

Caddo Parish Bicycle Plan



February 2016



IN ASSOCIATION WITH



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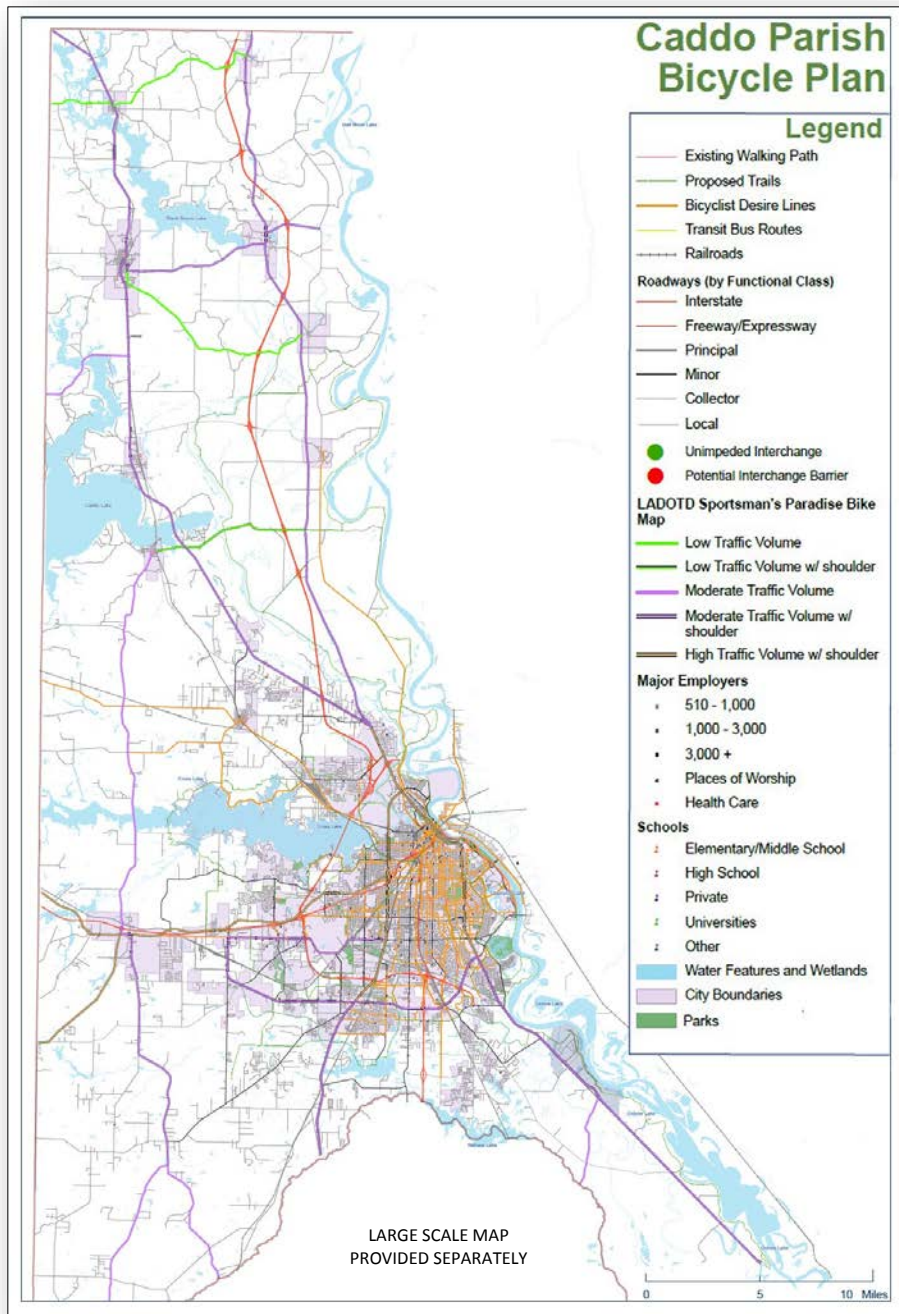
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Executive Summary

The Caddo Parish Bicycle Plan has been prepared to inform the Caddo Parish Bike Plan Component of the Northwest Louisiana Council of Governments (NLCOG) Long Range Transportation Plan. This plan is designed to address policies, infrastructure and programming that can and should be complemented by a more detailed Shreveport Citywide Network Plan that also considers connections to park lands, potential off-street trails, greenways, and important quality of life goals envisioned by city leaders.

This proposed parish-wide bikeway network addresses key connections and ongoing outreach programming - including to local leaders, philanthropists, chambers of commerce, large employers, members of the real estate industry, plus managers of healthcare, university and public school campuses. The process for this plan included a precursory evaluation of bayous, levees and creek corridors within the city to identify potential connection opportunities for “Trail Oriented Developments” (*another type of TOD*). One example is from the neighborhoods around a soon to open Whole Foods grocery store in Shreveport; and potential extensions to nearby nature and habitat areas a short distance from the city’s central business district. Large-scale PDF maps of both Caddo Parish and the Shreveport area are included. (See *Appendix A. Caddo Parish Bike Plan Map* and *Appendix B. Shreveport Area Bike Plan Map*.)

It became abundantly clear from this project’s onset that the stakeholders’ vision has been thoughtful, deliberate and very much in pursuit of fair and equitable access for all parish residents. Everyone wants to see increased awareness of people who ride bikes (and walk or use transit) around the region. Everyone wants to live in a place that supports active transportation.

While many proponents of this study are themselves very experienced bicyclists – a large majority have asked that wherever possible, street infrastructure be signed, marked or reconfigured in ways that accommodate anyone riding bicycles, no matter what age or skill level. There is also a universal call for increased education and awareness programs for both cyclists and motorists. The common thread running through most of the public comments is a call for a balanced or equal level of service for all modes of transportation, with equitable and seamless access to the full array of mobility options throughout the region.

This 359 mile bikeway plan encompasses suggested project groupings of short, medium and long term implementation strategies that help form a non-motorized network that is integrated with bus service and connects with common employment, educational, service, recreation and tourism destinations throughout the parish. A modest budget for initiating an education campaign is also suggested.

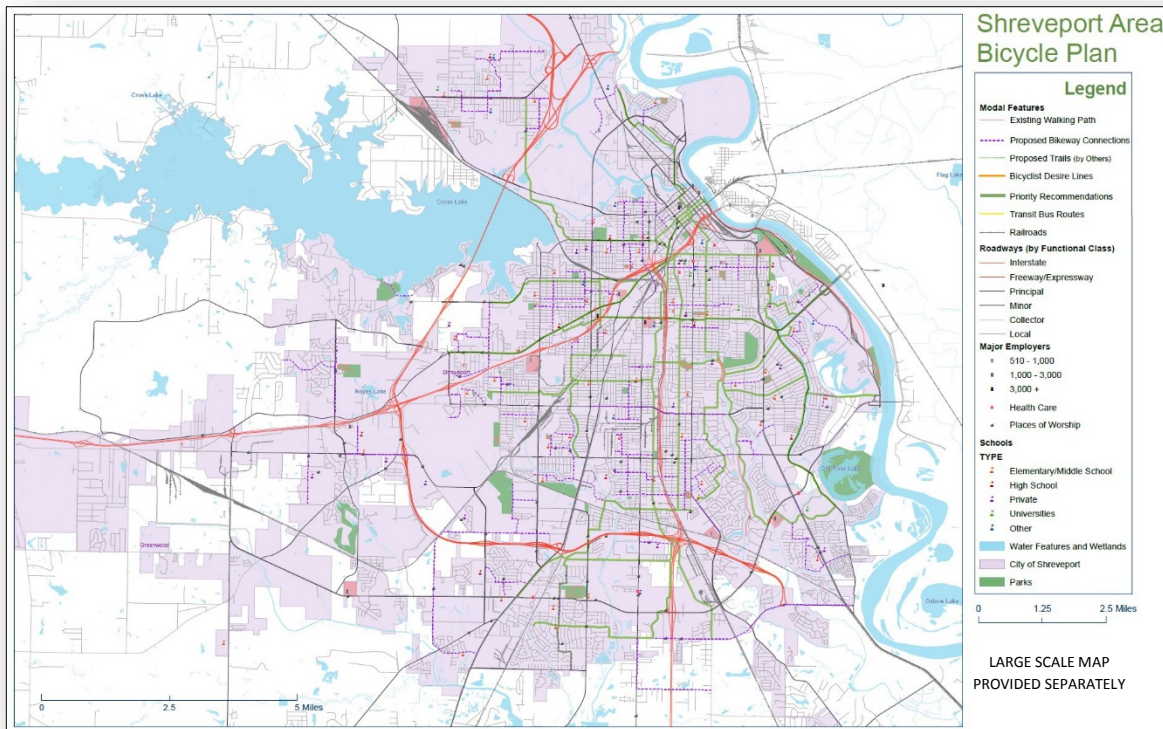
The plan recommends approximately 283 miles of roadways outside the city of Shreveport – signed to alert motorists of the presence of bicycles – with another approximately 90 miles of designated bikeways within Shreveport. Of the routes within Shreveport, 35.2 miles of Shared Lane Markings and signs are recommended along local neighborhood streets. Another 32.4 miles of standard bike lane striping and signage are recommended along Collector streets; along with another 16.4 miles of designated bike lanes along Minor Arterials, some with potential road diets or lane reductions to accommodate space needed. Another 5.65 miles of buffered (or protected) bike lanes are recommended along Principal Arterials, subject to further feasibility study to determine appropriate design treatments.

In addition to NLCOG coordination, the planning process also involved representatives from several parish and city departments - parks, planning and transportation. The plan also considered potential Caddo Levee District constraints, input from representatives of university campuses and health care centers, and locations of both current and future Sportran transit center operations.

The Caddo Parish Bicycle Plan encompasses the entire parish, and provides recommendations for both rural and urban bicycle travel needs within the Shreveport area. Areas of focus include the downtown central business district, areas around Shreveport Regional Arts Council’s Shreveport Common – and the surrounding neighborhoods it embraces, plus access to the riverfront and other potential nature-based, levee-top or scenic boardwalk facilities around the city.

Issues considered included route connectivity and directness, natural and manmade barriers, and potential trip attractors – with emphasis on education, healthcare, locations of schools and churches. This plan urges reconstitution of a select bicycle advisory group to provide input on implementation issues and address potential constraints and opportunities.

In light of ongoing constrained financing for bikeway and pedestrian infrastructure, and to help foster awareness of the technical and management staffs, this report includes links to an entire set of tools recently developed by the National Association of City Transportation Officials (NACTO). Parish and city staffs are urged to become familiar with and utilize these up-to-date bicycle facility design tools. Parish and city leaders are urged to support programming of staff time and resources for both bicycle and pedestrian design standards and strategies. Any past accommodation efforts deemed to be confusing or non-standard should be redesigned to standards and reinstalled properly very early in the next cycle.



An initial bikeway network that would best serve Caddo Parish and the City of Shreveport would be an implementation of the already adopted “Great Expectations” plan that helps energize a re-emerging area at the west end of downtown Shreveport. Subsequently, an evaluation process should be established to identify design opportunities and constraints for other proposed initial routes to connect

parish-wide and to neighborhoods throughout Shreveport. This evaluation process must address the major barriers imposed by existing highways, railroad corridors and bayous. Coupled with educational outreach, signage and enforcement of lawful road-sharing, navigating these obstacles will make bicycling throughout Caddo Parish a much more viable transportation option.

Determining appropriate phasing will require Caddo Parish to collaborate with its partner entities to formulate their preferred approaches to implementation. A Phase 1 of the Parish's top priority routes should seek to maximize overall visibility. For example, accelerating the installation of bicycle advisory signage on stakeholder-preferred parish roads, especially around highway interchanges, would have high impact on awareness of bicyclists. Similarly, implementing bike routes along local streets – mostly wayfinding signage with shared use lane markings and companion regulatory signage where appropriate – requires little engineering, no additional right of way, and can be implemented fairly quickly. Feasibility of installing bike lanes, especially those requiring road diets, will require longer timeframes. Initiating design phases for these routes will help keep them on track for implementing in subsequent phases.

As Phase 1 of initial implementation gets underway, the Phase 2 programming can begin to address connecting the remainder of schools, neighborhoods and the region's largest employment centers. With initial efforts then becoming visible to the public, parish and city leaders, there will be opportunities to cultivate public-private partnerships with employers and commercial interests in ways that serve to enhance the arrival experience via active transportation modes. These partnerships can be in the form of matches with local capital funds – or as incentives to new developments, business expansions or upgrades. In every case, seamless connectivity rather than just specific alignments, should be the watchwords embraced by staff and leaders of the jurisdictions. Increased awareness of both employee and customer accommodation for arrival by bike will create what the millennial generation wants to see as a civic quality of life.

Ongoing refinement and expansion of bikeway signage and markings will help build more consistent awareness of the State's Sportsman's Paradise bike routes designated throughout the region – a potential boost to bicycle tourism.

A comprehensive Shreveport citywide Trail, Bicycle and Pedestrian Network Plan would help foster both neighborhood and citywide awareness of overall benefits of these kinds of infrastructure improvements – and would serve to engage ongoing conversations about public/private partnership opportunities that benefit everyone. Consistent adherence to design guidance and recommended policies will foster a more orderly transition to active transportation throughout Caddo Parish.

This plan includes proposed criteria for use in evaluating, selecting and prioritizing funding for bicycle and pedestrian infrastructure, in addition to potential funding sources.

The one guiding principle both Parish and City leaders are encouraged to embrace is that equal consideration for all modes of travel benefits everyone. Every investment in bicycle infrastructure should be thought of as having potential for a net positive impact on personal health and the area's economic vitality.

1. Introduction and Process

The planning process for this project began with an initial meeting with Northwest Louisiana Council of Governments (NLCOG) staff, Caddo Parish officials, and City of Shreveport Parks, Planning and Transportation departments. These meetings were followed by site visits to evaluate potential connections to proposed Caddo Levee District trail ideas, access to university campuses, and both current and future Sportran transit center operations. The Caddo Parish Bicycle Plan (Plan) encompasses all of Caddo Parish and provides recommendations for both rural and urban bicycle travel needs. Other areas of focus include the downtown central business district, areas around Shreveport Regional Arts Council's Shreveport Common and the surrounding neighborhoods it embraces, plus access to the riverfront and other potential nature based, levee-top or boardwalk facilities around the city.

