design guidelines, standards and directives.

### Pedestrians

In addition to the Roadway Design Manual, the primary sources of pedestrian design guidance are the AASHTO *Guide for the Planning, Design and Operation of Pedestrian Facilities* (4), the FHWA's *Manual on Uniform Traffic Control Devices* (MUTCD) (5) and the United States Access Board's *Public Rights-of-Way Accessibility Guide* (6). Primary issues for providing a reasonable level of care for pedestrians include the decision of whether or not provide sidewalks and the determination of the appropriate type of crossing facilities.

The EDSM No: II.2.1.10 establishes the Department's policy for establishing sidewalks. The directive states that state funds should be used when sidewalks are deemed necessary for safety reasons. This includes most urban and suburban locations, particularly those adjacent to hospitals, schools, parks, shopping areas and transit stops.

Appropriate pedestrian crossing should also be provided for whether or not constructed pedestrian sidewalks are provided. Design of these facilities should be in accordance with the MUTCD (5) and AASHTO guidelines (1) (4).

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### Bicycles

In addition to the Roadway Design Manual, the primary source of bicycle design guidance is the MUTCD (3) and the AASHTO Guide for the Development of Bicycle Facilities (4). Bicycle safety should be addressed whether or not special facilities exist (i.e. bike lanes, bicycle route signs). Some challenges arise from the unique operating characteristics of bicycles. Roadway deficiencies, which are minor problems for motor vehicles, can be major problems for bicyclists. Also, some roadway features that comply with design standards can be safety hazards for bicyclists, such as rumble strips, drainage grates and bridge expansion joints. Care should be taken to ensure that these elements are bicycle-safe. Where dedicated bicycle facilities are appropriate, these facilities should be designed in accordance with AASHTO guidance.

Questions regarding these recommendations should be directed to the Department's Pedestrian and Bicycle Program Coordinator.

## WORKS CITED

1. **AASHTO.** *A Policy on Geometric Design of Highways and Streets*. Washington, D.C. : American Association of State Highway and Transportation Officials, 2004.
2. **Potts, Ingrid B, Harwood, Douglas W and Richard, Karen R.** *Relationship of Lane width to Safety for Urban and Suburban Arterials*. Washington, D.C. : Transporation Research Board, 2007.
3. **FHWA.** *Design Guidance Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*. Washington, D.C. : Federal Highway Administration, 1999.
4. **AASHTO.** *Guide for the Planning, Design, and Operation of Pedestrian Facilities*. Washington, D.C. : American Association of State Highway and Transportation Officials, 2004.
5. **FHWA.** *Manual on Uniform Traffic Control Devices*. Washington, D.C. : Federal Highway Administration, U.S. Department of Transportation, 2003.
6. **United States Access Board.** *Public Rights-Of-Way Accessibility Guidelines*. Washington, D.C. : United States Access Board, 2005.
7. **AASHTO.** *Guide for the Development of Bicycle Facilites*. Washington, D.C. : American Association of State Highway and Transportation Facilites, 1999.

## APPENDIX 5: CASE STUDIES

As part of this plan, two locations have been selected to illustrate the difficulties encountered by pedestrians and bicycle users throughout the state. These locations were selected because they are fairly representative of conditions throughout the state and demonstrate that pedestrian and bicycle issues are a concern on local and state highways, in urban, suburban and rural contexts.

