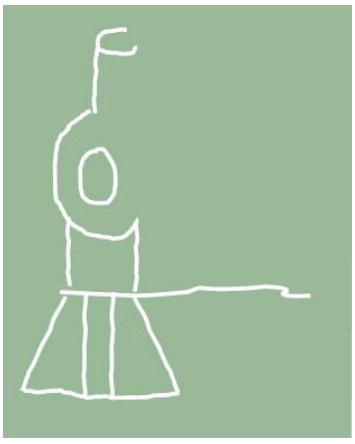
Chapter 8: Infrastructure



All Aboard!

Infrastructure

Photo: Gordon's Creek in Downtown Hattiesburg.

Overview

Providing infrastructure facilities—roads and highways, sidewalks and bicycle paths, water, sanitary sewer, stormwater drainage, and solid waste collection—is one of the most basic functions of a city. The quality of these systems can impact the health, safety, welfare, and quality of life for all city residents and visitors.

In Hattiesburg, improving and upgrading the city's infrastructure systems is a priority need recognized widely by city residents (See Appendix D, Neighborhood Profiles). The first step should be an assessment of existing conditions and a prioritization of improvement needs. The second step should be the identification of possible funding sources, or the coordination of these projects with a citywide *capital improvement program*. Below is a general evaluation of Hattiesburg's infrastructure facilities and the desired improvements that were identified by city residents and public officials.

Transportation

The purpose of a transportation system is to allow for the safe and efficient movement of people and goods to, from, and throughout the city of Hattiesburg. The ease of mobility in and around the community is determined by the quality of the network of streets, highways, transit routes, sidewalks and bicycle pathways. Thus, the transportation network is one of the most important factors to influence urban form, physical growth, and development.

The transportation plan addresses all modes of transportation—air, rail, automobile, pedestrian, bicycle, and transit—to correct existing deficiencies and accommodate future growth in accordance with Hattiesburg's vision statements, goals and strategies. Additionally, because the transportation network is inextricably linked to and influenced by the city's existing and future land uses, recommendations are made in consideration not only of the impact upon travelers but, more importantly, the impact upon adjacent land uses, corridors and neighborhoods.

Streets and Highways

Hattiesburg's street and highway system has been greatly influenced by twentieth century development

and urban planning trends. The location of the original city—including the downtown central business district and adjacent neighborhoods—was determined by the location of rail lines and waterways. For the most part, the older neighborhoods—circa early 1900s—were platted on a north/south grid system with rear service alleys.

This arrangement, referred to as the "avenues", provided for short city blocks (averaging lengths of 300 feet) with sidewalks, tree-lined streets and grassy rights-of-way. The grid pattern encouraged walkability, social interaction, and a sense of neighborhood.

Functional Classification System

The traditional method of planning for future streets and improvements to existing roadways involves designing the street in terms of its use. The following are descriptions of the functional classifications of roadways in Hattiesburg, as described under Section 17-1-1 of the Mississippi Code of 1972, as amended:

- *Local or minor streets* serve the primary function of providing access to abutting properties.
- *Collector streets* connect local/minor streets and major thoroughfares. Collector streets "collect" traffic from local/minor streets in residential neighborhoods and channel it into the arterial system.
- *Minor arterials (major thoroughfares)* move traffic between collector streets and principal arterials, connecting various city districts.
- *Principal arterials* are typically divided facilities with raised or flush medians (undivided where right-of-way limitations exist) with relatively high traffic volumes and traffic signals at major intersections. Principal arterials feed traffic to freeways and expressways and serve as the principal travel ways between major districts within and outside the city.
- *Expressways* provide for movement of large volumes of traffic at relatively high speeds, and are primarily intended to serve long trips. On expressways, relatively few intersections at grade are permitted, and these are controlled by traffic signals. Both freeways and expressways have

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Photo: Longleaf Trace Rails-To-Trails.

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Photo: New mast-arm traffic signal on Hardy Street at the entrance to the University of Southern Mississippi.

median dividers and no access from abutting properties.

- *Interstate highways* are roadways that are functionally classified as freeways. Interstate highways are the highest level of arterial. They are characterized by full control of access, high speed design, and high level of driver comfort and safety. The interstate network is also part of the national defense system.

Issues and Challenges

The citizens of Hattiesburg raised many issues and concerns related to transportation facilities. These issues were reported at the initial plan kick-off event, at neighborhood workshops, and by completing neighborhood surveys (see Appendix B).

Additionally, the City's Department of Public Services maintains a list of transportation system deficiencies and priority projects. The department annually seeks funding sources to accomplish needed projects. Below are the priority issues that were identified by citizens and the Department of Public Services:[1]

- *Street maintenance and repairs*
  More than 65% of neighborhood survey respondents listed the condition of streets as an important issue in their neighborhoods. Since 2006, the City of Hattiesburg has made street paving and resurfacing a priority. There are more than 350 miles of roadway in Hattiesburg. The City resurfaced 65 miles of roadway in 2006 and 17 additional miles were resurfaced prior to April 2008.[1]

  Hattiesburg budgets $2 million annually for street maintenance and paving projects. In the 2008 fiscal year, the City budgeted an additional $2 million from the general fund for road improvements.[1]

  Hattiesburg also receives appropriations from Forrest County's municipal road and bridge fund. This appropriation totals approximately $1.2 million per year and is used for road and bridge maintenance.[1]

  The strategy for road maintenance and repairs should be to continue budgeting annually for road improvements and maintenance and to utilize a

capital improvements program to identify and budget for road maintenance and repairs.

