PINE STREET

PEDESTRIAN AND BICYCLE SAFETY STUDY

NORTH FLORIDA TPO

JULY 2024

Pine Street Pedestrian and Bicycle Safety Study

Prepared for:

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1.0 Introduction

Project Description

This corridor safety study evaluated the pedestrian and bicycle safety along Pine Street in Nassau County to identify countermeasures for implementation (see **Figure 1-1**). These countermeasures may include traditional strategies such as sidewalks and installing pedestrian signals as well as low-cost improvements that are quicker to implement.

The study focused on the viability of constructing a 6-foot sidewalk primarily along the east side with a focus on connectivity to local schools and amenities.

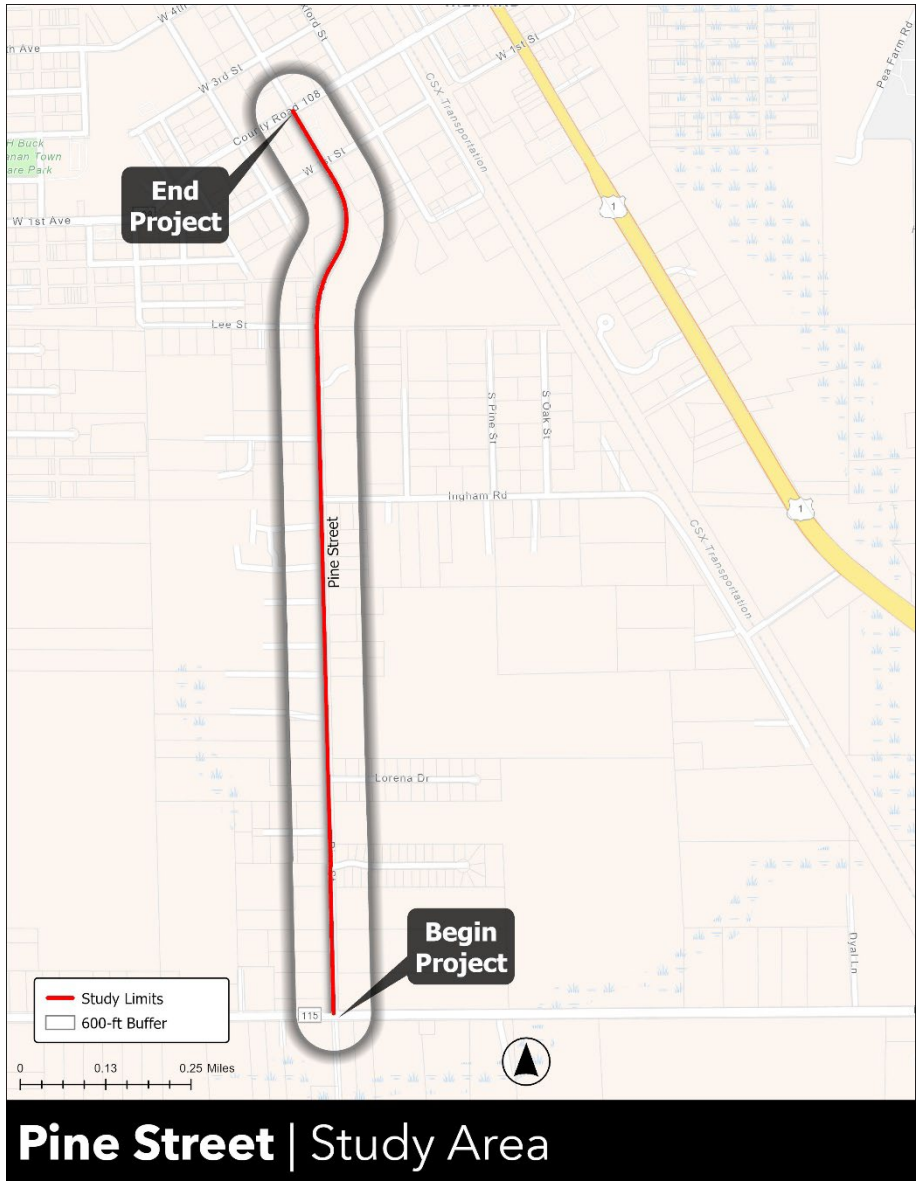
Study Limits

The study limits consist of a large segment of Pine Street from CR 108 to Henry Smith Road (approximately 1.35 miles long).

Purpose and Need

Pine Street serves many single-family residences and functions as a spine road within the town of Hilliard. There has been an identified demand for enhanced bicycle and pedestrian facilities along Pine Street to increase safety and mobility options for the community.

Figure 1-1 Study Area



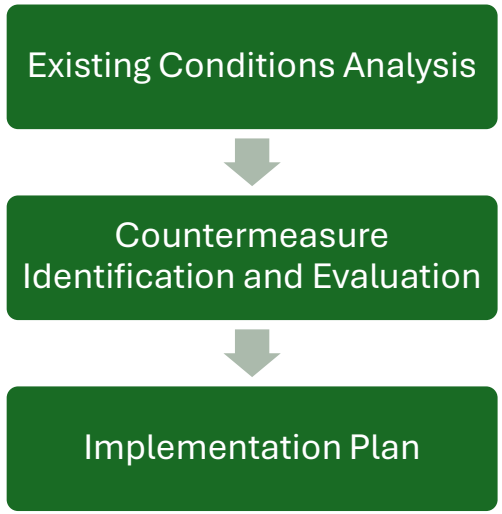
Study Process

The study process consisted of the following elements:

- **Existing Conditions Analysis**: Gathered and analyzed data for the study area. This included documenting the existing characteristics of the roadway, a review of relevant local policies and safety initiatives, and a safety field review.
- **Countermeasure Identification and Evaluation**: Identified and evaluated potential bicycle and pedestrian safety countermeasures for the roadway.
- **Implementation Plan**: Developed a plan for countermeasure implementation including a list of recommended countermeasures with their description and location, general cost, and general implementation time-frame.