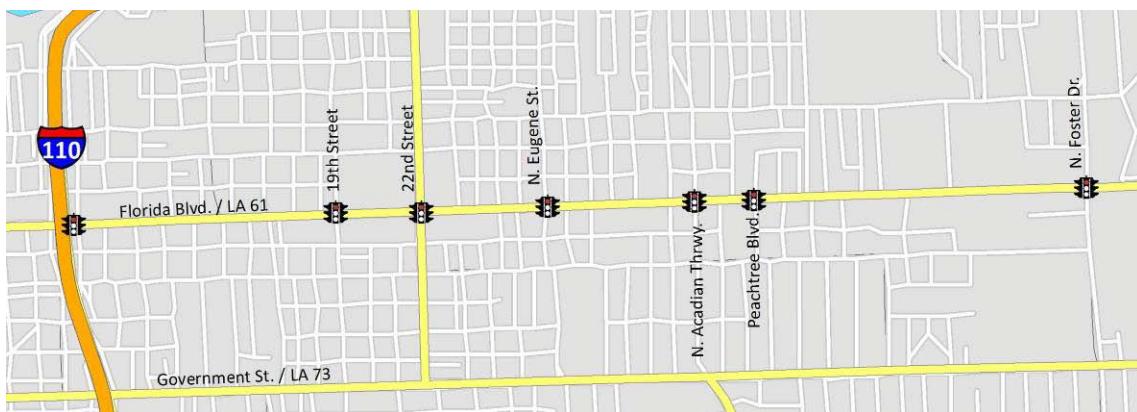
### LA 61/LA 190/FLORIDA BLVD IN BATON ROUGE (10<sup>TH</sup> STREET TO LA 37/N. FOSTER DRIVE)

#### THE PROBLEM

The infrastructure fails to address the needs of bicyclists and pedestrians from the surrounding the area. Access to destinations on either side of the roadway is limited to these users. There are sidewalks present on both sides of the road, however they are narrow and lack substantial buffers. These conditions make walking in some portions of the corridor uncomfortable, while in other areas a lack of access management leaves pedestrians and bicycle users overly exposed.

#### THE CONTEXT

The Florida Blvd (LA 61/LA 190) case study consists of a 2.5 mile stretch of state maintained highway, from 10<sup>th</sup> Street (also the I-110 overpass) to N. Foster Drive (LA 37) in Baton Rouge, LA. This roadway is classified as an urban principal arterial. There are 4 ft sidewalks located on both sides of Florida Blvd throughout the case study area. Transit routes are present. Along this stretch there are a variety of shopping, community services, transportation depots and restaurants located throughout the corridor that are destinations to walk and bike to for the low to moderate income communities that surround the case study area.



Prepared by Burk-Kleinreiter, Inc., 2009

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From 10<sup>th</sup> Street to 19<sup>th</sup> Street, the roadway is characterized as a 4-lane section with lanes 10ft in width, no shoulder and no median. The Average Daily Traffic (ADT) is 15,700 vehicles. This section of roadway includes a Greyhound bus station located adjacent to 13<sup>th</sup> Street. The signalized intersection at 10<sup>th</sup> Street has a button-actuated pedestrian signal, though there are no marked crosswalks.

From 19<sup>th</sup> Street to Peachtree Boulevard, the roadway is characterized as a 4-lane section of 11ft lanes, without shoulders or a median. The ADT is 23,200 vehicles. There are traffic signals located at 19<sup>th</sup> Street, 22<sup>nd</sup> Street, N. Eugene Street and N. Acadian Thruway. The signal at 19<sup>th</sup> Street has a button-actuated pedestrian signal heads, though no marked crosswalks are present, whereas the signals at 22<sup>nd</sup> Street and N. Eugene Street include neither. The signal at N. Acadian Thruway has both.

From 19<sup>th</sup> to 22<sup>nd</sup> Streets, there are cemeteries located on both sides of the roadway. This provides a well managed corridor in terms of access management, however the narrow sidewalks and nearly absent buffer area make walking this portion of the corridor uncomfortable, as there are either walls or fences immediately adjacent to the sidewalk. The Capital Area Transit downtown terminal is located at the corner of 22<sup>nd</sup> Street, and the Baton Rouge General Medical Center is located between N. Acadian Thruway and Peachtree Boulevard.



