Prepared by: James + Associates, 121 N. Main St., Dickson, TN 37055

Community Mobility Plan

September 3, 2021

TDOT Rural Planning Initiative (RuPI) Grant Program

City of Erin

TN TDOT Department of Transportation

JA JAMES + ASSOCIATES ENGINEERS AND PLANNERS, INC.

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INTRODUCTION

Situated in the middle of Houston County, the City of Erin has been the county seat since 1878. State Highways 13, 49, and 149 run through the city limits, with SR-49 running east-west across the middle of the City. The City faces challenges due to geographic location, lying about 35 miles away from I-40 (Exit 143) and about 33 miles from I-24 (Exit 4 and Exit 11). Houston County is recognized as an “At-Risk County” by the Appalachian Regional Commission.

In recent years, the City has focused on improving connectivity and mobility, especially in the downtown area. In the past decade, the City completed a downtown revitalization project that included sidewalk, paving, and parking improvements in the courthouse square area, as well as improvements to the entryway to the Betsy Ligon Park. These improvements built on past progress brought about by the creation of the Betsy Ligon Walking Trail. The purpose of this Community Mobility Plan is to continue this forward momentum toward improving City connectivity and transportation infrastructure.

This report was prepared by James + Associates Engineers and Planners, Inc., 121 N. Main St., Dickson, TN 37055, 615-441-6880. No engineering design services or land survey services were performed as a part of this study.

Background of Grant and Objectives

This Community Mobility Plan (the “Plan”) was funded by a Tennessee Department of Transportation (TDOT) Rural Planning Initiative Grant.

As described by TDOT, the Rural Planning Initiative Program "is intended to help rural communities identify needs and promote solutions that lead to an interconnected community with efficient modes of transportation." The City's objectives in applying for this grant included the desire to create a community that is equitable and walkable with multimodal access to jobs and businesses, with special focus on construction of hard-surfaced connections for safe pedestrian access.

A focal point of this effort to improve connectivity for pedestrians is the Betsy Ligon Park and Walking Trail (the "Walking Trail). Lying on an abandoned railroad bed that once was used by the L&N Railroad, the Walking Trail was redeveloped in the 1990s into a multimodal shared-use path paved with asphalt.

Figure: Betsy Ligon Park (Credit: City of Erin Travel Guide, 2019)

In 2016, the City of Erin cut the ribbon on a public park (Betsy Ligon Park) lying south of the courthouse square and adjacent to the Walking Trail, offering recreational space that includes a boxcar, caboose, and ruins of a historic limestone kiln. The paved Walking Trail is approximately two miles long, running much of the width of the city from east to west, roughly parallel with State Route 49. The Walking Trail is simultaneously a place of city beautification and recreation, while also a convenient means of transportation for pedestrians and bicycles. For this reason, the Walking Trail has been recognized in this study as being the most obvious anchor upon which to create further connectivity within areas of the City lying near it.

Planning Process

This planning project followed a process that included a series of meetings with stakeholders and the public, field investigation, research, analysis, and drafting of this final report.

A **Kick-off Meeting** was held at Erin City Hall on May 27, 2021. Meeting participants discussed the objectives of the Plan and brainstormed solutions to known transportation and mobility issues occurring in the City. The meeting participants then went over the process and schedule for completing the Plan.

A **Steering Committee Meeting** was held at Erin City Hall on June 24, 2021. Meeting participants reviewed and critically examined the ideas generated during the Kick-off Meeting and provided commentary on further ideas and issues related to transportation and mobility in the City. The Steering Committee also discussed ideas for the upcoming Public Involvement Meeting.

Following advertisement by the City, the **Public Involvement Meeting** was held at Erin City Hall on August 3, 2021. James + Associates made a presentation that outlined a series of potential improvements that would address transportation and mobility issues in the City. Attendees asked questions and gave feedback. An online survey ran concurrently for around one month, allowing members of the public to provide further feedback and ideas.

Further information on public involvement is provided below. Minutes of the Kick-off Meeting and the Steering Committee Meeting, along with lists of participants at all three meetings, were transmitted to the City under separate cover.

EXISTING CONDITIONS

Existing conditions were examined during field visits and from publicly available sources and are depicted roughly on the Existing Conditions Map attached to this report as Attachment 1. Selected trip generators and city streets are labeled on the map.

The existing transportation system within the City is anchored on State Route 49, a state highway which runs from east to west through the heart of the City. The Federal Highway Administration (FHWA) has divided roadways into different Highway Functional Classifications based on the character of travel service provided.[1] Under this system of classification, SR-49 appears to qualify as a rural arterial roadway. SR-13, SR-149, and Tank Hill Road appear to qualify as rural collectors. Numerous local roads branch off from these rural arterial and collector roads.

Continuous sidewalk coverage runs along the margin of SR-49 for approximately 6,800 LF, from the vicinity of the junction with Cumberland City Highway in the east to the intersection with Rocky Hollow Road to the west, and a portion of local streets in the downtown area (including courthouse square) have paved sidewalk.

The Betsy Ligon Walking Trail is a shared-use path lying on an abandoned railroad bed, running across the City from east to west approximately 2 miles. The Walking Trail is paved with asphalt with what appears to be a typical width of 8 feet (based on field measurements taken for this report). The Walking Trail runs roughly parallel to SR-49 at a distance from that highway ranging from 50 to 925 feet, depending on location, with a typical distance from SR-49 of about 250 feet, and it crosses numerous local roads. On the western edge of the Walking Trail, the City owns a section of the old railroad bed over which the Walking Trail potentially could be extended to the west. The Walking Trail effectively serves as a shared use path that complements the function of SR-49.[2] Due to the fact that SR-49 does not have a sidewalk running its full length, the Walking Trail is able to fill this gap by providing connectivity where SR-49 does not. FHWA has noted, “In locations where the street network lacks overall connectivity, . . . shared use paths can be used to create direct routes between destinations.”[3]

Traffic Statistics

In investigating existing transportation conditions in the city, traffic statistics were gathered, including traffic volume and vehicular crash data.

Traffic Volume – AADT

Traffic volume was investigated by looking at Average Annual Daily Traffic (AADT) calculated by TDOT. In order to arrive at figures for AADT, TDOT collects "raw traffic data, which is statistically corrected by a seasonal variation factor that considers time of year and day of the week, as well as adjustments for vehicle type, determined by seasonal and axle correction factors."[4] TDOT provides this data in an online ArcGIS map, with locations studied designated as Station Count Location Numbers. Traffic count data is provided in the following table, which shows AADT for six stations located within the City of Erin, and a corresponding line graph, which depicts changes in AADT over time for the same stations. Generally, over the five-year period examined (2014 to 2018), AADT has remained stable across stations located in the City of Erin, with the exception of Station County Location Number 83000036, which is located on SR-49 in the northeast section of the City (roughly East Main Street at Cary Drive). Station 36 saw a sizeable increase in traffic volume between 2017 and 2018, increasing from 6,377 to 9,387 (approximately 47% increase). Refer to the map taken from TDOT AADT ArcGIS for the location of stations within the City of Erin.

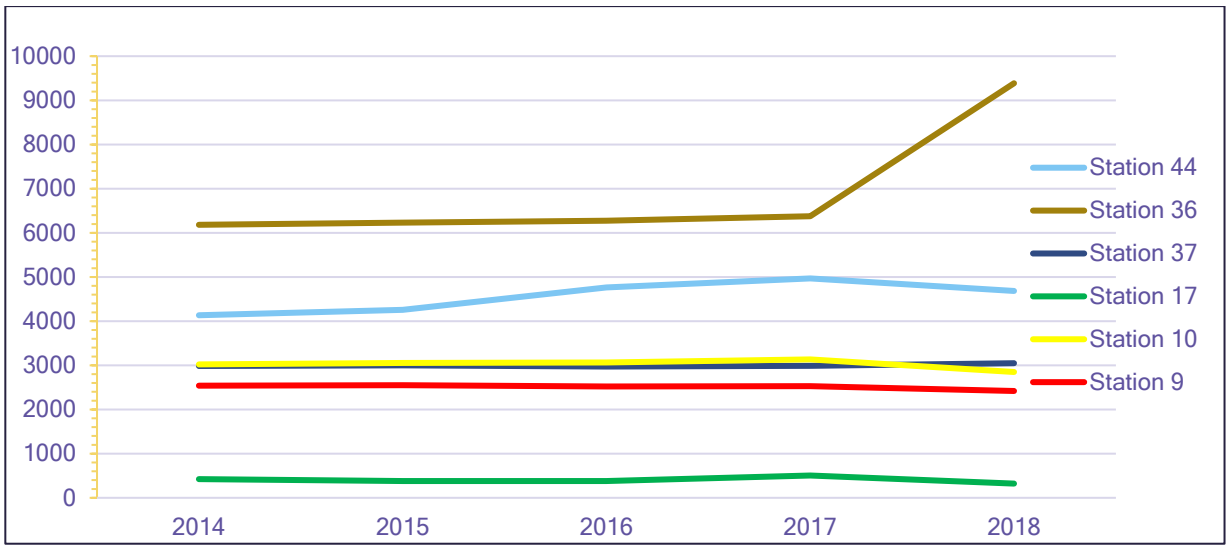

Figure: Average Annual Daily Traffic (AADT), TDOT stations within City of Erin

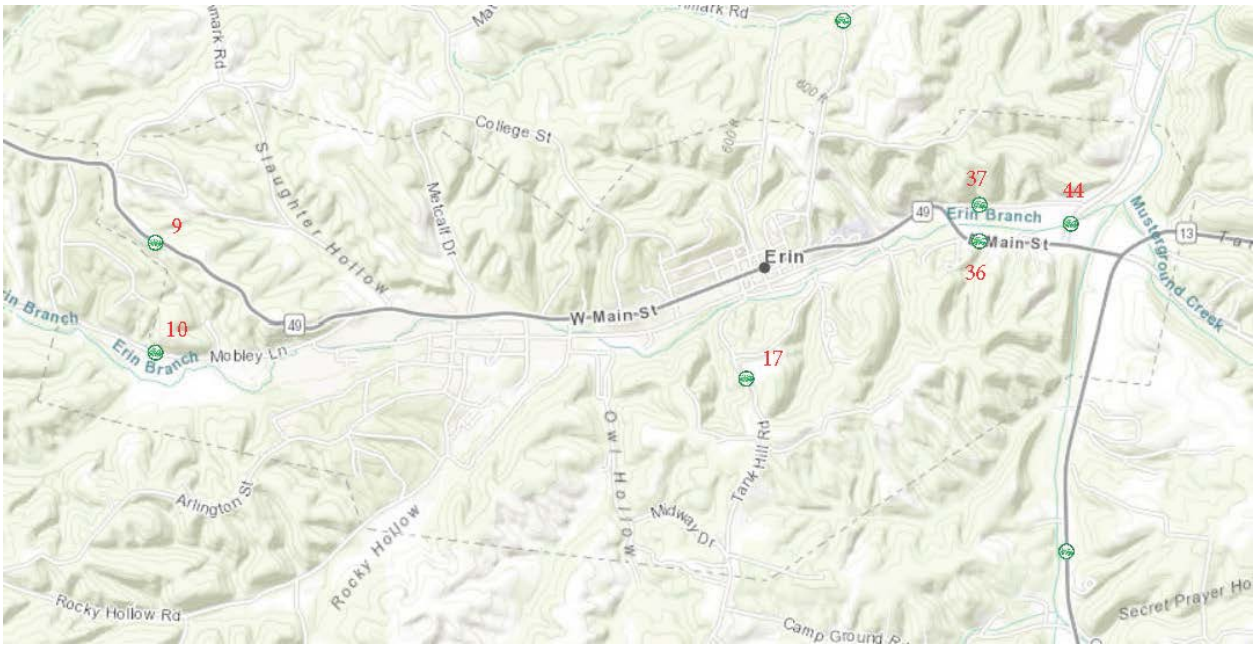

Figure: Map depicting Station Count Location Numbers within City of Erin, TDOT AADT GIS

