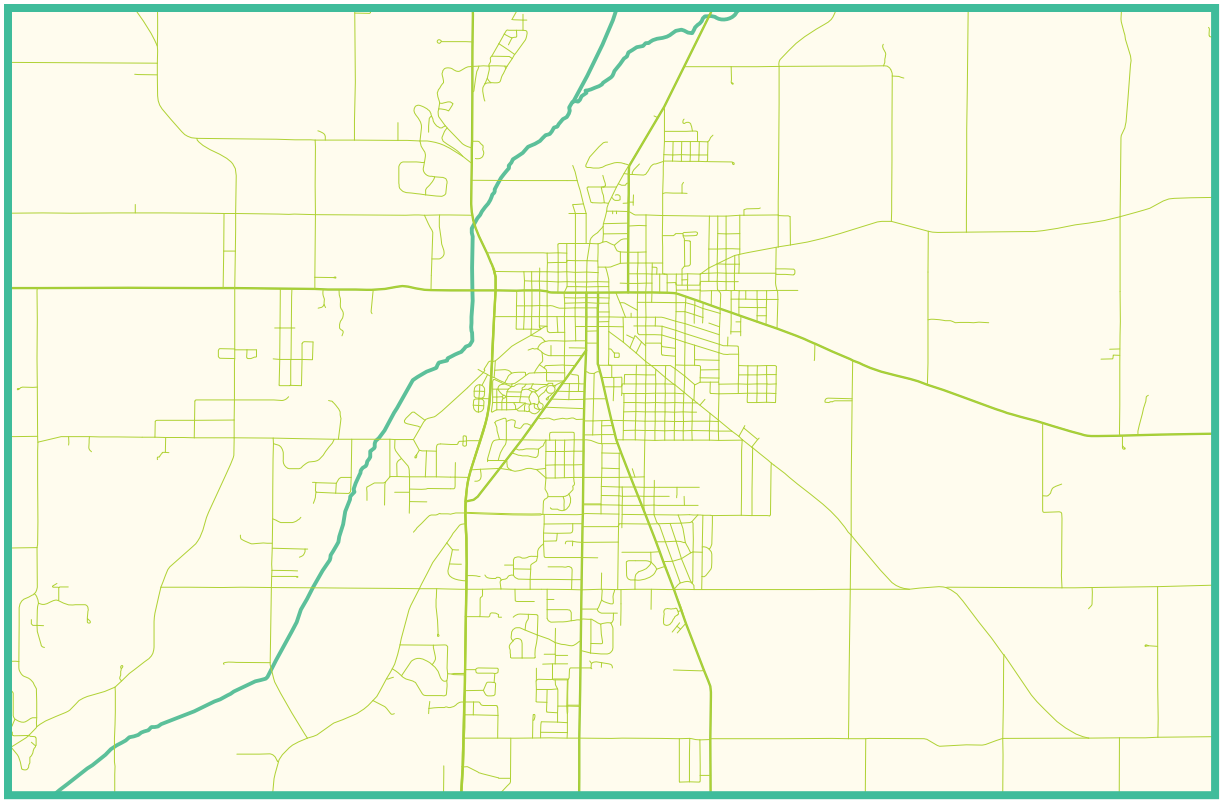
NEW CASTLE
bicycle + pedestrian master plan



final plan

june 2, 2014

presented by:

Butler Fairman Seufert
CIVIL ENGINEERS

letter of introduction

Butler Fairman & Seufert, Inc. (BF&S) is pleased to present the New Castle Bicycle and Pedestrian Facility Plan to the citizens and administrators of the City of New Castle, Indiana. This report is the product of a collaborative effort by city staff, the Hope Initiative, BF&S design professionals, the New Castle Bicycle and Pedestrian Advisory Committee, Healthy Communities of Henry County, local merchants, local bicycle clubs, and members of the community. It is intended to serve as a guide for future alternative transportation and recreational development within New Castle and connections to surrounding communities.

Each bicycle facility route and pedestrian improvement was thoroughly researched. Decisions were based on a process that consisted of a city-wide inventory and analysis process, design synthesis, public input, cost analysis, and development of design standards before ultimately reaching the master plan stage. We believe the resulting recommendations are the best solutions to initiating a city-wide bicycle and pedestrian network. As the city grows and other opportunities present themselves, the Master Plan may need to be updated periodically. The plan is intended to be a “living document”. However, the initial Master Plan will serve as a long lasting foundation for future alternative transportation development.

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

Respectfully submitted on the 19th day of May 2014,

Butler, Fairman, & Seufert, Inc.

Alan L. Hamersly, P.E.

Jason G. Griffin, P.L.A.

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APPENDIX A (SEPARATE BOOK)

project background

BACKGROUND

New Castle and Henry County is a community rich in transportation history. In 1827 the Historic National Road was constructed through the southern part of the county and beginning in the 1850's over 7 rail lines were established over a 50 year period. These transportation types helped make New Castle one the region's leading industrial centers. However, the advent of the automobile eventually caused the decline of transport by rail and three rail lines had abandoned their corridors by 1990.

In July of 2007, Healthy Communities of Henry County completed a trail and greenway system plan after realizing that there were many advantages for the citizens and businesses of the community to establishing a network to support modes of alternative transportation and recreation (bicycle and pedestrian). In 2011 a community revitalization plan was undertaken for the northern portion of New Castle entitled the "Northside Livability Study". In the plan a recommendation was made for the development of a Bike and Walkway Plan to further the transportation needs of the public.

This plan will further the goals completed in the 2007 Greenway Plan and will develop a bike and walkway plan that concentrates upon on-road bicycle facilities, pedestrian facilities, and shared-use paths for the area of Henry Township. Henry Township is bounded approximately by CR 200 North, CR 300 East, CR 400 South, and CR 300 West. The plan also looks to capitalize on and further the momentum created by the opening of Wilbur Wright Trail, Phase 1 in the Fall of 2013 as well as the National Road Heritage Trail, the Woolly Bear Parkway Trail, and the Cardinal Greenway in Henry County.

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.

Healthy Communities of Henry County realizing there was a need to increase recreation for the citizens that it serves, created a trail master plan titled, “Raintree Trails and Greenway System. This study was completed in 2008 and was done to guide trail development within the county. It, however, did not address how connections were to be made within New Castle. Additionally a study was completed in October of 2011, the Northside Livability Study: A Community Revitalization Planning Document. In the study citizens indicated that currently 13% walk and 3% bike to goods and services, however, 17% would consider walking and 13% biking to goods and services, if there was adequate infrastructure. The citizens also indicated that 57% of respondents indicated that they did not have sidewalks in front of their houses. Of the 43% that had sidewalks, 49% indicated that they needed repair.

For these reasons, the Hope Initiative, the City of New Castle, and Healthy Communities of Henry County have decided to undertake a Bicycle and Pedestrian Facility Master Plan that will help identify alternative transportation routes to connect community destination spots (parks, lakes, schools, businesses, etc.) throughout Henry Township.

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.

GOALS AND OBJECTIVES

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

SCOPE OF THE PLAN

The plan will concentrate on walking and bicycling facilities within Henry Township and how to connect them with the Raintree Trails and Greenways System. Routes that connect schools and parks within Henry Township will be given the most priority. Detailed cost estimates and phasing will be provided for each facility. Development Standards and possible funding opportunities will also be included for all routes. Public input will be sought throughout the master plan.

NEW CASTLE BIKE AND TRAIL MASTER PLAN
PROJECT
SCHEDULE

Calendar Months	1/3	1/10	1/17	1/24	1/31	2/7	2/14	2/21	2/28	3/7	3/14	3/21	3/28	4/4	4/11	4/18	4/25	5/2	5/9	5/16	5/23	5/30	6/6	6/13	6/20	6/27	7/4	7/11	7/18	7/25	8/1	8/8	8/15	8/22	8/29	9/5	9/12	9/19	9/26	10/3
Number of Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Kickoff Meeting 1-10-14

INVENTORY

Stakeholder Meetings and Public Open House (January 29)

ANALYSIS

Advisory Committee Meeting (March 3)

Public Meeting (April 9)

DRAFT PLAN

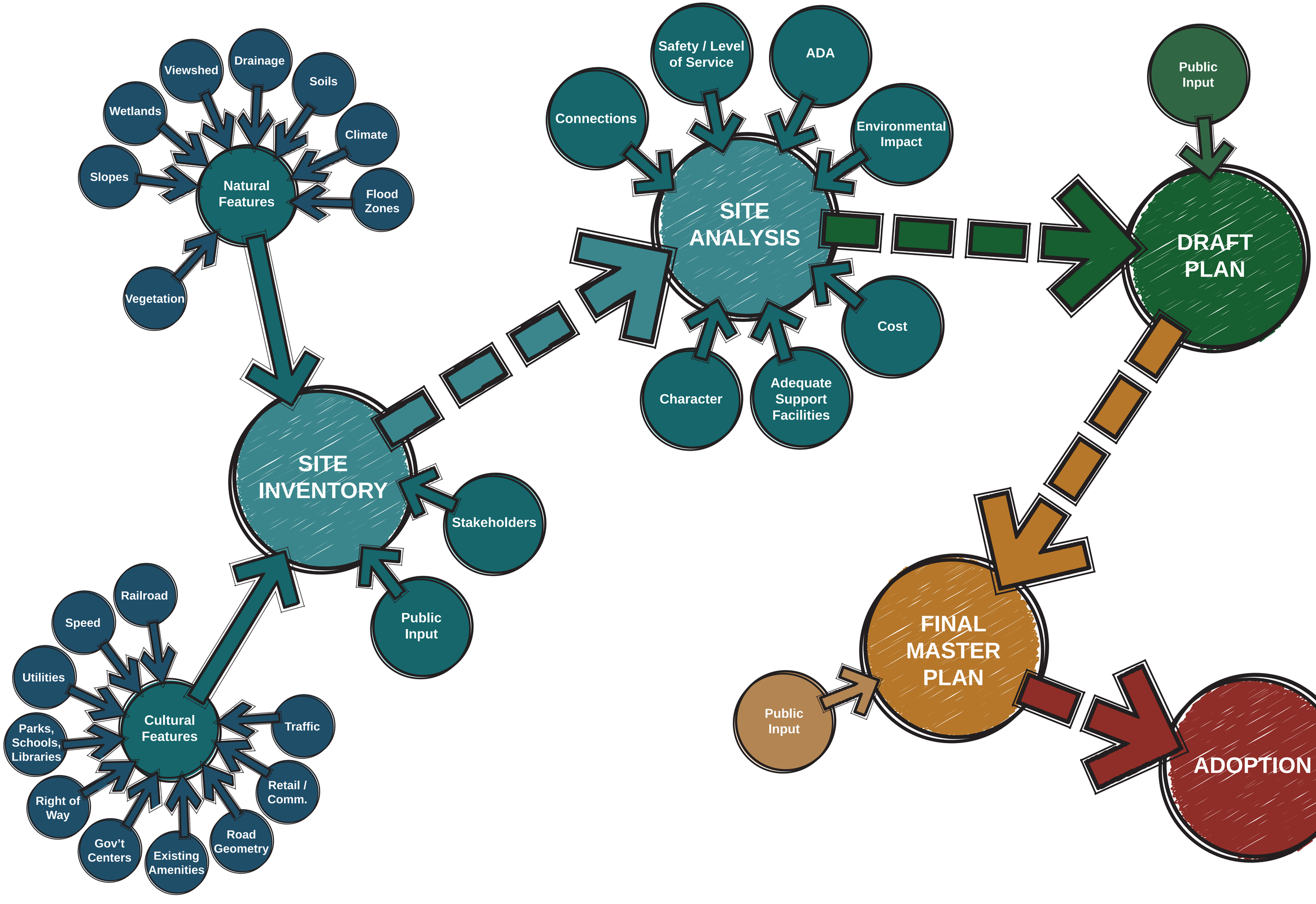
Advisory Committee Meeting / Draft Plan (April 2)

Final Presentation to City (May 19)

FINAL PLAN

Advisory Committee Meeting / Draft Plan (May 7)

Butler Fairman Seufert
CIVIL ENGINEERS


Natural Features
Viewshed
Drainage
Soils
Wetlands
Climate
Slopes
Flood Zones
Vegetation
SITE INVENTORY
Stakeholders
Public Input
Cultural Features
Railroad
Speed
Utilities
Parks, Schools, Libraries
Traffic
Right of Way
Retail / Comm.
Gov't Centers
Existing Amenities
Road Geometry
SITE ANALYSIS
Safety / Level of Service
ADA
Connections
Environmental Impact
Cost
Character
Adequate Support Facilities
DRAFT PLAN
Public Input
FINAL MASTER PLAN
Public Input
ADOPTION

public involvement process

MEETING SCHEDULE

DESCRIPTION:	DATE:
Kick-off Meeting	January 10, 2014
Government Stakeholder Meetings	January 29, 2014
Private Organizations Stakeholder Meetings	January 29, 2014
Retail, Dining, and Major Employers Stakeholder Meetings	January 29, 2014
Public Open House	January 29,2014
Advisory Committee Meeting - Inventory and Analysis Review	March 3, 2014
Healthy Communities Annual Meeting	March 7, 2014
Advisory Committee Meeting - Draft Plan Review	April 2, 2014
Public Presentation - Draft Plan Presentation	April 9, 2014
Advisory Committee Meeting - Final Plan Review	May 7, 2014
Public Presentation (City Council) - Final Master Plan Presentation	June 2, 2014

SUMMARY OF MEETINGS

In an effort to get as much input from as many different members of the community as possible there were several different types of meetings provided throughout the course of the project.

There were a series of 4 advisory committee meetings held to review the major stages of the plan process. These planning sessions consisted of meetings with city staff and selected members of the community. See Appendix “A” for a list of the New Castle Bicycle and Pedestrian Master Plan Advisory / Steering Committee and meeting minutes from each meeting.

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. See Appendix “A” for a list of the stakeholders invited and meeting minutes from each stakeholder meeting.

During the inventory and analysis phase of the project the city held a public open house at the New Castle - Henry County Public Library to give as much opportunity for the public to express its desires and wants 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 2 different boards designed to find out where residents would like to get to and from within the community and the goals and objectives that they felt were most important to the community. Members of the consultant team and city staff were able to interact with the public in “one-on-one” sessions. Interactive boards were placed at the Henry County Hospital, the area’s largest employer, for workers to provide input. Survey questions were published in the newspaper and placed on the Healthy Communities of Henry County Facebook page. See Appendix “A” for boards and a summary of comments.

There were two public presentations of the New Castle Bicycle and Pedestrian Master Plan. The first presentation was given on April 9, 2014. This presentation was given while the plan was in a draft stage and the public was encouraged to provide feedback at the meeting. The final presentation of the plan was given on May 19, 2014. See Appendix “A” for a summary of the presentations and comments received.

Henry Township Bicycle + Pedestrian Master Plan

Desired Routes

- On Road Routes
- Off Road Routes (Trail)
- Pedestrian Routes

- Road
- River
- Abandoned Railroad
- Active Railroad
- Wilbur Wright Trail
- City Limits
- School
- Commercial
- Industry
- Park
- Downtown Commercial

0 625 1,250 2,500 3,750 Feet

N

BF&S Butler Fairman Seufert CIVIL ENGINEERS

NEW CASTLE
bicycle + pedestrian master plan

inventory + analysis

Henry Township Bicycle Facility Master Plan

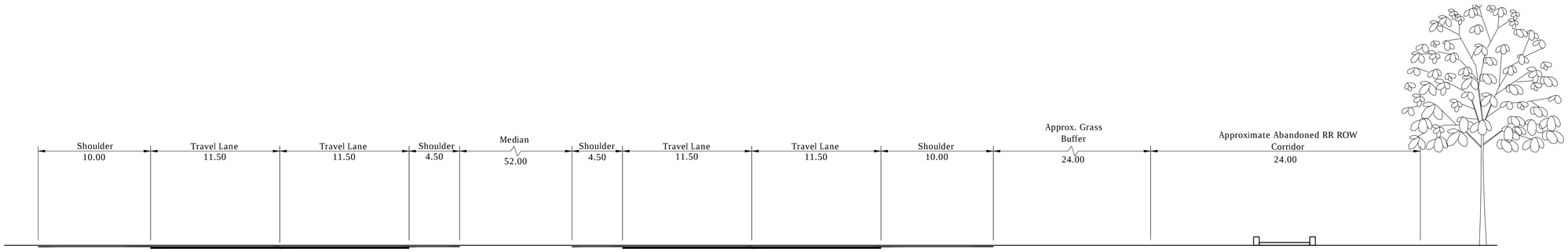
INVENTORY MAP

- Road
- River
- Abandoned Railroad
- Active Railroad
- Wilbur Wright Trail
- City Limits
- School
- Commercial
- Industry
- Park
- Downtown Commercial

0 625 1,250 2,500 3,750 Feet

N

BF&S Butler Fairman Seufert



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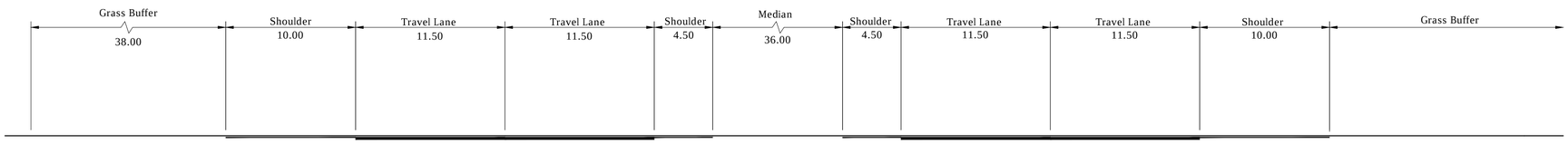
SCALE: 1" = 10'

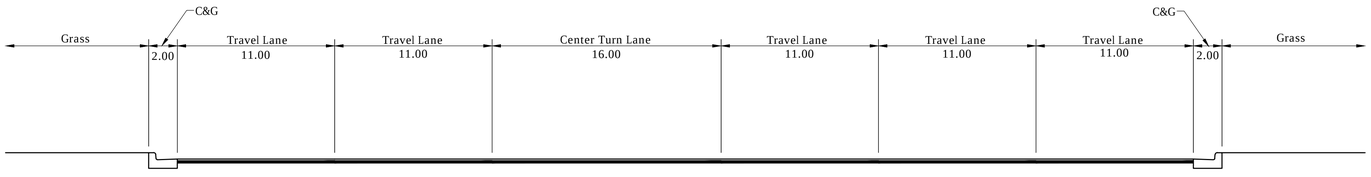
From I-70 to E CR 400 S.



2). STATE ROAD 3 / MEMORIAL DRIVE

SCALE: 1" = 10'

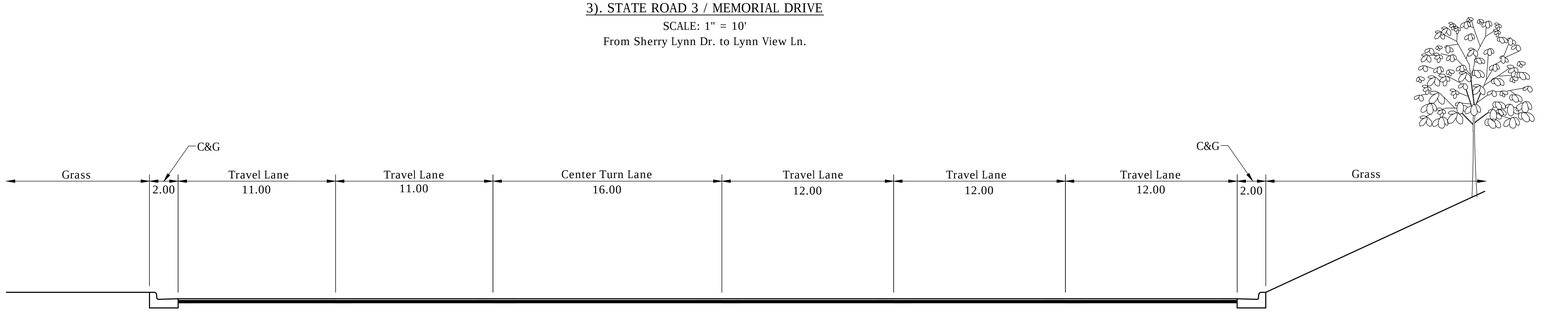
From CR 400 S to Sherry Lynn Dr.



3). STATE ROAD 3 / MEMORIAL DRIVE

SCALE: 1" = 10'

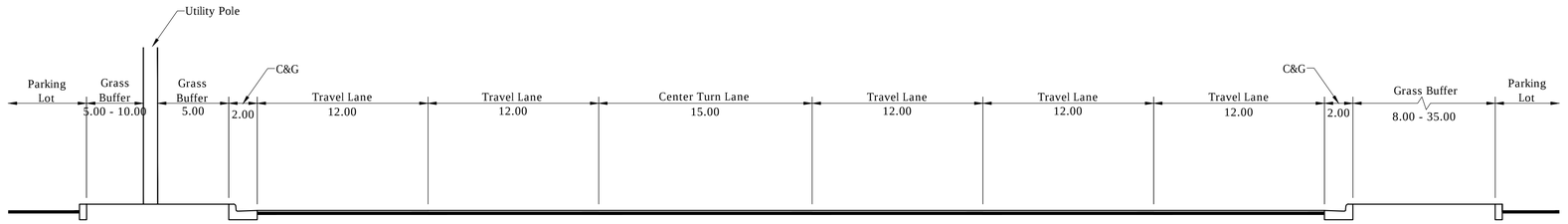
From Sherry Lynn Dr. to Lynn View Ln.



4). STATE ROAD 3 / MEMORIAL DRIVE

SCALE: 1" = 10'

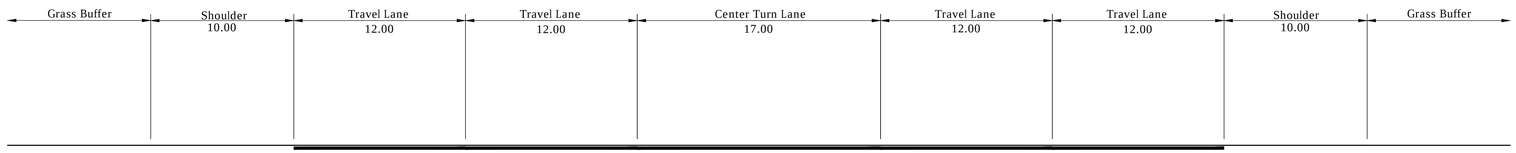
From Lynn View Ln. to Trojan Ln.



5). STATE ROAD 3 / MEMORIAL DRIVE

SCALE: 1" = 10'

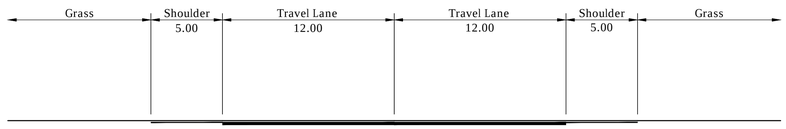
From Trojan Ln. to Emerson Ave.



6). STATE ROAD 3 / MEMORIAL DRIVE

SCALE: 1" = 10'

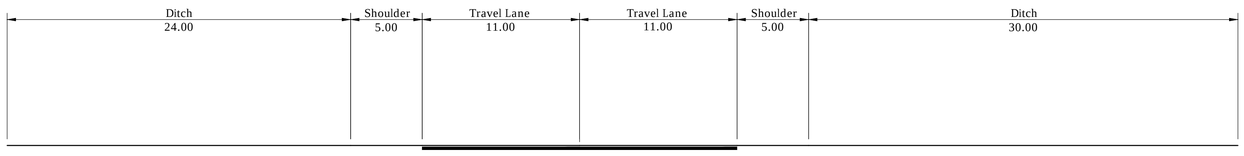
From Emerson Ave. to W CR 100 N



7). BROOKS DRIVE

SCALE: 1" = 10'

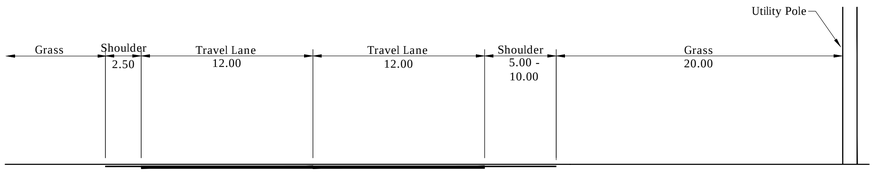
From E CR 400 S to Commerce Dr.



8). COMMERCE DRIVE

SCALE: 1" = 10'

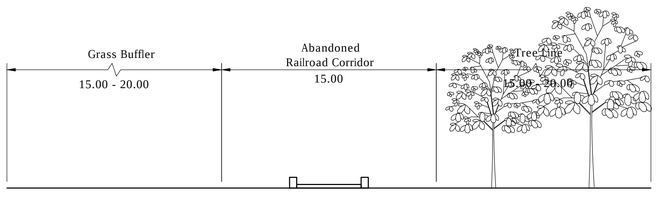
From SR 3 / Memorial Dr. to E CR 300 S



9). EAST COUNTY ROAD 300 SOUTH

SCALE: 1" = 10'

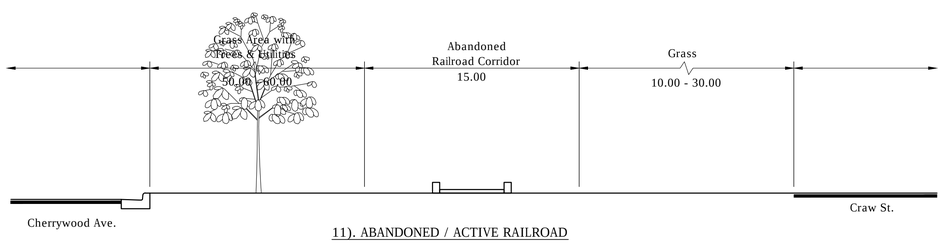
From SR 3 / Memorial Dr. to Highway 103



10). ABANDONED RAILROAD

SCALE: 1" = 10'

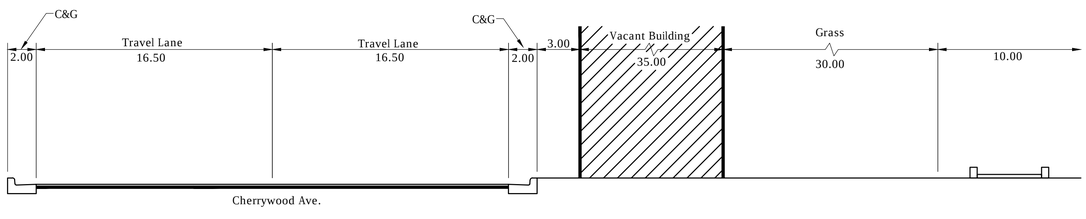
From W CR 400 S to Riley Rd.



11). ABANDONED / ACTIVE RAILROAD

SCALE: 1" = 10'

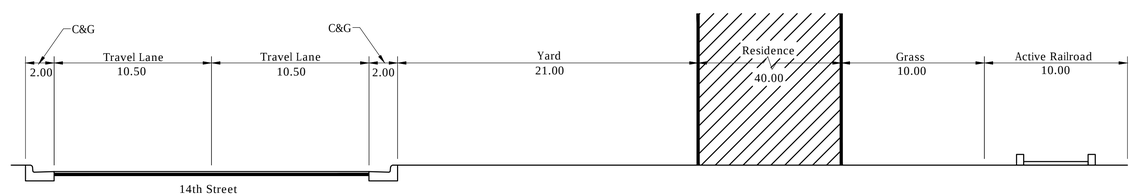
From Riley Rd. to J. Ave.



12). ABANDONED / ACTIVE RAILROAD

SCALE: 1" = 10'

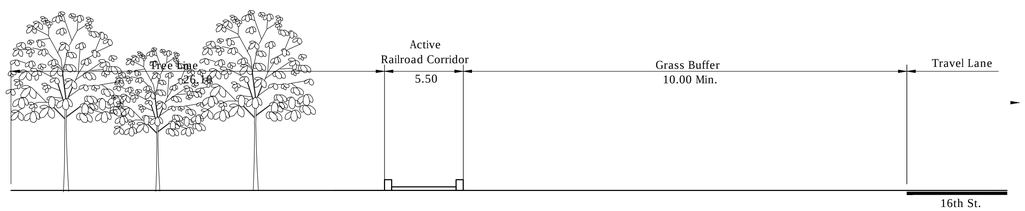
From L Ave. to J Ave



13). 14th Street

SCALE: 1" = 10'

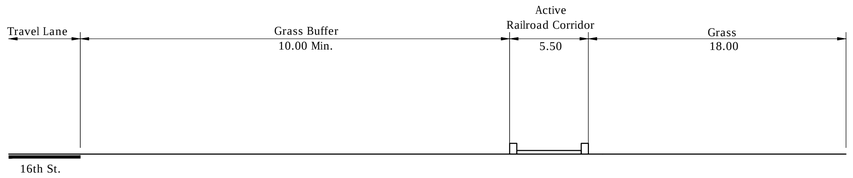
From J Ave. to I Ave.



14). ABANDONED / ACTIVE RAILROAD

SCALE: 1" = 10'

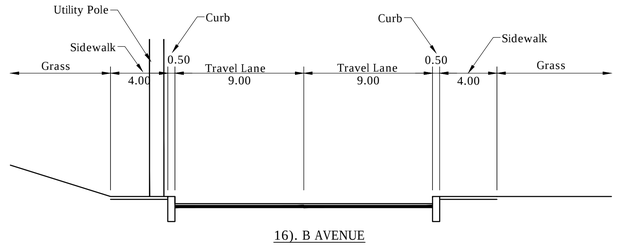
From I Ave to D Ave.



15). ACTIVE RAILROAD

SCALE: 1" = 10'

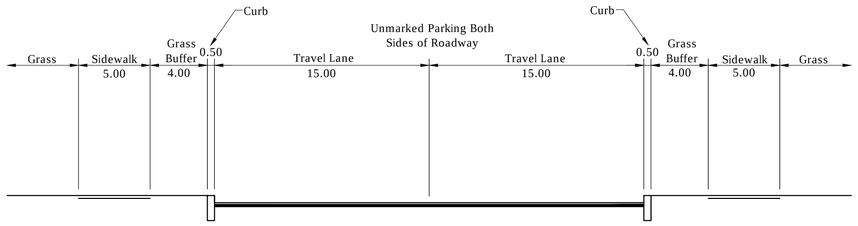
From D Ave. to B Ave.