Study Guidance

This study was guided by the Safe Roads Element of the Federal Highway Administration's (FHWA) *Safe System Approach,* which has been unanimously recommended by leading transportation agencies including Florida Department of Transportation (FDOT), Institute of Transportation Engineers (ITE), and the National Association of City Transportation Officials (NACTO). The *Safe System Approach* works by reinforcing multiple layers of protection to both prevent crashes from happening and minimizing the harm caused by crashes.



2.0 Existing Conditions Analysis

2.0 Existing Conditions Analysis

The existing conditions analysis included a review of the current infrastructure, land use, and relevant policies for the corridor. The purpose of this analysis was to document the existing characteristics of the corridor with a focus on bicycle and pedestrian safety and potential for bicycle and pedestrian enhancements.

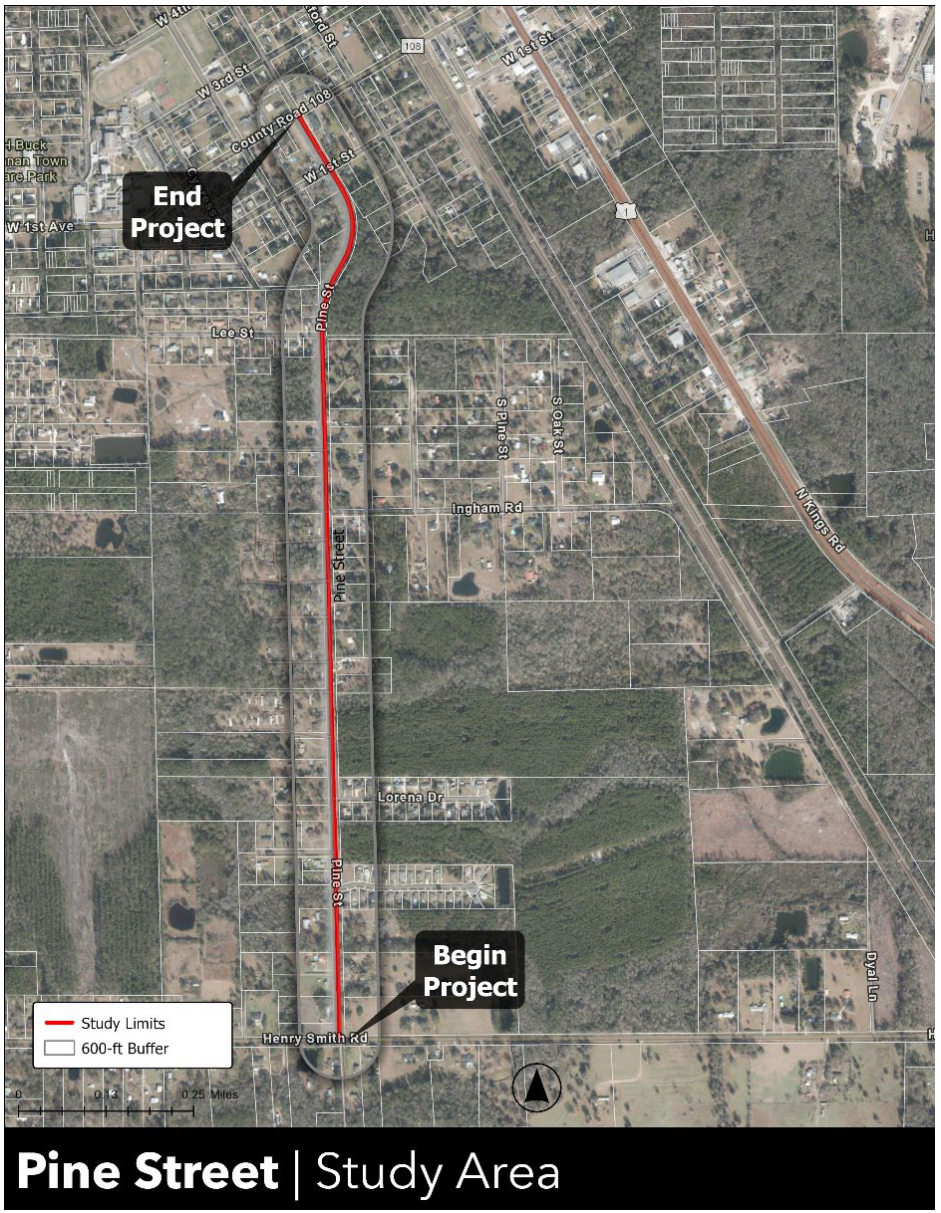
The analysis consisted of the following elements:

- **General Roadway Characteristics**
- **General Environmental Characteristics**
- **General Planning and Policy Review**
- **Bicycle and Pedestrian Crash Analysis**
- **Field Review**

Study Corridor Description

Pine Street is a two-lane, north-south local roadway located in Nassau County, Florida within the town of Hilliard. The study limits are from CR 108 to Henry Road. It is classified as a local road and is approximately 1.35 miles long.

Figure 2-1 Study Area (Aerial)



2.1 General Roadway Characteristics

The following list summarizes the existing roadway characteristics for the Pine Street corridor:

- Pine Street is classified as a **local road.**
- The facility is **not within an Urban Area** as classified by the US Census.
- The posted speed limit is **30 mph**.
- There are **no** sidewalks present along the corridor.
- There are **no railroad crossings**.
- There are **no** existing on-road **bicycle facilities**.
- There are **no** existing **crosswalks** or **signalized intersections**.
- There are **no school zones**.
- There is **one park** located at the north-east end of the corridor**.**
- There are **seven school bus stops**.
- There is **some lighting** along the corridor.
- There are **approximately 50** driveways along the corridor.
- There are **no transit** stops or routes.