Bicycle travel-needs considered include route connectivity and directness, potential demand generators, barriers, and conflict analysis. The implementation process will rely on citywide and parish-wide commitment to and funding for an integrated bicycle network.

This Plan includes cost-constrained implementation recommendations to the year 2040. An exhaustive inventory was made of existing conditions and current and past plans. Relevant ESRI-based map files were assembled from data submitted for the region's overall long range plan, along with studies and reports – most of which revealed extensive interest in making this area of Northwest Louisiana safer and more attractive for people who ride bicycles.

Public input was obtained first from key agencies and diverse stakeholder groups. NLCOG provided an exhibit table during Shreveport's annual Maker's Fair event on April 11, 2015, coinciding with the launch of an online survey. Further input was obtained at a well-attended public meeting in Shreveport on May 21, 2015. Attendees from a variety of professions and walks of life demonstrated an impressive depth of interest in defining which roadway corridor elements they feel can be the most effective at achieving higher levels of bicycle accommodation in Caddo Parish.



From the abundance of feedback from comments and map markups, as well as the online survey conducted by NLCOG from April 11th through June 30th, the planning team confirmed that the citizens of the region have a clear vision, with specific goals and objectives in mind – to become a more bicycle-friendly region. People who currently ride bicycles identified desire lines that respond to existing conditions. Stakeholders were emphatic that their primary goal is a connected, well-marked network to meaningful destinations. In addition to infrastructure and wayfinding improvements, stakeholders also emphasized interest in educational outreach to both motorists and bicyclists. Additionally, there exists a

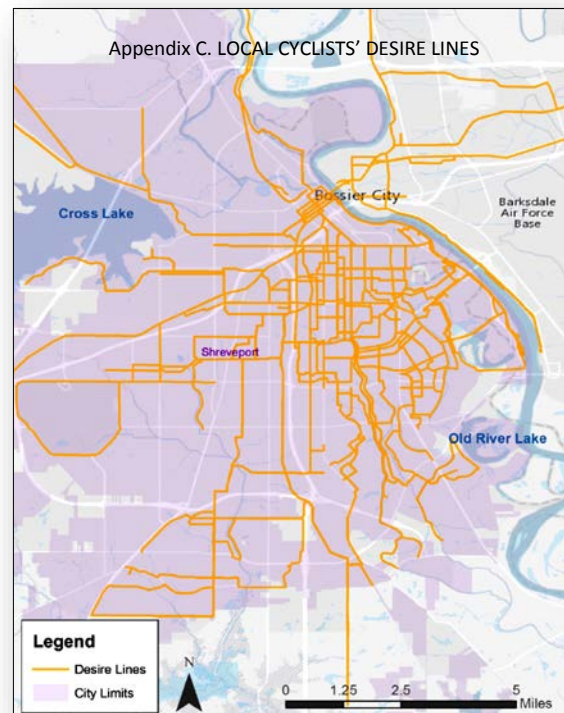
broad acknowledgement of the economic benefits of walkable and bikeable community design, open space, and outdoor recreation facilities connected to communities, and a strong interest in relating bikeways and trails to the natural ecologies that prevail along this Red River corridor.

The resulting vision incorporates many of the previous objectives and projects suggested in past studies and plans. A logical connected network has been developed to accommodate connections throughout every Shreveport neighborhood, as well as across major barriers imposed by highways, railroads and creek/bayou corridors throughout Caddo Parish. (See *Appendix A. Caddo Parish Bike Plan Map* and *Appendix B. Shreveport Area Bike Plan Map* – both electronic PDF versions enable viewing of selected layers.)

The process for this plan is one replicated by hundreds of cities across the United States. A frequent mention by stakeholders was concern that the current roadway network impairs people’s mobility via non-motorized modes – what many refer to as “active transportation.” A report entitled *Active Cities - a Guide for City Leaders* by the Designed to Move Coalition concludes that “integrating physical activity into people’s daily routines is the only way to ensure people are able to move enough to thrive physically.” Insights gleaned from this report are included in *Chapter 5. Design Guidance and Suggested Policies*, to help inform the vision for this planned network.

In preparation for this plan, a GIS layer of “desire-lines” was compiled from routes of interest marked by stakeholders during meetings. (See *Appendix C. Local Cyclists’ Desire Lines*.) As map layers were assembled, visual assessments were conducted to identify key trip origins and destinations throughout the parish, most of which fall within the city of Shreveport.

Alignment alternatives were then studied and compared to identify which routes have the highest levels of support or achieve the greatest impact on connectivity. Various GIS layers were developed and reviewed to facilitate evaluation. Gaps were identified where necessary to connect to the highest priority destinations. These supplemental routes were added to complete seamless connections throughout the city, and the highest priority routes were then defined. The resulting vision, goals and objectives for this Caddo Parish Bicycle Plan include a set of phased recommendations for short, medium and long range implementation.



2. Current Conditions and Plans

This Caddo Parish study, coordinated through Northwest Louisiana Council of Governments (NLCOG) as an additional services element of its Long Range Transportation Plan, focuses on roadways throughout the parish. Past reports and current plans were also reviewed. Current state-of-the-art practices were also considered, such as Complete Streets and Context Sensitive Solutions policies that were adopted at the State level by Louisiana Department of Transportation and Development (LADOTD). (*Appendix D. LADOTD Complete Streets Policy - 07-18-2010.*)



This report lends insights, provides references to guidance, and identifies recommended routes for short, medium and long term bikeway improvements and support processes for Caddo Parish and the City of Shreveport. These recommendations are subject to ongoing refinements in conjunction with each cycle of Long Range Transportation Plan updates prepared for the Metropolitan Planning Organization (MPO) region, typically every five years.

NLCOG maintains a separate category for bike and pedestrian funding (Transportation Alternatives Program or TAP), and is committed to including consideration of alternative transportation modes in all new projects. The MPO Policy Committee for NLCOG has recently adopted a resolution for considering bicycle and pedestrian needs as part of all projects in the region.

CURRENT CONDITIONS

The state of Louisiana has one of the highest obesity rates in the nation. The State and various governmental and non-governmental agencies worked in Caddo Parish to develop an expansive project called the *Shreveport-Caddo Bicycle and Pedestrian Master Plan*. As part of this master plan, ThinkFirst and Louisiana State University in Shreveport (LSUS) collaborated to provide education and outreach programs about active lifestyles for Shreveport residents, funded by the Community Foundation.

The project identified bicycling and walking patterns and practices of Shreveport residents at selected sites. Pedestrians and cyclists were first surveyed and counted by LSUS in the spring of 2013. In Part II of the project, conducted by ThinkFirst during the summer of 2013, children were surveyed on their use of bicycles. Among the most significant findings were that nearly 84 percent of children own bicycles, and that 79.5 percent either ride daily or sometimes ride, and fewer than 1 in 10 walk to school.

Most disturbingly, children were found to be unclear about which side of the roadway to ride bikes on in relation to motor vehicle traffic. Only 32.3% of children surveyed knew they should ride the same direction as drivers of cars. The survey revealed that 90.3% of adults walk, and as many as 8.3% ride bicycles to get around at any given time. The most common purposes for walking were personal business (such as medical or visiting friends, etc.), commuting to work, exercising, and shopping, while going to school was the least common reason cited for walking.

The main purposes for riding a bicycle were personal business, exercising, and school. The choice of routes to walk or bike depended on safety, proximity to the person's destination, and accessibility of the roads. Pedestrians and bicyclists surveyed indicated they would like to see better street crossings, wider sidewalks, more sidewalks, better surfaces, and bike lanes on their routes and in their communities.



On the basis of this project, LSUS faculty and ThinkFirst staff provided recommendations to educate children, parents, and adults about the importance of helmet ownership and usage, and the dangers of injuries to the brain resulting from accidents associated with bicycle use, particularly when not wearing a helmet; and to distribute helmets to children who own bicycles but not helmets.

The study group also called for increased awareness of the proper rules of the road when riding a bicycle (e.g. the confusion about which side of the street to ride a bicycle on. They also sought engagement with the Shreveport City Council and other stakeholders to address the bicycling and walking needs of the residents of Shreveport to:

- a. Advocate for wider and increased availability of sidewalks to encourage greater pedestrian utilization in Shreveport.
- b. Advocate for designated bicycle paths and expanded bike lanes across Shreveport based on best community planning practices.

The study group called out recent efforts by the Centers for Disease Control and Prevention (CDC) to reduce the rate of obesity, noting the CDC (2013) recommends healthy eating in conjunction with active lifestyles. The study group also highlighted the need for complete streets Best Practices and Policies.

ADOPTED PLANS

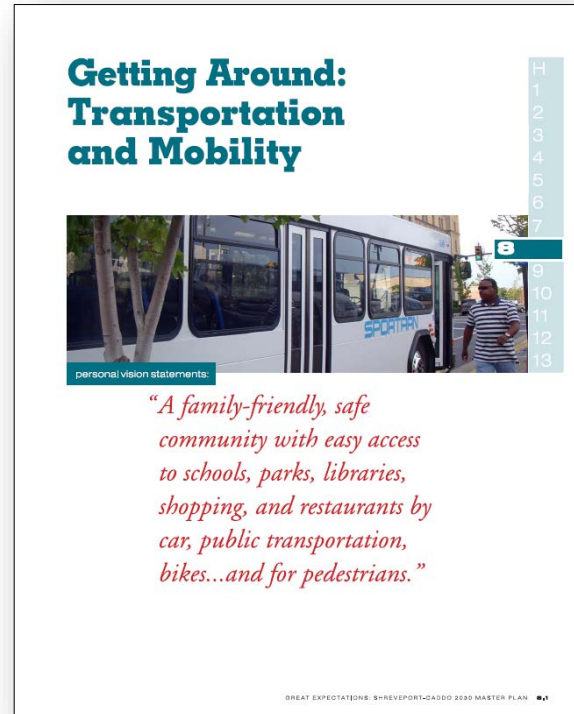
GREAT EXPECTATIONS: SHREVEPORT-CADDO 2030 MASTER PLAN

The *Great Expectations: Shreveport-Caddo 2030 Master Plan* adopted in 2011 has a goal of a safe and attractive pedestrian and bicycling network integrated with motorized transportation. Among the policy recommendations are support for a “Complete Streets” policy that “provides roadway space for bicycles, pedestrians, automobiles and transit vehicles and integrates greenway and off-road bicycle routes with the roadway system.” An additional policy recommendation is to “integrate pedestrian networks and bikeways into the development of public spaces and link community destinations through on and off-street facilities.”

One aspect of the report focuses less on further expansion of the roadway network, and more on integration of land uses with the transportation network, in order to provide opportunities for more transportation choices. By improving maintenance and functionality of existing roadways, the street network can make active transportation more pleasant, attractive and environmentally sound. Provision of amenities and enhancing connections to public transportation are also a focus. Key relevant strategies and actions outlined in this plan include:

- “Fix It First: develop a comprehensive pavement management program.
- Integrate transportation and land use planning, technology and management strategies for efficient roadway and transit networks to provide alternatives to auto travel, and establish roadway impact fees.
- Adopt context-sensitive design frameworks and a “Complete Streets” policy that integrates various transportation modes in regulations.
- Improve conditions to encourage more trips by bicycle, walking and transit as part of the region’s ozone conformity plan.”

Important plan objectives include connecting neighborhoods – particularly across barriers such as rail lines, major highways, and bayous. Interstate highways bisecting Caddo Parish currently pose dozens of barriers to bicycle travel and walkability, as do the numerous railroad lines and bayous that bisect the area. These points of greatest constriction fall within the lowest hanging fruit in terms of improvements that the parish and cities can make to quickly improve permeability for people who choose not to or



cannot drive. It's crucial that there's an awareness that some people rely solely on walking or bicycling as a matter of routine in their daily lives.

CITY OF SHREVEPORT 2014-2018 CONSOLIDATED PLAN

Sponsored by the City of Shreveport Department of Community Development, the *City of Shreveport 2014-2018 Consolidated Plan* guides the use of Community Development and Block Grant (CDBG), HOME Investment Partnerships Program (HOME), Housing Opportunities for Persons with AIDS (HOPWA), and Emergency Shelter Grant (ESG) funding received from the U.S. Department of Housing and Urban Development (HUD).

The City of Shreveport works with a wide variety of agencies, organizations, and service providers in an effort to identify and respond to local housing and service needs. The Consolidated Plan includes an analysis of socio-economic status, local housing market, and housing needs based on a review of 2010 Census, 2005-2009 and 2007-2011 American Community Survey, as well as locally gathered and HUD provided 2005 Comprehensive Housing Affordability Strategy (CHAS) data. The plan objectives potentially applicable to the bicycle plan component of the NLCOG 2040 LRTP include:

- Support a public facility project in the CDBG targeted areas of Shreveport or an underdeveloped area.
- Help restore the quality of life and housing conditions in low income neighborhoods.
- Increase the livability of the citizens by becoming a healthy and active community.
- The funding from the CDBG and HOME programs is available for city-wide projects, as well as for use within identified target neighborhoods: Allendale, Caddo Heights, Hollywood, Ingleside, Lakeside, Ledbetter Heights, Mooretown, Martin Luther King, Stoner Hill, and Queensborough.

CADDO PARISH / CITY OF SHREVEPORT – PARKS AND RECREATION MASTER PLAN

A combined Parish-City *Parks and Recreation Master Plan* was completed in 2006 that focuses primarily on future development of parks and recreation facilities through the year 2020 within the city of Shreveport and Caddo Parish. The plan includes an assessment of anticipated population growth, level of service standards, existing facilities and city budgets, assessment of trends impacting recreation, recommendations for future projects, and strategies for project implementation.

Input into the plan development and resulting recommendations were gathered through three public forums, sessions with local elected officials and community leaders, as well as with an online survey. Along with an outlay of required operational and capital costs, the primary recommendations are broken out into four categories: renovation of current facilities, additions or improvement to current facilities, new land, and new facilities.

