

The Woodlands Township Pedestrian and Bicycle Master Plan

Executive Summary



Introduction and Background

The Woodlands Township is home to close to 115,000 people, tucked away in a beautifully wooded community 27 miles north of Houston, Texas, located within both Montgomery County and a small section of Harris County. The Woodlands is known for its great schools, beautiful housing options, access to jobs, shopping, restaurants, and other modern amenities as well as its convenient access to nature with 126 parks and over 205 miles of concrete pathways. The Woodlands Township is a master planned community created by George P. Mitchell in the 1970s that supports an overall vision to maintain the natural environment through its development. Although The Woodlands has grown and developed exponentially the last forty years, the preservation and access to nature is prevalent, making this community an attractive place to “live, work, play, and learn”.

The Township is governed by an elected Board of Directors and has its own Fire Department, Parks and Recreation Department, Community Services, Community Relations, Environmental Services for waste and recycling collection, and a Convention and Visitors Bureau. Police services and public works for roadway maintenance and engineering are the functions of Harris and Montgomery Counties. While much of The Township has been built out, what remains to be developed from the original vision is managed by The Woodlands Development Company (TWDC). The Township is comprised of a series of Villages that each have their own shopping district and neighborhood feel. The village names are: Alden Bridge, College Park, Sterling Ridge, Cochran’s Crossing, Research Forest, Indian Springs, Panther Creek, Creekside Park, Grogan’s Mill, and Town Center.

As part of the original master planned community, an extensive forested pathway network was devised that provides access from individual neighborhoods to schools, places of worship, and shopping centers. This pathway system was initially constructed by (what is now) TWDC but is managed and maintained by the Parks and Recreation Department of The Township. Over time, residents have expressed the need to address safety for walking and biking, more direct connections to destinations, and gaps within the existing pathway system. For example, there are known gaps in the overall pathway system such as the lack of connection to Harper’s Landing, opportunities to connect with the Spring Creek Greenway and George Mitchell Nature Preserve, drainage ditches that could be utilized for additional pathways, and options to provide a space for bikes to ride safely along some roadways within the community. The Woodlands Township decided the creation of a Pedestrian and Bicycle Master Plan would be the first step towards making the community a safer and more connected place to walk, run, and bike by comprehensively evaluating the entire community’s existing pedestrian and bicycle infrastructure and making recommendations for improvements. The Woodlands Township Pedestrian and Bicycle Master Plan is the first of its

The Woodlands Township Pedestrian and Bicycle Master Plan is a planning guide that will assist The Woodlands Township in achieving the vision of becoming a world-class pedestrian and bicycle friendly community over the next few decades.

kind for The Woodlands and will assist The Township with planning for biking projects over time. This Plan was developed after a few plans and studies were performed for The Woodlands and after receiving feedback from The League of American Bicyclists with the national designation of a Bronze Level “Bicycle Friendly Community”. The following plans and studies were the precursors for this Plan.

- The Woodlands Township Strategic Plan (Vision 2034) has a focus area titled “Transportation and Mobility” and states the need to “complete development of systems to enhance mobility and provide safe walking, running and cycling networks” as well as “to improve overall pedestrian/transit/cycling mobility options in the Town Center to reduce congestion”. This Pedestrian and Bicycle Master Plan will comprehensively address walking, running, and bicycling safety and mobility.
- The Woodlands Township Transit Plan completed in early 2015 identified the need for evaluation of pedestrian and bicycle gaps that would support transit locations throughout The Woodlands. Specifically the Transit Plan recognized there are gaps in the pathway system to get to the major park and ride locations within The Woodlands as well as a need for bicycle parking or storage at those locations. This Pedestrian and Bicycle Master Plan addresses connections to the park and ride locations with new pathway recommendations, in addition to bicycle parking and storage.
- The South County Mobility Study prepared by the Houston-Galveston Area Council (H-GAC) briefly explored pedestrian and bicycle related recommendations for southern Montgomery County, which includes The Woodlands. That study helped to identify the need for more north-south and east-west connections for getting around by foot or bike, but that study was unable to get into much detail specific to The Woodlands. This Pedestrian and Bicycle Master Plan will focus specifically on The Woodlands.
- The official feedback The Township received from The League of American Bicyclists after being designated a Bronze Level “Bicycle Friendly Community” provides recommendations for the community to improve its overall bicycle friendly status. One important recommendation was creation of a comprehensive master plan that needs to focus on off-street and on-street recommendations to allow shorter distances between residential areas and popular destinations. This Pedestrian and Bicycle Master Plan will address both on- and off-street recommendations for bicyclists and off-street recommendations for pedestrians.