Typical Section

The existing roadway configuration (shown in **Figure 2-2**) consists of two **9-foot** travel lanes. Drainage is handled through a swale system on both sides of the corridor.

Typical view of Pine Street. Source: Project Team

Figure 2-2 Existing Typical Section

Bicycle and Pedestrian Facilities

There are no sidewalks or crosswalks present along the Pine Street corridor. There are currently no designated on-road or off-road bicycle facilities along Pine Street.

There are no proposed trails within the Pine Street study area, but there is an unnamed proposed bike trail segment grazing the northern side of the 600-foot study area.

Existing pedestrian facilities. Source: Project Team

School Bus Stops

There are seven (7) school stops along the corridor. School buses run along the corridor between 7:09 and 8:35 AM and 2:07 and 5:09 PM for Hilliard Elementary School, Hilliard Middle Senior High School, Yulee High School, and Yulee Middle School.

Nearby school, Hilliard Middle-Senior High School. Source: Project Team

Figure 2-3 School Bus Stops

2.2 General Environmental Characteristics

The following list summarizes the general environmental characteristics of the corridor:

- **Wetlands**: There are three (3) distinct wetlands within the study area (Figure 2-4).
- **Drainage:** Drainage for this study area is divided between three waterbodies (Hilliard Branch, and two unnamed). All three drainage waterbodies are classified as type 3F streams.
- **Historic Structures:** There are no historically preserved structures within the study area.
- **Protected Waters:** There are no protected waters within the study area.
- **Flood Zones:** The entire study area is classified as having a minimal flood hazard.
- **Impaired Waters:** The study area does not fall within an impaired water body.

Example environmental conditions adjacent to the corridor. Source: Project Team

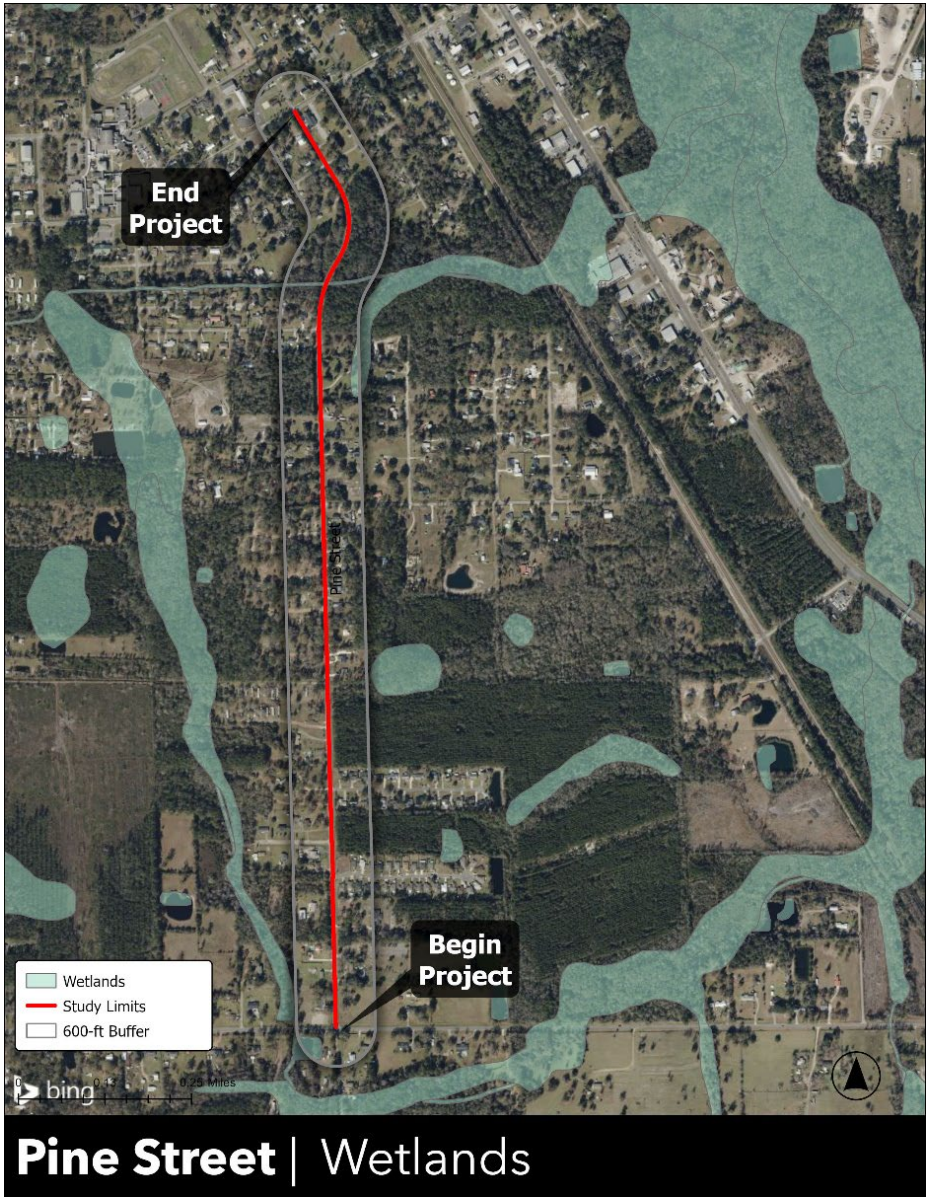
Wetlands and Drainage

There are minimal contiguous wetlands within the project area (see **Figure 2-4**).

Drainage is handled by open swales along the edges of the roadway.