- *Bridge repair and replacement*
  According to the Department of Public Services, twelve bridges in Hattiesburg are scheduled to be replaced.[1] Five of these bridges are currently designated for replacement as part of an ongoing maintenance/replacement program and are not considered a safety hazard to the public.[1] Below is a list of the locations of the five bridges:
  - Alice Drive at Gordon's Creek; (Closed)
  - West Street at Gordon's Creek; (Closed)
  - Broad Street at Gordon's Creek;
  - McLeod Street at Gordon's Creek; and
  - James Street at Gillis Creek.[1]

  These bridges are scheduled to be replaced by December 2009.[1]

  Hattiesburg and Forrest County work together on funding bridge repairs and replacement. Funds are provided by the Mississippi Department of Transportation (MDOT) and/or the State-Aid Road Division to the county officials for disbursement . Below is a list of the remaining seven bridges scheduled for replacement:
  - Hutchinson Avenue at Gordon's Creek;
  - Unetta Street at Gordon's Creek;
  - Two bridges on Hillendale Drive at Gordon's Creek;
  - Pinehills Drive at a branch of Gordon's Creek;
  - Byron Street at a branch of Gordon's Creek; and
  - James Street at Burkett's Creek.[1]

  It has not been determined that the above-listed bridges have structural deficiencies. Bridges are rated by the State Aid Bridge Engineer, and these bridges, due to their ratings, are scheduled for replacement by the end of 2012.[1]
- *Upgrading/replacing span wire traffic signals*
  The City's long-range plan is to replace all existing span wire traffic signals with mast arm signals. The city experienced considerable damage to its span-wire signalized intersections during Hurricane

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Katrina. These intersections had to be maintained by police personnel for several weeks. The city's mast-arm signalized intersections received very little damage and were able to be repaired and made operational in a short period of time.

The greatest drawback to the span wire signal box is the constant movement caused by natural elements. This signal system requires more repair and replacement costs.

The mast arm signal system encloses all wire inside a structure/pole that is anchored in the right-of-way. Wiring is protected from outside exposure and the signal box is mounted in a stationary position thus eliminating the swaying movement and reducing maintenance costs. In the event of heavy winds, i.e. tornados and hurricanes, the mast arm systems should prove more weather-worthy.

There are approximately 90 traffic signals in the city of Hattiesburg. Of those 90 signals, approximately 50 are span-wire and 40 are mast-arm. The City's goal is to convert all span-wire signals to mast-arm poles within the next two to ten years.

Installing new traffic signals

There are many locations in the city where new traffic signals are needed and none currently exist. Below is a list of near-term needs to be completed by 2020.

- Edwards Street at Tuscan Avenue (high priority);
- West 7th Street at North 31st Avenue (high priority);
- Lincoln Road at Old Highway 11;
- Lincoln Road at Lamar Avenue; and
- Lincoln Road at Hegwood Drive.

Road maintenance and repairs require continuous evaluation and planning. To be most effective, the City should adopt a *capital improvement program* (see Chapter 10) to evaluate, prioritize, and budget needed infrastructure improvements. An important element of *capital improvement programming* is public input. By collaborating with the public, city officials

can properly identify and address high-priority needs and ensure that public funds are being used efficiently.

Context Sensitive Solutions

One of the more recent concepts in the planning and design of transportation systems is the use of *context sensitive solutions* (see Figure 20). This concept reflects an understanding that our streets and roadways not only serve to move people and goods, but also help define the physical environment of our neighborhoods and communities. By working with local officials and community stakeholders to define the desired function and appearance of a roadway, engineers can design transportation systems that more closely reflect the values of a community.[2]

Hattiesburg is considering this concept in designing improvements to West 4th Street from Hutchinson Avenue to North 38th Avenue. There are many issues and challenges in this area, and a number of stakeholder groups can be invited to participate in the planning process. Additionally, the city's plans should consider and complement the University of Southern Mississippi's master plan for the West 4th Street corridor.

The properties along West 4th Street between Hutchinson Avenue and U.S. Highway 49 contain a mix of single-family residences, duplexes, and small business land uses. The proposed extension of the Longleaf Trace Rails-to-Trails will follow the former Mississippi Central/Canadian National rail line eastward from the existing trailhead on the University of Southern Miss' campus and run parallel to and north of West 4th Street (approximately 8,000 linear feet). The trail will take a southward turn (exact turning location and southward route is not officially determined) and continue to the Hattiesburg Depot and Chain Park at Twin Forks (see map under Appendix C).

Additionally, the University of Southern Mississippi owns property along the north and south sides of West 4th Street, between U.S. Highway 49 and North 38th Avenue. Any plans to improve West 4th Street must consider student pedestrian activity and the future facility plans contained in university's master plan, completed and adopted early 2008.

Figure 20. What is a *Context Sensitive Solution*?

Context Sensitive Solutions (CSS) — Context sensitive solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic and environmental values with transportation safety, maintenance and performance goals. Context sensitive solutions are reached through a collaborative, interdisciplinary approach involving all stakeholders.

Source: California Department of Transportation.

Principles of CSS—

- Balance safety, mobility, community and environmental goals in all projects;
- Involve the public and stakeholders early and continuously throughout the planning and project development process;
- Use an interdisciplinary team tailored to project needs;
- Address all modes of travel;
- Apply flexibility inherent in design standards; and
- Incorporate aesthetics as an integral part of good design.

Source: Minnesota Department of Transportation

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Implementation Actions:

- Use a capital improvements program (CIP) to schedule and prioritize road maintenance and to ensure that repaving schedules are coordinated with other utility and infrastructure improvements.
- Continue to allocate adequate funds for the purchase of vehicles and equipment needed for construction and maintenance.
- Aggressively pursue funds and opportunities to place utilities underground.
- Stabilize roads where base material is insufficient by removing the existing asphalt and replacing the base material prior to installing asphalt (lengthens the useful life of resurfaced roads).
- Replace all aging bridges to ensure the safety of the motoring public.
- Replace all span wire traffic signals with mast arm poles.
- Install fiber optic cable along all major corridors within the city for proper operation of traffic signals.
- Amend the ordinance designating truck routes to remove certain streets as new corridors are made available.
- Amend the Code of Ordinances to update street, sidewalk and right-of-way widths to ensure that required standards will accommodate the construction of accessible sidewalks.
- Amend the Code of Ordinances to update traffic signage, signal and off-street parking requirements.