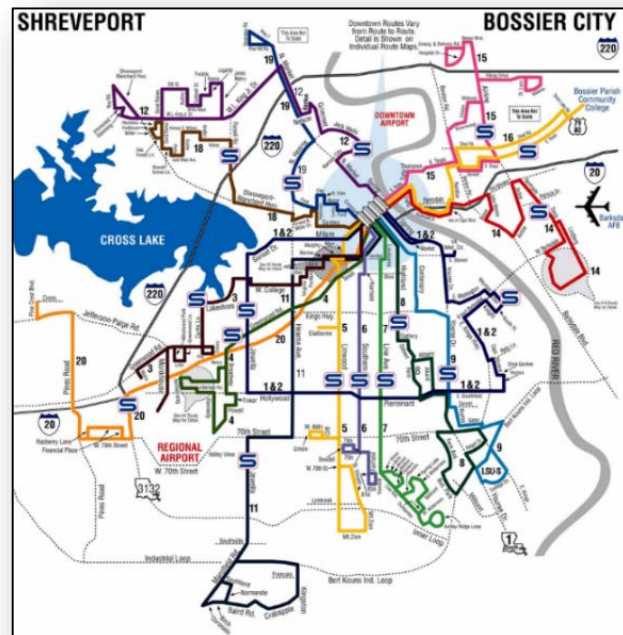
Stakeholders involved during development of this plan provided a large list of options to consider for facility and program developments. Among their primary needs was development of greenways that connect public facilities. This group indicated a willingness to support recreation with a dedicated "ZAP"

tax (dedicated for operations and development), and encouraged that joint programming and facility development occur through community partnerships, where public agencies and community non-profits join together. They called for improvements to neighborhood parks coupled with connector parks linking schools, parks and other public spaces with neighborhoods and communities. According to this report, trail connectors have proven to add to property values of areas, while providing needed connections for exercise, community health and social well-being. There was also interest expressed for bikeways along roadways.

SPORTRAN TRANSIT

SporTran, the public transportation provider for the Shreveport-Bossier City area, operates a fleet of more than 50 buses equipped to handle all passengers including those with disabilities and people with bicycles. The agency promotes its “Bike & Ride Racks” available on all of its buses as “easy, cuts travel time, eliminates walking, and gives your bike a safe and secure ride to your destination.”

SporTran serves an area of 61 square miles with fixed-route bus service. In 2013, the service provided approximately 3,339,500 rides, of which 60,500 (1.8%) were attributed to SporTran's demand-response service. This map (right) shows the route system in both Shreveport and Bossier City. To improve service and efficiency, the City of Shreveport and SporTran have secured funding and development approval to construct a main intermodal terminal at Texas Avenue and Murphy Street to serve both SporTran and Greyhound.



CURRENT NLCOG PLANNING

A multi-modal update to the region's plan was begun by NLCOG during Fiscal Year 2014. The Long Range Transportation Plan (LRTP) incorporates policy considerations and related long-term impacts. Considerations of this analysis include land use changes, population growth, density patterns, economic development as well as commercial and residential zoning to help identify and rank projects. The plan identifies all regionally significant projects - regardless of their funding source; and, in many cases, projects funded by combinations of state, federal, and local funds.

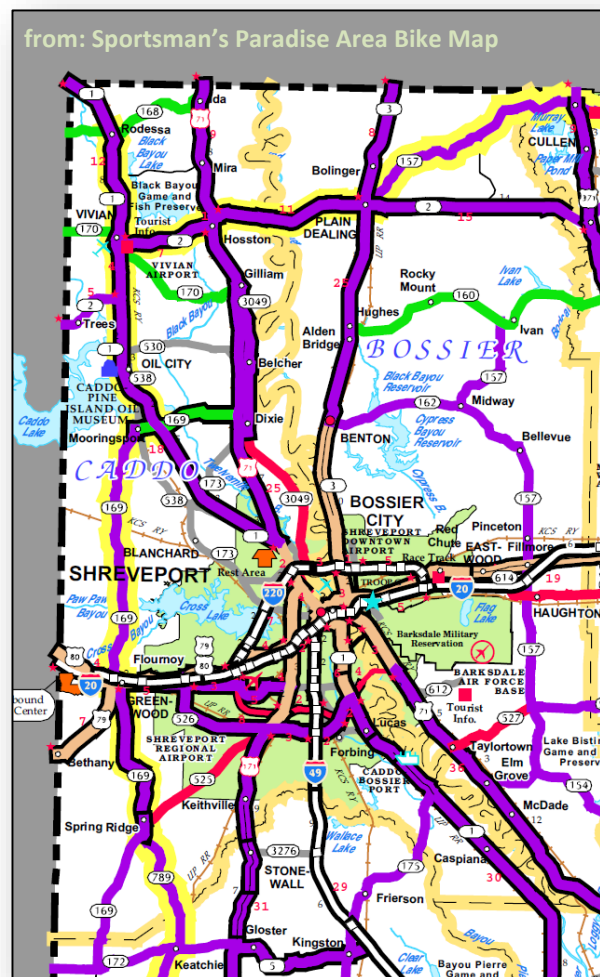
The region's Transportation Improvement Program (TIP) is a prioritized, financially-constrained multi-year program for implementing federally-funded transportation improvement projects within the designated Metropolitan Planning Organization's boundaries. The TIP serves as a gauge to maximize effective use of limited funding for transportation improvements, and lists public transit, roadway, bicycle, and pedestrian projects that will receive federal transportation funds in the near future. The TIP guides implementation of the fiscally-constrained LRTP and specific projects and their funding levels are usually identified for the first three or four-year period. The 2013-2016 TIP was adopted on September 20, 2012, and has been amended regularly since adoption.

LOUISIANA STATEWIDE BICYCLE AND PEDESTRIAN MASTER PLAN

According to the Louisiana Statewide Bicycle and Pedestrian Master Plan, one of the primary tasks of each MPO is to develop the TIP. NLCOG is required to consider all modes of transportation; provide for the development and implementation of an intermodal system; include representatives of users of pedestrian walkways and bicycle transportation facilities in their lists of interested parties; give due consideration to bicyclists and pedestrians in the comprehensive transportation plans.

The importance of planning and designing for pedestrians and bicyclists, according to the plan, has been emphasized in many of the state 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 LADOTD's safety efforts.

State designated bikeways are currently mapped as "Sportsman's Paradise" routes (see clip – right), consisting of 219 miles within Caddo Parish, including 14.2 miles within Shreveport along Bert Kouns Industrial Loop from Old Mansfield Road to 70th Street. (See *Appendix E. Sportsman's Paradise Area Bike Map.*)



The Louisiana Statewide Transportation Plan includes numerous bicycle and pedestrian recommendations which “represent LADOTD’s commitment to providing the planning and infrastructure necessary to make non-motorized modes a viable transportation option for Louisiana’s citizens.” Among these are: 1) Develop a comprehensive policy for non-motorized transportation, 2) Develop statewide bicycle suitability map, 3) Develop statewide bicycle goals map, 4) Provide for “routine accommodation” of bicycle/pedestrian needs in LADOTD planning and design processes, and 5) Support incorporation of bicycle and pedestrian improvements in transportation planning and in highway and transit projects. (See Appendix F. Long Range Bicycle Map 2 page handout.)

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

Long-Range Bicycle Map—Statewide (LRBMS) Regional Outreach Meetings

Long-Range Bicycle Map - Statewide

The Long-Range Bicycle Map—Statewide (LRBMS) is state planning effort being undertaken by the Louisiana Department of Transportation and Development (LA DOTD) to develop a tool that assists transportation professionals with development of a statewide bicycle network throughout the project delivery process.

The project focuses on the state highway network—approximately 27% of all Louisiana roadways which are owned, operated, and

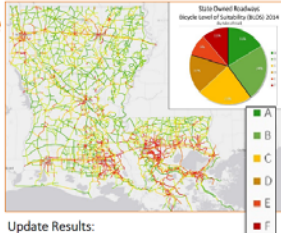
maintained by the LA DOTD.

What is the product? A GIS-based map ranking of needs for bicycle facilities by importance and identifying context appropriate facilities. Ranking is based on demand, bicycle level of service, and public input. Ranking is accompanied by sample plans for a variety of bicycle facility types according to urban/rural location, ADT, population density, and other factors.

Bicycle Suitability Update

In 2012, DOTD invested in a Bicycle Suitability Map which was an Level of Service (LOS) analysis of entire state highway network measuring level of comfort for cyclists. This product was a printed map to be used by bicyclists for decision-making and a static GIS product used internally for performance measurement.




This Bicycle LOS product was updated as an input to the LRBMS. This BLOS input identifies those state-network segments which poorly serve the bicycling community. By combining the poorest performing segments with other inputs such as demand, the LRBMS can identify the highest priority locations for bicycle facility improvements.




Update Results:

- The 2014 state-network roadways provide roughly the same level of comfort for bicyclists as in 2012.
- Bicyclists can find more comfort in rural areas with less congestion and trucks.
- A new GIS tool has been created that will streamline future DOTD updates.

Project Contacts

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Bicycle and pedestrian objectives are recommended under all funding scenarios. USDOT policy requires all states to create and adopt a Strategic Highway Safety Plan (SHSP) to help states reduce fatalities and injuries, and to focus on the common goal of making the transportation system safer. Louisiana’s SHSP identifies bicycle and pedestrian crash reduction as a core-emphasis area. Pedestrians, bicyclists, and motorcyclists are termed “vulnerable road users” because they are defenseless in crashes involving a motorized vehicle. They 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, and the State Transportation Plan.

FEDERALLY FUNDED BICYCLE AND PEDESTRIAN PROJECTS

Only one bicycle/pedestrian project utilizing MAP-21 funds is currently programmed in the NLCOG region. A walking path categorized as “bicycle and pedestrian facilities” is listed as a Trail Restoration within the American Rose Center. The interior park pathway project lists a total budget of \$130,496.35, and was authorized in December of 2013. (Source: “Annual Listing of Federally Obligate Projects – Fiscal Year 2014” http://www.nlcog.org/pdfs/annual_fed_oblig_proj_fy2014.pdf)

3. Vision, Goals and Objectives

DEFINING THE VISION

The vision for the Caddo Parish Bicycle Plan has been framed to address policy, infrastructure and programming that can and should be complemented by a more detailed Shreveport citywide network plan. Efforts to develop such a network would foster both neighborhood and citywide transportation and recreation improvement opportunities. Awareness of the overall benefits of these kinds of infrastructure improvements is widely understood today. Further planning for this vision has the potential to foster ongoing public/private partnerships.

This proposed parish-wide bikeway plan is envisioned to support outreach programming - including to local leaders, philanthropists, chambers of commerce, landowners, members of the real estate industry, plus managers of campuses for large employers, healthcare, universities, public schools, and other public places. It could also lead to the development of Bikeway or Trail Friends Groups, who can advocate for and may provide financial support and help with amenities.



Practically every stakeholder involved indicated a desire to raise awareness of people who ride bikes around the region. While many proponents are themselves, experienced bicyclists – they’ve generally each asked that wherever possible, infrastructure be reconfigured in a way that accommodates anyone riding bikes, no matter what age or skill level.

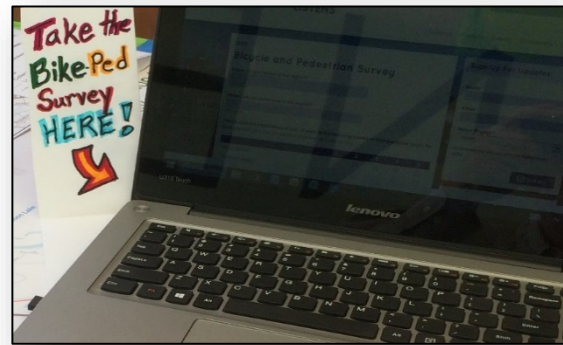
At each of the public input events, there was a universal call for increased education and awareness programs for both bicyclists and motorists. The common thread running through most of the public

comments is a call for balanced or equal level of service for all; and equitable access to mobility options throughout the region.

The plan encompasses suggested phases for short, medium and long term implementation strategies which create a non-motorized network that is integrated with bus service and connects with employment, educational, service, civic, recreational, and tourism destinations.

Clearly those northwest Louisiana stakeholders who provided the most input for this plan have aspirations for a more bicycle friendly region, particularly for the Caddo Parish side of the Red River. Connections through and beyond the parish were often cited as the most critical component of any commute network that could be created. Many who live on one side of major barriers and work on the other side indicated that often these short distances without any accommodation for bicycling create the greatest barriers to bicycle commuting from homes to workplaces or other destinations.

At the April 11, 2015 Makers Fair exhibit in downtown Shreveport, a surprising number of people who stopped by the Northwest Louisiana Council of Governments (NLCOG) bikeways exhibit said they don't own an automobile. Instead, they choose to bicycle and/or ride the bus everywhere they go. A great deal of interest was demonstrated by the younger community in bicycling as a mode of transportation and an ideal method of fun, short distance mobility.



Several stakeholders expressed strong interest in motorist education, saying that signage would be a big help, especially for routes to navigate through neighborhoods and help connect across barriers. Increased parish and city staff engagement with the bike planning is essential to success of appropriate bikeway implementation. Many indicated how important it is to highlight the value of economic development that bicycling and walking accommodation brings to communities. Stakeholders also indicated that they would bicycle more if streets were more bicycle friendly.

Display maps at the Makers Fair were marked with numbers corresponding to people's residences and places that they would ride to. Quite a few indicated that they would ride bikes to a number of other destinations if it were easier. Strong interest was expressed in highlighting the ecological benefits of bicycle accommodation. Similar strong interest is evident in highlighting the health benefits of bicycling and walking. A downtown property owner of about 15 years said he is very interested in seeing this kind of energy come to the western part of downtown Shreveport.

During a well-attended public meeting in Shreveport on May 22, 2015, almost everyone present indicated they own a bicycle, and about 20-25% indicated they ride regularly for purposeful trips. Two women in the audience indicated they do not own autos and routinely rely on their bicycles for work commute trips. The audience expressed a strong interest in off-street connections, and connections to universities,

schools and other key destinations. Need was expressed for examining infrastructure around the perimeters of the parish, especially where bridges either exist, are planned, or are needed. Conjecture that the Fire Marshal might support parking along only one side of a neighborhood or collector street gave rise to looking at innovative ways to add bike lanes along streets with parallel parking.

A request was noted on a map markup suggesting the North Lakeshore “bikeway” treatment seems to be incorrectly signed as a bike lane, and that this causes confusion among other bicyclist.”