***Two bicyclists ride on the narrow and overgrown sidewalk rather than risk riding with traffic on Florida Blvd (LA 61).***

In the corridor from Peachtree Boulevard to N. Beck Street, the roadway begins to widen, and it is characterized as a 5-lane section with lanes that are 12ft in width, wihtout shoulders, and a 14ft continuous center turn lane. Throughout this section of roadway, there is little or no access management, characterized by a high frequency of driveways, wide driveways, and has little or no buffering between the pedestrians and vehicles. The ADT in this area is 25,700 vehicles.

The roadway continues to transition from a 5-lane to 7-lane section from N. Beck Street to N. Foster Drive with 12ft lanes and no shoulder. The ADT is 25,700 vehicles, and the continuous

center turn lane becomes a dedicated left turn lane for traffic headed north on N. Foster/LA 37. The intersection at N. Foster Drive does not have crosswalks nor pedestrian signal heads.

Between 2004 and 2006, there were eleven pedestrian crashes reported in this 2.5 mile corridor: three were pedestrians crossing at an intersection, four were pedestrians crossing mid-block, one was standing, one was reported not in the road and two were unclassified. Five additional bicycle crashes occurred during this same timeframe.

## RECOMMENDATIONS

The following actions indicate how the bicycle and pedestrian plan would recommend addressing the issues present on the corridor at the time of an overlay or reconstruction project:

- Consider a 'Road Diet' to include dedicated bicycle lanes and/or shared lane bicycle facilities.
- Consider providing appropriate crossing treatments at 19<sup>th</sup> and 22<sup>nd</sup> Streets, Peachtree Boulevard, N. Eugene Street and N. Foster Drive.

## US 61/AIRLINE HIGHWAY FROM ELM (LA 2332) TO HEMLOCK (LA 3224) IN LAPLACE, LA

### THE PROBLEM

This auto-oriented thruway was not designed to accommodate pedestrians and bicyclists. This is especially problematic for the adjacent community of low to moderate-income families who are interested in walking and biking to the many shopping opportunities. This problem will potentially be exacerbated by the introduction of transit into the area as more people are expected to travel to this area.

### THE CONTEXT

The 0.4 mile case study area includes Airline Highway (US 61) from Elm Street (LA 3223) to Hemlock Street (LA 3224) in Laplace, LA. Airline Highway is the principal east-west arterial in Laplace. The area is surrounded by moderate- and low-income communities. Shopping centers on both sides of the road are auto-oriented in design, yet the stores cater to the low to moderate income. These stores include Dollar General, the Dollar Store, Payless Shoes, Wal-Mart, and other discount stores. Other destinations include fast food chains and the parish government building.

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***One pedestrian waits to cross Airline mid-block in front of Wal-Mart while another waits (in the distance) at the Belle Terre (LA 3188) intersection.***

This section of Airline Highway is characterized as an Urban Principal Arterial, having an ADT of 33,200 vehicles. There are four 12ft travel lanes, with 10ft shoulders and a 13ft center turn lane in this section of highway. The width of the apparent Right of Way (ROW) is 150ft, and there is open drainage. There are no sidewalks and there are no sidewalks, marked crosswalks or other pedestrian facilities.

There are three major signalized intersections in this area: Elm Street; Belle Terre Boulevard; and Hemlock. All are complex multi-phase timed signals, and none provide a dedicated pedestrian phase or other pedestrian facilities (crosswalk, sidewalk, etc). To cross Airline at any of these three locations, a pedestrian must traverse approximately 80 ft of pavement before reaching the grass on the other side. At an average rate of 3.5 ft per second, it would take an average pedestrian 23 seconds to cross.



***A pedestrian waits on the downslope of a drainage swale to cross Airline (US 61) at Hemlock (LA 3224).***

When compared to other segments of Airline Highway, driveway density is relatively low between Elm Street and Hemlock, with only fifteen driveways and cross streets intersecting the roadway. Additionally, the center lane is designated for dedicated left turns only (rather than

being a continuous center turn lane) from Elm Street to Belle Terre Boulevard, which helps to reduce the number of conflicts for a pedestrian or cyclists going along the road.