Vehicular Crash Data

Vehicular crash data was examined and compiled by consulting the online GIS map provided by the Tennessee Department of Safety and Homeland Security.[5] The following categories of crashes were examined: unrestrained occupants; commercial motor vehicle crashes; deer involved crashes; distracted driver crashes; drug-related crashes; motorcycle crashes; non-motorist involved crashes; speed involved crashes; and unlicensed driver crashes. Based on this data, the following observations have influenced this report:

- The majority of crashes within the City of Erin occurred on SR-49, which is expected due to its status as a rural arterial and major thoroughfare for the City.
- Some intersections appear to be more prone to crash activity. Two of these intersections will be discussed later in this Plan as candidates for improvements.
- SR-49 and College Street (unrestrained occupant; distracted driver; drug-related crash; unlicensed driver crash)
- SR-49 and Spring Street, Downtown (CMV; distracted driver; motorcycle crash)
- SR-49 and SR-13 (CMV; distracted driver)

- SR-49 and Arlington Ridge Road (distracted driver; speed involved crash; unlicensed driver crash

Key Locations Examined in this Study

This Plan focuses on a number of key locations in the City, mainly driven by their status as major trip generators or locations through which pedestrians or bicyclists might pass on their way to a trip-generating location, such as retail. The Existing Conditions Map (Attachment 1) labels many of these trip generators and key locations. The following locations will be discussed in greater detail throughout the remainder of this report:

Intersection of SR-49, Arlington Ridge Road, and Piggly Wiggly: This intersection was identified early as a high priority for investigating mobility and connectivity issues. Piggly Wiggly (#8 on map) is a grocery store lying on SR-49 at the north side of this intersection, and it is thought to be the largest trip generator among retail destinations in the City. The United States Post Office (#22), with frontage on Arlington Ridge Road just before the intersection, and the Family Dollar store (#23), with frontage on SR-49 lying just west of the intersection, both are major trip generators, as well. As mentioned earlier in this report, this intersection is the site of several recent vehicular crashes reported by the Tennessee Department of Safety. During the Public Involvement Meeting, the City police chief mentioned that this portion of SR-49 is an area where the police routinely work crashes.

Area around Erin Housing Authority and Nursing Home: The Erin Housing Authority (#26) and Signature HealthCARE of Erin (the “Nursing Home”) (#25) lie to the south of SR-49, adjacent to Knight Street. The Erin Housing Authority was identified as a major pedestrian travel generator, with around one-third of Erin Housing Authority residents not owning a vehicle. The Nursing Home was identified as a residential development with a few residents who would be potential pedestrians. It was remarked during the Public Involvement Meeting that pedestrians are seen walking down the right-of-way of local roads in this area, heading toward the retail stores located at the intersection of Arlington Ridge Road and SR-49.

Area Adjacent to Rotary Park, Houston County Middle School, Shamrock Apartments, and Ballfields: This area lies to the south of SR-49 and includes trip generators and pedestrian travel generators. The Rotary Park, Houston County Middle School (#3), ballfields, and Magnum Manufacturing (#1) are all trip generators, especially when school is opening/closing and baseball games are being held. The Shamrock Apartments (#2) are a significant pedestrian travel generator, with some pedestrians being known to walk along the margin of local roads in order to access retail stores near the intersection of SR-49 and Arlington Ridge Road. The local roads are particularly narrow in this section of the City, and given the proximity to the Middle School, children are frequent pedestrians. The paved Walking Trail terminates near the Shamrock Apartments.

Northern margin of SR-49, at the intersection with Rocky Hollow Road: A sidewalk running along the northern margin of SR-49 terminates near this intersection. The sidewalk presumably was not extended further to the west due to blockage by a rock bluff. At the Steering Committee meeting, members mentioned that pedestrians had been seen walking along the shoulder of SR-49 in the portions where no sidewalk exists.

SR-49 in front of the Houston County Courthouse (Downtown): SR-49 passes through the downtown district, with an uncontrolled marked transverse pedestrian crosswalk located midblock between the courthouse square (#32) parking area to the south and the Houston County Courthouse to the north. Pedestrians routinely park in the parking lot to the south and then cross SR-49 at the crosswalk to access the Courthouse. Steering Committee members and attendees at the Public Involvement Meeting both noted that vehicles have a tendency to fail to stop for pedestrians, an issue that is exacerbated by vehicles parking in striped “no parking” areas and thereby blocking drivers on SR-49 from being able to see crosswalk pedestrians.

Spring Street, north of the intersection with Walnut Street: Spring Street currently does not have a sidewalk north of its intersection with Walnut Street (near the United Methodist Church, #31). As it runs from south to north, Spring Street narrows as it goes uphill, until it becomes one way at the intersection with East Spring Loop. Steering Committee members have observed residents of homes on Spring Street walking on the local road right-of-way toward trip generating destinations downtown.

POTENTIAL IMPROVEMENTS

This section will describe potential improvements that would address issues involving multimodal network connectivity within the City of Erin. Below, a table is provided that summarizes the potential improvements that are described in greater detail later in this report. An overview map is also provided showing the location of potential improvements relative to their vicinity, with more detailed drawings provided later in this report.

The City of Erin faces challenges common to many small towns and rural areas, including auto-oriented roadways and lack of transportation options, which results in network connectivity that is geared more toward vehicular mobility concentrated on a few key roadways, with walking and bicycling being more challenging and less safe modes of transportation.[6] The City of Erin has made important strides toward overcoming these challenges, especially in the revitalization of the courthouse square area and the creation of the Walking Trail, but further improvements are possible.

Potential improvements to the City's community mobility network were examined with a goal in mind: to create a multimodal network that provides pedestrians, bicyclists, and others with convenient access to key locations such as retail and services while reducing their exposure to vehicular traffic and providing a comfortable route. Providing safe, comfortable connections between pedestrian travel generators and major trip generators was the main goal of this study.

Summary of Potential Improvements	
1	Intersection of SR-49, Arlington Ridge Road, and Piggly Wiggly Store
2	Connection to Walking Trail from Erin Housing Authority and Nursing Home Area
3	Sidewalk Connection to Rotary Park
4	Western Portion of Walking Trail, Adjacent to Middle School, Shamrock Apartments
5	Sidewalk Extension along Northern Margin of SR-49, Westward from Rocky Hollow Rd.
6	Crosswalk across SR-49 from Courthouse Square to Houston County Courthouse
7	Sidewalk Connections to/from Spring Street, North of Downtown

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MARKET STREET
COURT ST
W FRONT STREET
McMILLIAN STREET
HIETT STREET
PULLEY STREET
ARLINGTON RIDGE ROAD
W FRONT STREET
ROBY DRIVE
ROCKY HOLLOW ROAD
BETSY LIGON PARK & WALKING TRAIL
ARLINGTON RIDGE ROAD

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MAP DEPICTING LOCATION OF POTENTIAL IMPROVEMENTS

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Date: 08/27/2021 J+A Project No.: 1836-01

Analytical Frameworks

FHWA has provided principles of exemplary multimodal network creation that FHWA has recommended applying to the planning of rural and small town multimodal networks, including cohesion, directness, accessibility, alternatives, safety/security, and comfort.[7] FHWA has further recommended multimodal connectivity analysis to involve assessing network completeness, network density, route directness, access to destinations, and network quality.[8] These principles were considered during the planning and report preparation process.

In its "Guidebook for Developing Pedestrian and Bicycle Performance Measures," FHWA has provided another methodology for assessing multimodal network performance,[9] which was useful in analyzing overall network challenges currently facing the City:

Access to Community Destinations: The Betsy Ligon Park and Walking Trail serves as an important community destination for leisure and exercise. It is centrally located and easily accessible from the downtown area. Challenges to address include creating additional connections to major pedestrian travel generators.

Access to Jobs: In the online survey prepared for this report, one member of the public commented, "A high percentage of job seekers lack transportation or a driver license. We need public transportation to assist our community with transportation to employment. MCHRA transportation does not provide transportation to daily employment." Increasing multimodal network connectivity would allow job seekers to more effectively utilize a pedestrian or bicycle mode of transportation to jobs.

Adherence to Accessibility Laws: As it seeks to expand its multimodal network, the City will need to observe applicable laws regarding accessibility, which is something with which the City is familiar from its recent revitalization projects.

Crashes: During the Steering Committee and Public Involvement Meetings, attendees pointed out significant crash activity occurring near key trip generators. Analysis of

TDOT vehicular crash data shows the same. A challenge will be to create network connections that utilize effective crash countermeasures.

Crossing Opportunities: During planning meetings, crosswalk improvements were a key discussion item. Meeting attendees agreed that there are opportunities to either create new marked crosswalks or to enhance existing crosswalks.

Density of Destinations: Three retail/service clusters (Arlington area around SR-49; downtown area around SR-49; eastern side of City near junction of SR-49 and SR-13) serve as major trip generators, which are significant drivers of challenges involving traffic density and pedestrian safety.

Miles of Pedestrian/Bicycle Facilities: The City possesses a unique asset in the Walking Trail, which provides approximately two miles of multimodal path across nearly the width of the City and has opportunities for future expansion. However, a challenge is that SR-49 has sidewalk facilities that do not run in one of the areas with highest traffic density, and local roads and bridges tend to be narrow, limiting opportunities to install separate multimodal facilities.

Network Completeness: During planning meetings, attendees seemed in agreement that the multimodal network needed expansion in key locations.

