FINAL REPORT

DECEMBER 16, 2015

PREPARED BY:
BUTLER, FAIRMAN & SEUFERT, INC.

LETTER OF INTRODUCTION

Butler Fairman & Seufert, Inc. (BF&S) is pleased to present the New Palestine Bike and Pedestrian Master Plan to the citizens and administrators of the Town of New Palestine, Indiana. This report is the product of a collaborative effort by city staff, BF&S design professionals, the Steering Committee, local merchants and members of the community. It is intended to serve as a guide for future alternative transportation and recreational development within New Palestine and the town's connections to the surrounding communities.

Each bicycle facility route, pedestrian improvement, program recommendation, and policy recommendation was thoroughly researched. Decisions were based on a process that consisted of a town-wide inventory and analysis process, design synthesis, public input, cost analysis, and development of design standards before ultimately reaching the master plan stage. The resulting recommendations are the best solutions to initiating a town-wide bicycle and pedestrian network. The plan is intended to be a "living document" and will serve as a long lasting foundation for future alternative transportation development

BF&S is very appreciative to have been able to assist the Town of New Palestine in this planning effort and looks forward to the implementation of these recommendations.

Respectfully submitted on the 16th day of December, 2015,

Butler, Fairman, & Seufert, Inc.

Alan L. Hamersly, P.E.

Jason G. Griffin, P.L.A.

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BACKGROUND

Several multi-use path projects have been completed within close proximity to the Town of New Palestine. A multi-use path exists at the Sugar Creek Township Park and the Town of Cumberland has constructed a multi-use path on the old Pennsy railroad corridor from German Church Road to Mt. Comfort Road (CR S 600 W). The City of Greenfield has created a multi-use path on the old Pennsy Corridor from CR S 150 W to CR S 400 E and efforts are underway to try and connect the two communities via a path along the abandoned railroad corridor.

Wishing to capitalize on connections to these other regional trails and to improve walking and biking opportunities within the Town Limits, the Town of New Palestine has decided to complete a Bicycle and Pedestrian Master Plan. The master plan will identify the best routes for making connections to destinations within the Town as well as to residential neighborhoods. The plan will include a conceptual network of on road bicycle facilities, sidewalks, and multi-use trails. Recommendations will also be made on programs and policies for the Town to implement that will help support walking and biking.

PROJECT BACKGROUND

NEED FOR THE PLAN

In the United States of America, 30% of the population currently does not drive a motor vehicle. This includes children, the elderly, those people that are physically unable to drive, those that are financially unable to afford the cost and maintenance of a vehicle, and an increasing population of those who chose to use alternative transportation for its economic, environmental, and health benefits.

Currently it is recommended that adults participate in moderate activity for 150 minutes a week. This translates to 30 minutes a day for 5 days a week. In the State of Indiana, 30% of adults fall into the obese category and 16% of teenagers are obese. This alarming fact is partly attributed to an increasingly sedentary lifestyle. In 1969 the percentage of school children walking to school was 48% and today that number is down to 13%. Getting more kids to walk or bike to school could help lower this percentage and an added benefit is that kids who walk or ride arrive ready to learn and more focused. This is also true of workers who use alternative modes of transportation.

TARGET USERS

This plan is intended for pedestrians and bicyclists who either wish to or need to make daily trips for goods and services within their community, and recreational users looking to maintain or improve their health. Users that fall into the category of needing to make trips by foot are the elderly who can no longer drive, schoolchildren, those people that are unable to afford or maintain a car and therefore need to find alternative means to make connections.

This plan is also for casual bike riders that may not be comfortable riding among automobile or truck traffic. These types of riders account for 60% of the bicycling population, and require improved infrastructure or residential streets with low traffic and speed limits to make connections within the community.

PROJECT BACKGROUND

GOALS & OBJECTIVES

1. Increase the number of people that exercise daily by providing safe walking and biking experiences for citizens of all ages and levels of ability.
2. Increase the number of people walking and bicycling for everyday transportation purposes such as commuting to work, to school and running errands.
3. Enhance community connections to neighborhoods, parks, schools, library, businesses, retail and dining, and government facilities.
4. Increase the quality of life in the Town in an effort to retain current citizens and attract new citizens.
5. Provide guidance and priorities for implementing infrastructure to support walking and bicycling with a broad range of funding and support.
6. Provide program and policy recommendations that help support and increase walking and biking in the community.
7. Provide community awareness of motorists and cyclists sharing the road through public education.
8. Increase eco-tourism in the Town by attracting people that are looking for recreational activities in the region.
9. Be ready for future funding opportunities when they present themselves.
10. Create regional connections to county facilities and surrounding communities.

SCOPE OF THE PLAN

The plan studies within the entire town limits of New Palestine. The plan investigates both on-road facilities as well as separated corridors that can be improved to enhance the existing pedestrian and bike network. A master plan for infrastructure improvements has been developed. Detailed cost estimates and phasing are provided for each route. Priority corridors are identified. Development Standards and possible funding opportunities are included for all routes. Public input has been sought throughout the master plan.

Bicycle and walking programs and policies has been developed for the entire community to help support the infrastructure plan. The programs and policies concentrate on the areas of education, encouragement, enforcement, engineering, and evaluation.

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

SCOPE MAP

LEGEND:

- Schools
- Civic Buildings
- Streets
- Town Limits
- Creek

July 16th & 17th, 2015

0 250 500 1,000 1,500 Feet

Butler Fairman Seufert CIVIL ENGINEERS

SUGAR CREEK TOWNSHIP PARK AND TRAIL

SUGAR CREEK BRANCH LIBRARY

TOWN HALL

NEW PALESTINE HIGH SCHOOL

NEW PALESTINE ELEMENTARY SCHOOL

Baltimore and Ohio Railroad

W United States Highway 52

52

PROJECT BACKGROUND

PROJECT TIME FRAME

INVENTORY
10.5 weeks

Notice To Proceed
May 21, 2015

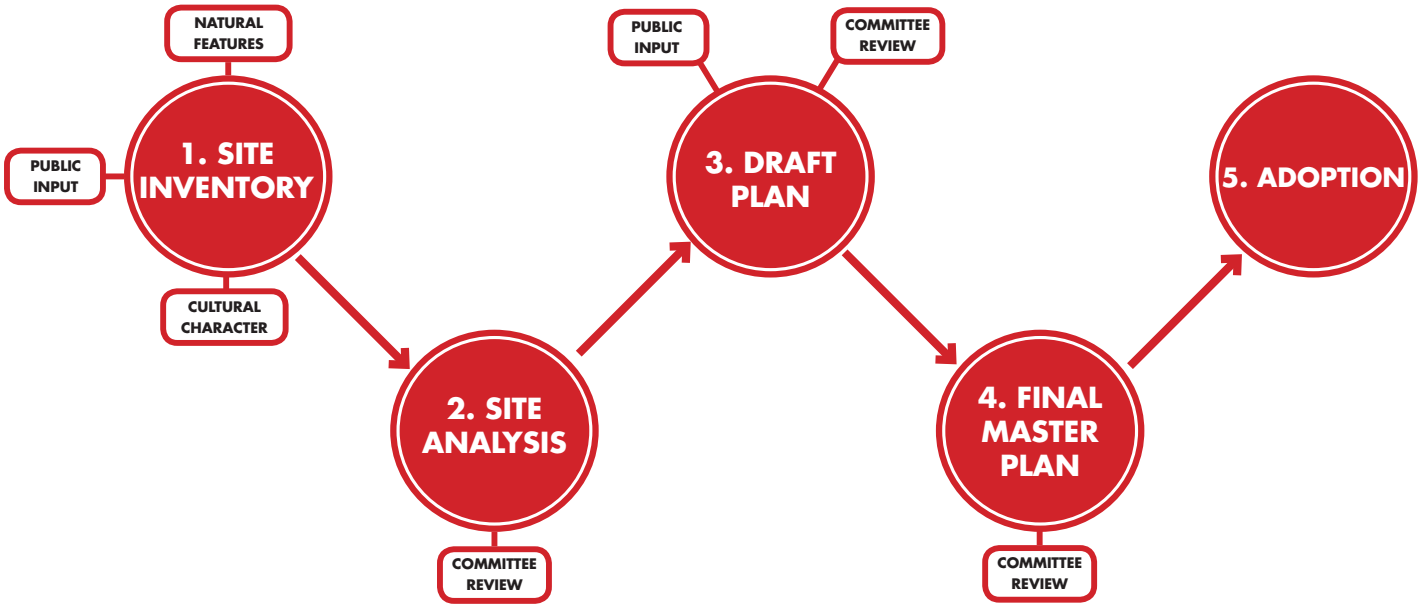
ANALYSIS
4 weeks

DRAFT
7 weeks

FINAL
8.5 weeks

Final Presentation
to Town Council
December 16, 2015

DESIGN PROCESS



NEW PALESTINE

BIKE + PEDESTRIAN MASTER PLAN

PUBLIC INVOLVEMENT

PUBLIC INVOLVEMENT

SUMMARY OF PUBLIC INPUT

In an effort to gain as much input from the members of the community, there were several meetings provided throughout the course of the plan development. Additionally, a master plan website was created to provide information to the public to provide information and to allow further input.

A Steering Committee was created consisting of several town staff members and key members from the community. The Steering Committee's role was to guide the plan and act as a sounding board for the Town. There were a series of 5 steering committee meetings held to review the major stages of the design and planning process.

Three stakeholder meetings were held during the inventory and analysis stage of the project. The groups were split into government stakeholders; private organizations; and local retail, dining, and major employers.

During the inventory and analysis phase of the project, the city held a public open house at the Town Hall to give as much opportunity for the public to express its desires and needs for the project. The open house allowed for citizens to come and go at their leisure and on their schedule. The public was allowed to participate in the process by allowing attendees to place stickers on a board designed to find out the bicycle and walking programs that they would be interested in. Aerial maps were provided so the attendees could to highlight the roadways they use to walk, run, or bike through their community, and so they could identifying dangerous roadways and intersections from their personal experience. Members of the consultant team and city staff were able to interact with the public in "one-on-one" sessions.

There were two public presentations of the Lebanon Bicycle and Pedestrian Master Plan. The first presentation was given on October 14, 2015 at the Town Hall. This presentation was given while the plan was in a draft stage, and the public was encouraged to provide feedback at the meeting. A comment sheet was also provided to allow citizens time to digest the plan and send the comment sheet back by the end of the comment period. The final presentation of the plan was given at the Town Council Meeting on December 16, 2015.

MEETING SCHEDULE

DESCRIPTION:	DATE:
Kick-off Meeting	June 24, 2015
Public Input Open House	July 16, 2015
Government Stakeholder Meeting	July 29, 2015
Private Organizations Stakeholder Meeting	July 29, 2015
Retail, Dining, and Major Employers Stakeholder Meeting	July 29, 2015
Steering Committee Meeting - Inventory Phase	July 29, 2015
Steering Committee Meeting - Analysis Phase	August 26, 2015
Steering Committee Meeting - Draft Plan Review	September 30, 2015
Draft Plan Presentation	October 14, 2015
Steering Committee Meeting - Final Plan Review	December 2, 2015
Final Plan Presentation	December 16, 2015

PUBLIC INVOLVEMENT

SUMMARY OF PUBLIC SURVEY

As mentioned previously, the public survey for this master plan was administered through the Town of New Palestine's website. The survey was advertised through the newspaper, social media, and fliers handed out at various public events. The survey consisted of 20 questions. In total, there were approximately 410 responses. Below is a summary of some of the responses. For a detailed breakdown of the responses, see Appendix B.

- Top 3 goals identified by respondents:
  - Enhance community connections to neighborhoods, parks, schools, businesses, retail and dining, and governmental facilities.
  - Increase the number of people who exercise daily by providing safe walking and biking experiences for citizens of all ages and levels of ability.
  - Improve the quality of life in the Town of New Palestine in an effort to retain current citizens and attract new citizens.
- The age group with the most responses were from both the 35 - 44 and 45 - 64 age groups.
- Only 9% indicated they would use network to commute.
- 32% would use network for their daily routines, such as running errands.
- 33% would use in the winter. Fall was the most popular ranked season for use.
- 43% of respondents do not bike on a regular basis. 54% would not use an on-road bike facility, and would prefer a separated path.
- Majority of respondents walk or jog 2 to 3 times a week. They walk between 1 - 10 miles in a week's time.
- Only 3% of children currently walk or bike to school.
- The most favorable time to use the network is weekday evenings after 5:00 PM.
- Change of personal behavior for enhanced bike and pedestrian network:
  - Only 5% of respondents would not change their behavior.
  - 75% would increase their walking and bicycling for wellness.
  - 55% would support public funding for improving bicycle and pedestrian networks.

NEW PALESTINE

BIKE + PEDESTRIAN MASTER PLAN

INVENTORY & ANALYSIS

INVENTORY & ANALYSIS

SUMMARY OF INVENTORY

Following the input from the community at the public open house and stakeholder meetings, the design team documented the existing infrastructure and conditions along the desired routes for the master plan. Utilities, light poles, street trees, water ways, and buildings were located along each route segment. Measurements of road lane widths, buffer widths, and sidewalk widths were also documented. The infrastructure and measurements were used to create drawings of the existing cross sections of the route.

By creating physical renderings of each route segment, it developed the base for design. The following map and cross sections visually translate what the inventory findings are.

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

INVENTORY MAP

LEGEND:

- Schools
- Civic Buildings
- Commercial Area
- Streets
- Town Limits
- Creek

July 16th & 17th, 2015

0 250 500 1,000 1,500 Feet

BF&S Butler Fairman Seufert CIVIL ENGINEERS

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SUGAR CREEK TOWNSHIP PARK AND TRAIL

SUGAR CREEK BRANCH LIBRARY

TOWN HALL

NEW PALESTINE HIGH SCHOOL

NEW PALESTINE ELEMENTARY SCHOOL

Baltimore and Ohio Railroad

Sugar Creek

300S

330 South

W Parker Ln

W Countryside Dr

W Barnwood Dr

W Stonehaven Ln

W Stone Way

W Village Dr

W Raesner South Dr

Tomke Dr

Leemar Rd

Windmill Way

Rockway Dr

Pine Bluff Dr

Cedar Creek Dr

Cedar Creek Pl

S Harting Farms Dr

W Granite Ct

W Eland Dr

W Country Way

Countryside Ct

W United States Highway 52

52

W Woodcrest Dr

W Hackberry Trl

W Baywood Dr

Stinemyer Rd

W Mill St

W Walnut St

W Larrabee St

W Schultz St

W Main St

W North St

E North St

E Trees St

E Mill St

S School St

E Main St

Highland Ave

Wilson Dr

Main Dr

Cornerstone Dr

W Woodbridge Ln

W Eagle Trce

S Woodbridge Ln

S Cabin Ct

W Ken Ln

630W

650W

565W

500W

450W

400W

S Wollenweber

S Parker Ln

W Morgan Ct

S Fielding Rd

S Berlander Dr

S Theodore Ln

S Applegate Dr

South Parkside Dr

S Leonard Rd

Homestead Dr

Stonehaven Ln

S Eland Dr

S Fallow Trl

S Willow Grove Dr

S Rosewind Dr

W Cross Trl

S Redbird Trl

S Loganberry Ct

S Black Oak Ln

S Cider Mill Run

S Danita Ct

S Amber Ct

S Kelly Dr

S Brooklawn Dr

S Blackberry Ct

S Grassy Ct

S Mudcreek Ct

S Victory Dr

N Central St

N Depot St

N School St

N Oak St

N Cedar St

Ash St

S Maple St

Allen St

N Bittner Rd

Cedar Creek Ln

Cedar Cove Ct

West Dr

East Dr

Conner St

Bardonner St

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

CROSS SECTION LOCATION MAP

LEGEND:

- On-Road Route Segments
- Streets
- Town Limits
- Creek

*The number associated with each on-road route segment corresponds with a matching cross section segment.

July 29, 2015

0 250 500 1,000 1,500 Feet

Butler Fairman & Seufert CIVIL ENGINEERS

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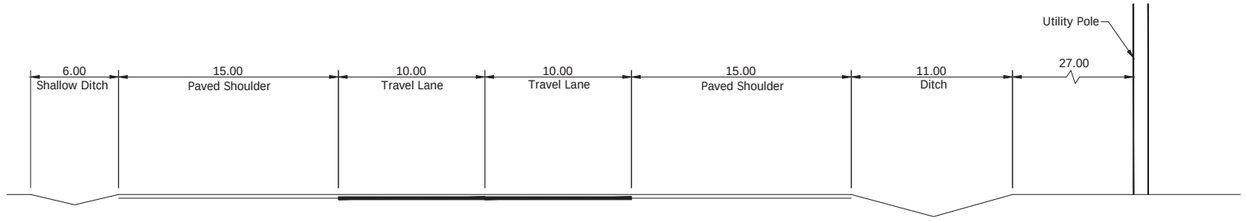
EXISTING CROSS SECTIONS



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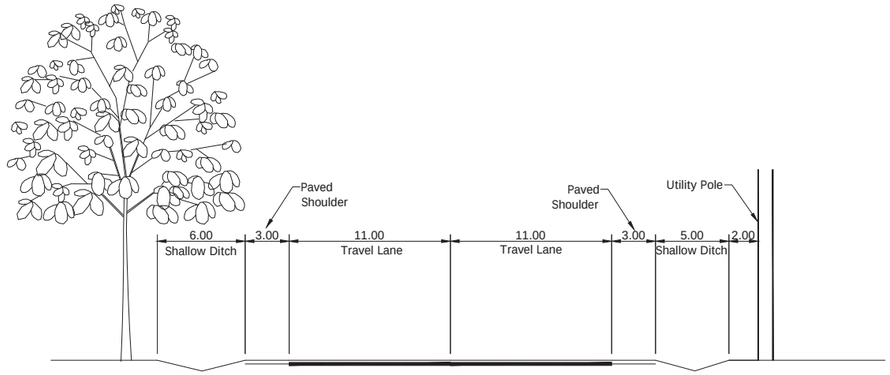

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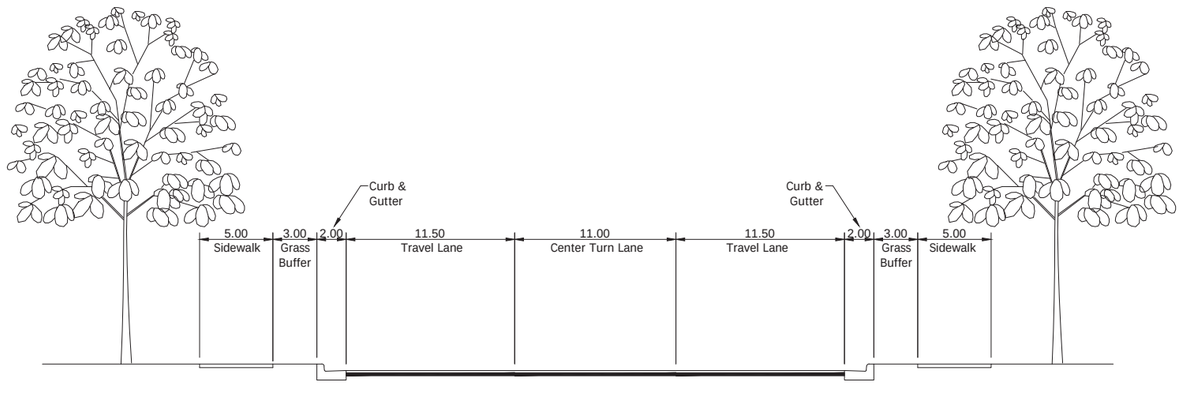
From Greenfield Baking Entrance Drive to 500 W



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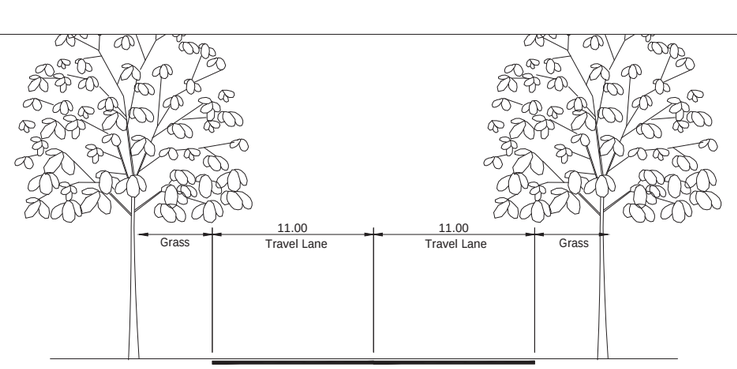
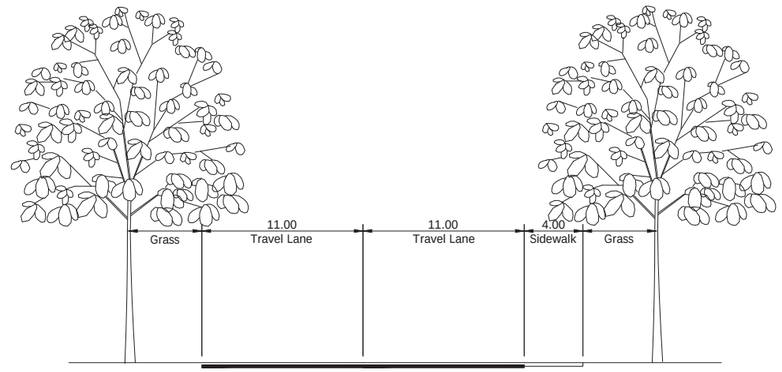
From 500 W to Sugar Creek Drive



4). Mill Street
SCALE: 1" = 10'
From 500 W to 225' to Central Street



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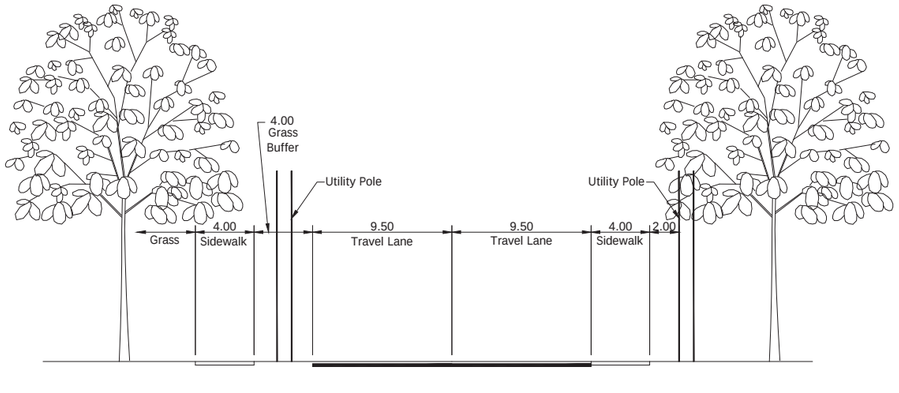
From 225' to Central Street to Depot Street



6). Mill Street
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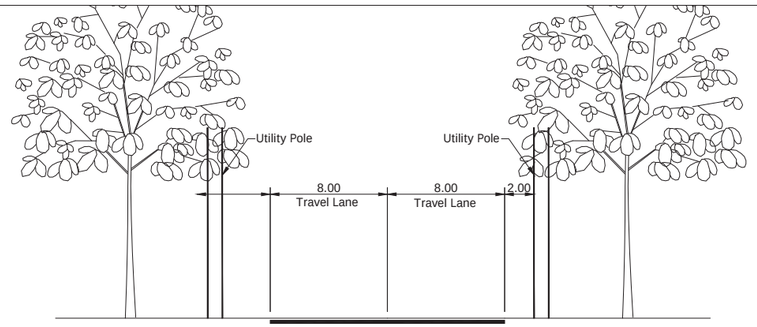
From Depot Street to 450 W

EXISTING CROSS SECTIONS



7). 600 W
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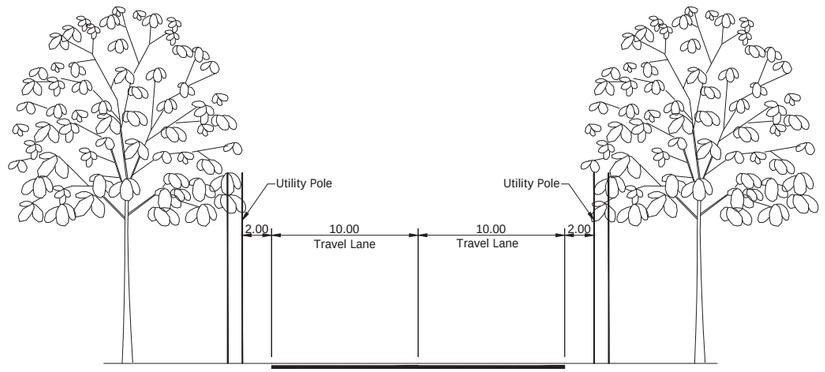
From Woodcrest Drive to State Road 52



8). 600 W
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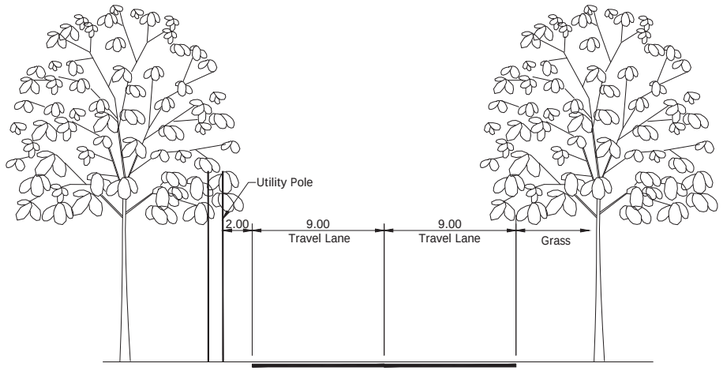
From State Road 52 to 300 S



9). Gem Road
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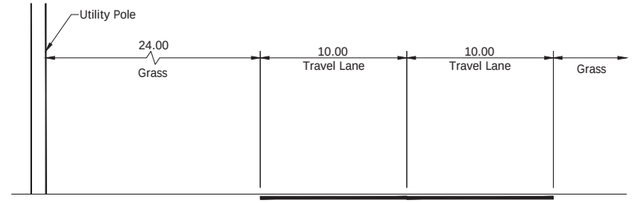
From N.P. Cemetery Entrance to State Road 52



10). Gem Road
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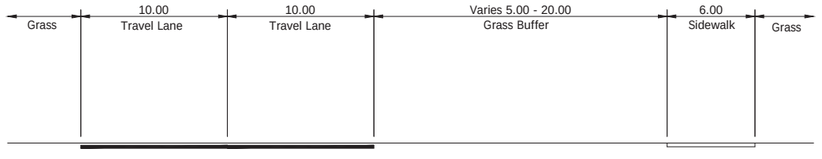
From State Road 52 to Stonehaven Lane



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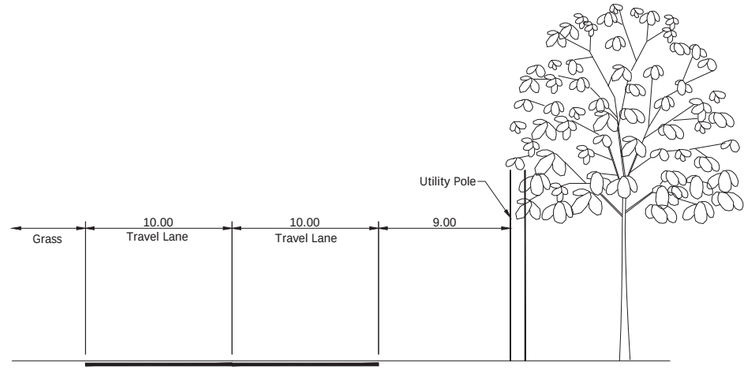
From Stonehaven Lane to Cedar Grove Drive



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From Cedar Grove Drive to 300 S

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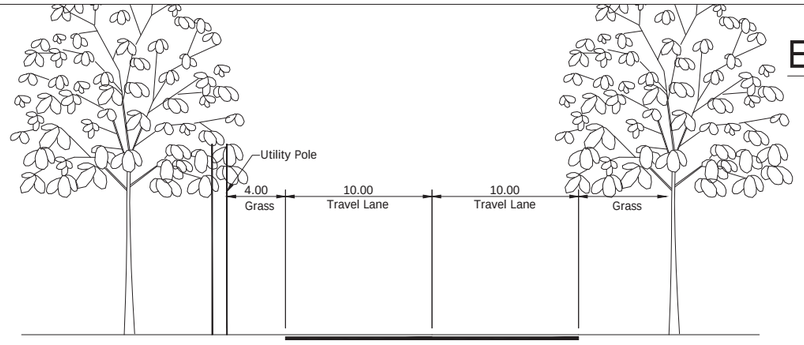