River Parish Transit Authority (RPTA) has recently started a curb-to-curb demand/response service. The RPTA vehicles are not permitted to enter private property for pick-up or drop-off. All passenger boardings and alightings will occur on the shoulder of Airline Highway.

## RECOMMENDATIONS

Based on the context of the area, which has urbanized rapidly, the open drainage cross section is no longer appropriate. Standing water in the drainage indicates that there may be existing problems with the open ditch drainage. Consider the following:

- Close the drainage, which will provide ample room for an 8-10ft buffer and 6ft sidewalk on each side of the roadway.
- Crosswalks, pedestrian signal heads, ‘yield to pedestrian in crosswalk’ signage and a button-actuated pedestrian signal phase should be added to each of the three intersections.
- The RPTA vehicles will be able to use the existing shoulders for pick-up and drop-off of passengers. Appropriate locations for passengers to wait and to traverse safely from the curb to the shopping destinations will be necessary in the future. Designated boarding and alighting areas will be needed in the future.



## APPENDIX 6: DATA AND RESOURCES

**Table A.1 Louisiana Places<sup>19</sup> with highest rates of households without access to vehicles, 2000**

Rank	Place	Population	% Households w/o a car
1	Lake Providence	5,026	29.10%
2	New Orleans	484,674	27.30%
3	Opelousas	23,005	27.00%
4	Ville Platte	8,226	26.60%
5	Winnsboro	5,395	25.40%
6	Tallulah	9,229	24.30%
7	St. Martinville	6,925	24.30%
8	Winnfield	5,839	24.20%
9	Bastrop	13,125	24.10%
10	Mansfield	5,471	21.10%
11	Monroe	53,091	20.80%
12	Donaldsonville	7,559	20.70%
13	Marksville	5,514	20.20%
14	Abbeville	11,932	19.70%
15	Plaquemine	7,005	19.50%
16	Bridge City	8,270	19.30%
17	Gretna	17,338	19.10%
18	Franklin	8,488	18.50%
19	Alexandria	46,738	17.50%
20	Breaux Bridge	7,163	17.30%

Source: Car-free Database, Bikes at Work, Inc. <http://www.bikesatwork.com>. Based on 2000 Census data.

<sup>19</sup> Places with population over 5,000

## A P P E N D I X

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**Table A.2 Means of Transportation to Work for Workers 16 years of Age or older, Louisiana, 2000**

Mode of Transportation	Number	Percent of Total
<b>Total:</b>	<b>1,831,057</b>	<b>100.0%</b>
<b>Car, truck, or van:</b>	<b>1,679,782</b>	<b>91.7%</b>
Drove alone	1,430,142	78.1%
Carpooled	249,640	13.6%
<b>Public transportation:</b>	<b>43,277</b>	<b>2.4%</b>
Bus or trolley bus	38,284	2.1%
Streetcar or trolley car	1,285	0.1%
Subway or elevated	147	0.0%
Railroad	131	0.0%
Ferryboat	560	0.0%
Taxicab	2,870	0.2%
<b>Motorcycle</b>	<b>1,905</b>	<b>0.1%</b>
<b>Bicycle</b>	<b>6,648</b>	<b>0.4%</b>
<b>Walked</b>	<b>40,184</b>	<b>2.2%</b>
<b>Other means</b>	<b>19,932</b>	<b>1.1%</b>
<b>Worked at home</b>	<b>39,329</b>	<b>2.1%</b>

Source: U.S. Bureau of the Census, 2000. SF-3 Sample data.