Drainage along Pine Street. Source: Project Team

Figure 2-4 Wetlands



2.3 Planning and Policy Review

The planning and policy review of the corridor catalogued the existing land use, zoning, and future land use designations along the corridor. A review of these policies provides context of the existing and planned built environment along the corridor. Associated maps for the policy review are provided in **Figures 2-5 through 2-7**.

Planning and policy review findings:

- The primary existing and planned land development along the corridor is **rural residential single-family**.
- There is an **institutional building** (Town of Hilliard City Hall) at the northern end of the corridor adjacent to CR 108 along with some churches in the same vicinity.
- The current allowable development density ranges between **two and three dwelling units (du) per acre**.

Existing Policies

Nassau County 2030 Comprehensive Plan

Transportation Element:

- Bicycle and pedestrian facilities shall be incorporated into transportation improvement projects (Policy T.04.01)

Nassau County Roadway and Drainage Standards

Section 11.7 Sidewalks and Multi-use trails:

- Minimum **sidewalk width is 6 feet** (11.7.3).
- Minimum **multi-use trail width is 10 feet** (11.7.3).
- Sidewalks shall be required along frontage of new development review committee (DRC) developments (11.7.1).
- Sidewalks and multi-use trails shall be designed and constructed in accordance with FDOT standards.
- Sidewalks and multi-use trails should be placed as far as possible from the roadway travel lane as practical (11.7.4)
- Sidewalks, bicycle paths, or multi-use trails shall be provided at the time of construction or reconstruction along roads which provide access from neighborhoods, residential areas, mixed-use developments containing residential units to planned or existing parks and schools (11.7.5)

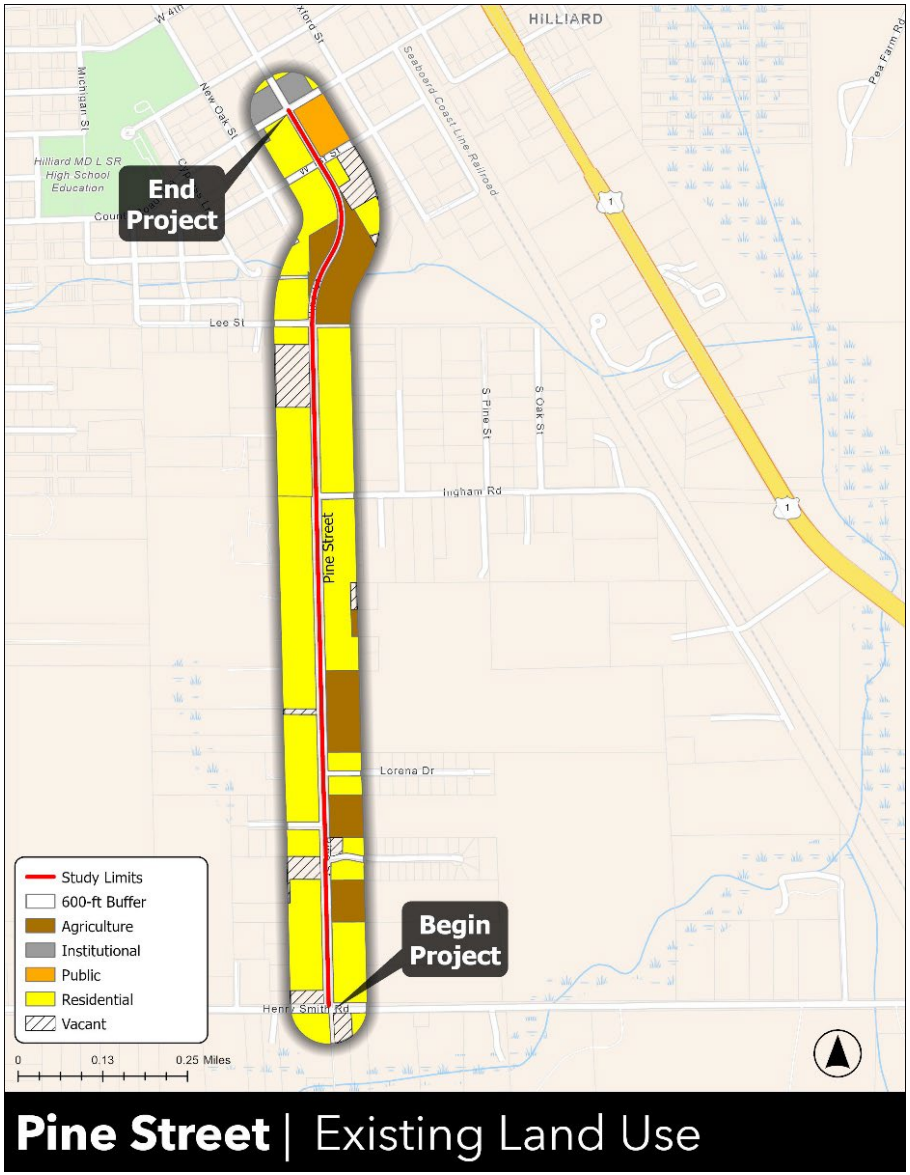
Existing Land Use

The generalized existing land use was established using the "Generalized Land Use derived from 2022 Florida Parcels" dataset from the GeoPlan Center. The data was created for FDOT and generalizes 99 available land uses into 15 land use classifications.

The existing land use along the corridor is primarily a mix of single-family rural residential and agricultural (see **Figure 2-5**). There are some public and institutional land use parcels at the northern end of the corridor on CR 108.