16). B AVENUE

SCALE: 1" = 10'

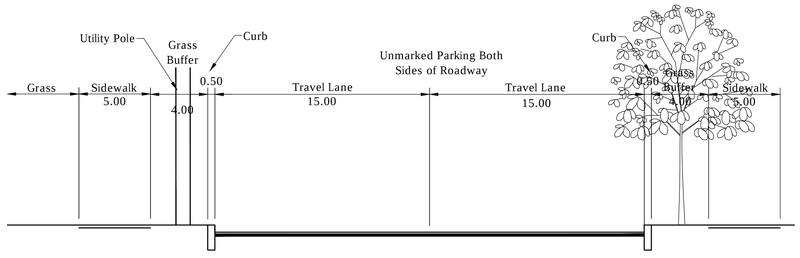
From Abandoned / Inactive Railroad to 15th Street



17). 15th STREET

SCALE: 1" = 10'

From B Ave. to A Ave.



18). 15th STREET

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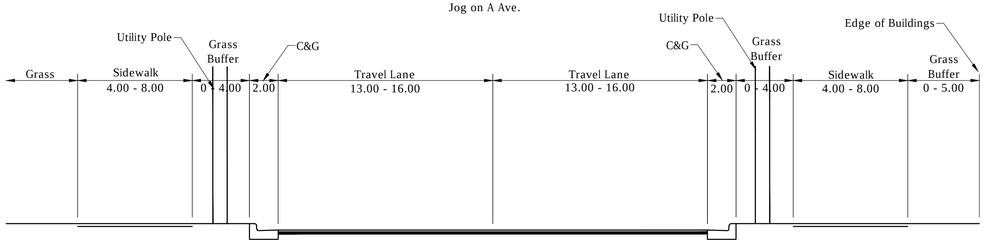
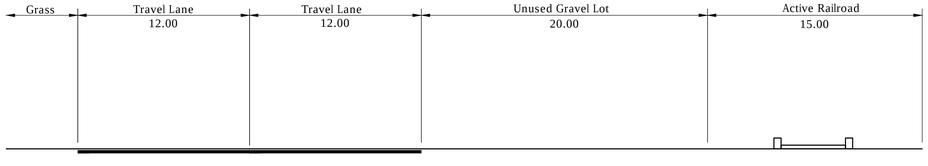
Jog on A Ave.



19). 15th STREET

SCALE: 1" = 10'

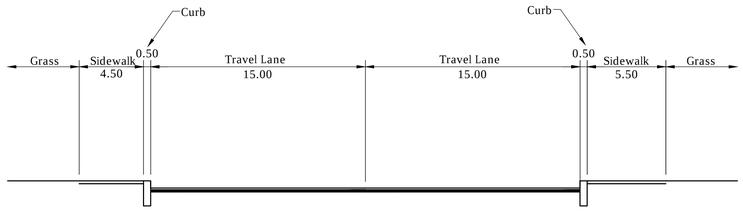
From A Ave. to Vine St.



20). 15th STREET

SCALE: 1" = 10'

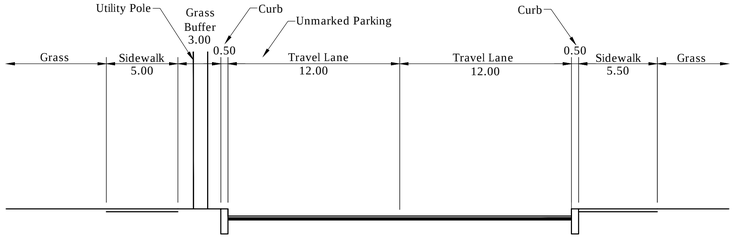
From Vine St. to Thornburg St.



21). THORNBURG STREET

SCALE: 1" = 10'

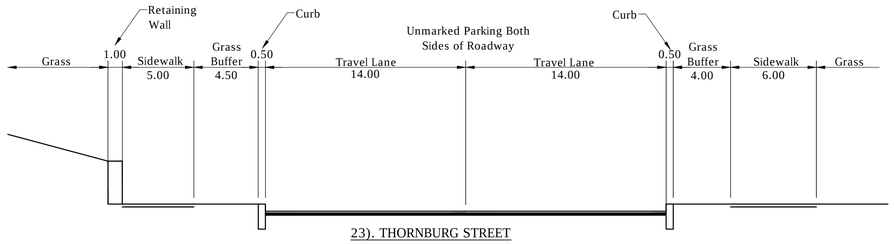
From 15th St. to 14th St.



22). THORNBURG STREET

SCALE: 1" = 10'

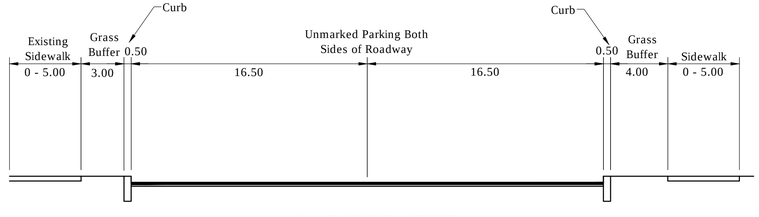
Jog on 14th St.



23). THORNBURG STREET

SCALE: 1" = 10'

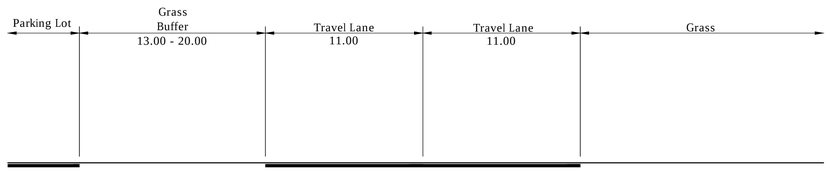
14th St. to 11th St.



24). THORNBURG STREET

SCALE: 1" = 10'

11th St. to 9th St.



25). BUNDY AVENUE
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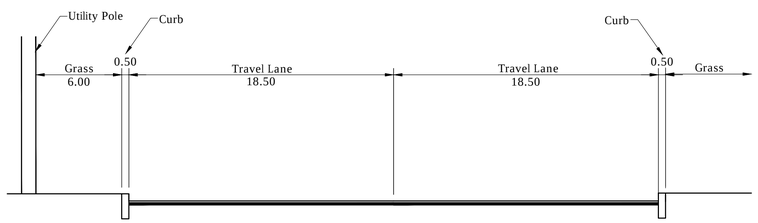
From SR 3 / Memorial Dr. to I Ave.



26). BUNDY AVENUE
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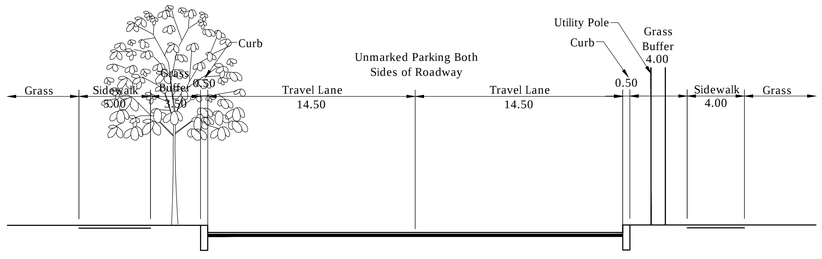
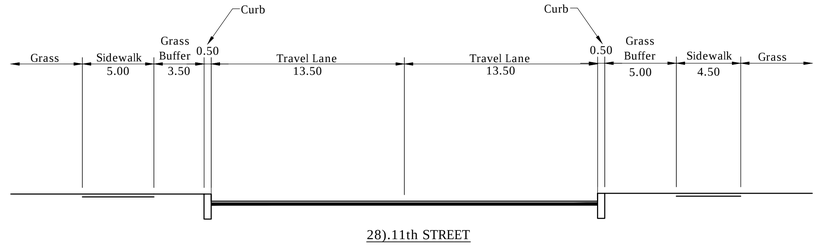
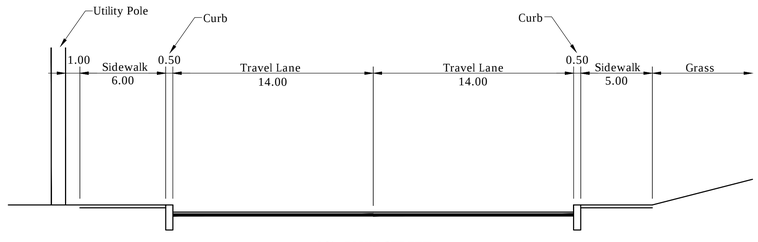
From I Ave. to 11th St.



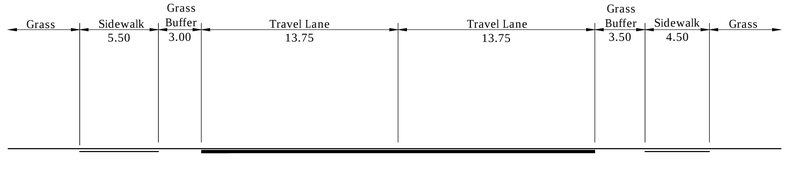
27). BUNDY AVENUE
SCALE: 1" = 10'
From 11th St. to Main St.



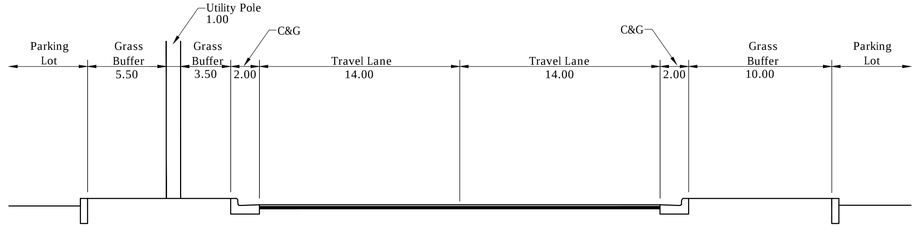
28).11th STREET
SCALE: 1" = 10'
From Bundy Ave. to Plum St.



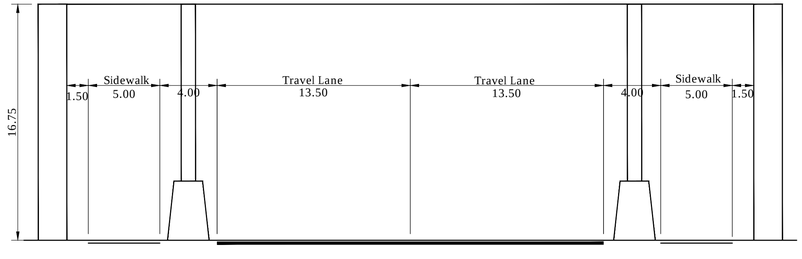
29). PLUM STREET
SCALE: 1" = 10'
From 9th St. to 11th St.



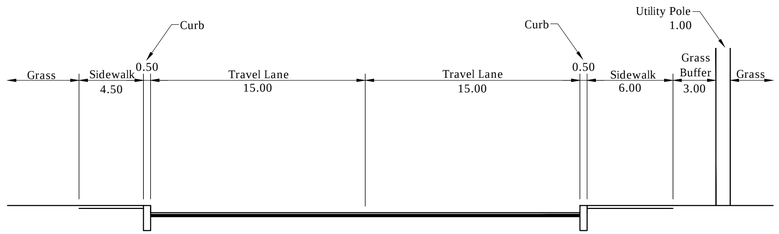
30). 9th STREET
SCALE: 1" = 10'
From Plum St. to New York Ave.



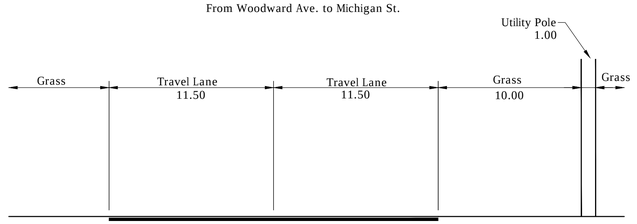
31). NEW YORK AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to 9th St.



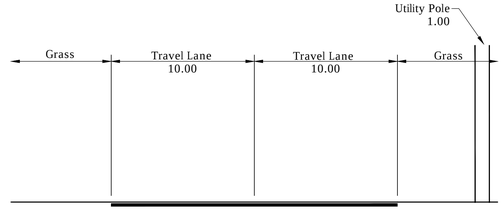
32). WOODWARD AVENUE
SCALE: 1" = 10'
Railroad Underpass



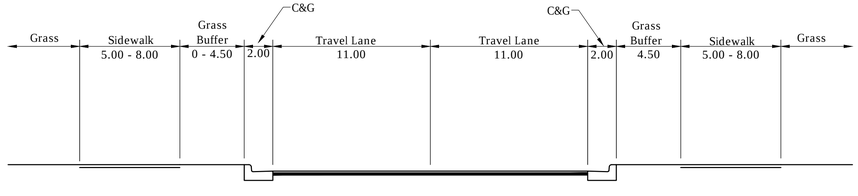
33). 14th STREET
SCALE: 1" = 10'
From Woodward Ave. to Michigan St.



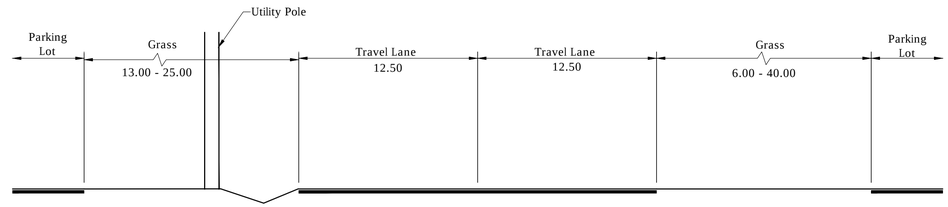
34). 14th STREET
SCALE: 1" = 10'
From Michigan St. to 16th St. / Highway 103



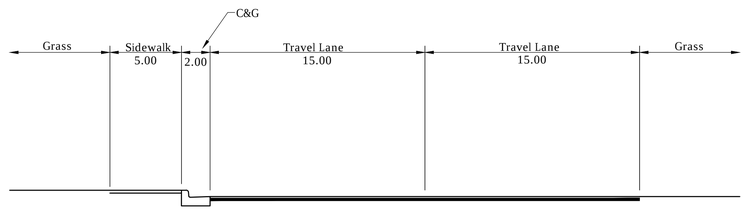
35). GARNER STREET
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Main St.



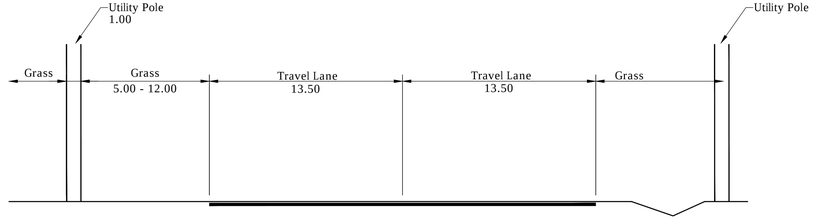
36). GARNER STREET
SCALE: 1" = 10'
From Main St. to 14th St.



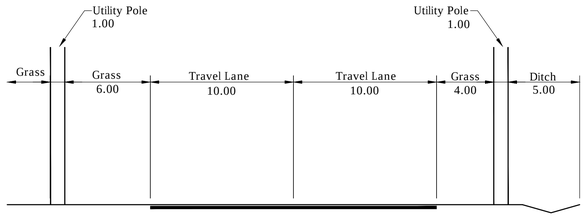
37). WASHINGTON STREET
SCALE: 1" = 10'
From 14th St. to 16th St. / HWY 103



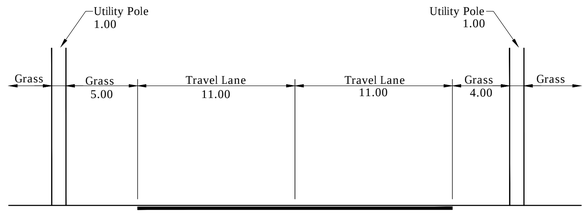
38). WASHINGTON STREET
SCALE: 1" = 10'
From 16th St. to 20th St.



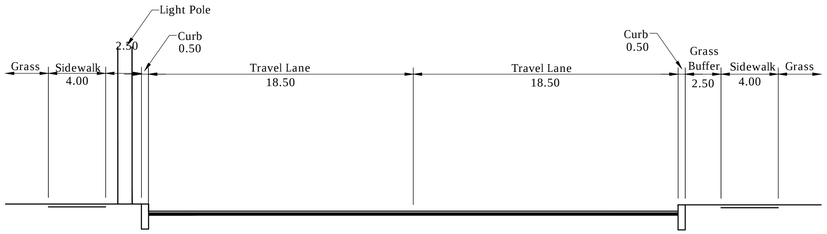
39). WASHINGTON STREET
SCALE: 1" = 10'
From 20th St. to Hillsboro Rd.



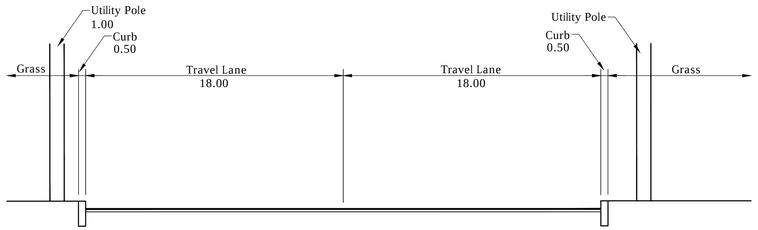
40). 31st STREET
SCALE: 1" = 10'
From SR 38 / Broad St. to Washington St.



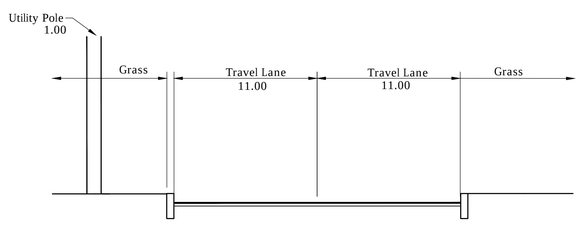
41). HILLSBORO ROAD
SCALE: 1" = 10'
From Washington St. to CR 150 N



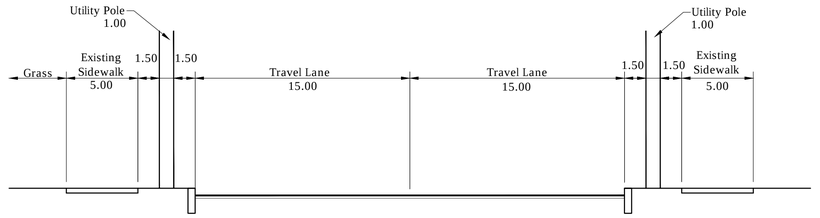
42). BRENTWOOD ROAD
SCALE: 1" = 10'
From Riley Rd. to Q Ave.



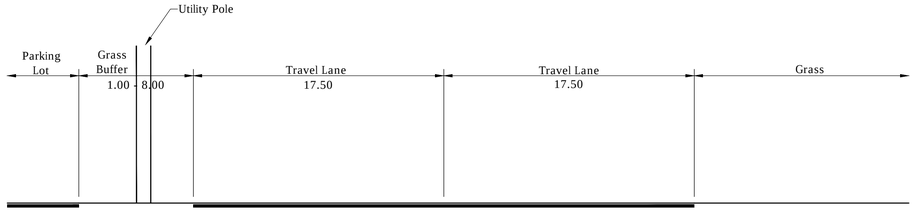
43). 25th STREET
SCALE: 1" = 10'
From Washington St. to Brown Street



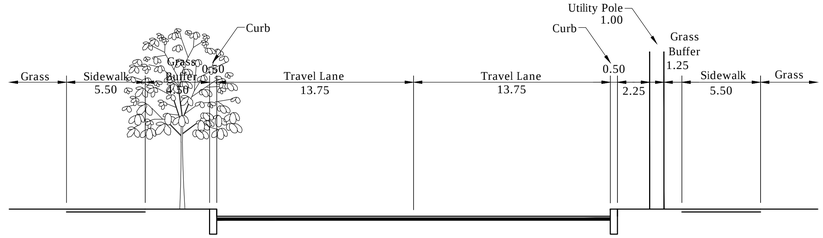
44). 25th STREET
SCALE: 1" = 10'
From Brown St. to Broad St.



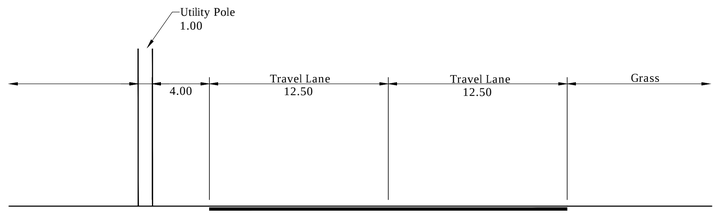
45). 25th STREET
SCALE: 1" = 10'
From Broad St. to I Ave.



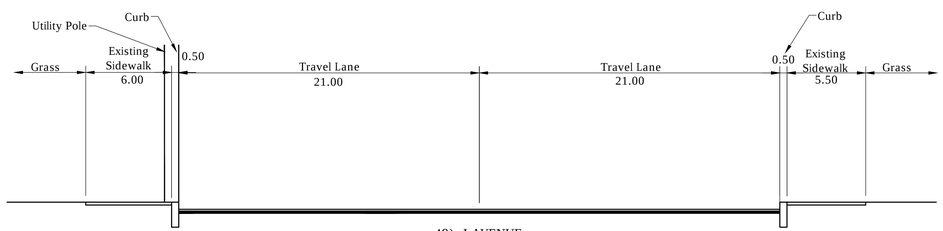
46). INDIANA AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to 5th St.



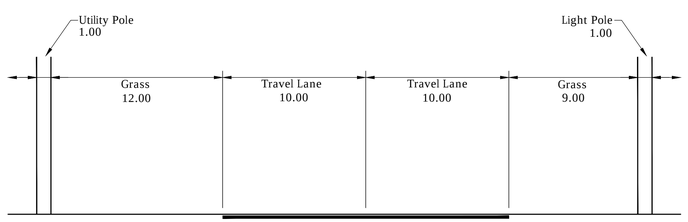
47). INDIANA AVENUE
SCALE: 1" = 10'
From 5th St. to 18th St.



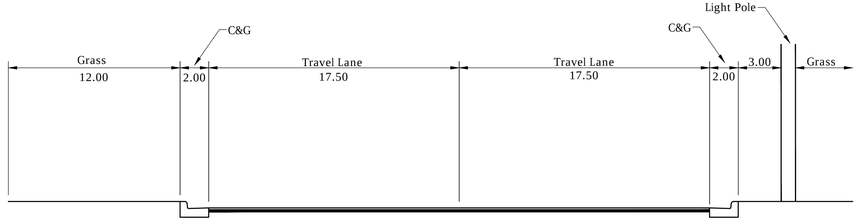
48). INDIANA AVENUE
SCALE: 1" = 10'
From 18th St. to 25th St.



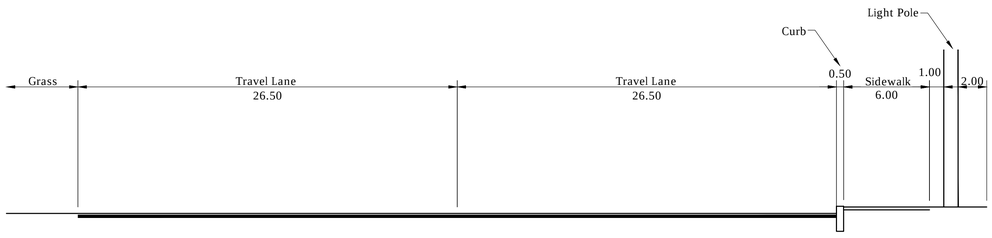
49). I AVENUE
SCALE: 1" = 10'
From 14th St. to 25th St.



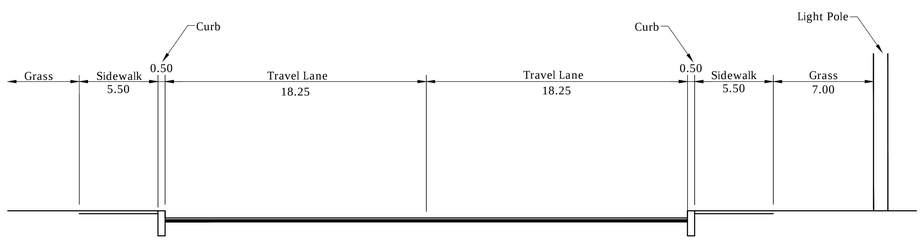
50). I AVENUE
SCALE: 1" = 10'
From 25th St. to Hunter Ave.



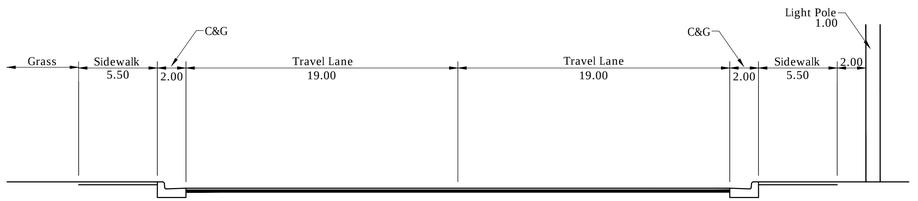
51). PARKVIEW DRIVE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Bundy Ave.



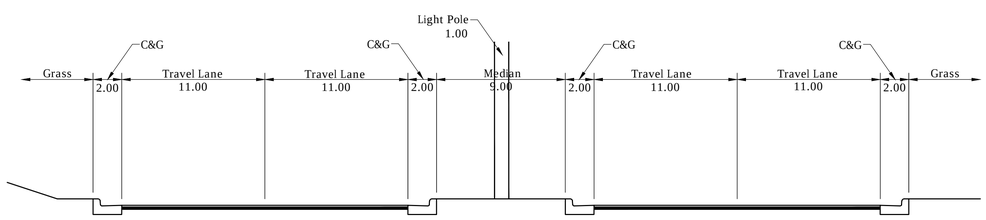
52). PARKVIEW DRIVE
SCALE: 1" = 10'
From Bundy Ave. to Ross St.



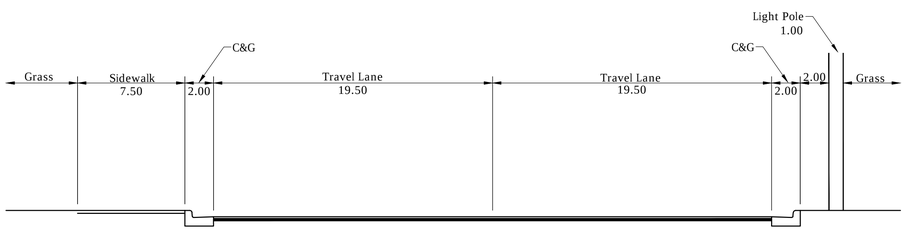
53). ROSS STREET
SCALE: 1" = 10'
From M Ave. to Trojan Ln.



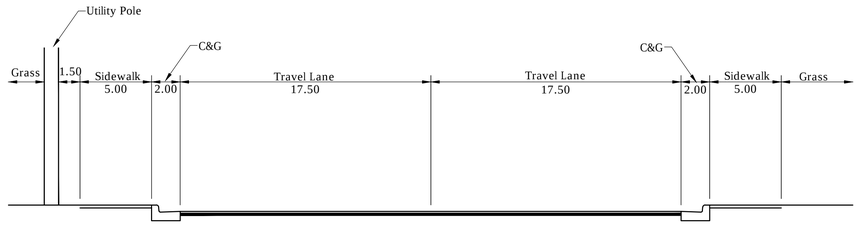
54). M AVENUE
SCALE: 1" = 10'
From Ross St. to Cherrywood Ln.



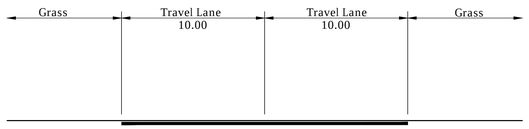
55). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Ross St.



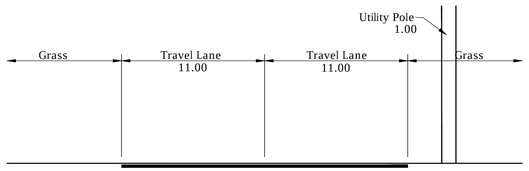
56). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From Ross St. to 14th St.



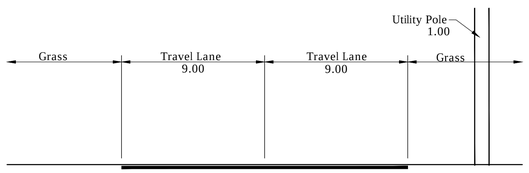
57). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From 14th St. to Troy Ave.



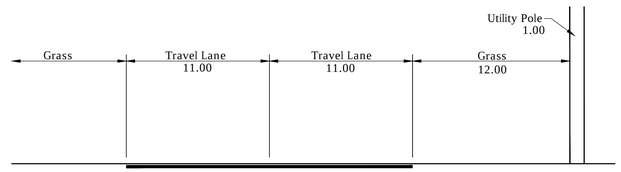
58). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From Greensboro Pike to SR 3



59). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From SR 3 to to HWY 103 / 14th St.



60). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From HWY 103 / 14th St. to CR 250 E



61). MIDWAY DRIVE
SCALE: 1" = 10'
From SR 3 to Free Rd.