Population Served by Walk/Bike/Transit: A key goal of this planning process has been to investigate how to increase connections to key pedestrian travel generators. As noted above, one member of the public noted that public transit does not appear to be available to job seekers without access to a vehicle.

Retail Impacts: In planning meetings, City officials expressed a desire to increase connectivity to local businesses. FHWA has noted that "[i]nvestments in walking and bicycling have been shown to increase retail activity, especially in areas with latent pedestrian and bicycle demand."[10]

Route Directness: A challenge to providing direct multimodal routes is the number of hills within the City, which makes providing accessible routes difficult if also trying to provide a reasonably direct route.

Transportation-Disadvantaged Population Served: During planning meetings, City officials expressed a desire to increase pedestrian connectivity to transportation-disadvantaged populations, though in some cases, natural topography and existing right-of-way conditions create challenges.

Community and Public Involvement

Members of the City of Erin community were invited to take part throughout the planning process, in accordance with TDOT guidelines. The City of Erin invited civic leaders to join a Steering Committee that met in-person and discussed major transportation and mobility issues affecting the City. A Public Involvement Meeting was held, in which a presentation was delivered outlining a number of proposed improvements and attendees provided input.

Figure: Advertisement for Public Involvement Meeting as posted on Facebook and at Erin City Hall

An online survey was developed by the planning team and was made available for members of the public to give input remotely. Six questions were posted on a publicly-available website, and citizens of the City of Erin were invited to respond. The URL link and a QR code were provided through an advertisement on the City Facebook page, and flyers were made available at City Hall and during the Public Involvement Meeting. Public response was inadequate to serve as a statistical sample; however, responses were helpful in identifying additional issues to consider and in deciphering the relative importance of certain proposed improvements. The questions and results of the Online Survey are attached as Attachment 2.

Potential Improvement 1:

Intersection of SR-49, Arlington Ridge Road, and Piggly Wiggly Store

CHALLENGES

A cluster of major trip generators (Piggly Wiggly grocery store, Family Dollar, and United States Post Office) lie adjacent to the uncontrolled intersection of SR-49, a state highway and rural arterial road with a width of 41 feet (according to field measurement, edge of pavement to edge of pavement), and Arlington Ridge Road, a rural local road with a measured width of 30 feet. Currently, there are no separate pedestrian facilities along Arlington Ridge Road or SR-49 near this intersection, and pedestrians have been observed walking up Arlington Ridge Road from the south and proceeding across SR-49 at an unmarked and uncontrolled crossing.

Figure: View of Arlington Ridge Road and bridge, across SR-49 from Piggly Wiggly

The bridge across Erin Branch Creek poses a special challenge. Fieldwork performed for this report found the width of roadway across the bridge to be 30 feet. FHWA has noted that

retrofitting pedestrian facilities on an existing bridge can be challenging if the bridge cannot be widened, and a bridge is "too narrow to be of value" for installing pedestrian facilities if the width is 26 feet or less.[11] The existing bridge is very close to this threshold, which limits opportunities to install pedestrian facilities at its current width. Furthermore, turning movements for large, multi-axle vehicles are hampered by the close proximity of the bridge to the highway. For vehicles traveling east on SR-49, the acute angle of the intersection of Arlington Ridge Road with SR-49 also makes it difficult to make a right-turn onto the bridge. Additional challenges include:

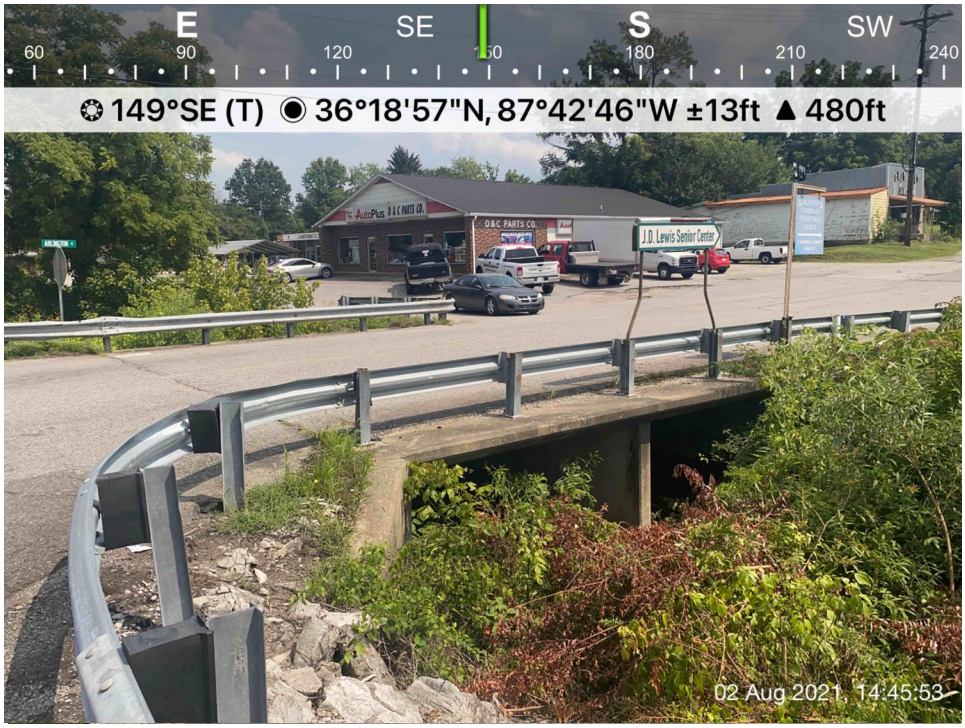


Figure: View of bridge from southern ROW of SR-49, west side of T-intersection

- Vehicle and pedestrian visibility is affected by the overgrowth of brush within the banks of Branch Creek.
- Tennessee Department of Safety crash data and anecdotal confirmation from the City police chief during the Public Involvement Meeting indicate that the portion of SR-49 near this intersection has experienced a higher-than-average number of vehicular crashes, relative to other parts of the City.

POTENTIAL IMPROVEMENTS

Among respondents to the Online Survey (the results of which are attached as Attachment 2), these potential improvements ranked #1 out of all proposed potential improvements listed in the Online Survey.

Sidewalk along Arlington Ridge Road from Walking Trail: In order to encourage pedestrians to utilize the Walking Trail as a pedestrian route to the Piggly Wiggly store, this report recommends installing a sidewalk on the west side of Arlington Ridge Road, from the Walking Trail to the bridge across Branch Creek. A "constrained minimum" sidewalk of 5-foot-width

would allow turning movement for accessibility. For streets without a curb, TDOT specifies that the inside edge of the sidewalk should be placed a minimum of 5 feet from the outside edge of shoulder.[12]

Bridge Improvements: AASHTO has recommended that "[p]rovisions should always be made to include some type of walking facility as a part of vehicular bridges, underpasses, and tunnels, if the facility is intended to be part of a pedestrian access route."[13] Given the narrow width of the existing bridge, in order to install pedestrian facilities on the bridge, the City would need to hire an engineer to investigate whether the condition and build of the bridge would allow it to be widened. FHWA recommends that new bridges with pedestrian use be designed with sidewalks of 6-foot minimum width,[14] and this width might be appropriate for a sidewalk on the widened bridge. A widened bridge would also allow for better turning movement of large trucks needing to make deliveries to D&C Auto or the Family Dollar. If widening the bridge is not possible, the City could consider cantilevering a sidepath off the side of the bridge;[15] however, this is not likely to be cost effective relative to widening the bridge itself, and this report does not recommend a cantilevered sidepath.

At the same time as bridge improvements and traffic signal/crosswalk improvements (discussed below) are made, this report would recommend realigning the ingress/egress of the Piggly Wiggly store to adjust the alignment of the intersection.

Controlled Crosswalk with Traffic Light: Due to the volume and width of SR-49 in front of the Piggly Wiggly store, this report recommends that a signal-controlled crosswalk be investigated to facilitate safer pedestrian crossings and traffic control. Manual of Uniform Traffic Control Devices (MUTCD), Section 4C.01, et seq., discusses traffic control signal needs studies and nine types of traffic signal warrants. In the event a warrant for a traffic control signal is not possible, an alternative considered in MUTCD 4B.04 is the pedestrian hybrid beacon or in-roadway warning lights, for situations where pedestrian safety at a crosswalk is a major concern. Crosswalk types are discussed in greater detail later in this report (in the section regarding the crosswalk in front of the Houston County Courthouse), but it is assumed that a longitudinal or continental crosswalk marking would provide enhanced visibility over a transverse crosswalk. Depending on the nature of the traffic control and crosswalk, lighting would need to be analyzed to determine whether full lighting, partial lighting, or delineation lighting is most appropriate.[16]

Walking Trail intersection with Arlington Ridge Road: TDOT has provided guidance on the design of shared-use paths, which includes the specification that "[a]ll path intersections with roadways shall have proper pavement marking and signage for both facilities (See Std. Drawing T-M-10)."[17] TDOT's Roadway Design Manual similarly specifies "adequate signing" at the intersection of roadways and shared-use paths.[18]