13). 450 W
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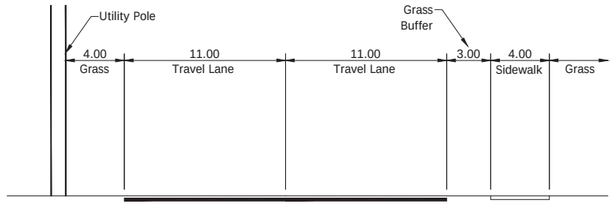
From Sugar Creek to Artesian Lane



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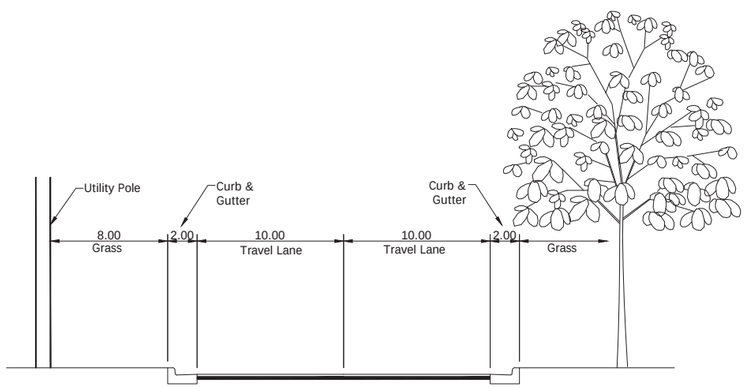
From Artesian Lane to State Road 52



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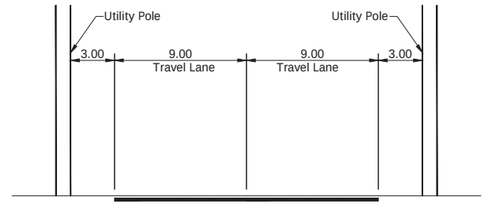
From State Road 52 to RR Bridge



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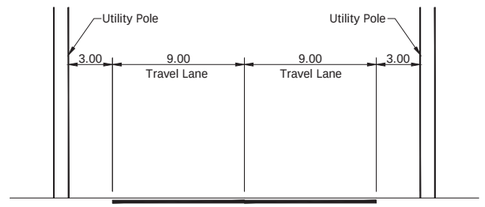
From RR Bridge to 300 S



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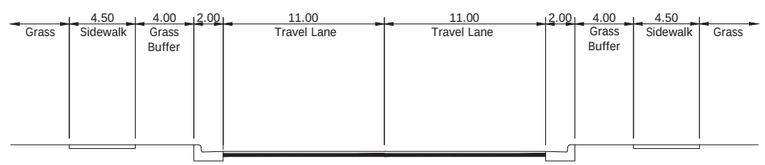
From 500 W to 450 W



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From 500 W to Cedar Creek Lane

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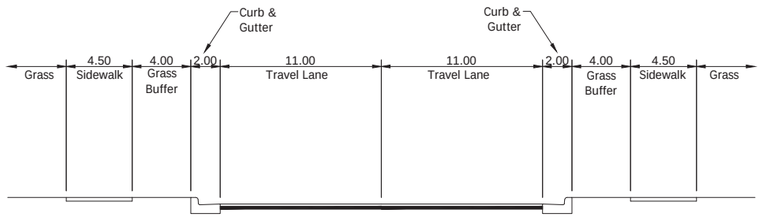

19). Cedar Creek Lane
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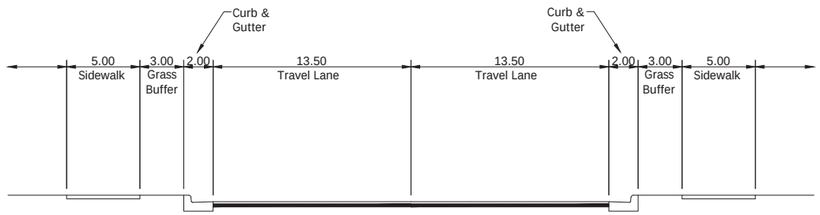
From Cedar Creek Place to End of Cedar Creek Lane



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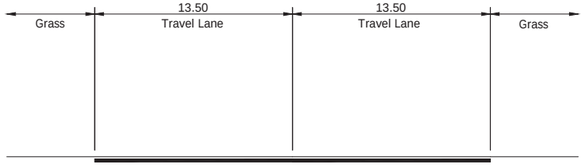
From End of Lawrence Way to 450 W



21). Country Side Drive
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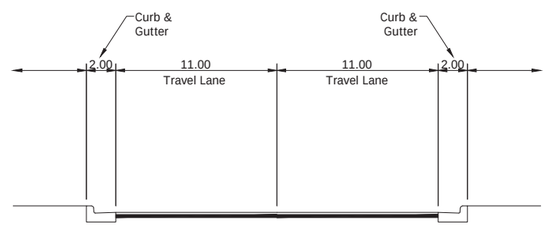
From 600 W to Homestead Drive



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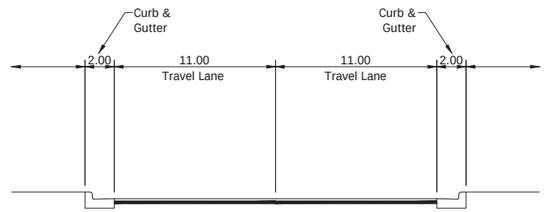
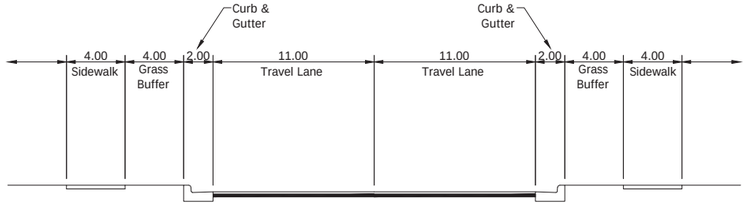
From Country Side Drive to Stonehaven Lane

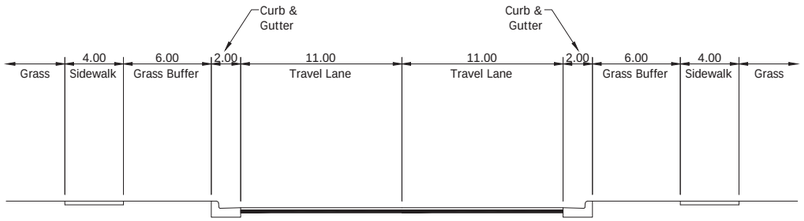


23). Stonehaven Lane
SCALE: 1" = 10'
From Homestead Drive to 500' before Loganberry Court

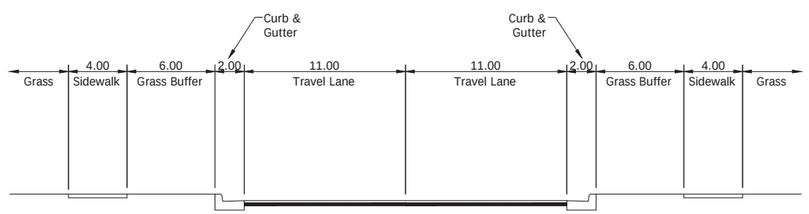


24). Stonehaven Lane
SCALE: 1" = 10'
From 500' before Loganberry Court to 500 W

EXISTING CROSS SECTIONS



25). Stonehaven Lane
SCALE: 1" = 10'
From 500 W to Bridgewood Boulevard



26). Bridgewood Boulevard
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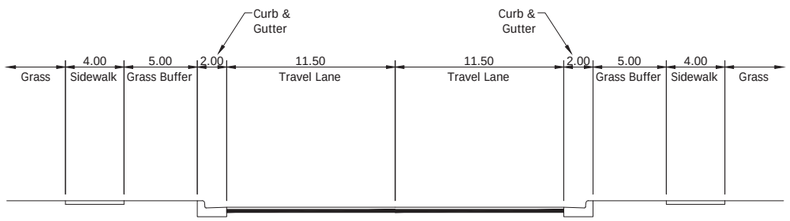
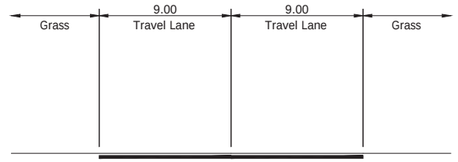
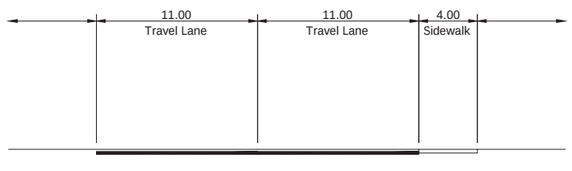
From Stonehaven Lane to 450 W



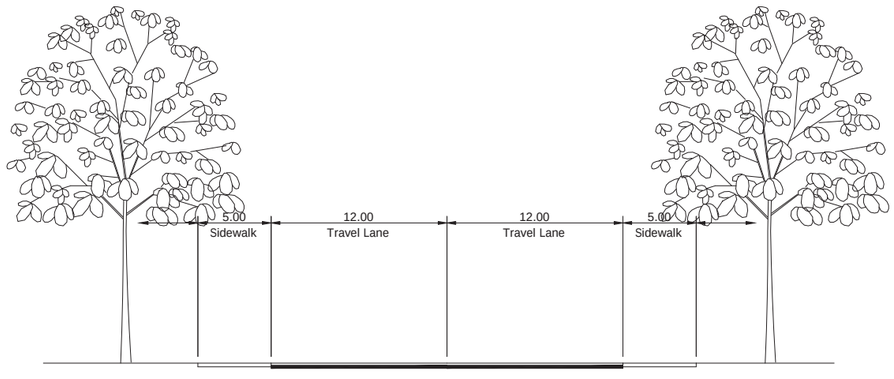
27). Kelly Drive
SCALE: 1" = 10'
From Stonehaven Lane to North Street



28). North Street
SCALE: 1" = 10'
From Kelly Drive to Depot Street

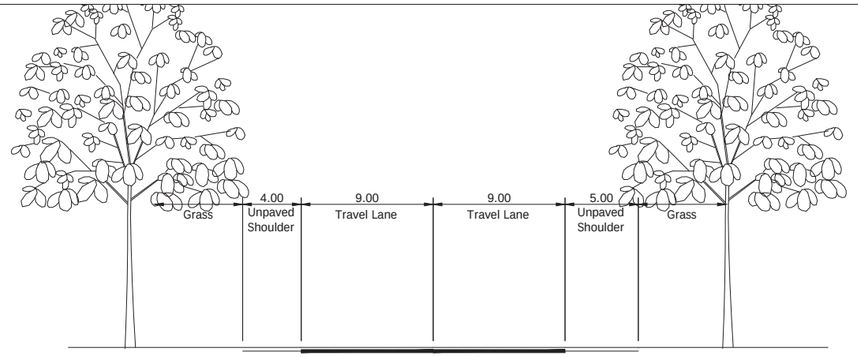


29). North Street
SCALE: 1" = 10'
From Depot Street to 450 W

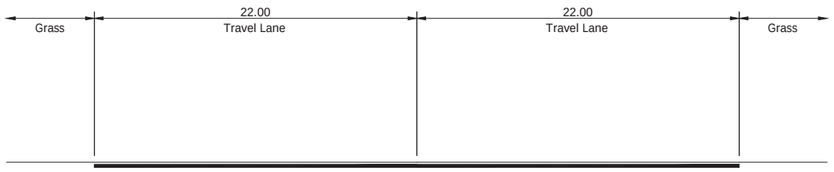


30). Depot Street
SCALE: 1" = 10'
From North Street to State Road 52

EXISTING CROSS SECTIONS



31). 400 S
SCALE: 1" = 10'
From 450 W to 400 W



32). School Street
SCALE: 1" = 10'
From 500 W to Victory Drive

BIKEABILITY CONDITIONS

Many of New Palestine's residential streets have low volumes of vehicles and low speeds. Therefore, there are already many on-road facilities that can be safely used for bicycling by the citizens. However, these routes are disjointed from one another and certain existing routes span the length of the community are heavily traveled or have high speeds. Contributing to this lack of connection is US 52 / Main Street, 600 W, Gem Road, and Bittner Road. US 52 / Main Street separates the community almost in half where retail and dining is predominately located. Another major factor that limits bicycle travel is the CSX Railroad. There are three at-grade railroad crossings at 600 W, Gem Road, and Depot Street and one elevated crossing at Bittner Road.

The design team measured and created mid-block cross sections of the streets along identified "desired" routes as part of the inventory process, and analyzed them to visualize where opportunities were available to gain space for bicycle facilities along roadways. The team looked at the existing lane widths to understand if it narrowing the lanes would be appropriate and how much space could be gained from that treatment. Opportunities and constraints were recognized at each mid-block section based on apparent available right-of-way, existing utilities, drainage structures, curb type, distance from street to building, and utilization of on-street parking.

Measurements of the mid-block geometry of each route along with the average daily traffic, speed limit, and percent of commercial traffic, were inserted into a Bicycle Level of Service Calculator (BLOS). The BLOS is a nationally-used measure of on-road bicycle level of comfort based upon a roadway's geometry and traffic conditions. Its intent is to understand the comfort level of a beginner to intermediate rider.

The Route Location Map indicates where measurements were taken for the cross sections and the stretch of roadway that the measurements covered.

A map was created that reveals the existing BLOS conditions by color coding those routes that are more suitable for casual riders and those that are currently more appropriate for expert riders.

The following map illustrates the existing BLOS for the routes studied. A grade of "A" through "B" indicates that the route is suitable for a casual rider. A grade that equals high "C" indicates that the route is borderline suitable for casual riders. A grade of "D" through "F" means that only expert riders would feel comfortable riding the route in its present conditions and that an improvement is needed.

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

INVENTORY BLOS

LEGEND:

- Schools
- Civic Buildings
- Streets
- Town Limits
- Creek
- INVENTORY BLOS: A
- INVENTORY BLOS: B
- INVENTORY BLOS: C
- INVENTORY BLOS: D
- INVENTORY BLOS: E
- INVENTORY BLOS: F

August 26, 2015

0 250 500 1,000 1,500 Feet

BF&S Butler Fairman Seufert CIVIL ENGINEERS

N

SUGAR CREEK TOWNSHIP PARK AND TRAIL

SUGAR CREEK BRANCH LIBRARY

TOWN HALL

NEW PALESTINE HIGH SCHOOL

NEW PALESTINE ELEMENTARY SCHOOL

Sugar Creek

Baltimore and Ohio Railroad

300S

630W

W Morgan Ct

S Parker Ln

W Parker Ln

330 South

W Cross Trl

S Willow Grove Dr

S Rosewind Dr

S Wollenweber

High Acres

S Fielding Rd

S Berlander Dr

S Theadora Ln

W Village Dr

Raesner Dr

W Raesner South Dr

Tomke Dr

S Leonard Rd

Leemar Rd

South Parkside Dr

S Applegate Dr

Windmill Way

Rockway Dr

Homestead Dr

Stonehaven Ln

W Countryside Dr

Countryside Ct

S Eland Dr

S Fallow Trl

W Eland Dr

W Country Way

W Stone Way

Pine Bluff Dr

Cedar Grove Ct

Cedar Creek Ln

Cedar Creek Pl

W Barnwood Dr

S Harting Farms Dr

S Stonehaven Ln

W Granite Ct

S Redbird Trl

N Gem Rd

Cedar Creek Dr

S Loganberry Ct

S Black Oak Ln

S Cider Mill Run

W Stonehaven Ln

S Danita Ct

S Amber Ct

S Kelly Dr

450W

400W

W Ken Ln

S Allen St

West Dr

East Dr

Main Dr

Cornerstone Dr

W Woodbridge Ln

W Eagle Trce

S Cabin Ct

S Woodbridge Ln

W North St

E North St

E Trees St

E Mill St

W Mill St

W Walnut St

W Larrabee St

W Schultz St

N Central St

N Sahler St

N Depot St

N Oak St

N Cedar St

Ash St

S Maple St

Allen St

N Britner Rd

S Victory Dr

S School St

Wilson Dr

E Main St

Highland Ave

Conner St

Bardonner St

52

W United States Highway 52

600 W

650W

565W

S 565W

S Brookhawn Dr

W Woodcrest Dr

W Hackberry Trl

W Baywood Dr

S Blackberry Ct

S Grassy Ct

S Mudcreek Ct

Stinemyer Rd

500W

WALKABILITY CONDITIONS

The core of New Palestine's downtown area is comprised of consistently sized, relatively short blocks which lend themselves well to making pedestrian connections. There are good pedestrian facilities within the residential neighborhoods, but there is no connection between the different neighborhoods. Aside from Main Street's beautiful streetscape and sidewalks, connecting into downtown from the surrounding residential neighborhoods is hardly possible.

As mentioned previously in the Bikeability Conditions section, US 52 / Main Street, 600 W, Gem Road, Bittner Road, and the CSX Railroad create barriers for the community in utilizing alternative modes of transportation.

The team analyzed the same corridors for pedestrian level of service that were analyzed for bikeability conditions to see if the corridor would support both biking and walking. Corridors that currently had sidewalks on both side of the streets were deemed as highly walkable, corridors or sections of corridors with a sidewalk located only on one side were deemed borderline walkable, and sections that had sidewalks on neither side of the road were considered not walkable. Existing sidewalks were also evaluated based upon the condition of the current sidewalk.

A map was then created that summarizes the existing Pedestrian Level of Service (PLOS) conditions by color coding those sections that are more suitable for walking and those that need improvement. Based upon the PLOS map it was determined that most of the residential areas falls into the A and B level and is considered on the high side of walkability. Sections that fell into the C level are considered borderline walkable, and D-F levels are considered less walkable or not walkable. The less walkable sections appeared to mostly be located away from the core of the downtown, and along county roads.

The following map illustrates the existing PLOS for the study area.

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

INVENTORY PLOS

LEGEND:

- Schools
- Civic Buildings
- Streets
- Town Limits
- Creek
- INVENTORY PLOS: A
- INVENTORY PLOS: B
- INVENTORY PLOS: C
- INVENTORY PLOS: D
- INVENTORY PLOS: E
- INVENTORY PLOS: F

August 26, 2015

0 250 500 1,000 1,500 Feet

Butler Fairman Seufert CIVIL ENGINEERS

SUGAR CREEK TOWNSHIP PARK AND TRAIL

SUGAR CREEK BRANCH LIBRARY

NEW PALESTINE HIGH SCHOOL

NEW PALESTINE ELEMENTARY SCHOOL

TOWN HALL

Sugar Creek

Baltimore and Ohio Railroad

300S

330 South

W United States Highway 52

600 W

500W

450W

400W

630W

650W

565W

S Parker Ln

W Parker Ln

W Morgan Ct

S Wollenweber

S Fielding Rd

S Berlander Dr

S Theodore Ln

W Village Dr

Raesner Dr

W Raesner South Dr

Tomke Dr

S Leonard Rd

Leemar Rd

S Applegate Dr

South Parkside Dr

Windmill Way

Rockway Dr

Homestead Dr

Stonehaven Ln

W Countryside Dr

Countryside Ct

S Eland Dr

S Fallow Trl

W Eland Dr

W Country Way

W Stone Way

Pine Bluff Dr

Cedar Cove Ct

Cedar Creek Ln

Cedar Creek Pl

W Barnwood Dr

S Harning Farms Dr

S Redbird Tr

W Granite Ct

S Stonehaven Ln

N Gem Rd

Cedar Creek Dr

S Loganberry Ct

S Black Oak Ln

S Cedar Mill Run

W Stonehaven Ln

S Danita Ct

S Amber Ct

S Kelly Dr

W Ken Ln

W Woodbridge Ln

W Eagle Trce

S Cabin Ct

S Woodbridge Ln

Main Dr

Cornerstone Dr

West Dr

East Dr

W North St

E North St

E Trees St

E Mill St

W Mill St

W Walnut St

W Main St

W Lorrabee St

W Schultz St

N Depot St

N Central St

N School St

N Oak St

N Cedar St

Ash St

S Maple St

Allen St

N Bittner Rd

Wilson Dr

E Main St

Highland Ave

Conner St

Bardonner St

S School St

S Victory Dr

S 500 W

S 565W

S Brooklawn Dr

W Woodcrest Dr

W Hackberry Trl

W Baywood Dr

S Blackberry Ct

S Grassy Ct

S Muddcreek Ct

Stinemyer Rd

52

SUMMARY OF ANALYSIS

After the design team gathered information and data during the inventory phase, they used the information to analyze where the opportunities and constraints of the project lay.

The following map and cross sections visually translate what the analysis findings are.

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

ANALYSIS MAP

LEGEND:

- Schools
- Civic Buildings
- Commercial Area
- Streets
- Town Limits
- Creek

EXISTING SIDEWALK, NEEDS WIDENING AND CONNECTION TO CHURCH

NEED TO CONNECT NEIGHBORHOODS ACROSS GEM ROAD

NEED SAFE CONNECTIONS TO DOWNTOWN, COMMERCIAL AREAS AND THE SCHOOLS

ONLY GROCERY STORE IN THE COMMUNITY

US 52, GEM RD, & RAILROAD CREATE MAJOR BARRIERS ACROSS TOWN

SUGAR CREEK TOWNSHIP PARK AND TRAIL

SUGAR CREEK BRANCH LIBRARY

TOWN HALL

NEW PALESTINE HIGH SCHOOL

NEW PALESTINE ELEMENTARY SCHOOL

Baltimore and Ohio Railroad

Sugar Creek

300S

330 South

W Parker Ln

W Village Dr

W Raesner South Dr

Tomke Dr

Raesner Dr

S Leonard Rd

Rockway Dr

Windmill Way

Pine Bluff Dr

W Stone Way

W Barnwood Dr

W Granite Ct

S Harting Farms Dr

Cedar Creek Dr

Stonehaven Ln

W Countryside Dr

W Eland Dr

W Country Way

Countryside Ct

W United States Highway 52

W Woodcrest Dr

W Hackberry Trl

W Baywood Dr

Stinemyer Rd

S Danite Ct

S Kelly Dr

W North St

W Mill St

W Walnut St

W Larrabee St

W Schultz St

E North St

E Trees St

E Mill St

W Eagle Trce

S Cabin Ct

S Woodbridge Ln

Wilson Dr

E Main St

Highland Ave

S School St

Main Dr

Cornerstone Dr

W Ken Ln

Bardonner St

Conner St

630W

650W

565W

S 565W

500W

450W

400W

52

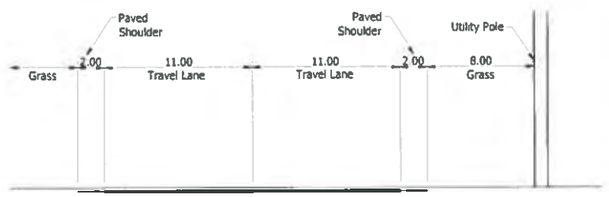
September 26, 2015

0 250 500 1,000 1,500 Feet

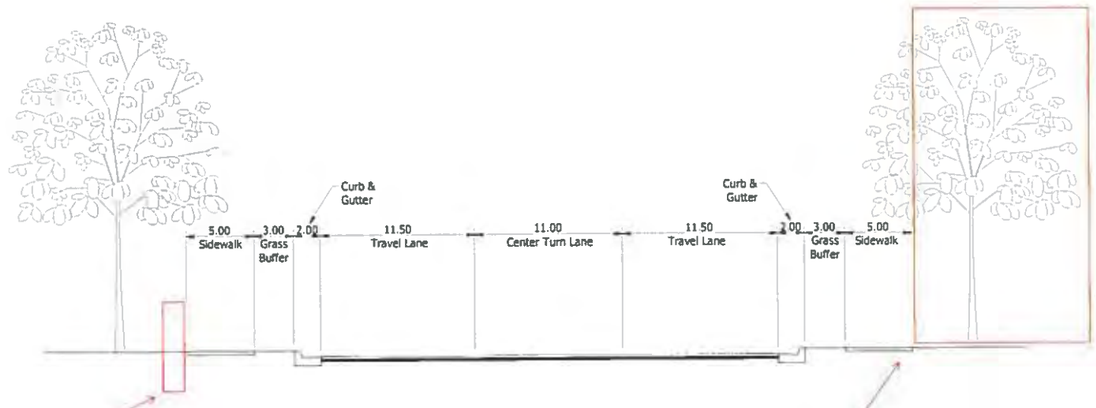
Butler Fairman Seufert CIVIL ENGINEERS

EXISTING CROSS SECTIONS

No room to place facilities within assumed ROW



1). State Road 52
SCALE: 1" = 10'
From 520' Before 650 W to 600 W

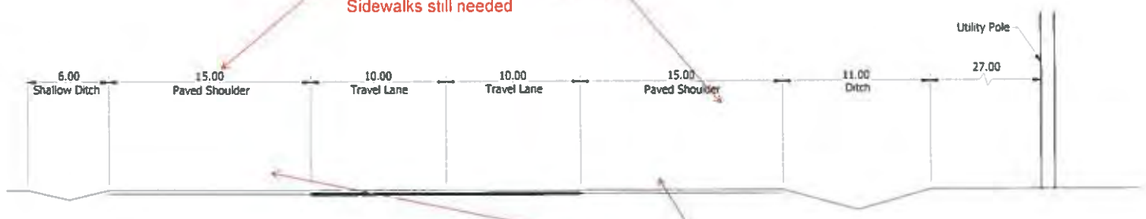


Retaining wall allows no room for widening sidewalk to shared use path standards

4). State Road 52
SCALE: 1" = 10'
From 500 W to Sugar Creek Drive

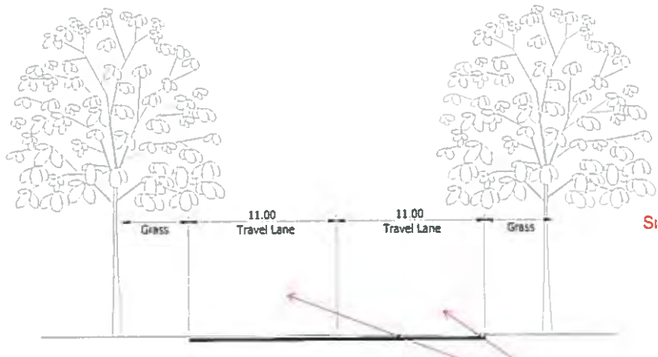
Buildings allow no room for widening sidewalk to shared use path standards

Extremely wide shoulders provide room for on road bicycle facilities
Sidewalks still needed



2). State Road 52
SCALE: 1" = 10'
From 600 W to Greenfield Baking Entrance Drive

Shoulders narrow to 5 feet across box culvert section

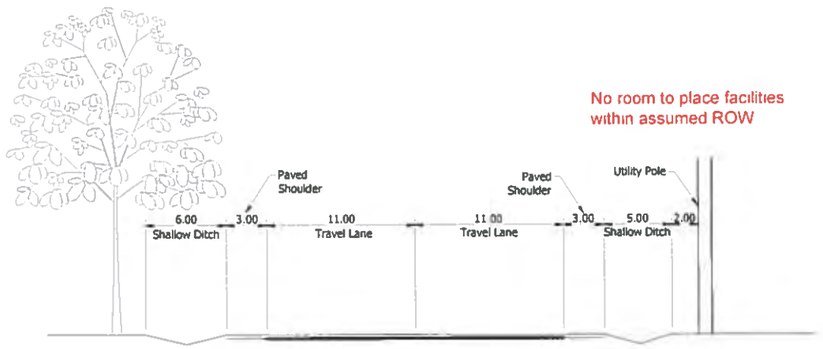


Sidewalk needed

5). Mill Street
SCALE: 1" = 10'
From 500 W to 225' to Central Street

Might be able to narrow lanes to 10 feet

No room to place facilities within assumed ROW



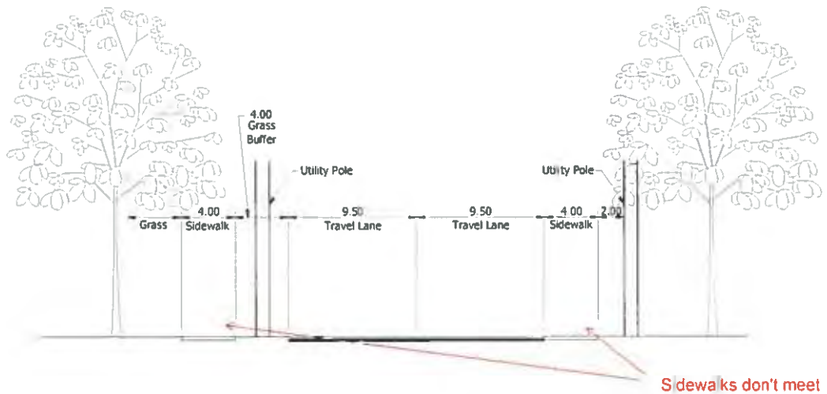
3). State Road 52
SCALE: 1" = 10'
From Greenfield Baking Entrance Drive to 500 W