The Pedestrian and Bicycle Master Plan addresses the existing conditions of walking, running, and biking in The Woodlands, and identifies projects that can be implemented over time to safely expand the overall walking and biking network.

The Vision of The Woodlands Township Pedestrian and Bicycle Master Plan

This Plan was developed with involvement from the community, including a group of representatives from various Villages, Montgomery and Harris counties, and other local entities that made up a Steering Committee for this effort. At the very beginning of the planning process, the creation of a Vision Statement was determined to help guide the overall plan and process. The Vision Statement and supporting goals statements are below.

Vision Statement

The Woodlands Township is a premier community that encourages walking and bicycling for all ages for everyday commuting to workplaces and schools, and for errands, fitness, and recreation. The Pedestrian and Bicycle Master Plan builds upon the interconnected pathway system as a foundation to support additional connections including trails and on-road bicycle facilities. This Plan promotes a healthy and active community and provides safe and convenient options for getting around The Township for generations to come.

Goals

Connectivity, Convenience, and Mobility

Provide an interconnected, comprehensive pedestrian and bicycle network that includes off-street and on-street facilities and connects people directly and conveniently to destinations throughout The Woodlands.

Safety

Provide a safe, comfortable, and convenient travel environment for people to walk, run, or ride their bikes in and around The Woodlands.

Funding

Identify funding opportunities for implementation and maintenance of pedestrian and bicycle improvements that result from this Plan.

Coordination

Coordinate pedestrian and bicycle plans and policy recommendations with existing efforts at the local, county, and regional levels.

Design

Establish design guidelines for pedestrian and bicycle infrastructure that are consistent with national standards such as AASHTO and NACTO.

*AASHTO: American Association of State Highway and Transportation Officials | NACTO: National Association of City Transportation Officials

The Users: Who is this Plan for?

The Woodlands community is very active, whether walking, running, biking, swimming, rowing, playing sports, etc., and the desire to have a safe and comfortable place to be active is important. The existing pathways provide a reasonably comfortable and safe place for people to walk, ride their bikes, run, or walk their pets. However, when looking at the variety of pathway user types, it becomes apparent that planning for and providing other options for walking, running, and biking is necessary. In the online questionnaire developed during the planning process, there were a series of questions related to why people walk, run, or bike. The point of those questions was to show that there are a variety of reasons to walk, run, or bike, mostly illustrating that people do all of these things for recreation (fun, fitness, etc.) and/or for utility reasons (to run errands, to get to work or school, to get to someone else's house, etc.). The current pathways are great for more leisurely recreational or utilitarian activities, especially for families and small children. However, if a person needs to get quickly to and from a destination with a more direct route, the existing pathways are generally not conducive for high speeds or for quick access to destinations. This Plan evaluates expanding the existing pathway network to include recommendations along drainage and utility easements that could provide safe, more direct routes to destinations. It also explores opportunities to provide on-street recommendations for cyclists to utilize the roadways to get to their destinations. Ultimately, this plan is geared towards a variety of ages and abilities of people walking, running, and biking throughout The Woodlands.