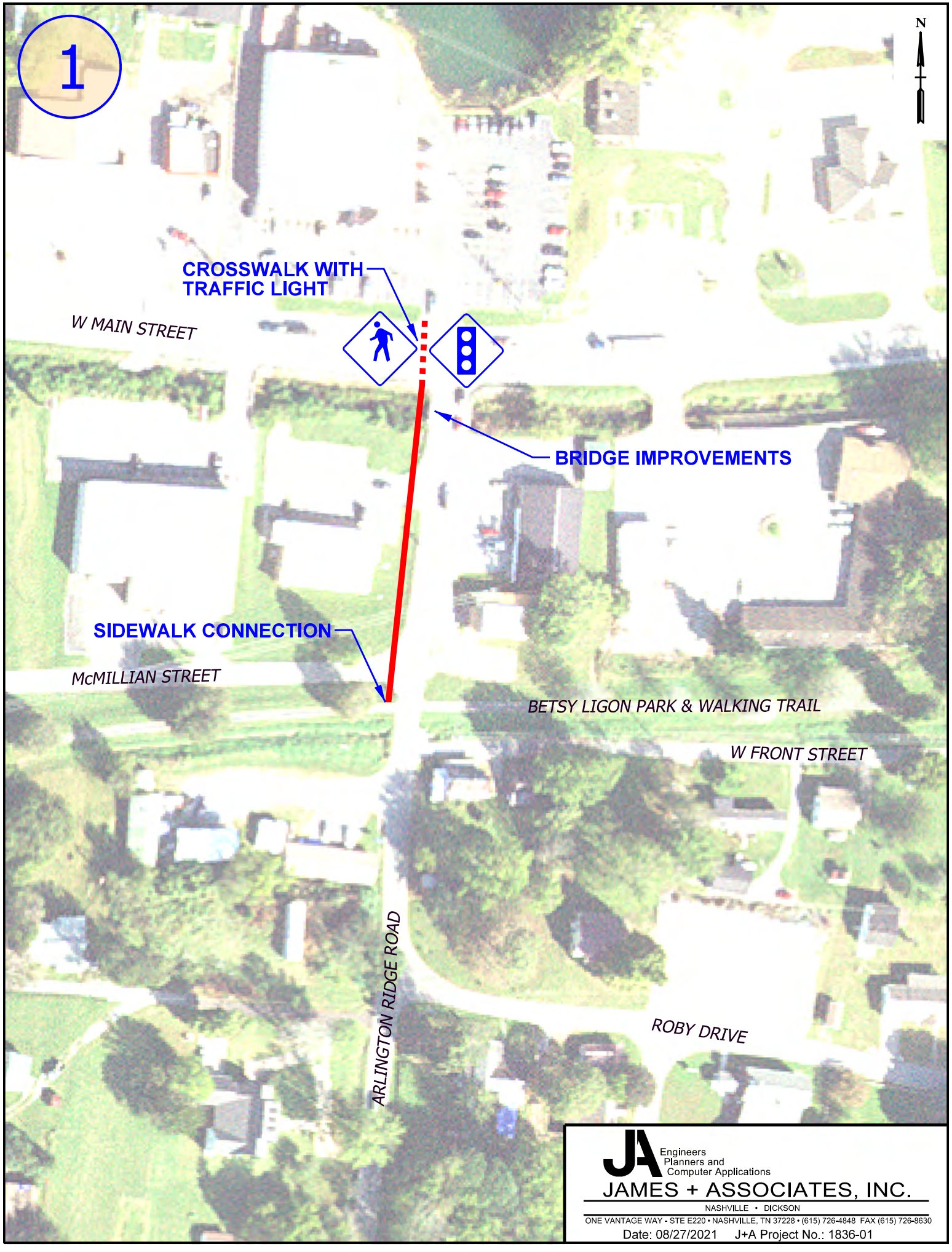
Figure: MUTCD W11-15 sign

AASHTO raises the possibility of using an advance warning assembly (MUTCD W11-15) as a way to warn vehicular drivers of the shared-use path crossing; MUTCD Section 9B-18 provides similar consideration for using W11-15 at the intersection of a shared-use path.[19] It is recommended that, if the abovementioned sidewalk improvements are made, the designer should determine if any pavement marking and signage are required where the Walking Trail intersects with and crosses Arlington Ridge Road.

Improving Visibility by Trimming or Clearing Brush Overgrowth within Creek Area: During the Steering Committee Meeting, the local postmaster remarked that a large amount of overgrowth within the creek area was making visibility difficult on the western side of the Arlington Ridge Road bridge, directly in front of the U.S. Post Office. This brush overgrowth was confirmed during field visits and appears to make pedestrians and vehicles on the bridge less visible to motorists on SR-49, and to make pedestrians and vehicles traveling east on SR-49 less visible to motorists on the

Figure: Brush overgrowth obscuring visibility of SR-49 from Arlington Ridge Rd.

bridge. This report recommends looking into options for getting this overgrowth trimmed or cleared, to whatever extent is allowable under applicable laws, including regulations of the Tennessee Department of Environment and Conservation.



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Date: 08/27/2021 J+A Project No.: 1836-01

Potential Improvement 2:
Connection to Walking Trail from Erin Housing Authority and Nursing Home Area

CHALLENGES

The Erin Housing Authority has been identified as a pedestrian travel generator, with around one-third of Erin Housing Authority residents not owning a vehicle. The Nursing Home was identified as a residential development with a few residents who are routine pedestrians.

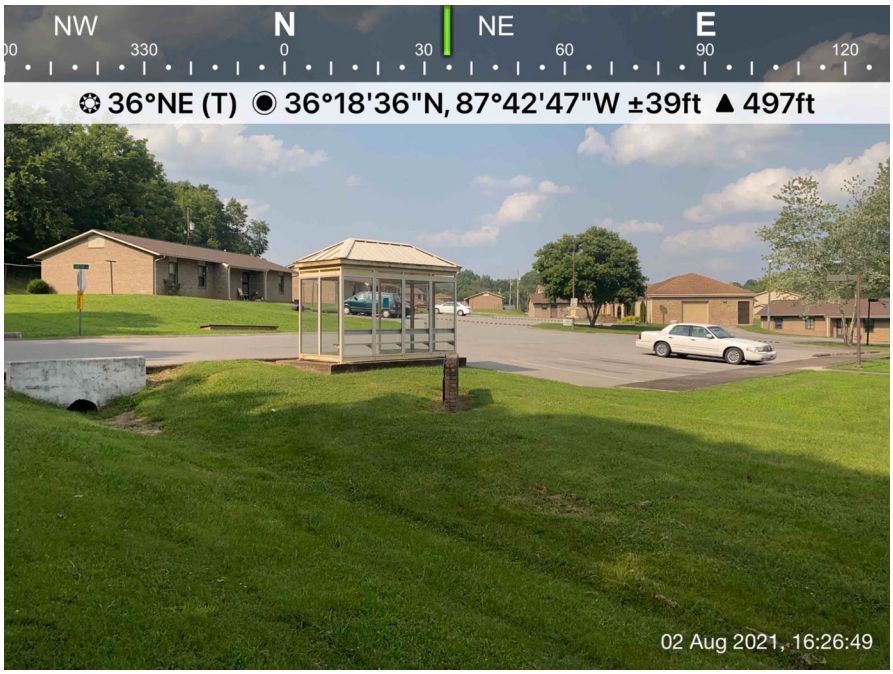


Figure: Erin Housing Authority

It was remarked during the Public Involvement Meeting that pedestrians are seen walking down the right-of-way of local roads in this area, heading toward the retail stores located at the intersection of Arlington Ridge Road and SR-49. TDOT's Multimodal Project Scoping Manual has noted that pedestrian accommodations are "typically applicable . . . along corridors with pedestrian travel generators and destinations," but exclusions for separate pedestrian accommodations include "[r]ural streets where shoulders suffice for the occasional pedestrian or bicyclist."[20]

Fieldwork performed for the report found that, adjacent to the Erin Housing Authority, a portion of Knight Street had a width of 17 feet, which is lower than the minimum 18-foot width (9-foot lanes) noted by TDOT as being acceptable for a low-volume rural road requiring multimodal accommodation;[21] other portions of Knight Street had a width of 18 feet.

Figure: Knight Street, at Nursing Home entrance

In a number of locations along Knight Street, trees, mailboxes, and other vertical obstructions were observed lying only a few feet from the edge of pavement. Given the narrowness of Knight Street and obstructions lying near to the edge of pavement, the street itself appears to be unable to comfortably accommodate pedestrians and vehicles, despite the low traffic volume, and there is not sufficient room for widening the road and shoulder or installing a sidewalk without removing obstructions. Fieldwork also highlighted the fact that the grade of Knight Street is steep in places, meaning accessibility standards would be difficult to meet for either a shoulder serving as a pedestrian access route or a separate sidewalk facility.[22]

POTENTIAL IMPROVEMENTS

Among respondents to the Online Survey (the results of which are attached as Attachment 2), these potential improvements ranked #2 out of all proposed potential improvements listed in the Online Survey.

Pedestrian accommodations along Roby Lane: Although the City's narrow, rural local roads have relatively low traffic volume, FHWA has cited studies showing the likelihood of a "walking along roadway" crash involving a pedestrian was over 88% lower when a sidewalk facility or wide shoulder (>=4 feet) was present,[23] so there are safety advantages to providing sidewalk facilities for pedestrians even on rural local roads like those found in the City of Erin. Knight Street is a relatively poor candidate for installing sidewalk facilities because of its hilly

terrain, the grade of which limits accessibility, and the number of obstructions lying near the edge of pavement.