Short-Term Facilities, Equipment and Program Needs:

- Purchase three additional street sweepers in the next available budget cycle.
- Purchase replacement street sweepers, garbage trucks, track equipment and rubber tire backhoes within two to five years.

Mass Transit

The primary purpose of Hub City Transit (HCT) is to provide alternative and innovative means of public transportation for the citizens of Hattiesburg at a low cost. HCT provides services for the elderly and disabled at no cost. The city is able to provide this service with a grant from the Federal Transit Administration. HCT provides transportation for

10,580 persons on four fixed routes and 4,362 elderly and disabled persons with its demand response program.

The city's fleet consists of eight buses. In addition, the City of Hattiesburg owns one 24-passenger trolley; it is used for tours and other special civic events. The trolley is not accessible to persons with disabilities and, therefore, is not used in the fixed-route transit system on a daily basis. The Federal Transit Administration funds HCT with yearly allocations averaging $300,000 to $400,000 per year.

Short-Term Facilities, Equipment and Program Needs:

- Global Positioning System (GPS): Acquire GPS for the fleet to allow a consistent tracking system of vehicles. HCT only utilizes radio communication to track the status of the routes. Anticipated cost of implementation: $10,000.
- Route Match Software: Acquire Route Match Software to develop more efficient scheduling of the para-transit program. Currently, the city has a $21,000 grant towards the total package of $35,000.
- Redevelopment of Fixed Route System: Re-evaluate and redevelop the current fixed route system to service the growing population and commercial service areas. HCT currently offers five fixed routes. The use of public transportation has grown, but the city is not able to expand its service at this time. Anticipated cost of implementation: $15,000.

Railroad Facilities

In Hattiesburg, the railroads were instrumental in the city's early history and rail lines still greatly influence urban form and circulation. Today, three rail lines traverse Hattiesburg.

- Norfolk-Southern travels from the West to East coasts. The line that passes through Hattiesburg travels from New Orleans through Meridian to Birmingham, Alabama. From Birmingham, Norfolk-Southern rail lines extend throughout the eastern United States and through portions of the Midwest.
- Canadian National, which merged with Illinois Central in 1999, travels from New Orleans and the Mississippi Gulf Coast through Chicago and Detroit to eastern and western Canada.

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Railroad Facilities

Photo: Railroad switching yards, Downtown Hattiesburg

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Photo: Neighborhood sidewalk on Third Street.

- The Kansas City Southern railway travels from the Gulf Coast to the Midwest, with haulage rights as far north as Minnesota and rail lines extending south through Texas to Mexico.

More than 30 trains—primarily freight trains—travel through Hattiesburg each day. Two passenger trains—one northbound and one southbound—are offered by Amtrak's Crescent Route. Northbound from Hattiesburg, the Crescent Route travels north through Atlanta, Georgia, to New York City. Southbound from Hattiesburg, the line travels to New Orleans, Louisiana.

The recently-completed renovation of the Hattiesburg Depot provides a more comfortable and user-friendly environment for Amtrak travelers.

A major issue for motorists and public safety personnel is the traffic problem created by trains traveling through Hattiesburg. Today, there are approximately 40 at-grade railroad crossings in Hattiesburg. Eastern portions of the city can be cut off from access to hospitals and public safety facilities while trains pass through certain intersections. A study—Hattiesburg Rail-Roadway Congestion Relief Project—was recently completed to determine possible locations for overpasses and relocation of the rail switching yards in Downtown Hattiesburg. A copy of the full report is available at the Hattiesburg City Clerk's office or at the Department of Public Services. An excerpt of the report is provided under Appendix C.

City officials are currently seeking funds for environmental studies of the proposed overpass locations. When the environmental study is completed, the City will seek funding to construct the first phase of a three-phase overpass construction program.

Sidewalks and Pedestrian Ways

City residents overwhelmingly support the construction and maintenance of sidewalks and pedestrian pathways. The layout of neighborhoods and the proximity of schools, shopping, and employment districts gives Hattiesburg the potential to be a *walkable* city (See Figure 21). In many areas, the only element that impedes residents from walking to activities is the lack of sidewalks. Through neighborhood surveys and at public meetings, residents in all areas of the city responded that the construction

of sidewalks is a priority need in their neighborhoods (See Appendix D).

Additionally, the Vision Advisory Team strongly supported the adoption of a "complete streets" policy (see Figure 22). In general, cities that adopt complete streets policies pledge to "complete" streets by including adequate facilities for pedestrians and bicyclists.

While there are certain areas of the city where sidewalks are provided—primarily historic neighborhoods, Downtown Hattiesburg, and areas adjacent to schools and the University of Southern Mississippi—the provision of pedestrian and bicycle facilities has largely been omitted in current development trends and practices. Hattiesburg should combine a reasonable *complete streets* policy with changes to development regulations and the implementation of a capital improvement program (see Chapter 10). Specific options for *complete streets* policies are included on page 136 of this chapter.

To make Hattiesburg more *walkable*, the following strategies are recommended:

- *Construct Sidewalks to Schools*
  Hattiesburg has made use of available funds and grant opportunities to construct sidewalks around the city's public schools. This should continue to be a priority when allocating funds for the construction of new sidewalks.

  Additionally, many of the city's schools are within or adjacent to existing neighborhoods, increasing opportunities to walk to school. The ability to walk to school should be a priority concern when considering locations for new schools. Priority should be given to locating new schools within established neighborhoods or in areas where neighborhoods are planned or under construction.

- *Construct Sidewalks to Employment Centers*
  Few people are able to walk to work. To do so requires a resident to choose to live close to where he/she works, or to choose employment close to where he/she lives. This is not always possible. There may not be a neighborhood close to employment with houses in the desired size, style, and price range. Also, the desire for the "perfect"

Figure 21. What is a *Walkable* Community?