Henry County Bicycle Facility Master Plan

BLOS-PLOS Calculation Location Map

Potential Route Segment

Road
River
Abandoned Railroad
Active Railroad
Wilbur Wright Trail
City Limits
School
Commercial
Industry
Park
Downtown Commercial

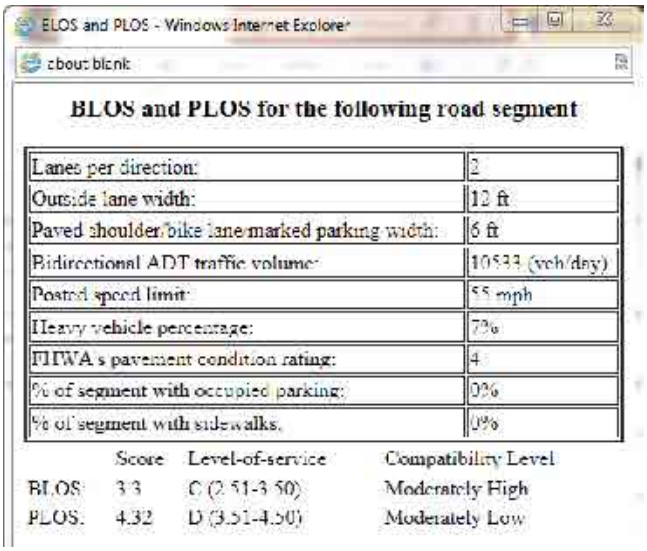
0 625 1,250 2,500 3,750 Feet

N

Butler Fairman & Seufert

State Road 3 / Memorial Drive

1.



BLOS and PLOS - Windows Internet Explorer

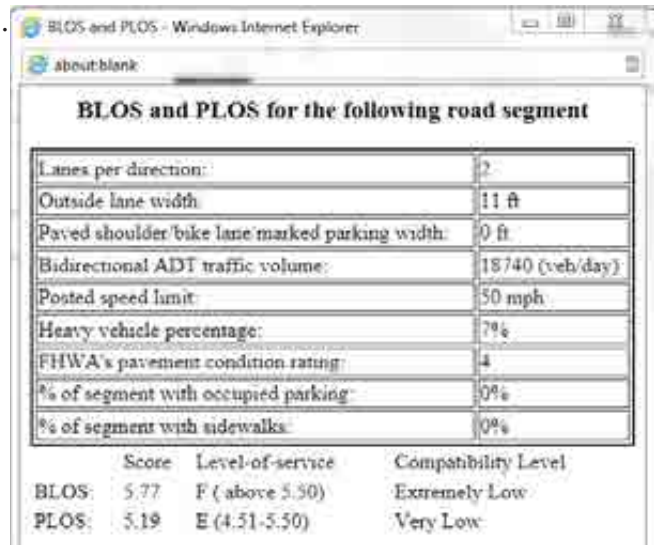
about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	2
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	6 ft
Bidirectional ADT traffic volume:	10533 (veh/day)
Posted speed limit:	55 mph
Heavy vehicle percentage:	7%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.3	C (2.51-3.50)	Moderately High
PLOS:	4.32	D (3.51-4.50)	Moderately Low

2.



BLOS and PLOS - Windows Internet Explorer

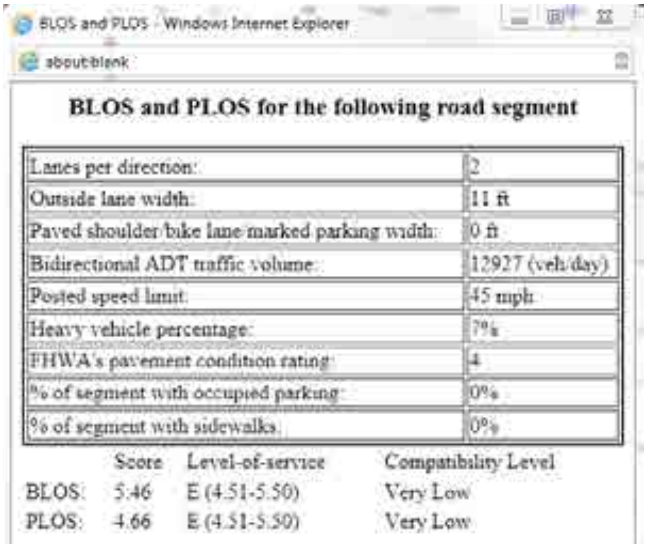
about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	2
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	18740 (veh/day)
Posted speed limit:	50 mph
Heavy vehicle percentage:	7%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	5.77	F (above 5.50)	Extremely Low
PLOS:	5.19	E (4.51-5.50)	Very Low

3.



BLOS and PLOS - Windows Internet Explorer

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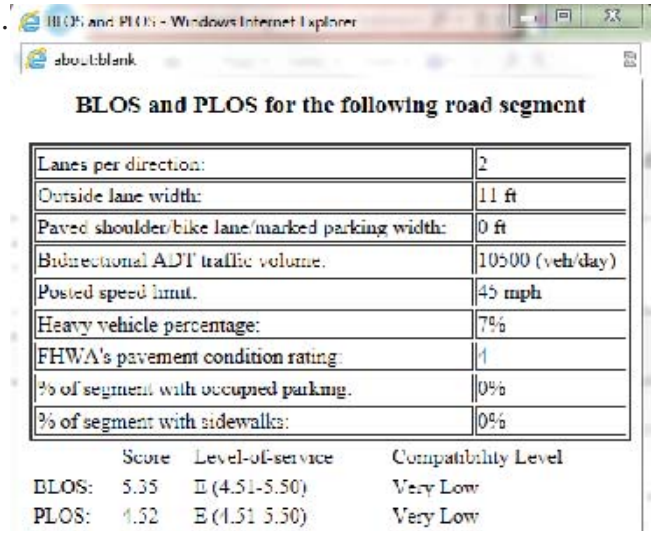
BLOS and PLOS for the following road segment

Lanes per direction:	2
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	12927 (veh/day)
Posted speed limit:	45 mph
Heavy vehicle percentage:	7%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	5.46	E (4.51-5.50)	Very Low
PLOS:	4.66	E (4.51-5.50)	Very Low

4.



BLOS and PLOS - Windows Internet Explorer

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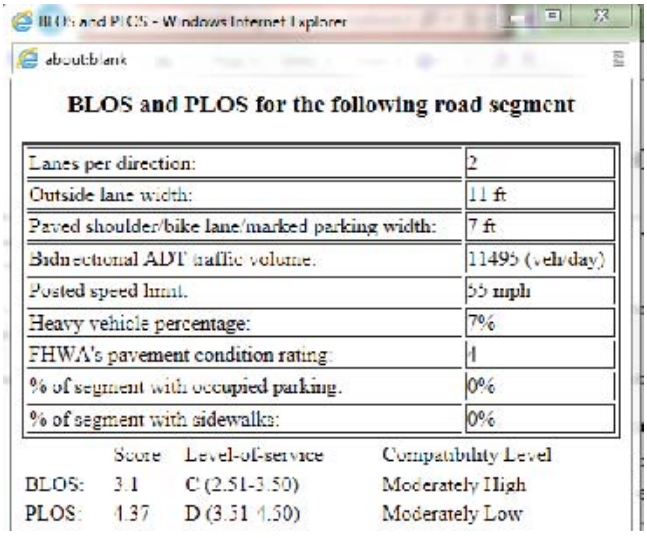
BLOS and PLOS for the following road segment

Lanes per direction:	2
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	10500 (veh/day)
Posted speed limit:	45 mph
Heavy vehicle percentage:	7%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	5.35	E (4.51-5.50)	Very Low
PLOS:	4.52	E (4.51-5.50)	Very Low

5.



BLOS and PLOS - Windows Internet Explorer

about:blank

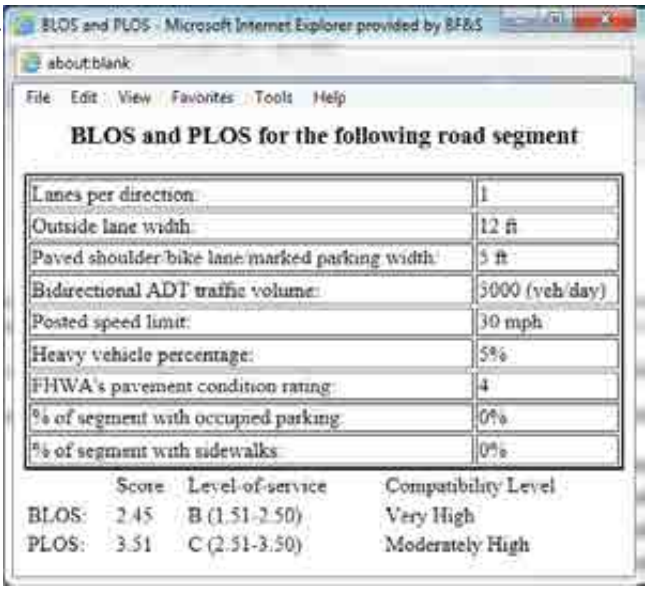
BLOS and PLOS for the following road segment

Lanes per direction:	2
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	11495 (veh/day)
Posted speed limit:	55 mph
Heavy vehicle percentage:	7%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.1	C (2.51-3.50)	Moderately High
PLOS:	4.37	D (3.51-4.50)	Moderately Low

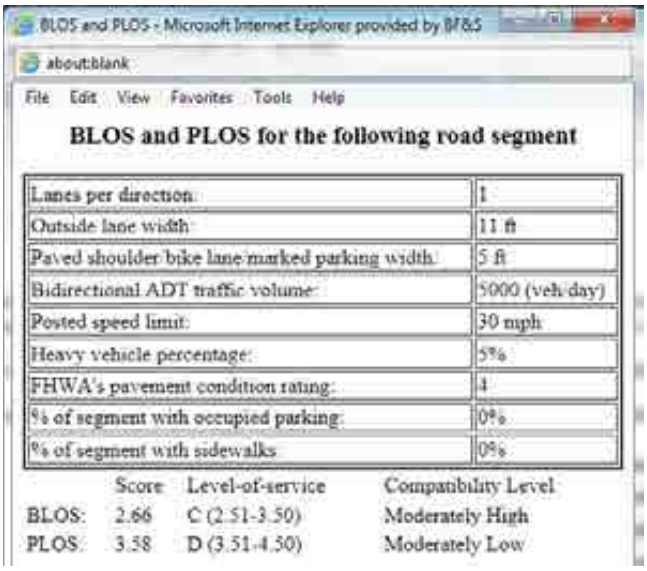
Brooks Drive

6.



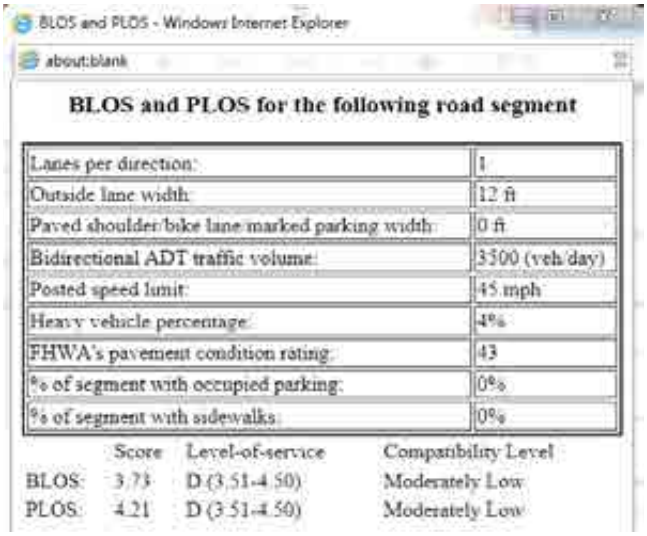
Commerce Drive

7.



300 S

8.



Trojan Lane

9.

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BLOS and PLOS for the following road segment

Lanes per direction:	2
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	5200 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	10%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.93	D (3.51-4.50)	Moderately Low
PLOS:	3.62	D (3.51-4.50)	Moderately Low

Parkside Drive

10.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	5200 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	50%
Sidewalk width:	7 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.76	B (1.51-2.50)	Very High
PLOS:	2.89	C (2.51-3.50)	Moderately High

Q Avenue

11.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	2600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	0.84	A (below 1.50)	Extremely High
PLOS:	3.16	C (2.51-3.50)	Moderately High

12.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	2600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	60%
% of segment with sidewalks:	50%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.59	C (2.51-3.50)	Moderately High
PLOS:	2.47	B (1.51-2.50)	Very High

Q Avenue

13.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	2600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	20%
% of segment with sidewalks:	40%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.72	B (1.51-2.50)	Very High
PLOS:	2.77	C (2.51-3.50)	Moderately High

14.

BLOS and PLOS - Windows Internet Explorer

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane marked parking width:	7 ft
Bidirectional ADT traffic volume:	2600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	1.18	A (below 1.50)	Extremely High
PLOS:	3.16	C (2.51-3.50)	Moderately High

25th Street

15a.

BLOS and PLOS - Windows Internet Explorer

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	2500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	20%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	2	B (1.51-2.50)	Very High
PLOS:	3.15	C (2.51-3.50)	Moderately High

15b.

BLOS and PLOS - Windows Internet Explorer

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.86	D (3.51-4.50)	Moderately Low
PLOS:	3.75	D (3.51-4.50)	Moderately Low

16.

BLOS and PLOS - Windows Internet Explorer

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	15 ft
Paved shoulder/bike lane marked parking width:	0 ft
Bidirectional ADT traffic volume:	3000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	90%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	4 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.83	D (3.51-4.50)	Moderately Low
PLOS:	2.31	B (1.51-2.50)	Very High

I Street

17.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	19 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3900 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.94	C (2.51-3.50)	Moderately High
PLOS:	2.21	B (1.51-2.50)	Very High

18.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	19 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3900 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.94	C (2.51-3.50)	Moderately High
PLOS:	2.21	B (1.51-2.50)	Very High

19.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	20 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3900 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.74	C (2.51-3.50)	Moderately High
PLOS:	2.18	B (1.51-2.50)	Very High

200 S / Riley Avenue

20.

BLOS and PLOS - Windows Internet Explorer

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	40 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.67	D (3.51-4.50)	Moderately Low
PLOS:	3.98	D (3.51-4.50)	Moderately Low

21.

BLOS and PLOS - Windows Internet Explorer

about:blank

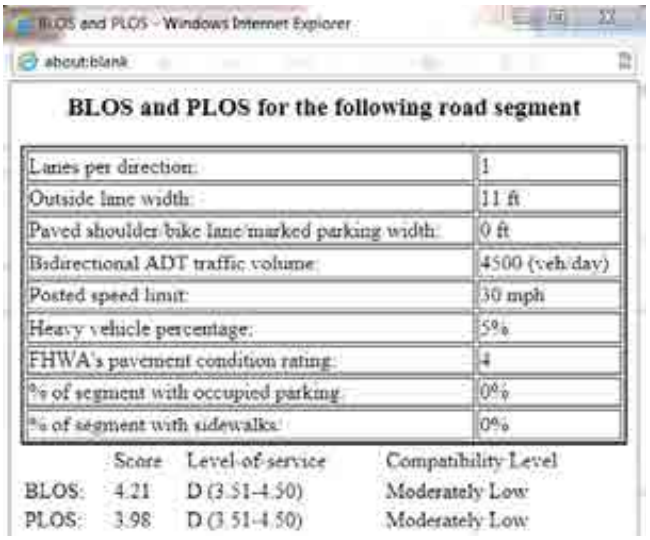
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	40 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.67	D (3.51-4.50)	Moderately Low
PLOS:	3.98	D (3.51-4.50)	Moderately Low

200 S / Riley Avenue

22.



BLOS and PLOS - Windows Internet Explorer

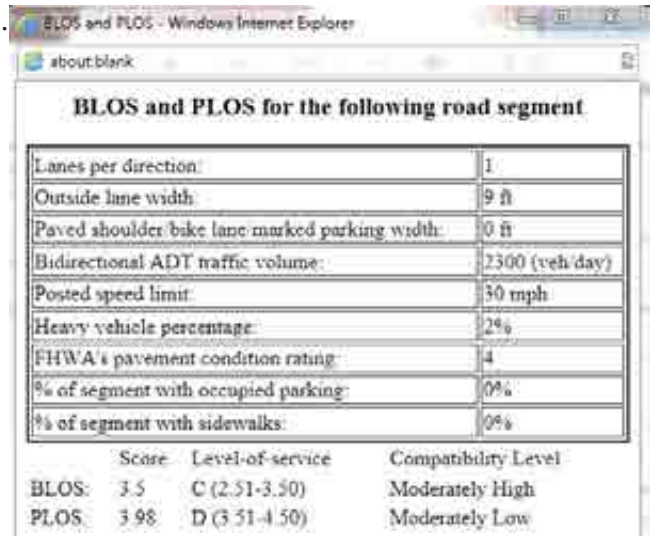
about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	4500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	4.21	D (3.51-4.50)	Moderately Low
PLOS:	3.98	D (3.51-4.50)	Moderately Low

23.



BLOS and PLOS - Windows Internet Explorer

about:blank

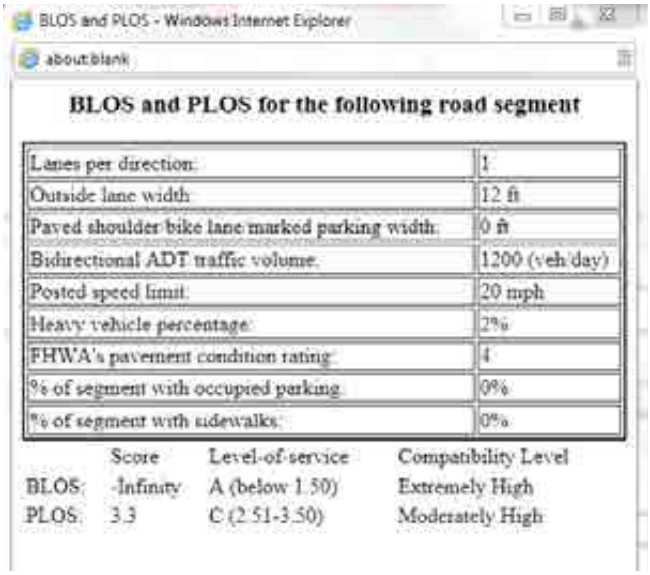
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	9 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2300 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.5	C (2.51-3.50)	Moderately High
PLOS:	3.98	D (3.51-4.50)	Moderately Low

Washington Street

24.



BLOS and PLOS - Windows Internet Explorer

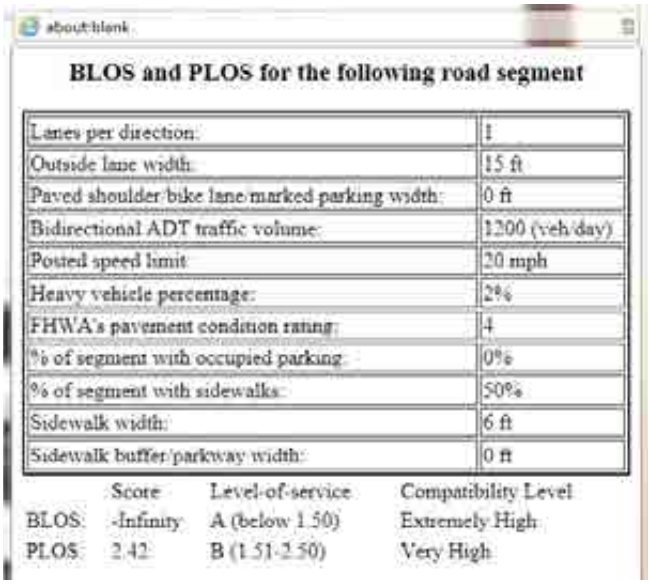
about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	1200 (veh/day)
Posted speed limit:	20 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	-Infinity	A (below 1.50)	Extremely High
PLOS:	3.3	C (2.51-3.50)	Moderately High

25.



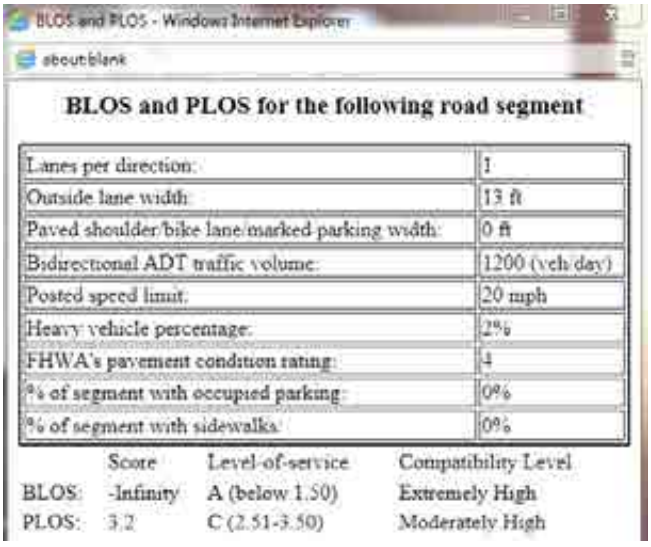
about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	15 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	1200 (veh/day)
Posted speed limit:	20 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	50%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	-Infinity	A (below 1.50)	Extremely High
PLOS:	2.42	B (1.51-2.50)	Very High

26.



BLOS and PLOS - Windows Internet Explorer

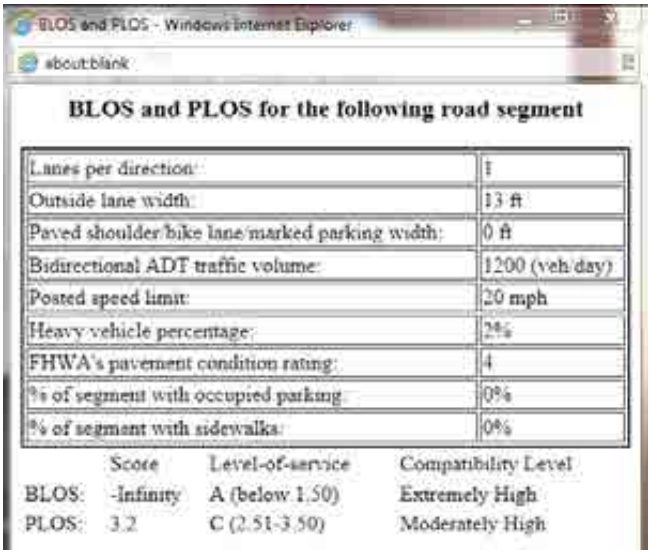
about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	13 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	1200 (veh/day)
Posted speed limit:	20 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	-Infinity	A (below 1.50)	Extremely High
PLOS:	3.2	C (2.51-3.50)	Moderately High

27.



BLOS and PLOS - Windows Internet Explorer

about:blank

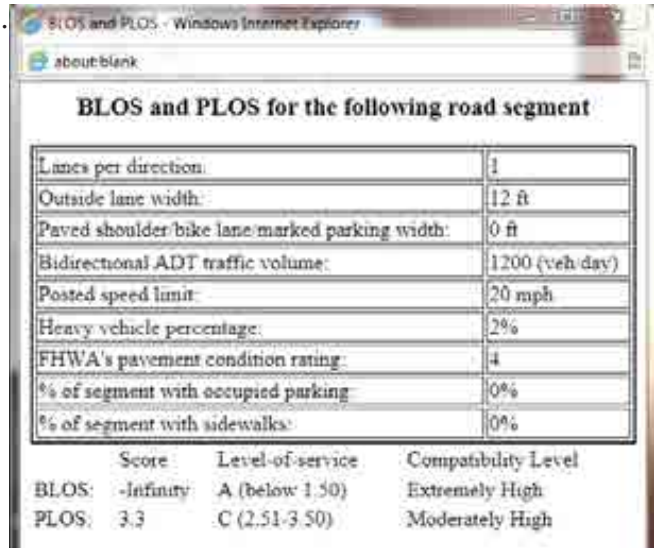
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	13 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	1200 (veh/day)
Posted speed limit:	20 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	-Infinity	A (below 1.50)	Extremely High
PLOS:	3.2	C (2.51-3.50)	Moderately High

Washington Street

28.



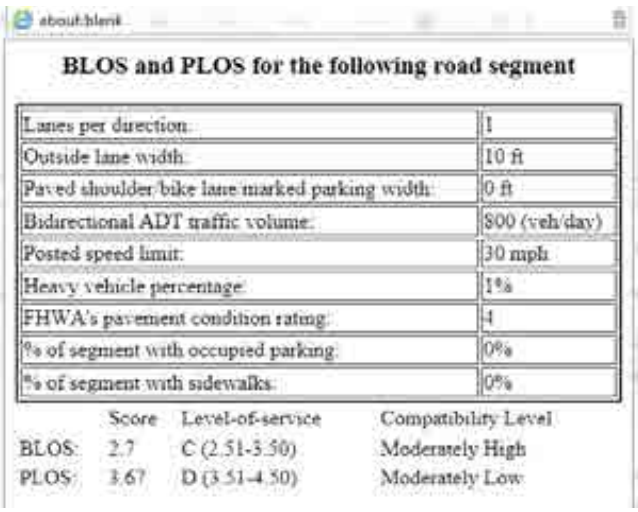
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	1200 (veh/day)
Posted speed limit:	20 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	-Infinity	A (below 1.50)	Extremely High
PLOS:	3.3	C (2.51-3.50)	Moderately High

Hillsboro Road

29.



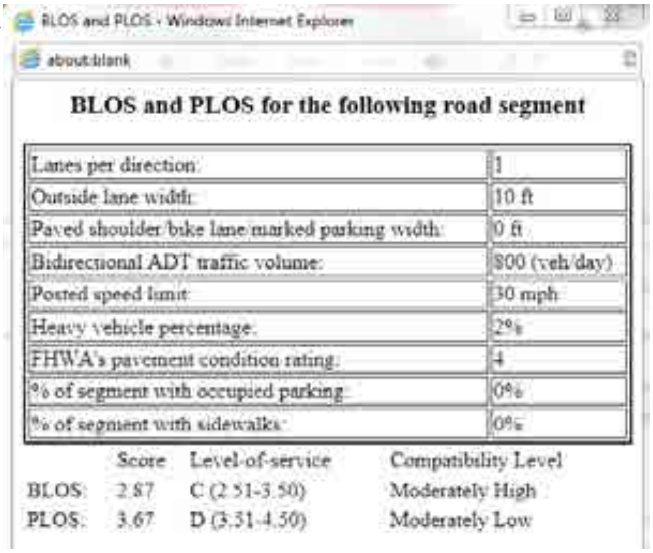
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	800 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	2.7	C (2.51-3.50)	Moderately High
PLOS:	3.67	D (3.51-4.50)	Moderately Low

31st Street

30.



BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	800 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	2.87	C (2.51-3.50)	Moderately High
PLOS:	3.67	D (3.51-4.50)	Moderately Low

Indiana Avenue

31.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	18 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	5000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	2.59	C (2.51-3.50)	Moderately High
PLOS:	3.33	C (2.51-3.50)	Moderately High

32.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	5000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	2 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.23	C (2.51-3.50)	Moderately High
PLOS:	2.4	B (1.51-2.50)	Very High

33.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	5000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.49	C (2.51-3.50)	Moderately High
PLOS:	2.44	B (1.51-2.50)	Very High

34.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	5000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.49	C (2.51-3.50)	Moderately High
PLOS:	2.44	B (1.51-2.50)	Very High

35.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	9.5 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	5000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	75%
% of segment with sidewalks:	50%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.7	D (3.51-4.50)	Moderately Low
PLOS:	2.68	C (2.51-3.50)	Moderately High

36.

BLOS and PLOS - Microsoft Internet Explorer provided by RF&S

about:blank

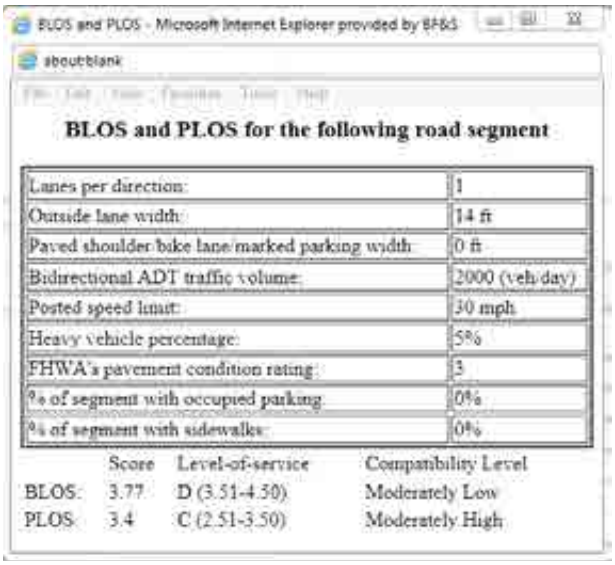
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	5000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	4.05	D (3.51-4.50)	Moderately Low
PLOS:	4.05	D (3.51-4.50)	Moderately Low

New York Avenue

37.



BLOS and PLOS - Microsoft Internet Explorer provided by BF&S

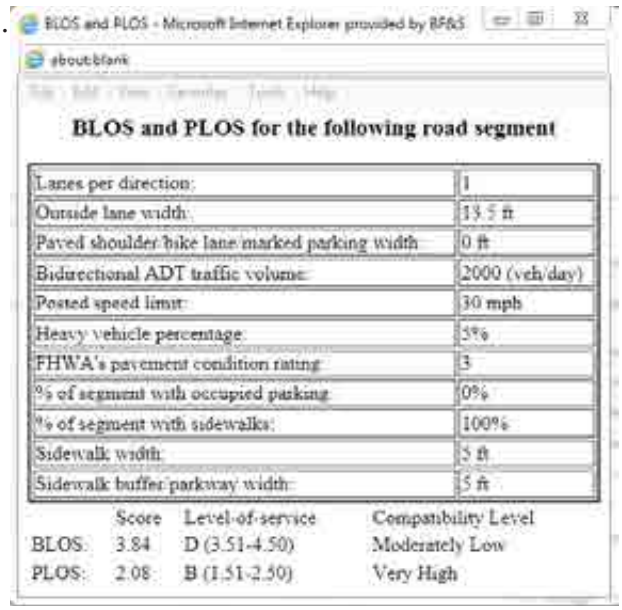
aboutblank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.77	D (3.51-4.50)	Moderately Low
PLOS:	3.4	C (2.51-3.50)	Moderately High

38.