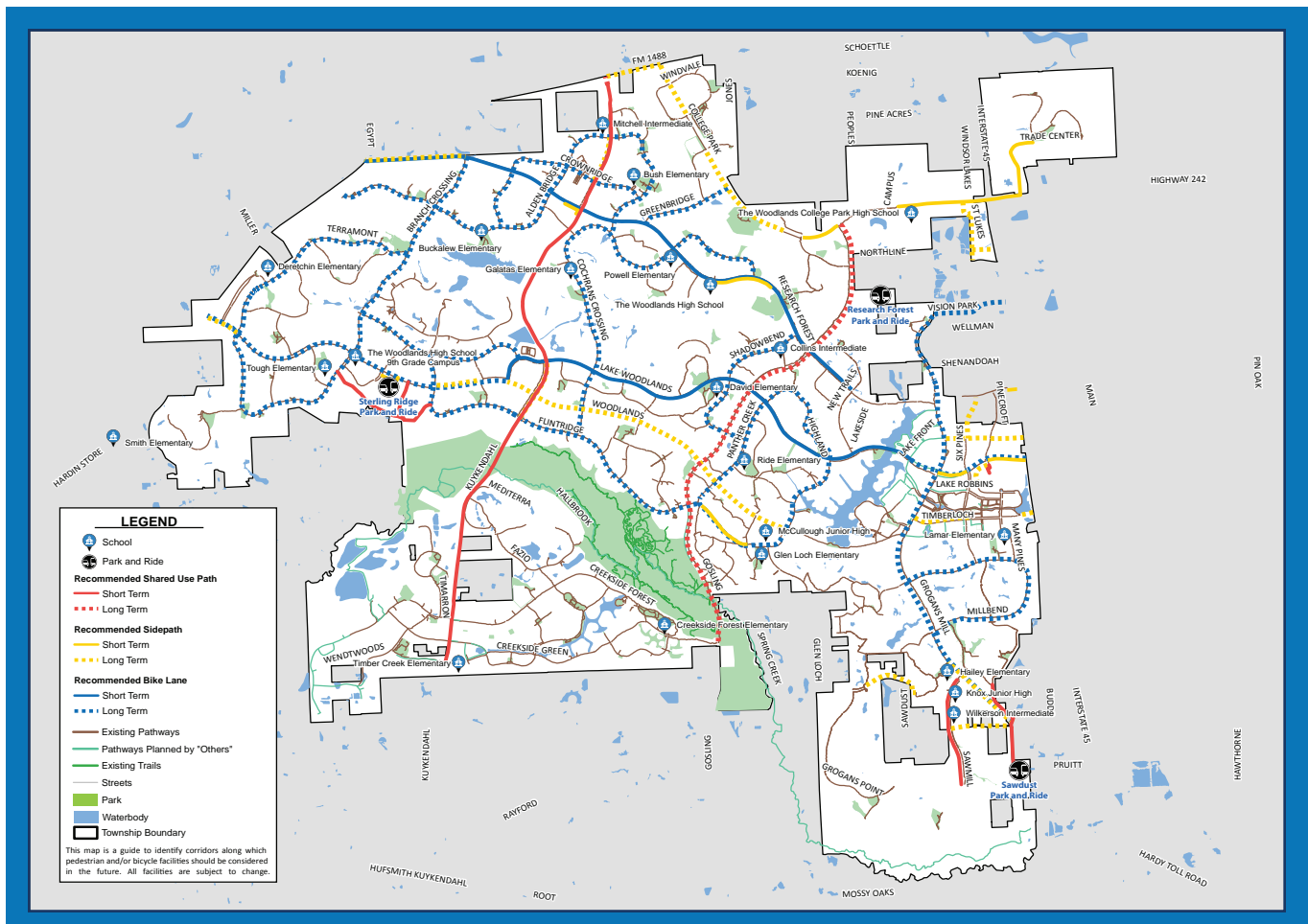
The Network

The public outreach efforts performed for this Plan included an online questionnaire about walking, running, and biking in The Woodlands in addition to open-house style public meeting to educate the public about the Plan and gather input on the needs and opportunities of the overall pedestrian and bicycle network. Overall, the public sentiment is that the existing pathway network is sufficient, but there are definitely opportunities for making walking, running, and biking throughout The Woodlands safer, more connected, and easier to navigate.