Residential Units on Pine Street. Source: Project Team

Figure 2-5 Existing Land Use



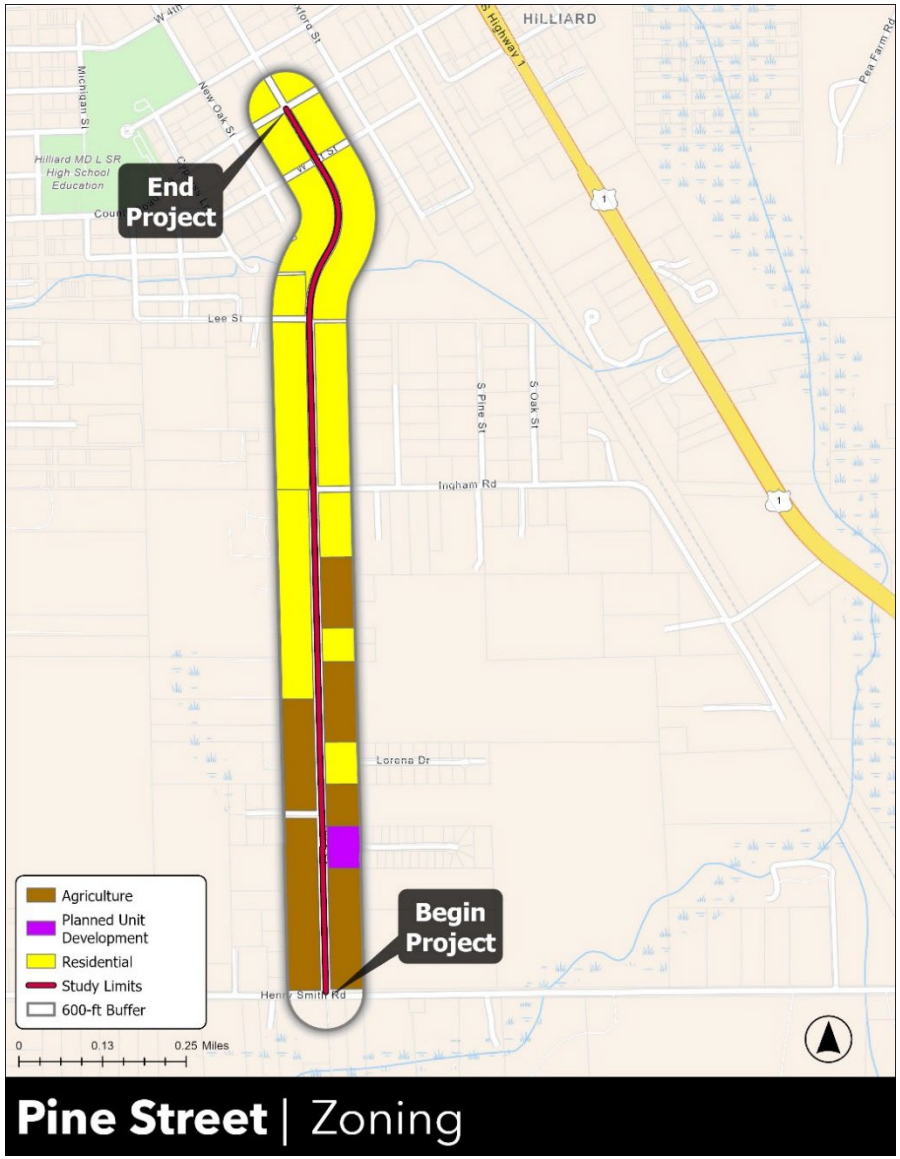
Zoning

The zoning data for the town of Hilliard was provided by the Nassau County Property Appraiser's office and dated December 2023. The data was generalized by zoning type and displayed in **Figure 2-6**.

The zoning along the corridor is primarily residential (yellow) (69%), with slightly less than one third of the corridor being zoned for agriculture use (brown).

CR108 and Pine Street intersection. Source: Project Team

Figure 2-6 Zoning



Future Land Use

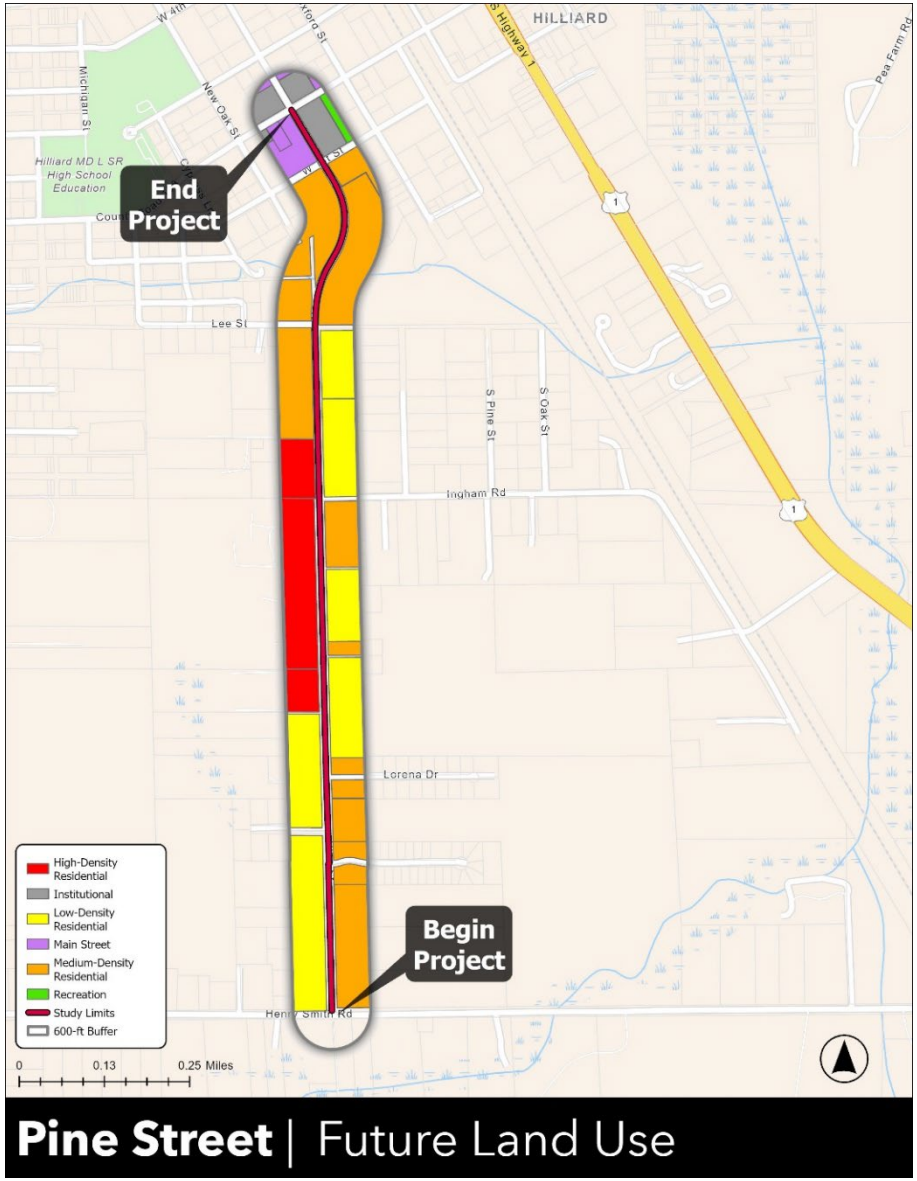
The future land use data for the town of Hilliard was provided by the Nassau County Property Appraiser's office (dated December 2023). The data was generalized by future land use type and displayed in **Figure 2-7**.