BLOS and PLOS - Microsoft Internet Explorer provided by BF&S

aboutblank

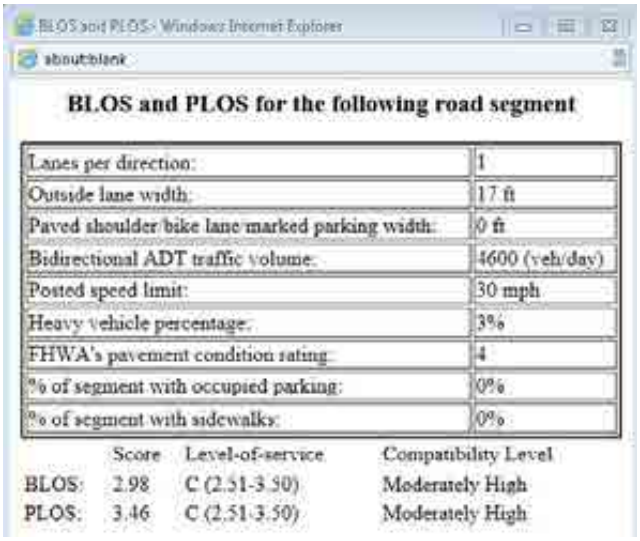
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	13.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	5 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.84	D (3.51-4.50)	Moderately Low
PLOS:	2.08	B (1.51-2.50)	Very High

Parkview Drive

39.



BLOS and PLOS - Windows Internet Explorer

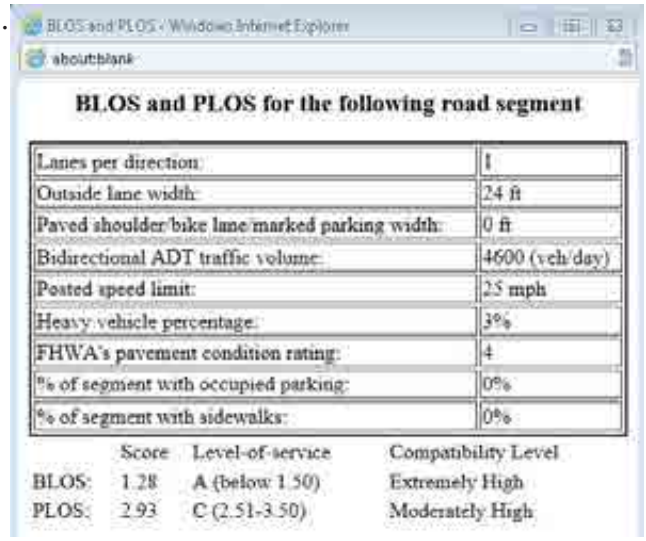
aboutblank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	17 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	4600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	2.98	C (2.51-3.50)	Moderately High
PLOS:	3.46	C (2.51-3.50)	Moderately High

40.



BLOS and PLOS - Windows Internet Explorer

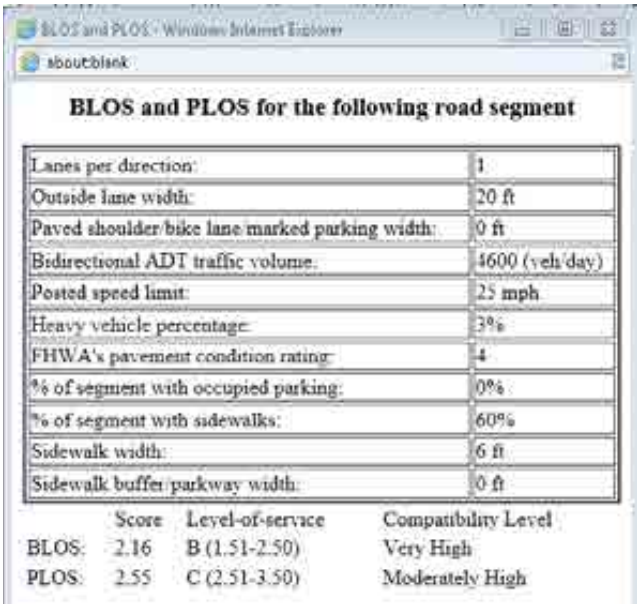
aboutblank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	24 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	4600 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	1.28	A (below 1.50)	Extremely High
PLOS:	2.93	C (2.51-3.50)	Moderately High

41.



BLOS and PLOS - Windows Internet Explorer

aboutblank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	20 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	4600 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	60%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.16	B (1.51-2.50)	Very High
PLOS:	2.55	C (2.51-3.50)	Moderately High

M Avenue

42.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	1600 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	0.5	A (below 1.50)	Extremely High
PLOS:	1.94	B (1.51-2.50)	Very High

53.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	17 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	1600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	50%
Sidewalk width:	4 ft
Sidewalk buffer/parkway width:	5 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.27	B (1.51-2.50)	Very High
PLOS:	2.57	C (2.51-3.50)	Moderately High

54.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	1600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	40%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.84	B (1.51-2.50)	Very High
PLOS:	1.76	B (1.51-2.50)	Very High

Bundy Avenue

43.

BLOS and PLOS - Windows Internet Explorer

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	2
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	4.68	E (4.51-5.50)	Very Low
PLOS:	3.76	D (3.51-4.50)	Moderately Low

44.

BLOS and PLOS - Windows Internet Explorer

about:blank

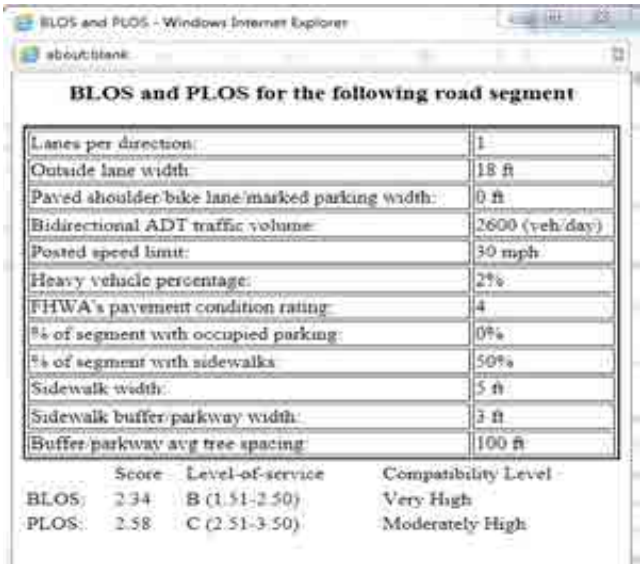
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	15 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.18	C (2.51-3.50)	Moderately High
PLOS:	3.38	C (2.51-3.50)	Moderately High

Bundy Avenue

45.



BLOS and PLOS - Windows Internet Explorer

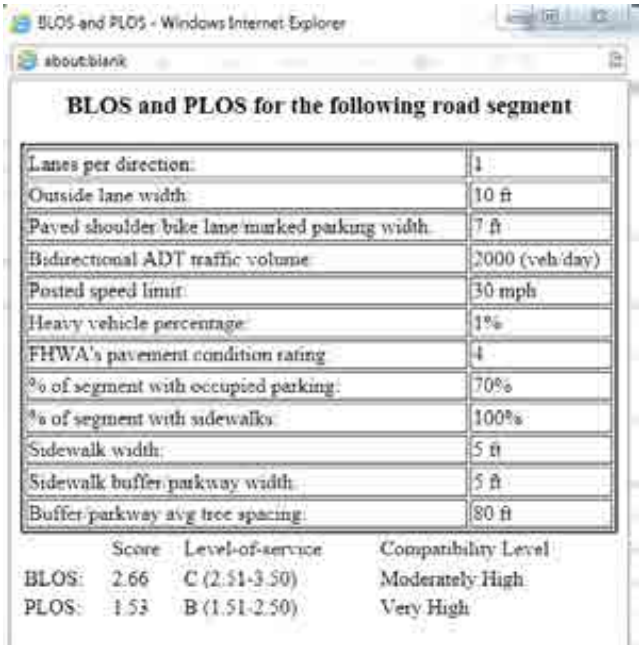
about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	18 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	50%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	3 ft
Buffer/parkway avg tree spacing:	100 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.34	B (1.51-2.50)	Very High
PLOS:	2.58	C (2.51-3.50)	Moderately High

46.



BLOS and PLOS - Windows Internet Explorer

about:blank

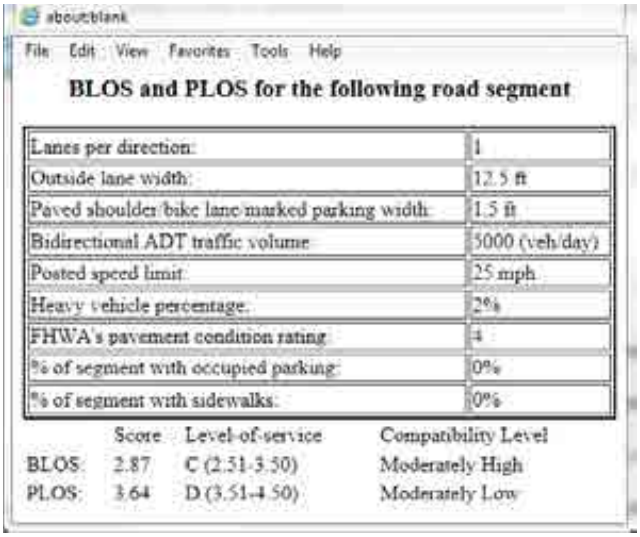
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	70%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	5 ft
Buffer/parkway avg tree spacing:	80 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.66	C (2.51-3.50)	Moderately High
PLOS:	1.53	B (1.51-2.50)	Very High

Emerson Avenue

47.



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File Edit View Favorites Tools Help

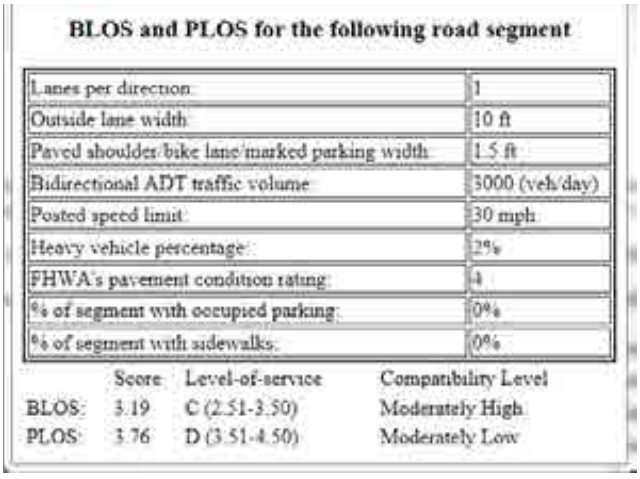
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12.5 ft
Paved shoulder/bike lane/marked parking width:	1.5 ft
Bidirectional ADT traffic volume:	5000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	2.87	C (2.51-3.50)	Moderately High
PLOS:	3.64	D (3.51-4.50)	Moderately Low

Garner Street

48.

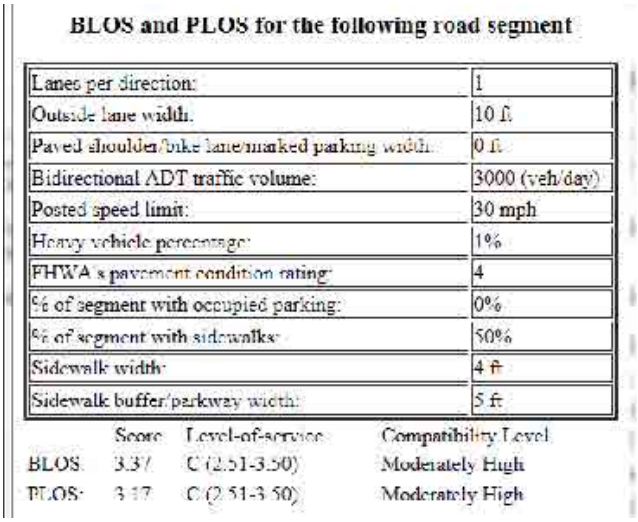


BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	1.5 ft
Bidirectional ADT traffic volume:	3000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.19	C (2.51-3.50)	Moderately High
PLOS:	3.76	D (3.51-4.50)	Moderately Low

49.



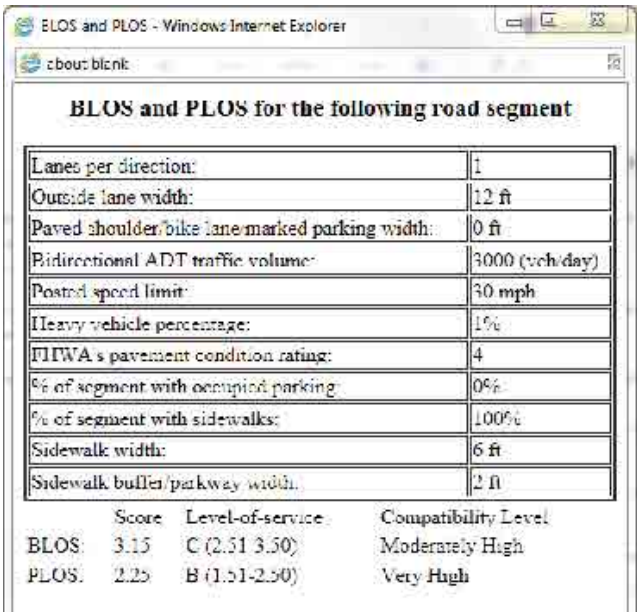
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	50%
Sidewalk width:	4 ft
Sidewalk buffer/parkway width:	5 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.37	C (2.51-3.50)	Moderately High
PLOS:	3.17	C (2.51-3.50)	Moderately High

Lawton Street / Co. Rd. 75 N

50.



ELOS and PLOS - Windows Internet Explorer

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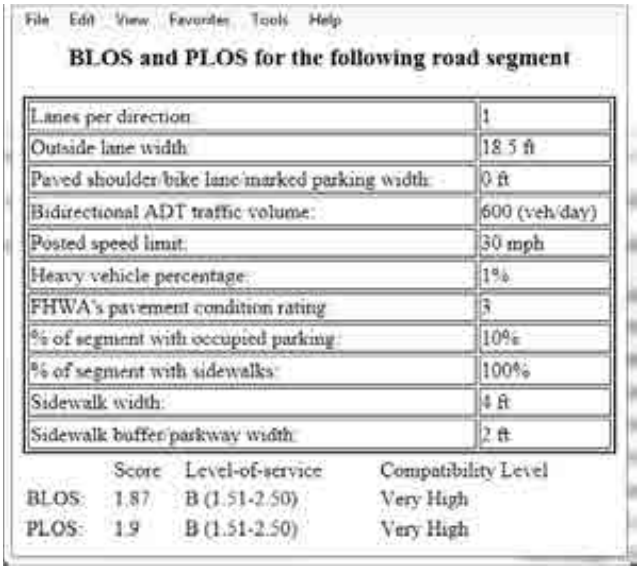
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	2 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.15	C (2.51 3.50)	Moderately High
PLOS:	2.25	B (1.51-2.50)	Very High

Brentwood Road

51.



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BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	18.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	10%
% of segment with sidewalks:	100%
Sidewalk width:	4 ft
Sidewalk buffer/parkway width:	2 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.87	B (1.51-2.50)	Very High
PLOS:	1.9	B (1.51-2.50)	Very High

Ross Street

86.

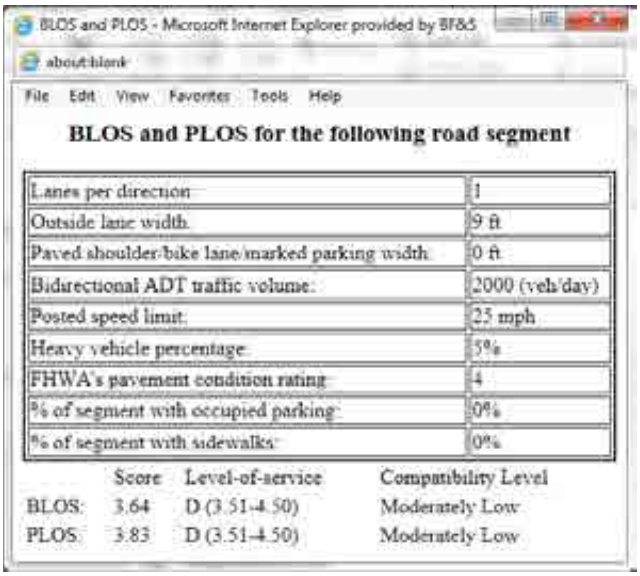
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	4200 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	0.99	A (below 1.50)	Extremely High
PLOS:	2.24	B (1.51-2.50)	Very High

Hunter Avenue

55.



BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	9 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.64	D (3.51-4.50)	Moderately Low
PLOS:	3.83	D (3.51-4.50)	Moderately Low

Main Street

56.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	800 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	4%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	8 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.75	C (2.51-3.50)	Moderately High
PLOS:	1.89	B (1.51-2.50)	Very High

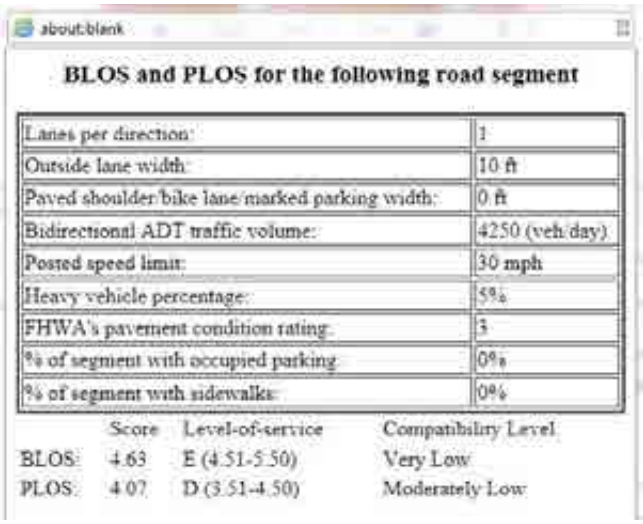
57.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	9 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	800 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	20%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.24	B (1.51-2.50)	Very High
PLOS:	1.9	B (1.51-2.50)	Very High

79.



BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	4250 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	5%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	4.63	E (4.51-5.50)	Very Low
PLOS:	4.07	D (3.51-4.50)	Moderately Low

9th Street

58.

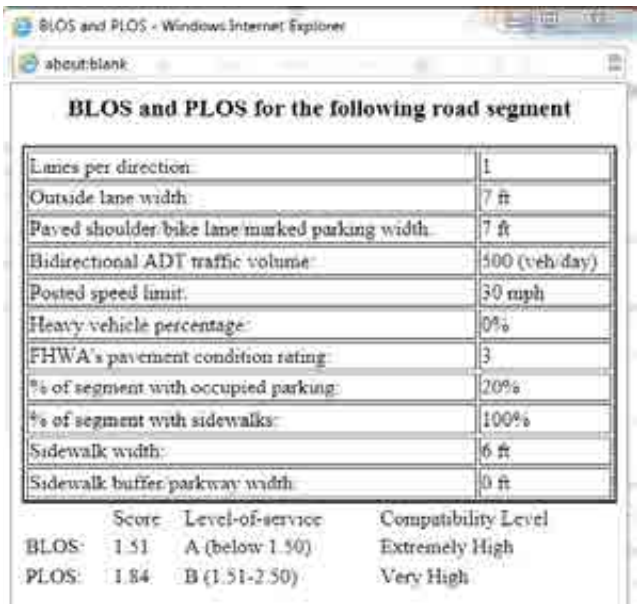
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	7 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	20%
% of segment with sidewalks:	100%
Sidewalk width:	4 ft
Sidewalk buffer/parkway width:	6 ft
Buffer/parkway avg tree spacing:	200 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.51	A (below 1.50)	Extremely High
PLOS:	1.77	B (1.51-2.50)	Very High

Plum Street

59.



BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	7 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	20%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.51	A (below 1.50)	Extremely High
PLOS:	1.84	B (1.51-2.50)	Very High

11th Street

60.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	600 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	75%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	5 ft
Buffer/parkway avg tree spacing:	150 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.15	B (1.51-2.50)	Very High
PLOS:	1.4	A (below 1.50)	Extremely High

14th Street

61.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.35	C (2.51-3.50)	Moderately High
PLOS:	3.64	D (3.51-4.50)	Moderately Low

62.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	3%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.03	C (2.51-3.50)	Moderately High
PLOS:	2.22	B (1.51-2.50)	Very High

66.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5.5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.06	C (2.51-3.50)	Moderately High
PLOS:	2.33	B (1.51-2.50)	Very High

85.

about:blank

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	13.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	5 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.2	C (2.51-3.50)	Moderately High
PLOS:	2.25	B (1.51-2.50)	Very High

Thornburg Street

63.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	9 ft
Paved shoulder/bike lane/marked parking width:	6 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	1
% of segment with occupied parking:	15%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	3 ft

	Score	Level-of-service	Compatibility Level
BLOS:	7.6	F (above 5.50)	Extremely Low
PLOS:	1.83	B (1.51-2.50)	Very High

64.

BLOS and PLOS - Microsoft Internet Explorer provided by BF&S

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File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	1
% of segment with occupied parking:	5%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	8.84	F (above 5.50)	Extremely Low
PLOS:	3.47	C (2.51-3.50)	Moderately High

Thornburg Street

65.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	8 ft
Paved shoulder/bike lane/marked parking width:	6 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	10%
% of segment with sidewalks:	100%
Sidewalk width:	5.5 ft
Sidewalk buffer/parkway width:	3 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.4	A (below 1.50)	Extremely High
PLOS:	1.85	B (1.51-2.50)	Very High

67.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	6 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.11	B (1.51-2.50)	Very High
PLOS:	1.95	B (1.51-2.50)	Very High

15th Street

68.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	2.5	B (1.51-2.50)	Very High
PLOS:	3.47	C (2.51-3.50)	Moderately High

69.

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11 ft
Paved shoulder/bike lane/marked parking width:	8 ft
Bidirectional ADT traffic volume:	2000 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	80%
% of segment with sidewalks:	100%
Sidewalk width:	8 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.51	C (2.51-3.50)	Moderately High
PLOS:	1.54	B (1.51-2.50)	Very High

70.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	15 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	4.5 ft
Sidewalk buffer/parkway width:	3 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.69	B (1.51-2.50)	Very High
PLOS:	1.97	B (1.51-2.50)	Very High

72.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	15 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	2
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	4 ft
Sidewalk buffer/parkway width:	3 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.02	C (2.51-3.50)	Moderately High
PLOS:	2.03	B (1.51-2.50)	Very High

A Avenue

71.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	4 ft
Sidewalk buffer/parkway width:	3 ft

	Score	Level-of-service	Compatibility Level
BLOS:	1.84	B (1.51-2.50)	Very High
PLOS:	2.06	B (1.51-2.50)	Very High

B Avenue

73.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	9 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.76	C (2.51-3.50)	Moderately High
PLOS:	2.23	B (1.51-2.50)	Very High

16th Street

74.

File Edit View Favorites Tools Help

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	4.5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.66	C (2.51-3.50)	Moderately High
PLOS:	2.25	B (1.51-2.50)	Very High

76.

BLOS and PLOS - Microsoft Internet Explorer provided by BF&S

about:blank

File Edit View Favorites Tools Help

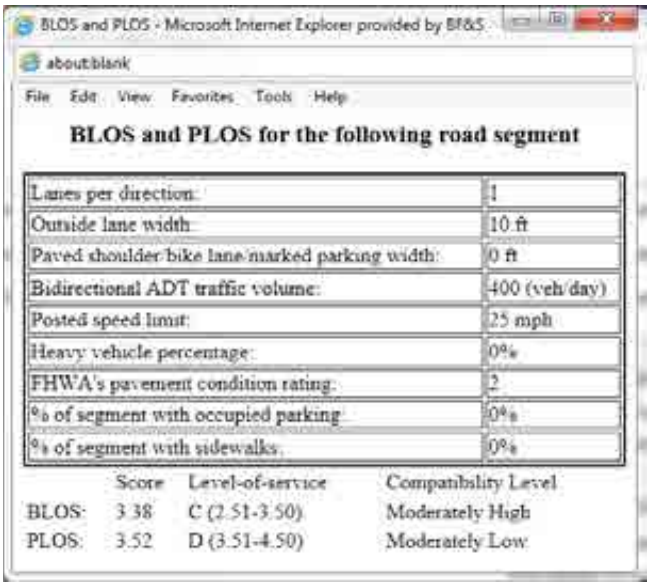
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	8 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	500 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	2
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.67	D (3.51-4.50)	Moderately Low
PLOS:	3.8	D (3.51-4.50)	Moderately Low

D Avenue

75.



BLOS and PLOS - Microsoft Internet Explorer provided by BF&S

about:blank

File Edit View Favorites Tools Help

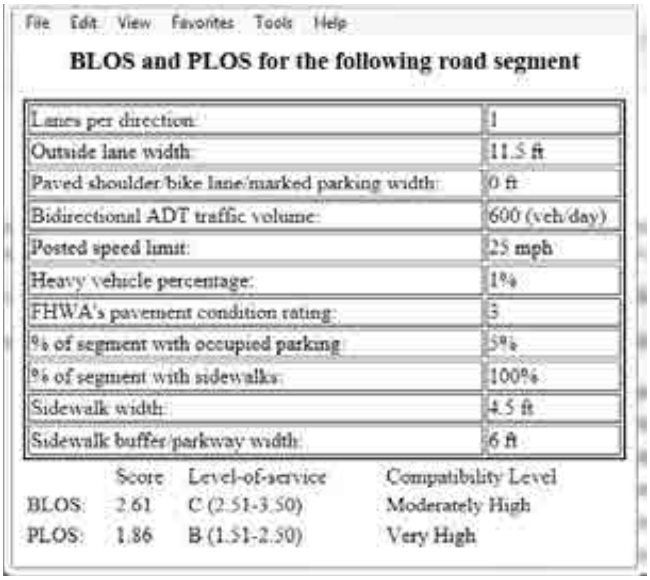
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	10 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	400 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	0%
FHWA's pavement condition rating:	2
% of segment with occupied parking:	0%
% of segment with sidewalks:	0%

	Score	Level-of-service	Compatibility Level
BLOS:	3.38	C (2.51-3.50)	Moderately High
PLOS:	3.52	D (3.51-4.50)	Moderately Low

10th Street

77.



File Edit View Favorites Tools Help

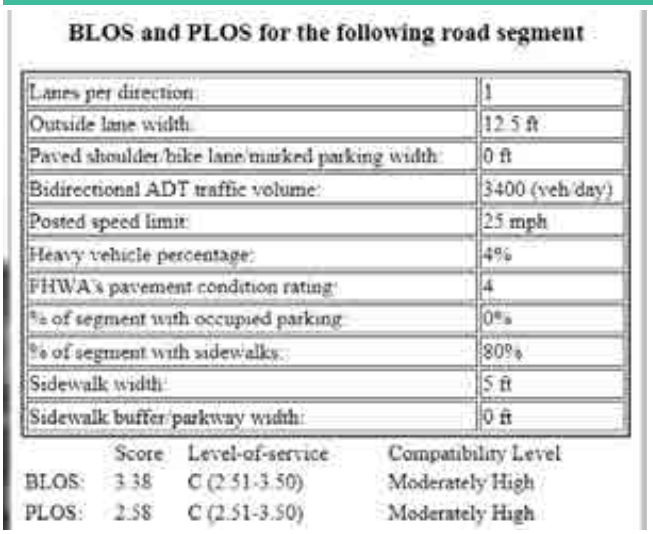
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	11.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	600 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	3
% of segment with occupied parking:	5%
% of segment with sidewalks:	100%
Sidewalk width:	4.5 ft
Sidewalk buffer/parkway width:	6 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.61	C (2.51-3.50)	Moderately High
PLOS:	1.86	B (1.51-2.50)	Very High

Woodward Avenue

78.



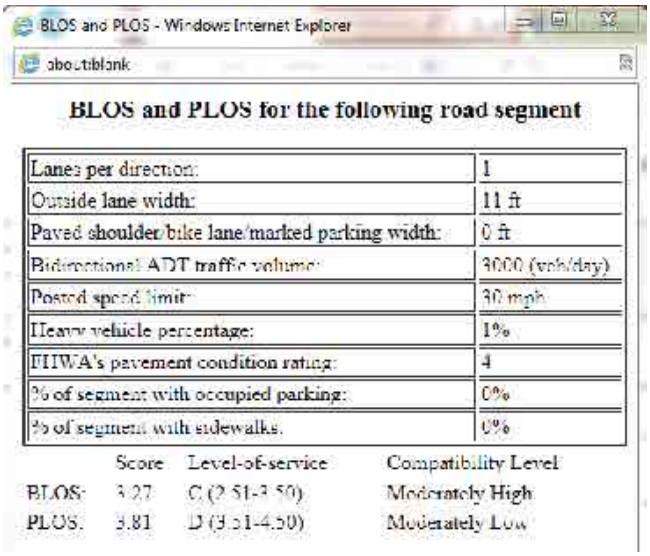
BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12.5 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	3400 (veh/day)
Posted speed limit:	25 mph
Heavy vehicle percentage:	4%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	80%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	0 ft

	Score	Level-of-service	Compatibility Level
BLOS:	3.38	C (2.51-3.50)	Moderately High
PLOS:	2.58	C (2.51-3.50)	Moderately High

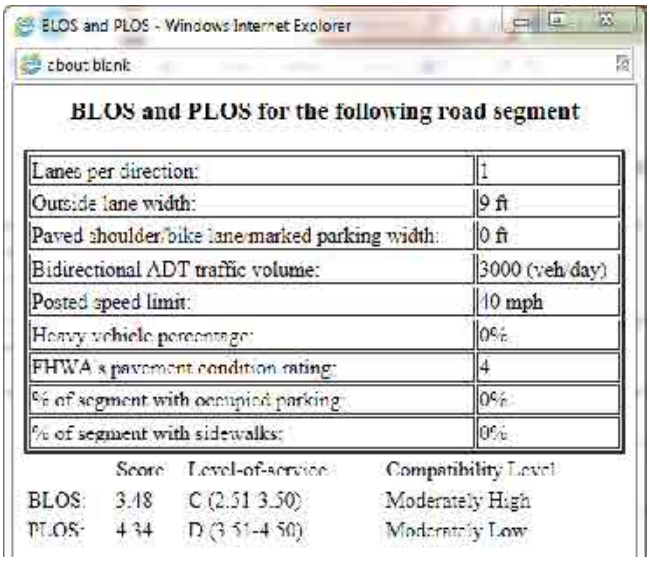
Midway Drive

80.