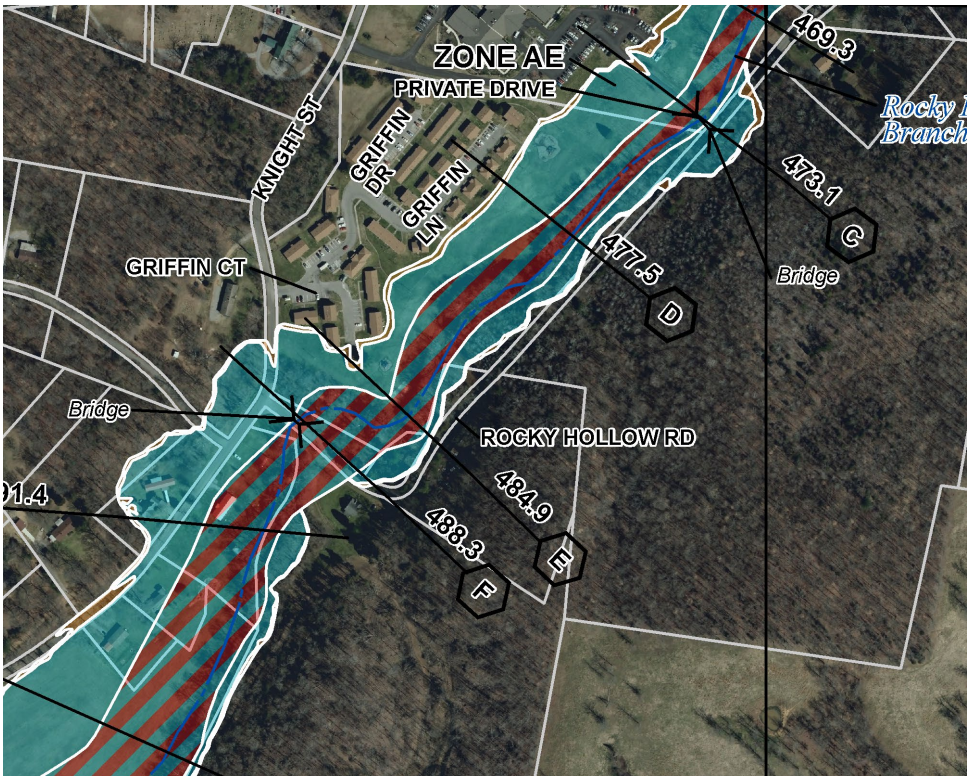


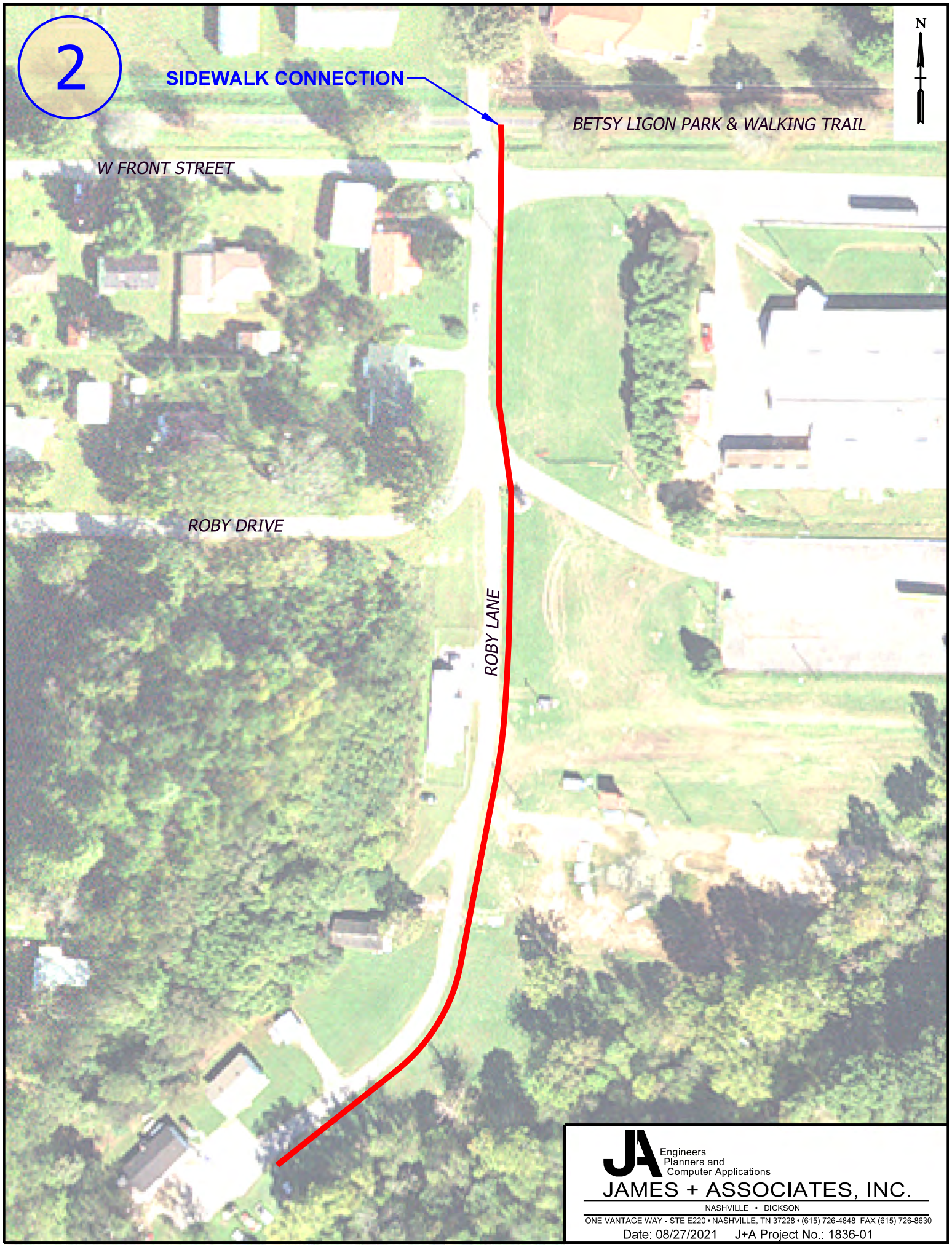
Figure: FEMA/FIRM Flood Map depicting area to the east of Erin Housing Authority.

On the other hand, the area adjacent to the Erin Housing Authority and Nursing Home to the east is relatively flat, as this adjacent area lies partially within the Zone A special flood hazard area and the Zone AE regulatory floodway. The City of Erin already possesses a sewer easement over a portion of this area, running from south to north roughly near Roby Lane.

For these reasons, this report recommends that the City consider Roby Lane (or the area across the sewer easement) as a potential location for the installation of pedestrian facilities, whether a separate sidewalk or a wide (>=4 feet) shoulder with non-vehicular warning signs (MUTCD W11-2) installed. This pedestrian facility would terminate at the intersection of the Walking Trail, which connection would allow pedestrians to walk safely from the Erin Housing Authority and Nursing Home to the Walking Trail and then westward to a new Arlington Road sidewalk facility that would take them to the Piggly Wiggly store.

Figure: Roby Lane, looking toward Nursing Home and Erin Housing Authority; looking toward fairgrounds area

Challenges include the narrowness of the existing Roby Lane (15-foot roadway width) and obstructions lying relatively close to the edge of pavement (e.g. ticket box at the fairgrounds and an electric pole lying less than 8 feet from edge of pavement; private chainlink fence gate lies at edge of pavement). The City, Erin Housing Authority, and Nursing Home should discuss options for allowing Erin Housing Authority residents to cross property owned by the Nursing Home, whether over the City's sewer easement or a pathway installed in conjunction with future Nursing Home development.



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Potential Improvement 3:
Sidewalk Connection to Rotary Park

Rotary Park lies adjacent to the southern margin of SR-49, to the northeast of the Middle School. It offers two tennis courts, a playground, and a seating area. At various planning meetings, attendees expressed a desire to connect the Walking Trail to Rotary Park, to allow pedestrians to more easily access the leisure area.

CHALLENGES

Rotary Park lies north across Branch Creek from McMillian Street and the Walking Trail, which means a pedestrian bridge would be required for pedestrians to cross the creek. Additionally, a number of different property owners have boundaries that could be impacted by the installation of a sidewalk facility. It was noted at the Public Involvement Meeting that the adjacent Mason Lodge has already had problems with trespassers littering on its property, and there were concerns that installing a proposed sidewalk would exacerbate the problem.

POTENTIAL IMPROVEMENT

Installation of a sidewalk from the Walking Trail to Rotary Park, with accompanying pedestrian bridge across Branch Creek: A separate 5-foot sidewalk could be installed near the southwest corner of the T-intersection of Hiett Street and McMillian Street, intersecting with the Walking Trail at that point. A transverse uncontrolled pedestrian crossing would take pedestrians north across McMillian Street, at which point the sidewalk would continue running to the northwest toward Rotary Park. A pedestrian bridge would be necessary to cross Branch Creek. Further study is required to determine the impacts to adjacent property owners and the riparian area, depending on the City's desired alignment of the sidewalk.

Potential Improvement 4:

Western Portion of Walking Trail, Adjacent to Middle School, Shamrock Apartments, and Ballfields

A cluster of trip generators lie near the intersection of McMillian Street and Mobley Lane.

- The Houston County Middle School (HCMS), 3460 West Main Street, is wedged between SR-49 to the north and McMillian Street to the south. According to school-level profile data provided by the Tennessee Department of Education, HCMS had 295 students enrolled in grades 6 through 8 during the 2020 school year.

- Shamrock Apartments is a 42-unit multifamily development for seniors and disabled people.

- Three baseball/softball fields lie to the west and southwest of the Middle School and host ballgames for youth.

- Magnum Manufacturing, Inc., a provider of local jobs, has a facility adjacent to the ballfields in this area.

CHALLENGES

McMillian Street is very narrow (16-feet in width, by field measurement) at the point where it runs adjacent to the Houston County Middle School, being constrained in width by electric

poles and fences on the northern margin and a creek on the southern margin. The narrowness of McMillian Street in this area effectively makes it a yield roadway, serving traffic in both directions without lane markings, with limited width and natural stormwater management.[24] FHWA advises that preferred vehicular volume should be very low (400 vehicles per day or less, per AASHTO definition[25]), with a speed limit of 20 mph or less. Further, a complicating challenge comes if children choose to use McMillian Street to walk to/from the Houston County Middle School; AASHTO has noted that children have special visual, auditory, and awareness difficulties that adults do not have, which is something that planners of school routes need to consider.[26]

Figure: McMillian street (16-foot width) adjacent to Middle School

POTENTIAL IMPROVEMENTS

Extension of Walking Trail: As has been discussed elsewhere in this report, the Walking Trail is a vital east-west travel way that already helps improve connectivity and that has potential to further increase connectivity. At the current western terminus of the Walking Trail, the City owns the undeveloped portion of the old railroad bed, providing an opportunity to extend the Walking Trail westward, thereby increasing the connective potential of this shared-use path. The existing Walking Trail is already context-sensitive, being complementary to the natural environment and supportive of adjacent land use,[27] and any extension of the Walking Trail would be well-served to maintain this same character.

Field work performed for this study found that the Walking Trail has a typical width of 8 feet. For shared use paths, FHWA recommends a width of 8 to 10 feet for low volume pathways

(fewer than 50 users per hour); an 8-foot width is the minimum allowed for a 2-way bicycle path. TDOT's guidance also specifies 8-foot width for a paved shared-used path with lowest volume (0 – 100 users per hour), and AASHTO provides similar guidance.[28] For other geometric design considerations, FHWA recommends a 2-foot shoulder on each side of the shared use path, which should be maintained so that it is clear of obstructions and vertical elements, and AASHTO similarly recommends that vertical objects are set back at least 2 feet from the edge of the shared-use path.[29]

In line with FHWA recommendations, the extension to the Walking Trail could have the same 8-foot width as the existing Walking Trail, with 2-foot shoulders maintained to be clear of obstructions and vertical elements. TDOT's Multimodal Project Scoping Manual indicates that cross slope should be 1.5%, but at least 1% and no more than 2% (which is an ADA/PROWAG requirement for pedestrian access routes);[30] an accompanying TDOT memorandum indicates maximum horizontal slope of 5%, with no offsite runoff allowed over the shared-use path.[31] AASHTO recommends preserving a "hardy, natural groundcover" adjacent to the shared-use path for erosion control.[32] TDOT's Roadway Design Manual indicates that shared-use paths "shall comply to all ADA Standards."[33]

Sidewalk Connecting Walking Trail Extension to Ballfields and Middle School: FHWA has noted that it is preferred that school connections be designed with "as much separation as possible" between children and vehicles, with sidewalk installation preferred over using road shoulders.[34] This high-level of separation appears to be feasible if children coming to school