South Lakeshore was also highlighted as a corridor of interest to bicyclists. Numerous routes of interest were highlighted on the citywide map, and several more extended routes were highlighted on the overall Parish map.

Concern was noted for the lack of bridge access by bicyclists along Barksdale Blvd heading to Barksdale Air Force Base on the east side of the river. Stakeholders indicated that many personnel live on the west side that for one reason or another must walk or ride a bicycle to the base each day.



Interest was expressed in creating a possible pedestrian/bike bridge (or boardwalk) across Champion Lake to Island Park and to the Marie and Charles Hamel Park. Nature based tourism is

of significant interest in Shreveport, particularly in the area around the historic A-frame railroad trestle north of downtown.

A major YMCA complex is planned to be built near Preston at Clyde Fant Memorial Parkway with a grant from BHP Billiton to build the complex. According to a July 2014 announcement, BHP Billiton is making a \$10.7 million donation to the YMCA of Northwest Louisiana for the development of the YMCA Red River Fitness & Natural Sciences Campus to be located near Clyde Fant Parkway and East Preston Avenue. Stakeholders requested bike lanes along Preston to access across Champion Lake.

Reference was made to Allendale CNP on Hope near Cotton. (One of several Choice Neighborhood Planning Grants said to be poised for transforming Allendale, Ledbetter Heights, and the Shreveport Commons.) Bike accessible routes were requested that lead to the homeless services on Levy St. near Texas Avenue, and to the nearby U.S. Post Office. Wallace Lake Road is of interest up to Dalton, east to Ellerbe and north to Northampton.

Mention was made of a newly approved *Resolution 50* recently passed by the Parish board, requiring *Complete Streets* in all new projects funded by the Parish. The MPO Policy Committee recently adopted a resolution to consider complete streets on future projects as appropriate. One audience member suggested incentivizing the inclusion of these during the project scoring process, rather than imposing a penalty for excluding accommodation or consideration.

Suggestion was made to add places of worship to the maps, and to ensure improved bikeways connect with these, as these are often the primary local places people want access to without driving.

PLAN GOALS

First and foremost, a goal of accommodating people who ride bicycles must be integrated with all other transportation investments so that it is routine, and in the spirit of complete streets. Connectivity with transit extends the range of people on bikes, allowing trips to be intermodal, which benefits the transit agency's catchment areas by up to nine-fold.

PLAN OBJECTIVES

Key objectives identified in stakeholder feedback include:

- Safe, secure, and efficient
- Institutionalize and make bikes standard practice for design (not special, but standard)
- Connect off-street trails with on-street bikeways, to establish a seamless system
- Implement priority projects with balance, safety and equity as a focus
- Bike facilities that provide access to destinations
- A system that's both fun and functional
- Aids in reducing commute trips
- Contributes to improved air quality
- Implementable, practical and sustainable
- Forward thinking - builds on existing plans
- Usable for all end users - inclusive

4. Recommendations, Prioritization and Next Steps

This Caddo Parish Bicycle Plan recommends approximately 359 miles of bikeways, including 283 miles of roadways outside the City of Shreveport that should be signed to alert motorists to the presence of bicyclists, with another approximately 90 miles of designated bikeways within Shreveport. Of the routes within Shreveport, 35.2 miles of signs and perhaps Shared Lane Markings would be designated along local neighborhood streets. Another 32.4 miles of typical bike lane striping and signage would be installed along Collector streets within the city; along with designated bike lanes along another 16.4 miles of Minor Arterials – some with potential to institute road diets or lane reductions to accommodate the necessary space; and another 5.65 miles of buffered (or protected) bike lanes along Principal Arterials (subject to further feasibility study to determine appropriate design treatments). Local stakeholders and agencies could consider partnering to launch a broad scale public safety campaign keyed to bicycle safety, fitness and community well-being as part of any initial implementation. A public/private partnership (P3) approach to creation of such an outreach could help leverage the publication and distribution costs for such a program. National, state and local non-profit advocacy organizations are a good source for already published materials.

A potential funding framework for implementing this overall plan assumes some amount of funding from the Transportation Alternatives Program (TAP), subject to allocation through NLCOG. Matching funds from local entities will be necessary for successful implementation of this plan.

Costs for individual projects are fully dependent on which year they become programmed; but, generally, an inflation adjusted planning-level/order-of-magnitude estimate of potential costs is spread out over 3 hypothetical phases – of years 2016-2020 for Phase 1; 2021-2030 for Phase 2; and 2031-2040 for Phase 3. At projected 2015 base-year costs, all phases combined, including a modest educational campaign, total an estimated \$4,660,524. Further cost projections in future years will rely on project selections for each phase by the Parish and its partners, and calculating growth or proposed escalation factors of 2-percent per year, subject to year of expenditure (YOE).

STAKEHOLDER PRIORITIES

Northwest Louisiana stakeholder participants in this plan's development have articulated clear visions for routes throughout Shreveport and Caddo Parish. Participants included college professors, schoolteachers, healthcare and investment managers, a prominent film industry administrator, business consultants and residents from a variety of sectors – including many who claim to not own or drive cars – only bicycles.

Key objectives these stakeholders want pursued in this plan include working with agencies immediately to secure increased public financing and right of way for bikeway improvements. They also want to ensure the free market has an opportunity to work so Caddo Parish benefits from these investments.

Residents who were involved called for launching a broad scale educational outreach or public safety program keyed to bicycle safety, fitness and community well-being. The outreach should include both bicyclists and motorized vehicle users.

Bicycle routes to favored destinations such as schools, shopping and workplaces are considered top priorities. Calls for installing a connected bikeway network that maximizes access to transit and preferred destinations were emphasized. Stakeholders want their public agencies to address hotspots with upcoming bond programs – to capitalize safety fixes, installations of uniform signage (regulatory, advisory and educational), and to be proportionate by mode-share between lives injured and lost while engaged in transportation, with corresponding financial amounts devoted to mobility and access infrastructure.

Naturalists, nature enthusiasts and those interested in nature-based tourism want the City and Parish to create more connections to surrounding natural and scenic destinations.

Residents also called for Northwest Louisiana Council of Governments (NLCOG), the Parish and Shreveport to establish a bicycle and pedestrian advisory council that coordinates with state agencies and programs. The State is currently updating its bicycle plan with a focus on greater transportation equity and complete streets.

INITIAL INFRASTRUCTURE ENHANCEMENTS

By selecting key locally-preferred corridors that serve the densest populations, many bike routes can be established with a minimum capital outlay. Local people who ride bicycles and bikeway plan supporters have indicated in an extensive number of comments and route preferences that they wish to accommodate many of their routine daily trips by bike. In many cases – simple motorist-awareness signage can have a very positive impact on bicyclists’ safety. By posting strategically located “Bike Route” or “Bicyclist” advisory signs, along with “Share the Road” advisory placards on even the lesser-used collector routes, the message of shared road space becomes ubiquitous in developing an awareness and fostering an attitude of common courtesy.

IMPLEMENTATION RECOMMENDATIONS

A variety of potential combinations of programming could be considered, depending upon which entities Caddo Parish Commissioners wish to allocate its available funds. Following are the potential project groupings.

BIKE ROUTES WITHIN SHREVEPORT

One example for Phase 1 within Shreveport, for signing approximately 35 ¼ miles of fairly standard bike route (generally wayfinding) treatments could cost an estimated total of \$620,929 to construct, plus 20

percent for handling administration, public involvement and engineering, for a total of \$745,115 in current dollars.

BIKE LANES ALONG SHREVEPORT COLLECTORS

A hypothetical Phase 2 example would be to install Bike Lanes on the majority of identified collector streets within Shreveport, the most appropriate bikeway accommodation will likely be traditional bike lanes– which may require reconfiguration of current pavement allocations and markings. Full build out of improvements along 32.5 miles of collector streets could cost \$1,009,591 to construct, plus 20 percent for handling administration, public involvement and engineering, for a total of \$1,211,509 in current dollars.

BIKE LANES ALONG SHREVEPORT MINOR ARTERIALS

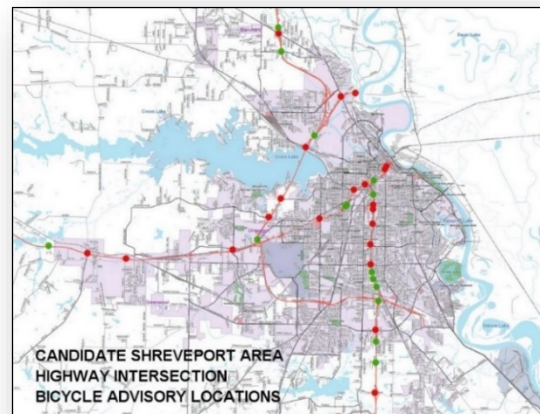
Bike lanes on many minor arterial streets may require the use of “road diets” to reduce the number of motor vehicle travel lanes to accommodate installation of bike lanes or buffered bike lanes. A planning-level estimate of potential costs for these types of treatments is subject to design development; but, using \$42,665 per mile for construction costs over 16.4 miles of minor arterials, plus 20 percent for handling administration, public involvement and engineering equals a total of \$837,599 in current dollars.

BUFFERED BIKE LANES ALONG SHREVEPORT PRINCIPAL ARTERIALS

Bikeways or in some cases – buffered bike lanes – on principal arterials will likely require additional design consideration as well as further study to determine which approach can work best on the 5.6 miles of principal arterials identified in this plan. Using a construction figure of \$55,823 per mile, plus 20 percent for handling administration, public involvement and engineering equals a total of \$378,480 in current dollars. These could be done concurrently with other segments in the plan. The priority 1 intent is to create an integrated citywide bikeway network within the city of Shreveport within approximately 10 years. See additional recommended enhancements below for Caddo Parish, outside the city of Shreveport, and for highway interchanges that are subject to LADOTD consideration.

HIGHWAY INTERCHANGES THROUGHOUT CADDO PARISH

An assessment was also made of highway intersections with potential conflicts or hazards to bicyclists. (See *Appendix A. Caddo Parish Bike Plan Map* – PDF has a selectable layer indicating potential interchange conflicts.) Many intersections are grade separated (indicated in green on the maps); but, approximately 28 interchanges (indicated in red) transition to surface streets that have significant potential for encountering people on bicycles. Motorists exiting these controlled access roadways should be alerted to the presence of bicyclists.



These intersections (indicated in red on the Plan maps) should receive a high-priority assessment to determine which warning signs or markings would be appropriate to enhance bicycle safety. A minimum of 6 BW11-1 bicycle advisory signs per interchange would serve to alert motorists passing through or exiting interchange ramp. These signs should also include W16-1 “Share the Road” placards where appropriate. Estimated costs for locating and installing these in current dollars is approximately \$83,160. (See *Appendix I. Table of Potential Intersection Conflict Locations*)

SPORTSMAN’S PARADISE ROUTES*

For State designated bikeways mapped as “Sportsman’s Paradise” routes, this plan recommends installation of State-approved breakaway sign posts with BW-11 bicycle advisory signs complemented by W16-1 “Share the Road” placards. These routes comprise 204 miles in Caddo Parish, outside the city of Shreveport, plus another 14.2 miles within Shreveport’s Bert Kouns Industrial Loop from Old Mansfield Road to 70th Street for a total of approximately 219 miles of routes throughout the Parish. Using a planning level estimate of potential cost of \$450 each, and installing approximately 10 sign posts per mile (or 5 facing each direction) would total approximately \$984,600. This plan recommends signing another 64.3 miles of roadways with these treatments along routes indicated as ‘Bicyclist Desire Lines’ (*Appendix C. Local Cyclists’ Desire Lines*) – for a cost of approximately \$289,350. In total – the “rural” routes to be signed within Caddo Parish comprise a total of 283 miles for an estimated cost of \$1,401,345 in current dollars. [*Subject to mileage overlaps, totals may vary.] Note: Signage recommended at highway interchanges is not included in these totals.

PAVEMENT MANAGEMENT

In many areas of Shreveport, roadway infrastructure appears adequate for current levels of motor vehicle traffic. In some areas, both right-of-way and pavement appear to be oversized. To compensate for these areas of excess surface, particularly near intersections and interchanges – pavement markings have been utilized to narrow travel lanes, leaving excess pavement generally unusable by people riding bicycles through these intersections.

Many of these passages appear to provide opportunities for reconfiguration to better accommodate bike lanes or other bikeway infrastructure that would enhance safety and create connections through areas that are otherwise currently a barrier to bicycle travel.



GREENWAYS AND GREENBELT TRAILS

HISTORIC ROOTS AND NATURE

This plan recommends collaboration with the Shreveport Public Assembly and Recreation (SPAR) Advisory Council and the Caddo Parish Commissioners to further develop plans for a connected, publicly



accessible greenway trail network that interfaces appropriately with the on-street bikeway network. Numerous involved stakeholders have expressed strong interest in developing more of a citywide greenway network that supports ecological interests and nature-based tourism. The historic “A-frame” railroad trestle near the river just north of downtown Shreveport was mentioned numerous times by people interested in preservation of history as well as having it connected from downtown with a pathway to create a nature-based destination to interpret and highlight the area’s history.

ACCESS TO UNIVERSITY ASSETS

Similar to interests in a contiguous greenbelt network, many stakeholders indicated a preference for bike-friendly connections to science, nature and university research areas such as the LSU Shreveport Anderson Watershed Research Station. These connections should be studied further as part of any citywide park or recreation planning.



BICYCLE AND PEDESTRIAN POLICY RECOMMENDATIONS

Bicycle and pedestrian transportation are key components in any regional transportation system. These are frequently referred to as *Active Transportation* modes. From a policy standpoint, it is recommended that the NLCOG, Caddo Parish and City of Shreveport governments adopt a performance-based selection process that recognizes anticipated bicyclist and pedestrian demand, within the context of regional and local non-motorized mobility goals. The establishment and use of a performance based approach to transportation decision making provides potential for an equitable project selection process. Although the Metropolitan Transportation Plan must be financially constrained, it serves as a basis for the selection of projects in the MPO's Transportation Improvement Program (MTIP).