Mill Street runs parallel with Main Street / US 52
Possibility of creating a bicycle boulevard

Might be able to narrow lanes to 10 feet

6). Mill Street
SCALE: 1" = 10'
From 225' to Central Street to Depot Street

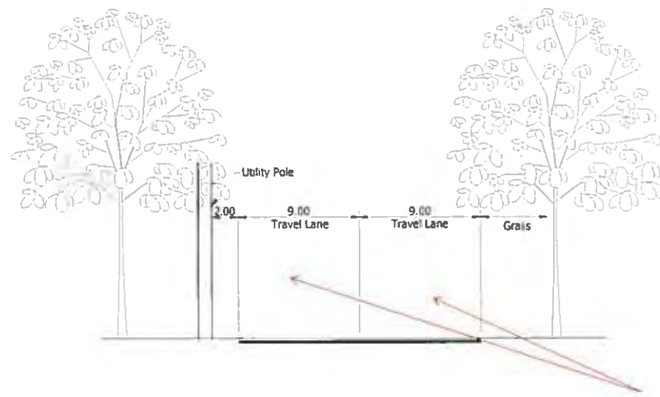
EXISTING CROSS SECTIONS



No room to place facilities within assumed ROW

Sidewalks don't meet ADA standards

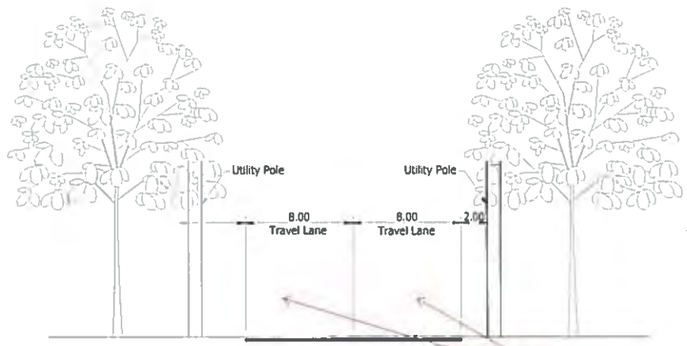
7). Mill Street
SCALE: 1" = 10'
From Depot Street to 450 W



Approx 40' ROW

Narrow Lanes create additional conflict

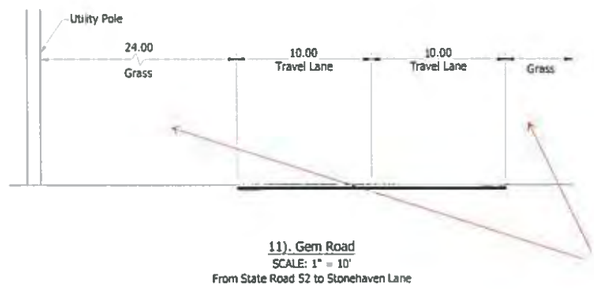
10). Gem Road
SCALE: 1" = 10'
From N.P. Cemetery Entrance to State Road 52



Approx 40' ROW

Narrow Lanes create additional conflict

8). 600 W
SCALE: 1" = 10'
From Woodcrest Drive to State Road 52

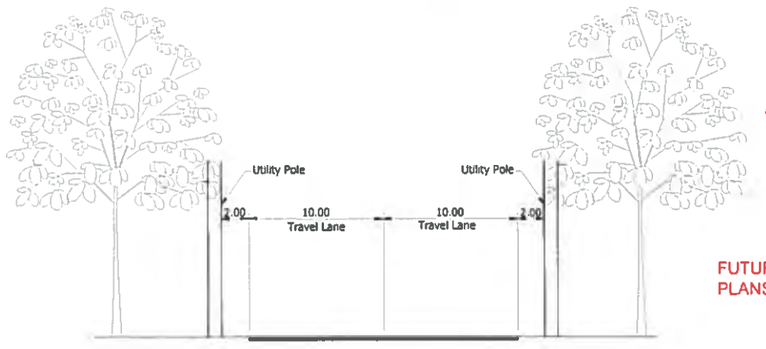


North of RR = Approx 40' Half ROW on East Side

South of RR = Approx 40' ROW

Room for shared use path boths sides

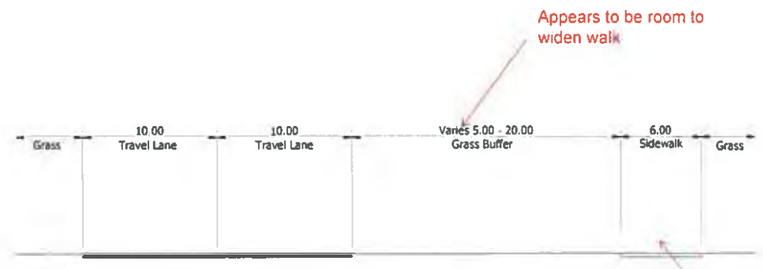
11). Gem Road
SCALE: 1" = 10'
From State Road 52 to Stonehaven Lane



Approx 100' ROW

FUTURE EXPANSION PLANS BY COUNTY

9). 600 W
SCALE: 1" = 10'
From State Road 52 to 300 S

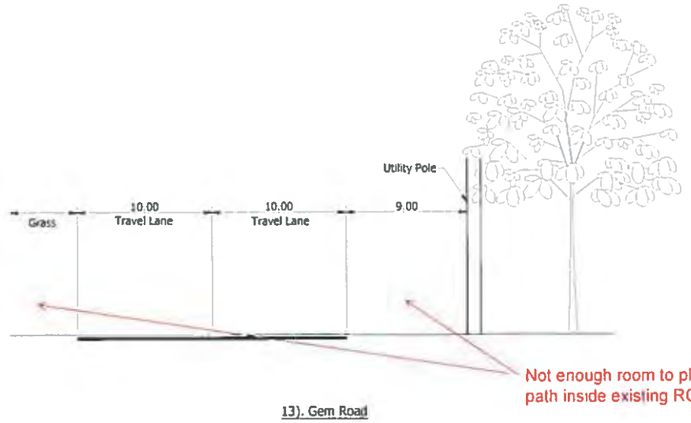


Appears to be room to widen walk

Existing sidewalk is not wide enough for 2-way bike travel

12). Gem Road
SCALE: 1" = 10'
From Stonehaven Lane to Cedar Grove Drive

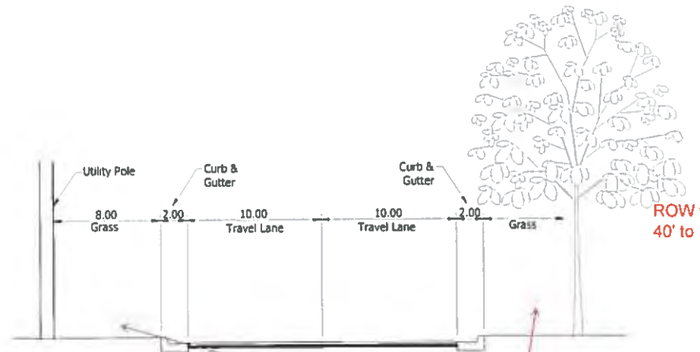
EXISTING CROSS SECTIONS



Aprox 40' ROW

Not enough room to place a path inside existing ROW

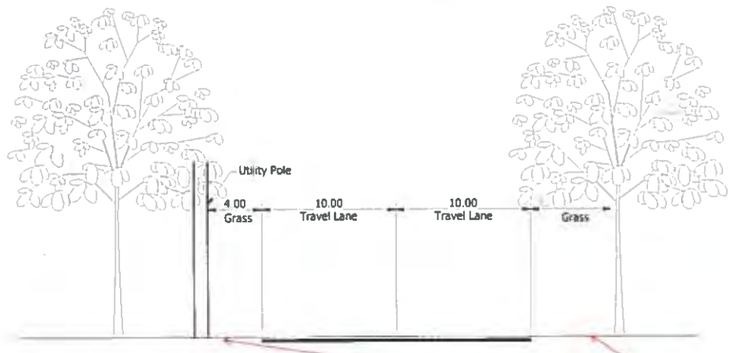
13). Gem Road
SCALE: 1" = 10'
From Cedar Grove Drive to 300 S



ROW varies from 40' to 120'

Existing sidewalks both sides

16). 450 W
SCALE: 1" = 10'
From State Road 52 to RR Bridge



Aprox 40' ROW

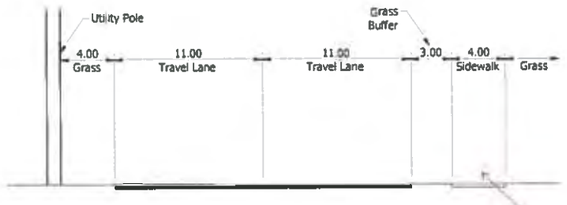
Not enough room to place a path inside existing ROW

14). 450 W
SCALE: 1" = 10'
From Sugar Creek to Artesian Lane

Aprox 40' ROW

Narrow lanes create conflicts

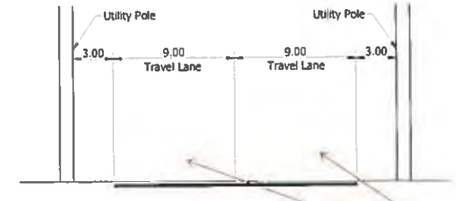
17). 450 W
SCALE: 1" = 10'
From RR Bridge to 300 S



Aprox 40' ROW

Sidewalk does not meet ADA requirements

15). 450 W
SCALE: 1" = 10'
From Artesian Lane to State Road 52

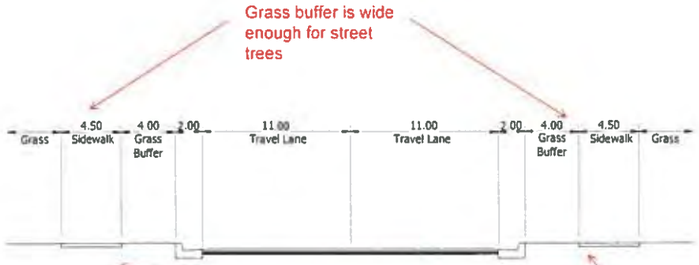


Aprox 40' ROW

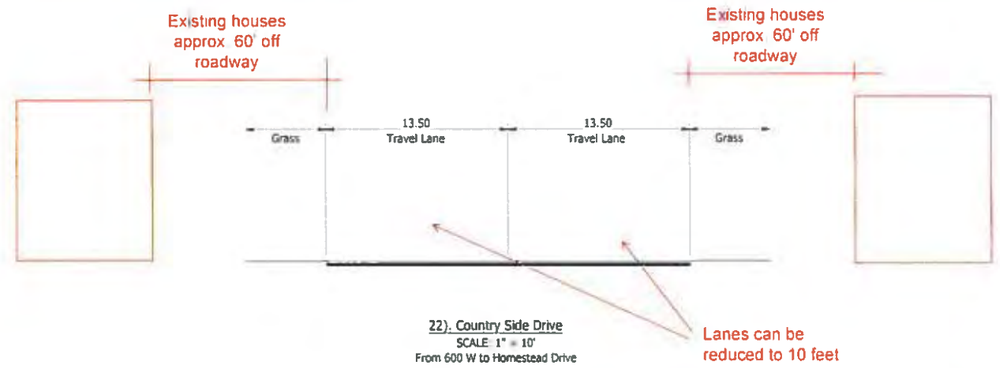
Narrow lanes create conflicts

18). 300 S
SCALE: 1" = 10'
From 500 W to 450 W

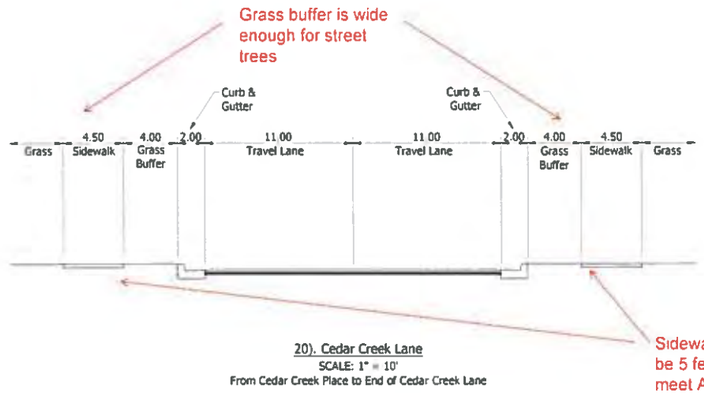
EXISTING CROSS SECTIONS



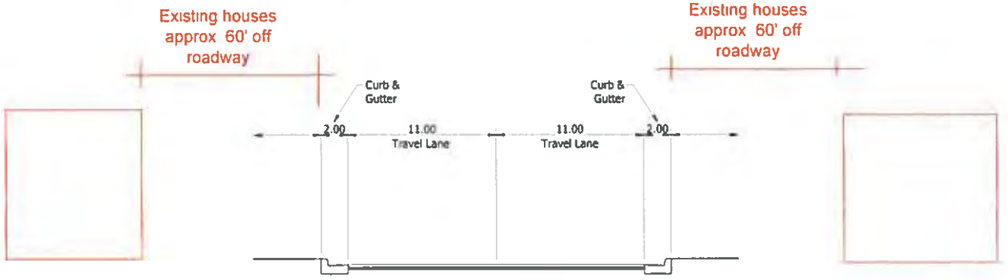
19). Cedar Creek Place
SCALE: 1" = 10'
From 500 W to Cedar Creek Lane



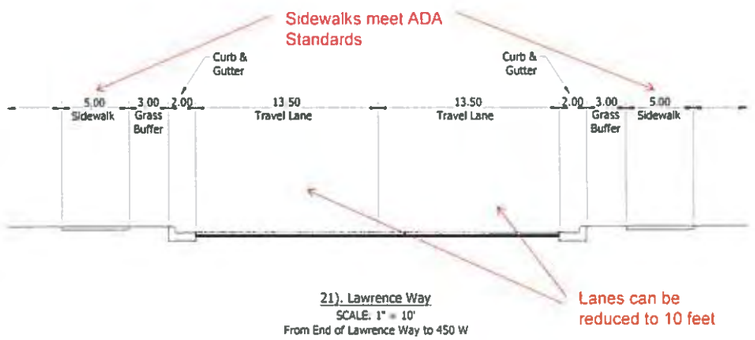
22). Country Side Drive
SCALE: 1" = 10'
From 600 W to Homestead Drive



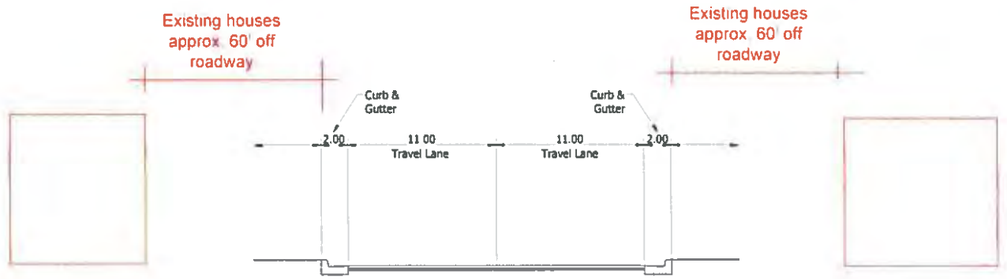
20). Cedar Creek Lane
SCALE: 1" = 10'
From Cedar Creek Place to End of Cedar Creek Lane



23). Homestead Drive
SCALE: 1" = 10'
From Country Side Drive to Stonehaven Lane

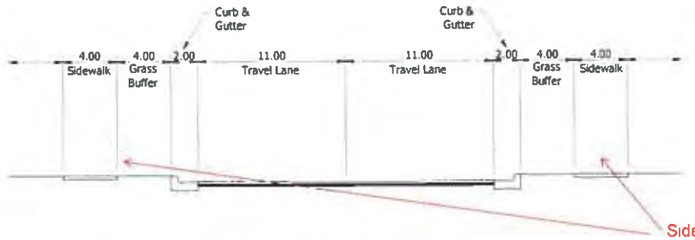


21). Lawrence Way
SCALE: 1" = 10'
From End of Lawrence Way to 450 W

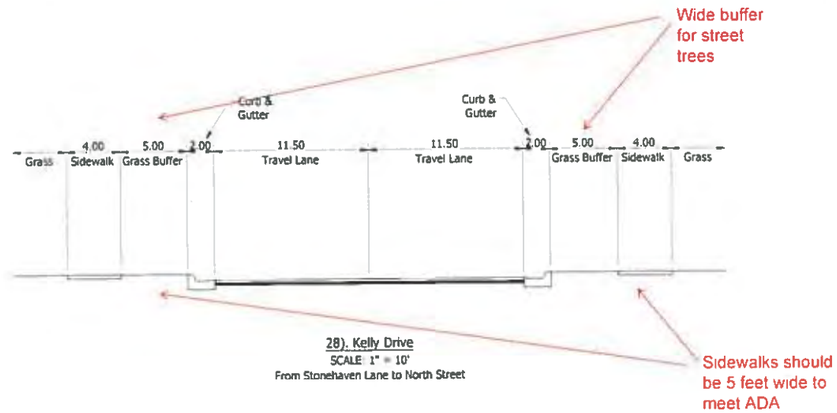


24). Stonehaven Lane
SCALE: 1" = 10'
From Homestead Drive to 500' before Loganberry Court

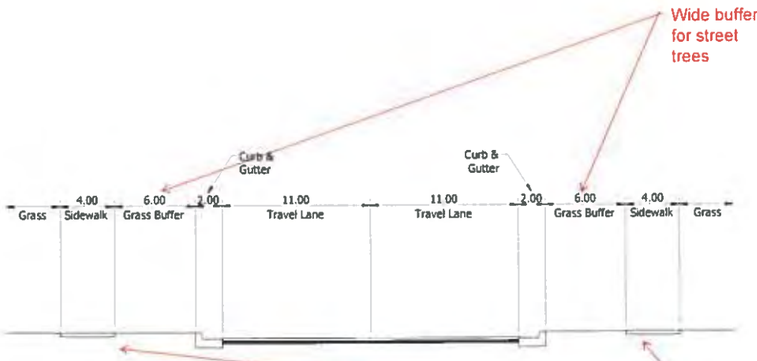
EXISTING CROSS SECTIONS



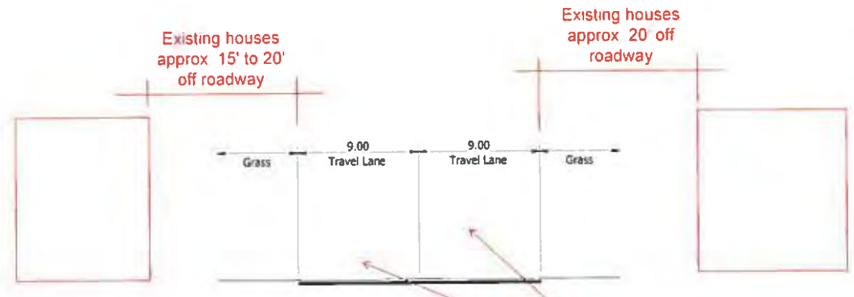
25). Stonehaven Lane
SCALE: 1" = 10'
From 500' before Loganberry Court to 500 W



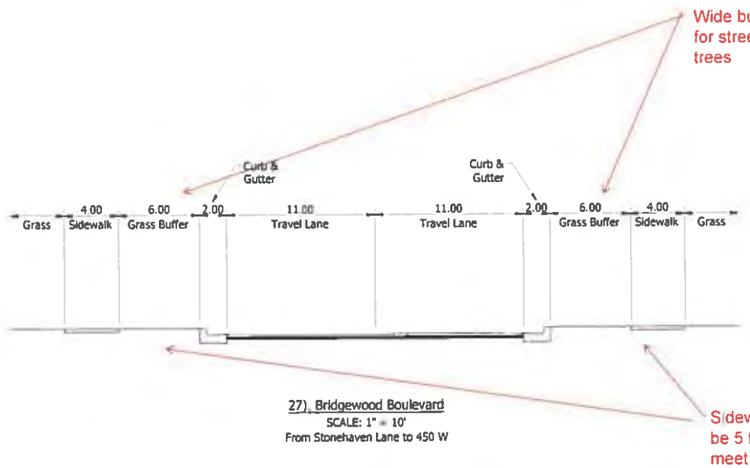
28). Kelly Drive
SCALE: 1" = 10'
From Stonehaven Lane to North Street



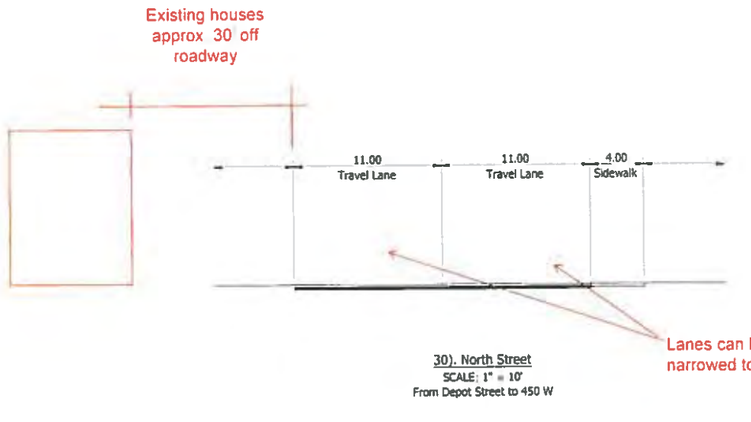
26). Stonehaven Lane
SCALE: 1" = 10'
From 500 W to Bridgewood Boulevard



29). North Street
SCALE: 1" = 10'
From Kelly Drive to Depot Street

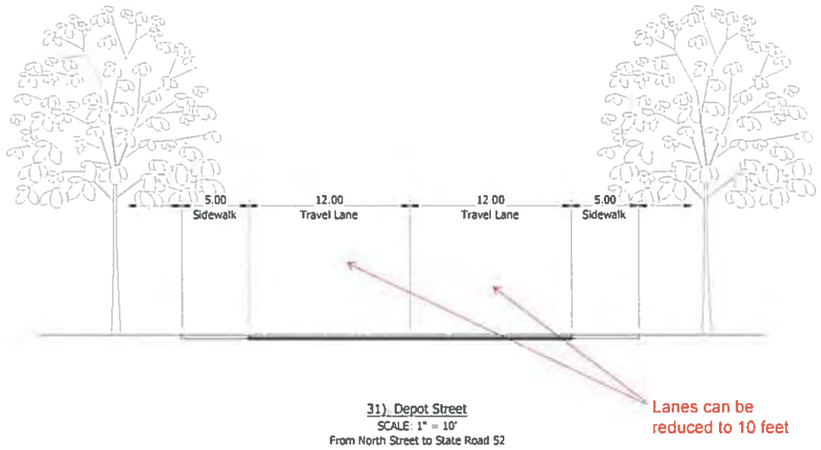


27). Bridgewood Boulevard
SCALE: 1" = 10'
From Stonehaven Lane to 450 W

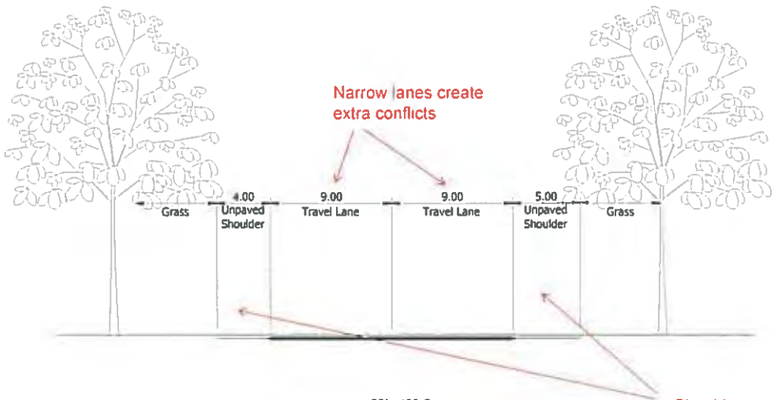


30). North Street
SCALE: 1" = 10'
From Depot Street to 450 W

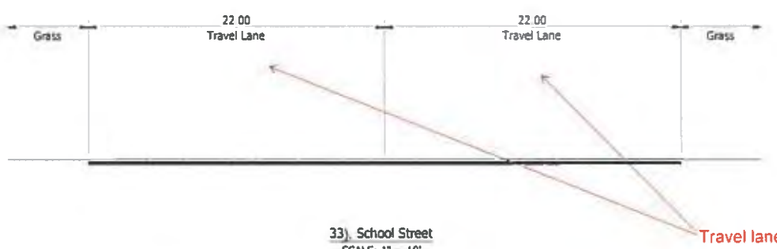
EXISTING CROSS SECTIONS



31). Depot Street
SCALE: 1" = 10'
From North Street to State Road 52



32). 400 S
SCALE: 1" = 10'
From 450 W to 400 W



33). School Street
SCALE: 1" = 10'
From 500 W to Victory Drive

NEW PALESTINE

BIKE + PEDESTRIAN MASTER PLAN

FINAL PLAN

BICYCLE AND PEDESTRIAN FACILITY MASTER PLAN

The finalized bicycle and pedestrian facility master plan proposes to improve 11 corridors. Two different types of bicycle and pedestrian treatments are proposed to strengthen the bicycle and pedestrian The plan will use shared roadways and shard-use paths for this purpose.

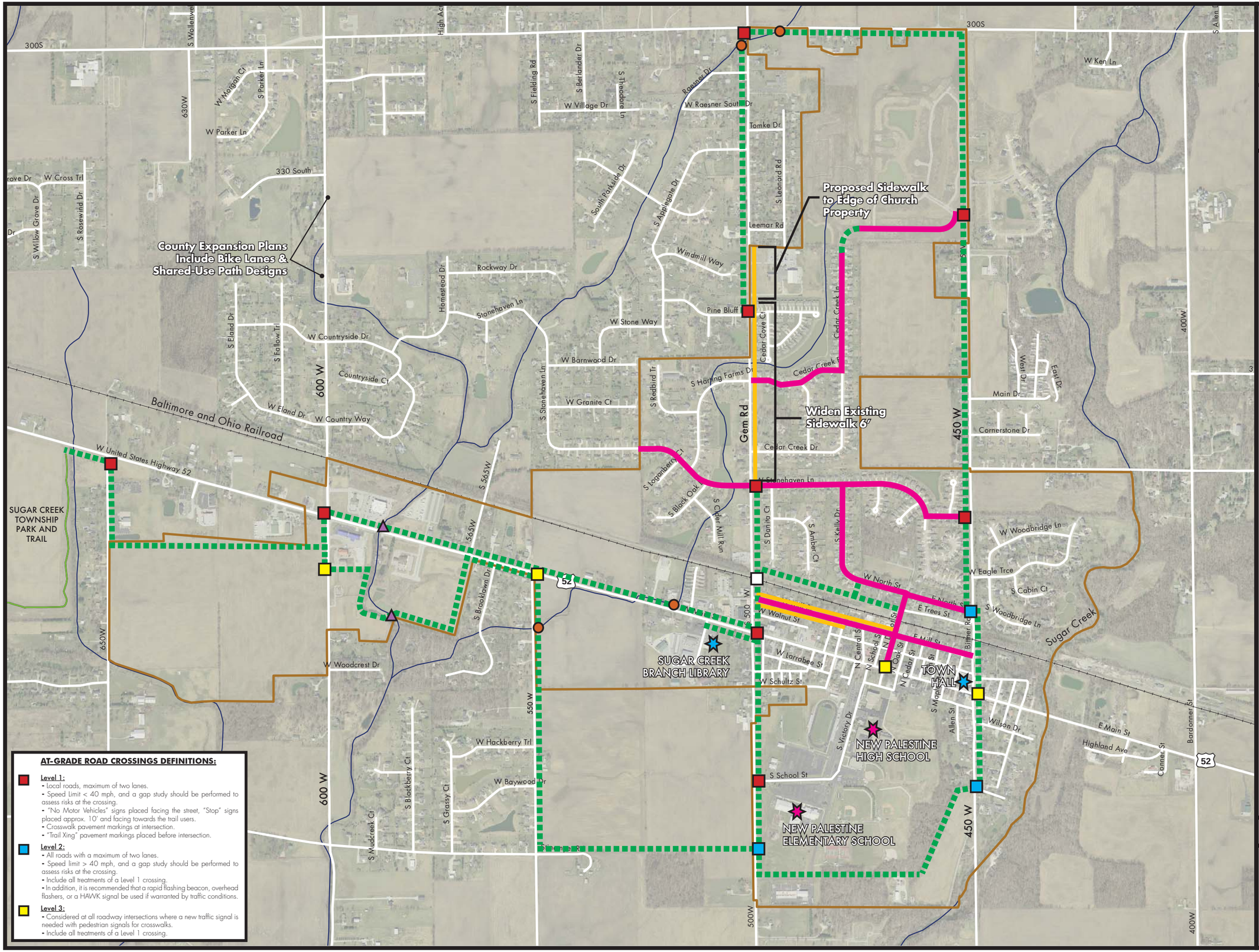
Many of the existing neighborhood streets as discussed previously have low traffic and low speeds. Many of them already have existing sidewalks except in a few locations. Several key through streets were identified for connections to county roads and downtown New Palestine. These routes employ a complete streets method by using the existing pedestrian facilities and on road bicycle facilities. Sharrows and signage are proposed along these routes to bring extra added awareness of bicycle traffic. Where needed, sidewalks and trails were proposed to make vital links.