Walkable communities are desirable places to live, work, learn and play, and therefore a key component of smart growth. Their desirability comes from two factors. First, locating, within an easy and safe walk, goods (such as housing, offices and retail) and services (such as transportation, schools, libraries) that a community resident or employee needs on a regular basis.

Second, by definition, walkable communities make pedestrian activity possible, thus expanding transportation options and creating a streetscape that better serves a range of users—pedestrians, bicyclists, transit riders and drivers.

To foster walkability, communities must mix land uses and build compactly, and ensure safe and inviting pedestrian corridors.

Source: Institute of Transportation Engineers draft report, Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.

house or apartment may overwhelm the desire for a short commute.

The ability to walk to work can be improved by establishing land use and development policies that encourage the construction of certain types of housing in or around employment centers. Downtown apartments can be attractive to young professionals or empty-nesters who work downtown. Townhomes or apartments in mixed-use developments adjacent to universities can offer attractive options for students, faculty or staff.

In terms of infrastructure policy, priority should be given to constructing sidewalks in areas where opportunities exist for residents to walk to employment centers. The following locations in Hattiesburg are examples of areas where pedestrian connections can be strengthened to promote walking to work:

- Neighborhoods adjacent to Downtown Hattiesburg;
- Residential areas north, west, and south of the University of Southern Mississippi; and
- Neighborhoods surrounding Forrest General Hospital and Hattiesburg Clinic.

- *Construct Sidewalks to Shopping/Entertainment*

  Many neighborhoods in Hattiesburg are within walking distance to grocery stores, retail shopping centers, restaurants, and entertainment districts. The absence of sidewalks between housing and shopping/entertainment districts makes walking less desirable.

  Priority should be given to constructing sidewalks in neighborhoods where there are existing grocery stores, shopping, and dining opportunities. The following locations in Hattiesburg are examples of areas where the construction of sidewalks could promote walking to these districts:

  - Neighborhoods north and south of Hardy Street between U.S. Highway 49 and Downtown Hattiesburg, including the Avenues and other neighborhoods surrounding Kamper Park and Hattiesburg Zoo;

- Neighborhoods surrounding and adjacent to Downtown Hattiesburg; and
- Neighborhoods adjacent to the Edwards Street corridor.

- *Make Sidewalks Attractive for Walkers*
  Pedestrians are more susceptible than motorists to positive and negative aspects of the surrounding environment. With air conditioning, satellite radio, and rolled-up windows, motorists can be insulated from the elements and from unattractive surroundings. For pedestrians, the quality of the surrounding environment can have a great impact on whether or not walking is a desirable option. Many factors can influence a decision to walk, such as the condition and width of the sidewalk, the presence of attractive landscaping and shade trees, the perception of safety created by pedestrian lighting, and the visual interest created by attractive adjacent properties.

  Consideration in constructing sidewalks should not be limited to the width and depth of concrete. If sidewalks are intended to encourage walking, cities should ensure that sidewalks are safe, attractive, usable facilities. This can be accomplished by planning adequate infrastructure (landscaping, street trees, and pedestrian lighting), establishing and enforcing development standards, and creating design guidelines to maintain a consistent streetscape appearance.

- *Include Sidewalks in Infrastructure Planning*
  Hattiesburg, under the Department of Public Services, has an on-going program to enclose roadside ditches in neighborhoods. While the use of open ditches to manage stormwater has many environmental benefits, ditches can have negative impacts in neighborhoods.[1]

  Enclosing the ditches eliminates breeding areas for mosquitoes, reduces maintenance costs to the City, and improves the appearance of neighborhoods (see also Chapter 6, Floodplains and Waterways). Every effort should be made to construct sidewalks at the same time new storm sewers are being installed in neighborhoods.

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Sidewalks and Pedestrian Ways

- *Identify Funding Sources for Sidewalks*
  The City should seek funding opportunities, such as transportation enhancements grant programs (SAFETEA-LU) and Safe Routes to School, to finance the construction of new sidewalks.

Implementation Actions:

- Adopt a sidewalk master plan designating areas where sidewalks should be constructed; require sidewalks to be constructed by land developers at the time of new construction in areas so designated on the sidewalk master plan.
- Aggressively pursue grant opportunities for the construction of new sidewalks.
- Include annual sidewalk construction projects in the City's capital improvement program.

Bicycle Routes and Longleaf Trace

Hattiesburg is fortunate to have a portion of the region's premiere bicycling facility located within the city. The Longleaf Trace—Mississippi's only Rails-to-Trails project—is approximately 41 miles long. One of the two gateways for the trail is in Prentiss with stations located along the way at Carson, Bassfield, and Sumrall to the Southern Miss gateway in Hattiesburg. The trail is used primarily for biking and hiking with equestrian trails between Carson and Epley (23 miles).

Preparations are being made to extend the trail from the Southern Miss gateway along West Fourth Street to the Hattiesburg Depot in Downtown Hattiesburg. From there, the City plans to connect the Longleaf Trace and the depot to the future Chain Park at Twin Forks (see description under Chapter 9).

Residents expressed desires to see bicycle facilities expanded and additional linkages created between the Trace and neighborhoods, parks, and other public facilities (see Appendix B). A study should be conducted to identify possible locations for bicycle lanes along major streets, plan new bicycle pathways, and initiate programs to encourage biking as a mode of transportation.

Implementation Actions:

- Adopt a bikeway master plan designating areas where bicycle pathways or bicycle lanes should be constructed or designated.

- Place bicycle racks at public facilities.

Complete Streets Policy

A majority of members of the Vision Advisory Team strongly supported the adoption of a complete streets policy (See Figure 22). Throughout the planning process, Vision Advisory Team members and city residents expressed the desire for sidewalks in neighborhoods, the importance of being able to walk safely to schools and shopping districts, and the need for safe bicycle routes between neighborhoods and the Longleaf Trace.