The majority of the future land use along the corridor will be zoned for medium-density residential (orange). There are also large sections of the corridor zoned for high (red) and low-density (yellow) residential as well.

There is some institutional (grey), main street (purple), and recreation (green) at the northern end of the corridor. This area includes and is adjacent to Hilliard's city hall.

Hilliard City Hall on the corner of CR108 and Pine Street. Source: Project Team

Figure 2-7 Future Land Use



2.4 Field Review

A field review of the corridor was conducted on February 27, 2024. Members of the Atkins staff, TPO staff, and Nassau County staff participated in the field review.

The purpose of the field review was to provide an on-the-ground perspective of the corridor to observe existing characters and identify fatal flaws that may impact the installation of a sidewalk throughout the corridor.

The results of the field review have been structured as Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis of the corridor.

Field review. Source: Project Team

Strengths

- **Roadway Characteristics:** Pine Street is a low-speed roadway with low traffic volumes making it a favorable location for walking and biking.

- **Proximity to Amenities:** The north terminus of the Pine Street study area has close proximity to Town Hall Park, churches, and schools.

Hilliard Town Hall at the northern terminus of the corridor. Source: Project Team.

Existing roadway characteristics. Source: Project Team.

Weaknesses

- **Driveways:** There are more than 40 driveway locations intersecting Pine Street. Crossing these driveways as well as bicycle and pedestrian safety considerations will have to be accounted for when designing the future shared use path or sidewalk.
- **Existing Utility Poles:** The current network of electric/telephone poles and powerlines exists primarily on the east side of the corridor but has an erratic system with approximately 16 areas in which lines cross the street.
- **Lack of Existing Sidewalks:** There are currently no existing sidewalks or bicycle facilities alone Pine Street.
- **Drainage:** The drainage along the corridor is handled by swales. Swale location can limit the land area available within the right-of-way to construct a shared use path or sidewalk. The design and location of these facilities will have to work around the existing swale system.

Example of a challenging swale location along Pine Street.
Source: Project Team.

Opportunities

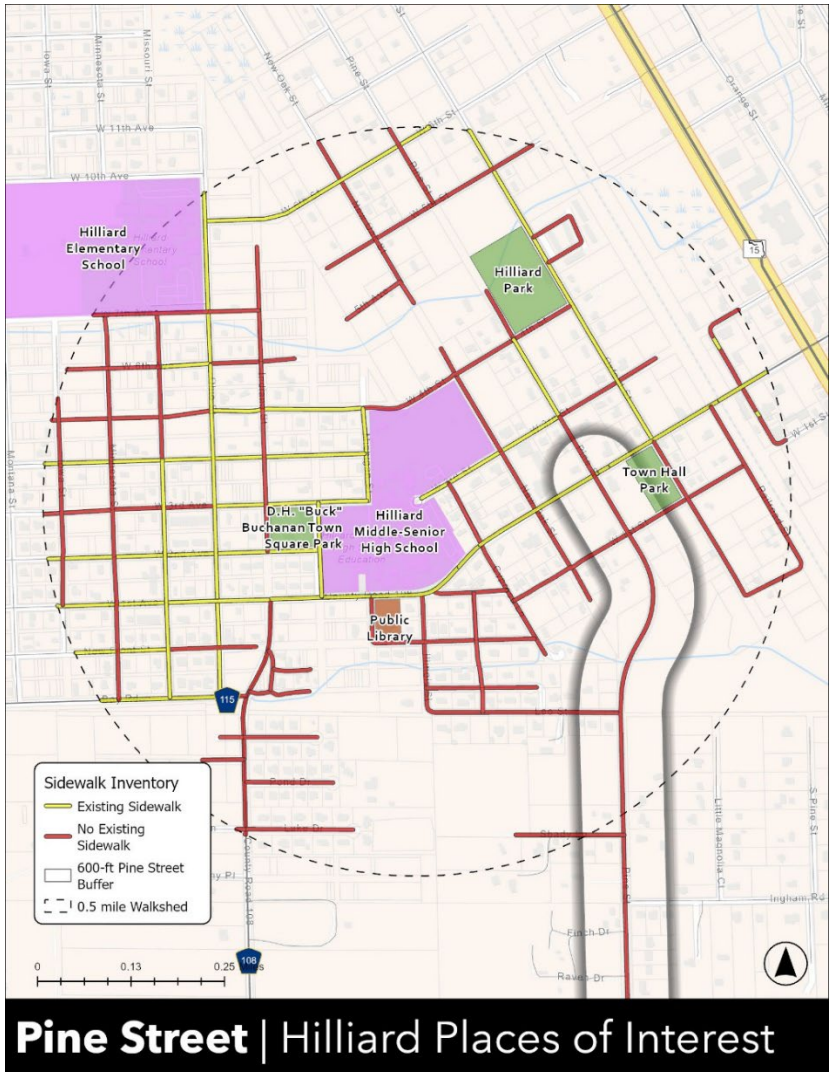
- **Florida Safe Routes to School Program:** Safe Routes to School (SRTS) is a program sponsored by the FDOT which provides technical support and funding to communities. The goals of this program include:
  - Enabling and encouraging children, and those with disabilities, to walk and bike to school.
  - Make walking and biking to school safer.
  - Facilitating the planning, development, and implementation of projects that will improve safety and reduce traffic congestion, fuel consumption, and air pollution.