Along county roads it was determined that the existing speed limit of the roadways in conjunction with the amount of traffic did not make them safe for bicycles to share the road. Bicycles would need to have their own space separate from vehicles. Additionally, the county roads do no not have existing pedestrian facilities along them. Based upon these facts, it was determined the best facility to provide safety for both pedestrians and bicycles was a shared use path.

Based upon comments from the public a recreational shared-use path was proposed south of US 52 to make connections from the Town to the Sugar Creek Township Park. A shared-use path along US 52 has been proposed to make connections to the future county bicycle and pedestrian facilities along County Road 600 West, the community grocery store, Lions Park, a community drug store, the library, and other businesses.

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

FINALIZED MAP



AT-GRADE ROAD CROSSINGS DEFINITIONS:

Level 1:
- Local roads, maximum of two lanes.
- Speed Limit < 40 mph, and a gap study should be performed to assess risks at the crossing.
- "No Motor Vehicles" signs placed facing the street, "Stop" signs placed approx. 10' and facing towards the trail users.
- Crosswalk pavement markings at intersection.
- "Trail Xing" pavement markings placed before intersection.

Level 2:
- All roads with a maximum of two lanes.
- Speed limit > 40 mph, and a gap study should be performed to assess risks at the crossing.
- Include all treatments of a Level 1 crossing.
- In addition, it is recommended that a rapid flashing beacon, overhead flashers, or a HAVVK signal be used if warranted by traffic conditions.

Level 3:
- Considered at all roadway intersections where a new traffic signal is needed with pedestrian signals for crosswalks.
- Include all treatments of a Level 1 crossing.

LEGEND:

ROUTE IMPROVEMENTS:
- Shared-Use Path
- Shared Roadway
- Sidewalk

AT - GRADE ROAD CROSSINGS:
- Level 1
- Level 2
- Level 3
- Railroad Crossing

STRUCTURES:
- Pedestrian Bridge
- Box Culvert

EXISTING INFRASTRUCTURE:
- Schools
- Civic Buildings
- Streets
- Town Limits
- Creek

December 16, 2015

0 250 500 1,000 1,500 Feet

Butler Fairman & Seufert CIVIL ENGINEERS

N

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

CROSS SECTION LOCATION MAP

LEGEND:

- On-Road Route Segments
- Streets
- Town Limits
- Creek

*The number associated with each on-road route segment corresponds with a matching cross section segment.

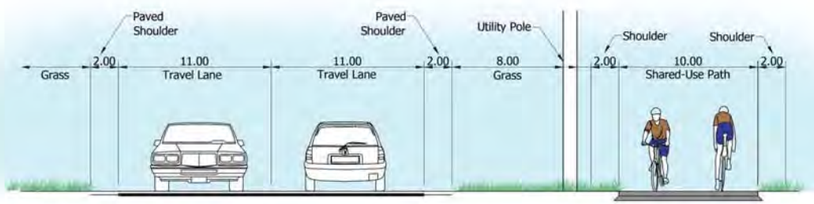
September 30, 2015

0 250 500 1,000 1,500 Feet

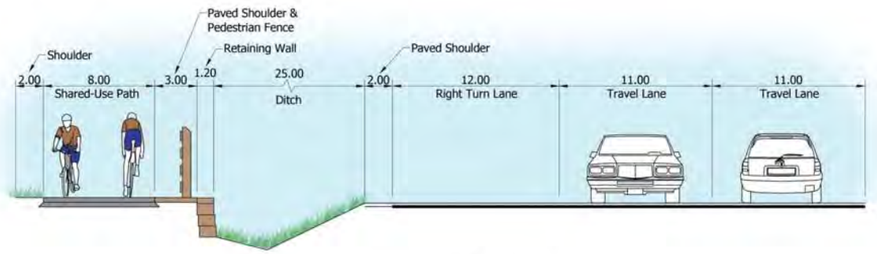
Butler Fairman & Seufert CIVIL ENGINEERS

N

PROPOSED CROSS SECTIONS



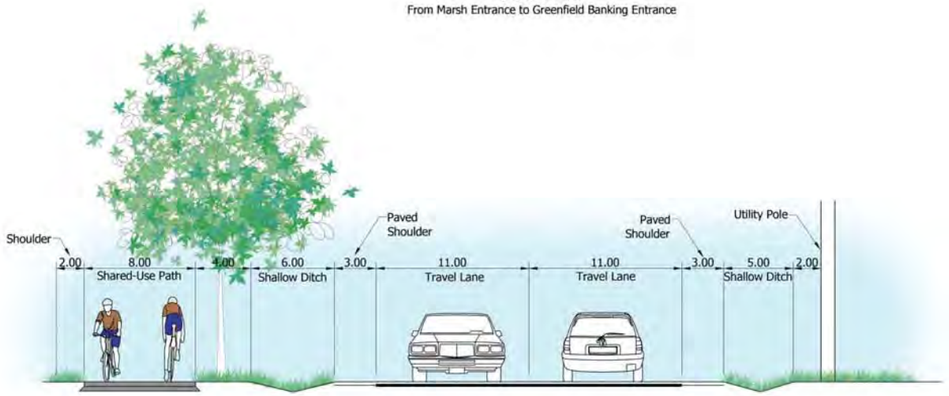
1A). State Road 52
SCALE: 1" = 10'
From 520' Before 650 W to 650 W



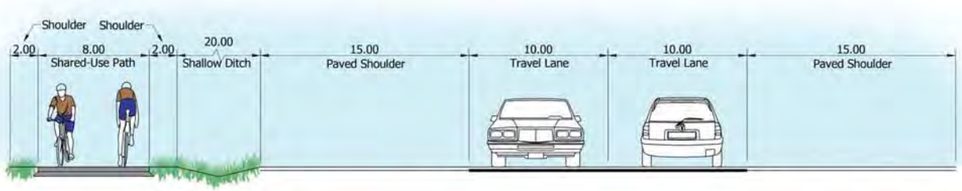
2B). State Road 52
SCALE: 1" = 10'
From Marsh Entrance to Greenfield Banking Entrance

NOT USED

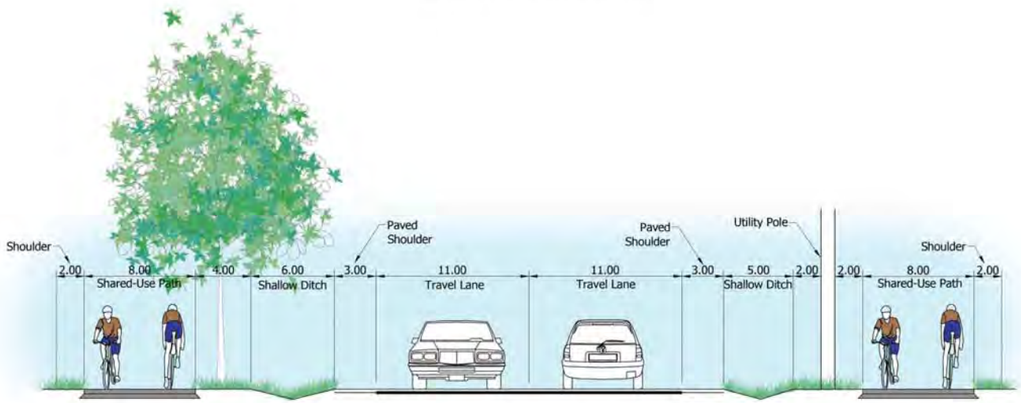
1B). State Road 52
SCALE: 1" = 10'
From 650 W to 600 W



3A). State Road 52
SCALE: 1" = 10'
From Greenfield Banking Entrance Drive to 565 W

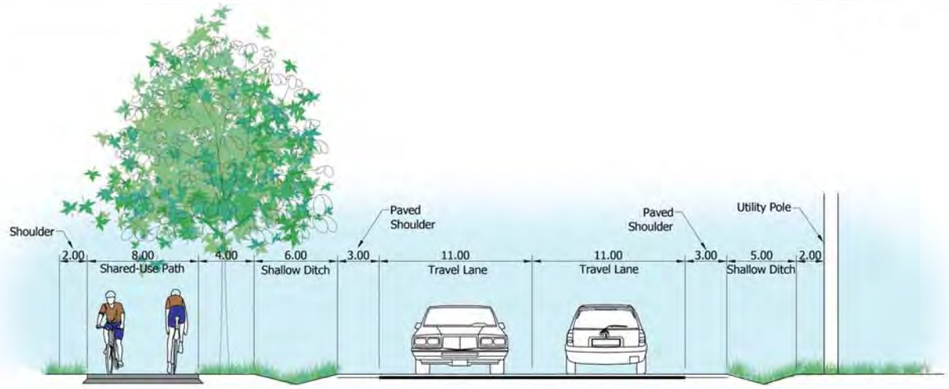


2A). State Road 52
SCALE: 1" = 10'
From 600 W to Marsh Entrance

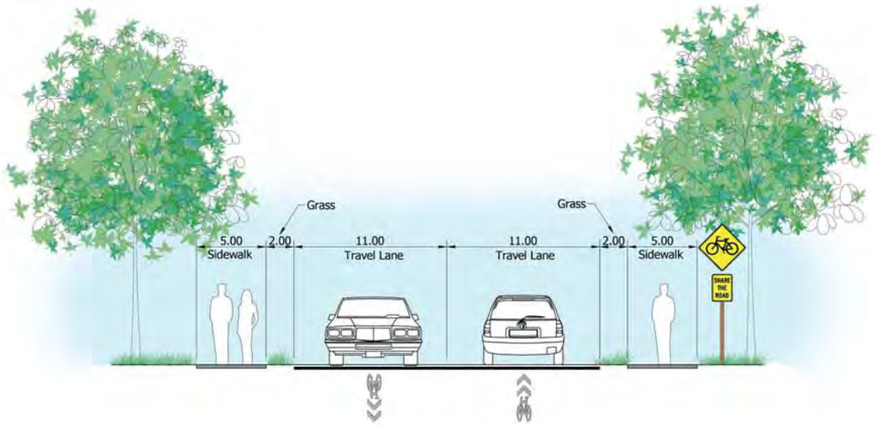


3B). State Road 52
SCALE: 1" = 10'
From 565 W to 550 W

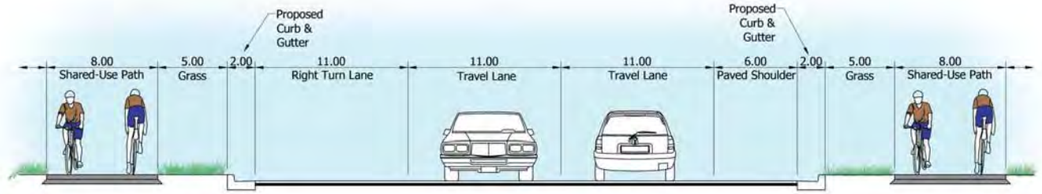
PROPOSED CROSS SECTIONS



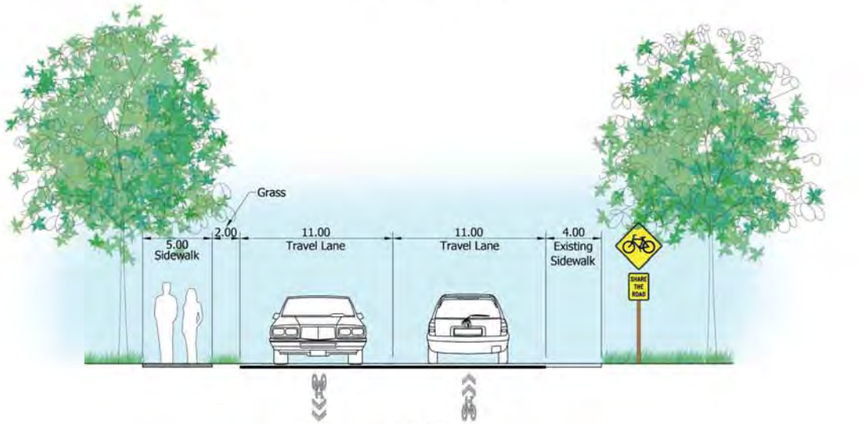
3C). State Road 52
SCALE: 1" = 10'
From 550 W to S Westfield Drive



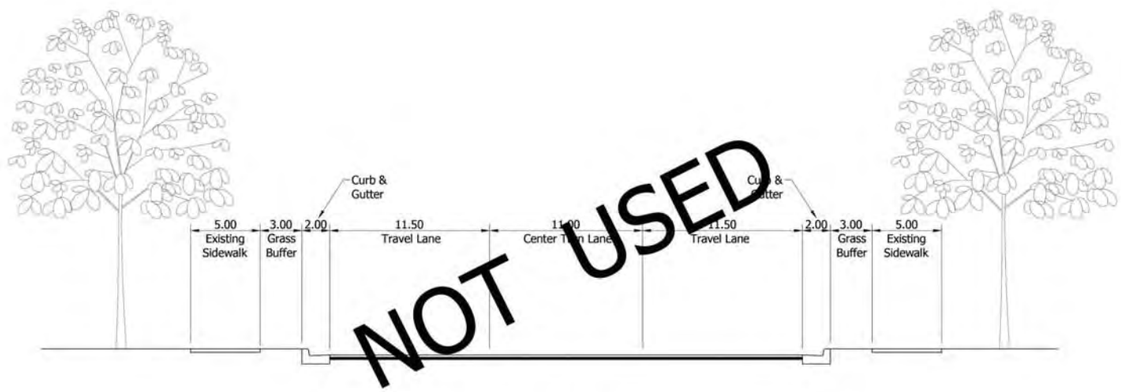
5). Mill Street
SCALE: 1" = 10'
From 500 W to 225' to Central Street



3D). State Road 52
SCALE: 1" = 10'
From S Westfield Drive to 500 W

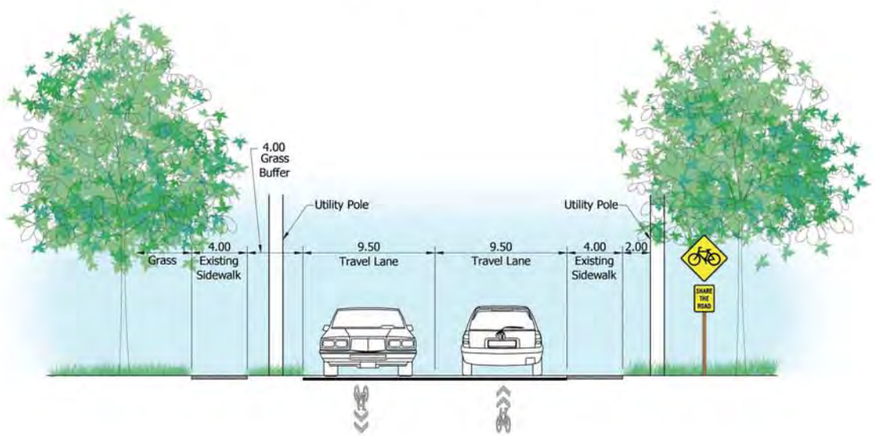


6). Mill Street
SCALE: 1" = 10'
From 225' to Central Street to Depot Street



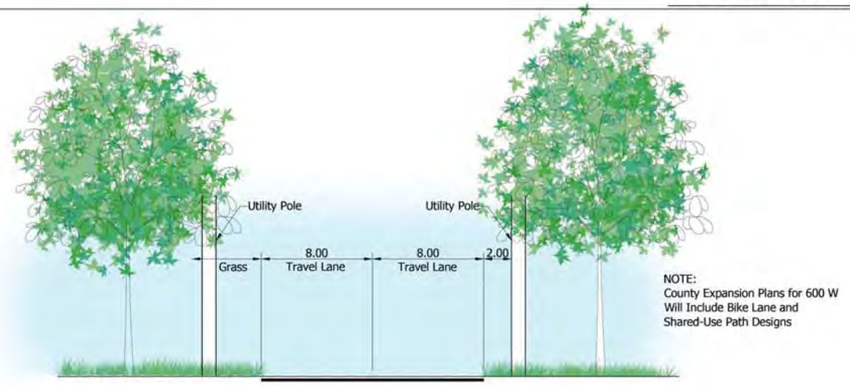
NOT USED

4). State Road 52
SCALE: 1" = 10'
From 500 W to Sugar Creek Drive



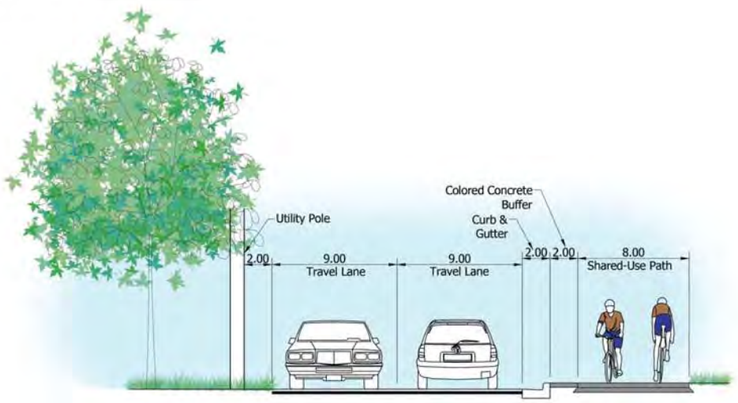
7). Mill Street
SCALE: 1" = 10'
From Depot Street to 450 W

PROPOSED CROSS SECTIONS

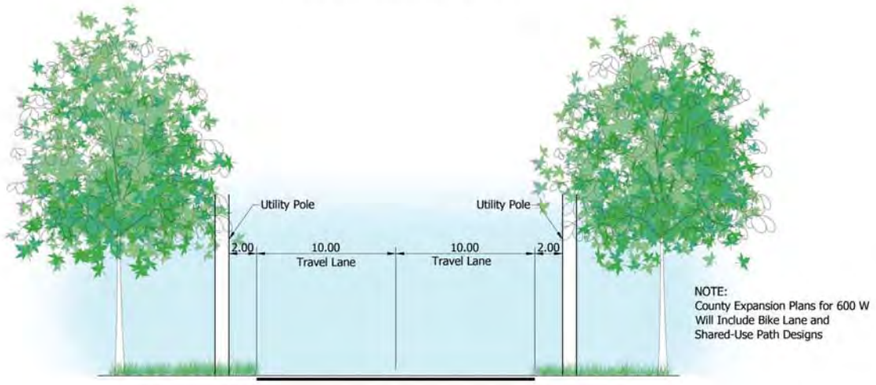


NOTE:
County Expansion Plans for 600 W
Will Include Bike Lane and
Shared-Use Path Designs

8). 600 W
SCALE: 1" = 10'
From Woodcrest Drive to State Road 52

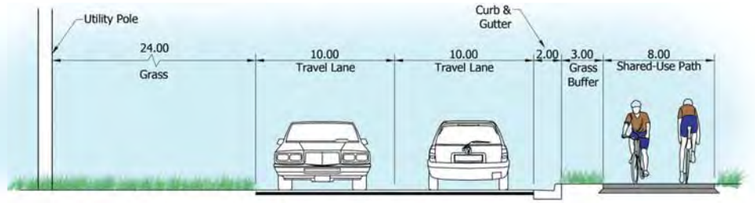


10B). Gem Road
SCALE: 1" = 10'
From Schultz Street to State Road 52

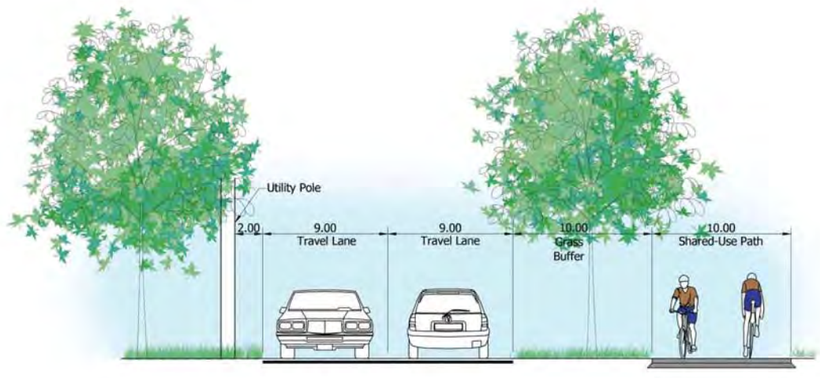


NOTE:
County Expansion Plans for 600 W
Will Include Bike Lane and
Shared-Use Path Designs

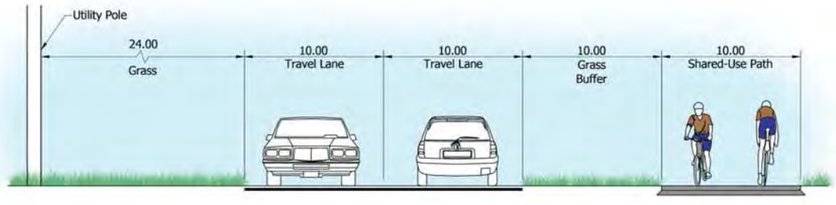
9). 600 W
SCALE: 1" = 10'
From State Road 52 to 300 S



11A). Gem Road
SCALE: 1" = 10'
From State Road 52 to Rail Road

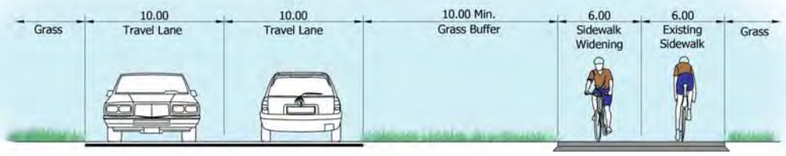


10A). Gem Road
SCALE: 1" = 10'
From N.P. Cemetery Entrance to Schultz Street

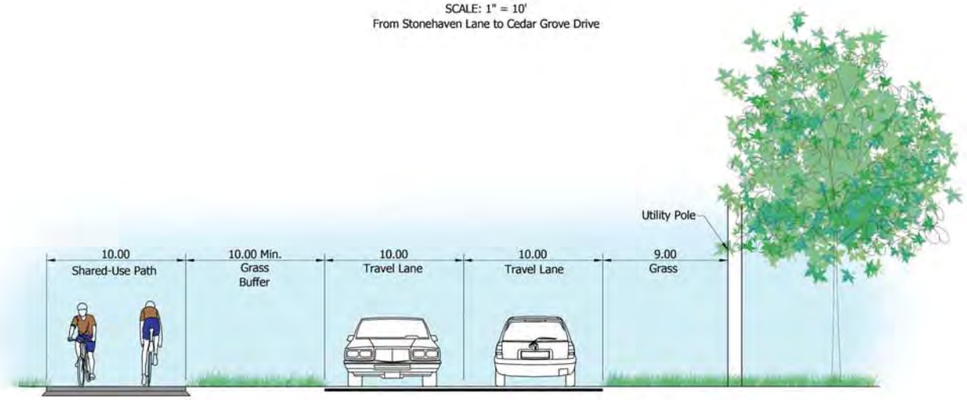


11B). Gem Road
SCALE: 1" = 10'
From Rail Road to Stonehaven Lane

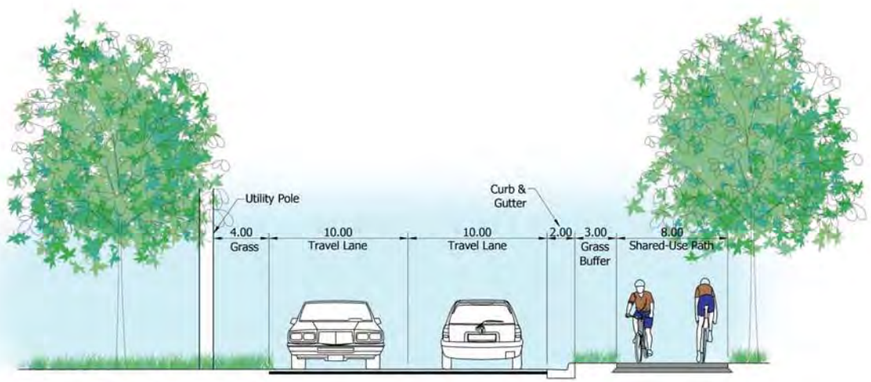
PROPOSED CROSS SECTIONS



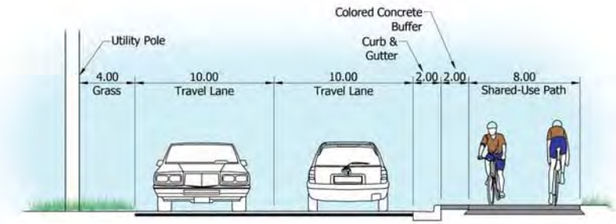
12). Gem Road
SCALE: 1" = 10'
From Stonehaven Lane to Cedar Grove Drive



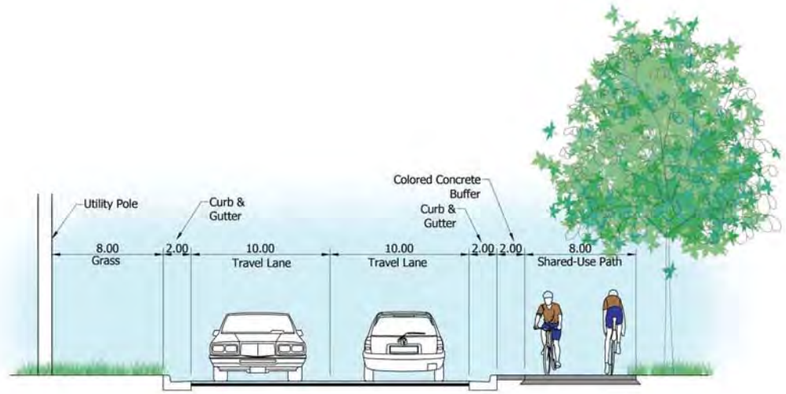
13). Gem Road
SCALE: 1" = 10'
From Cedar Grove Drive to 300 S



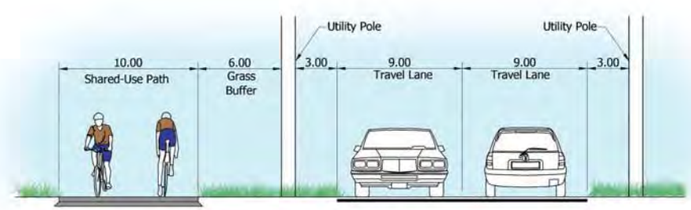
14). 450 W
SCALE: 1" = 10'
From 500' South of Artesian Lane to Artesian Lane



15). 450 W
SCALE: 1" = 10'
From Artesian Lane to State Road 52

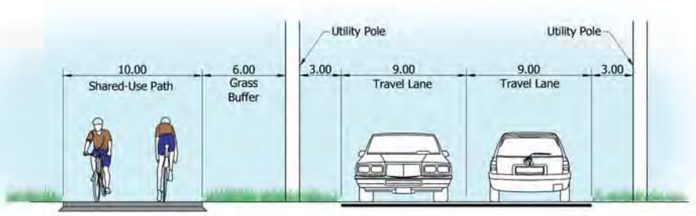


16). 450 W
SCALE: 1" = 10'
From State Road 52 to RR Bridge

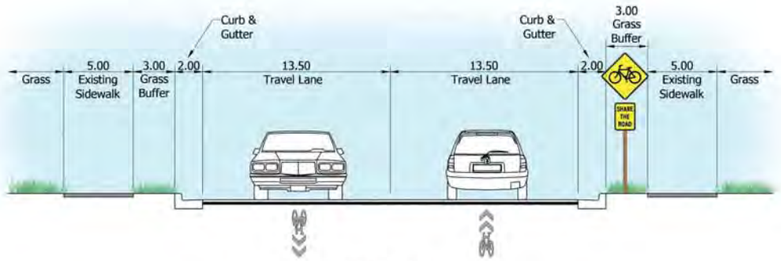


17). 450 W
SCALE: 1" = 10'
From RR Bridge to 300 S

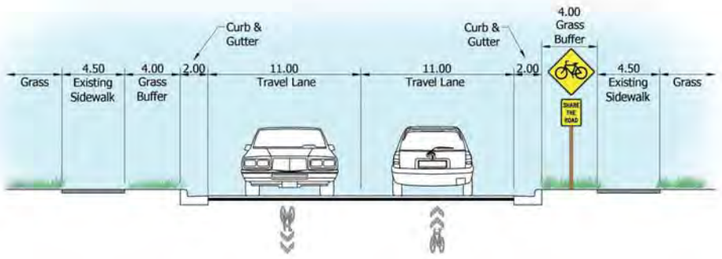
PROPOSED CROSS SECTIONS



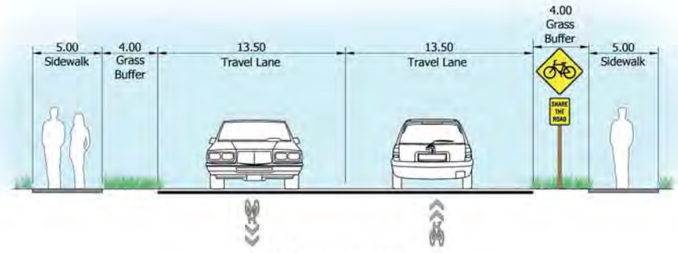
18). 300 S
SCALE: 1" = 10'
From 500 W to 450 W