Many users of the Trace expressed a desire to safely ride bicycles from neighborhoods to the trailhead. A perceived impediment was the lack of adequate facilities for bicycles on existing roadways. There is a perception that riding a bicycle on existing streets where there are no bicycle lanes and inadequate shoulders would put cyclists in danger.

It is understood that not every street can be constructed with bicycle lanes, sidewalks, and transit stops. The City should adopt the long-term goal of "completing" Hattiesburg's streets by making city streets "safe, comfortable and convenient for travel via automobile, foot, bicycle, and transit."[3]

To clarify the intent of the goal, the City should identify strategies for implementation. The strategies should include possible funding sources for new facilities, regulatory and policy statements to ensure that new facilities are appropriately planned, and design guidelines to explain in detail how the spirit and intent of policies can be translated into well-designed and constructed facilities.

Below is an excerpt from the National Complete Streets Coalition's "Elements of Complete Streets Policies."[4]

"A good complete streets policy:

- Specifies that 'all users' includes pedestrians, bicyclists, transit vehicles and users, and motorists, of all ages and abilities.
- Aims to create a comprehensive, integrated, connected network.
- Recognizes the need for flexibility: that all streets are different and user needs will be balanced.
- Is adoptable by all agencies to cover all roads.

Figure 22. What is a *Complete Street*?

A Complete Street is safe, comfortable and convenient for travel via automobile, foot, bicycle, and transit.

Source: National Complete Streets Coalition. http://www.completestreets.org/completestreets/Complete.ppt. Accessed February 21, 2008.

"The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and BALANCED in all transportation and development projects and through all phases of a project so that even the most vulnerable—children, elderly, and persons with disabilities—can travel safely within the public right-of-way"

Source: City of Chicago Complete Streets Policy

- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- Directs the use of the latest and best design standards.
- Directs that complete streets solutions fit in with context of the community.
- Establishes performance standards with measurable outcomes."

Hattiesburg should consider the adoption of a "complete streets" policy statement to be a priority need. Within 12– to 18-months, city officials should identify specific policy language that is reasonable and meets the needs of Hattiesburg's citizens.

The "complete streets" philosophy should be integrated into everyday decision-making without delay to ensure that grant funding and major road and highway improvements can be put to use to make Hattiesburg's streets safe and convenient for all users.

Implementation Actions:

- Adopt a reasonable "complete streets" policy oriented to the needs and desires of the citizens of Hattiesburg, especially the most vulnerable (children, elderly, persons with disabilities) populations.
- Integrate the "complete streets" philosophy into everyday policy-, budget-, and decision-making.

Local Airports

Hattiesburg is served by two airports: the Hattiesburg Bobby L. Chain Municipal Airport in Hattiesburg, and the Hattiesburg-Laurel Regional Airport.

Hattiesburg Bobby L. Chain Municipal Airport

The Hattiesburg Bobby L. Chain Municipal Airport (hereinafter referred to as "municipal airport") is a business airport located in the Hattiesburg-Forrest County Industrial Park. The airport has a 6,099 foot by 150 foot runway and an eleven-acre concrete ramp.[5] There is adequate land area available for future expansion, and the facility is capable of supporting all corporate aircraft.[5]

Both the municipal airport and the Hattiesburg-Laurel airport (described in the next section) are un-towered facilities—there is no air traffic control tower that captures and maintains that information.[6] The municipal airport's current airport layout plan (ALP) calls for a runway extension to 7,299 feet. Additional room for further expansion past 8,200 feet would require the closing or rerouting of Ralston Road. This is considered to be a possibility by the year 2028. There are currently seven hangars at the municipal airport with adequate room for expansion.

Because of its proximity to the Camp Shelby Joint Forces Training Center, Hattiesburg's municipal airport is the primary airport to serve certain high-ranking military and government officials who conduct business at Camp Shelby.[6] There is a possibility that a permanent military presence could be established on site.This is a growing trend around the country where military installations are located near general aviation or commercial airports.[3]

Implementation Actions:

- Close or reroute Ralston Road to make room for the expansion of the municipal airport's runway.
- Acquire an Instrument Landing System (ILS) using instrumentation to guide aircraft landing at the municipal airport.
- Design and construct a new airport terminal at the municipal airport.

Hattiesburg-Laurel Regional Airport

The Hattiesburg-Laurel Regional Airport is located nine miles north of Hattiesburg along Interstate 59. Commercial service is provided by Northwest Airlink, offering two departures and two arrivals, daily. General aviation services for corporate and private aircraft are provided by U.S. Aviation Corporation.

Future Transportation Plan

Hattiesburg's transportation planning efforts are coordinated under the Hattiesburg-Petal-Forrest-Lamar Metropolitan Planning Organization (HPFL MPO). A description of the organization's activities is included under Chapter 9 (Community Facilities and Services).

The current plan for these jurisdictions—*Hattiesburg Metropolitan Transportation Plan 2030*, completed in 2007—contains a list of projects phased according to

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Future Transportation Plan

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Figure 23. Goals of *Hattiesburg Metropolitan Transportation Plan 2030.*

The following are goals adopted for this plan:

1. Enhance transportation system mobility and accessibility for all users and modes.
2. Enhance regional connectivity and economic viability.
3. Enhance environmental quality and public safety.
4. Support local values and conserve existing community resources.
5. Provide a transportation planning process that informs and involves the public as well as elected officials.
6. Develop a long-range regional transportation plan that is consistent with all applicable federal, state and local laws.

the availability of funding sources. The planning area includes the cities of Hattiesburg and Petal and part of the city of Purvis, as well as unincorporated portions of Lamar and Forrest counties.