The Pine Street corridor has the potential to apply for a Florida SRTS grant due to its proximity to two (2) schools (Hilliard Middle-School and Hilliard Elementary School).

- **Connectivity:** There are several points of interest for the Town of Hilliard within walking distance of Pine Street (see **Figure 2-8**). These include:
  - Hilliard Town Hall and Town Hall Park
  - Hilliard Public Library
  - Hilliard Middle-Senior High School
  - Hilliard Elementary School
  - Hilliard Park

Completing the sidewalk network along and within the vicinity of Pine Street will enhance connectivity to key locations within the Town of Hilliard.

Figure 2-8 Hilliard Points of Interest



Threats

- **Creek Crossing:** A tributary of the Little St. Mary's River traverses Pine Street at the northern portion of the Corridor. The creek flows under the roadway via large pipes. The roadway currently has guardrails in this area and there does appear to be some room on east side for a sidewalk between the guardrail and the slope drop-off for the creek. Any new sidewalk constructed in the area would need to have a guardrail installed to protect individuals from falling into the creek as there is a steep slope down to the creek bed.

Creek crossing. Source: Project Team.

- **Steep Shoulder Grade:** Some shoulder areas of the corridor have a steep grade which will require some earthwork to be completed before the construction of a sidewalk. These areas are mostly located on the northern portion of the corridor.

Example of a steep shoulder grade along Pine Street. Source: Project Team.

- **Lack of Tree Coverage/Shade:** Some areas of the corridor, particularly in the southern portion, do not have substantial tree coverage and are exposed to direct sunlight. It would be recommended that as part of a sidewalk construction project, shade trees be planted to provide shade to users.

3.0 Recommendations

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Based on the existing conditions analysis and a safety field review, recommendations have been formulated for the Pine Street corridor.

This section summarizes those recommendations, which aim to enhance safety for non-motorized modes of transportation on Pine Street and within the surrounding community.

View of Pine Street along the curve. Source: Project Team.

Project Team field review. Source: Project Team.

❖ Construct Sidewalk along Pine Street

As Pine Street functions as a spine road serving many residents and future growth for the Town of Hilliard, it is recommended that a **6' wide** sidewalk be constructed on the east side of the roadway. (1.35 miles).

An initial evaluation of existing right of way (ROW) shows adequate space for a sidewalk. In the area that traverses the creek, it may be necessary to build a bulkhead and railing to accommodate a sidewalk in this area. Open swales are present to accommodate stormwater in certain areas and these locations would most likely require stormwater mitigation.

View on Pine Street Facing North. Source: Project Team

❖ Install Shared-Use Pavement Markings and Signage

It is recommended that sharrows be installed on the pavement along Pine Street to designate it as a bicycle facility. Currently there is no existing shoulder so a shared-lane pavement marking for bicyclist would increase motorist awareness of bicyclists who might be occupying the travel lane. As the bicycle network is expanded in the area, a bicycle lane could be installed. This could occur during the next scheduled resurfacing of Pine Street.

Also recommended is the installation of shared-lane signs (MUTCD Sign R9-20) along the facility to complement the pavement markings.

Photorendering of a shared-lane marking with complementing signage along Pine Street.

❖ Pedestrian Connectivity Network Plan

In addition to the recommendation of a sidewalk being constructed along Pine Street, a sidewalk inventory was conducted and a pedestrian network connectivity plan was developed for the areas surrounding Hillard Middle-Senior High School and Hilliard Elementary School.

While sidewalks are currently present on some roadways, many roadways do not have pedestrian facilities. Sidewalk construction is recommended with the goal of providing additional connectivity and safety to the residents, visitors, and students to key points of interest.

Recommended sidewalks were prioritized into primary (most needed) and secondary tiers. **Figure 3-1** shows the recommended sidewalk needs and these are also summarized in **Tables 3-1** and **3-2**. Planning level costs for construction were also estimated.

In the future, it is recommended that this connectivity plan be expanded to include the entirety of the Town of Hilliard.