**Table A.3: Places in Louisiana with the highest rate of pedestrian commuters, 2000.**

Rank	Place	Population	% Pedestrian Commuters	% Households w/o a car
1	Fort Polk South	10,999	16.87%	2.76%
2	Ruston*	20,758	6.99%	11.34%
3	Kaplan	5,141	6.79%	14.45%
4	Tallulah	9,229	6.03%	24.26%
5	Opelousas	23,005	5.93%	27.04%
6	Natchitoches*	17,934	5.87%	16.92%
7	Donaldsonville	7,559	5.51%	20.69%
8	New Orleans*	484,674	5.35%	27.32%
9	Jefferson	11,873	4.83%	14.38%
10	Leesville	6,724	4.64%	16.93%
11	Thibodaux*	14,320	4.60%	16.05%
12	Plaquemine	7,005	4.55%	19.47%
13	Hammond*	17,596	4.49%	14.27%
14	St. Martinville	6,925	4.33%	24.26%
15	Winnsboro	5,395	4.09%	25.41%
16	Crowley	14,270	3.97%	17.05%
17	Morgan City	13,064	3.97%	13.84%
18	Franklin	8,488	3.96%	18.48%
19	Baton Rouge*	227,920	3.94%	12.19%
20	Marksville	5,514	3.74%	20.23%

Source: Car-free Database, Bikes at Work, Inc. <http://www.bikesatwork.com>. Based on 2000 Census data.

\*College or University Communities

## APPENDIX

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**Table 2.4: Places in Louisiana with the highest rate of bicycle commuters, 2000.**

Rank	Place	Population	% Bike Commuters	% Households w/o a car
1	Winnsboro	5,395	1.87%	25.41%
2	Bridge City	8,270	1.86%	19.34%
3	Plaquemine	7,005	1.82%	19.47%
4	Gonzales	8,063	1.64%	8.91%
5	Belle Chasse	9,848	1.52%	5.79%
6	Hammond	17,596	1.43%	14.27%
7	Leesville	6,724	1.41%	16.93%
8	St. Martinville	6,925	1.37%	24.26%
9	New Orleans	484,674	1.19%	27.32%
10	Kaplan	5,141	1.14%	14.45%
11	Opelousas	23,005	0.92%	27.04%
12	Franklin	8,488	0.91%	18.48%
13	Covington	8,340	0.82%	10.10%
14	Sulphur	20,399	0.80%	6.65%
15	Baton Rouge	227,920	0.78%	12.19%
16	Marksville	5,514	0.75%	20.23%
17	Lafayette	110,261	0.68%	9.89%
18	Lacombe	7,533	0.68%	5.73%
19	Jefferson	11,873	0.67%	14.38%
20	Ponchatoula	5,228	0.67%	14.09%

Source: Car-free Database, Bikes at Work, Inc. <http://www.bikesatwork.com>. Based on 2000 Census data.

**Table A.5: Places in Louisiana with the highest rate of transit use, 2000.**

Rank	Place	Population	% Public Transit Commuters	% Households w/o a car
1	New Orleans	484,674	14.05%	27.32%
2	Gretna	17,338	4.89%	19.13%
3	Jefferson	11,873	4.88%	14.38%
4	Marrero	36,073	4.85%	13.92%
5	Harvey	22,259	4.66%	15.96%
6	Terrytown	25,397	4.50%	9.82%
7	Woodmere	13,102	3.82%	7.56%
8	Bridge City	8,270	3.32%	19.34%
9	Gardere	8,866	3.21%	8.59%
10	Monroe	53,091	3.18%	20.75%
11	Shreveport	200,549	2.88%	14.25%
12	Alexandria	46,738	2.87%	17.47%
13	Kenner	70,517	2.55%	8.78%
14	Baton Rouge	227,920	2.30%	12.19%
15	Waggaman	9,403	2.27%	8%
16	Timberlane	11,460	2.20%	6%
17	Westwego	10,841	2.10%	16.33%
18	Merrydale	10,465	1.99%	10.03%
19	River Ridge	14,601	1.84%	7.66%
20	Lafayette	110,261	1.83%	9.89%

Source: Car-free Database, Bikes at Work, Inc. <http://www.bikesatwork.com>. Based on 2000 Census data.







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