The plan's project phases are described as follows:

- Stage I (2007-2011) includes a total of 32 projects consisting of 26 miles of roadway improvements, two bicycle-path projects and six additional maintenance and infrastructure improvement projects. Stage I will be funded by Mississippi Department of Transportation (MDOT), Hattiesburg, Petal, Forrest County and Lamar County and will cost an estimated $162,470,000.
- Stage II (2012-2020) consists of 14 projects totaling 37.5 miles and having an estimated overall cost of approximately $212,200,000. The projects will be funded by Hattiesburg, MDOT and Lamar County. Stage II includes three new four-lane roadways, five road-widening projects, one two-lane roadway, grade separations, bridge replacements and a computerized traffic signal system.
- The Stage III (2021-2030) consists of 14 projects totaling 35.1 miles with a projected cost of approximately $151,200,000. Improvements include eleven widening or new roadway projects, one bridge replacement and two maintenance projects. Funding will be provided by MDOT, Hattiesburg, and Forrest County.
- The "Vision Plan" consists of important projects for which no funding source currently exists. Delayed funding may be the result of the project's size, cost, design complexity, right-of-way acquisition, jurisdictional concerns, or probable environmental impacts. The "Vision Plan" serves as a reminder of deferred needs and should be annually re-analyzed to determine if adjustments or changes are needed.

Maps from the *Hattiesburg Metropolitan Transportation Plan 2030* are included under Appendix C.

Utilities

In Hattiesburg, improving and upgrading the city's infrastructure systems is a priority need recognized widely by city residents. The first step should be an

assessment of existing conditions and a prioritization of improvement needs. The second step should be the identification of possible funding sources, or the coordination of these projects with a citywide capital improvement program. Below is a general evaluation of these issues as they were identified by residents and city officials.

Water and Sanitary Sewer Systems

Overview

Hattiesburg's public water and sanitary sewer systems are maintained by the city's Water and Sewer Operation and Maintenance Division. The mission of the division is to establish "an ongoing effort to coordinate our work activities and to increase public awareness in the conservation of our most precious resource: water. We strive to bring the best quality potable water to our citizens. In addition, we insure that our community has a safe and effective way of handling wastewater." The division is under the Department of Public Services.

Issues and Challenges

According to the Department of Public Services, public water is provided to all residents of the city of Hattiesburg. There are approximately 15 to 25 households in Hattiesburg that are not served by the public sanitary sewer system.[1] These households are primarily along James Street and Ralston Road. Because this area is sparsely populated, wastewater treatment could be addressed by installing a small treatment system as the need arises.[1]

All new construction must be connected to the public sanitary sewer system. The City does not permit any new private wastewater treatment facilities to be constructed.[1]

The City of Hattiesburg provides wastewater treatment to the Lamar Park area (west of Interstate 59 and south of U.S. Highway 98), the City of Petal, and portions of Lamar County.[1] The agreement with the City of Petal was made in the 1980s to directly receive the city's wastewater; no other services are provided. Contracts are renewed every three to five years; the cost is adjusted as operational costs change and as the Mississippi Department of Environmental Quality

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mandates improvements to Hattiesburg's sewer systems.[1]

Other water districts located within the city of Hattiesburg are Dixie Water Association, North Lamar Water Association, West Lamar Water Association, Arnold Line Water Association, and Rawls Springs Water Association. There are no plans to supplement those districts or provide water lines for fire protection outside of the city's corporate limits.[1]

Facilities and Maintenance

- *Water System Facilities*

  The City maintains two water plants. Water Plant #1, located on Lakeview Road, was constructed in 1928. This plant was completely renovated in 1995 and was designated an "American Water Works Landmark" by the American Water Works Association. Water Plant #1 produces 10 million gallons per day.[1]

  Water Plant #2, located along James Street, was constructed in the1960s. This plant produces 5 million gallons per day. In the short term, Water Plant #2 requires upgrades to include repairing filters, replacing filter media, controls, piping and valves. The estimated cost for this 2008 upgrade is $5.4 million and will also restore and upgrade the quality and quantity of water.

  Currently the City has the capacity to produce 19 million gallons of water per day; the use is approximately 11 million gallons per day. The City is using 65% of full capacity.[1]

  Water is drawn from well fields outcrops located in the Lower Catahoula sand strata. Wellheads are protected by concrete encasements according to specifications outlined by the Mississippi State Board of Health and the Mississippi Department of Environmental Quality (MDEQ). There is minimal concern about contamination from fertilizers or other pollutants.[1]

  In order to preserve the quality of potable water and maintain high water standards, Hattiesburg follows regulations established by the Mississippi State Board of Health, MDEQ and the recommendations of the American Water Works

Association. This includes a yearly on-site inspection conducted by the Mississippi Department of Health for both water plants, all well fields and the division's records maintained at the water plants and the Public Services main office.

To ensure water quality, the department collects 50 water samples and two fluoride samples of the water supply each month. The samples are sent to the Forrest County Health Department and forwarded to the state's Department of Health for testing. Also, the water is tested daily for pH balance and chlorine level.

- *Condition of Water Lines*
  The oldest water lines, constructed in the 1920s, are located in the historic downtown and residential areas. The City of Hattiesburg has always required that water lines be constructed of cast iron pipes, ductile iron pipe, or PVC/C900. The Department of Public Services is continually replacing deteriorated water lines in the annexed portions of Hattiesburg to provide adequate flow for domestic water and fire protection.[1]

  According to the Department of Public Services, the condition of water transmission lines is adequate to meet current and near-term growth needs. Within the next five to ten years, the City wishes to upgrade the water transmission system to interconnect dead end water lines to prevent water outages and line failures and to increase water pressure and volume for firefighting.[1]

  Additionally, separate fire lines should be installed within the next 12 months along the west side of U.S. Highway 49 at the Rawls Springs Loop Road and continue north approximately one mile. Separate fire lines should be installed within the next 24 months along the U.S. Highway 98 from Turtle Creek Crossing to the corporate limits (approximately 2 miles).[1]