Figure 3-1 Sidewalk Priority Network

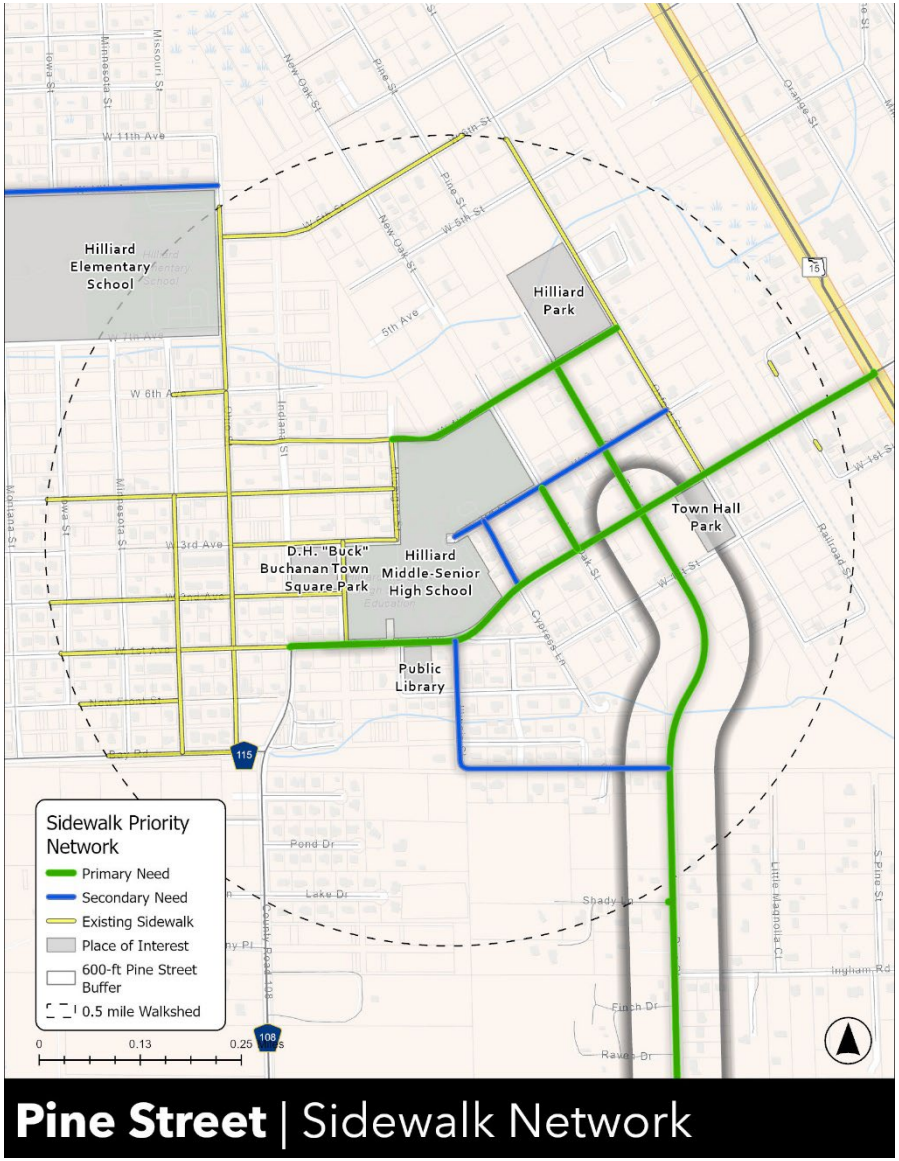

Table 3-1 Primary Need Sidewalks

Primary Need				
Street	**From**	**To**	**Length**	**Cost**
W 4th Street	Michigan Street	Oxford Street	0.3 miles	$108,300
Pine Street	Henry Smith Road	W 4th Street	1.7 miles	$614,500
CR 108	Indiana Avenue (CR 108)	US 1	0.9 miles	$324,800
New Oak Street	CR 108	W 3rd Street	0.1 miles	$36,100
		Total Mileage	3.0 miles	

Table 3-2 Secondary Need Sidewalks

Secondary Need				
Street	**From**	**To**	**Length**	**Cost**
W 3rd Street	High School Entrance	Oxford Street	0.3 miles	$108,300
Illinois Street	Pine Street	CR 108	0.4 miles	$144,350
Cypress Lane	CR 108	W 3rd Street	0.1 miles	$36,100
W 10th Avenue	Kentucky Street	Ohio Street	0.3 miles	$108,300
		Total Mileage	1.1 miles	

Project Cost Source: FDOT Cost Per Mile Model Reports

Pedestrian Crossing along CR 108 with No Connecting Sidewalk
Source: Project Team

❖ Florida Safe Routes to School Funding

Due to the proximity of Pine Street to two major public schools, it is recommended that Nassau County participate in the Safe Routes to School (SRTS) program. SRTS is a growing movement that has taken hold in communities throughout the United States. The concept is to increase the number of children who walk or bike to school by funding projects that remove the barriers currently preventing them from doing so. Those barriers include a lack of infrastructure, unsafe infrastructure, and a lack of programs that promote walking and bicycling through education/encouragement programs aimed at children, parents, and the community.

The Florida SRTS program can help communities address their school transportation needs and encourage more students to walk or cycle to school. It strives to enable and encourage children in grades Kindergarten through High School, including those with disabilities, to walk and bike to school; to make walking and biking to school safer and more appealing, and to facilitate the planning, development, and implementation of projects that will improve safety and reduce traffic, fuel consumption, and improve air quality in the vicinity of schools. In addition to encouraging more children to walk or cycle to school, the program also seeks to address the safety needs of children already walking or biking in less-than-ideal conditions.

The Safe Routes to School infrastructure program is 100% funded and managed through the Florida Department of Transportation on a cost-reimbursement basis. The Florida Department of Transportation encourages all communities with Safe Routes to School projects to apply for a Florida Safe Routes to School grant. After establishing a SRTS program, Nassau County can work with the North Florida TPO to apply for funding through FDOT implement projects to promote bicycling and walking to nearby schools.

For a proposed project to be eligible and feasible for SRTS funding through FDOT, the following criteria must be met before the application is submitted:

- Formation of a school-based SRTS Committee (including school representation)
- Hold at least one meeting of the SRTS Committee (with minutes and sign in sheet)
- Provide public notification of the meeting
- Provide data before and after the project is built using the NCSRTS Student In-Class Travel Tally
- Complete the National Center data summary for the Travel Tally
- Document that adequate right of way exists for the proposed project

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