Figure ES.1 shows a map of the entire proposed on- and off-street pedestrian and bicycle network created as a result of this planning effort. This map shows every recommendation including a “short-term” five-year plan of projects depicted with solid lines as well as projects that may be considered for future implementation beyond five years that are illustrated with dashed lines. The pedestrian and bicycle projects identified in the overall network address a gap or need in the existing pathway system or provide an opportunity to more directly connect people to destinations. The recommendations include options for additional sidepaths to continue the existing pathway network, bike lanes that would allow for a safer position on a roadway for cyclists to use, and off-street shared use paths that can be located adjacent to existing roadways or along some drainage and utility easements.

The recommendations from this planning document are split into a “short-term” (or five-year) plan and future plan for consideration beyond five years, or “long-term”. The projects included in the five-year plan were determined based on need and feasibility to quickly implement the projects. The lines presented on the maps in this Plan represent a general location where bicycle and/or pedestrian facilities should be considered based on connectivity to adjacent land uses and existing pathways in order to support full pedestrian and bicycle network.

Figure ES.1: Overall Project Recommendations Network Map



Cost estimates for the short-term, five-year plan recommendations are provided in **Table ES.1**. Cost estimates for the long-term projects are not included here but are discussed in **Chapter 5**. **Chapter 5** defines the facility types, identifies the specific projects and cost estimates for each project, and discusses a few “fast-track” projects that could be implemented within a couple of years (see **Table ES.2** for fast-track project listings including cost). **Chapter 6** provides wayfinding recommendations including a few projects that could significantly impact the overall ability for people to navigate the pathways system. A brief summary of these projects and costs is provided in **Table ES.3**. **Chapter 8** provides information on project implementation including potential funding sources by project. The following tables and figures illustrate the big picture results of this planning effort including overall cost estimates and introduction of fast-track projects.

Table ES.1: Short-Term, Five-Year Plan Recommendations Cost Estimate Summary

| Cost | Length | Estimated Cost |
|-----------------|-------------------|----------------------|
| Shared Use Path | 4.7 miles | \$ 1,739,000 |
| Sidepath | 10.9 miles | \$ 7,923,000 |
| Bike Lane | 10.8 miles | \$ 2,370,000 |
| TOTAL | 26.4 miles | \$ 12,032,000 |

*Fast-track project cost estimates are included here in the overall short-term cost estimates but broken into more detail below in **Table ES.2**.

Summary of Fast-Track Projects

There are five fast-track projects identified in this Plan as projects that could feasibly be implemented in the next couple of years. These projects generally can be implemented within existing right-of-way and therefore would not take too long to design and implement. **Table ES.2** describes the projects and provides a general cost estimate, and the following figures illustrate the location of these projects.

Table ES.2: Fast-Track Projects*

| Name | Description | Cost Estimate |
|--|--|---------------|
| Central Bicycle Lane (Figure ES.2) | Development of a bicycle lane along Lake Woodlands Drive from Lake Front Circle to Woodlands Parkway | \$850,000 |
| Retail Access Gap (Figure ES.3) | Development of a new pathway that would provide direct access to retail on the southwest corner of Research Forest Drive and Kuykendahl Road where no pathway currently exists | \$57,000 |
| School Access Gap (Figure ES.4) | Adding a .61-mile sidepath along the south side of Research Forest Drive will ensure students are able to reach their schools without crossing a major roadway | \$226,000 |
| Barrier Access Gap (Figure ES.5) | Providing a connection to the portion of The Woodlands located on the east side of Interstate 45, will allow more residents to access the core of The Woodlands retail, educational, and recreational facilities | \$740,000 |
| Sterling Ridge Park & Ride Access Gap (Figure ES.6) | Adding sidepaths leading to the Park & Ride stemming from the existing pathways will give pedestrians and bicyclists safe access to the Park & Ride Facility | \$39,000 |

*These fast-track project costs are already included in the short-term estimated costs in **Table ES.1**, as noted.