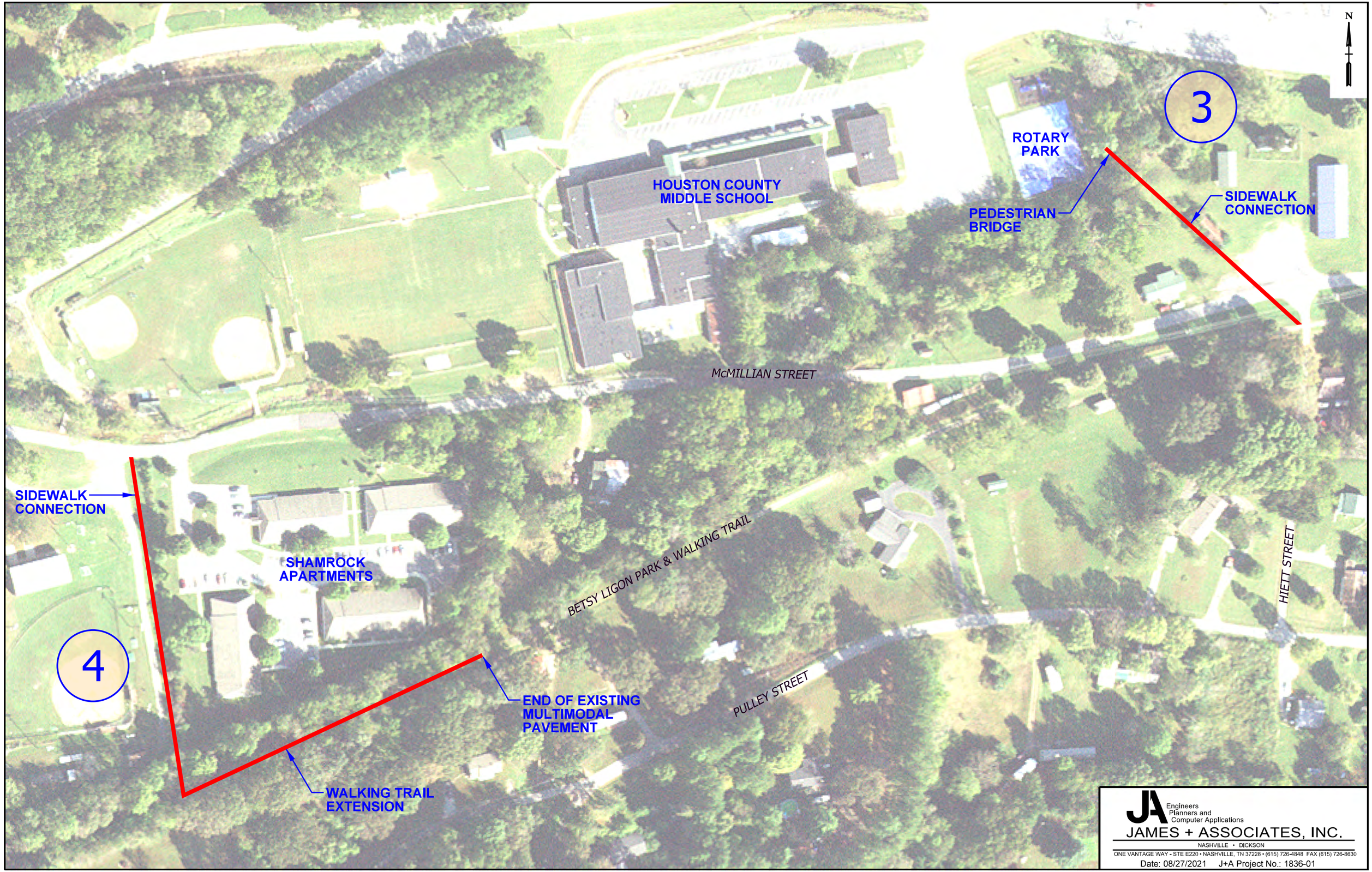
Figure: Existing gravel drive adjacent to ballfield, looking from McMillian St.

from the south and east are routed along the extended Walking Trail instead of walking on the right-of-way of McMillian Street; children would be routed westward down the extension of the Walking Trail and then northward along a new sidewalk facility lying adjacent to the existing gravel drive beside the ballfield. This sidewalk would take pedestrians directly from the Walking Trail to ballfields and then, crossing McMillian Street, to the Houston County Middle School. Creating this route would give pedestrians a safer, more comfortable route to these destinations than McMillian Street currently provides. Another benefit of adding this new route is that pedestrians from the extended Walking Trail would have easier access to Magnum Industries, a source of local jobs.

Pedestrian Signage on McMillian Street: Given that pedestrians might walk down McMillian Street in the area adjacent to the Middle School, the City could consider putting up a

pedestrian warning sign (MUTCD W11-2) with an “on roadway” legend plaque. Currently, “Children at Play” signs accompany the 15 mph speed limit signs, but there are not any pedestrian-specific signs.

Figure: MUTCD W11-2 with legend plaque



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Potential Improvement 5:
Sidewalk Extension along North Margin of SR-49, Westward from Intersection with Rocky Hollow Road

CHALLENGES

Moving from east to west, the existing sidewalk at the north margin of SR-49 currently terminates at Rocky Hollow Road. SR-49 faces a challenge common to many small towns and rural areas, in that the terrain is physically constrained, making it difficult to provide pedestrian and bicycle facilities along the margin of the highway.[35] Specifically, immediately to the west of the area where the sidewalk currently ends, a small rock bluff lies 10 feet from the edge of pavement, as measured during field work performed for this report; additionally, a fire hydrant has been installed at the sidewalk terminus, directly in the alignment of a future extension. Steering Committee members noted seeing pedestrians walking on the shoulders of SR-49 in the area without a sidewalk. Another challenge is that discontinuous sidewalks that "end abruptly can be significant barriers for individuals with disabilities."[36]

Figure: Terminus of existing sidewalk, northern margin of SR-49

POTENTIAL IMPROVEMENTS

Extension of Sidewalk Westward along SR-49: FHWA has noted that sidewalks reduce "walking along roadway" crashes and can serve to increase the number of people using walking as a mode of transportation. FHWA recommends sidewalks on all rural roadways with an operating speed exceeding 30 mph and in areas with "pedestrian-generating development" such like schools and businesses.[37]

Fieldwork performed for this report showed that the width of existing sidewalk at terminus is 4.5 feet; it appears that the existing sidewalk was installed at 5-foot width but hillside erosion has covered a portion of it. FHWA recommends that a "constrained minimum" sidewalk in a pedestrian through zone should be a minimum of 5-feet in width, which will be wide enough for pedestrians to walk side-by-wide and will meet accessibility requirements for turning movement.[38] TDOT's Roadway Design Guideline provides for a preferred buffer (edge of traveled way to edge of sidewalk) of 5 feet and a minimum buffer of 0 feet for a posted speed less than or equal to 35 mph.[39] Further study is required to determine the location of existing right-of-way and whether room exists to install this sidewalk extension without taking adjacent property, which was a concern expressed at the Public Involvement Meeting.

Mounting Non-Vehicular Warning Signs in Margin of SR-49: In the event that the sidewalk is not extended, this report recommends that non-vehicular warning signs (MUTCD W11-2) with "on roadway" legend plaque be mounted in the margin of SR-49 at appropriate intervals. These signs show a graphic of a pedestrian and serve to warn vehicular motorists of the presence of pedestrians walking on the shoulder of the roadway.

5

N

EXTEND SIDEWALK
NORTHERN R.O.W. SR-49

END OF EXISTING
SIDEWALK

W MAIN STREET

BETSY LIGON PARK & WALKING TRAIL

W FRONT STREET

ROBY DRIVE

HIETT STREET

ARLINGTON RIDGE ROAD

ROCKY HOLLOW ROAD

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Potential Improvement 6:

Crosswalk across SR-49 from Courthouse Square to Houston County Courthouse

CHALLENGES

One common challenge for small towns and rural areas involves safety of pedestrian crossings, which might be undefined or unable to be warranted because use is low.[40]

Figure: Existing transverse crosswalk, no-parking area, and pedestrian yield sign.

Overcoming this challenge, the City of Erin was able to install an uncontrolled marked transverse pedestrian crosswalk located midblock between the courthouse square parking area to the south and the Houston County Courthouse to the north. Fieldwork performed for this report indicates that the width of the existing crosswalk is 8 feet, which exceeds FHWA's minimum width of 6 feet.[41] A "yield to pedestrians" sign (MUTCD R1-5) is mounted on each side of the road in advance of the crosswalk.

Steering Committee members and attendees at the Public Involvement Meeting both noted several challenges involving the existing crosswalk:

- The crosswalk itself can be difficult to see when driving.
- Vehicles have a tendency to fail to stop for pedestrians.
- Vehicles tend to park in striped "no parking" areas, thereby blocking drivers on SR-49 from being able to see crosswalk pedestrians. As of the date of this report, aerial

photography on Google Earth and street-level photography in Google Street View both show vehicles parked in the striped no-parking area.

Midblock crosswalks have special safety challenges due to an increased risk of pedestrian fatality (versus intersection crosswalks) and the tendency for midblock objects (poles, trees, signs, parked cars, etc.) to limit the sight distance of drivers.[42]

Potential Improvements

At the current speed limit and AADT, FHWA notes that the following safety countermeasures should be considered for the crossing of a two-lane road: high-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs. When the speed limit increases to 40 mph or greater, FHWA adds that a rectangular rapid flashing beacon (RRFB) should also be considered.[43]

Transverse Crosswalk Converted to High-Visibility Longitudinal/Continental/Ladder-Style Crosswalk: As noted above, the existing crosswalk is transverse. FHWA has noted that transverse lines are "essentially not visible" from a vehicle approaching the crosswalk from the roadway.[44] The existing crosswalk configuration does include a yield-to-pedestrians sign, but visibility of the crosswalk might be further enhanced by adding longitudinal lines to the existing transverse lines. FHWA has noted that high-visibility crosswalk markings are preferred at uncontrolled marked crossings, such as a continental or ladder crosswalk marking.[45] MUTCD guidance indicates that longitudinal lines may be used to add visibility to a crosswalk that might not be expected.[46] Likewise, TDOT Roadway Design Guidelines specify that longitudinal markings should be used for crosswalks when added emphasis is needed and on state roadways.[47] Other design guidelines provided in MUTCD

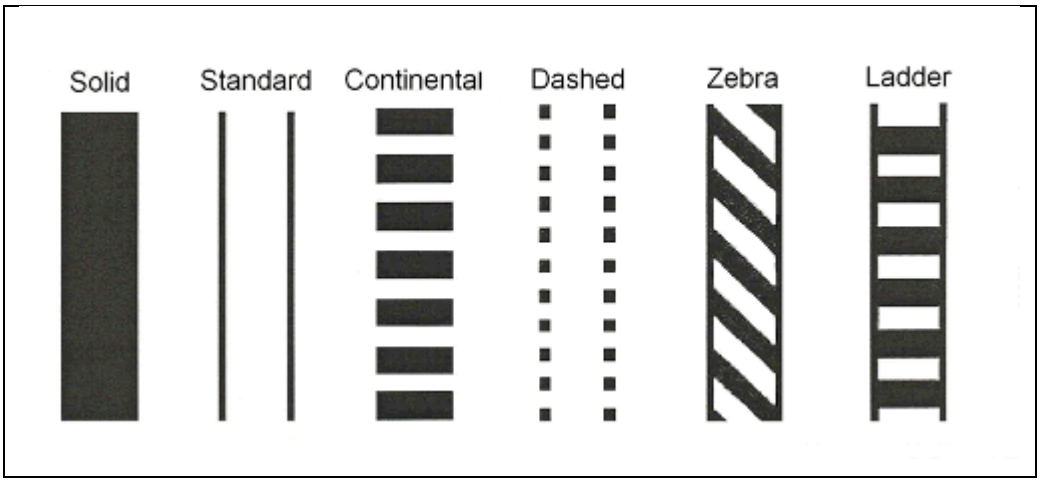


Figure: FHWA diagram showing various crosswalk types

3B.18 are also relevant, including the consideration of spacing the crosswalk longitudinal lines so that vehicular wheel paths avoid them.