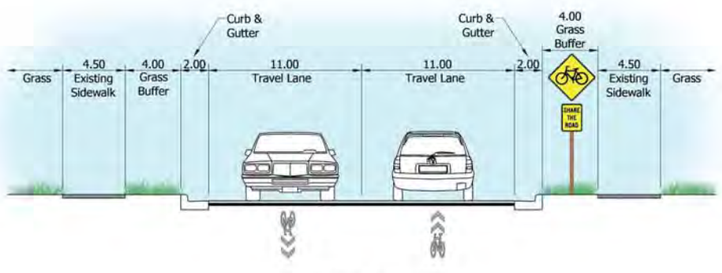
21). Lawrence Way
SCALE: 1" = 10'
From End of Lawrence Way to 450 W



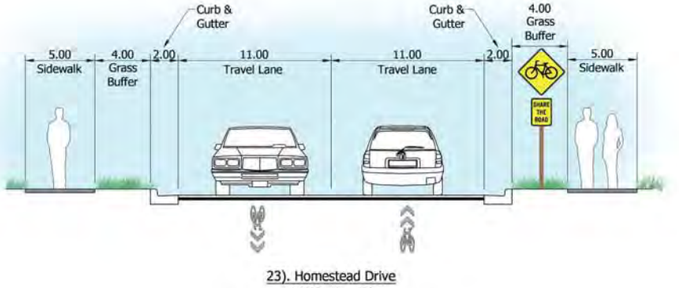
19). Cedar Creek Place
SCALE: 1" = 10'
From 500 W to Cedar Creek Lane



22). Country Side Drive
SCALE: 1" = 10'
From 600 W to Homestead Drive

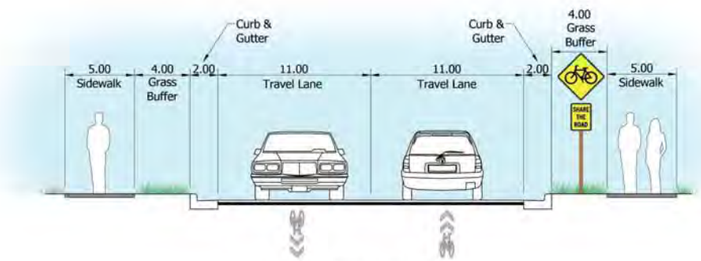


20). Cedar Creek Lane
SCALE: 1" = 10'
From Cedar Creek Place to End of Cedar Creek Lane

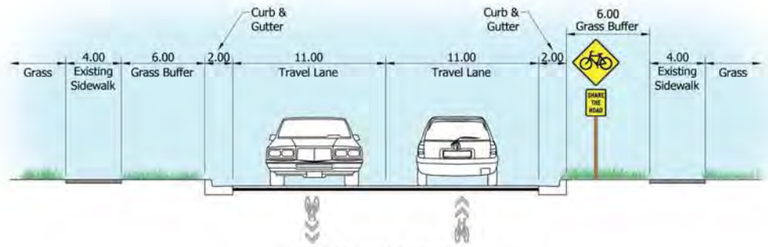


23). Homestead Drive
SCALE: 1" = 10'
From Country Side Drive to Stonehaven Lane

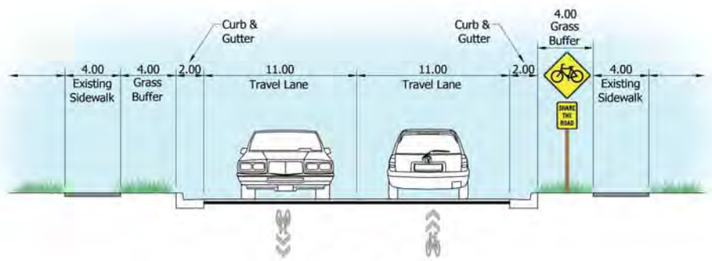
PROPOSED CROSS SECTIONS



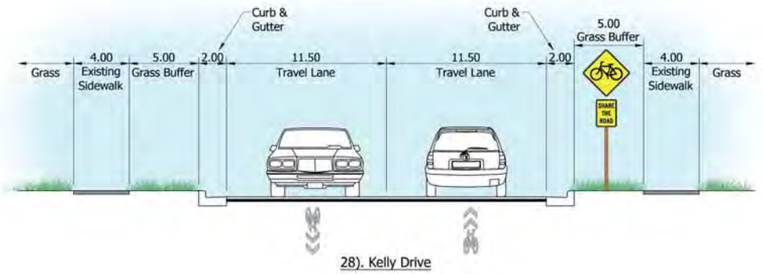
24). Stonehaven Lane
SCALE: 1" = 10'
From Homestead Drive to 500' before Loganberry Court



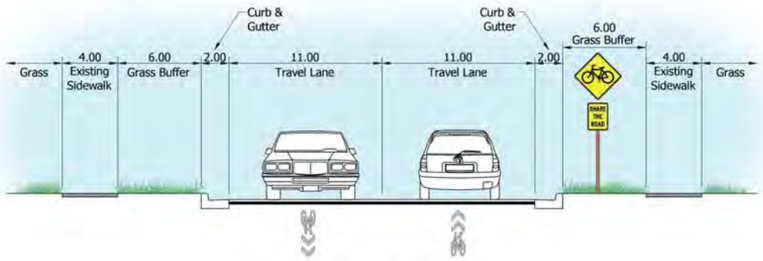
27). Bridgewood Boulevard
SCALE: 1" = 10'
From Stonehaven Lane to 450 W



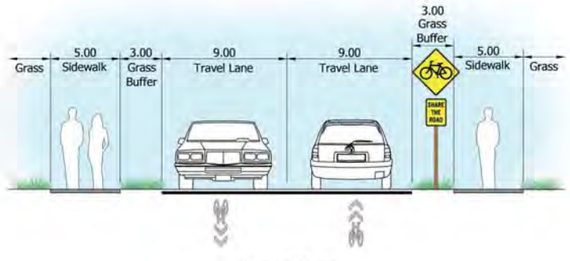
25). Stonehaven Lane
SCALE: 1" = 10'
From 500' before Loganberry Court to 500 W



28). Kelly Drive
SCALE: 1" = 10'
From Stonehaven Lane to North Street

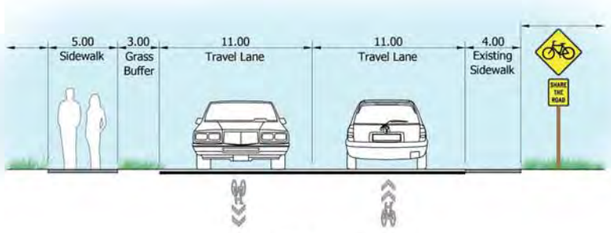


26). Stonehaven Lane
SCALE: 1" = 10'
From 500 W to Bridgewood Boulevard

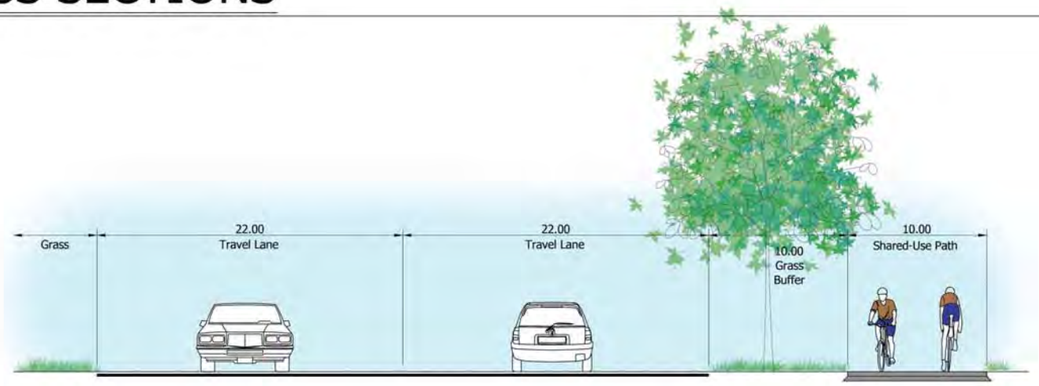


29). North Street
SCALE: 1" = 10'
From Kelly Drive to Depot Street

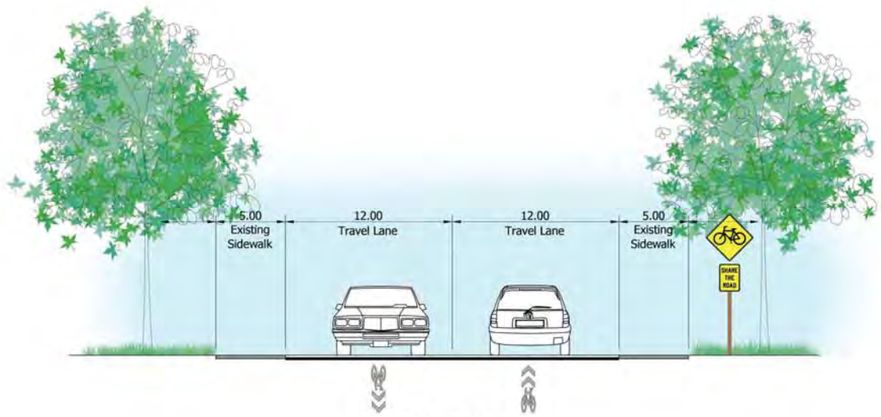
PROPOSED CROSS SECTIONS



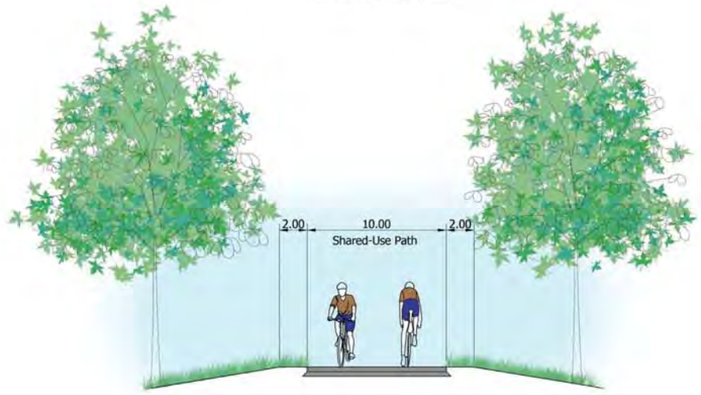
30). North Street
SCALE: 1" = 10'
From Depot Street to 450 W



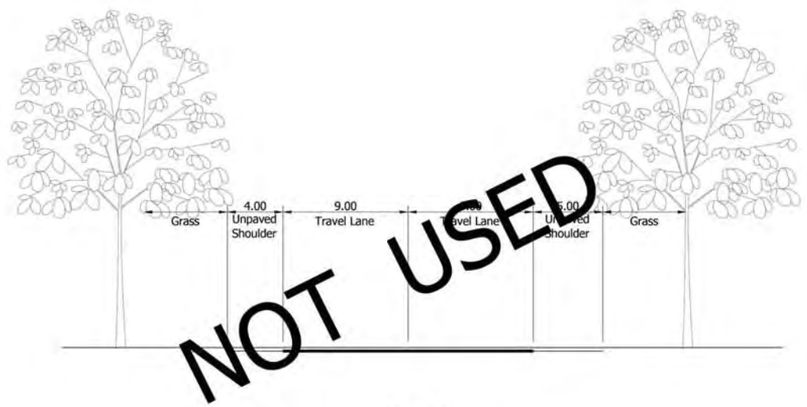
33). School Street
SCALE: 1" = 10'
From 500 W to Victory Drive



31). Depot Street
SCALE: 1" = 10'
From North Street to State Road 52



34). Shared-Use Path
SCALE: 1" = 10'
From x



32). 400 S
SCALE: 1" = 10'
From 450 W to 400 W

TOTAL DISTANCE OF BICYCLE & PEDESTRIAN FACILITIES SUMMARY

Shared-Use Paths (Trail):	8.70 miles
Shared Roadways:	2.75 miles
Sidewalks:	1.10 miles

PRIORITY ROUTES

The following list and map represents the general recommendations on the order that each facility should be installed within the community. The recommendations are based upon knowledge of the community's priorities at the initial design of the Master Plan. The steering committee should continue meeting regularly in order to re-evaluate priorities based on construction projects and other changes within the community.

In general, the cost of most shared roadways and bike lane routes can be installed for much less than other types of facilities like a shared-use path (trail). Some of these facilities could be installed by local forces.

The majority of the shared roadway routes in the master plan are not listed below in the priority routes list. They will be included in the town's annual budget, and the town will implement those routes under their supervision and resources. These routes include: Lawrence Way, Cedar Creek Road, Cedar Creek Lane, Stonehaven Lane, Kelly Drive, North Street, and Depot Street.

PRIORITY LIST

1. Gem Road
   - From: South Victory Drive to Stonehaven Lane
2. US 52 / Main Street
   - From: S 600 W to Gem Road
3. Proposed Shared-Use Path
   - From Gem Road to Depot Street
4. Mill Street
   - From Gem Road to Bittner Road
5. Proposed Shared-Use Path
   - From Cedar Creek Lane and Lawrence Way
6. Bittner Road
   - From: Main Street to W 400 S
7. Bittner Road
   - From: W 400 S to Bennet Drive
8. Proposed Shared-Use Path
   - From: Gem Road to Bittner Road
9. Proposed Shared-Use Path
   - From: S 550 W to Gem Road
10. Bittner Road
    - Waste Water Plan to Main Street
11. Gem Road
    - From: Stonehaven Lane to W 300 S
12. Bittner Road
    - From: Bennet Drive to W 300 S
13. W 300 S
    - From Gem Road to Bittner Road
14. Proposed Shared-Use Path
    - End of Sugar Creek Trail to Stinemyer Road

NEW PALESTINE BIKE & PEDESTRIAN MASTER PLAN

PRIORITY ROUTE MAP

LEGEND:

- (#) Priority Route
- (AB) Annual Budget Route : route will be implemented as part of town's annual budget.
- Streets
- Town Limits
- Creek

December 16, 2015

0 250 500 1,000 1,500 Feet

Butler Fairman Seufert CIVIL ENGINEERS

N

FINAL PLAN:
DEVELOPMENT STANDARDS

BIKE FACILITY TYPES AND STANDARDS

See the Types of Bicycle Facilities section for those that are recommended as part of this plan. As all long term plans are meant to be adaptable to new information, this one should be reviewed at regular intervals to see if any standards have changed. At the time this document was created there were several guidelines that apply, including The 2012 American Association of State Highway and Transportation Officials Guide for the Development of Bicycle Facilities (AASHTO), and The National Association of City Transportation Officials Urban Bikeway Design Guide (NACTO). It is recommended that these guidelines as well as the standards outlined below be followed unless new standards or information become available.

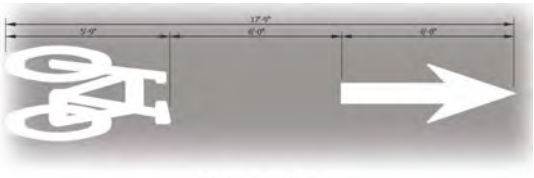
BIKE LANE WIDTH

Both NACTO and AASHTO recommend that the minimum width of a bike lane shall be 4 feet where there is a clear graded shoulder for recovery. The consultant team would further recommend that the clear graded shoulder be at least 5 feet wide before any drop off greater than 2 feet and that the closest vertical object be at least 2 feet from the edge of the bike lane. A bike lane shall have a minimum width of 4.5 feet next to a straight curb and only for short distances. The standard width of bike lane should be 5 feet or wider where there is a curb present and there is no on street parking. Where on street parking is adjacent to the bike lane, then the width of the lane shall be 6 feet minimum to allow for cars to open there doors into the bike lane without conflict. If possible, where parking is adjacent to the bike lane, then a 7 feet lane should be installed. Bike lanes shall be delineated from vehicular lanes by a solid white 6 inch stripe and between adjacent parking by a 4 inch solid white stripe.

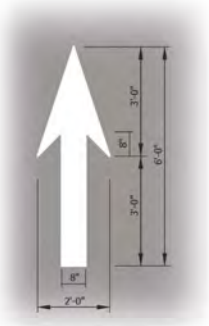
FINAL PLAN:
DEVELOPMENT STANDARDS

BIKE LANE MARKING AND SIGNAGE

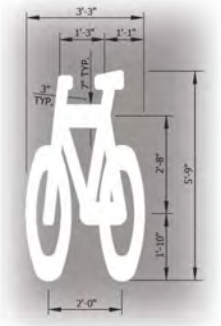
Bike lane markings shall consist of a bicycle symbol and an arrow placed together in the center of the lane. MUTCD sign R3-17 will also be used in conjunction with these markings. The bicycle symbol shall be placed so that it is the first symbol to be seen followed by the arrow. Bike lane markings and signage shall be placed at the start of each bike lane, after an intersection, after a bike path crossing, and after a major approach. Bike lane markings should be placed no more than a 1000 feet apart in rural sections and no more than 350 feet apart in urban sections. Signs can be placed further apart in between intersections and can be placed every other occurrence of placing the bike lane markings. See illustrations to the left for more information on standard sizes. Signs should also be placed warning users of a bike lane ending and when the bike lane continues on the other side of an intersection with a supplemental "AHEAD" plaque. Bike lanes are appropriate on roadway with speeds under 45 mph.



BIKE & ARROW DETAIL



BIKE LANE ARROW

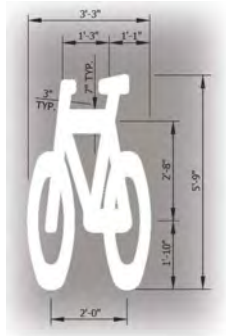


BIKE LANE SYMBOL

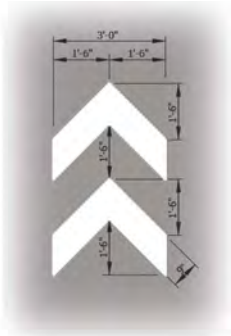
SHARED ROADWAY MARKING AND SIGNAGE

Markings shall consist of a bicycle symbol and and chevrons placed together to create a "Sharrow". Sharrows shall be placed in the center of the lane to indicate where the bicyclist should ride. MUTCD signs W11-1 (Bike Symbol) with W16-1P (Share the Road) will also be used in conjunction with these markings. The bicycle symbol shall be placed so that it is the first symbol to be seen followed by the chevrons. Bike lane markings and signage shall be placed at the start of each shared roadway, after an intersection, after a bike path crossing, and after a major approach. Markings should be placed no more than 250 feet apart on low volume roads and no more than 100 feet apart in urban sections.

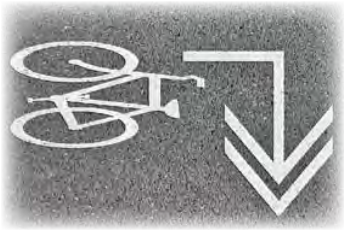
For wayfinding purposes, the orientation of the chevron in the sharrow symbol marking may be adjusted to direct bicyclists along discontinuous routes.



SHARROW SYMBOL



SHARROW CHEVRONS



MODIFIED SHARROW SYMBOL

FINAL PLAN:
DEVELOPMENT STANDARDS

W11-1

W16-1

R4-11

Signs can be placed further apart in between intersections and can be placed every other occurrence of placing the bike lane markings. Signs should also be placed warning users of the shared roadway ending.

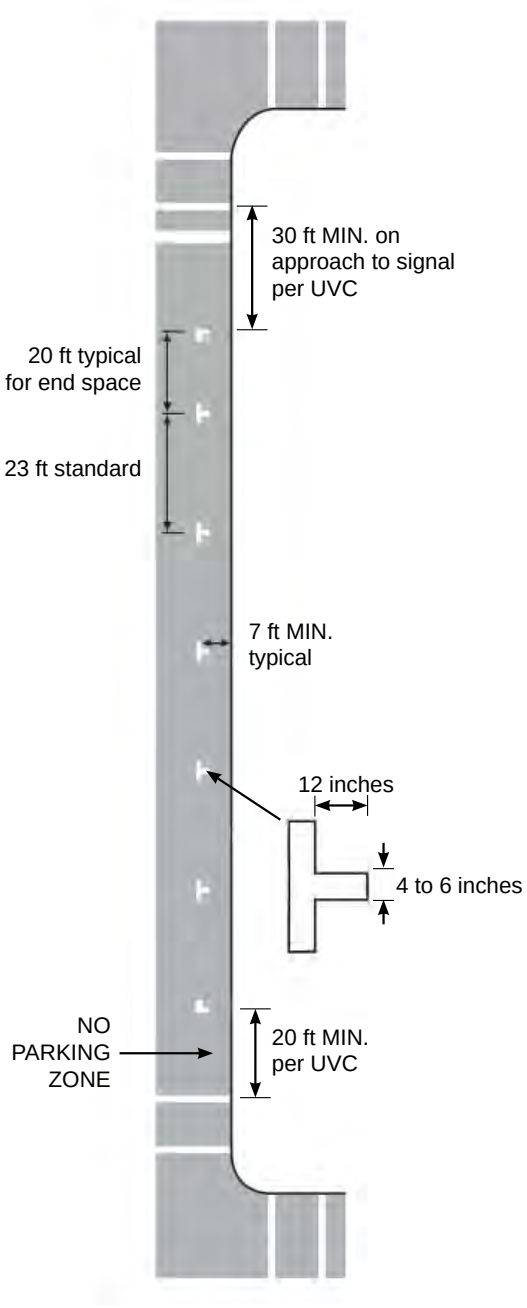
On roadways where vehicles and bikes share the same route, alternate signs “W11-1” and “W16-1” with sign “R4-11.” This will bring extra attention to the vehicle that cyclist has the right to use the entire width of the travel lane. Use sign “R4-11” to indicate where bikes merge into traffic when a designated bike lane comes to an end. See illustrations to the left for standards.

At non-signalized roadway intersections where a non bike and pedestrian route crosses with a designated bike and pedestrian route, place the “2-Way Crossing” sign at either side of that interesection. Additionally, place the “2-Way Crossing” sign at the exit of commercial drives if it crosses with a shared-use path.

SHARED ROADWAY ROUTES WITH MARKED AUTOMOBILE PARKING

Marking automobile parking along shared roadway routes has several safety functions for bicyclists and pedestrians. For bicyclists it better defines the travel lane for vehicles and reduces the perceived lane width even when parked vehicles are not present. This has the effect of traffic calming on the route. In areas where the parking is not heavily used, the parking area can be used as a refuge for more inexperienced cyclists as long as they do not have to weave in and out of the travel lane. For pedestrians it moves the travel way further from the walking space and provides a greater level of comfort.

Parking spaces should be marked based upon the 2011 Indiana Manual for Uniform Traffic Control Devices. The marked parallel parking space shall typically be 8 feet wide by 23 feet long. In certain circumstances on low volume roadways it may be possible to reduce the width of the space to 7 feet. Each space shall be denoted by two solid white transverse stripes 6 inches wide in the configuration of a “T” or “tick” (see illustration).



Example of Epoxy Bike Coating on Asphalt

CONFLICT ZONE MARKINGS

Vehicular crossings of bicycle facilities can happen at intersections and at private drives or entrances. Care must be taken by both bike and vehicles to watch out for one another in these transition zones. Marking these crossings to bring attention to these conflict areas can be helpful. Several options are available for marking these area:

1. An epoxy-modified, acrylic, waterborne coating has been successfully used for bike lanes. There are several colors available and selection should be based upon the color choice that provides the most contrast and matches with the amenities/ color scheme selected along that particular route.
2. Cabot Deck Stain is another option that might be considered on a trial basis. This coating has been used by the City of Portland, Oregon, to color neighborhood road intersections with less than 2,500 VPD.

BICYCLE FRIENDLY CASTINGS

Bicycle friendly castings for drainage inlets are necessary where bicycle facilities are present. It is important to make sure that a bicycle tire will not fit into the grate opening and cause a bicycle user to be thrown from the bike causing injury.

The gap between the drainage grate and its frame should be 1 inch or less. Several casting types are available. The most versatile is the octagon style.

BICYCLE FACILITY AMENITIES:

BICYCLE PARKING

Bicycle Parking should follow the Association of Pedestrian and Bicycle Professionals (APBP) Bicycle Parking Guidelines 2nd Edition. At a minimum bicycle parking should offer a rack that supports the bicycle in at least two spaces, allows locking the frame and at least one wheel with a “U-Lock”, resists rusting, resists cutting, resists bending, and is securely anchored to the ground. An example of a rack meeting this criteria would be a “U-rack”. The rack should be coated with powder coating or thermoplastic to reduce maintenance. Racks that only support the bike by the front wheel should not be used.

Bicycle racks should be spaced a minimum of 36 inches apart from one another when placed side by side and a minimum of 24 inches from the nearest obstruction. Design should take into account that a bicycle is a minimum of 6 feet long.

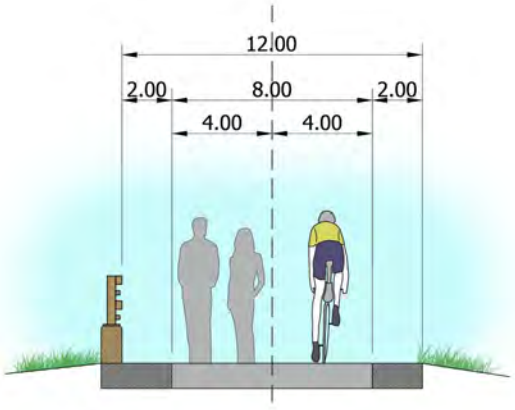
Further considerations should be made for bicycle parking that is intended to be for longer than 2 hours. Examples are areas where a considerable number of people who use the parking for commuting. Bicycle parking that is intended for longer than 2 hours should provide shelter or enclosure, be as close as possible to building fronts and in a secure location with active surveillance. It might even be wise to consider bicycle lockers or a supervised area.

SHARED-USE PATH TYPE

Shared-Use Path
Clear Creek Trail, Bloomington, IN

It is recommended that each shared-use path be a universally accessible multi-use path. The American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (2012) and Chapter 51 of the Indiana Department of Transportation (INDOT) Design Manual defines a shared-use path as an off-road, two-way facility designed for use by bicyclists, in-line skaters, wheelchair users, and pedestrians on exclusive right-of-way with minimal cross flow by motor vehicles. This means that the paths will have to be wide enough to accommodate two way travel for each type of use. In order to allow accessibility to each use, the path's surface must be adequate and slopes must follow guidelines developed by the US Access Board or regulations from the US Department of Justice. At the time this document was created there were several guidelines that apply: 1) Guidelines for Shared Use Paths; 2) Guidelines for Outdoor Developed Areas; and 3) Guidelines for Pedestrian Facilities in the Public Right-of-Ways. Although INDOT and AASHTO regulations may not be required for all shared-use paths, it is recommended that these guidelines be followed on all paths applications.

SHARED-USE WIDTH



Typical 8' Wide Shared Use Path Cross Section

AASHTO recommends a minimum width of 10 feet for shared-use paths, with 2 foot wide graded shoulders on either side of the path. However, when a higher number of users are anticipated, at least a 12 foot wide trail with shoulders should be employed. This allows for two 6 foot wide lanes that will accommodate several different types of users.

Therefore, the design team recommends using a 10 foot wide path (minimum) with 2 foot grass shoulders wherever possible. Only where absolutely necessary should an 8 foot path with shoulders be implemented. This instance should only happen when the shared-use path is considered a connector path (a path that will have minimal traffic and isn't a through path) and/or when it is not feasible to fit a larger width of path due to right-of-way or other limitations.

SHARED-USE PATH SLOPE

It is important that the path cross slope provide positive drainage, but not create a non-traversable slope for trail users or those in wheel chairs. For this reason all cross slopes shall be no more than 2%. Trail shoulders create recovery areas for bicycle users and should not have cross slopes greater than 4%.