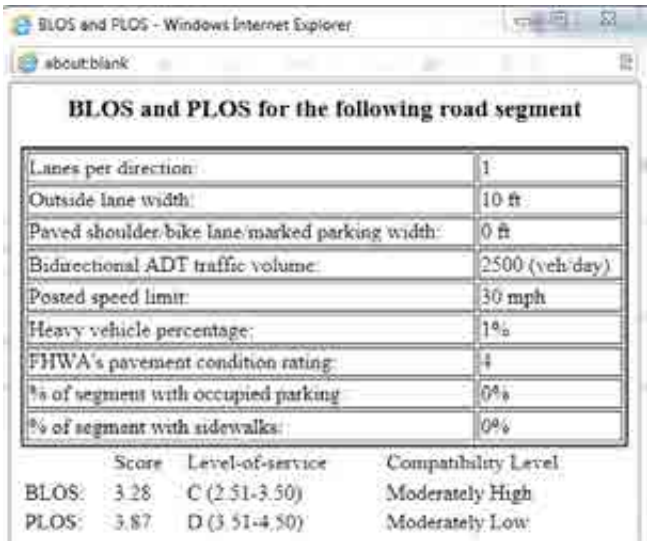
Co. Rd. 150 N

81.

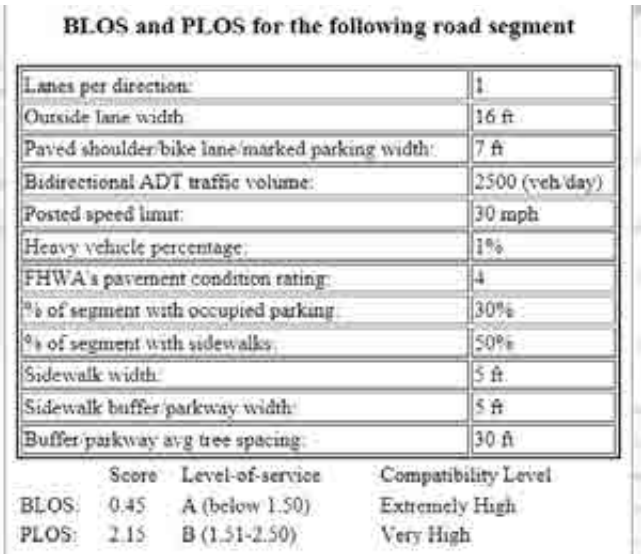


Cherrywood Avenue

82.

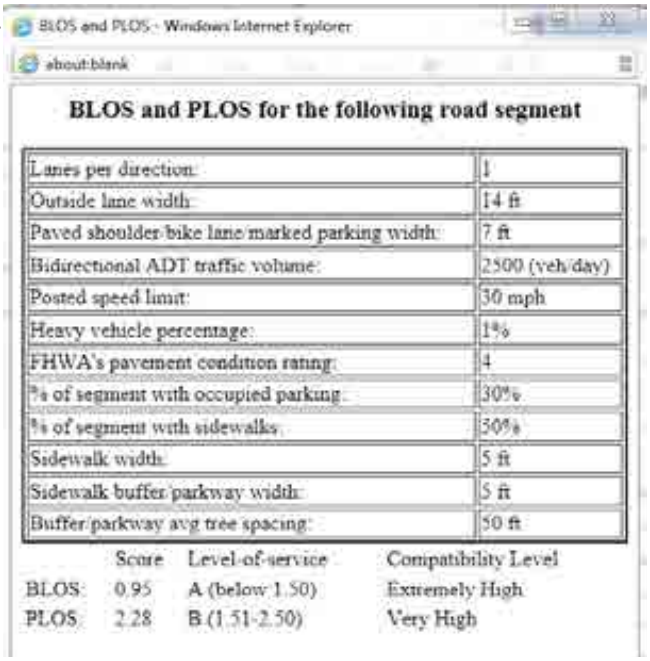


83.



Cherrywood Avenue

84.



BLOS and PLOS - Windows Internet Explorer

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BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	14 ft
Paved shoulder/bike lane/marked parking width:	7 ft
Bidirectional ADT traffic volume:	2500 (veh/day)
Posted speed limit:	30 mph
Heavy vehicle percentage:	1%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	30%
% of segment with sidewalks:	50%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	5 ft
Buffer/parkway avg tree spacing:	50 ft

	Score	Level-of-service	Compatibilsty Level
BLOS:	0.95	A (below 1.50)	Extremely High
PLOS:	2.28	B (1.51-2.50)	Very High

BIKABILITY CONDITIONS

During the inventory process it became evident that the City of New Castle is divided by State Road 3 / Memorial Drive and several active railroad systems. Many of the existing roadways are very narrow, but all for except a few main arterials, the traffic volumes are low. There are a few low volume active railroad corridors within the city limits that might be available for a rail with trail development and few areas where the railroad operations are now inactive. Most in city routes will need to use a complete street type of approach to make alternative transportation connections.

The team used the cross sections created as part of the inventory process and analyzed each mid block to see where opportunities were available to gain space for bicycle facilities along roadways. The team looked at the existing lane widths to see if it would be appropriate to narrow them and how much space might be gained from that treatment. Opportunities and constraints were also noted for each mid-block based upon apparent available right-of-way, existing utilities, drainage structures, curb type, distance from street to building, used parking stalls

a. Measurements of the mid-block geometry of each route along with the average daily traffic, speed limit, and percent of commercial traffic along each route was 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.

b. A map was created that summarizes the existing Bicycle Level of Service (BLOS) conditions by color coding those sections 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 a "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.

Bicycle Level of Service (BLOS) is a nationally-used measure of on-road bicyclist comfort level as a function of a roadway's geometry and traffic condtions.

BLOS A-B : Adequate for Casual Bicycle Riders
BLOS C-F: Only Expert Bicycle Riders

Henry Township Bicycle Facility Master Plan

BLOS MAP

- BLOS: A
- BLOS: B
- BLOS: C
- BLOS: D
- BLOS: E
- BLOS: F
- Road
- River
- Abandoned Railroad
- Active Railroad
- Wilbur Wright Trail
- City Limits
- School
- Commercial
- Industry
- Park
- Downtown Commercial

0 625 1,250 2,500 3,750 Feet

N

BF&S Butler Fairman & Seufert

PEDESTRIAN WALKABILITY CONDITIONS

As mentioned previously in the bikeability conditions section, the City of New Castle is divided by State Road 3 / Memorial Drive and several active railroad systems. Many of the existing roadways are very narrow, but all for except a few main arterials, the traffic volumes are low. There are a few low volume active railroad corridors within the city limits that might be available for a rail with trail development and few areas where the railroad operations are now inactive. Most in city routes will need to use a complete street type of approach to make alternative transportation connections. State Road 3 presents the biggest challenge to walkers due to a lack of existing pedestrian facilities and that it is 8 lanes wide. Crossing this corridor is very difficult in its present configuration.

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.

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 downtown area falls into the “green” category and is considered on the high side of walkability Sections that fell into the C level (borderline walkability) were assigned a yellow color and then D-F level (less walkable) were assigned a red color. The less walkable sections appeared to mostly be located away from the core of the downtown.

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

Pedestrian Level of Service (PLOS) calculations measure how well roadways accommodate pedestrian travel and disclose the walkers' perception of comfort and safety in the roadside environment.

PLOS A-B : Adequate for the Average Pedestrian
PLOS C-F: Not Adequate for the Average Pedestrian

Henry Township Bicycle Facility Master Plan

PLOS MAP

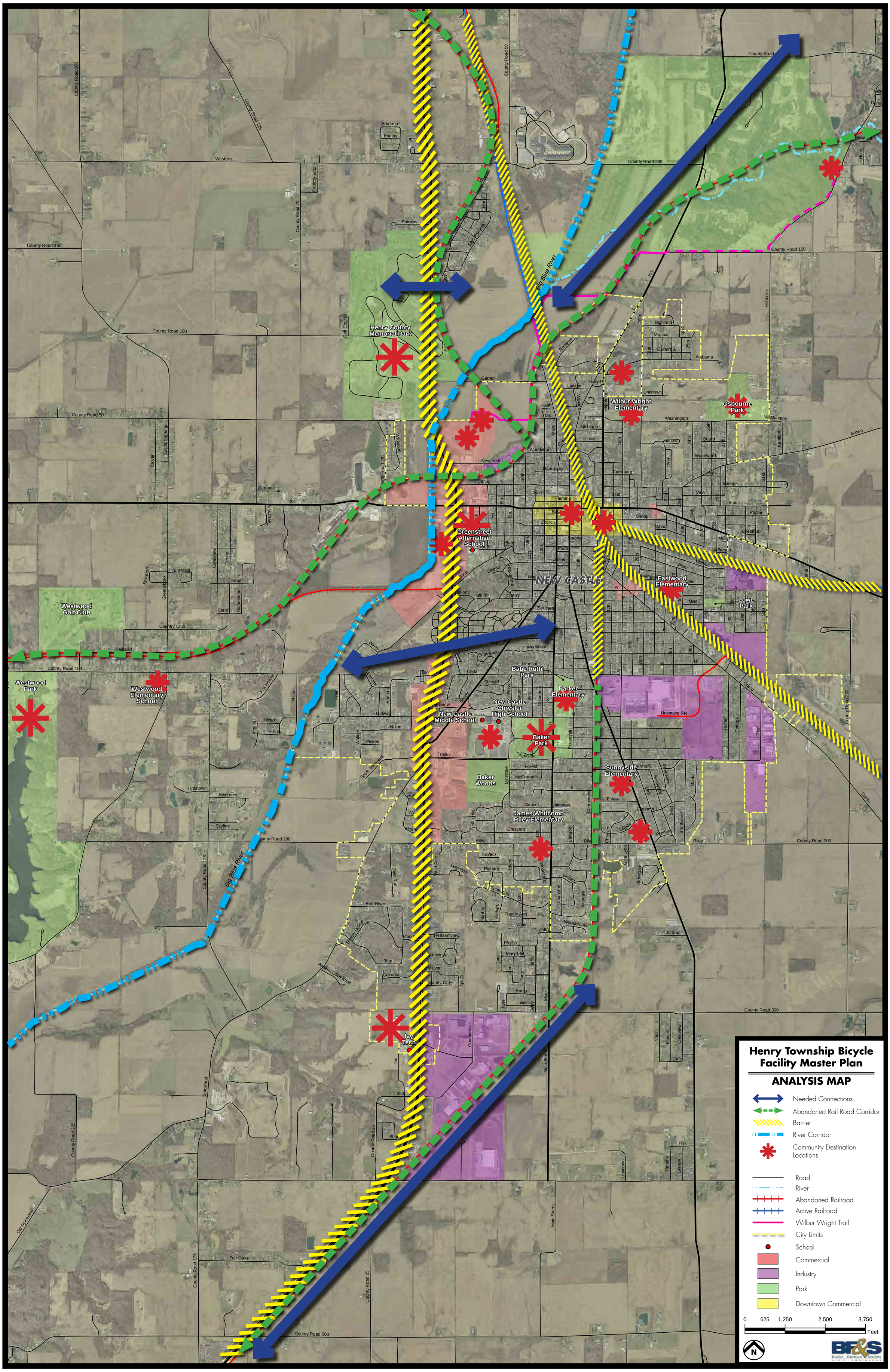
BLOS: A
BLOS: B
BLOS: C
BLOS: D
BLOS: E
BLOS: F

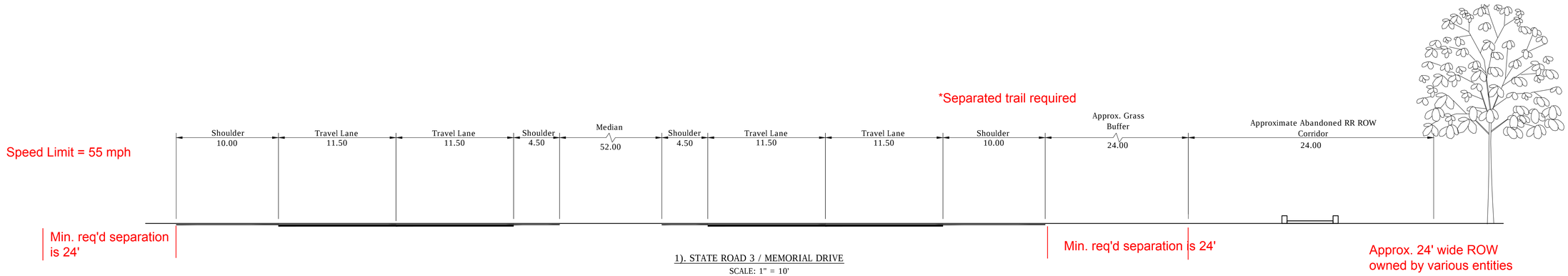
Road
River
Abandoned Railroad
Active Railroad
Wilbur Wright Trail
City Limits
School
Commercial
Industry
Park
Downtown Commercial

0 625 1,250 2,500 3,750
Feet

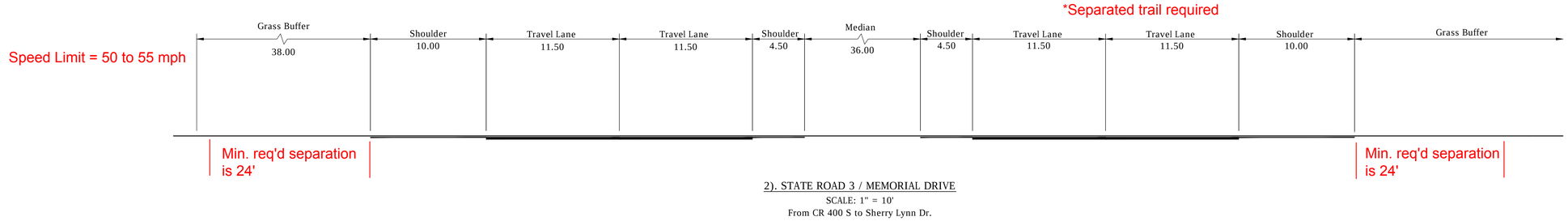
N

BF&S Butler Fairman Seufert civil engineers

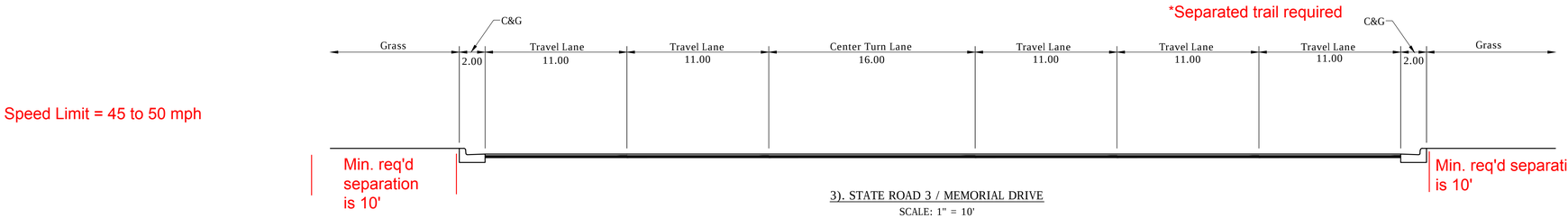

County Road 200
County Road 125
Western
County Road 75
County Estate
County Road 150
County Road 100
County Road 50
Hardacre
Phelps
Fairway
Maria
East Rehmtree
Golf Course
Henry County Memorial Park
Big Blue River
County Road
Henry
Hillsboro
20th
Highland
Virginia
California
21st
25th
Alabama
Garner
Lawton
Holly Hill
Unknown
Wilbur Wright Elementary
Osbourne Park
Washington
Michigan
Illinois
Woodward
New York
Thornburg
Spring
Vine
Fleming
Church
Shopp
Plum
Lincoln
Greenstreet Alternative School
NEW CASTLE
Eastwood Elementary
Lowe Park
Mills
Jefferson
Mullen
Chestnut
Poplar
State
Ash
Oak
Main
Columbus
Meadowood
Sulphur Springs
Clover
Carriage
38
Cleaview
Denny
Emerald
Jeana
Lorie
Homestead
Shoshoni
Greensboro
Westwood Golf Club
Country Club
Railroad
Melody
Black
Cherry
Southern
Woodlawn
Edgewood
Cedar
Stewart
Babe Ruth Park
Parker Elementary
Jameson
Garfield
Winter
Barclay
Earlham
Fox Hollow
River
Free
Midway
Nixon
Pickett
Whittier
Modlin
Hickory
Hillside
Westwood Park
Westwood Elementary School
Parkview
New Castle Middle School
New Castle Chrysler High School
Baker Park
Baker Woods
Trojan
Parkside
Forest
McCormack
Lyndale
South Memorial
Unknown
Rivercrest
Skyline
Big Blue River
Red River
Sleepy Hollow
Blue Ridge
Pleasantview
Tara
Colonial
Autumn Olive Knoll
Sandy Gale
Cindy
Jane
Joan
Judy
Jeffry
Radio
Julie
Main
Sunnyside Elementary
Fairmont
Sunnyside
Greenview
Maple
Estes
Edgemont
Legion
Kennard
Brentwood
23rd
Riley
Crescent
Fairoaks
Lawson
Chrysler
Kovacs
Richard
Hickory
Woodcrest
Lynnview
West Acres
Deer Run
Southview
Barbara
Roberta
Randy Ann
White
Woodbrooke
Phyllis
Mary Lee
Jordan
Linden
Lauriston
Innsdale
Stonegate
Gina Lynn
Ivy Tech
Commerce
Tsc
Shaf
Main Street
Nora
Klipsch
Crestview
Fisk
Timothy
Lee-son
Unknown
Spiceland
Old Spiceland
Fair Oaks
County Road 225
County Road 25
County Road 300
County Road 500
103
Dublin
Brown
Kentland
Beard
Cottage
Hunter
Troy
Unknown RR
Grand
Roosevelt
Cherrywood
Wabash
Halleman
Alabama
Ash
Oak
Michigan
Illinois
Woodward
Thornburg
Spring
Vine
Fleming
Church
Shopp
Plum
Lincoln
Mullen
Chestnut
Poplar
State
Jefferson
Walnut
Ohio
Mills
Washington
Unknown
Beard
Kentland
Brown
Henry
Dennis
Wilson
Hillsboro
Highland
Virginia
California
Alabama
Unknown
Wilbur Wright Elementary
Osbourne Park
Eastwood Elementary
Lowe Park
Sunnyside Elementary
Babe Ruth Park
Parker Elementary
New Castle Chrysler High School
New Castle Middle School
Baker Park
Baker Woods
James Whitcomb Riley Elementary
Ivy Tech
Henry Township Bicycle Facility Master Plan
ANALYSIS MAP
Needed Connections
Abandoned Rail Road Corridor
Barrier
River Corridor
Community Destination Locations
Road
River
Abandoned Railroad
Active Railroad
Wilbur Wright Trail
City Limits
School
Commercial
Industry
Park
Downtown Commercial
0
625
1,250
2,500
3,750
Feet
N
BF&S
Butler Fairman Seufert



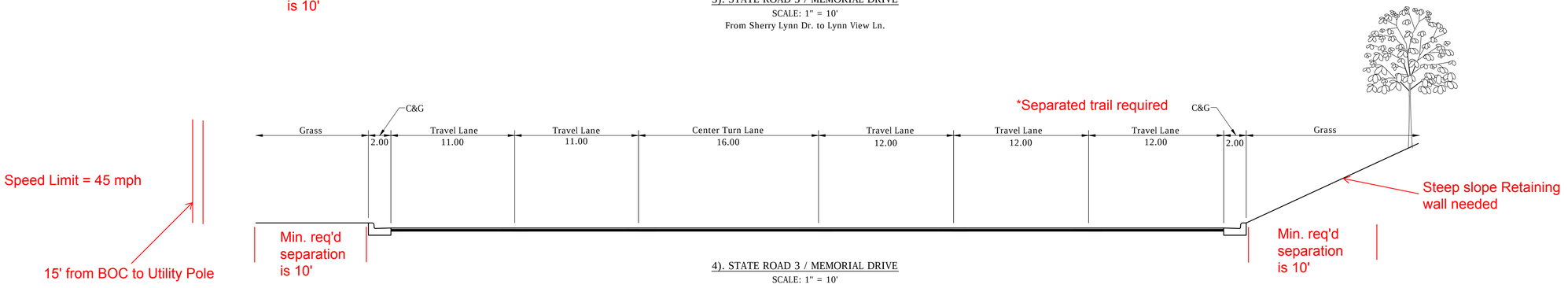
1). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From I-70 to E CR 400 S.



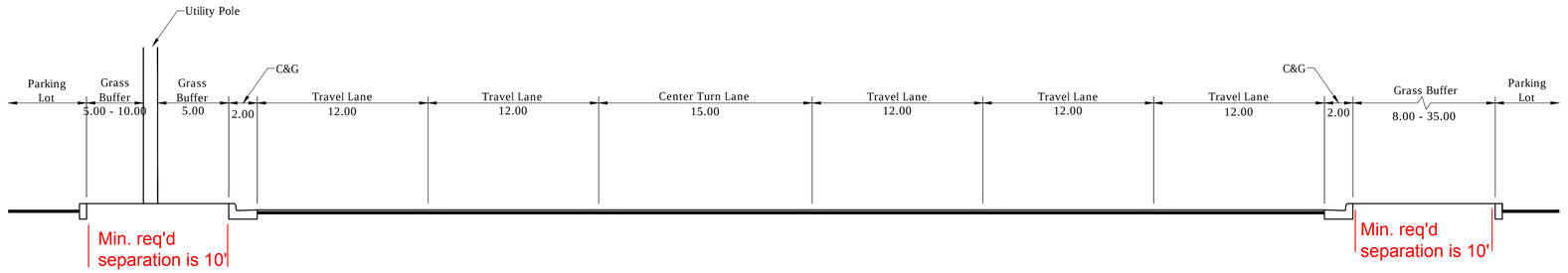
2). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From CR 400 S to Sherry Lynn Dr.



3). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From Sherry Lynn Dr. to Lynn View Ln.

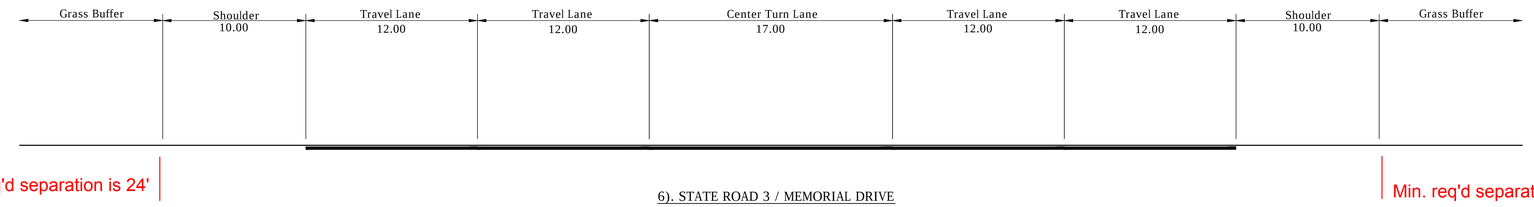


4). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From Lynn View Ln. to Trojan Ln.



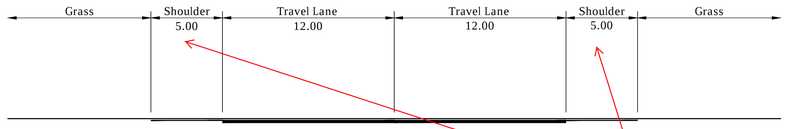
Speed Limit = 45 mph

5). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From Trojan Ln. to Emerson Ave.



Speed Limit = 55 mph

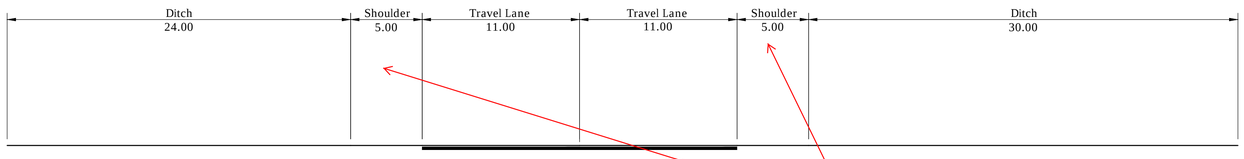
6). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From Emerson Ave. to W CR 100 N



*Space for pedestrians needed

7). BROOKS DRIVE
SCALE: 1" = 10'
From E CR 400 S to Commerce Dr.

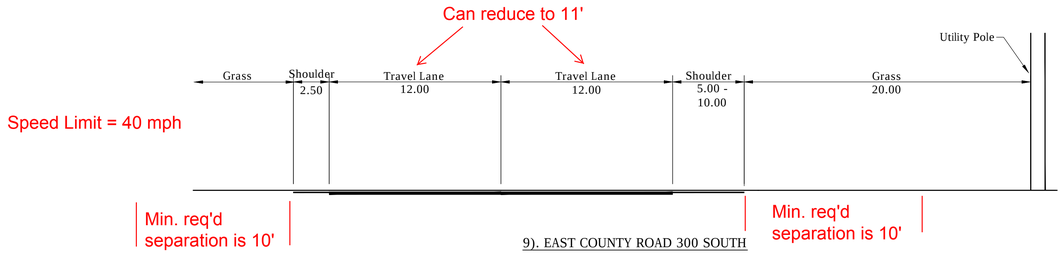
Shoulder meets standard bike lane space requirements



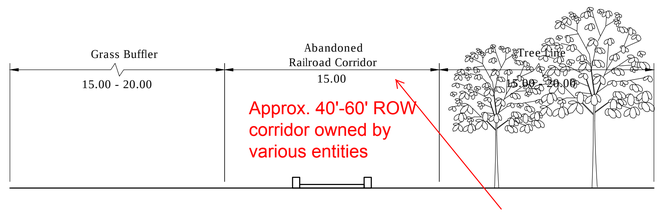
*Space for pedestrians needed

8). COMMERCE DRIVE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to E CR 300 S

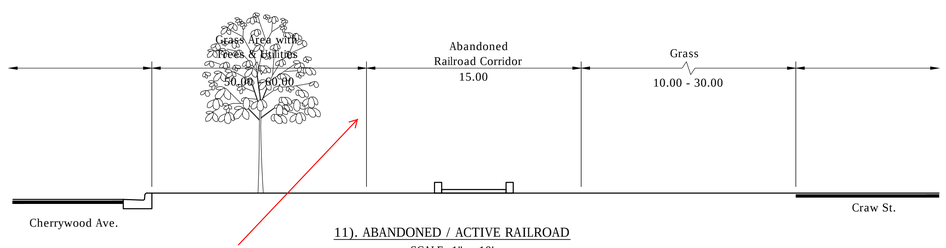
Shoulder meets standard bike lane space requirements



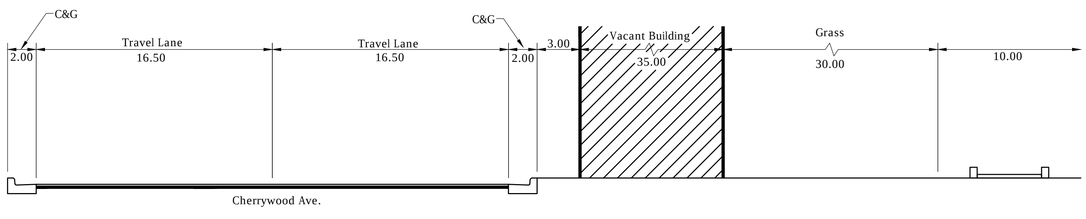
9). EAST COUNTY ROAD 300 SOUTH
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Highway 103



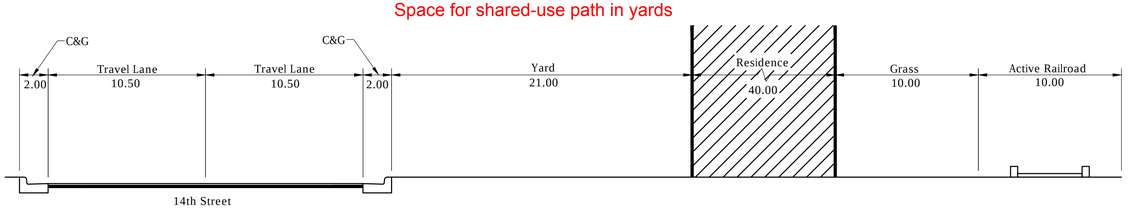
10). ABANDONED RAILROAD
SCALE: 1" = 10'
From W CR 400 S to Riley Rd.



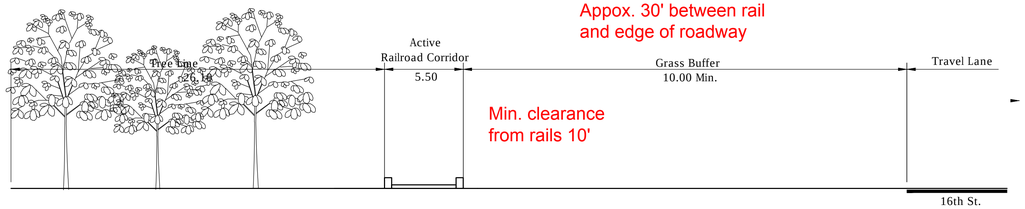
11). ABANDONED / ACTIVE RAILROAD
SCALE: 1" = 10'
From Riley Rd. to J. Ave.



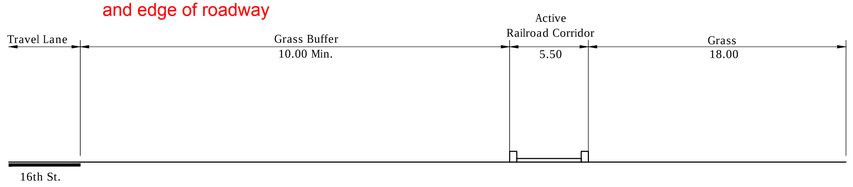
12). ABANDONED / ACTIVE RAILROAD
SCALE: 1" = 10'
From L Ave. to J Ave



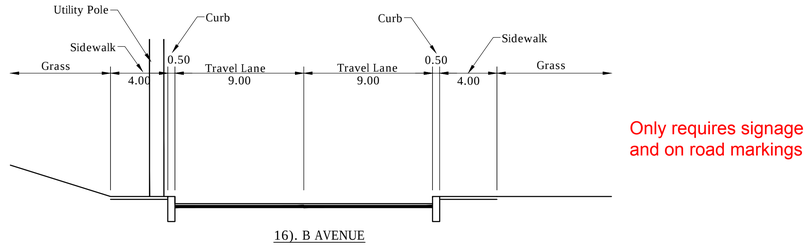
13). 14th Street
SCALE: 1" = 10'
From J Ave. to I Ave.