Figure ES.2: Recommended Central Bicycle Lane project location along Lake Woodlands Drive

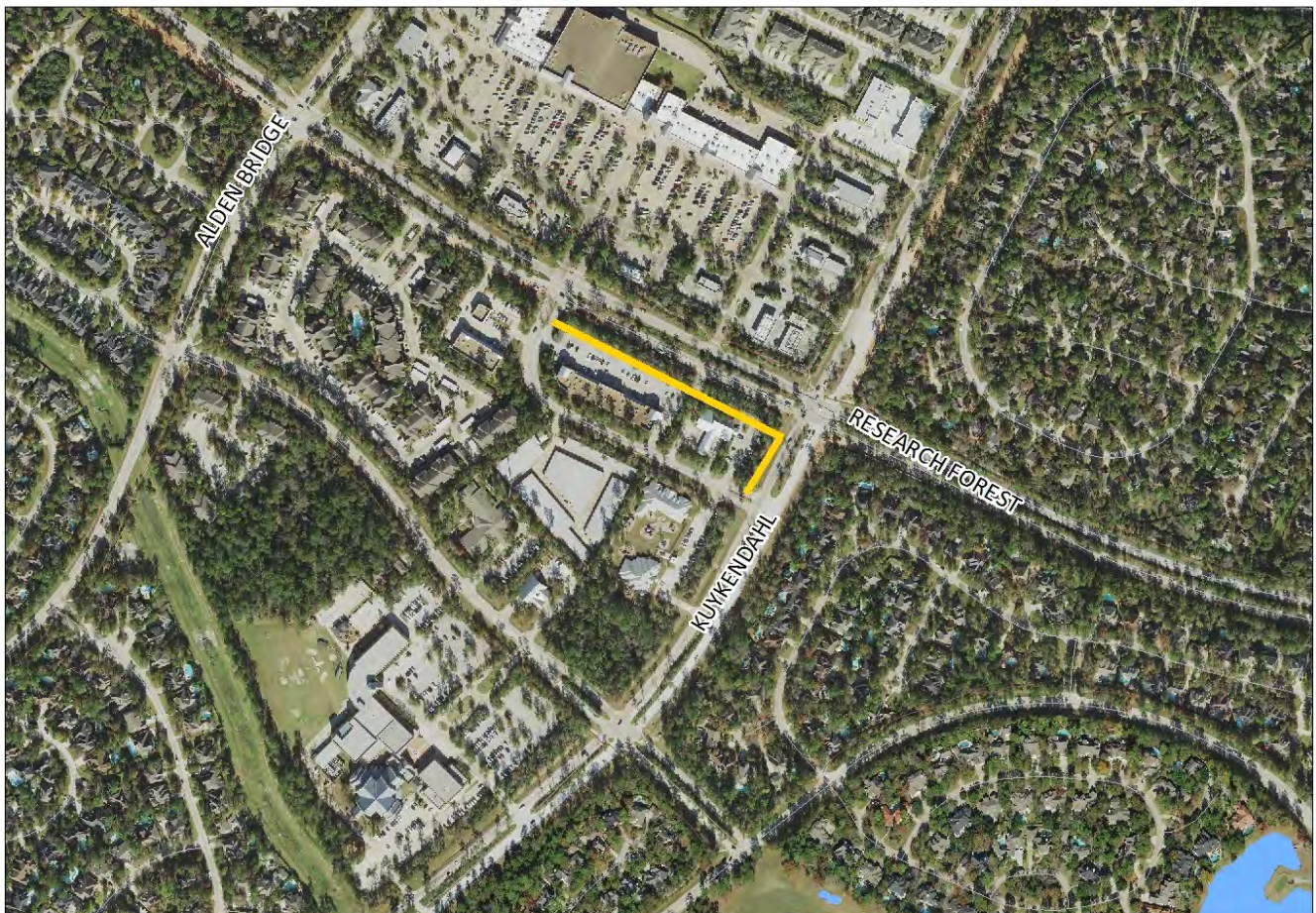


Figure ES.3: Recommended Retail Access Sidepath Project



Figure ES.4: Recommended sidepath along the south side of Research Forest Drive to allow safer access to and from the schools