Side slopes beyond the shoulders should not be greater than 4:1. Steeper slopes are non-mowable and therefore create maintenance issues. Additionally, slopes steeper than 3:1 within 5 feet of the trail's edge must be protected.

Longitudinal trail slope should be no greater than 5% in most circumstances. The INDOT Design Manual gives more guidance on when it is permissible to exceed this guideline and appropriate mitigation techniques.

SHARED-USE PATH SURFACE

The primary concern with path surfacing is accommodating a variety of path users and providing accessibility. While crushed stone is less expensive to construct and is more forgiving for runners and walkers, it does not accommodate all users. It is non-traversable for in-line skaters and can be difficult for people in wheel chairs because not all stone paths meet the definition of firm and stable. Asphalt, on the other hand, can accommodate all types of users, and even though initial construction costs are higher, it lasts longer and requires less annual maintenance.

In order to preserve the asphalt, consideration should be given to using an oil sealant right after construction. One popular product is a bio based / soy bean product called RePlay. Regular treatment will help to keep the asphalt from becoming dry and rigid which can lead to failure and cracking. See the Shared-Use Path Maintenance Section for further recommendation.

Shared-Use Path
Lafayette, IN

Major Trailhead Example - Erie Lackawanna Trail
Griffith, Indiana

SHARED-USE PATH SUPPORT FACILITIES:

Providing accessibility to all users at key locations throughout the town is important to the success of each shared-use path. Along with accessibility, users require that the path have certain facilities to meet the needs of its use. These support facilities can be broken down into four categories: major trailheads, shared use trail heads, minor trail heads, and community access points. In addition to these public facilities, partnerships should be developed between the community and local businesses to provide secure bicycle parking and other path support facilities as a part of their building or property. This will not only enhance their business but it will also enhance the opportunities given to the path users.

Major Trailhead Example - C&O Trail
Merrillville, Indiana

Major Trailheads:

Major trailheads provide the greatest amount of amenities to path users and are recognizable points of access. They are like mini-parks alongside the path that may include parking areas, shelters, restrooms, drinking fountains, benches, trash receptacles, picnic tables, bicycle racks, path signage, corridor access access, and landscaping.

Due to the scope and type of facilities normally required for a major trailhead, it can be difficult to locate them within the narrow constraints of a shared-use corridor. Typically it is necessary to find parcels of land adjacent to the corridor for development. These can be city-owned, such as parks or street right-of-way, or privately-owned properties that are created and operated with the owner's cooperation. These usually require the development of all new amenities for users' needs.

Major Trailhead Example - C&O Trail
Merrillville, Indiana

FINAL PLAN:
DEVELOPMENT STANDARDS

Shared Use Trailheads:

Shared use trailheads are similar to major trailheads except they share amenities with other existing or potential uses. They are usually city owned and in many cases need only to have their amenities slightly upgraded in order to meet path users' needs. These trailheads may or may not have existing shelters. This trailhead should be easily accessible from the path, and include amenities such as trash receptacles, bicycle racks, and benches.

Shared Use Trailhead Example - Twigg Rest Park
Terre Haute, Indiana

Minor Trailheads:

Minor trailheads are similar to major trailheads in that they provide amenities to serve shared-use path users, but on a smaller scale. They usually occur more frequently and can be situated within the trail right-of-way. Minor trailheads are located between major trailheads and at certain path intersections. Minor trailheads may provide benches, trash receptacles, bicycle racks, landscaping and signage, but usually will not provide parking.

Shared Use Trailhead Example - Friendship Gardens
Plainfield, Indiana

Community Access Points:

The last type of shared-use path support facility is the community access point, which provides a minimal amount of amenities such as a trail directory sign or wayfinding sign and a connector path. It is the most frequently occurring type of support facility and provides citizens of adjacent neighborhoods access to the path. Community access points simply provide an informal and direct access between community and trail much like the driveway connects to the street.

They are important in fostering a community's adoption of the path and getting users to respect the rights of private property owners by establishing designated points of access.

Locations of community access points should be determined in consultation with adjacent landowners and through the selection of logical places to enter the right-of-way from surrounding communities.

Minor Trailhead Example - Clear Creek Trail
Bloomington, Indiana

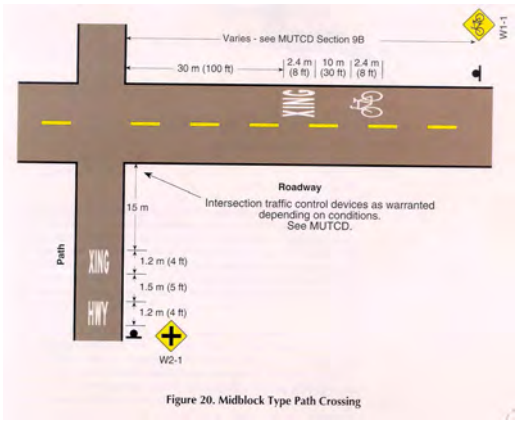
Example of a Street Crossing on the Monon Trail
Carmel, Indiana

SHARED US PATH - STREET INTERSECTION DESIGN:

Intersection design for shared use-paths should be based upon sound "engineering judgment" at each intersection and each should be treated individually as each has unique characteristics. Uniformity in the use of traffic control devices is critical to encourage proper and predictable behavior by shared-use path users. The Manual on Uniform Traffic Control Devices (MUTCD) shall be followed for size, shape, color and placement of signs on both the path and the street. In addition, coordination with the City should ensure the proper design and layout of traffic control devices necessary to warn vehicular traffic on public streets of path crossings. The North American Cities and Towns Organization (NACTO) Urban Bikeway Design Guide can also be consulted for unique situations.

All street crossings will occur as at-grade. Traffic will have the right-of-way and path users, at most crossings, will have to stop.

The team devised three different types of street crossing treatments to deal with the various at-grade crossings throughout the city. The following treatments are minimum recommendations.



Example of an At-grade Crossing Level 1 -
'Guide for the Development of Bicycle Facilities' -
AASHTO 1999

At-Grade Road Crossing - Level 1:

- Used on local roads with a maximum of two lanes. Speed limit should be under 40 mph and a gap study should be done to assess user risk at the crossing.
- Warning Signs of an upcoming intersection will be placed on the roadway based upon MUTCD standards.
- No Motor Vehicles signs placed facing the street at all path intersections
- Stop sign along the path placed approximately 10 feet from the edge of the street.
- Crosswalk pavement markings at crossing point.
- "Trail Xing" markings on the roadway

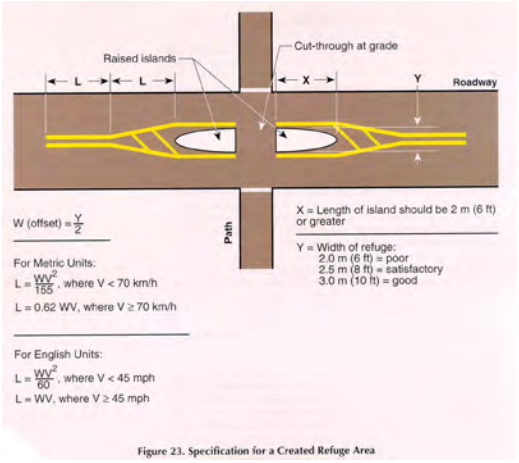
At-Grade Road Crossing - Level 2:

- Should be considered on all roads with a maximum of two lanes and speed limits over 40 mph or greater. A gap-study should be performed to assess user risk at the crossing
- All treatments of a Level 1 Road Crossing apply
- In addition to Level 1 treatments, at a minimum it is recommended that overhead flashers (or a rapid flashing beacon) with signage be used and that a HAWK signal be used if warranted by traffic conditions. Rapid flashing beacons should preferably be used in combination with a motion activated warning signal. Flashers that are always on tend to be ignored or not noticed by vehicular drivers because they do not necessarily indicate that a path user is in the area.

Example of an At-grade Crossing Level 2 - Monon Trail Carmel, Indiana

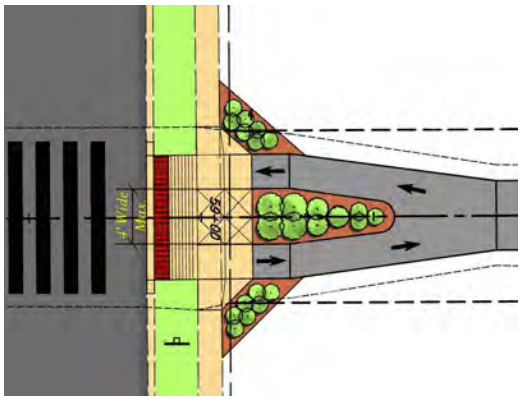
At Grade Road Crossing - Level 3:

- Should be considered on all roads where there are more than two lanes of travel to cross. A gap study should be performed to assess pedestrian risk.
- All treatments of a Level 2 Crossing apply
- In addition to Level 2 treatments, median refuge areas are recommended that allow path users to cross one direction of traffic at a time (additional street right-of-way may be required)
- If, and ONLY IF, a refuge island isn't feasible, speed tables are a secondary option.

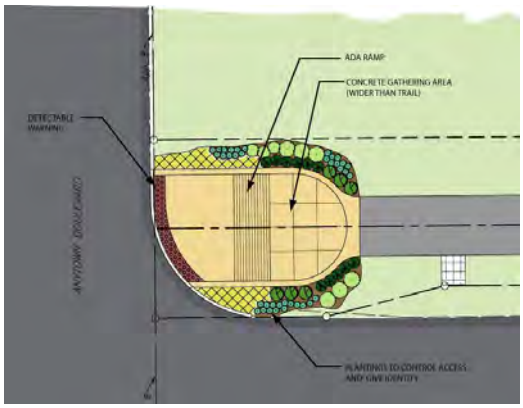


Example of a Midblock Crossing Level 3 - "Guide for the Development of Bicycle Facilities' - AASHTO 1999

Example of a Speed Table



Example of a Split Entry for Trail - Munger Trail
Lafayette, Indiana



Example of a Concrete Node Entry without Bollards

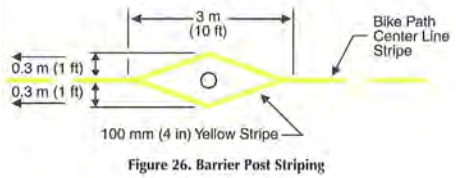


Figure 26. Barrier Post Striping

Example of a Bollard Location and Striping -
'Guide for the Development of Bicycle Facilities' -
AASHTO 1999

Example of a Concrete Node Entry with Bollard

Access of Shared-Use Path At Public Road Crossings

A public road crossing provides an opportunity to bring identity and attention to the path. It also should provide plenty of room for trail users to cross without having conflicts with other users crossing in the opposing direction. Restricting vehicular access without restricting maintenance vehicles can also be a concern. The following is a list of options to consider based upon available right-of-way.

- Option 1: Split entry with a 4 foot wide median. The plantings shall be no taller than 6 inches. This will allow for easy flow of trail traffic, while allowing maintenance vehicles access. See detail at left.
- Option 2: Concrete node without a bollard or central median. This option should be used if the area appears to be too narrow or there is not enough right-of-way for a split entry, and the risk of motor vehicles entering the path is low.
- Option 3: Concrete node with bollard. If the area appears to be too narrow and it is believed that public vehicles might try to access the trail in that area, a bollard should be added. The bollard should be easy to collapse or remove and only used when absolutely necessary, as the bollard itself is an obstacle for path users to negotiate around. See the Site Furnishings section for bollard types.

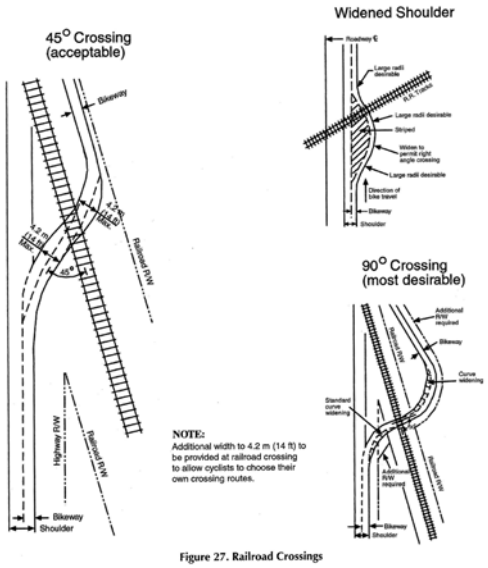
RAILROAD / SHARED-USE PATH INTERSECTION DESIGN

Due to the speed of train travel, sight distance needed to stop a train, and regulatory stipulations, it is recommended that proposed railroad crossings occur at existing road crossings wherever possible. If an existing road crossing is not available then a bridge or tunnel may have to be utilized. Railroad crossings will follow the guidelines established in the Federal Highway Administration's 'Railroad-Highway Grade Crossing Handbook – 2nd Edition FHWA-TS-86-215', AASHTO, the MUTCD, and the requirements and specifications of the individual railroad companies.

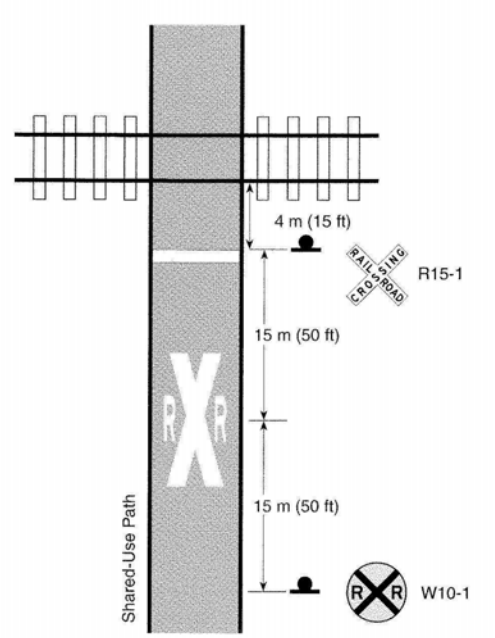
Existing Rubber Panel, Rail Crossing - Amtrak Rail Line
Michigan City, Indiana

It is advised to abide by the following treatments as a minimum for railroad crossings:

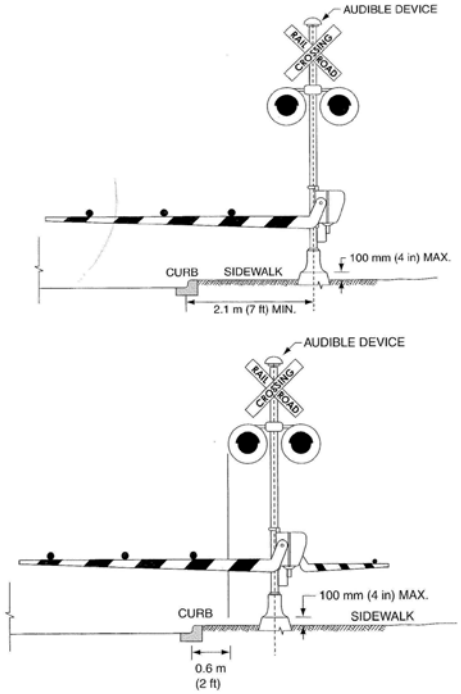
- A rubber panel crossing will be used with an asphalt approach.
- A railroad warning sign shall be placed a minimum of 115 feet from the nearest rail
- A Crossbuck sign will be placed 15 feet from the nearest rail and shall have a sign denoting number of track crossings.
- Where there are existing gate arms, a new pedestrian gate shall be placed if the path must go outside the post.
- A 24-inch stop bar will be placed approximately 15 feet from the nearest rail.
- The shared-use path will have a minimum 45 degree skew from the center line of the rail with 90 degrees being desirable.
- The path's pavement width will be widened to 14 feet.
- Railroad pavement markings will be placed adjacent to the rail warning sign.



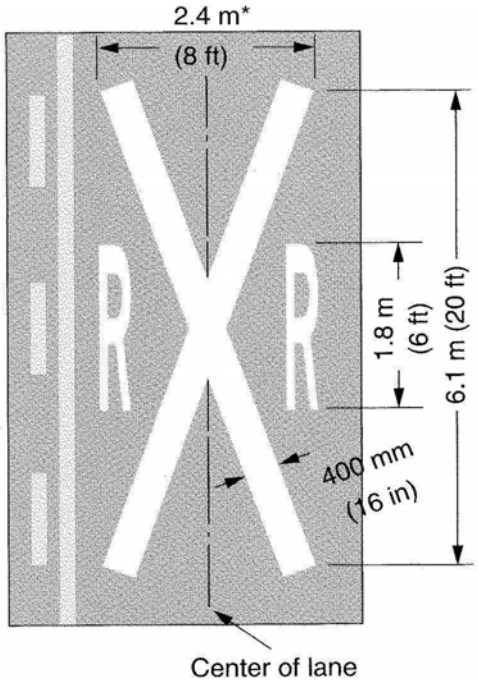
Rail Crossing Standards
'Guide for the Development of Bicycle Facilities' - AASHTO 1999



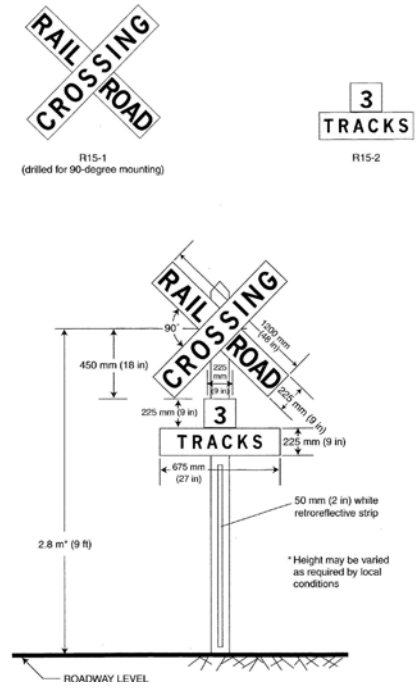
MUTCD (Figure 9B-3) Railroad Sign and Markings Locations for Shared-Use Paths



MUTCD (Figure 10D-3 and 10D-4) Typical Gate Arm Placement in Relation to Paths



MUTCD (Figure 8B-3) Pavement Markings for Rail Grade Crossings



MUTCD (Figure 8B-1) Rail Grade Crossing Crossbuck

SHARED-USE PATH SIGNAGE

There are many different issues to consider in the design of signs for a shared-use path. Signs along the system will need to serve a variety of purposes, including: providing traffic control along the path, alerting users to potential hazards, identifying path access points, providing historic information, providing educational information, indicating path distance, and providing orientation on the path and to surrounding communities.

Signs will need to be located so they are legible to path users and must be constructed in methods and materials that are somewhat vandal resistant and easy to maintain.

The need for different types of signs must be balanced with the idea of creating a visually pleasing landscape in which to use the shared-use path. The paths will feature a system of signage to clearly communicate a variety of messages in a graphically consistent manner. The signage system is divided into the following categories: Shared-Use Path Traffic Signs, Shared-Use Path Identity Signs, Shared-Use Path Guidance and Interpretive Signs, and Mile Markers.

Shared-Use Path Traffic Signs:

The shared-use path system will be a transportation corridor and, therefore, must have recognizable transportation signs that follow MUTCD guidelines. The shared-use path traffic signs will include regulatory and warning signs, such as: STOP, YIELD, and TRAIL NARROWS signs.

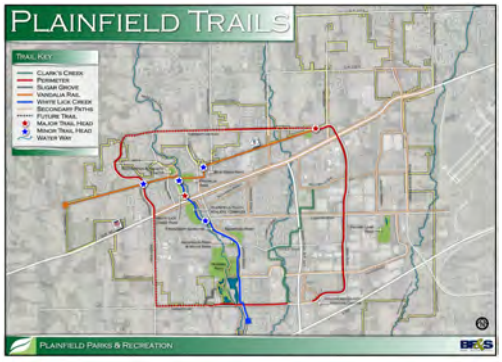
The design of the shared-use path traffic signs should be consistent from path to path Signs can have graphic information on one or both sides, reducing the overall number of signs needed. Signs should be placed 3 feet from the path's edge and be mounted at a height of 5 feet.

If the shared-use path is parallel with a roadway, "Yeild To Trail Users" signage should be placed to warn motorists when turning that pedestrians and bicyclists may be crossing the roadway or drive intersection. This provides added safety for both the motorist and pedestrian.

FINAL PLAN:
DEVELOPMENT STANDARDS

Shared-Use Path Identity Signs:

The shared-use path system will have numerous points of access. It is important that these points of entry be identified for the public in an appropriate and consistent manner. The shared-use path identity sign is intended to serve two functions: identify the main entry points to the path, and establish for the public a consistent and lasting identity for the path. By selecting a consistent treatment for each path it will help the user to know which route they are currently on. Each sign should be designed to incorporate a unique feature of each path. The city park's logo should be incorporated into each sign and the identity sign should follow the same color scheme as the route it is representing. The identity sign should be 9 feet to the bottom of the sign, minimum, to provide visibility and clearance. The signs should be visible by the public at the shared-use path and street intersections and at other significant access points.



Shared-Use Path Guidance & Interpretive Signs:

Along the path, there should be several different types of signs that provide the user with guidance information such as points of interest, path support facilities, and orientation.

Shared-use path guidance signs can be placed into two different categories. One type would be a directory sign which would show the path users how they can reach key destination points within the entire community. This sign would give an overall view of the entire shared-use path system and would need to be 30" x 42" in size to show enough detail. There should be a consistent layout for all these signs so they match and give a cohesive design throughout the system. Directory signs would typically be placed at major trailheads or key path access points.

The second type of guidance sign is a wayfinding sign. This type of sign is a map indicating amenities that are within close proximity to your current location on the path. These signs should be located at intersecting routes. A wayfinding sign should be no larger than 24" x 36", but at a scale that shows much more detail than the directory signs. The image located at the top of the next page represents an example of this type of sign.

Interpretive signs are another type of sign that provide educational information to path users and enhance their experience. These signs help to convey the historical, cultural, or ecological significance of certain points along the path. Examples would be the importance of protecting wetlands or water bodies, geological formations unique to the area, or a historically significant feature within the community.

With all these functions, the materials that the signs are made of must be flexible enough to incorporate a variety of graphic information and, yet, be consistent in appearance and presentation. It is recommended that a high pressure laminate be used for the directory, wayfinding, and interpretive signs. High pressure laminates provide high quality graphics and longevity at a reasonable price. A ½ inch thick sign should be employed to avoid the use of a frame. A high pressure laminate sign has a very clean print, has a low replacement cost, and resists shattering, and typically has a warranty period of 10 years. The interpretive signs and guidance signs should be mostly conveyed graphically, with minimal text and at a size that is at a comfortable height.

Mile Markers:

Mile markers provide orientation for the path users and emergency personnel as well as traveled distance along the path. Distance should be marked in quarter-mile intervals or less by transverse pavement markings placed directly on top of the path. Information included on the markers should be distance in miles and each trails logo. The top mile marker image to the right shows a type that is easily readable and reduces conflicts during routine maintenance such as mowing.

SITE FURNISHINGS

In addition to signage, the design of the shared-use path system will include site furnishings to accommodate the needs of the path users along the length of the entire route. Amenities such as benches, informal seating areas, trash receptacles, bicycle racks, and bollards will be clustered together at major, minor, and shared-use trailheads.

Locations of amenities along paths will depend on the characteristics of each path segment and should be addressed on a case by case situation. The purpose of most shared-use paths is to move people between various locations and for recreation. As such people are less likely to stop in between access points. Benches generally should be located at overlook points along paths where appropriate and where enough right-of-way exists. Paths located in sections of the city where there is a more elderly population or where there might be a need for people to stop more frequently may require benches to be placed in between access points. Paths located near hospitals may need to have benches placed more frequently if the hospital plans to use the route for rehabilitation programs.

Along with path signage, site furniture will be among the most frequently utilized elements along the path, setting the tone for the overall image of the path system in the minds of the users. It is important that design standards for the paths' site furnishings be established to ensure overall consistency of design and path image. The colors should be consistent with the route color scheme that the furnishing is located along. Along with consistency of color, a consistent style of furnishings needs to be established and followed as paths begin to be constructed. Establishing a color and style to use throughout the path it will minimize the amount of cost for the City because replacement parts can be stockpiled for one style of bench instead of five styles. See the following product information for consistency in site furnishings.

For federally funded projects it will be important to use the information in this document to complete the proprietary selection form.

FINAL PLAN:
DEVELOPMENT STANDARDS

Benches:

- Minimum of 6 feet long
- Color and style should match other amenities along the trail for a cohesive look
- Arm rests should be provided to help those that are more physically challenged
- A backrest should be provided to help those that are more physically challenged
- Powder or plastisol coating should be applied to reduce maintenance
- Option: Center Arm can be provided to keep people from sleeping on the bench
- The bench must have a firm and stable pad underneath it and provide a 3 foot wide area for a wheelchair to sit next to it

Trash Receptacle:

- Color and style shall match benches and other amenities to help with cohesion
- Minimum size of 32 gallons to reduce emptying
- A flare top lid will help to keep water from collecting in the trash bag
- A liner helps to reduce leaking of refuse on to surrounding surfaces
- The receptacle must have a firm and stable access path to it

Bicycle Rack:

- 36” Bike Loop
- Color: Color to be based on designated trail color
- Installation: In accordance with manufacturer’s instructions
- Style: Loop (supports bicycle in two spots)

Bollard:

- Use: Only in problem areas where motorized vehicle access seems to be more prevalent
- Collapsible is preferred to allow access for maintenance or emergency vehicles
- Color to match other amenities for cohesion

Drinking Fountain:

- Color: To match other amenities for cohesion
- Installation: In accordance with manufacturer's instructions
- Style: Two fountain heights with one fountain ADA accessible and dog bowl fountain
- The fountain must have a firm and stable access path to it

SHARED-USE PATH LANDSCAPING

The shared-use path system, due to its overall length and diverse scenery, may require more landscaping in urban areas and less in rural areas. The presence of mature vegetative cover not only adds to the natural beauty of the path experience, but also minimizes the amount of new landscaping necessary to improve the appearance of the path system and screening of the path from undesirable views and adverse adjacent path conditions.

In areas along the path where the appearance warrants improvement and no existing vegetation is present, plantings of trees, shrubs and ground cover should be considered to create a linear park effect alongside the route. New plantings should also be used to identify and improve "entrances" to parks (trail access points) and street crossings.

In addition, plantings should be used to screen certain land uses adjacent to the corridor (such as business service areas and industrial sites) and to separate the path from other improvements within the right-of-way (such as parking lots). Native plant material should be used where possible in an effort to keep landscape maintenance to a minimum and to maximize the ecological benefits of the plantings.

SHARED-USE PATH LIGHTING

The system is intended for use during daylight hours only; therefore it is not anticipated that the shared-use paths will need trail lighting. However, the installation of security lighting at trailheads, road crossings, bridges, and other activity areas should be considered if conditions warrant. Should conditions deem lighting to be necessary, there should be a standard lighting choice throughout all of the system.

SHARED-USE PATH MAINTENANCE ISSUES AND SAFETY

Maintenance costs are expected to be a minimum for the first 5-10 years. Costs will vary depending on the amount of paths needing to be maintained and the location of the paths. On a typical mile-long trail, maintenance could cost approximately $3,000 per year. Long term maintenance costs could consist of repairing any asphalt damage. Over 20 years it could be anticipated to spend approximately $10,000 to $20,000 on asphalt repair. The city or parks department should have a general maintenance fund set aside for this. Below is a list of general system maintenance items to keep in mind during the upkeep of the shared-use paths:

- Treat any wooden railing at least every 5 years to keep from rotting
- Properly prune trees above trails and shoulders to maintain 12 feet of vertical clearance.
- Properly prune trees and shrubs to maintain at least 5 feet of horizontal clearance from trail pavement edge. Use horticultural accepted pruning techniques and do not “top” trees (do not cut mid branch). Improper pruning can put stress on trees and cause more harm to the public in the long run.
- Properly prune any dead limbs out of trees to protect trail users. Remove any existing trees within close proximity that may die over time to protect trail users.
- Perform routine maintenance: mowing, clearing, trimming, vandalism repair, and litter control.
- Edge pavement or shoulder periodically to prevent roots/ vegetation from compromising pavement.
- Seal cracks in pavement every 2 years to prevent debris build up, water from entering base, and continued deterioration. Rubberized sealant is recommended
- Consider using a seal coat every 4 years to arrest deterioration, prevent water filtration, restore oils to upper surface, and prevent loss of fines.

Path maintenance costs could be reduced by utilizing local volunteers and other programs for simple tasks like litter removal and storm clean-up. A full time employee could be the designated volunteer coordinator and help manage resources and efforts. The Cardinal Greenway is a good example of where a volunteer system has been used to reduce maintenance costs and would be a good resource for how to make one successful. Also, youth scouting organizations, community corrections programs, community service programs, and youth programs could be utilized to do these tasks. More stringent repairs, like sealing asphalt and repairing cracks should still be handled with city forces or a contractor.