A policy of inclusion with emphasis in areas focused on criteria-based environmental justice can also help guide decisions to a more uniform standard of recommended outcomes that then can serve as the foundation for development of an active transportation network. Recommendations include:

- Establish (or reinstate) a Bicycle and Pedestrian Advisory Committee (BPAC) consisting of local stakeholders to work routinely with city and Metropolitan Planning Organization (MPO) technical and planning staff.
- Plan for and promote bicycle and pedestrian mobility, access, safety, and education.
- Incorporate sustainability and livability objectives during all LRTP project selection processes.
- Include additional weighting or emphasis as appropriate and consistent with policy objectives such as demand management, environmental justice, social equity, environmental or historic preservation, or consideration of transportation options and accessibility to other modes.
- Improve safety and mobility for active transportation.
- Coordinate with the two primary railroad companies that operate within Caddo Parish – Kansas City Southern (KCS) and Union Pacific Railroad (UP) – to ensure railroad crossings effectively and safely accommodate both pedestrians as well as bicyclists in a safe and comfortable manner.
- Encourage or incentivize both long and short term bicycle parking facilities at destinations including at work places.
- Promote incorporation and utilization of complete streets policies, with context sensitive solutions, and other relevant initiatives that apply to roadway planning, design, implementation, and maintenance.
- Ensure that policies consider all roadways to safely accommodate all users including bicyclists, pedestrians, transit riders, older individuals, children, disabled persons, and motorists.
- Enhance safety for active travel by promoting education and training opportunities for bicyclists, pedestrians, motorists, and professionals and staff who design and implement roadway facilities.
- Ensure all infrastructure projects comply with State and national design standards.
- Promote enforcement of traffic laws to reduce bicycle and pedestrian-related conflicts.
- Increase active transportation options throughout the region as alternatives to motor vehicle trips.

- Advocate active travel for all trip purposes with consistent support of programs and infrastructure projects that address the six E's of bicycle accommodation: Engineering, Education, Enforcement, Encouragement, Equity and Evaluation.
- Adopt policies, programs, and projects identified in this plan's section.
- Pursue a League of American Bicyclists – *Bicycle Friendly Communities* designation. (See *Appendix G. League of American Bicyclists Bicycle Friendly States – 2014 Louisiana Report Card*)

EMPLOYER BICYCLE AND PEDESTRIAN COMMUTER ACCOMMODATION

An improved on- and off-street bikeway network leading to major employment sites, coupled with enhanced bicycle parking facilities and other support services (e.g., secure, covered long term parking, changing facilities with lockers and showers or a place to freshen up) will increase the attractiveness of not driving to a workplace. Economic policies focused on creating more bicycle and pedestrian friendly connections to large employers, and implementing economic development strategies that incorporate these with land use objectives - would be consistent with public/private participation policies for infrastructure improvements that match economic development objectives for specific areas. (See *Appendix H. Ranked List of Regions Top Major Employers*)

SIDEWALK RECOMMENDATIONS

Sidewalks should never be considered as primary bikeways; but, are often considered the route of choice for many younger or less-experienced cyclists. Sidewalks are recommended along both sides of all arterial and collector streets. In the short and mid-term; however, in order to gain connectivity over a larger area (and when implemented as a project separate from overall street reconstruction), installing sidewalks along only one side of minor streets may be an acceptable near- or mid-term strategy.

While ideally all city streets include sidewalks on both sides, for this Plan, selected residential streets that support safer access to schools, parks, and workplaces from residential areas are recommended for early implementation.

Early in any project development process, several factors should be considered when determining whether to include new sidewalks on a project. New sidewalk construction should be included if: 1) a facility is part of a locally adopted sidewalk planning document; 2) there is evidence of pedestrian traffic (either pedestrians are observed or there is a beaten down path, or significant potential exists for pedestrians to walk in the roadway); 3) facility is located on a route to a school or along a transit route; or 4) where pedestrian generators or attractors currently exist.

OTHER CONTRIBUTING CONCERNS

All bikeway facilities are recommended to adhere to the 2012 AASHTO Guide for the Development of Bicycle Facilities. Facilities that do not comply should be upgraded to adhere to the guidance. Signs and markings that encourage wrong-way riding or unpredictable bicyclist movements are considered non-compliant. In the 2012 AASHTO Guide – an examination of bicyclist/motor vehicle crashes suggests that "failure to yield, riding against traffic, and stop sign violations are the most common bicyclist contributing factors." This bicyclist behavior needs to be addressed as part of any educational effort that goes forward.



PRIORITIZATION AND POTENTIAL NEXT STEPS

During the coming years, this plan should be updated with each cycle of long range transportation plan updates. With the federal Transportation Alternatives Program (TAP) funding available through the MPO, Both Caddo Parish and the City of Shreveport have an opportunity to leverage local funds to kick start and sustain development of a parish wide trail, bike and pedestrian network. Doing so would help foster development of neighborhood, district and citywide opportunities, and will contribute to awareness of overall benefits of these kinds of infrastructure improvements. This would serve to engage ongoing conversations about public/private partnerships that have potential to benefit everyone. As each funding cycle emerges, it's important that local stakeholders and elected officials at every level take a strong stand toward implementation of the projects described in this vision.

The suggested phasing shown in the following tables is intended to be the starting point for an ongoing series of decisions centered on equal and balanced accommodation for all modes of mobility.

PHASE 1 – SHORT TERM COUPLED WITH TRAINING, EDUCATION AND ENFORCEMENT

PROPOSED PHASING							
Fiscal Years	2015 base year segment cost estimate	Mean Year Escalation	Escalated Cost	Enhancement Group # and Description	facility type/description	Miles/ Units	
2016-2020	PHASE 1			Phase 1 - Initial Implementation (5yr) estimated budget:			
		\$74,993	1.05080	\$78,802	1. Strategically located Advisory Signs along desired Parish routes outside Shreveport	BW11+BW16 'Share the Road' advisory signs - up to 10/mile (5 ea. Dir.)	15.15
		\$35,640	1.05080	\$37,451	2. Advisory Signs at intersecting hwy interchanges identified in Plan	Interchange sets with min. 6 breakaway sign poles w/BW-11 ea.	12
		\$117,612	1.05080	\$123,587	3. Additional Sportsman's Paradise Routes	Share the Road' signs - up to 10/mile (5 ea. Dir.)	23.76
		\$253,800	1.05080	\$266,694	4. Signed/Marked Bike Routes along Local City Streets	Suitable Signage and/or Shared Lane Markings.	12.00
		\$336,323	1.05080	\$353,409	5. Bike Lanes along Collector Streets	BL signs and striping	9.00
		\$153,594	1.05080	\$161,397	6. Bike Lanes along Minor Arterials	Poss. Rd diet with Bike Lane stripes and signs	3.00
		\$110,530	1.05080	\$116,145	7. Buffered Bike Lanes on Principal Arterials	Rd diet*(2) w/Buffered Bike Lane and signs	1.65
		\$70,000	1.05080	\$73,556	8. Bicycle Safety Education & Awareness	Create PSAs, pamphlets	N/A
Phase 1 TL	\$1,152,491		\$1,021,341				

An initial parish-wide bikeway network would identify Caddo Parish as having focused on regional bicyclist mobility. Connections programmed within Shreveport will address implementation of the City’s already adopted “Great Expectations” plan. Initiating construction and/or signing of these alignments will help energize the re-emerging area west of downtown. Further decisions on additions to these routes should be led by a process of evaluations and designs for the additional proposed Phase 1 routes that connect neighborhoods throughout most of the city, and contribute to addressing the major barriers imposed by existing highways, railroad corridors and bayous. Coupled with educational outreach, signage and enforcement of lawful road-sharing, navigating these obstacles will make bicycling throughout Caddo Parish a much more viable transportation option.

PHASE 2 – MID TERM WITH ADJUSTEMENTS THAT RESPOND TO RECEPTION OF PHASE 1

PROPOSED PHASING							
Fiscal Years	2015 base year segment cost estimate	Mean Year Escalation	Escalated Cost	Enhancement Group # and Description	facility type/description	Miles/ Units	
2021-2030	PHASE 2			Phase 2 - Implementation (10 yrs) estimated budget:			
		\$148,500	1.21899	\$181,021	1. Advisory Signs along Parish desired routes outside Shreveport	BW11+BW16 'Share the Road' advisory signs - 10/mile (5 ea. Dir.)	30.00
		\$47,520	1.21899	\$57,927	2. Advisory Signs at hwy interchanges in Plan	Interchange sets with min. 6 breakaway sign poles w/BW-11 ea.	16
		\$460,350	1.21899	\$561,164	3. Sportsman's Paradise Routes	Share the Road' signs - 10/mile (5 ea. Dir.)	93.00
		\$274,950	1.21899	\$335,163	4. Signed/Marked Bike Routes along Local City Streets	Suitable Signage and/or Shared Lane Markings.	13.00
		\$523,169	1.21899	\$637,740	5. Bike Lanes along Collector Streets	BL signs and striping	14.00
		\$255,990	1.21899	\$312,050	6. Bike Lanes along Minor Arterials	Poss. Rd diet with Bike Lane stripes and signs	5.00
		\$133,975	1.21899	\$163,315	7. Buffered Bike Lanes on Principal Arterials	Rd diet*(2) w/Buffered Bike Lane and signs	2.00
Phase 2 TL	\$1,844,454		\$2,248,379				

Once programming is underway for the first phase, the Phase 2 implementation will begin to address connecting the remainder of schools, neighborhoods and major employment centers. With initial efforts becoming visible, city and parish leaders will have an opportunity to develop public private partnerships with employers and commercial interests that serve to enhance the arrival experience via active transportation modes. These partnerships can be in the form of private matches with local capital funds, or as incentives to business expansions or upgrades. In every case – safety and connectivity should be the watchwords of leaders and staff members of the jurisdictions. Increased awareness of employee and customer accommodation when arriving by bicycle will create what the millennial generation wants to see as an active, civic quality of life.

PHASE 3 – LONG TERM / ONGOING REFINEMENT WITH UPDATES

PROPOSED PHASING							
Fiscal Years	2015 base year segment cost estimate	Mean Year Escalation	Escalated Cost	Enhancement Group # and Description	facility type/description	Miles/ Units	
2031-2040	PHASE 3						
	Phase 3 - Implementation (10 yrs) estimated budget:						
		\$24,750	1.48595	\$36,777	1. Advisory Signs along Parish desired routes outside Shreveport	BW11+BW16 'Share the Road' advisory signs - 10/mile (5 ea. Dir.)	5
		\$0	1.48595	\$0	2. Advisory Signs at hwy interchanges in Plan	Interchange sets with min. 6 breakaway sign poles w/BW-11 ea.	0
		\$504,900	1.48595	\$750,255	3. Sportsman's Paradise Routes	Share the Road' signs - 10/mile (5 ea. Dir.)	102.00
		\$216,365	1.48595	\$321,506	4. Signed/Marked Bike Routes along Local City Streets	Suitable Signage and/or Shared Lane Markings.	10.23
		\$352,018	1.48595	\$523,080	5. Bike Lanes along Collector Streets	BL signs and striping	9.42
		\$428,015	1.48595	\$636,008	6. Bike Lanes along Minor Arterials	Poss. Rd diet with Bike Lane stripes and signs	8.36
	\$133,975	1.48595	\$199,080	7. Buffered Bike Lanes on Principal Arterials	Rd diet*(2) w/Buffered Bike Lane and signs	2.00	
Phase 3 TL	\$1,660,023		\$2,466,707				

Ongoing refinement and expansion of bikeway awareness through signage and markings throughout the parish will enhance the routes identified in the State’s Sportsman’s Paradise bike route network – a potential boost to bicycle tourism. The one guiding principle parish leaders should embrace is that *equal consideration for all modes benefits everyone who’re part of the local economy*. Every investment in bicycle infrastructure has potential to have a net positive impact on the area’s economy.

PROPOSED FUNDING PRIORITIZATION AND SELECTION CRITERIA

Following is a proposed criteria for use in evaluating, selecting and prioritizing funding for bicycle and pedestrian infrastructure components of these phases:

Facility Type

- Shared Use Pathway (multiuse trail) – publicly owned, or built as part of future development, possibly through developer requirements and/or incentives
- Sidepath – a shared use path within roadway right of way (ROW) where available – with few commercial intersections, and intersections designed to address both roadway and sidepath intersection user conflicts
- Bike Lanes – arterials, collectors with adequate road width, in TIP or CIP program. (Can often be achieved through reducing the number of lanes [road diet] or narrowing inside travel lanes [lane diet].)
- Signed Bike Routes with or without Shared Lane Markings – residential/local streets, some collectors
- Cycle track – near schools, new developments, and re-developments where feasible
- Sidewalk – wherever adequate right of way exists or can be acquired.

Pedestrian and Bicycle Facility Prioritization Criteria:

- Accesses schools, parks, large employer, multifamily or mixed-use residential, or shopping within approximately ½ - 1 mile for pedestrians, 2-3 miles for bikeways, depending on barriers
- Population Densities surrounding or within ¼ to ½ mile either side of a candidate corridor for pedestrians (Bicycle corridors can be further apart than for pedestrians.)
- Local funding committed.
- Right of way availability or potential availability (if known)
- Roadway Improvements in current or future TIP or CIP
- Access to transit stops with racks and/or buses with racks
- Serves both bicyclists and pedestrians
- Meets other Regional/MPO funding criteria.

SCORING CANDIDATE PROJECTS

Project selection for individual bikeway projects can best be made using a criteria for ranking project submittals in each funding cycle. The following table provides such a starting point. Rankings are subject to adjustment to local preferences.

Proposed* Candidate Scoring Criteria for Access to:	
Right-of-Way availability	15
In current CIP	15
Serves Environmental Justice Area	10
Supported by Parish or City leaders	10
Meets regional criteria	10
Connects to Schools (any level)	10
Serves both Bikes and Pedestrians	10
Connects to large employer	5
Serves multi-family, mixed-use, dense neighborhoods	5
Accesses transit	5
Bike Parking included or exists	4
Connects parks, tourist destinations	4
Provides access to shopping	3
Total Maximum Points	100

**Rankings subject to local preferences*

5. Design Guidance and Example Policies

TYPES OF BICYCLISTS

Different types of facilities serve essentially three types of bicyclists, traditionally each who potentially has different needs in terms of bikeway facility design.