Figure ES.5: Recommended sidepath from Harper's Landing, under IH-45, connecting to the core pathway network within The Woodlands



Figure ES.6: Sterling Ridge Park & Ride showing recommended sidepath additions

Summary of Wayfinding Recommendations

Chapter 6 introduces multiple wayfinding options The Woodlands can consider implementing. Four projects are identified as possible near-term, implementable wayfinding projects and are outlined in **Table ES.3** below. More details on these projects and how the wayfinding concepts were developed can be viewed in **Chapter 6**.

Table ES.3: Wayfinding Recommendations Cost Summary

| | Title | Brief Description | Estimated Cost Range |
|----------------------|--|--|-----------------------|
| Project No. 1 | Digital Wayfinding | A digital interactive trail map, GPS mapping, and/or Google Global Trekker | \$30,000 - \$40,000 |
| Project No. 2 | QR Tag Codes | QR codes added to existing pathway signage to assist users with wayfinding | \$47,000 - \$55,000 |
| Project No. 3 | Upgrade Junction/Crossing Post | Update existing signs posts with more information than a stop sign - including street intersection information | \$170,000 - \$175,000 |
| Project No. 4 | Cochrans Crossing, Panther Creek, Creekside Park Junction/Crossing Signs | Add bollards at junctions/crossings where there currently are none and update with new information | \$176,000 - \$230,000 |

Budget and Implementation of Short-Term Projects

In response to the projects identified in this Plan, The Woodlands Township Board of Directors approved the 2017 Budget in September 2016 and set aside \$500,000 within the Transportation Fund to support implementation of the short-term (including fast-track) projects as well as wayfinding projects identified within this Plan. The amounts set aside will act as cash match for The Woodlands to go after grant funding to implement the short-term projects listed in this document. The same amount per budget year has been included in the “Five-Year Plan Assumptions” for the 2018, 2019, 2020, and 2021 budgets as well.

As of October 26, 2016, The Woodlands Township Board of Directors has formally adopted the short-term project recommendations within this Plan and will pursue grant funding using the cash match mentioned above to assist with implementation of these projects over the next five years. The overall Plan document provides more detail than the short-term projects that were adopted, and project recommendations beyond five years can be explored using the maps and information provided in **Chapter 5** of this document as well as **Appendix J**.

Plan Overview

Below is a brief summary of what is included in The Woodlands Township Pedestrian and Bicycle Master Plan document.

- Chapter 1 Introduction:** This chapter gives an overview of the Plan purpose, why there is a plan, and benefits of planning for pedestrians and cyclists.
- Chapter 2 Planning Process:** This chapter details how the Plan was developed including the various committees and public involvement efforts.
- Chapter 3 Vision & Goals:** This chapter identifies the Vision for the Plan as well as the Goals and Objectives to help achieve the overall vision.
- Chapter 4 Existing Conditions & Needs Assessment:** This chapter reviews the existing conditions of The Woodlands and discusses some of the needs identified through the online questionnaire as well as the Steering Committee and public meetings.
- Chapter 5 The Pedestrian and Bicycle Network:** This chapter introduces the overall on-street and off-street recommendations for the overall ped/bike network.
- Chapter 6 Wayfinding Program:** This chapter illustrates how wayfinding of the existing pathway system can be enhanced with pathway wayfinding signage.
- Chapter 7 Programs & Policies:** This chapter discusses policies and programs that are currently in place as well as suggestions for policies and programs that could be useful to The Township for enhancing safety and the pedestrian and bicyclist realm.
- Chapter 8 Implementation Strategy:** This chapter reviews the methodology that was used to estimate the costs of the recommended ped/bike network projects and how the projects were prioritized. This chapter also discusses funding options for future implementation.

Please note: The proposed lines represented on the maps within this Plan are non-binding, and finalization of design and location of facilities will be possible only after additional environmental review and public involvement.