Another area where volunteers can help reduce cost is through regular patrols of the shared-use path systems. Since many path users will use the system daily for recreational or commuting needs, they can monitor any unwanted behavior simultaneously. Their responsibility would not be to address any unwanted behavior, but rather report it immediately to the proper authorities. In this way, the program can help to reduce the number of law enforcement officers that would need to be dedicated to the trail system and the need to install call boxes along the trails. Examples for places to find local volunteers would be local bicycle clubs, avid cyclists, alternative transportation advocates, etc.

ACCESSIBILITY

As mentioned previously, all new path construction must follow guidelines developed by the US Access Board or regulations from the US Department of Justice. At the time this document was created there were several guidelines that applied: 1) Guidelines for Shared Use Paths; 2) Guidelines for Outdoor Developed Areas; and 3) Guidelines for Pedestrian Facilities in the Public Right-of-Ways.

Some of these accessibility standards have already been addressed in other sections of the design guidelines, but there are a few others to consider:

- Ramps – See Guidelines for Pedestrian Facilities in the Public Right-of-Ways
- Detectable warnings – See ADA Chapter 7: Communication Elements and Features, Section 705 and Guidelines for Pedestrian Facilities in the Public Right-of-Ways
- Push buttons (activation)/signalization standards – See Guidelines for Pedestrian Facilities in the Public Right-of-Ways
- Site amenities – See Accessibility Guidelines for Outdoor Developed Areas

PEDESTRIAN FACILITIES

The downtown walking area already has a high level of pedestrian service. There are several design treatments that were proposed as part of the final pedestrian plan. All elements installed should follow the guidelines as outlined in the AASHTO Guide for the Planning, Design, and Operations of Pedestrian Facilities. Below are some treatments that would help support the existing sidewalk network.

1. Crosswalks shall have “piano bar” striping to provide more visibility
2. Intersection Treatments
    a. Install refuge islands where the width of the lanes to be crossed is greater than 75 feet or a pedestrian walking at 2.5 feet/second cannot completely cross the street during a signalized walk cycle.
    b. Consider bump outs at intersections where on-street parking is present to lessen the crossing distance
    c. Mid-block crossings should consider Hawk signalization
3. Street trees should be planted a maximum of 40 feet apart. Street trees should have the following characteristics
    a. Non-invasive varieties
    b. Vase shaped as to not impede pedestrian or vehicular traffic
    c. Maximum height of 40 feet
    d. Maximum width of 20-25 feet
4. Tree grates should be considered to give street trees a maximum root zone, while not impeding the pedestrian walking area. This will help to cut down on tree roots heaving the existing walks as well
5. Install a downtown pedestrian support facility including the following:
    a. Benches for resting
    b. Trash receptacles
    c. Trees for shade
    d. Pedestrian directory signs
    e. Drinking fountain
    f. Pet waste disposal
    g. Bike racks
    h. Public art
6. Countdown crosswalk signals with auditory warning
7. More trash receptacles
8. More benches for resting
    a. Benches should have arm rests and back rests to help those people that are more physically challenged

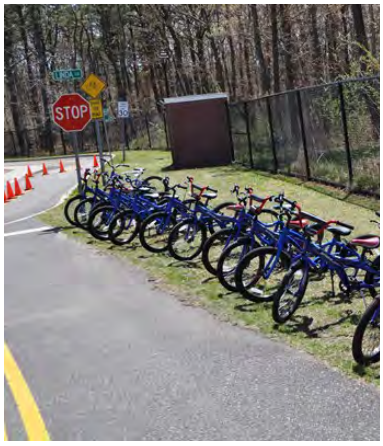
BICYCLE AND PEDESTRIAN PROGRAMS

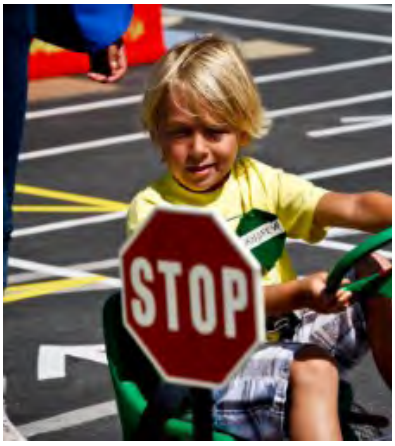
Moving New Palestine into a bicycle and pedestrian friendly community will need to be supported through programs and policies. Programs will be used to support and continue efforts in making the town safe for all non-motorized modes of transportation. As stated before, The League of American Bicyclists has developed a 5 E's program which they use as the foundation for labeling a city or town as a Bicycle Friendly Community. This plan will further use the 5 E's program to promote pedestrian walking routes throughout the community with programs and policies.

Education

As defined by the League of American Bicyclists, education is the amount of information available for bicyclists, motorists and pedestrians to allow for safe routing along all defined pathways.

New Palestine should implement that develop a variety of educational programs which teach young and old about safety, proper bicycling techniques on the road, bicycle maintenance, rules of the road and responsibilities. The following chart, developed from committee meetings, stakeholders meetings and public meetings, gives suggestions for new education programs to be implemented within the Town of New Palestine.





New Palestine Bicycle and Pedestrian Master Plan		
Education		
Existing Programs	**Suggested Programs**	**Future Development of Programs**
	Suggestion: Offer basic riding skills classes to children through the fire department.	Offer helmet fit seminars at community events.
	Suggestion: Offer basic adult cycling skills class to community at least 1 time per year.	Offer basic adult cycling skills class to community every 2 times per year.
	Suggestion: Offer adult traffic skills 101 class to community at least 1 time per year.	Offer adult traffic skills 101 class to community at least 2 times per year.
	Suggestion: Conduct a share the road campaign.	
	Suggestion: Create a ticket diversion program that offers education on sharing the road and bicycle / pedestrian laws.	
	Suggestion: Provide routine bicycle skills and in-traffic cycling courses to town planners.	Consider having a staff member trained as a League of American Bicyclist Instructor.
	Suggestion: Provide share the road training to town staff, school bus operators, and transit drivers.	

Encouragement

The community should promote and encourage bicycling, walking and running within the Town of New Palestine. The community should consider participation in national events, such as, Bike to Work Month, and set up their own promotional events to encourage residents and visitors to bike and walk within New Palestine. The community should also provide the tools to promote awareness for bike riding, walking and running. Placing routing maps, proper wayfinding signage, bike lock-up areas and restrooms around the community will help create a bike friendly and walkable town.

New Palestine needs to develop a variety of promotional events to encourage bicycling, walking and running throughout the community. Additionally, the community will need to create spaces, places and signage to help promote and portray their dedication to biking and walking throughout the area. The following chart, developed from committee meetings, stakeholders meetings and public meetings, gives suggestions for new promotional programs to be implemented within the Town of New Palestine.

New Palestine Bicycle and Pedestrian Master Plan		
Encouragement		
Existing Programs	**Suggested Programs**	**Future Development of Programs**
	Suggestion: Bike to School and Walk to School Day.	Offer bike and walking trains for children wanting to ride or walk on a more consistent basis
	Suggestion: Town holds bike rides and walks on newly opened infrastructure.	
	Suggestion: Bike to work day.	The Town of New Palestine should work with local bicycle advocates to celebrate National Bike Month.
	Suggestion: Work with local merchants to provide discount to people who ride or walk to their establishment.	Town of New Palestine create a Bicycle Friendly Business Program.

Enforcement

New Palestine will need to address bicycling as it relates to law enforcement. Similar to vehicles on the road, police need to be aware of proper procedures for upholding the law when it comes to bicycles navigating the streets. Law enforcement officers will need to protect motorists and bicyclists as they travel together along the same pathway. New Palestine will need to evaluate how they protect bicyclists, pedestrians and motorists by adding to their current curriculum; new bike police, new share the road laws and a way to distribute penalties for violators.

New programs, laws and policy may need to be implemented as bicycle traffic increases in New Palestine. This will be an important addition to the town as it creates a safe place for pedestrians, bicyclists and motorists to intermingle. The following chart, developed from committee meetings, stakeholders meetings and public meetings, gives suggestions for new enforcement programs to be implemented within the Town of Palestine.

New Palestine Bicycle and Pedestrian Master Plan		
Enforcement		
Existing Programs	**Suggested Programs**	**Future Development of Programs**
	Suggestion: Designate law enforcement officer to be on a bicycle and pedestrian advisory committee following the master plan and be an active member.	Designate one law enforcement officer to be a bicycling liaison for the community.
	Suggestion: 3' passing ordinance for motorist when near bicycles has been implemented.	Add additional ordinances as more of the network becomes developed. Illegal to park or drive in a bike lane. Penalties for failing to yield to a pedestrian or bicyclist. Illegal to harass a cyclist. Vulnerable road user law.
	Suggestion: Have patrol officers report cyclist / pedestrian crash data or potential hazards to town staff.	
	Suggestion: Have a League of American Bicyclists Instructor give a presentation to all officers on bicycle traffic laws.	Provide Smart Cycling course to one or more officers.
	Suggestion: Have at least 5% of patrol officers regularly on bikes.	Have at least 10% of patrol officers regularly on bikes. Consider having other public safety employees on bikes.
	Suggestion: Provide programs that target improved cyclist safety such as helmets, lights and, bike lock giveaways.	Increase targeting of motorists and cyclists infractions.

Engineering

This will be the most direct way to create a bicycle and pedestrian friendly community. Providing the actual built environment so bicyclists and pedestrians can use roadways and walkways will enable the public to reach the main destination points around the community. Additionally, the town should provide facilities at main destination points for riders, walkers and runners. These facilities provide security, rest stops, wayfinding and support for those riding, running and walking within the area.

Implementing the suggested routes and facilities proposed by this plan will be the next step in becoming a bicycle and pedestrian friendly community. The following chart, developed from committee meetings, stakeholders meetings and public meetings, gives suggestions for new routes and facilities to be implemented within the Town of New Palestine.

New Palestine Bicycle and Pedestrian Master Plan		
Engineering		
Existing Programs	**Suggested Programs**	**Future Development of Programs**
	Suggestion: Bicycle parking standards should meet APBP Guidelines.	
	Suggestion: Town of New Palestine adopt a complete streets policy.	Provide training to town planners and public works staff on accommodation of all modes of transportation.
	Suggestion: Consider adopting additional policies that support walking and biking.	
	Suggestion: Provide outside training to town planners and public works staff on AASHTO, MUTCD, and NACTO Standards relating to bicycling and walking.	
	Suggestion: Require project consultants working on bike/ped. projects to have appropriate qualifications.	
	Suggestion: Increase the number of bike parking facilities in the community by 20%.	Create a program that increases the number of bike lockers and bike corrals in the community by 5%.
	Suggestion: Adopt a maintenance policy to keep on road bicycle facilities usable and safe.	
	Suggestion: Adopt a maintenance policy to keep off-street bicycle facilities usable and safe.	
	Suggestion: Create a mechanism for pedestrians and cyclists to identify problem intersections or areas to town staff	Adopt a Vision Zero Policy

Evaluation

Planning for the future is very important in creating a bicycle and pedestrian friendly community. In order to keep up with current trends and expand the Town's bicycle and sidewalk network, New Palestine must evaluate existing programs and policies for future development. Gathering statistical data on crashes, finding current ridership counts, and updating the location of existing sidewalks should be performed on a yearly basis to increase the current infrastructure network. The bicycle and pedestrian comprehensive plan must be updated as more sidewalks and bike routes are added.

Development and adoption of the New Palestine Bicycle and Pedestrian Master Plan be the first step in evaluating the current conditions of the Town. Implementation of the Plan will enable New Palestine to incorporate recommended policies, programs and infrastructure into future improvements, creating a pedestrian and bicycle network. The following chart, developed from committee meetings, stakeholders meetings and public meetings, gives further suggestions for new evaluation programs to be implemented within the Town of New Palestine.






New Palestine Bicycle and Pedestrian Master Plan		
Evaluation		
Existing Programs	**Suggested Programs**	**Future Development of Programs**
Program: Complete a Bicycle and pedestrian master plan.	***Suggestion***: Bicycle and Pedestrian Steering Committee along with Bicycle Program Manager should review priorities once a year.	Master plan should be re-evaluated at least every 10 years during development.
Program: Bicycle and Pedestrian Steering Committee and Advisory Committee created for master plan.	***Suggestion***: Bicycle and Pedestrian Advisory Committee continues to meet quarterly and has a designated chair.	Bicycle and Pedestrian Advisory Committee meets at least monthly to evaluate concerns with the bike and pedestrian network.
	Suggestion: Create funding campaign to help raise money to implement portions of the master plan.	Seek out federal and local grants to fund additional portions of the master plan.
	Suggestion: Designate a project based and program based project manager through various town departments.	
	Suggestion: Create an on-going bicycle counting and/ or survey program that allows for long term trend analysis.	Establish target goals for bicycle and pedestrian use. Consider capturing gender of riders in bicycle counts.
	Suggestion: Conduct pre/post evaluations of bicycle-related road projects.	
	Suggestion: Create a community-wide trip reduction policy or program.	
	Suggestion: Develop an on-line reporting system for pedestrian and bicycle related concerns.	

FINAL PLAN: FUNDING SOURCES

There are various sources of funding available for the design, development and construction of bicycle facilities and pedestrian projects. The following is a summary of some of the most often utilized sources.

TRANSPORTATION ALTERNATIVES PROGRAM (TAP)

The current federal highway bill, Moving Ahead for Progress in the 21st Century, or MAP-21, is a two year bill that will provide transportation funding from October 1, 2012, through September 30, 2014. MAP-21 combines several previous biking and pedestrian programs into one program known as the Transportation Alternatives Program (TAP). TAP includes the Recreational Trails Program (RTP), Transportation Alternatives (TA) activities (many of the projects and programs that were included in the former Transportation Enhancement [TE] program), and Safe Routes to School (SRTS). The following discussion is related to all of these programs. Information specific to each program is addressed in later sections.

If the State does not opt out of the RTP funding, the RTP funds are set aside, and the remaining TAP funds are divided equally into two categories. The first half is sub-allocated based on population, in which INDOT will distribute half of the TAP funds to communities according to their share of population within the state. These population categories are as follows:

- MPOs with populations greater than 200,000: INDOT will sub-allocate funds to Metropolitan Planning Organizations (MPOs). MPOs will distribute their funds through their own competitive application process.
- Other urbanized and rural areas: MAP-21 allows state DOT's to hold a competitive application process for communities to compete for these funds. INDOT is currently developing their process, including the possibility of sub-allocating to smaller MPOs.

The second half of the remaining TAP funds will be distributed state-wide by a competitive application process through INDOT, where population is not considered. Eligible entities include local governments, school districts, tribal governments, and public lands agencies. In MAP-21, the State has the ability to transfer funds both into and out of TAP for other transportation programs

Federal TAP funds provide 80% of the costs for preliminary engineering (survey, design, and construction documents), right-of-way (engineering, management, acquisition), construction, and construction supervision. The local agency is required to provide the matching 20%. The local match for TA funds can be obtained from various sources, such as budget appropriations, cash donations, right-of-way donations, and other grant sources, provided the other grant programs allow their funds to be used as a match for MAP-21 funds. Currently, Indiana has received approximately $21 million for funding the TAP program. Approximately $1 million is taken off the top and distributed to Recreational Trails Program, and the other $20 million is distributed to Transportation Alternatives and Safe Routes to School.

RECREATIONAL TRAILS PROGRAM (RTP)

As part of TAP, funding for the Recreational Trails Program (RTP) is set aside as a separate program. Each state has the option to "opt out" of the RTP. For 2014, the Governor has opted in, and will continue the RTP in Indiana.

This program is a federal financial assistance program administered through IDNR. It provides grants for 80% of the cost of land acquisition and/or development of multi-use recreational trail projects. Both motorized and non-motorized projects are eligible. The program is administered at the federal level by the Federal Highway Administration (FHWA), but is operated at the state level by IDNR. Previously provided funds for individual projects have ranged from $10,000 to $150,000. Currently, Indiana has received approximately $1 million for RTP funding. All units of government and not-for-profit organizations with 501(c)(3) tax exempt status are eligible to participate. Applications are typically available in February and due back to IDNR by May 1 of each year.

Contact for RTP:
Bob Bronson
State & Community Outdoor Recreation Planning Section
Division of Outdoor Recreation
Indiana Department of Natural Resources
402 W. Washington Street, Room W271
Indianapolis, IN 46204
317-232-4075
bbronson@dnr.in.gov
www.state.in.us/dnr/outdoor

TRANSPORTATION ALTERNATIVES (TA)

Under MAP-21, eligible activities included in the former Transportation Enhancement (TE) program are now referred to as Transportation Alternatives (TA) activities, and are included in TAP funding that remains after RTP funds are set aside. Although some former TE eligible activities are not included in TA, the activities most closely related to the development of trails, greenways, and bike/pedestrian facilities are still eligible. These activities include: on-road and off-road facilities for pedestrians, bicyclists, and other non-motorized forms of transportation; developing safe routes for non-drivers; conversion of abandoned railroad corridors for trails; and, historic preservation and rehabilitation of historic transportation facilities.

At this time, the new federal guidelines for the implementation and use of TA funds are being reviewed. The details for the State's program and process for acquiring and using the funds is being developed. In recent years, approximately $16 million to $20 million in TE funds were available annually in Indiana. At this time, Indiana has received approximately $20 million to be split between TA and Safe Routes to School. The process for applying for the funds and the funding cycle has not yet been determined.

Contact for TA Funds:
Indianapolis Metropolitan Planning Organization
Steve Cunningham, Principal Planner
200 East Washington Street, Suite 1922
Indianapolis, IN 46204
Email: steve.cunningham@indympo.org
Phone: 317-327-5403

SAFE ROUTES TO SCHOOL (SRTS)

The Indiana Safe Routes to School (SRTS) program is based on the federal programs designed to make walking and bicycling to school safe, more convenient, and routine, providing a true option for school travel. Growing areas of emphasis of the program are the physical activity, environmental, and social benefits of walking and biking. INDOT is responsible for administering SRTS as part of the TAP. Both infrastructure projects and non-infrastructure projects, such as encouragement, education, and enforcement, are eligible. Kindergarten through 8th grade is the primary focus and these projects should help improve access for children with physical disabilities.

The funding for SRTS is part of the TAP funds that remain after the RTP funds are set aside. In the past, the maximum infrastructure improvement project award was $250,000. At this time, Indiana has received approximately $20 million to be split between TA and SRTS. The process for applying for the funds and the funding cycle has not yet been determined.

Contact for SRTS:
Michael Cales
Indiana Department of Transportation
100 N. Senate Ave. IGCN. 955
Indianapolis, IN 46204
317-232-5021
mcales@indot.in.gov

STELLAR COMMUNITIES PROGRAM

The Stellar Communities program is a multi-agency partnership designed to fund comprehensive community development projects in Indiana's smaller communities. The Indiana Housing and Community Development Authority, Indiana Office of Community and Rural Affairs, and Indiana Department of Transportation are participating in this innovative program.

A call for a letters of interest is made through an annoucment to Indiana communites. Each community then submits a letter of interest. The state team choses finalist communites from the letters of interest. Finalist communites are then aksed to put together a strategic investment plan. Once a community becomes a "Designated Community", they are elevated to a status of non-competitive funding for a 3-year cycle. It also means that the community will not be able to recieve funds through other regular agency programs.

Currently there are 6 pilot communities in the Stellar Communities program. Since 2010 over 60 Hoosier communities have expressed interest in the program and 21 strategic investment plans have been created. For more information visit: http://www.in.gov/ocra/2601.htm or contact your Office of Community and Rural Affairs Community Liason.

SURFACE TRANSPORTATION PROGRAM (STP) & HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

The Surface Transportation Program (STP) provides funding that may be used by States and localities for projects to preserve and improve the conditions and performance on Federal-aid projects. Eligible projects include highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. Therefore, any pedestrian or bicycle facility that has been previously funded by federal-aid can use this funding to "preserve and improve the conditions and performance." Eligible activities that relate to bicycle and pedestrian projects are as follows: fringe and corridor parking facilities and programs, bicycle transportation and pedestrian walkways, ADA sidewalk modifications; transportation alternatives; and recreational trails projects.

Similarly, under MAP-21 there appear to be opportunities for bicycle and pedestrian facilities funding in the Highway Safety Improvement Program (HSIP). Traffic and accident data would need to support the development of bicycle and pedestrian facilities as a means to improve overall safety.

Contact for STP and HSIP
Indianapolis Metropolitan Planning Organization
Steve Cunningham, Principal Planner
200 East Washington Street, Suite 1922
Indianapolis, IN 46204
Email: steve.cunningham@indympo.org
Phone: 317-327-5403

Tax Increment Financing (TIF)

Tax Increment Financing(TIF) is a way of subsidizing redevelopment, infrastructure, or other community improvement projects. Future gains in taxes from the completion of a community improvement project are dedicated within a certain defined district to finance the debt that is issued or money that is borrowed to pay for the project. Gains can come from the projected increase of surrounding real estate as a result from the project, which generates additional tax revenue. Tax revenue increases can also come from increased sales-tax and the addition of more jobs within the community as a result of the project. Defined districts are usually areas of distressed, underdeveloped, or underutilized parts of the community that might not otherwise see development and that would benefit from the completion of a the project.

LAND AND WATER CONSERVATION FUND (LWCF)

Land and Water Conservation Fund (LWCF) is a federal financial assistance program administered through IDNR. It provides matching grants for 50% of the cost of land acquisition and/or development of outdoor recreation sites and facilities. Funds for this program come primarily from federal off-shore oil lease receipts. The program is administered at the federal level by the National Parks Service (NPS), but is operated at the state level by IDNR. Individual projects typically receive $10,000 to $200,000 in funds. Only legally established park boards with an approved 5-year Park and Recreation Master Plan are eligible to participate. Applications are available on or after March 1 and are required to be submitted or post-marked by June 1 of each year.

Contact for LWCF:
Bob Bronson
State & Community Outdoor Recreation Planning Section
Division of Outdoor Recreation
Indiana Department of Natural Resources
402 W. Washington Street, Room W271
Indianapolis, IN 46204
317-232-4075
bbronson@dnr.in.gov
www.state.in.us/dnr/outdoor

PRIVATE FOUNDATIONS

There are a number of foundations and trust funds which support the planning and development of trails and greenways, in the interest of conservation, preservation, and outdoor recreation. Although many of them fund only nonprofit organizations, some will assist local public agencies. A few of these organizations include:

1. Kodak American Greenways Awards through the Conservation Fund
   www.conservationfund.org/?article=2106
2. Nina Mason Pulliam Charitable Trust
   http://www.ninapulliamtrust.org/index.php/grant-information/
3. Robert Wood Johnson Foundation's Active Living by Design program
   http://www.activelivingbydesign.org/what-we-do/albd-grant-program

CORPORATE SPONSORSHIP

In addition to the federal and private foundation options, corporate sponsorship presents another opportunity for funding. As trails and roadways are developed, especially in close proximity to businesses or industries, there are opportunities for corporations to sponsor trails. Sponsorships can be direct financial support of construction activities for trails, trailheads, specific trail or trailhead amenities, or even trail maintenance. The donation of land for the development of trails is also an excellent method of corporate support that can become a sponsorship opportunity. Sponsorship often includes granting naming rights to the sponsor for the items or areas that were financed or donated. Contacting adjacent or area corporations should be considered for these types of sponsorships.

LOCAL BUSINESSES AND ORGANIZATIONS

Corporations and organizations within the community are often willing to help with projects that attract employees and residents to the community through bettering the amenties available. The municipality should continue to identify organizations within the community that would be willing to help with some of the smaller proejcts or possibly provide match money for the larger projects.

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

STREET	TOTAL
US 52 / Main Street	$ 944,463.60
Southern Town Limits Trails	$ 1,697,987.50
Mill Street	$ 87,310.00
Gem Road	$ 924,722.13
Bittner Road	$ 985,994.60
300 S	$ 407,010.00
Cedar Creek Place	$ 5,030.00
Cedar Creek Lane	$ 5,335.00
Lawrence Way	$ 52,369.60
Stonehaven Lane & Bridgewood Blvd	$ 11,890.00
Kelly Drive & North Street	$ 8,210.00
Depot Street	$ 107,570.00
Railroad Corridor Trail	$ 204,705.00
MASTER PLAN PROJECT GRAND TOTAL	**$ 5,442,597.43**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**U.S. 52 / Main Street**	
	From:	600 W
	To:	Gem Road
Type:	Shared-Use Path	
Distance:	1.10 Miles	

Shared Use Path: 600 W - Gem Road		**1.00 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 8' & Shoulders 2'		1	MILES	$ 240,000.00	$ 240,000.00
Curb and Gutter, Concrete		500	LFT	$ 20.00	$ 10,000.00
Special Concrete Pavement per Intersection		80	SYS	$ 45.00	$ 3,600.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)	3	EACH	$ 5,000.00	$ 15,000.00
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement	1	EACH	$ 90,000.00	$ 90,000.00
	Drive Crossing (conflict zone marking)	3540	SFT	$ 7.00	$ 24,780.00
Signage:					
	Trail Identification	2	EACH	$ 2,000.00	$ 4,000.00
	Interpretive		EACH	$ 2,500.00	$ -
	Directory	1	EACH	$ 2,500.00	$ 2,500.00
	2-Way Crossing Signs	5	EACH	$ 500.00	$ 2,500.00
	(Stop, Stop Ahead)	2	EACH	$ 500.00	$ 1,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	2	EACH	$ 100.00	$ 200.00
Mile Markers		4	EACH	$ 500.00	$ 2,000.00
Modular Block Wall (6' Tall x 350 LFT)		2100	SFT	$ 34.00	$ 71,400.00
Pedestrian Fence		350	LFT	$ 32.00	$ 11,200.00
Ditch Grading		350	LFT	$ 10.00	$ 3,500.00
Pedestrian Bridge		60	LFT	$ 1,650.00	$ 99,000.00
Box Culvert, 15ft x 4 ft		18	LFT	$ 1,400.00	$ 25,200.00
Seeding		1	MILES	$ 6,000.00	$ 6,000.00
Minor Trailhead (at Marsh / Fifth Third Bank)		1	LS	$ 10,000.00	$ 10,000.00
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 631,880.00**
			2% MAINT. OF TRAFFIC		$ 12,637.60
			(LS) EARTHWORK		$ 5,000.00
			(LS) EROSION CONTROL		$ 10,000.00
			(LS) UTILITY RELOCATIONS		$ 30,000.00
			2.5% CONSTRUCTION ENGINEERING		$ 12,637.60
			5% MOB. & DEMOBILIZATION		$ 31,594.00
			3% CLEARING OF ROW		$ 18,956.40
			15% CONTINGENCY		$ 94,782.00
			TOTAL		**$ 847,487.60**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN

COST ESTIMATE

Name:	**U.S. 52 / Main Street**	
	From:	600 W
	To:	Gem Road
Type:	Shared-Use Path	
Distance:	1.0 Miles	

Shared Use Path: Westside Dr - 500 W		**0.10 Miles**				
Improvement Description		**Qty.**	**Unit**	**Unit Cost**		**Cost**
Asphalt Trail 8' & Shoulders 2'		0.1	MILES	$	240,000.00	$ 24,000.00
Curb and Gutter, Concrete		400	LFT	$	20.00	$ 8,000.00
Intersection Improvements:						
	Level 1 (Signage, Pavement Marking)	1	EACH	$	5,000.00	$ 5,000.00
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$	40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement		EACH	$	90,000.00	$ -
Signage:						
	Trail Identification		EACH	$	2,000.00	$ -
	Interpretive		EACH	$	2,500.00	$ -
	Directory		EACH	$	2,500.00	$ -
	(Stop, Stop Ahead)	2	EACH	$	500.00	$ 1,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	2	EACH	$	100.00	$ 200.00
Mile Markers			EACH	$	500.00	$ -
Seeding		0.1	MILES	$	6,000.00	$ 600.00
Trailhead			LS	$	20,000.00	$ -
General Trail Landscape Work		1	LS	$	10,000.00	$ 10,000.00
			SUBTOTAL			**$ 48,800.00**
			2% MAINT. OF TRAFFIC			$ 976.00
			(LS) EARTHWORK			$ 5,000.00
			(LS) EROSION CONTROL			$ 10,000.00
			(LS) UTILITY RELOCATIONS			$ 20,000.00
			2.5% CONSTRUCTION ENGINEERING			$ 976.00
			5% MOB. & DEMOBILIZATION			$ 2,440.00
			3% CLEARING OF ROW			$ 1,464.00
			15% CONTINGENCY			$ 7,320.00
			TOTAL			**$ 96,976.00**

GRAND TOTAL	**$**	**944,463.60**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Southern Town Limits Trails**	
	From:	Sugar Creek Trail
	To:	450 W
Type:	Shared-Use Path	
Distance:	Miles	