Group A (Advanced) cyclists are generally confident and can operate within existing roadway space under most traffic conditions. Space on the roadway can typically be shared when a 14'+ wide outside lane is present. Group A cyclist will typically occupy a lane is by definition substandard in width for sharing with a motor vehicle – typically less than 14' wide – as allowed by state law; or they prefer to ride along smooth shoulders where available. Group A cyclists tend to prefer direct access to destinations, typically riding as fast as they are able, and prefer to encounter few delays such as signals or stop signs. A relatively small percentage of people who ride bikes fall into this category; however, State law gives these cyclists full rights to use most roadways except limited-access highways, anywhere in Louisiana.

Group B (Basic, less experienced adult and teenage bicyclists) and **Group C** (Children) are generally more concerned about safety, and prefer protected or off-street paths that help minimize interaction with motorized traffic. These cyclists prefer to ride on streets with bike lanes and light traffic – unless the bikeway is either buffered from motorized traffic – as in a buffered bike lane, or is a protected facility such as a cycle track, a bike lane located behind parked cars, or sidepath behind a curb. A majority of people who ride bicycles fall into Groups B or C.

BICYCLE FACILITY TYPES

“Bikeway” is a universal term for various types of bicycle facilities, for both on- and off-road facilities. Bikeway facility types include Bike Lanes, Buffered Bike Lanes, Cycle Tracks, Shared Use Paths, etc. *Bike routes* are not considered infrastructure; but, are referred to as wayfinding treatments.

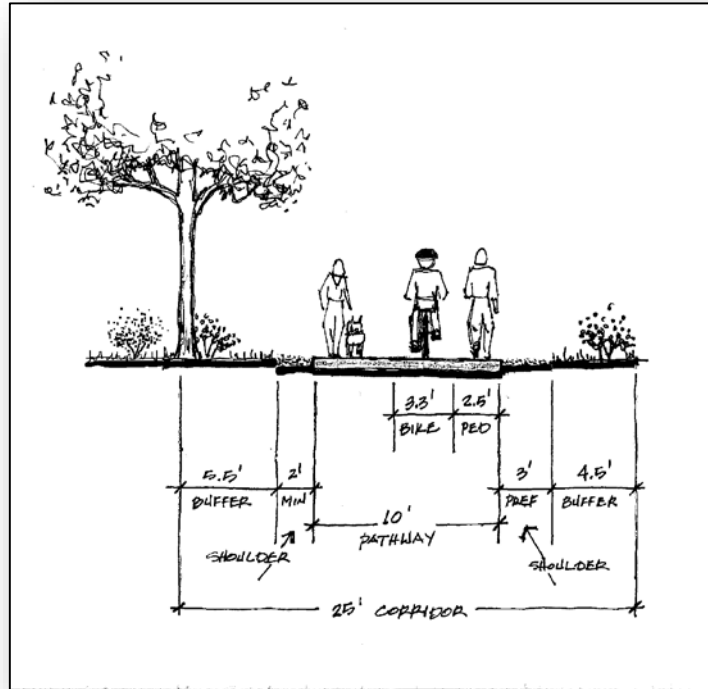
When planning for bicycle facilities, the needs of all bicyclists should be addressed. Roadway treatments should accommodate existing bicyclists and encourage others who would like to bicycle but choose not to, due to lack of existing designated facilities. The two key categories of bicycle facilities can be described as either on-street or off-street. The two primary on-street bicycle treatments include on-street signed routes (bike route signage with or without shared lane markings on the pavement), and bike lanes (bike lanes, buffered bike lanes, etc.).

Off street shared use paths (frequently called multiuse trails) are the most durable type of hard-surface, all weather facilities. Off-street facilities can be located along greenways, utility corridors, abandoned or sometimes active rail lines, and/or alongside streets, as in sidepaths.

BIKEWAY FACILITIES BY CLASS

Class I Bikeways - Shared Use Paths / Off -Street Multiuse Trails

Class I Bikeways were once typically called bike paths – now referred to as shared use paths, recognizing multiple types of users (pedestrians, skaters, etc.). A Class I Bikeway provides for bicycle travel along a paved right-of-way that is completely separated from any street or highway. Shared use paths can be used to connect corridors not otherwise served by streets; or where sufficient right-of-way exists, constructed away from the influence of parallel streets. Shared use paths should offer access opportunities not provided for bicyclists by the road system. They can also provide recreational opportunities, and in many instances, can serve as alternative commute routes if cross flow by motor vehicles and pedestrian conflicts can be minimized. Class I facilities can also be utilized to close gaps to bicycle travel caused by freeways or other infrastructure, or the existence of natural barriers (rivers, hills, etc.). Examples of Class I Bikeways include shared-use paths and sidepaths.



Mobility and access for people riding bicycles is in far greater demand in recent years, particularly in or near cities with university campuses. Younger generations are embracing the concept of incorporating physical activity into their daily routines. For many – the typical local street pattern serves well for getting around to local destinations. But often – barriers such as major streets and highways, railroads and waterways, prevent travel to more destinations beyond.

Off street trails (shared use paths) can serve as neighborhood connectors to destinations beyond these barriers. These connections may rely on a utility right-of-way, a railroad right-of-way, a route through a city park, or perhaps be a newly-constructed pedestrian bridge that connects over or beneath a highway. Underpasses are the least preferred, and if chosen, must be wide, brightly lit and inviting – with the ability of users to see through to the other side before entering the passageway. Care should be taken to prevent underpasses from ponding and silt buildup after flooding, which is dangerous to users. Less maintenance is typically needed for overhead connections. Tall railings and Uniform Building Code (UBC) standards should be applied to all structural solutions.

Off-Street Bicycle Design Elements

Typical widths range between 10' and 12' (generally 10' should be appropriate in less dense areas), with 2' minimum shoulder along each side of trail. A sidepath is typically similar in dimensions except within a roadway right-of-way, and requires a minimum 5' setback from curb or shoulder –or a physical barrier if setback is less than 5 feet.

Intersections / Trail and Bikeway Crossings

Concerns always arise regarding at-grade intersections – considered the weakest link in bicycle connectivity as well as for pedestrians. Well-designed crossings should consider speeds, grades, sight-lines and triangles, and gaps between traffic platoons. Generally, mid-block crossings should be routinely signed or signaled so that roadway traffic is made well aware of the presence of pedestrians and people riding bicycles. For routes with moderate levels of bicycle or pedestrian traffic, user-activated crossing signals may be appropriate. The Federal Highways Administration recently recommended the pedestrian hybrid beacon (PHB) as a preferred traffic control device for intersections with high volumes or speeds of cross-traffic.

Class II Bikeways - Bike Lanes, Buffered Bike Lanes, and Cycle Tracks

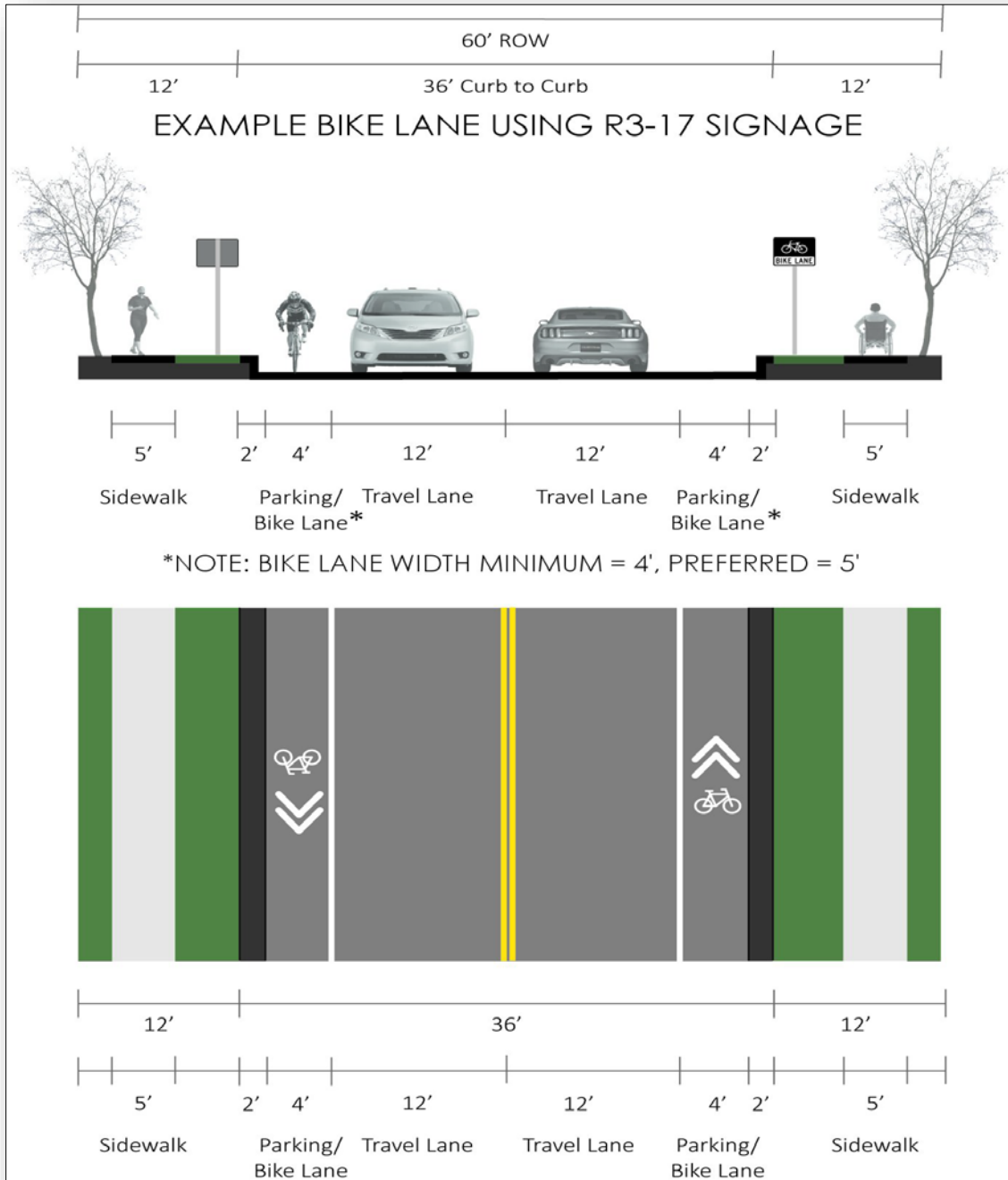
Class II Bikeways are typically infrastructure that is configured as bike lanes, buffered bike lanes or cycle tracks. A Class II Bikeway provides a striped and stenciled lane for one-way travel in each direction along a street or highway. Bike lanes can be established along streets in corridors where there is significant bicycle demand and where there are distinct needs that can be served by them. The purpose of these should be to improve conditions for Group B and C bicyclists in the corridors. Bike lanes are intended to delineate the right-of-way that is assigned to bicyclists and motorists, and to provide for more predictable movements by each. Class II Bikeways can be configured along an uphill direction as climbing lanes with a shared curb lane going downhill where the speed differential between motorists and bicyclists is much less.

Bicyclists, by Louisiana State law, are allowed the use of all public roadways except limited access highways and may fully occupy lanes of less than 14 feet to help ensure safe passing by motor vehicles. But even this can be inadequate where speed differentials are extreme, such as along freeway frontage roads. People riding bicycles are likely to travel to the same destinations as motorists; therefore, accommodating bicycle travel along all public roadways must be a prime consideration.

Finding dedicated space for bicycles along collectors and arterials can be challenging. Reducing the number of lanes (road diet) and/or lane widths (lane diet) are often inexpensive options when done concurrently with roadway restriping.

Bike lanes and barrier separated cycle tracks create a higher sense of safety along high-speed high-volume roads for most users. For detailed design guidance associated with individual roadway types and widths, refer to the AASHTO Guide for Bicycle Facilities.

The importance of safety in protecting vulnerable users such as bicyclists and pedestrians is even greater on high volume, high-speed roadways. Creating separated spaces, buffers, and improved safety markings for these users helps to protect them as they travel. It is imperative that proven safety countermeasures be established to maintain the level of safety these users need. (Refer to the FHWA Proven Safety Countermeasures for specific guidance).



Class III Bikeways – Bike Routes / Wayfinding

Class III Bikeways, generally referred to as bike routes, provide for shared use of road space with motor vehicle traffic. *Bike Routes* are typically considered *wayfinding* rather than *infrastructure*. These are typically identified by signage and/or pavement markings. Bike routes are typically shared facilities which serve either to: 1) provide continuity with other bicycle facilities, usually Class II Bikeways; or 2) designate preferred routes through high demand corridors. As with bike lanes, designation of bike routes indicates to bicyclists that there are particular advantages to using these routes as compared with alternative routes. Normally, bike routes are shared with motor vehicles. Use of sidewalks as Class III Bikeways is strongly discouraged. Examples of Class III Bikeways include: signed bike routes, shared lane markings (SLM's), and paved shoulders.



Many lower speed neighborhood streets with speeds of 30 MPH or less can provide fairly easy routes for residents to access nearby destinations. One strategy many cities use to promote bicycling and walking is to establish local destination wayfinding by using small scale signage at key decision points. Some

cities utilize small markings on the pavement, others use locally-relevant graphics with standard signage described in the *Manual on Uniform Traffic Control Devices* (MUTCD).

NETWORKS

Many cities already have robust bike route networks that help guide cyclists to important destinations. Both Denton and Fort Worth, Texas have recently implemented bikeway accommodation throughout their downtowns. The City of Plano, Texas recently completed its more than 160-mile on-street bikeway network; local bicyclists were highly supportive of signing a citywide system using numbered crosstown bike routes with wayfinding signage showing destination directions and distances. The city signed 38 miles of bike routes that help connect neighborhoods using this low-cost bikeway network.

COMMON BIKEWAY SIGNAGE

Wayfinding Signage from Chapter 9 of MUTCD

An assortment of standard wayfinding signage is also included in the MUTCD. Options vary from simple route designation signage to destination blades with directional and distance information.

Shared lane markings (SLMs) are one way to alert both bicyclists and motorists of the appropriate bicycle positioning within a travel lane.



- Additional markings through busy intersections may contribute to crossing safety because they act as reminders to cross traffic to be alert for bicyclists. These markings will typically aid in indicating which side of the street bicyclists should use – with traffic, not against. (Unless a contraflow bike lane on a one-way street.)