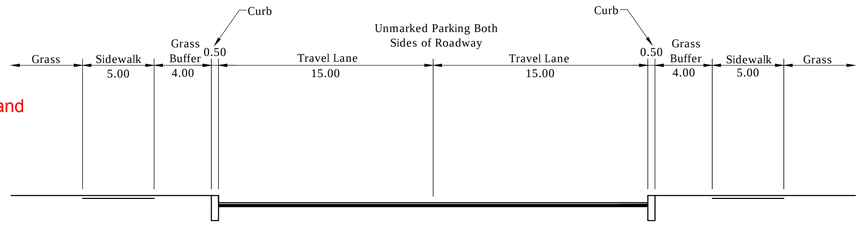
14). ABANDONED / ACTIVE RAILROAD
SCALE: 1" = 10'
From I Ave to D Ave.



15). ACTIVE RAILROAD
SCALE: 1" = 10'
From D Ave. to B Ave.

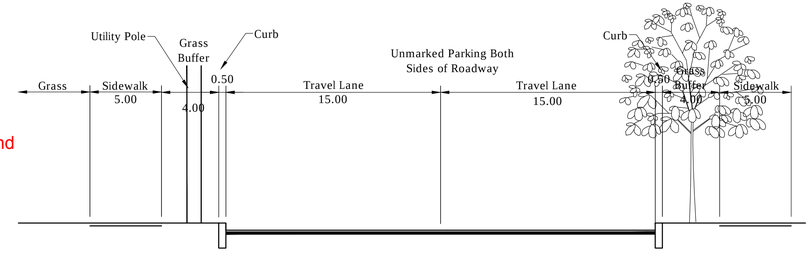


16). B AVENUE
SCALE: 1" = 10'
From Abandoned / Inactive Railroad to 15th Street



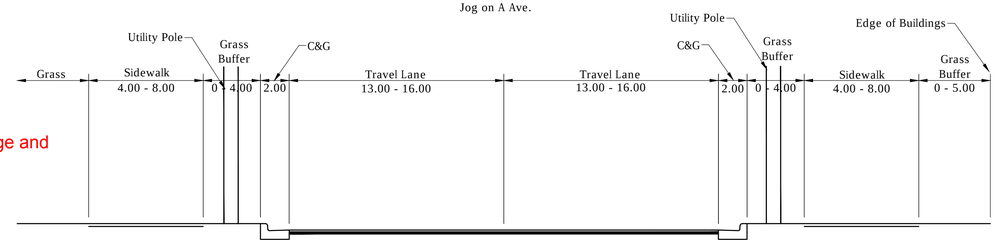
17). 15th STREET
SCALE: 1" = 10'
From B Ave. to A Ave.

Only requires signage and on road markings



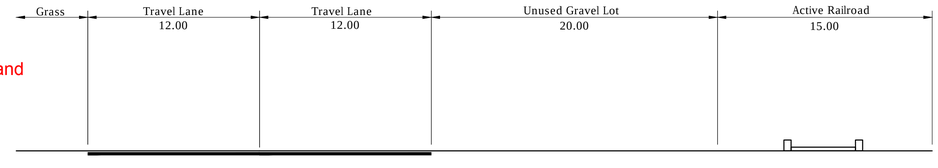
18). 15th STREET
SCALE: 1" = 10'
Jog on A Ave.

Only requires signage and on road markings



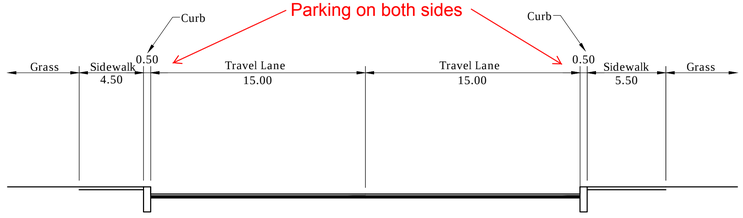
19). 15th STREET
SCALE: 1" = 10'
From A Ave. to Vine St.

Only requires signage and on road markings



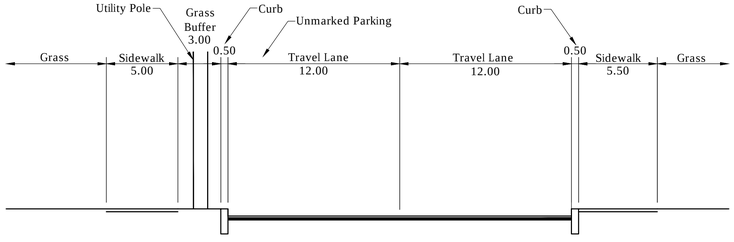
20). 15th STREET
SCALE: 1" = 10'
From Vine St. to Thornburg St.

Pedestrian facility needed



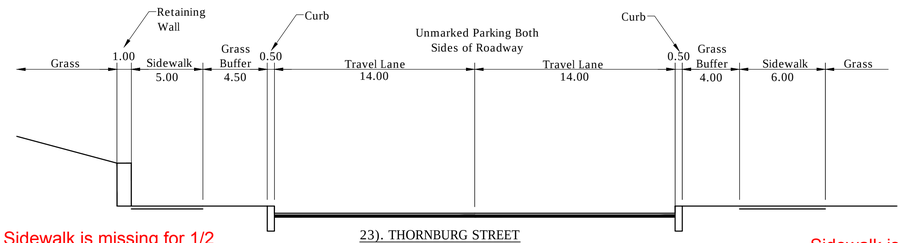
21). THORNBURG STREET
SCALE: 1" = 10'
From 15th St. to 14th St.

Only requires signage and on road markings



22). THORNBURG STREET
SCALE: 1" = 10'
Jog on 14th St.

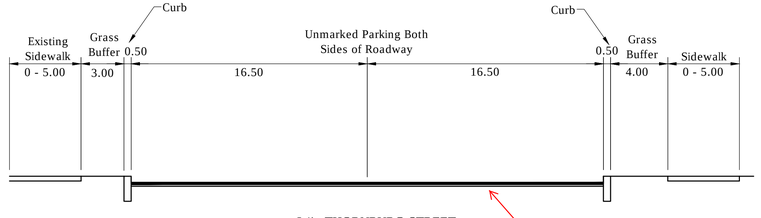
Only requires signage and on road markings



23). THORNBURG STREET
SCALE: 1" = 10'
14th St. to 11th St.

Sidewalk is missing for 1/2 block and in poor condition following 1/2 block

Sidewalk is missing for 1/2 block and in poor condition following 1/2 block

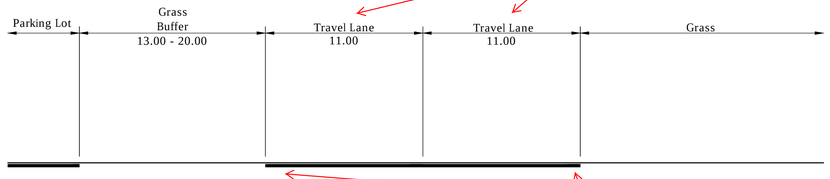


24). THORNBURG STREET
SCALE: 1" = 10'
11th St. to 9th St.

Mill and resurface

Needs pedestrian facility

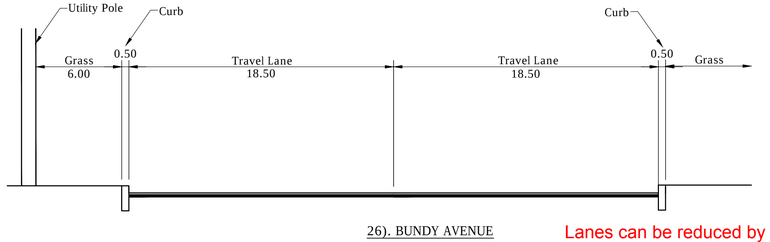
Can reduce lanes down to 10'



25). BUNDY AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to I Ave.

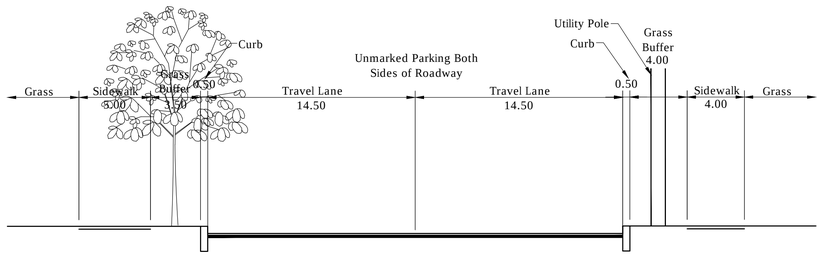
Possibility to widen road for bike lanes

Needs pedestrian facility



26). BUNDY AVENUE
SCALE: 1" = 10'
From I Ave. to 11th St.

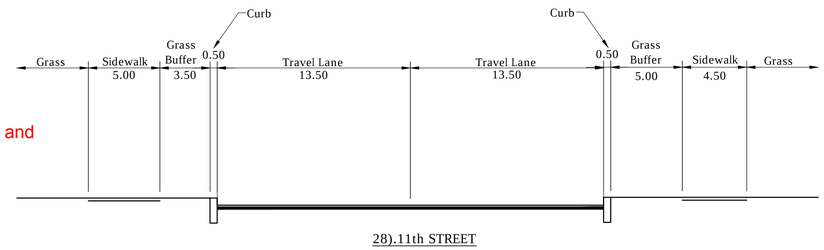
Lanes can be reduced by 5' to create bike lanes



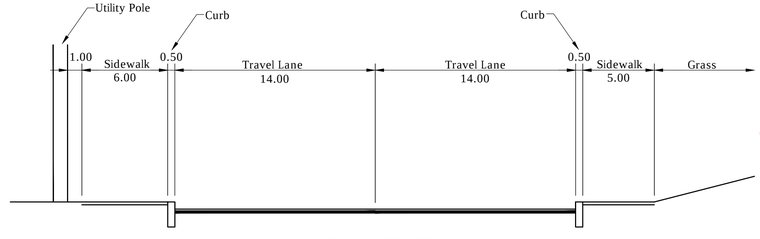
27). BUNDY AVENUE
SCALE: 1" = 10'
From 11th St. to Main St.

Parking on both sides of travel lanes. Cannot reduce for bike lanes.

Only requires signage and on road markings

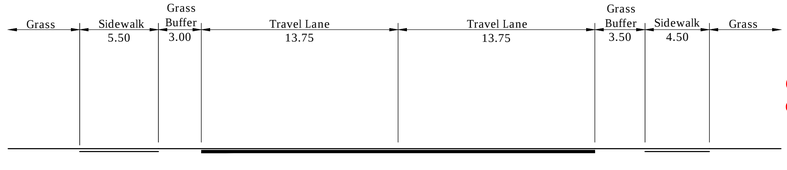


28).11th STREET
SCALE: 1" = 10'
From Bundy Ave. to Plum St.



29). PLUM STREET
SCALE: 1" = 10'
From 9th St. to 11th St.

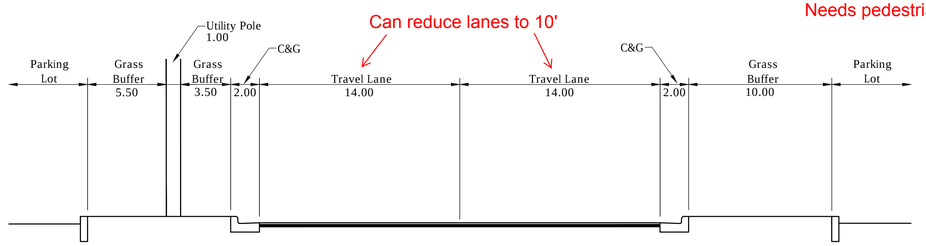
Only requires signage and on road markings



30). 9th STREET
SCALE: 1" = 10'
From Plum St. to New York Ave.

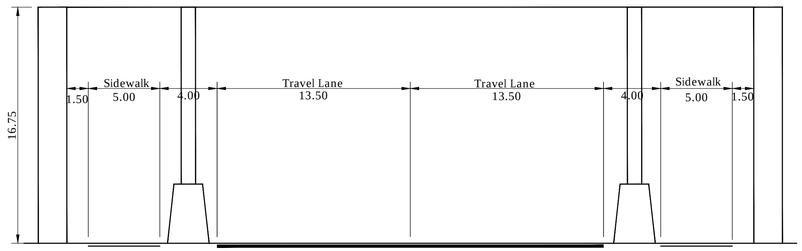
Needs pedestrian facility

Can reduce lanes to 10'

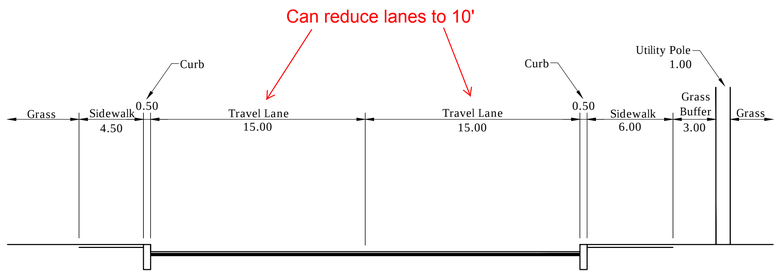


31). NEW YORK AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to 9th St.

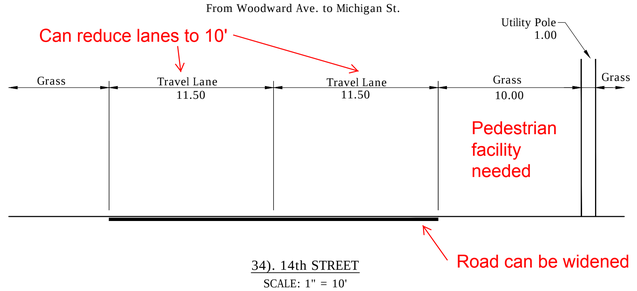
Only requires signage and on road markings



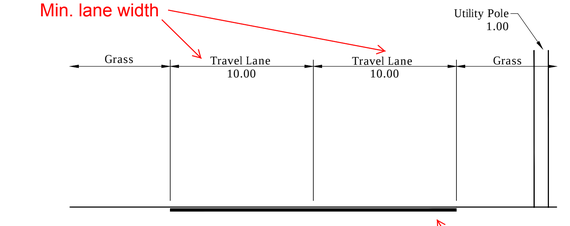
32). WOODWARD AVENUE
SCALE: 1" = 10'
Railroad Underpass



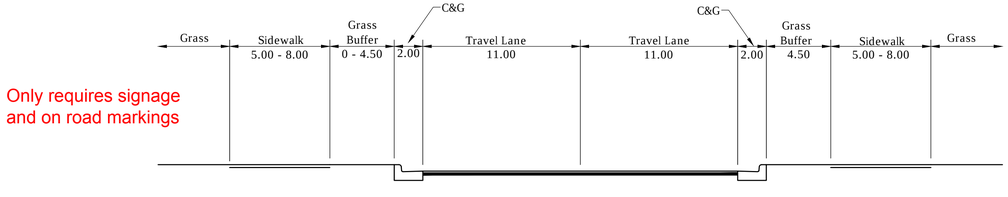
33). 14th STREET
SCALE: 1" = 10'
From Woodward Ave. to Michigan St.



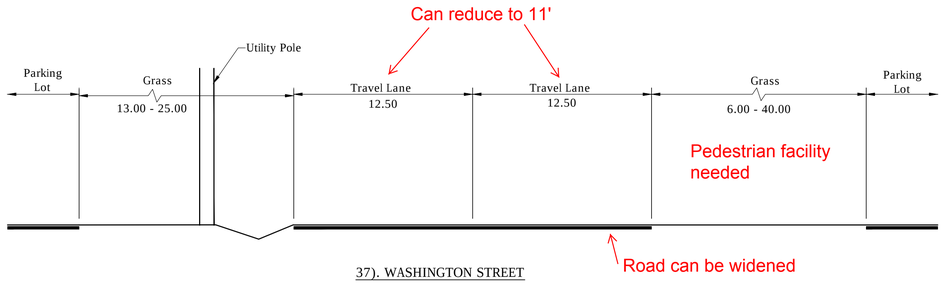
34). 14th STREET
SCALE: 1" = 10'
From Michigan St. to 16th St. / Highway 103



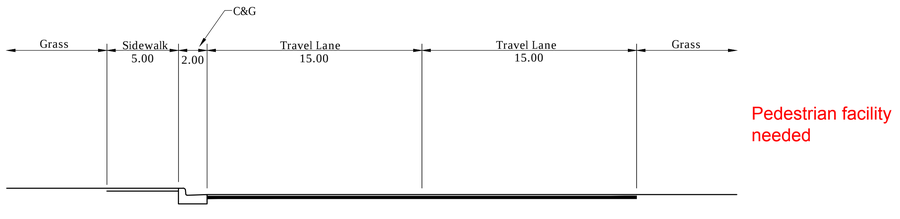
35). GARNER STREET
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Main St.



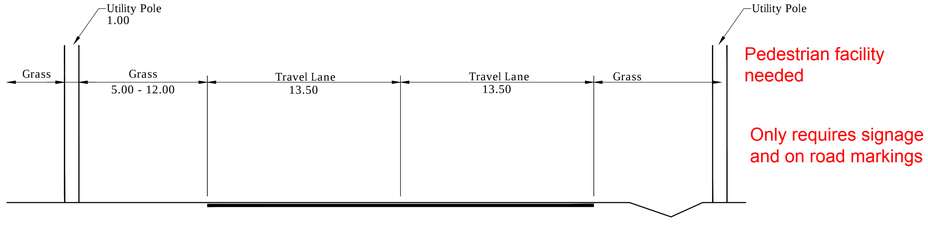
36). GARNER STREET
SCALE: 1" = 10'
From Main St. to 14th St.



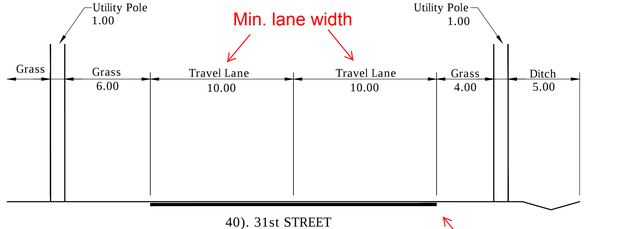
37). WASHINGTON STREET
SCALE: 1" = 10'
From 14th St. to 16th St. / HWY 103



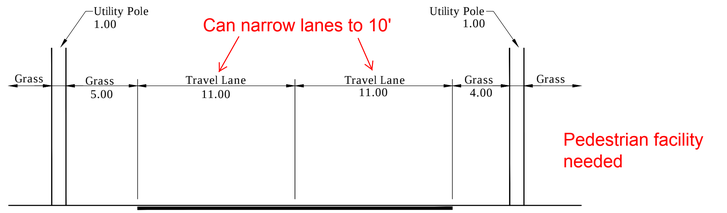
38). WASHINGTON STREET
SCALE: 1" = 10'
From 16th St. to 20th St.



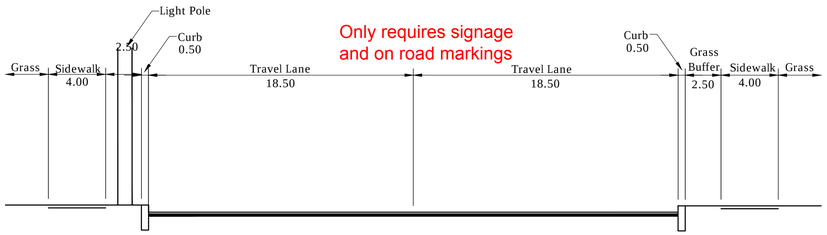
39). WASHINGTON STREET
SCALE: 1" = 10'
From 20th St. to Hillsboro Rd.



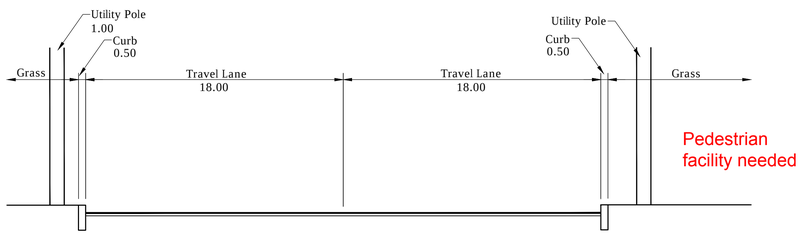
40). 31st STREET
SCALE: 1" = 10'
From SR 38 / Broad St. to Washington St.



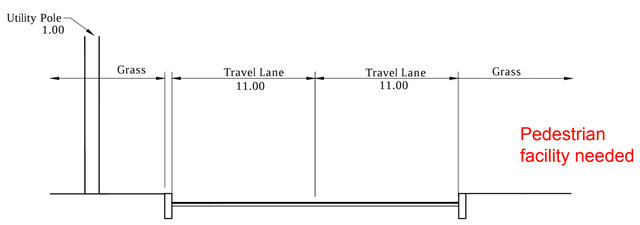
41). HILLSBORO ROAD
SCALE: 1" = 10'
From Washington St. to CR 150 N



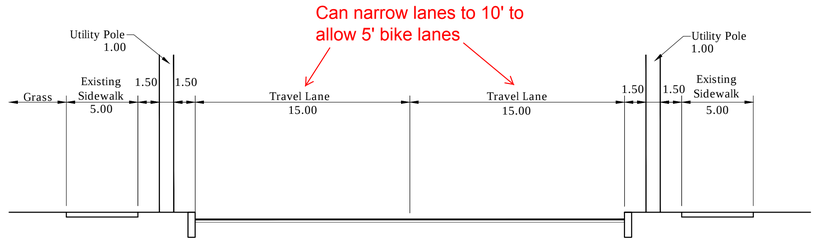
42). BRENTWOOD ROAD
SCALE: 1" = 10'
From Riley Rd. to Q Ave.



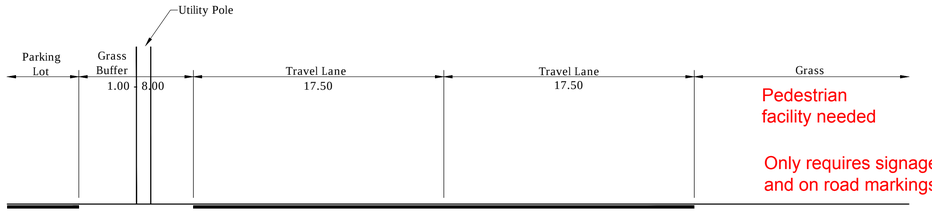
43). 25th STREET
SCALE: 1" = 10'
From Washington St. to Brown Street



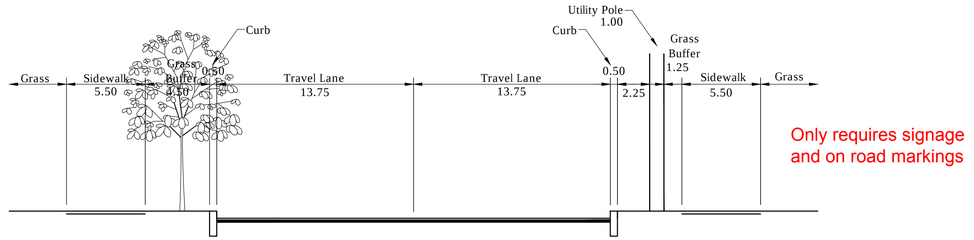
44). 25th STREET
SCALE: 1" = 10'
From Brown St. to Broad St.



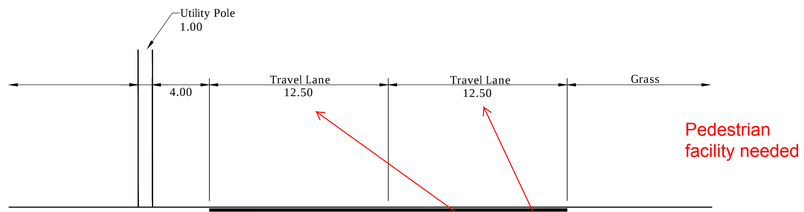
45). 25th STREET
SCALE: 1" = 10'
From Broad St. to I Ave.



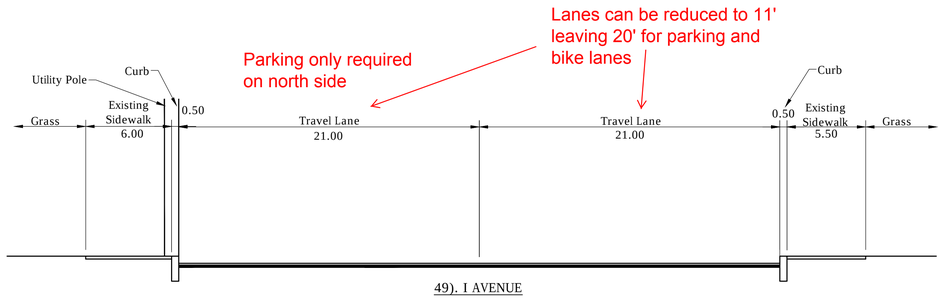
46). INDIANA AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to 5th St.



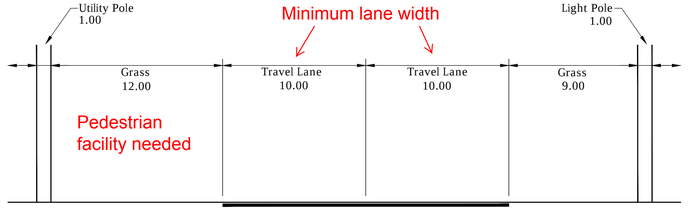
47). INDIANA AVENUE
SCALE: 1" = 10'
From 5th St. to 18th St.



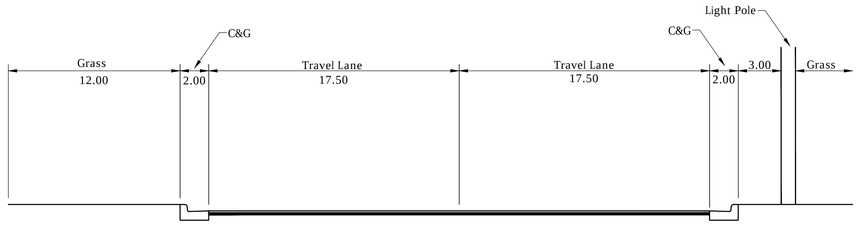
48). INDIANA AVENUE
SCALE: 1" = 10'
From 18th St. to 25th St.



49). I AVENUE
SCALE: 1" = 10'
From 14th St. to 25th St.

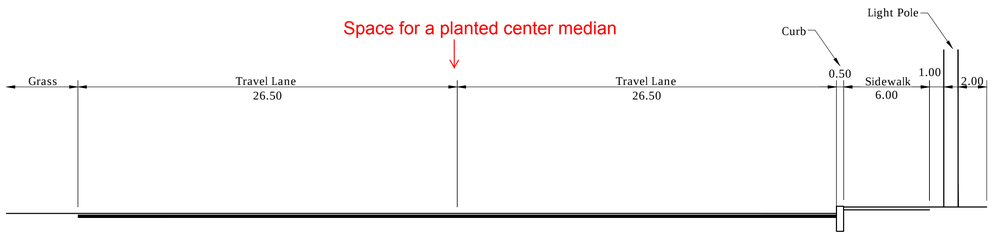


50). I AVENUE
SCALE: 1" = 10'
From 25th St. to Hunter Ave.



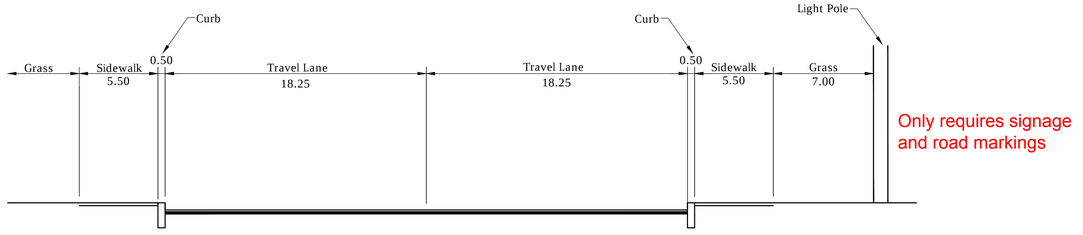
Narrow roadway to allow for 5' bike lanes

51). PARKVIEW DRIVE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Bundy Ave.

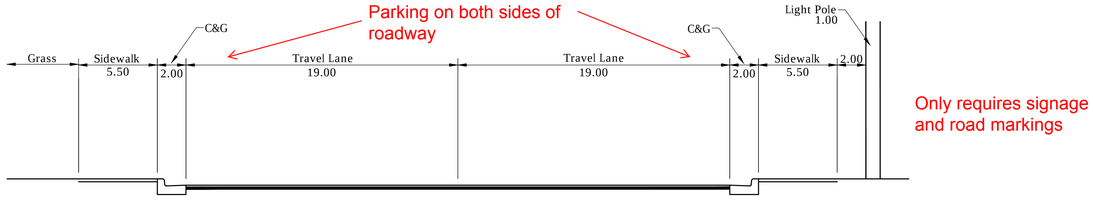


Narrow roadway to allow for 5' bike lanes

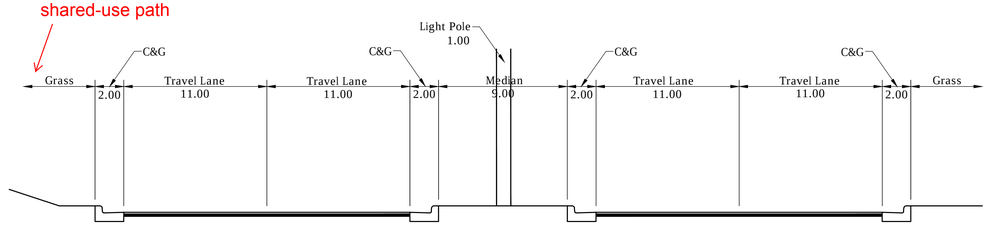
52). PARKVIEW DRIVE
SCALE: 1" = 10'
From Bundy Ave. to Ross St.