- *Sanitary Sewer System Facilities*
  Hattiesburg's sanitary sewer system utilizes two lagoons to treat wastewater. The lagoons are in good condition, though certain improvements are needed. The lagoons are located along Lakeview

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Road and James Street and are described as the north lagoon and south lagoon. Though newer systems and technologies exist, the lagoon system, with the improvements described herein, should have adequate capacity to handle the anticipated growth in the coming 15 to 20 years.[1]

North Lagoon: There is an immediate need for new chlorinization and de-chlorinization equipment at the city's north lagoon. This should be addressed within the next 12 months. Funding has been approved by MDEQ to increase the capacity of the north lagoon from 2 million gallons per day to 4 million gallons per day within the next 24 months.[1]

South Lagoon: There is a current need to upgrade the aeration system to make the south lagoon operate more economically and efficiently. The current capacity of the lagoon is 20 million gallons per day.[1]

The City of Hattiesburg follows the regulations established by the U. S. Environmental Protection Agency, MDEQ, and the Mississippi State Board of Health. MDEQ conducts annual and periodic on-site inspections of sewer lagoon facilities, records for maintenance of equipment, and monthly reports submitted for quality assurance.

To ensure the safety of the Leaf River, a private laboratory and city personnel sample the city's sewer lagoons daily for chlorine residual; the volume of flow into the river is checked three times per week.[1]

The Hattiesburg Sewer Department records the city's NPDES (National Pollutant Discharge Elimination System) testing results each month and reports the information in a Discharge Monitoring Report (DMR) to the Department of Environmental Quality.

The city rotates its sewer lagoon aerators to assist with the anabolic breakdown of sewage. The aerators at north and south lagoon run continuously except when shut down for maintenance.[1]

The department has both a preventive maintenance program and general record keeping of repairs at

the lift stations to maintain optimum flow.[1]

- *Condition of Sanitary Sewer Lines*
  In the early 1990s, the City of Hattiesburg commissioned a survey by consultant engineers to determine the condition of sewer lines within the city. This survey included the condition of pipe material, manholes, and existing flow within the sewer lines.[1]

  This provided the information needed to determine which lines must be upgraded. The City of Hattiesburg has been very aggressive in replacing deteriorating sewer lines, cleaning existing lines and installing cured-in-place linings to prevent stormwater infiltration and improve structural integrity. There is a near-term need for the City to continue to aggressively replace older sewer lines to reduce the infiltration of stormwater into the wastewater collection system.[1]

Personnel and Staffing

The Water and Sewer Operation and Maintenance Division employs 68 persons. Six additional employees are needed for water, sewer line and plant maintenance. There are nine licensed water and wastewater plant operators that require 24 to 40 hours of training credits annually. Training sessions are conducted by the Mississippi Department of Environmental Quality or the State Board of Health.

Solid Waste

Solid Waste Management

Solid waste management is an essential public service provided by the City of Hattiesburg to its citizens and businesses. These services include collection, transportation and disposal of municipal solid waste. Garbage is considered to be normal household waste and rubbish is yard waste and other non-perishable waste. Programs for special waste such as white goods and household hazardous waste programs are also facilitated by the City of Hattiesburg.[8]

The City of Hattiesburg joined with other cities and counties in the Pine Belt region to plan and implement regional solid waste management strategies. These jurisdictions completed a process to develop an

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environmentally-sensitive, cost-effective solid waste management and disposal program for the Pine Belt region. This effort resulted in the formation of the Pine Belt Regional Solid Waste Management Authority, which provides services to its members and their citizens, businesses, and industries.[8]

The City of Hattiesburg provides collection of municipal solid waste, then utilizes a Pine Belt Regional Solid Waste Management Authority transfer station for transfer and transportation to the regional disposal facility, also owned by the Pine Belt Regional Solid Waste Management Authority.[8] This cooperative effort has provided the City of Hattiesburg with a reliable and cost effective solid waste management program for the foreseeable future. The City of Hattiesburg and its partners continuously seek innovative solutions to the solid waste needs of the Pine Belt region.[8]

Garbage and Rubbish

Disposal of solid waste—defined in Hattiesburg as garbage, rubbish and white goods—is provided to all residents of Hattiesburg. Garbage and rubbish is collected by employees of the Department of Public Services. The City of Hattiesburg purchases and maintains its own fleet of collection vehicles.

Garbage is considered to be normal household waste, such as food waste. Rubbish consists of both combustible and noncombustible wastes. Combustible rubbish includes such items as paper, cartons, wood, furniture, rubber, plastics and yard waste. Non-combustible rubbish includes glass, metal cans, metal furniture and similar material which will not burn at ordinary incinerator temperatures.

Collected waste is taken to the Pine Belt Solid Waste Authority transfer station located on James Street, behind the Public Works facility. From the transfer station, it is transported to its final destination at the Pine Belt Solid Waste Authority facility located in Runnelstown, Mississippi, approximately 15 miles east of Hattiesburg.

Other commercial and industrial businesses in Hattiesburg must contract with private companies for solid waste collection. Companies currently operating in Hattiesburg include Waste Management, Inc., Enviro, Inc., and BFI.

The city currently has 21 garbage trucks, none of which are fully automated (able to pick up 90 gallon containers). The short-range plans will request the purchase of three new collection/compaction trucks per year for solid waste collection.

Implementation Actions:

- Implement a fully-automated garbage collection system.

Short-Term Facilities, Equipment and Program Needs:

- Include the purchase of 90-gallon waste containers for each household in the city's *capital improvement program.*
- Include the purchase of ten fully-automated collection vehicles in the city's *capital improvement program.*

White Goods and Household Hazardous Wastes

Hattiesburg also provides curbside collection of appliances, called "white goods." White goods are taken to the Pine Belt Solid Waste Authority storage yard on James Street. When a certain volume is reached, an independent contractor collects the items and transports them to scrap metal recycling companies. This program is operating successfully and no changes are recommended.