R4-11 Regulatory Signage

An important new sign in the MUTCD provides a regulatory framework requiring motorists to yield to people on bicycles. This sign stating “Bicycles May Use Full Lane” (R4-11) should be used along any designated route for bicycles, and applies whenever travel lanes are less than 14 feet wide.

**BW11-1 and BW16-1 Bicycle Advisory Signage**

These yellow diamond bicycle advisory warning signs are commonly used to alert motorists along roadways where no particular other bicycling enhancements have been made – generally anywhere bicyclists can be expected.

**BICYCLE AND PEDESTRIAN FACILITY DESIGN FLEXIBILITY**

The Federal Highway Administration (FHWA) issued a Bicycle and Pedestrian Facility Design Flexibility memorandum dated August 20, 2013 that expresses FHWA’s support for taking a flexible approach to bicycle and pedestrian facility design.

The AASHTO and MUTCD guides for bicycle and pedestrian design are the primary national resources for planning, designing, and operating bicycle and pedestrian facilities. Now the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide and the Institute of Transportation Engineers (ITE) Designing Urban Walkable Thoroughfares guide build upon the flexibilities provided in the AASHTO guides. These can help communities better plan and design safer and more convenient facilities for pedestrians and people who ride bicycles. FHWA supports the use of these resources to further develop non-motorized transportation networks, particularly in urbanized areas.

PROPOSED ACTIVE TRANSPORTATION POLICIES

Bicycle and pedestrian transportation, a key component in a regional transportation system, is frequently referred to as Active Transportation. From a policy standpoint, it is recommended that local jurisdictions adopt formula-based funding indexed to anticipated demand, as well as local and regional non-motorized mobility goals.

A policy of inclusion, with emphasis in areas focused on criteria-based environmental justice, can guide decisions to a more uniform standard of recommended goals that can serve as the foundation for an active transportation network. These goals include:

- Establish a Bicycle and Pedestrian Advisory Committee consisting of local stakeholders to work with city and MPO technical and planning staff.
- Improve safety and mobility for active transportation.
- Plan for and promote bicycle and pedestrian mobility, access, safety, and education.
- Incorporate sustainability and livability objectives during project selection.
- Include additional weighting or emphasis as appropriate and consistent with policy objectives including, but not limited to, demand management, environmental justice, social equity, environmental preservation, or consideration of transportation options and accessibility to other modes.
- Encourage or incentivize both long and short term bicycle parking facilities at destinations including work places.
- Promote incorporation of a complete streets policy, with context sensitive solutions, and other relevant initiatives that apply to roadway planning, design, implementation, and maintenance.
- Ensure that policies require roadways to safely accommodate all users including bicyclists, pedestrians, transit riders, older individuals, children, disabled persons, and motorists.
- Enhance safety for active travel by promoting education and training opportunities for bicyclists, pedestrians, motorists, and professionals who are designing and implementing roadway facilities, implementing safety infrastructure projects.
- Promote enforcement of traffic laws to reduce bicycle and pedestrian-related conflicts.
- Increase active transportation in the region as an alternative to motor vehicle trips.
- Increase active travel for all trip purposes through consistent support of programs and infrastructure projects that address the six E's: Engineering, Education, Enforcement, Encouragement, Equity and Evaluation.

EMPLOYER BICYCLE AND PEDESTRIAN COMMUTER ACCOMMODATION

An improved on- and off-street bikeway network, coupled with enhanced bicycle parking facilities and other support services (e.g., secure, covered long term parking, showers and changing facilities at employer work sites) will increase the attractiveness of bicycling. Economic policies focused on creating more bicycle and pedestrian friendly connections to large employers, and implementing economic development strategies that incorporate these with land use objectives would be consistent with public/private participation policies for infrastructure improvements that match economic development objectives for specific areas.

SIDEWALK RECOMMENDATIONS

Sidewalks are recommended along both sides of all arterial and collector streets. However, in the short and mid-term, in order to gain connectivity over a larger area, and when implemented as a project separate from overall street reconstruction, installing sidewalks along only one side of most streets is an acceptable near- and mid-term strategy.

While ideally all city streets would include sidewalks, for this Plan, selected residential streets that support safer access to schools, parks, and workplaces from residential areas should be added to the citywide network.

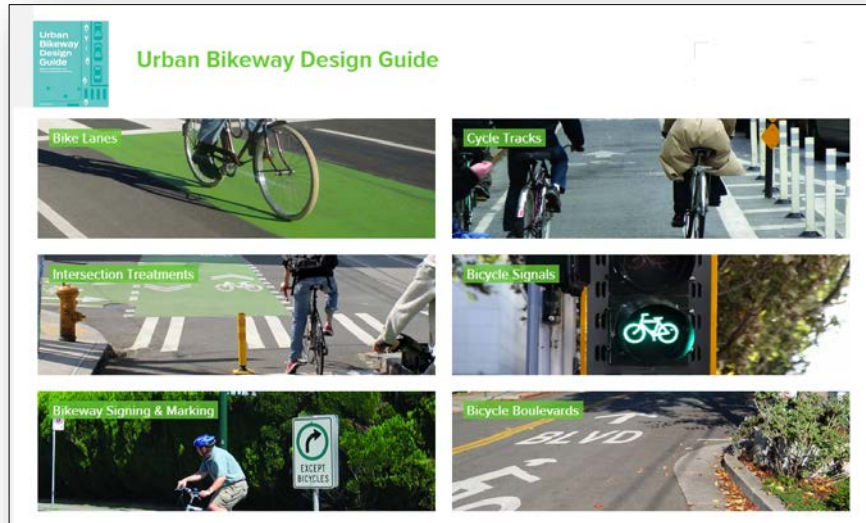
Early in any project development process, several factors should be considered when determining whether to include new sidewalks on a project when any of the following factors are present within the project: 1) Facility is part of a locally adopted sidewalk planning document; 2) There is evidence of pedestrian traffic (either pedestrians are observed, there is a beaten down path, or significant potential exists for pedestrians to walk in the roadway); 3) Facility is located on a route to a school or a transit route; or 4) Where pedestrian generators/attractors exist, new sidewalk construction should be included.

NATIONAL ASSOCIATION OF CITY TRANSPORTATION OFFICIALS (NACTO)

NATIONAL ASSOCIATION OF CITY TRANSPORTATION OFFICIALS

The National Association of City Transportation Officials (NACTO) is a 501(c)(3) non-profit coalition of large cities focused on “transportation issues of local, regional and national significance.” The organization was established to foster exchanges of transportation best practices among large cities, and pursues creative approaches to key issues facing cities and metropolitan

areas. NACTO indicates it is committed to raising the state-of-the-practice for street design and transportation by building a common vision, sharing data, conducting peer-to-peer exchange in workshops and conferences, and with regular communication among member cities. Below is a view of the *Urban Bikeway Design Guide* from NACTO’s website. (<http://nacto.org/publication/urban-bikeway-design-guide/>)



Overview

The purpose of the NACTO Urban Bikeway Design Guide... is to provide cities with state-of-the-practice solutions that can help create complete streets that are safe and enjoyable for bicyclists.

The NACTO Urban Bikeway Design Guide is based on the experience of the best cycling cities in the world. The designs in this document were developed by cities for cities, since unique urban streets require innovative solutions. Most of these treatments are not directly referenced in the current version of the AASHTO Guide to Bikeway Facilities, although they are virtually all (with two exceptions) permitted under the Manual on Uniform Traffic Control Devices (MUTCD). The Federal Highway Administration has posted information regarding MUTCD [approval status](#) of all of the bicycle related treatments in this guide and in August 2013 issued a [memorandum](#) officially supporting use of the document...

About The Guide

For each treatment in the Guide, the reader will find three levels of guidance:

- Required: elements for which there is a strong consensus that the treatment cannot be implemented without.
- Recommended: elements for which there is a strong consensus of added value.
- Optional: elements that vary across cities and may add value depending on the situation.

It is important to note that many urban situations are complex; treatments must be tailored to the individual situation. Good engineering judgment based on deep knowledge of bicycle transportation should be a part of bikeway design. Decisions should be thoroughly documented. To assist with this, the NACTO Urban Bikeway Design Guide links to companion reference material and studies.

From the *NACTO Urban Bikeway Design Guide, 2nd Edition*

COMPLETE STREETS

Complete Streets policies demonstrate commitment that future transportation projects will consider the needs of everyone using roadways. Implementation of these policies is a key starting point. Routine decisions made by community leaders and agencies all have an impact on planning, design, funding, maintenance, and operations that should be aligned with the goals of an adopted policy document.

The National Complete Streets Coalition has identified five kinds of activities necessary (linked below) for reorienting a transportation agency's work in ways that consistently consider the safety of all road users. They include:

Planning for Implementation: Assessing current procedures, activities and planning for full implementation of Complete Streets,

Changing Procedure and Process: Updating documents, plans, and processes used in transportation decision-making, from scoping to funding, and creating new ones if necessary,

Reviewing and Updating Design Guidance: Updating or adopting new design guidance and standards to reflect current best practices in providing multimodal mobility,

Offering Training and Educational Opportunities: Providing ongoing support to transportation professionals, other relevant agency staff, community leaders, and the general public so that they understand the Complete Streets approach, the new processes and partnerships it requires, and the potential new outcomes from the enhanced transportation system,

Measuring Performance: Creating or modifying existing metrics to measure success in accommodating all users on the project and network levels,

In addition to the above pages, other reports and case studies on successful Complete Streets implementation have been written:

- [Taking Action on Complete Streets: A Toolkit for Implementation](#), National Complete Streets Coalition
- [Complete Streets in the Southeast: A Tool Kit](#), AARP and National Complete Streets Coalition
- [The Path to Complete Streets in Underserved Communities: Lessons from U.S. Case Studies](#), Kelly Clifton, Sarah Bronstein, and Sara Morrissey
- [Getting Results: Complete Streets in Minnesota](#), National Complete Streets Coalition
- [It's a Safe Decision: Complete Streets in California](#), National Complete Streets Coalition
- [Complete Streets: Best Policy and Implementation Practices](#), American Planning Association

BICYCLE FRIENDLY COMMUNITIES – LEAGUE OF AMERICAN BICYCLISTS

A Bicycle Friendly Community, Business, or University makes a point of welcoming people who ride bicycles by providing safe accommodations for bicycling, and encouraging people to ride bicycles for transportation and recreation.

A bicycle-friendly community strives to make bicycling safe, comfortable, and convenient for people of all ages and abilities. Each year, the League of American Bicyclists (The League) assesses cities in all 50 states. Communities, businesses, and universities are evaluated using a voluntary application process. All applicants are provided with customized feedback on their applications, and access to technical assistance is made available. If communities aren't quite there yet, The League offers help. And once communities have achieved a Bicycle Friendly CommunitySM, Bicycle Friendly BusinessSM or Bicycle Friendly UniversitySM, the Bicycle Friendly America program assists with getting to the next level.

For more information, visit www.bikeleague.org/states or contact Ken McLeod at (202)-822-1333 or ken@bikeleague.org.

ACTIVE LIVING RESEARCH – OTHER RESOURCES

Policy implications drawn from one well recognized report by Active Living Research suggests that to maximize bicycling opportunities, cities must develop a mix of bike lanes, bike boulevards, cycle tracks, and bike path networks of safe and comfortable routes that connect residents to common destinations.

Infrastructure that emphasizes separation between motor vehicles and bicyclists, and that allows bicyclists to avoid traveling too far out of their way, may be encourage new bicyclists more than on-street pavement markings. Investments in bikeway infrastructure needs the support of promotional programs, such as bike to work days, bicycling skills training, and other programs that facilitate bicycling.

Policies should also support Safe Routes to School programs, bike sharing systems, and buses and trains that accommodate bicycles. Policies that make driving more expensive (e.g. higher gasoline taxes and parking fees) and less convenient (e.g. reduced parking supply and reduced speeds) may also foster effectiveness of infrastructure investments that encouraging bicycling. Communities should also implement land use and development policies that help ensure that destinations for daily needs, such as school, work, and shopping, are within convenient bicycling distances from home. (May 2013 Active Living Research Brief - [How to Increase Bicycling for Daily Travel.](#))

How to Increase Bicycling for Daily Travel, by Active Living Research, 2013 contains a non-technical brief summarizing strategies for increasing levels of bicycling for daily use. The report includes key findings and recommendations on how to increase bicycling by adding on-street bike lanes, off-street bike paths, and other types of bicycling infrastructure and educational programs. The document also considers related policy implications. This information is key for anyone with an interest in the development of bicycle facilities and increasing physical activity.

<http://activelivingresearch.org/how-increase-bicycling-daily-travel>

Economic Benefits of Open Space, Recreation Facilities and Walkable Community Design by Active Living Research, 2010 is also a non-technical brief that summarizes research on ways that walkability, parks and open spaces contribute economic benefits to a community. The brief includes key research findings and recommendations on how compact, walkable developments and recreation areas and parks located in metropolitan areas provide economic benefits to residents, municipal governments and private real estate developers. For Policymakers, developers and advocates.

<http://activelivingresearch.org/economic-benefits-open-space-recreation-facilities-and-walkable-community-design>

Intersections: Health and the Built Environment report from the Building Healthy Places Initiative, 2013 is a report released at ULI's 2013 Fall meeting in Chicago. The work examines global health trends and makes the connection between those trends and what is happening with our built environments. It compares the relationship between how healthy we are and the way our buildings and communities function. The report utilizes project examples and data drawn from around the world to make the case that we can build our way to better health – by changing our approach to cities, communities, and places. <http://uli.org/report/intersections-health-and-the-built-environment/>

Move this way, Making Neighborhoods More Walkable and Bikeable, by ChangeLab Solutions is a very detailed guidebook for developing city codes that helps enable cities to foster more active lifestyles. It includes examples of pedestrian and bicycle-friendly zoning and city subdivision codes and policies, and input on how to update existing codes to better accommodate these. For anyone who influences city policy. <http://activelivingresearch.org/economic-benefits-open-space-recreation-facilities-and-walkable-community-design>

Where do cyclists ride? – A Portland study determined that bicyclists travel the farthest out of their way to use off-street bike paths, followed by bicycle boulevards, suggesting a general preference for facilities protected from motor vehicle traffic. Striped bike lanes (i.e., those without physical separation) helped offset the unsafe, uncomfortable feeling of bicycling on busy arterial roads, but were not preferred over residential streets that had a low volume of traffic and no lanes. (Broach J, Dill J, Gliebe J. *Where do cyclists ride?* Transportation Research Part A 46 (2012) 1730-1740.)