Shared Use Path: Sugar Creek Trail - 600 W		**0.80 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		0.8	MILES	$ 240,000.00	$ 192,000.00
Special Concrete Pavement per Intersection		80	SYS	$ 45.00	$ 3,600.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)	1	EACH	$ 5,000.00	$ 5,000.00
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement		EACH	$ 90,000.00	$ -
Signage:					
	Trail Identification	2	EACH	$ 2,000.00	$ 4,000.00
	Interpretive		EACH	$ 2,500.00	$ -
	Directory		EACH	$ 2,500.00	$ -
	(Stop, Stop Ahead)		EACH	$ 500.00	$ -
	(No Motor Vehicles)(Cross Traffic Does Not Stop)		EACH	$ 100.00	$ -
Mile Markers			EACH	$ 500.00	$ -
Seeding		0.8	MILES	$ 6,000.00	$ 4,800.00
Trailhead			LS	$ 20,000.00	$ -
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 219,400.00**
		2%	MAINT. OF TRAFFIC		$ 4,388.00
		(LS)	EARTHWORK		$ 5,000.00
		(LS)	EROSION CONTROL		$ 10,000.00
		(LS)	UTILITY RELOCATIONS		$ 10,000.00
		2.5%	CONSTRUCTION ENGINEERING		$ 4,388.00
		5%	MOB. & DEMOBILIZATION		$ 10,970.00
		3%	CLEARING OF ROW		$ 6,582.00
		15%	CONTINGENCY		$ 32,910.00
			TOTAL		**$ 303,638.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Southern Town Limits Trails**	
	From:	Sugar Creek Trail
	To:	450 W
Type:	Shared-Use Path	
Distance:	Miles	

Shared Use Path: US 52 - Gem Road		**1.60 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		1.6	MILES	$ 240,000.00	$ 384,000.00
Special Concrete Pavement per Intersection		160	SYS	$ 45.00	$ 7,200.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)	1	EACH	$ 5,000.00	$ 5,000.00
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement	1	EACH	$ 90,000.00	$ 90,000.00
Signage:					
	Trail Identification	4	EACH	$ 2,000.00	$ 8,000.00
	Interpretive		EACH	$ 2,500.00	$ -
	Directory	2	EACH	$ 2,500.00	$ 5,000.00
	(Sharp Turn)	2	EACH	$ 500.00	$ 1,000.00
	(Stop, Stop Ahead)	8	EACH	$ 500.00	$ 4,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	8	EACH	$ 100.00	$ 800.00
Mile Markers			EACH	$ 500.00	$ -
18" RCP		80	LFT	$ 60.00	$ 4,800.00
Pedestrian Bridge		60	LFT	$ 1,650.00	$ 99,000.00
Box Culvert, 15ft x 4 ft		18	LFT	$ 1,400.00	$ 25,200.00
Seeding		1.6	MILES	$ 9,500.00	$ 15,200.00
Trailhead			LS	$ 20,000.00	$ -
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 659,200.00**
		2%	MAINT. OF TRAFFIC		$ 13,184.00
		(LS)	EARTHWORK		$ 30,000.00
		(LS)	EROSION CONTROL		$ 20,000.00
		(LS)	UTILITY RELOCATIONS		$ 20,000.00
		2.5%	CONSTRUCTION ENGINEERING		$ 13,184.00
		5%	MOB. & DEMOBILIZATION		$ 32,960.00
		3%	CLEARING OF ROW		$ 19,776.00
		15%	CONTINGENCY		$ 98,880.00
			TOTAL		**$ 907,184.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Southern Town Limits Trails**	
	From:	Sugar Creek Trail
	To:	450 W
Type:	Shared-Use Path	
Distance:	Miles	

Shared Use Path: 500 W - 450 W		**0.90 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		0.9	MILES	$ 240,000.00	$ 216,000.00
Special Concrete Pavement per Intersection		100	SYS	$ 45.00	$ 4,500.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)		EACH	$ 5,000.00	$ -
	Level 2 (Overhead Flasher,Signage, Pavement	2	EACH	$ 40,000.00	$ 80,000.00
	Level 3 (Median, Signal, Signage, Pavement		EACH	$ 90,000.00	$ -
Signage:					
	Trail Identification		EACH	$ 2,000.00	$ -
	Interpretive		EACH	$ 2,500.00	$ -
	Directory		EACH	$ 2,500.00	$ -
	(Stop, Stop Ahead)	2	EACH	$ 500.00	$ 1,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	2	EACH	$ 100.00	$ 200.00
Mile Markers			EACH	$ 500.00	$ -
18" RCP		40	LFT	$ 60.00	$ 2,400.00
Seeding		0.9	MILES	$ 9,500.00	$ 8,550.00
Major Trailhead		1	LS	$ 20,000.00	$ 20,000.00
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 342,650.00**
			2%	MAINT. OF TRAFFIC	$ 6,853.00
			(LS)	EARTHWORK	$ 30,000.00
			(LS)	EROSION CONTROL	$ 12,000.00
			(LS)	UTILITY RELOCATIONS	$ 10,000.00
			2.5%	CONSTRUCTION ENGINEERING	$ 6,853.00
			5%	MOB. & DEMOBILIZATION	$ 17,132.50
			3%	CLEARING OF ROW	$ 10,279.50
			15%	CONTINGENCY	$ 51,397.50
			TOTAL		**$ 487,165.50**

GRAND TOTAL	**$**	**1,697,987.50**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Mill Street**	
	From:	Gem Road
	To:	450 W
Type:	Shared Roadway, Sidewalk	
Distance:	0.50 Miles	

Shared Roadway: Gem Rd - 450 W		**0.5 Miles**		
Improvement Description	**Qty.**	**Unit**	**Unit Cost**	**Cost**
Sharrow Pavement Marking	16	EACH	$ 200.00	$ 3,200.00
Sharrow Signage	12	EACH	$ 150.00	$ 1,800.00
Road Widening:				
HMA Surface,		TON	$ 65.00	$ -
HMA Intermediate		TON	$ 60.00	$ -
6" Compacted Aggregate #53		TON	$ 20.00	$ -
Subgrade Treatment Type III		SYS	$ 10.00	$ -
Common Excavation		CYS	$ 15.00	$ -
Marked Parking (4" White "Tick" Mark)		EACH	$ 8.00	$ -
Mill and Resurface				
HMA Milling, 1.5"		SYS	$ 4.00	$ -
HMA Surface		TON	$ 65.00	$ -
		SUBTOTAL		**$ 5,000.00**
	2%	MAINT. OF TRAFFIC		$ 100.00
	5%	MOB. & DEMOBILIZATION		$ 250.00
	15%	CONTINGENCY		$ 750.00
		TOTAL		**$ 6,100.00**

Sidewalk: Gem Rd - Depot St, Gem Rd - Anderson		**0.55 Miles**		
Improvement Description	**Qty.**	**Unit**	**Unit Cost**	**Cost**
Sidewalk	1613	SYS	$ 35.00	$ 56,455.00
Curb	10	LFT	$ 15.00	$ 150.00
Curb Ramp, Type G	4.9	SYS	$ 120.00	$ 588.00
Common Exvacation	179	CYS	$ 25.00	$ 4,475.00
Seeding	0.55	MILES	$ 6,000.00	$ 3,300.00
		SUBTOTAL		**$ 64,968.00**
	2.5%	CONSTRUCTION ENGINEERING		$ 1,299.36
	5%	MOB. & DEMOBILIZATION		$ 3,248.40
	3%	CLEARING OF ROW		$ 1,949.04
	15%	CONTINGENCY		$ 9,745.20
		TOTAL		**$ 81,210.00**

GRAND TOTAL	**$ 87,310.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Gem Road**	
	From:	School Road
	To:	300 S
Type:	Shared-Use Path, Sidewalk	
Distance:	Miles	

Shared Use Path: School Rd - Stonehaven Ln		**0.70 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		0.7	MILES	$ 240,000.00	$ 168,000.00
Special Concrete Pavement per Intersection		320	SYS	$ 45.00	$ 14,400.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)	4	EACH	$ 7,000.00	$ 28,000.00
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement		EACH	$ 90,000.00	$ -
	Railraod Crossing	1	EACH	$ 100,000.00	$ 100,000.00
Signage:					
	Trail Identification	1	EACH	$ 2,000.00	$ 2,000.00
	Interpretive		EACH	$ 2,500.00	$ -
	Directory	2	EACH	$ 2,500.00	$ 5,000.00
	(Stop, Stop Ahead)	8	EACH	$ 500.00	$ 4,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	8	EACH	$ 100.00	$ 800.00
Mile Markers			EACH	$ 500.00	$ -
Seeding		0.6	MILES	$ 6,000.00	$ 3,600.00
Trailhead			LS	$ 20,000.00	$ -
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 335,800.00**
		3%	MAINT. OF TRAFFIC		$ 10,074.00
		(LS)	EARTHWORK		$ 30,000.00
		(LS)	EROSION CONTROL		$ 10,000.00
		(LS)	UTILITY RELOCATIONS		$ 30,000.00
		2.5%	CONSTRUCTION ENGINEERING		$ 6,716.00
		5%	MOB. & DEMOBILIZATION		$ 16,790.00
		3%	CLEARING OF ROW		$ 10,074.00
		15%	CONTINGENCY		$ 50,370.00
			TOTAL		**$ 499,824.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Gem Road**	
	From:	School Road
	To:	300 S
Type:	Shared-Use Path, Sidewalk	
Distance:	Miles	

Sidewalk: Stonehaven Ln - Cedar Cove Dr	**0.4 Miles**			
Improvement Description	**Qty.**	**Unit**	**Unit Cost**	**Cost**
Sidewalk (Expansion of 6' on existing sidewalk)	1408	SYS	$ 35.00	$ 49,280.00
Curb	60	LFT	$ 15.00	$ 900.00
Curb Ramp, Type G	29.4	SYS	$ 120.00	$ 3,528.00
Common Exvacation	130.5	CYS	$ 25.00	$ 3,262.50
Seeding	0.4	MILES	$ 6,000.00	$ 2,400.00
		SUBTOTAL		**$ 59,370.50**
	2.5%	CONSTRUCTION ENGINEERING		$ 1,187.41
	5%	MOB. & DEMOBILIZATION		$ 2,968.53
	3%	CLEARING OF ROW		$ 1,781.12
	15%	CONTINGENCY		$ 8,905.58
		TOTAL		**$ 74,213.13**

Sidewalk: Cedar Cove Dr - Lee Mar Rd	**0.2 Miles**			
Improvement Description	**Qty.**	**Unit**	**Unit Cost**	**Cost**
Sidewalk	587	SYS	$ 35.00	$ 20,545.00
Curb	50	LFT	$ 15.00	$ 750.00
Curb Ramp, Type G	24.5	SYS	$ 120.00	$ 2,940.00
Common Exvacation	65	CYS	$ 25.00	$ 1,625.00
Seeding	0.2	MILES	$ 6,000.00	$ 1,200.00
		SUBTOTAL		**$ 27,060.00**
	2.5%	CONSTRUCTION ENGINEERING		$ 541.20
	5%	MOB. & DEMOBILIZATION		$ 1,353.00
	3%	CLEARING OF ROW		$ 811.80
	15%	CONTINGENCY		$ 4,059.00
		TOTAL		**$ 33,825.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Gem Road**	
	From:	School Road
	To:	300 S
Type:	Shared-Use Path, Sidewalk	
Distance:	Miles	

Shared Use Path: Pine Bluff Dr - 300 S		**0.60 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		0.6	MILES	$ 240,000.00	$ 144,000.00
Special Concrete Pavement per Intersection		320	SYS	$ 45.00	$ 14,400.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)	2	EACH	$ 7,000.00	$ 14,000.00
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement		EACH	$ 90,000.00	$ -
Signage:					
	Trail Identification	1	EACH	$ 2,000.00	$ 2,000.00
	Interpretive		EACH	$ 2,500.00	$ -
	Directory		EACH	$ 2,500.00	$ -
	(Stop, Stop Ahead)	8	EACH	$ 500.00	$ 4,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	8	EACH	$ 100.00	$ 800.00
Mile Markers			EACH	$ 500.00	$ -
Box Culvert, 15ft x 4 ft		18	LFT	$ 1,400.00	$ 25,200.00
Seeding		0.6	MILES	$ 6,000.00	$ 3,600.00
Trailhead			LS	$ 20,000.00	$ -
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 218,000.00**
			2% MAINT. OF TRAFFIC		$ 4,360.00
			(LS) EARTHWORK		$ 10,000.00
			(LS) EROSION CONTROL		$ 10,000.00
			(LS) UTILITY RELOCATIONS		$ 20,000.00
			2.5% CONSTRUCTION ENGINEERING		$ 4,360.00
			5% MOB. & DEMOBILIZATION		$ 10,900.00
			3% CLEARING OF ROW		$ 6,540.00
			15% CONTINGENCY		$ 32,700.00
			TOTAL		**$ 316,860.00**

GRAND TOTAL	**$**	**924,722.13**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN

COST ESTIMATE

Name:	**Bittner Road**	
	From:	Waste Water Plant
	To:	300 S
Type:	Shared-Use Path	
Distance:	Miles	

Shared Use Path: Waste Water Plant - 300 S		**1.75 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		1.5	MILES	$ 240,000.00	$ 360,000.00
Concrete Trail, 8' Wide (PCCP 4")		1227	SYS	$ 55.00	$ 67,485.00
Sidewalk, Concrete, Colored (PCCP 4")		307	SYS	$ 85.00	$ 26,095.00
Curb and Gutter, Concrete		1015	LFT	$ 20.00	$ 20,300.00
Special Concrete Pavement per Intersection		640	SYS	$ 45.00	$ 28,800.00
Pavement Removal		451	SYS	$ 25.00	$ 11,275.00
HMA Patching, Type B (770# / SYS)		87	TON	$ 275.00	$ 23,925.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)	2	EACH	$ 5,000.00	$ 10,000.00
	Level 2 (Overhead Flasher,Signage, Pavement	1	EACH	$ 40,000.00	$ 40,000.00
	Level 3 (Median, Signal, Signage, Pavement	1	EACH	$ 90,000.00	$ 90,000.00
Signage:					
	Trail Identification	4	EACH	$ 2,000.00	$ 8,000.00
	Interpretive		EACH	$ 2,500.00	$ -
	Directory	4	EACH	$ 2,500.00	$ 10,000.00
	(Stop, Stop Ahead)	16	EACH	$ 500.00	$ 8,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	16	EACH	$ 100.00	$ 1,600.00
Mile Markers			EACH	$ 500.00	$ -
Seeding		1.75	MILES	$ 6,000.00	$ 10,500.00
Trailhead			LS	$ 20,000.00	$ -
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 725,980.00**
			2% MAINT. OF TRAFFIC		$ 14,519.60
			(LS) EARTHWORK		$ 20,000.00
			(LS) EROSION CONTROL		$ 14,000.00
			(LS) UTILITY RELOCATIONS		$ 30,000.00
			2.5% CONSTRUCTION ENGINEERING		$ 14,519.60
			5% MOB. & DEMOBILIZATION		$ 36,299.00
			3% CLEARING OF ROW		$ 21,779.40
			15% CONTINGENCY		$ 108,897.00
			TOTAL		**$ 985,994.60**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**300 S**	
	From:	S 500 W
	To:	S 450 W
Type:	Shared-Use Path	
Distance:	Miles	

Shared Use Path:		**0.5**	**Miles**		
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		0.5	MILES	$ 240,000.00	$ 120,000.00
Special Concrete Pavement per Intersection		80	SYS	$ 45.00	$ 3,600.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)		EACH	$ 5,000.00	$ -
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement		EACH	$ 90,000.00	$ -
Signage:					
	Trail Identification		EACH	$ 2,000.00	$ -
	Interpretive		EACH	$ 2,500.00	$ -
	Directory		EACH	$ 2,500.00	$ -
	(Stop, Stop Ahead)	2	EACH	$ 500.00	$ 1,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	2	EACH	$ 100.00	$ 200.00
Mile Markers			EACH	$ 500.00	$ -
Box Culvert, 15ft x 4 ft		18	LFT	$ 1,400.00	$ 25,200.00
Seeding		0.5	MILES	$ 6,000.00	$ 3,000.00
Trailhead			LS	$ 20,000.00	$ -
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 163,000.00**
			2% MAINT. OF TRAFFIC		$ 3,260.00
			(LS) EARTHWORK		$ 50,000.00
			(LS) EROSION CONTROL		$ 50,000.00
			(LS) UTILITY RELOCATIONS		$ 100,000.00
			2.5% CONSTRUCTION ENGINEERING		$ 3,260.00
			5% MOB. & DEMOBILIZATION		$ 8,150.00
			3% CLEARING OF ROW		$ 4,890.00
			15% CONTINGENCY		$ 24,450.00
			TOTAL		**$ 407,010.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Cedar Creek Place**	
	From:	Gem Road
	To:	Cedar Creek Lane
Type:	Shared Roadway	
Distance:	0.20 Miles	

Shared Roadway: Gem Rd - Cedar Creek Ln		**0.2 Miles**				
Improvement Description		**Qty.**	**Unit**	**Unit Cost**		**Cost**
Sharrow Pavement Marking		8	EACH	$ 200.00	$	1,600.00
Sharrow Signage		4	EACH	$ 150.00	$	600.00
Road Widening:						
	HMA Surface,		TON	$ 65.00	$	-
	HMA Intermediate		TON	$ 60.00	$	-
	6" Compacted Aggregate #53		TON	$ 20.00	$	-
	Subgrade Treatment Type III		SYS	$ 10.00	$	-
Common Excavation			CYS	$ 15.00	$	-
Marked Parking (4" White "Tick" Mark)			EACH	$ 8.00	$	-
Mill and Resurface						
	HMA Milling, 1.5"		SYS	$ 4.00	$	-
	HMA Surface		TON	$ 65.00	$	-
			SUBTOTAL		**$**	**2,200.00**
			MAINT. OF TRAFFIC		$	1,500.00
			MOB. & DEMOBILIZATION		$	1,000.00
		15%	CONTINGENCY		$	330.00
			TOTAL		**$**	**5,030.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Cedar Creek Lane**	
	From:	Cedar Creek Place
	To:	End of Cedar Creek Ln
Type:	Shared Roadway	
Distance:	0.30 Miles	

Shared Roadway:		**0.3 Miles**				
Improvement Description		**Qty.**	**Unit**	**Unit Cost**		**Cost**
Sharrow Pavement Marking		10	EACH	$ 200.00	$	2,000.00
Sharrow Signage		6	EACH	$ 150.00	$	900.00
Road Widening:						
	HMA Surface,		TON	$ 65.00	$	-
	HMA Intermediate		TON	$ 60.00	$	-
	6" Compacted Aggregate #53		TON	$ 20.00	$	-
	Subgrade Treatment Type III		SYS	$ 10.00	$	-
Common Excavation			CYS	$ 15.00	$	-
Marked Parking (4" White "Tick" Mark)			EACH	$ 8.00	$	-
Mill and Resurface						
	HMA Milling, 1.5"		SYS	$ 4.00	$	-
	HMA Surface		TON	$ 65.00	$	-
			SUBTOTAL		**$**	**2,900.00**
			MAINT. OF TRAFFIC		$	1,000.00
			MOB. & DEMOBILIZATION		$	1,000.00
		15%	CONTINGENCY		$	435.00
			TOTAL		**$**	**5,335.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN

COST ESTIMATE

Name:	**Lawrence Way**	
	From:	End of Cedar Creek Ln
	To:	S 450 W
Type:	Shared-Use Path, Shared Roadway	
Distance:	0.32 Miles	

Shared Use Path:		**0.07**	**Miles**		
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		0.07	MILES	$ 240,000.00	$ 16,800.00
Special Concrete Pavement per Intersection		80	SYS	$ 45.00	$ 3,600.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)		EACH	$ 5,000.00	$ -
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement		EACH	$ 90,000.00	$ -
Signage:					
	Trail Identification		EACH	$ 2,000.00	$ -
	Interpretive		EACH	$ 2,500.00	$ -
	Directory		EACH	$ 2,500.00	$ -
	(Stop, Stop Ahead)	2	EACH	$ 500.00	$ 1,000.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	2	EACH	$ 100.00	$ 200.00
Mile Markers			EACH	$ 500.00	$ -
Seeding		0.07	MILES	$ 6,000.00	$ 420.00
Trailhead			LS	$ 20,000.00	$ -
General Trail Landscape Work			LS	$ 10,000.00	$ -

	SUBTOTAL	**$ 22,020.00**
	MAINT. OF TRAFFIC	$ 1,500.00
(LS)	EARTHWORK	$ 5,000.00
(LS)	EROSION CONTROL	$ 5,000.00
(LS)	UTILITY RELOCATIONS	$ 10,000.00
5.0%	CONSTRUCTION ENGINEERING	$ 1,101.00
5%	MOB. & DEMOBILIZATION	$ 1,101.00
3%	CLEARING OF ROW	$ 660.60
15%	CONTINGENCY	$ 3,303.00
	TOTAL	**$ 49,685.60**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Lawrence Way**	
	From:	End of Cedar Creek Ln
	To:	S 450 W
Type:	Shared-Use Path, Shared Roadway	
Distance:	Miles	

Shared Roadway: End of Lawrence Way - S 450 W		**0.25 Miles**		
Improvement Description	**Qty.**	**Unit**	**Unit Cost**	**Cost**
Sharrow Pavement Marking	8	EACH	$ 200.00	$ 1,600.00
Sharrow Signage	4	EACH	$ 150.00	$ 600.00
Road Widening:				
HMA Surface,		TON	$ 65.00	$ -
HMA Intermediate		TON	$ 60.00	$ -
6" Compacted Aggregate #53		TON	$ 20.00	$ -
Subgrade Treatment Type III		SYS	$ 10.00	$ -
Common Excavation		CYS	$ 15.00	$ -
Marked Parking (4" White "Tick" Mark)		EACH	$ 8.00	$ -
Mill and Resurface				
HMA Milling, 1.5"		SYS	$ 4.00	$ -
HMA Surface		TON	$ 65.00	$ -
		SUBTOTAL		**$ 2,200.00**
	2%	MAINT. OF TRAFFIC		$ 44.00
	5%	MOB. & DEMOBILIZATION		$ 110.00
	15%	CONTINGENCY		$ 330.00
		TOTAL		**$ 2,684.00**

GRAND TOTAL	**$**	**52,369.60**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN

COST ESTIMATE

Name:	**Stonehaven Lane - Bridgewood Blvd**	
	From:	Gem Road
	To:	S 450 W
Type:	Shared Roadway	
Distance:	0.80 Miles	

Shared Roadway:		**0.8 Miles**				
Improvement Description		**Qty.**	**Unit**	**Unit Cost**		**Cost**
Sharrow Pavement Marking		28	EACH	$ 200.00	$	5,600.00
Sharrow Signage		20	EACH	$ 150.00	$	3,000.00
Road Widening:						
	HMA Surface,		TON	$ 65.00	$	-
	HMA Intermediate		TON	$ 60.00	$	-
	6" Compacted Aggregate #53		TON	$ 20.00	$	-
	Subgrade Treatment Type III		SYS	$ 10.00	$	-
Common Excavation			CYS	$ 15.00	$	-
Marked Parking (4" White "Tick" Mark)			EACH	$ 8.00	$	-
Mill and Resurface						
	HMA Milling, 1.5"		SYS	$ 4.00	$	-
	HMA Surface		TON	$ 65.00	$	-
			SUBTOTAL		**$**	**8,600.00**
			MAINT. OF TRAFFIC		$	1,000.00
			MOB. & DEMOBILIZATION		$	1,000.00
		15%	CONTINGENCY		$	1,290.00
			TOTAL		**$**	**11,890.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Kelly Drive - North Street**	
	From:	Gem Road
	To:	S 450 W
Type:	Shared Roadway	
Distance:	0.50 Miles	

Shared Roadway: Stonehaven Ln - S 450 W		**0.5 Miles**		
Improvement Description	**Qty.**	**Unit**	**Unit Cost**	**Cost**
Sharrow Pavement Marking	18	EACH	$ 200.00	$ 3,600.00
Sharrow Signage	12	EACH	$ 150.00	$ 1,800.00
Road Widening:				
HMA Surface,		TON	$ 65.00	$ -
HMA Intermediate		TON	$ 60.00	$ -
6" Compacted Aggregate #53		TON	$ 20.00	$ -
Subgrade Treatment Type III		SYS	$ 10.00	$ -
Common Excavation		CYS	$ 15.00	$ -
Marked Parking (4" White "Tick" Mark)		EACH	$ 8.00	$ -
Mill and Resurface				
HMA Milling, 1.5"		SYS	$ 4.00	$ -
HMA Surface		TON	$ 65.00	$ -
		SUBTOTAL		**$ 5,400.00**
		MAINT. OF TRAFFIC		$ 1,000.00
		MOB. & DEMOBILIZATION		$ 1,000.00
	15%	CONTINGENCY		$ 810.00
		TOTAL		**$ 8,210.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN

COST ESTIMATE

Name:	**Depot St**	
	From:	North Street
	To:	Main Street
Type:	Shared Roadway	
Distance:	0.50 Miles	

Shared Roadway: Stonehaven Ln - S 450 W		**0.17 Miles**		
Improvement Description	**Qty.**	**Unit**	**Unit Cost**	**Cost**
Sharrow Pavement Marking	6	EACH	$ 200.00	$ 1,200.00
Sharrow Signage	4	EACH	$ 150.00	$ 600.00
Intersection Improvements:				
Level 1 (Signage, Pavement Marking)		EACH	$ 5,000.00	$ -
Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
Level 3 (Median, Signal, Signage, Pavement	1	EACH	$ 90,000.00	$ 90,000.00
Road Widening:				
HMA Surface,		TON	$ 65.00	$ -
HMA Intermediate		TON	$ 60.00	$ -
6" Compacted Aggregate #53		TON	$ 20.00	$ -
Subgrade Treatment Type III		SYS	$ 10.00	$ -
Common Excavation		CYS	$ 15.00	$ -
Marked Parking (4" White "Tick" Mark)		EACH	$ 8.00	$ -
Mill and Resurface				
HMA Milling, 1.5"		SYS	$ 4.00	$ -
HMA Surface		TON	$ 65.00	$ -
		SUBTOTAL		**$ 91,800.00**
		MAINT. OF TRAFFIC		$ 1,000.00
		MOB. & DEMOBILIZATION		$ 1,000.00
	15%	CONTINGENCY		$ 13,770.00
		TOTAL		**$ 107,570.00**

NEW PALESTINE BICYCLE AND PEDESTRIAN MASTER PLAN
COST ESTIMATE

Name:	**Railroad Corridor Trail**	
	From:	Gem Road
	To:	Depot Street
Type:	Shared-Use Path	
Distance:	0.4 Miles	

Shared Use Path:		**0.40 Miles**			
Improvement Description		**Qty.**	**Unit**	**Unit Cost**	**Cost**
Asphalt Trail 10' & Shoulders 2'		0.4	MILES	$ 240,000.00	$ 96,000.00
Special Concrete Pavement per Intersection		120	SYS	$ 45.00	$ 5,400.00
Intersection Improvements:					
	Level 1 (Signage, Pavement Marking)		EACH	$ 5,000.00	$ -
	Level 2 (Overhead Flasher,Signage, Pavement		EACH	$ 40,000.00	$ -
	Level 3 (Median, Signal, Signage, Pavement		EACH	$ 90,000.00	$ -
Signage:					
	Trail Identification	1	EACH	$ 2,000.00	$ 2,000.00
	Interpretive		EACH	$ 2,500.00	$ -
	Directory	1	EACH	$ 2,500.00	$ 2,500.00
	(Stop, Stop Ahead)	3	EACH	$ 500.00	$ 1,500.00
	(No Motor Vehicles)(Cross Traffic Does Not Stop)	3	EACH	$ 100.00	$ 300.00
Mile Markers			EACH	$ 500.00	$ -
Seeding		0.4	MILES	$ 9,500.00	$ 3,800.00
Trailhead		1	LS	$ 20,000.00	$ 20,000.00
General Trail Landscape Work		1	LS	$ 10,000.00	$ 10,000.00
			SUBTOTAL		**$ 141,500.00**
			2% MAINT. OF TRAFFIC		$ 2,830.00
			(LS) EARTHWORK		$ 5,000.00
			(LS) EROSION CONTROL		$ 10,000.00
			(LS) UTILITY RELOCATIONS		$ 10,000.00
			2.5% CONSTRUCTION ENGINEERING		$ 2,830.00
			5% MOB. & DEMOBILIZATION		$ 7,075.00
			3% CLEARING OF ROW		$ 4,245.00
			15% CONTINGENCY		$ 21,225.00
			TOTAL		**$ 204,705.00**