The City is currently evaluating the establishment of a household hazardous waste disposal program. Household hazardous wastes include batteries, paints, household chemicals and cleaning supplies, electronics, and fluorescent light bulbs. These items are not currently allowed in municipal solid waste landfills. The greatest obstacle to establishing a program is the difficulty in locating a final destination for collected items that is close enough to be economically feasible.

The Mississippi Department of Environmental Quality offers a grant program for local governments to conduct household hazardous waste drop-off events. Hattiesburg applies for the funds annually, though has only been successful four times since 1990.

Implementation Actions:

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- Continue to pursue the establishment of a permanent household hazardous waste collection program.
- Continue to seek funds for household hazardous waste collection events until a permanent program is established.

Recycling

There are three drop-off locations in Hattiesburg where certain recyclables are collected: Kamper Park, the police department service center at the corner of Forrest and McLeod streets, and the Wal-Mart store on Highway 98 West. The recyclables—plastic containers (#1 PETE, polyethelene terephthalate, and #2 HDPE, high-density polyethelene), aluminum cans, newspaper, and cardboard—are collected by Sumrall Recycling in Sumrall, Mississippi.

Background on prior initiatives

Within the past sixteen years, several programs have been initiated by public and private entities to offer curbside recycling in Hattiesburg. The first was the Pine Belt Pilot Recycling Project—a 1993 pilot project funded using a matching grant provided by the Mississippi Department of Community and Economic Development, Energy Division.[9] The pilot project was conducted over a period of nine months in the cities of Hattiesburg, Petal and Laurel. The goal of the project was to gather data—cost per household, time per household, and average pounds recycled per household—that would help each jurisdiction with the development of city-wide curbside recycling programs.[9]

A second, 12-week pilot program was conducted by a volunteer-led private organization—Red Truck Recycling—during the 2005 Great American Clean-Up. This no-cost program, available by subscription to any residents of Hattiesburg or adjacent areas in Lamar County, sought to determine the current level of desire and feasibility of curbside recycling.

A private, curbside recycling service—Hub City Recycling—was recently initiated and is available only by subscription to interested households.

Feasibility of City-Wide Curbside Recycling

There are circumstances unique to Hattiesburg that present both challenges and opportunities for establishing a permanent, citywide curbside recycling

program.

The opportunities and challenges to implementing a curbside recycling program are explored below:

1. Hattiesburg Currently Collects Garbage, Rubbish, and White Goods
   The fact that Hattiesburg currently has a City-managed solid waste collection program is a unique circumstance that presents both opportunities and challenges. Unlike Hattiesburg, many communities contract with private companies for garbage/rubbish collection. Hattiesburg currently provides its own garbage/rubbish/white goods collection service for city residents. The City maintains its own facilities and fleet of collection vehicles.

   If Hattiesburg were to begin collecting recyclables in addition to garbage/rubbish/white goods, the initial start-up costs will be greater than it would be for communities that contract with private companies. To implement a curbside recycling collection program, the City would need to purchase special collection vehicles or modify existing vehicles. Also, land and/or a facility must be made available for sorting or storage of collected recyclables.

   Though, because the City already manages its own collection program, modifications could be made to accommodate a curbside recycling service. The City should be able to design and implement a program that best utilizes available resources, facilities, and personnel.

   One option that has been considered by the City is to modify garbage collection schedules in conjunction with the implementation of an automated trash collection program. Currently, the City has no fully-automated waste collection vehicles in its fleet. The City could provide each household with a 90-gallon collection container and reduce the number of collections to one per week. This would reduce the number of employees required to perform the current manual collection—from three per truck to two per truck—and, therefore, reduce costs. As there are currently two weekly collection days, recyclables could be collected on the second scheduled day.

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Recycling

2. Hattiesburg Must Educate the Public on How to Participate

   Recycling—whether through curbside pick-up or drop-off collection—requires a change in behavior for participants. In communities where no recycling programs exist, many residents are accustomed to discarding all waste items in household trash cans.

   Curbside recycling does not require much effort on the part of residents. Recyclable items such as milk jugs, soda cans and plastic bottles must be rinsed after use. Residents are usually provided some type of receptacle that does not require the items to be separated according to type. On the designated pick-up day, residents place the container at the curb as they would place garbage cans or rubbish.

   Once residents begin to participate in recycling programs, it becomes "second-nature" to set aside certain household items to be recycled. It should be recognized in any recycling initiative that volume should grow over time as awareness and public education increases and as residents "re-train" themselves to recycle instead of discard.

3. Hattiesburg Must Find a Market/Destination for Recycled Items

   Another challenge to curbside recycling is the cost associated with transporting the recycled goods from a community to the receiving industry. There is already an established business in the region that provides this service. Sumrall Recycling currently collects and transports recycled goods to its facility in Sumrall, 10 miles northwest of Hattiesburg. Additionally, Hattiesburg could work with the Area Development Partnership to market industrial properties to potential recycling industries.

Recycling is considered to be a "quality-of-life" issue by those who have experienced programs in other cities. Curbside recycling is available in many jurisdictions nationwide and throughout Mississippi. Hattiesburg treasures its reputation as a retirement community and seeks to advance its standing as a sustainable city with a high quality of life.

Those who are considering relocating or retiring in the Southeast will compare Hattiesburg with other cities

that provide similar services. A curbside recycling program must be considered a goal to be implemented within the next five-to-ten years in order for Hattiesburg to remain competitive and progressive.

Implementation Actions:

- Evaluate options for modifying existing procedures and equipment to implement a curbside recycling program.
- Investigate the additional equipment, personnel assignments, and operating expenses that will be required to provide curbside recycling to city residents.
- Include equipment and vehicles needed for curbside recycling in the city's *capital improvement program*.

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