The *Active Cities – a Guide for City Leaders* made available from the *Designed to Move Coalition* conveys its findings assertively that physical inactivity is “bankrupting economies at the national level, but it is felt most acutely by the world's cities—often through negative impacts on the health of people, economies, and the environment. This is bad news for cities and their citizens.” The good news, says the guide, is that there are solutions. This plan aims to embody these solutions in future transportation programming at both the city and parish levels of government.

The report indicates that *designing cities to be active* has economic, safety, environmental, physical and mental health as well as social benefits, and provides solutions the authors claim that any city can afford.

This plan also recommends that local leadership establish current policies and design guidelines to support regenerative investments in public infrastructure, and ensure the inclusion of:

- Education, Encouragement, Enforcement and Evaluation Programs - including bike awareness, commute support and promotions, recreational events and educational campaigns.
- Employer and Institutional Outreach Programs with information on accommodation of showers or areas for freshening up and changing clothes upon arrival - via active transportation commutes; plus employee (long term) and customer (short term) bicycle parking.
- Benchmarks or Performance Indicators will help quantify safety improvements, with user counts, surveys of user types, reduced crashes and injuries, perceived and actual usage, numbers of bicycles parked at schools, etc.
- Implementation and phasing recommendations
- The plan also recommends additional future studies such as traffic impacts, traffic studies, detailed Trail Feasibility Studies to consider conducting next.

The report can be found at: [Active Cities - a Guide for City Leaders](#) (*Designed to Move: Active Cities – prepared by Active Living Research*)

6. Funding, Partnerships and Implementation Strategies

Funding of bicycle infrastructure improvements will rely on a number of strategies and sources of funding. Available sources include from Federal, State, NLCOG regional as well as local City funding programs. A bicycle plan of this nature also provides opportunities to leverage government sources with funds from local philanthropists, developers and businesses. Following is a list and descriptions of many of the most common partnerships and programming strategies.

NORTHWEST LOUISIANA COUNCIL OF GOVERNMENTS

The Northwest Louisiana Council of Governments (NLCOG) was established as an intergovernmental association of local governments to assist in planning for common needs, cooperating for the mutual benefit, and coordinating for sound regional development. NLCOG states its purpose is to “strengthen both the individual and collective power of local governments and to help them recognize regional opportunities, eliminate unnecessary duplication, and make joint decisions for the benefit of the entire Northwest Louisiana community.” The agency seeks to develop and implement constructive and workable policies and programs for solving area-wide problems, including but not limited to matters affecting transportation, economic, health, safety, welfare, education, and regional development issues. NLCOG is funded by a variety of funding sources including federal grants from the U. S. Department of Transportation’s Federal Highway Administration, and Federal Transit Administration, the Louisiana Department of Transportation and Development, as well as by NLCOG’s local member governments.

CADDO PARISH CAPITAL IMPROVEMENT BUDGET

Caddo Parish, in its January 1, 2015-December 31, 2015 Capital Improvement Budget, indicates an increase of its Capital Outlay Program by \$.6 million in 2015 versus 2014. The budget includes an increase in the Road Treatment Program of \$1,000,000. It indicates that a \$30 million bond issue has allowed the Parish to address critical capital projects without raising taxes; but, that bond funds have been substantially depleted. The Parish indicates it is researching methods to determine a long-term funding source for capital improvements. <http://www.caddo.org/DocumentCenter/View/761>

GREAT EXPECTATIONS: SHREVEPORT - CADDO 2030 MASTER PLAN

According to the *Great Expectations: Shreveport-Caddo 2030 Master Plan*, Shreveport has an extensive road network that allows motorists to access most areas in approximately twenty minutes; but, the plan notes that the cost of maintaining that network with a static population has proven to be difficult. The plan’s authors worry that continued extension of the road network will promote sprawl and strain budgets, and urge focus to be less on further expansion of the road network, and more on integration of

land use and transportation. In Chapter 8, entitled *Getting Around: Transportation and Mobility*, the plan details opportunities for more transportation choices, improved maintenance as well as functionality of existing roadways to make travel more pleasant, attractive and environmentally sound, “through provision of amenities (such as sidewalks and bikeways); and enhancing public transportation.” Strategies and actions highlighted in the Shreveport-Caddo “Great Expectations” 2030 Master Plan include:

- Fix It First: develop a comprehensive pavement management program.
- Integrate transportation and land use planning, technology and management strategies for efficient roadway and transit networks to provide alternatives to auto travel, and establish roadway impact fees.
- Strengthen and enforce access management policies and ordinances.
- Adopt context-sensitive design frameworks and a “Complete Streets” policy that integrates various transportation modes in regulations.
- Improve conditions to encourage more trips by bicycle, walking and transit as part of the region’s ozone conformity plan.
- Examine the feasibility of consolidating redundant and/or underperforming routes to add additional service on nearby principal routes, while developing system-wide standards for operational efficiency that will be used to make future decisions about route reductions, service enhancements, and long-range planning efforts for higher-frequency services like bus rapid transit (BRT).
- Designate specific staff personnel to work with state officials and garner legislative support for the restoration of passenger rail service through Shreveport.

This plan is available at: <https://www.shreveportla.gov/DocumentCenter/View/1355>

FEDERAL PROGRAMS

Moving Ahead for Progress in the 21st Century (MAP-21)

MAP-21, the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), was signed into law by President Obama on July 6, 2012. Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005. MAP-21 creates a streamlined and performance-based surface transportation program and builds on many of the highway, transit, bike, and pedestrian programs and policies established in 1991. <http://www.fhwa.dot.gov/map21/summaryinfo.cfm>

Extensions of MAP-21

To allow more time for development and consideration of a long-term reauthorization of surface transportation programs, Congress has enacted a short term extension of the expiring law, the most recent extension (H.R. 3236) was issued as *Public Law 114–41* on July 31, 2015 by the 114th

Congress for the period beginning on October 1, 2015, and ending on October 29, 2015. Amounts apportioned or allocated for a program, project or activity under this Act were revised according to formulas described at: <http://www.gpo.gov/fdsys/pkg/PLAW-114publ41/pdf/PLAW-114publ41.pdf>

Recreational Trails Program (RTP)

The Recreational Trails Program (RTP) provides funds to the States to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, crosscountry skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles. More information on these funds can be found at: http://www.fhwa.dot.gov/environment/recreational_trails/overview/program_summary/

Moving Healthy – Linking FHWA Programs and Health

According to a May 2013 brochure (ABC-01234-D, FHWA-HEP-13-016), FHWA provides funding to State, regional, and local agencies for projects that it says can impact or relate to health. While most sources of funding within the Federal-aid Highway Program can be used in a manner that supports healthy transportation, this brochure lists specific funding sources with the most direct links to health.

Programs included are the Congestion Mitigation and Air Quality Improvement (CMAQ) Program, which supports surface transportation projects and other related efforts that provide congestion relief and contribute to air quality improvements. CMAQ funds can support a wide range of projects, including efforts to foster increased use of public transportation and bicycle and pedestrian transportation.

Highway Safety Improvement Program (HSIP) is a core Federal-aid program designed to achieve significant reductions in traffic fatalities and serious injuries on all public roads through the implementation of roadway infrastructure safety improvements; but, requires each State to engage in a multidisciplinary process with State and local highway safety stakeholders to develop a Strategic Highway Safety Plan (SHSP) that outlines data-driven emphasis areas and strategies for reducing highway fatalities and injuries. A HSIP also includes dedicated funding for safety improvements at railway-highway crossings and on local and rural roads. If a State can demonstrate that it has met its infrastructure safety needs, it may use up to 10 percent of its HSIP funds for non-infrastructure safety projects (e.g., education, enforcement, and emergency response programs).

Moving Healthy: Linking FHWA Programs and Health is available on the FHWA Office of Safety's HSIP website at <http://safety.fhwa.dot.gov/hsip/>

Flexible Excess Transportation Alternatives Program (TAP) Funds Authority

The U.S. Department of Transportation/Federal Highway Administration announced in a September 3, 2015 memorandum that USDOT now allows “Flexible Excess Transportation Alternatives Program (TAP) Funds Authority” during the period between August 1, 2015 and July 31, 2016. In a September 3, 2015 memo (ref. HCF-2015-011), States were notified via the Division Offices of each State's Flexible Excess TAP funds authority that this flexibility for the period beginning on August 1, 2015, and ending on July 31, 2016 has been granted. The memorandum outlined steps necessary to utilize the flexibility. Information available at:

http://www.fhwa.dot.gov/environment/transportation_alternatives/guidance/flex_excess_2016.cfm

OTHER POTENTIAL PARTNERSHIPS FOR ACCOMMODATING PEOPLE WHO RIDE BICYCLES

PRIVATE DONATIONS

Financial assistance can often come from citizens, organizations, or businesses which have an interest in assisting with the development of a park or bikeway system. Land dedication is not an uncommon occurrence as property is being developed. The location of a trail within a residential development, for example, offers additional value to residential units within those neighborhoods.

Private donations may also come from funds, facilities, recreation equipment, art or in-kind services. Donations from local and regional businesses as sponsors of events or facilities should be pursued.

A Parks, Trails or Bikeways Improvement Trust Fund could be established to manage donations from service organizations, benevolent citizens, willed estates and other donated sources. The purpose of this trust would be to establish a permanent source of principle value that will increase as donations occur. The principal must not be decreased; however, and the annual interest should be used for park development.

MAJOR EMPLOYERS

An Employer/Institutional Outreach Program would provide information on employee accommodation of showers or areas for freshening up and changing clothes upon arrival via active transportation commutes. Both long term bicycle parking for employees, and short term bicycle parking for customers should be available in appropriate quantities and locations.

Benchmarks/Performance Indicators developed by institutions and employers could help quantify safety improvements, contribute to user counts and user types, and help quantify reduced crashes and injuries as well as perceived vs. actual usage, such as bikes parked at schools, etc.

OTHER POTENTIAL FUNDING/PARTNERSHIP STRATEGIES

Examples of other potential funding sources for active transportation programs and projects – in addition to federal resources – include a number of state, local, and private sources that could be tapped for active transportation accommodations. Examples sources might include, but are not limited to State and local general revenue collected through taxes, capital improvement bond sales, etc.; in partnership with The Rails-to-Trails Conservancy; Developer/impact fees; “In lieu of” payments; Bikes Belong Coalition grants; foundations such as The Robert Wood Johnson Foundation.

Because a Long Range Transportation Plan (LRTP) is constrained to available financial resources, funding for inclusion of active transportation improvements are also limited. Other funding may be available from priority projects in the current Transportation Improvement Program (TIP); City Capital Improvements Program (CIP) bond funds; areas identified for potential reinvestment through other types of property tax designations; Neighborhood or District Overlays or Dedications – including Environmental Justice areas; Impact opportunities for local corporations or private benefactors; Endowments, Conservation Easements, Champions; other Community Partnerships and Major Employers; Friends Groups; encourage “Stewardship of Place”; expand ‘Corridor Adoptions’ by friends groups to include walkability or bikeability enhancements; seek out other potential State and Federal Funding Sources.

VOLUNTEER GROUP PARTNERSHIPS

Friends of the Trail groups are usually set up for an individual trail or trail segment. Some friends groups have been formed to develop trail master plans that have then been adopted by a local government agency, such as the Parks Department. These groups then raise funds for trail construction, land donations or easements, and/or amenities such as benches, rest plazas, water fountains, and art installations. They also may organize athletic fundraising events or trail corridor clean-ups and plantings, and they frequently provide safety patrol volunteers.

INFRASTRUCTURE COMPONENTS

Infrastructure treatments or components identified in this plan are grouped in this table below along with total sums within each type of infrastructure, along with order-of-magnitude planning level estimates of potential costs in 2015 dollars. Over the life of the plan, overall costs could be expected to rise to as much as \$5,736,427.*

Infrastructure Groupings by type	TL units in Plan	Description of Bikeway Enhancement	Est. Potential Unit Cost - Design, Const. & Admin*(1)	Unit	Est. Plan \$ Totals
1. Parish highways outside Shreveport	50.15	Miles of BW11+BW16 'Share the Road' advisory signs - 10/mile (5 ea. Direction)	\$4,950	Mile	\$248,243
2. Connecting Highway Interchanges	28	Up to 6 ea. BW11 signs per Hwy Interchange	\$2,970	set of 6	\$83,160
3. Sportsman's Paradise Bike Routes	218.76	Miles of BW11+BW16 'Share the Road' advisory signs - 10/mile (5 ea. Direction)	\$4,950	Mile	\$1,082,862
4. Bike Routes along Local City Streets	35.23	Shared Lane Markings and Signs	\$21,150	Mile	\$745,115
5. Bike Lanes along Collector Streets	32.42	Typical Bike Lane stripes and signs (MUTCD)	\$37,369	Mile	\$1,211,503
6. Bike Lanes along Minor Arterials	16.36	Road diet*(2) with Bike Lane stripes and signs (MUTCD or NACTO)	\$51,198	Mile	\$837,599
7. Buffered Bike Lanes on Principal Arterials	5.65	Road diet*(2) with Buffered Bike Lane stripes and signs (MUTCD or NACTO)	\$66,988	Mile	\$378,482
Plan Totals	358.57	miles of bikeways	est. of potential costs*(1)		\$4,586,963
*(1) Estimated Potential Costs are based on year 2015 estimates, subject to 2-percent per year escalation, using the midpoint within each phase					
*(2) Road Diets (may not be needed in all cases) and Buffered Bike Lane configurations are subject to further feasibility study - TBD.					

*Please NOTE: A proposed phasing plan spreadsheet is included in this plan's electronic appendix, using these estimates as a base cost – then inflated by 2 percent per year, utilizing the mean-year amount of each of the three phases. These include Phase 1, from 2016 through 2020; Phase 2, from 2021 through 2030; and Phase 3, from 2031 through 2040. (Refer to Appendix K. *CPBP [Digital-Only] Cost Projections Workbook*.)