Rectangular Rapid Flash Beacon (RRFB): Crossing enhancements are normally reserved for high-speed and high-volume roadways and are used when normal crosswalk markings alone are not enough to provide safe crossing for pedestrians.[48] TDOT Roadway Design Guidelines indicate that "marked crosswalks alone should not be used at unsignalized locations" when the speed limit exceeds 40 mph,[49] which means the existing crosswalk falls under this threshold. However, an active enhanced crosswalk may be appropriate where the City desires a greater level of visibility, such as for the crosswalk in front of the courthouse. Another potential enhancement would be the installation of a rectangular rapid flash beacon (RRFB), which is used as a yield enhancement device at uncontrolled crosswalks and which may be solar-powered depending on cost. An RRFB works by using a flashing light to alert vehicular drivers on the roadway to the presence of pedestrians using the crosswalk.[50] The lights only flash after a pedestrian manually activates them or a passive detection system activates them.[51] A study by FHWA has found that crossings with a RRFB had an average compliance rate (for vehicles yielding to pedestrians at the crosswalk) of 88 percent, and FHWA has noted that RRFBs are effective at crossings of roadways with a speed limit of 40 mph or less.[52] Among safety countermeasures, flashing beacons are considered to be in the "high effectiveness" category and "significantly increase[] motorist yielding behavior."[53]

Figure: Solar-powered RRFB example

"No Parking" Paint or "No Parking" Sign: Currently, parking is prohibited on the near-side of the crosswalk as a vehicle approaches, which is consistent with TDOT's recommendation to

prohibit parking near the crossing.[54] The existing "No Parking" area is striped-off with diagonal lines; however, the words "No Parking" do not appear anywhere, whether on a freestanding sign mounted in the ground or painted on the pavement itself. This report recommends painting the words "No Parking" within the striped area, or mounting a MUTCD R8-3 or R8-3a sign directly adjacent to the striped area, or both.

Figure: MUTCD R8-3 (left) and R8-3a (right) signs

Curb Ramps: Curb ramps are provided on portions of the existing sidewalk adjacent to the courthouse square area; however, the sidewalk drops down to the existing crosswalk without curb ramps. Further investigation is recommended into ADA/UFAS/PROWAG accessibility guidelines regarding curb transitions at this crosswalk.[55]

Street Lighting of Crosswalk: TDOT recommends that street lighting be provided at a midblock crosswalk to provide nighttime illumination.[56] FHWA recommends an "appropriate level of lighting," which would be lights placed 10 to 15 feet in advance of the crosswalk on each side of the street and on crosswalk approaches to avoid silhouetting the pedestrian.[57] Currently, two streetlamps provide illumination to the northerly side of SR-49, near the courthouse, approximately 35 to 38 feet from the crosswalk (each measured parallel to SR-49, at a right angle to the transverse lines of the crosswalk). This report recommends giving additional consideration to examining the effectiveness of lighting at this crosswalk.

Potential Improvement 7:

Sidewalk Connections to/from Spring Street, North of Downtown

CHALLENGES

The residential neighborhood along Spring Street lying to the north of the downtown district currently does not have access to separate pedestrian facilities north of Walnut Street. During planning meetings, several attendees expressed a desire to improve pedestrian connectivity along Spring Street to the downtown corridor. The major challenge to installing pedestrian facilities, whether using a sidewalk or a widened shoulder, is that Spring Street narrows considerably from the intersection with Walnut Street (approximately 38.75 feet wide by field measurement) to the intersection with East Spring Loop (approximately 25 feet wide by field measurement). Additionally, vertical obstructions and buildings lie relatively close to the existing edge of pavement.

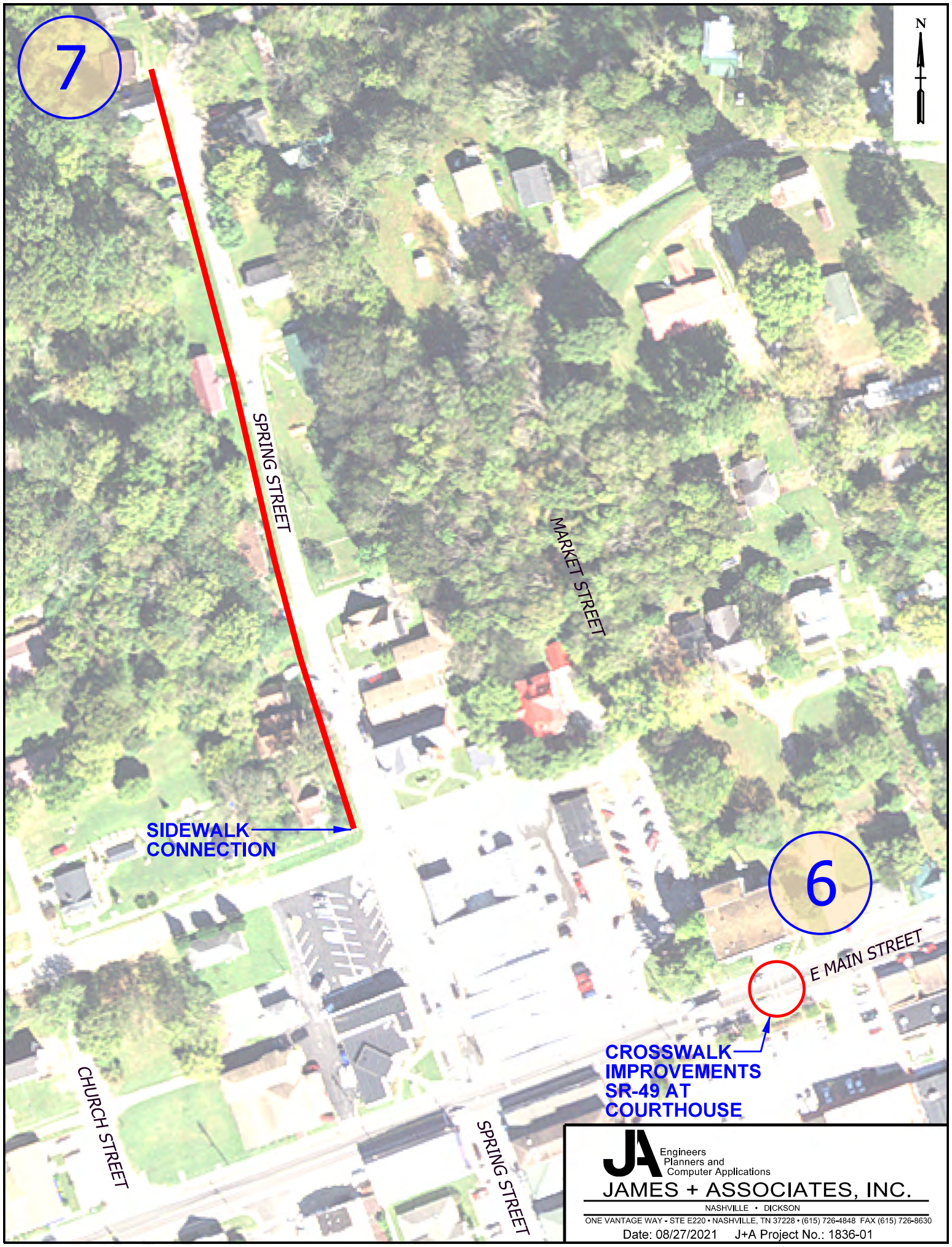
Figure: Spring Street narrows as it approaches East Spring Loop

PROPOSED IMPROVEMENTS

Sidewalk Extension: Currently, a sidewalk exists at the southwest corner of the intersection of Spring Street and Walnut Street. A transverse crosswalk could be painted across Walnut

Figure: Intersection of Walnut Street and Spring Street

Street, and a 5-foot-wide sidewalk could be installed at the west margin of Spring Street, running from Walnut Street northward to the intersection with East Spring Loop. Further study is required regarding design, including identifying obstructions and analyzing whether to install a curb when the sidewalk is installed. This report assumes that the FHWA and TDOT guidelines for sidewalks mentioned elsewhere in this report would also be useful here.