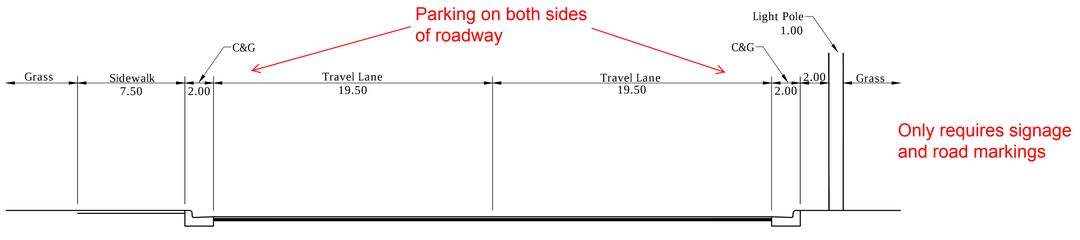
53). ROSS STREET
SCALE: 1" = 10'
From M Ave. to Trojan Ln.



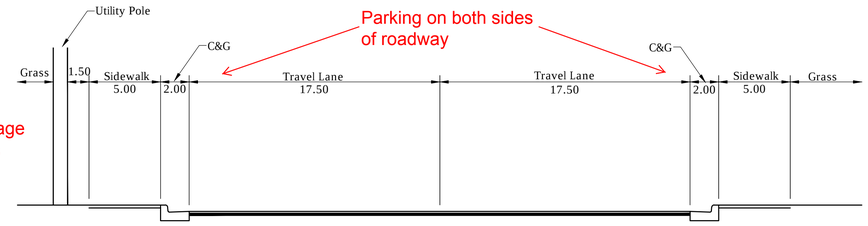
54). M AVENUE
SCALE: 1" = 10'
From Ross St. to Cherrywood Ln.



55). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Ross St.

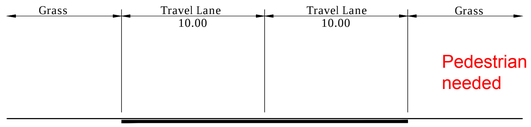


56). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From Ross St. to 14th St.



Only requires signage and road markings

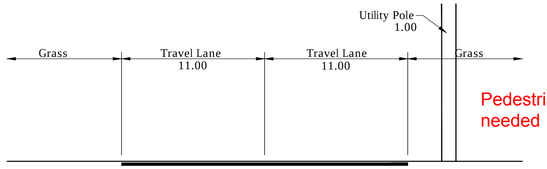
57). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From 14th St. to Troy Ave.



Pedestrian facility needed

Widden roadway to allow for 4' bike lanes

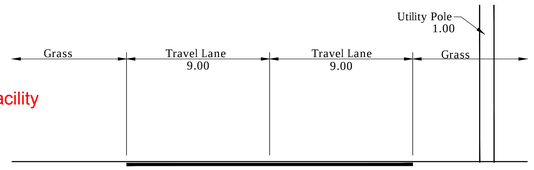
58). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From Greensboro Pike to SR 3



Pedestrian facility needed

Widden roadway to allow for 4' bike lanes

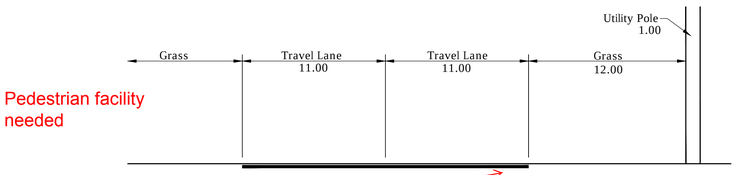
59). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From SR 3 to to HWY 103 / 14th St.



Pedestrian facility needed

Widden roadway to allow for 4' bike lanes

60). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From HWY 103 / 14th St. to CR 250 E

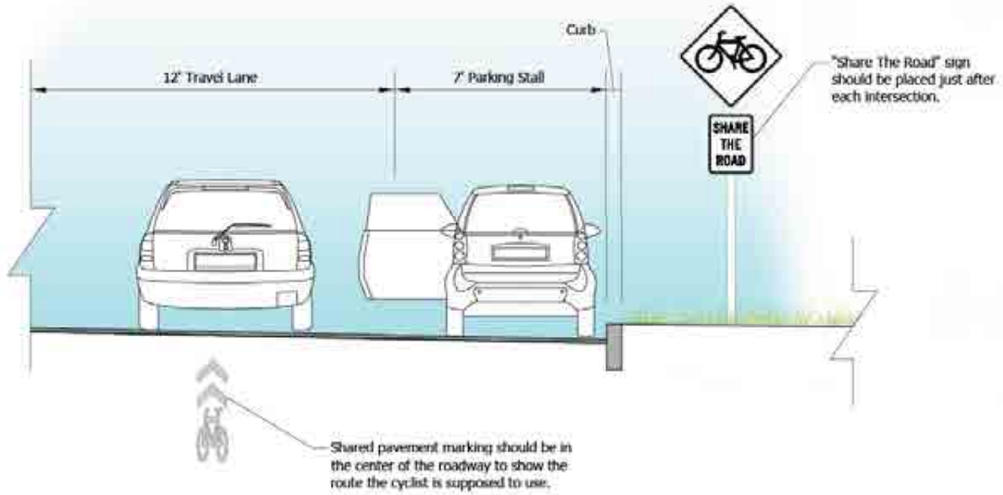


Pedestrian facility needed

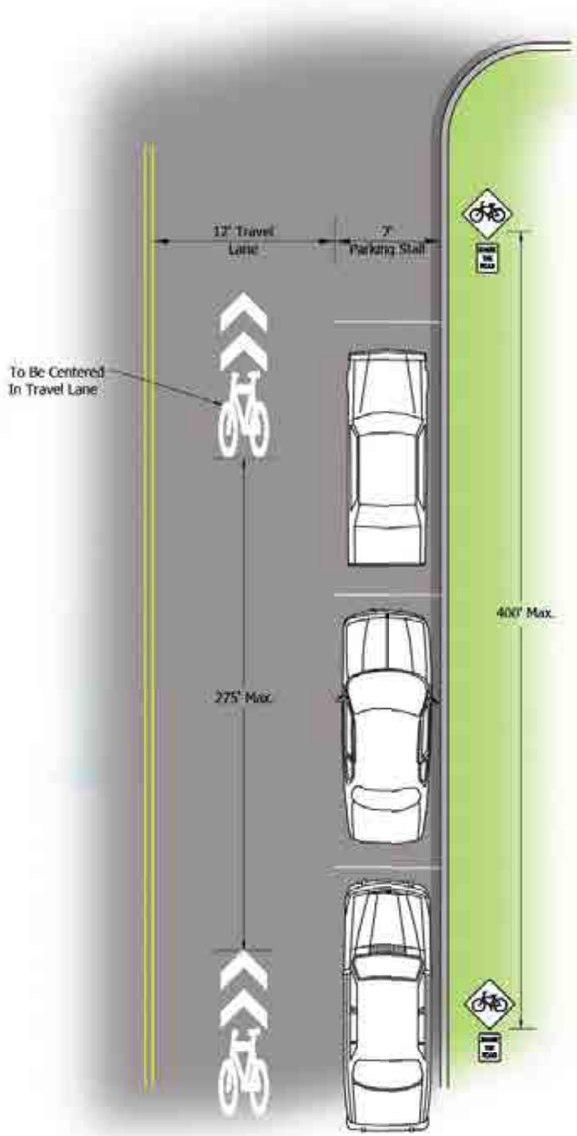
Widden roadway to allow for bike lanes

61). MIDWAY DRIVE
SCALE: 1" = 10'
From SR 3 to Free Rd.

final plan

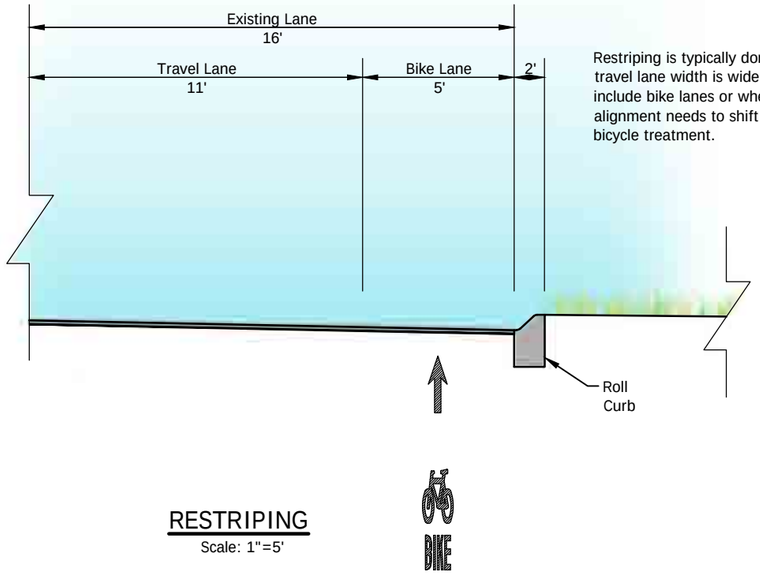


SHARED ROADWAY (SHARROW)



SHARROW DETAIL

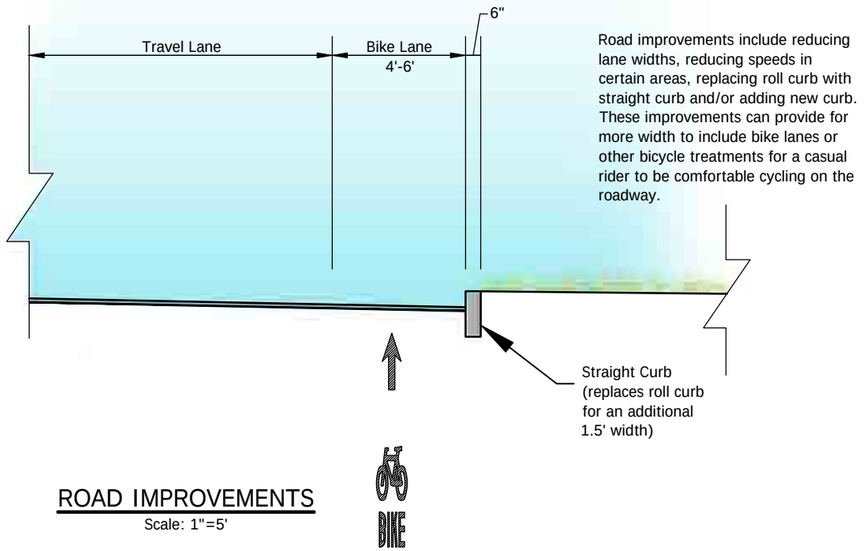
NACTO
Signing & Marking
Shared Lane Markings



Restriping is typically done when the travel lane width is wide enough to include bike lanes or when the road alignment needs to shift to include a bicycle treatment.

RESTRIPING

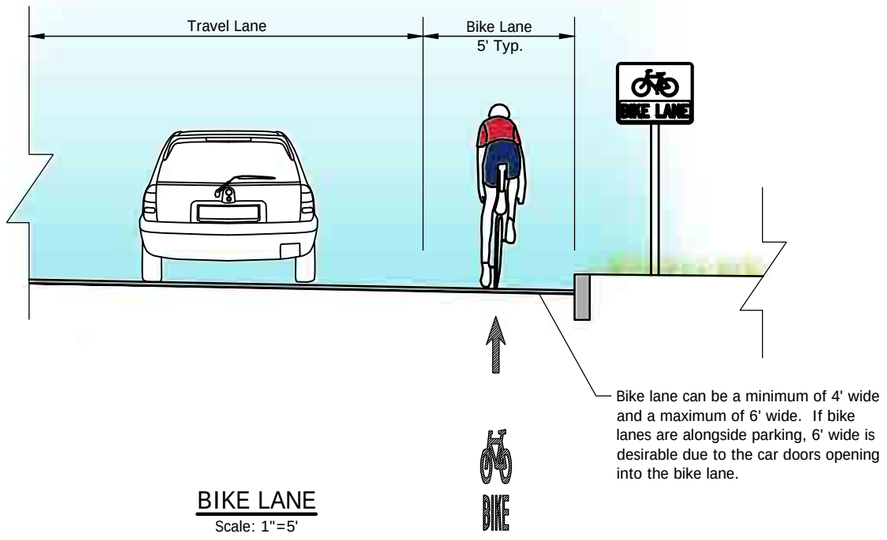
Scale: 1"=5'



Road improvements include reducing lane widths, reducing speeds in certain areas, replacing roll curb with straight curb and/or adding new curb. These improvements can provide for more width to include bike lanes or other bicycle treatments for a casual rider to be comfortable cycling on the roadway.

ROAD IMPROVEMENTS

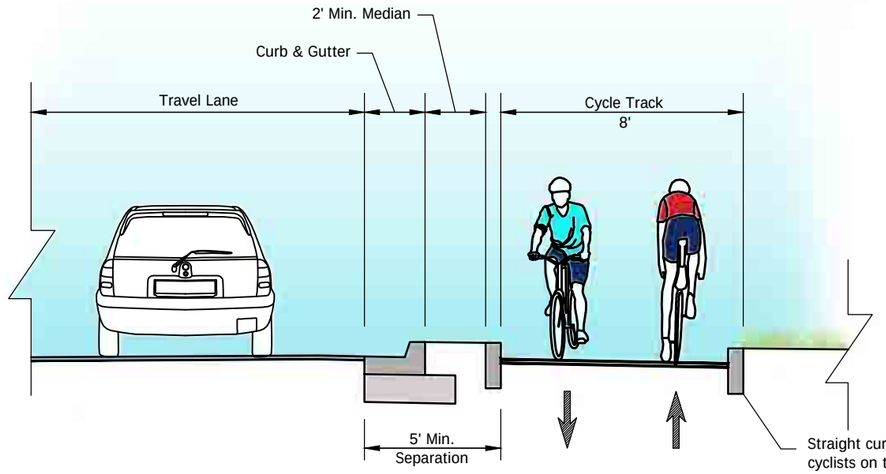
Scale: 1"=5'



Bike lane can be a minimum of 4' wide and a maximum of 6' wide. If bike lanes are alongside parking, 6' wide is desirable due to the car doors opening into the bike lane.

BIKE LANE

Scale: 1"=5'



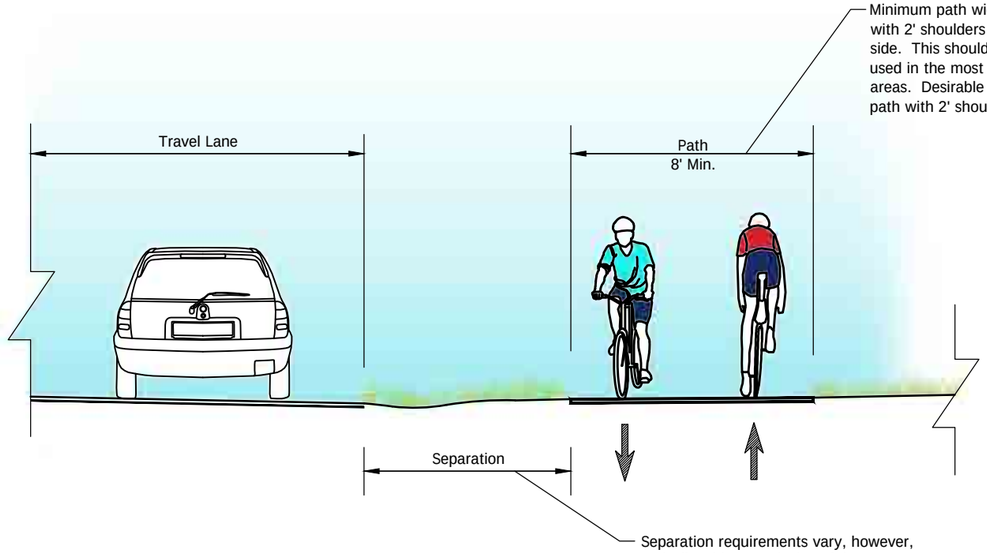
Straight curb separates the cyclists on the cycle track from vehicle traffic and non-cyclists.

CYCLE TRACK

Scale: 1"=5'

NACTO
Bike Lanes
Conventional Bike Lanes

NACTO
Cycle Tracks
Two-Way Cycle Track



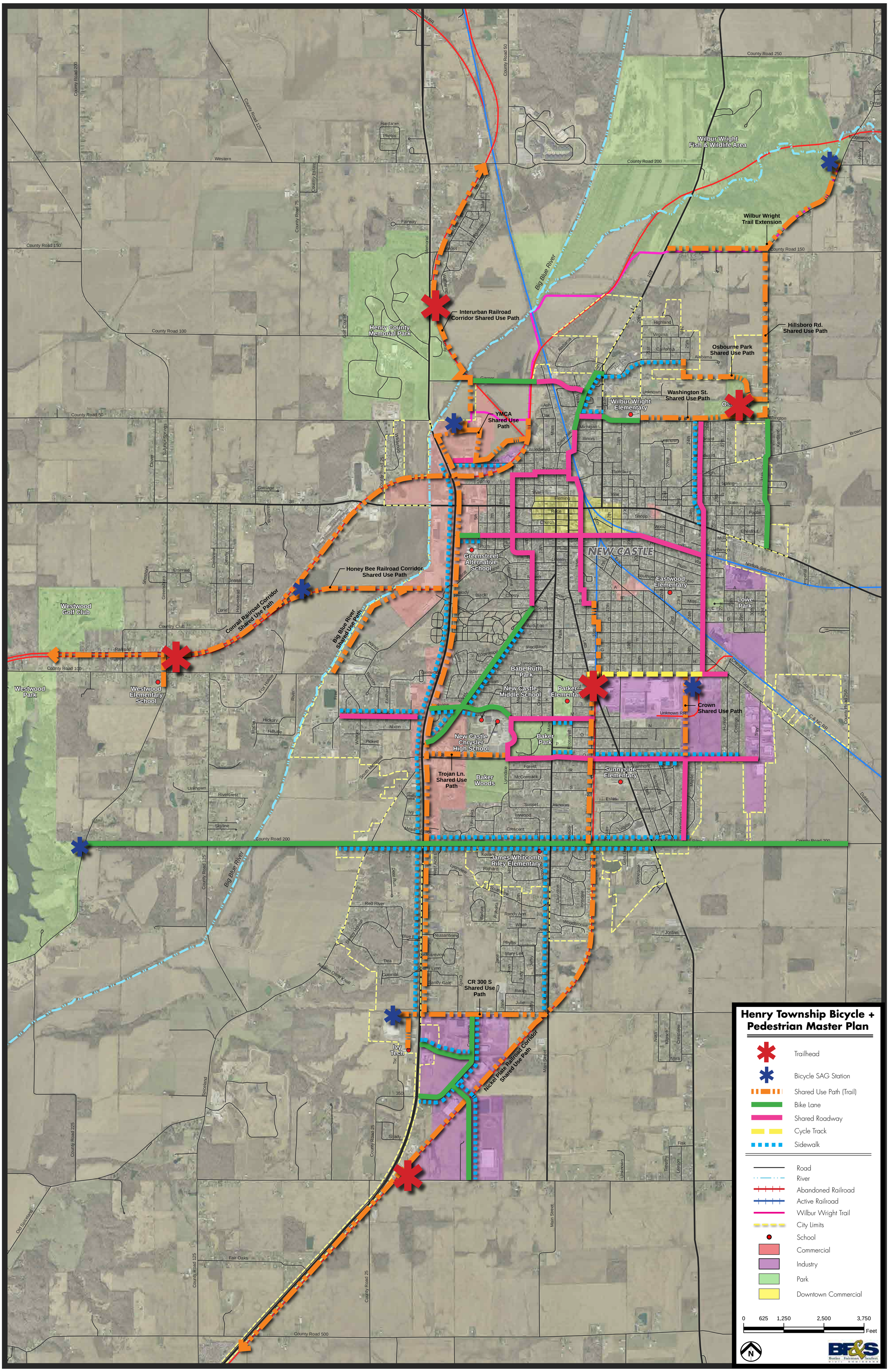
Minimum path width is 8' with 2' shoulders on each side. This should only be used in the most restrictive areas. Desirable is a 10' path with 2' shoulders.

Separation requirements vary, however, typically without curb the minimum separation from outside edge of shoulder to edge of path is 10'. With curb, the minimum separation is typically 5' from back of curb to edge of path.

SHARED-USE PATH

Scale: 1"=5'

Henry Township Bicycle + Pedestrian Master Plan
Shared Use Path (Trail)
Bike Lane
Shared Roadway
Cycle Track
Sidewalk
Intersection Improvements
Proposed Bridge
Road
River
Abandoned Railroad
Active Railroad
Wilbur Wright Trail
City Limits
School
Commercial
Industry
Park
Downtown Commercial
0
625
1,250
2,500
3,750
Feet
N
BF&S
Butler Fairman Seufert
NEW CASTLE
Wilbur Wright Fish & Wildlife Area
Wilbur Wright Trail Extension
Interurban Railroad Corridor Shared Use Path
Hillsboro Rd. Shared Use Path
Osbourne Park Shared Use Path
Washington St. Shared Use Path
Osbourne Park
Wilbur Wright Elementary
YMCA Shared Use Path
Henry County Memorial Park
Honey Bee Railroad Corridor Shared Use Path
Conrail Railroad Corridor Shared Use Path
Big Blue River Shared Use Path
Westwood Golf Club
Westwood Park
Westwood Elementary School
Greenstreet Alternative School
Eastwood Elementary
Lowe Park
Babe Ruth Park
New Castle Middle School
Parker Elementary
Crown Shared Use Path
New Castle Chrysler High School
Baker Park
Trojan Ln. Shared Use Path
Baker Woods
Sunnyside Elementary
James Whitcomb Riley Elementary
CR 300 S Shared Use Path
Ivy Tech
Nickel Plate Railroad Corridor Shared Use Path
Big Blue River
Conrail RR
Norfolk Southern RR
C & NC RR
County Road 250
County Road 200
County Road 150
County Road 100
County Road 50
County Road 500
County Road 225
County Road 125
County Road 75
County Road 25
County Road 50
County Road 250
Western
Main Street
103
38


Henry Township Bicycle + Pedestrian Master Plan
Trailhead
Bicycle SAG Station
Shared Use Path (Trail)
Bike Lane
Shared Roadway
Cycle Track
Sidewalk
Road
River
Abandoned Railroad
Active Railroad
Wilbur Wright Trail
City Limits
School
Commercial
Industry
Park
Downtown Commercial
0 625 1,250 2,500 3,750
Feet
Wilbur Wright Fish & Wildlife Area
Wilbur Wright Trail Extension
Hillsboro Rd. Shared Use Path
Osbourne Park Shared Use Path
Washington St. Shared Use Path
Crown Shared Use Path
Interurban Railroad Corridor Shared Use Path
Honey Bee Railroad Corridor Shared Use Path
Conrail Railroad Corridor Shared Use Path
Big Blue River Shared Use Path
Nickel Plate Railroad Corridor Shared Use Path
CR 300 S Shared Use Path
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YMCA Shared Use Path
Henry County Memorial Park
Westwood Golf Club
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Westwood Elementary School
Greenstreet Alternative School
Wilbur Wright Elementary
Eastwood Elementary
Lowe Park
Babe Ruth Park
New Castle Middle School
Parker Elementary
New Castle Chrysler High School
Baker Park
Baker Woods
Sunnyside Elementary
James Whitcomb Riley Elementary
Ivy Tech
NEW CASTLE
Big Blue River
Conrail RR
Norfolk Southern RR
C & NC RR
Unknown RR
Nickel Plate Railroad
County Road 200
County Road 250
County Road 50
County Road 100
County Road 150
County Road 25
County Road 75
County Road 125
County Road 225
County Road 500
Western
Hardacre
Phelps
Fairway
Carriage
Garner
Ash
Oak
Michigan
Illinois
Woodward
York
Thornburg
Spring
Vine
Fleming
Race
Church
Shopp
Wood
Plum
Lincoln
Main
Columbia
Indiana
Jefferson
State
Poplar
Chestnut
Mullen
Brown
Kentland
Ridgewood
Henry
Highland
Virginia
California
Alabama
Unknown
Beard
Thornburg
Southgate
Ohio
Mills
Southern
Audubon
Woodlawn
Edgewood
Cedar
Jameson
Lewart
Glenwood
Barclay
Earhart
Valley
Park
Cherry
Black
Melody
Emerald
Cleatview
Denny
Jeana
Homestead
Lorie
Shoshoni
Greenshoro
Country Club
Railroad
Golf Course
Fox Hollow
River
Free
Hickory
Hillside
Modlin
Nixon
Whitter
Pickett
South Memorial
Forest
McCormack
Lyndale
Holly
Ivy
Meadowbrook
Fairoaks
Sunset
Ivywood
Crescent
Estes
Edgemont
Fairmont
Sunnyside
Maple
Legion
Chrysler
Kennard
Brentwood
Dublin
Cherokee
Grand
Hunter
Cottage
Troy
Roosevelt
Jordan
Stonegate
Linden
Lauriston
Innisdale
Woodbrooke
Randy Ann
White
Jerri
Phyllis
Mary Lee
Jane
Joan
Judy
Jeffry
Cindy
Radio
Julie
Sandy Gale
Colonial
Tara
Sherry Lynn
Autumn Olive Knoll
Pleasantview
Blue Ridge
Sherry Hollow
Deer Run
West Acres
Lynnview
Richard
Kovac
Barbara
Roberta
Southview
Red River
Rivercrest
Skyline
Unknown
Shady
Fair Oaks
Spiceland
Old Spiceland
Tsc
Commerce
Nora
Klipsch
Crestview
Timothy
Leeson
Fisk
Unknown
Main Street
103
350
38
Sassafras
Clover
Sulphur Springs
Wildwood
Mulberry
Maria
Christopher
West Raintree
East Raintree
Gross
Memorial
Valley
Fairway
Alabama
Kentucky
Virginia
Highland
Unknown
Washington
Ash
Oak
Main
Columbia
Michigan
Illinois
Woodward
Thornburg
Spring
Vine
Fleming
Race
Church
Shopp
Wood
Plum
Lincoln
Main
Columbia
Indiana
Jefferson
State
Poplar
Chestnut
Mullen
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Kentland
Ridgewood
Henry
Beard
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Jameson
Lewart
Glenwood
Barclay
Earhart
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South Memorial
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Lyndale
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Meadowbrook
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Estes
Edgemont
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Sunnyside
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Legion
Chrysler
Kennard
Brentwood
Dublin
Cherokee
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Cottage
Troy
Roosevelt
Jordan
Stonegate
Linden
Lauriston
Innisdale
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Randy Ann
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Phyllis
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Lynnview
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Shady
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Old Spiceland
Tsc
Commerce
Nora
Klipsch
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Timothy
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Fisk
Unknown
Main Street
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Sassafras
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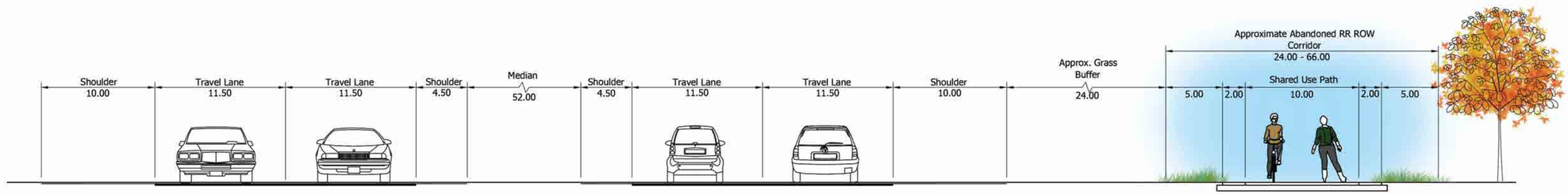
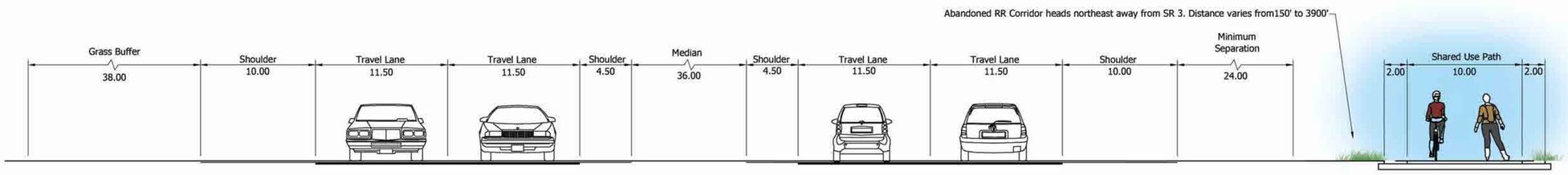
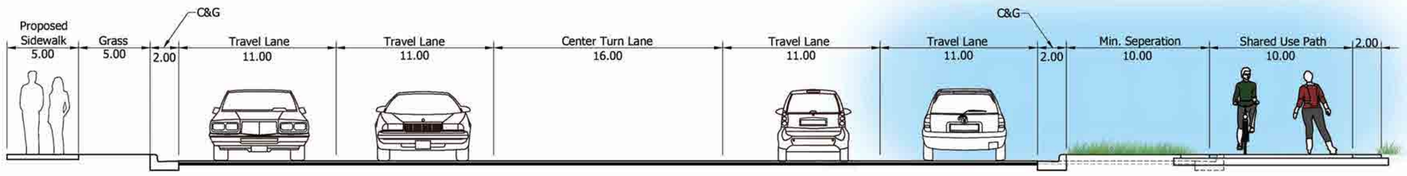
East Raintree
Gross
Memorial
Valley
Fairway



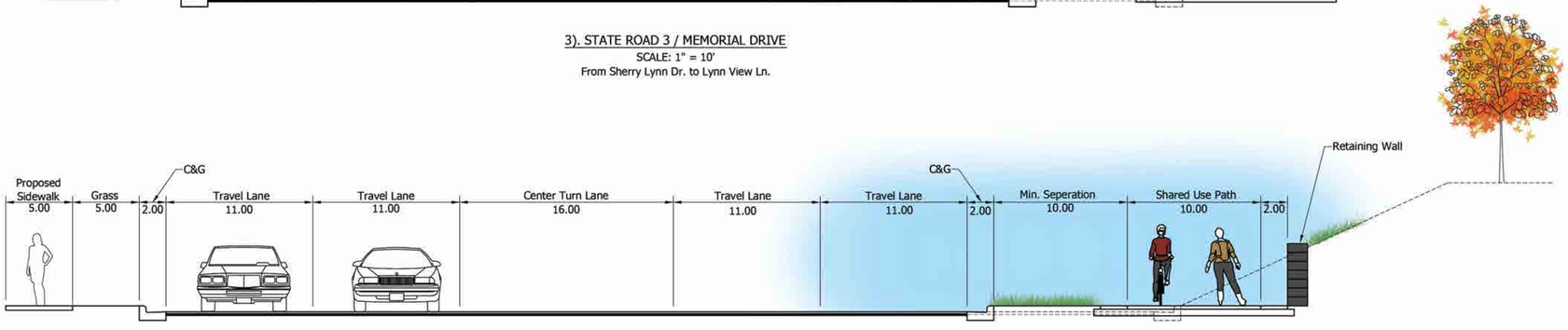
1). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From I-70 to E CR 400 S.