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[1] FHWA, Highway Functional Classification Concepts, Criteria and Procedures, https://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section03.cfm (last accessed 8/20/2021).
[2] For a description of the function of a shared use path, see FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 1-12;
[3] FHWA, Case Studies in Delivering Safe, Comfortable, and Connected Pedestrian and Bicycle Networks (December 2015), 21.
[4] "Traffic Data," TDOT website, https://www.tn.gov/tdot/long-range-planning-home/longrange-road-inventory/longrange-road-inventory-traffic.html (last accessed 8/21/2021).
[5] Public Safety Maps, "Tennessee Crash History and Prevention," Tennessee Department of Safety and Homeland Security, https://gis.safety.tn.gov/ (last accessed 8/21/2021).
[6] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 1-13.
[7] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 1-11, citing FHWA, "Case Studies in Delivering Safe, Comfortable and Connected Pedestrian and Bicycle Networks" (2016).
[8] FHWA, Guidebook for Measuring Multimodal Network Connectivity (February 2018), 15ff.
[9] FHWA, Guidebook for Developing Pedestrian and Bicycle Performance Measures (March 2016), 36ff.
[10] FHWA, Guidebook for Developing Pedestrian and Bicycle Performance Measures (March 2016), 85.
[11] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 5-19, 5-23.
[12] TDOT Roadway Design Guidelines (Revised 2021), 3-27.
[13] FHWA, Achieving Multimodal Networks: Applying Design Flexibility & Reducing Conflicts (August 2016), 53, quoting AASHTO Pedestrian Guide (2004), 63.
[14] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 5-25.
[15] See AASHTO, Guide for the Development of Bicycle Facilities (2012), 5-28; FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 5-24.
[16] FHWA, FHWA Lighting Guide (August 2012), 35 – 36.
[17] TDOT Multimodal Project Scoping Manual (April 2018), 7-24 and 7-25, citing TDOT Memorandum, "Non-Motorized Transportation Facility Design Criteria," dated 10/10/2016.
[18] TDOT Roadway Design Manual (Revised 2021), 3-64.
[19] AASHTO, Guide for the Development of Bicycle Facilities (2012), 5-53.
[20] TDOT Multimodal Project Scoping Manual (April 2018), 2-16 and 2-18.
[21] TDOT Multimodal Project Scoping Manual (April 2018), 4-15.
[22] See TDOT Multimodal Project Scoping Manual (April 2018), 4-17.
[23] Pedestrian and Bicycle Information Center (for FHWA), Evaluation of Pedestrian-Related Roadway Measures: A Summary of Available Research (April 2014), 11.
[24] For an explanation of a yield roadway, see FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 2-3 through 2-8.
[25] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 2-8, citing AASHTO Green Book 2011, 5-34.
[26] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 5-9, citing AASHTO Guide for the Development of Bicycle Facilities (2012).
[27] FHWA, Achieving Multimodal Networks: Applying Design Flexibility & Reducing Conflicts (August 2016), 99.
[28] TDOT Multimodal Project Scoping Manual (April 2018), 7-24, citing TDOT Memorandum, "Non-Motorized Transportation Facility Design Criteria," dated 10/10/2016. See also TDOT Roadway Design Guidelines (Revised 2021), 3-61; FHWA, Achieving Multimodal Networks: Applying Design Flexibility & Reducing Conflicts (August 2016), 100, citing AASHTO, Guide for the Development of Bicycle Facilities (2012), 5-3.
[29] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 4-5 and 4-6. See also FHWA, Achieving Multimodal Networks: Applying Design Flexibility & Reducing Conflicts (August 2016), 101, citing AASHTO, Guide for the Development of Bicycle Facilities (2012), 5-5.
[30] TDOT Multimodal Project Scoping Manual (April 2018), 7-22. See also TDOT Roadway Design Guidelines (Revised 2021), 3-62.
[31] TDOT Multimodal Project Scoping Manual (April 2018), 7-24 and 7-25, citing TDOT Memorandum, "Non-Motorized Transportation Facility Design Criteria," dated 10/10/2016. See also TDOT Roadway Design Guidelines (Revised 2021), 3-50, 3-60.
[32] AASHTO, Guide for the Development of Bicycle Facilities (2012), 5-29.
[33] TDOT Roadway Design Manual (Revised 2021), 3-60.
[34] FHWA, "Small Town and Rural Multimodal Networks" (December 2016), 5-11 and 5-12.

[35] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 1-14.
[36] FHWA, Case Studies in Delivering Safe, Comfortable, and Connected Pedestrian and Bicycle Networks (December 2015), 8.
[37] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 4-20; Pedestrian and Bicycle Information Center (for FHWA), Evaluation of Pedestrian-Related Roadway Measures: A Summary of Available Research (April 2014), 10 – 11.
[38] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 4-21.
[39] TDOT Roadway Design Guidelines (Revised 2021), 3-25.
[40] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 1-14.
[41] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 4-22, citing FHWA Safety Effects of Marked Crosswalks at Uncontrolled Locations (2005).
[42] TDOT Multimodal Project Scoping Manual (April 2018), 7-14.
[43] FHWA, Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (July 2018), 16.
[44] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 4-7, 4-8, note vi, citing Institute of Transportation Engineers (ITE) Technical Committee, 109-01, Pavement Patterns Used at Uncontrolled Pedestrian Crossings (2010).
[45] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), note vi, 4-18, citing FHWA, An Overview and Recommendations of High-Visibility Crosswalk Markings Styles (2013); Ibid., 4-22. See also FHWA, Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (July 2018), 18.
[46] MUTCD, 3B.18-14.
[47] TDOT Roadway Design Guidelines (Revised 2021), 3-28.
[48] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 4-7.
[49] TDOT Roadway Design Guidelines (Revised 2021), 3-34.
[50] FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 4-8.
[51] FHWA, Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (July 2018), 21.
[52] FHWA, Achieving Multimodal Networks: Applying Design Flexibility & Reducing Conflicts (August 2016), 35, citing FHWA, Effects of Yellow Rectangular Rapid-Flashing Beacons on Yielding at Multilane Uncontrolled Crosswalks (2010), 9; FHWA, Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (July 2018), 21.
[53] Pedestrian and Bicycle Information Center (for FHWA), Evaluation of Pedestrian-Related Roadway Measures: A Summary of Available Research (April 2014), 23, 89, 92 – 93.
[54] TDOT Multimodal Project Scoping Manual (April 2018), 7-14.
[55] “A sidewalk is a separated facility intended for use by pedestrians and must meet accessibility guidelines for walkways and curb transitions. Sidewalks are required to be accessible for all users.” FHWA, “Small Town and Rural Multimodal Networks” (December 2016), 4-22. See comment in TDOT Roadway Design Manual (Revised 2021), 3-29.
[56] TDOT Multimodal Project Scoping Manual (April 2018), 7-14.
[57] FHWA, Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (July 2018), 19.

Attachment 1

Existing Conditions Map

See following page for the Map.

	BUSINESSES
1	MAGNUM MANUFACTURING
2	SHAMROCK APARTMENTS
3	HOUSTON COUNTY MIDDLE SCHOOL
4	COLEMAN LUMBER AND HOME CENTER
5	HOUSTON COUNTY COMMUNITY HOSPITAL REHAB CENTER
6	MARATHON SUDDEN SERVICE #42
7	NAN'S DINER
8	PIGGLY WIGGLY
9	MAZATLAN RESTAURANT
10	HERITAGE BANK
11	RYE'S AUTOMOTIVE
12	UPTOWN AUTOMOTIVE
13	SAINT LUKE AME CHRUCH
14	HOUSTON COUNTY ANIMAL CLINIC
15	FULL SPECTRUM
16	COVENANT CARE
17	SOCIAL SERVICE DEPARTMENT
18	COUNTRY OUTFITTER
19	BARRETT'S TIRE
20	HORIZON INN
21	D&C AUTO PARTS
22	UNITED STATES POST OFFICE
23	FAMILY DOLLAR
24	MASONIC LODGE
25	SIGNATURE HEALTHCARE
26	ERIN HOUSING AUTHORITY
27	ERIN BAPTIST CHURCH
28	HOUSTON COUNTY LIBRARY
29	NAVE FUNERAL HOME
30	REGIONS BANK
31	ERIN UNITED METHODIST CHURCH
32	TOWN SQUARE
33	CITY HALL
34	BETSY LIGON PARK

Erin
TN

METCALF DRIVE
DENMARK ROAD
W MAIN STREET
BRIARWOOD DRIVE
SPRING STREET
MARKET STREET
CHURCH STREET
COURT SQUARE
E WALNUT STREET
E MAIN STREET
E FRONT STREET
W MAPLE STREET
W FRONT STREET
BETSY LIGON PARK & WALKING TRAIL
McMILLIAN STREET
MOBLEY LANE
HIETT STREET
ARLINGTON RIDGE ROAD
ROBY DRIVE
ROCKY HOLLOW ROAD
KNIGHT STREET
PULLEY STREET

N
0 300' 600'

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Attachment 2

Online Survey Results

Below, aggregated results are presented for the Online Survey posted on Survey Planet, which was advertised on the City's Facebook page and via flyer in City Hall and at the Public Involvement Meeting. Though not a representative sample for purposes of statistical analysis and reliance (11 responses pulled from an unrepresentative sample pool), the survey results are helpful in getting a sense of the priorities of members of the public who were motivated enough to respond.

Question 1: Which of these forms of transportation have you used in the last month within the City of Erin? (Please select all that apply.)

Walking (as a primary means of transportation):	3
Bicycle:	0
Public Transportation:	0
Vehicle (personal):	11
Carpooling:	0

Question 2: What is your main way to travel within the City of Erin?

Walking:	0
Bicycle:	0
Public transportation:	0
Vehicle (personal):	11
Carpooling:	0

Question 3: In the last year, how often have you used the Betsy Ligon Walking Trail as a way to get from place to place?

Daily:	0
Weekly:	1
Monthly:	1
A few times this past year:	2
Once:	0
Never:	7

Question 4: Potential Projects: Our team has identified six possible projects that have the potential to improve city connectivity and walkability. Please rank each project with 1 to 6 (with "1" being highest priority, and "6" being lowest priority). [*Consultant's note: Average score is below, with the topmost project being the highest ranked in the aggregate, and the bottommost project being the lowest ranked in the aggregate*.]

Putting a crosswalk across SR-49 at Piggly Wiggly and a sidewalk on Arlington Ridge Road bridge over creek:	2
Building a sidewalk from Signature HealthCARE and Erin Housing Authority to the Betsy Ligon Walking Trail:	3
Building sidewalk connections from Betsy Ligon Walking Trail to Middle School, ball fields, Rotary Park, and Shamrock Apartments:	3.18
Improving the existing crosswalk in front of the Houston County Courthouse on SR-49:	3.36
Building a sidewalk along a portion of Spring Street near East Walnut Street:	4.64
Extending sidewalk along SR-49 from Rocky Hollow Road to the west:	4.82

Question 5: Are there any other transportation or mobility issues that you believe the City of Erin should consider addressing in the future? (check up to three) [*Consultant's note: Scores are provided below for each item, with the score being the number of times that a respondent selected the item as an issue for the City to consider addressing*.]

Paving streets:	3
Extending the Betsy Ligon Walking Trail:	3

Adding traffic lights to busy intersections: 3

Adding more sidewalks to city streets: 2

Creating dedicated bicycle paths and lanes: 1

Improving beautification of city streets and public spaces: 3

Improving accessibility: 2

Addressing safety issues associated with speeding and driver accidents: 2

Other (write your own suggestion below) [*Consultant's note: Three respondents provided an "Other" response, as listed individually below.*]:

- "We need to go ahead and put a light at the intersection of 13 and 49 at the 4 way stop."
- "Widening entrance into Family Dollar store parking lot… not sure who would be responsible for this?"
- "Filling potholes in the parking lot of DHS/Country Outfitters/Clark Barber/Cash Express/BB's"

Question 6: Is there anything else you would like to tell us about transportation or mobility in the City of Erin? (If nothing else to add, please skip this question.) [*Consultant's Note: One respondent provided a comment, as listed below*.]

"A high percentage of job seekers lack transportation or a driver license. We need public transportation to assist our community with transportation to employment. MCHRA transportation does NOT provide transportation to daily employment."