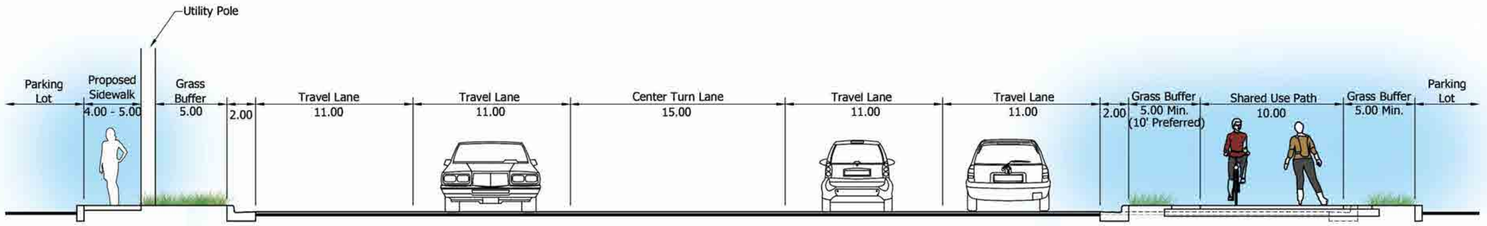
2). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From CR 400 S to Sherry Lynn Dr.



3). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From Sherry Lynn Dr. to Lynn View Ln.



4). STATE ROAD 3 / MEMORIAL DRIVE
SCALE: 1" = 10'
From Lynn View Ln. to Trojan Ln.

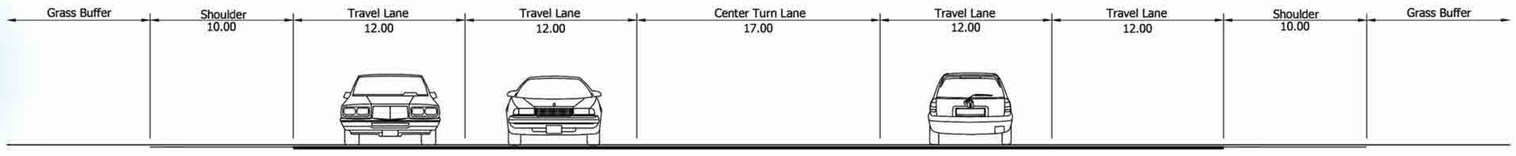


5). STATE ROAD 3 / MEMORIAL DRIVE

SCALE: 1" = 10'

From Trojan Ln. to Wittenbreaker Ave.

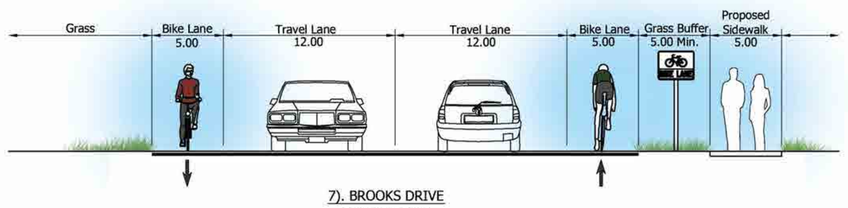
*NOTE:
Route to follow
shared-use path



6). STATE ROAD 3 / MEMORIAL DRIVE

SCALE: 1" = 10'

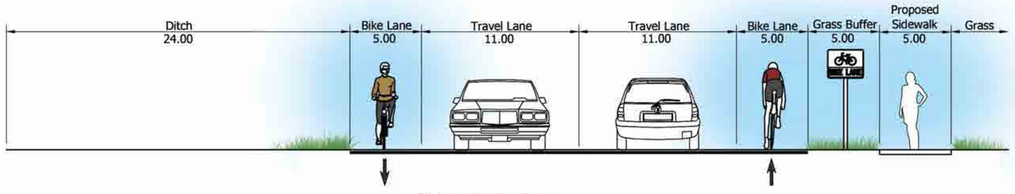
From Wittenbreaker Ave. to W CR 100 N



7). BROOKS DRIVE

SCALE: 1" = 10'

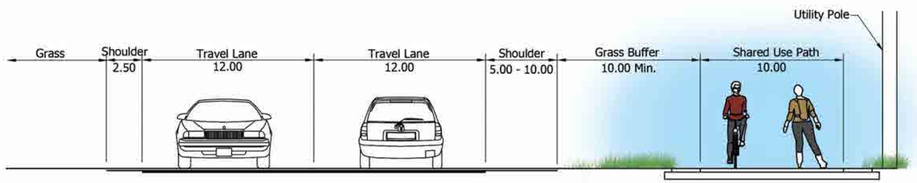
From E CR 400 S to Commerce Dr.



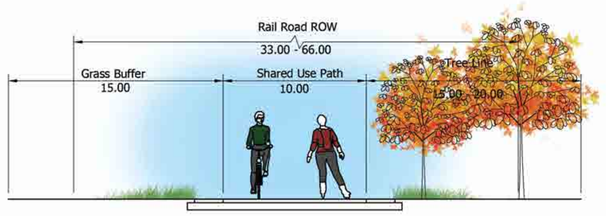
8). COMMERCE DRIVE

SCALE: 1" = 10'

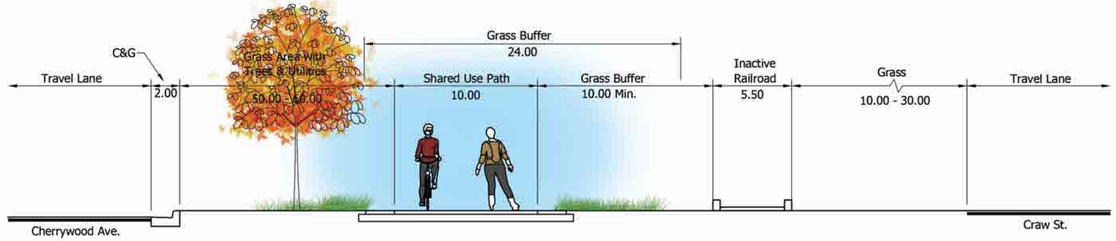
From SR 3 / Memorial Dr. to E CR 300 S



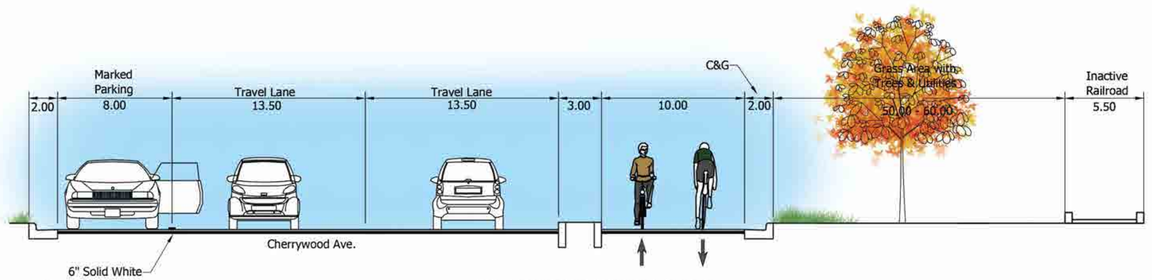
9). EAST COUNTY ROAD 300 SOUTH
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Highway 103



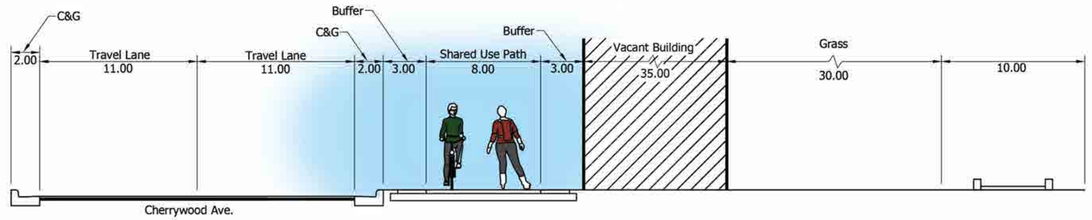
10). ABANDONED RAILROAD
SCALE: 1" = 10'
From W CR 400 S to Riley Rd.



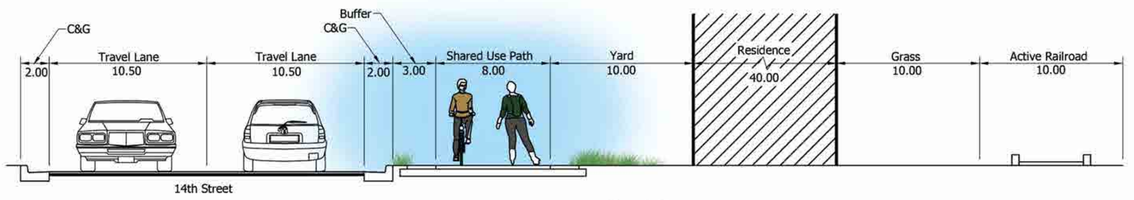
11a). ABANDONED / ACTIVE RAILROAD
SCALE: 1" = 10'
From Riley Rd. to L Ave.



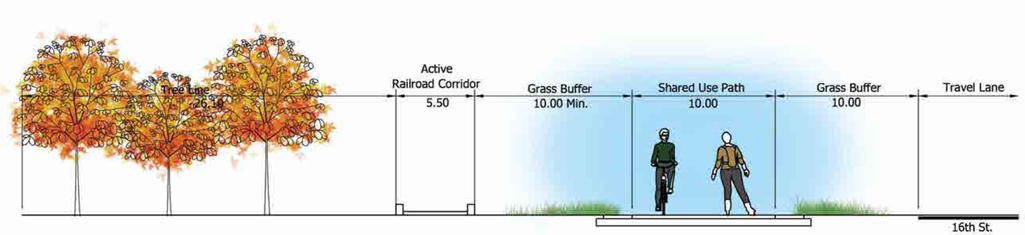
11b). ABANDONED / ACTIVE RAILROAD
SCALE: 1" = 10'
From Riley Rd. to L Ave.



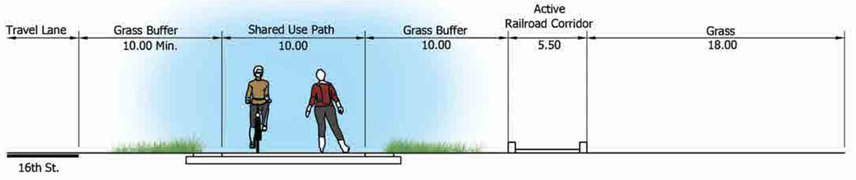
12). ABANDONED / ACTIVE RAILROAD
SCALE: 1" = 10'
From L Ave. to J Ave



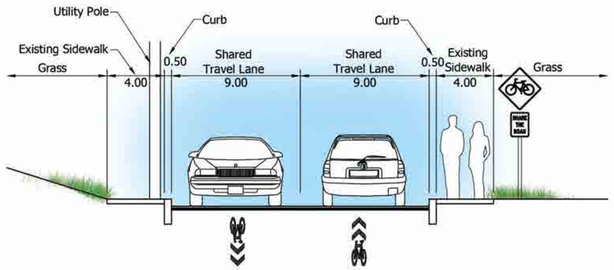
13). 14th Street
SCALE: 1" = 10'
From J Ave. to I Ave.



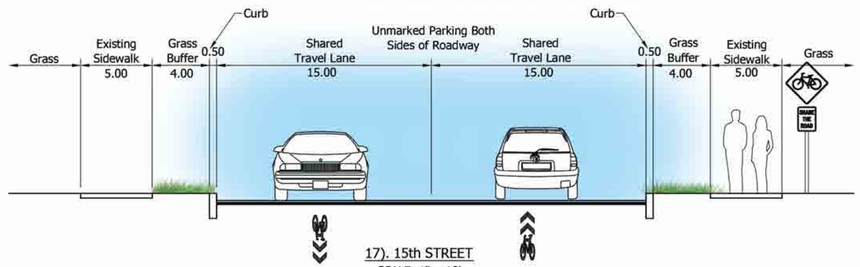
14). ABANDONED / ACTIVE RAILROAD
SCALE: 1" = 10'
From I Ave to D Ave.



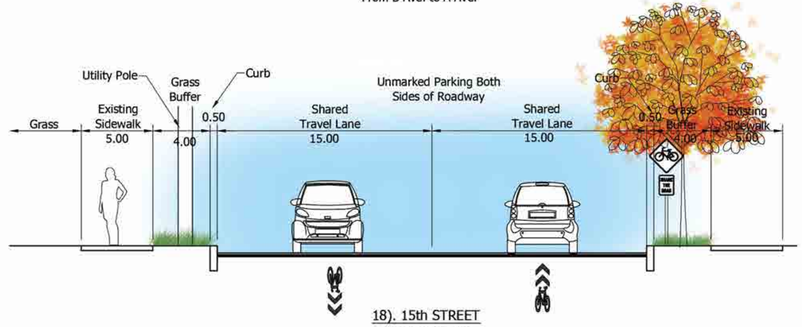
15). ACTIVE RAILROAD
SCALE: 1" = 10'
From D Ave. to B Ave.



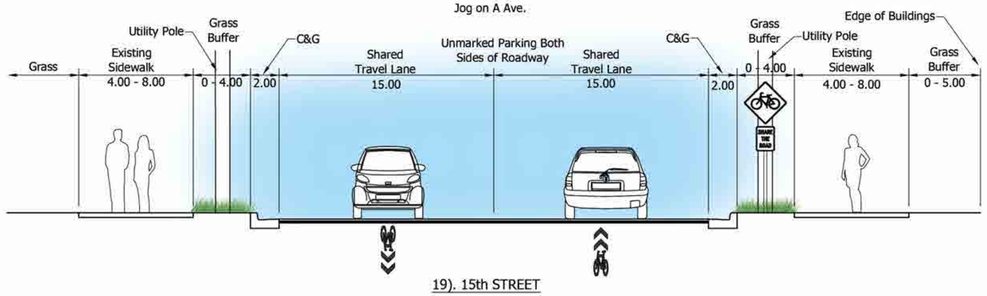
16). B AVENUE
SCALE: 1" = 10'
From Active Railroad to 15th St.



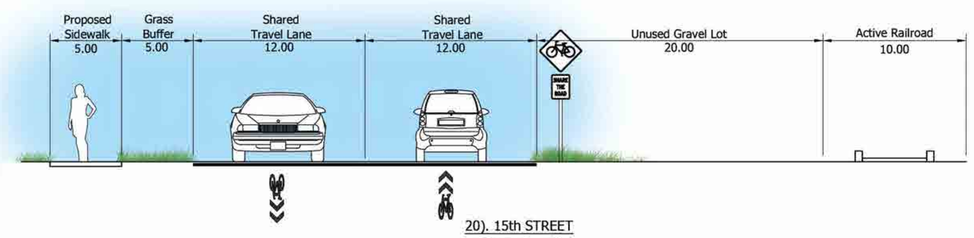
17). 15th STREET
SCALE: 1" = 10'
From B Ave. to A Ave.



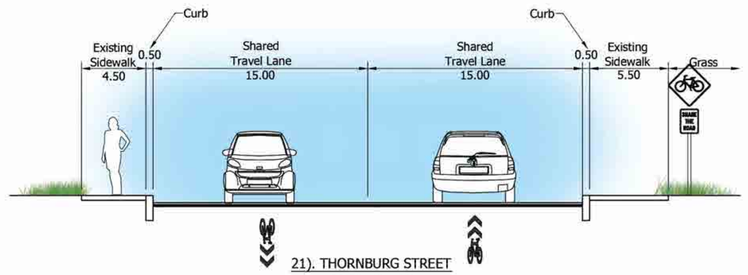
18). 15th STREET
SCALE: 1" = 10'
Jog on A Ave.



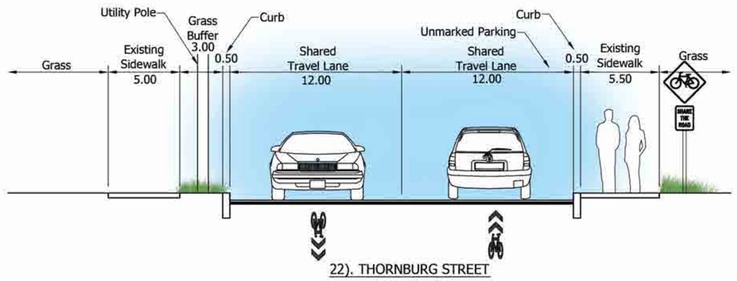
19). 15th STREET
SCALE: 1" = 10'
From A Ave. to Vine St.



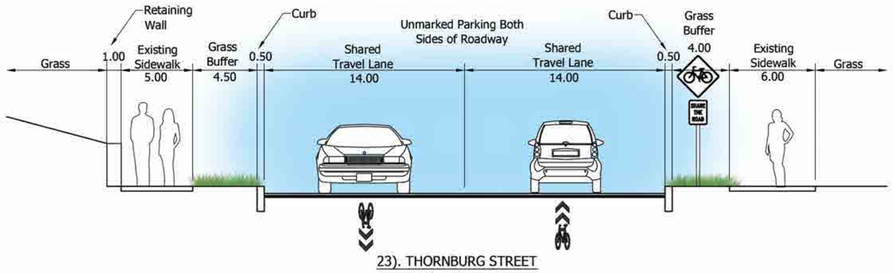
20). 15th STREET
SCALE: 1" = 10'
From Vine St. to Thornburg St.



21). THORNBURG STREET
SCALE: 1" = 10'
From 15th St. to 14th St.

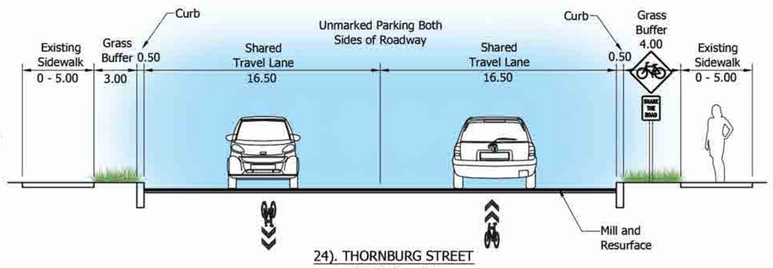


22). THORNBURG STREET
SCALE: 1" = 10'
Jog on 14th St.

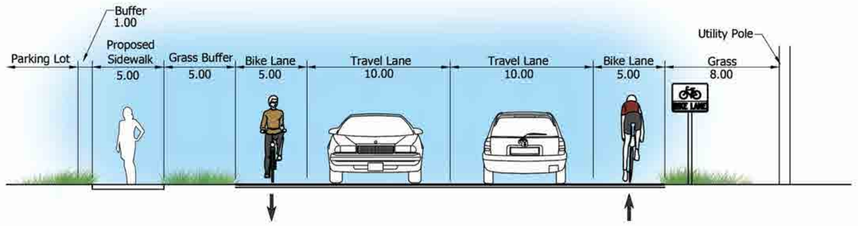


23). THORNBURG STREET
SCALE: 1" = 10'
14th St. to 11th St.

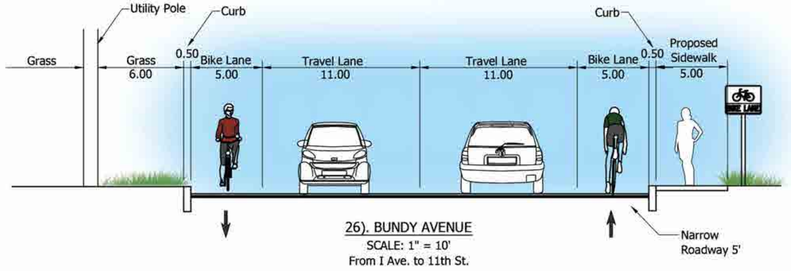
*NOTE:
Mill and resurface roadway.
Re-pave sidewalk and add sidewalk to areas where path does not exist.



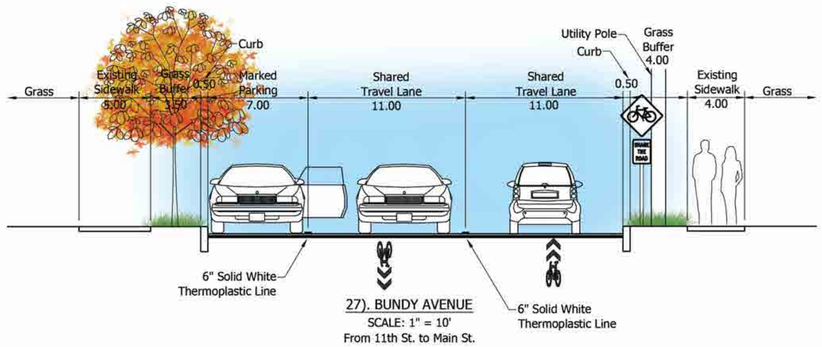
24). THORNBURG STREET
SCALE: 1" = 10'
11th St. to 9th St.



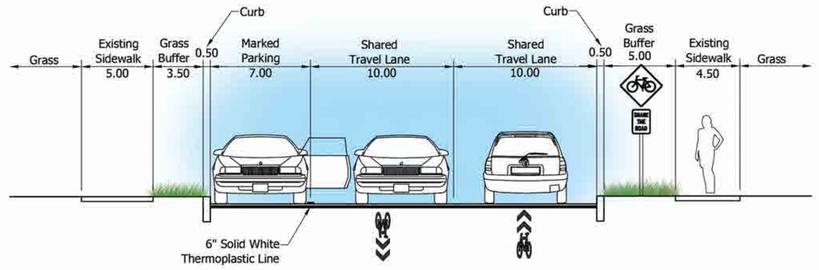
25). BUNDY AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to I Ave.



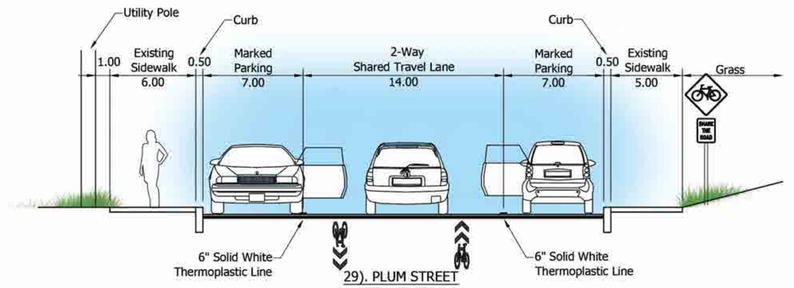
26). BUNDY AVENUE
SCALE: 1" = 10'
From I Ave. to 11th St.



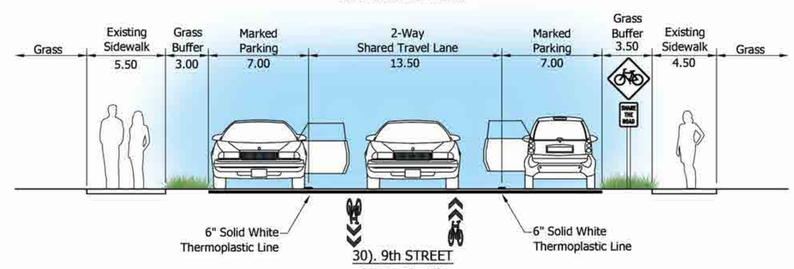
27). BUNDY AVENUE
SCALE: 1" = 10'
From 11th St. to Main St.



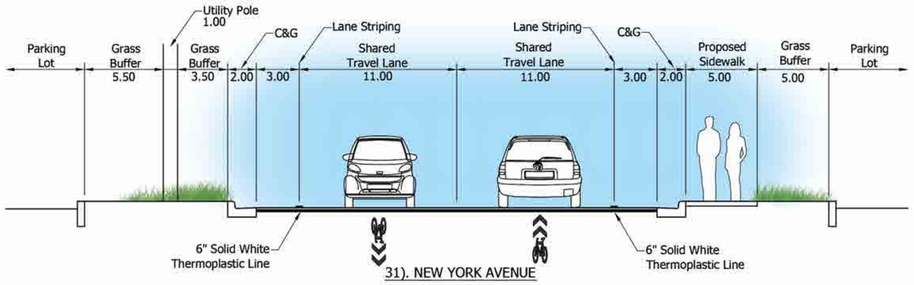
28).11th STREET
SCALE: 1" = 10'
From Bundy Ave. to Plum St.



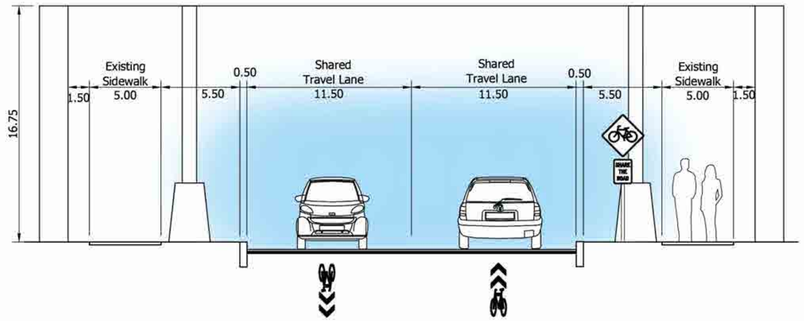
29). PLUM STREET
SCALE: 1" = 10'
From 9th St. to 11th St.



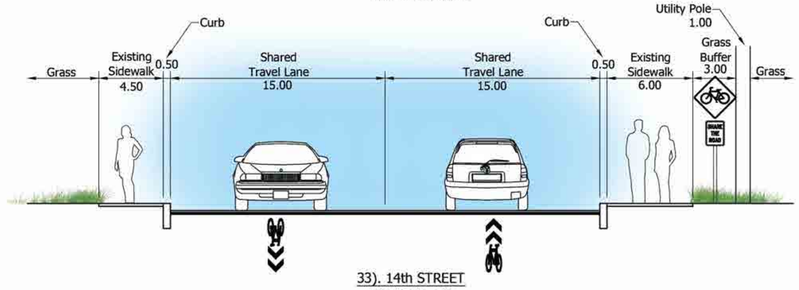
30). 9th STREET
SCALE: 1" = 10'
From Plum St. to New York Ave.



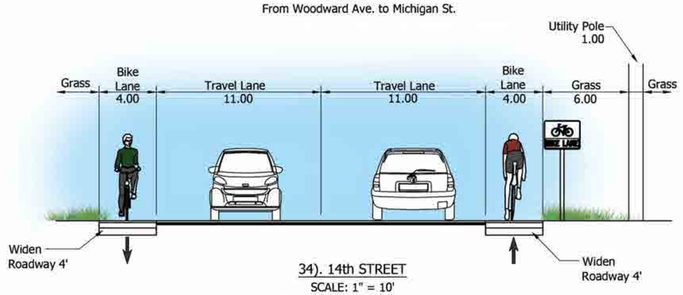
31). NEW YORK AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to 9th St.



32). WOODWARD AVENUE
SCALE: 1" = 10'
Railroad Underpass

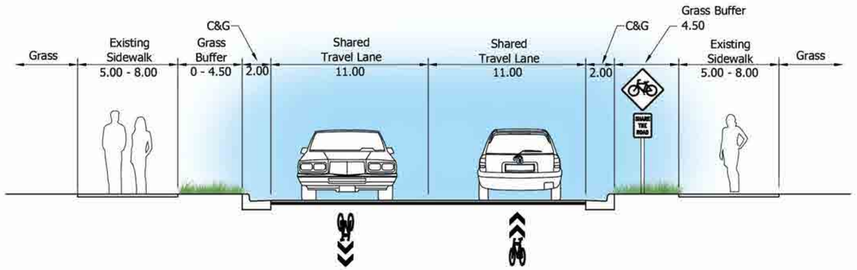


33). 14th STREET
SCALE: 1" = 10'
From Woodward Ave. to Michigan St.

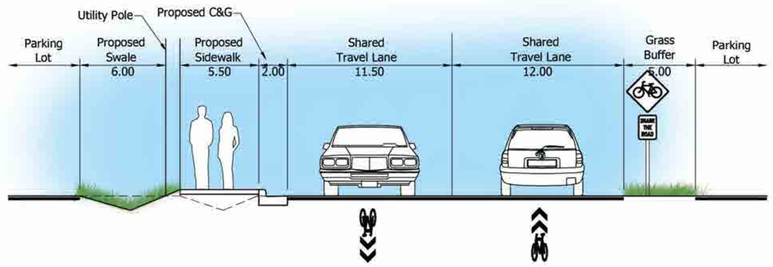


34). 14th STREET
SCALE: 1" = 10'
From Michigan St. to 16th St. / Highway 103

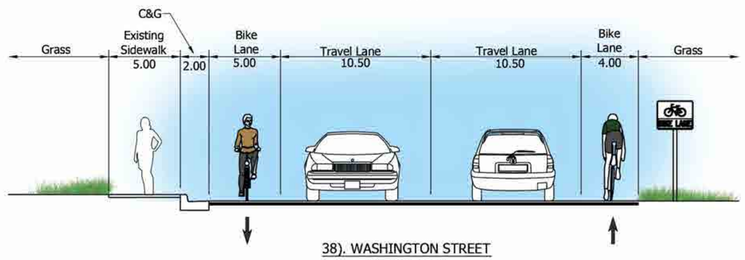
35). LAWTON STREET / GARNER STREET
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Main St.



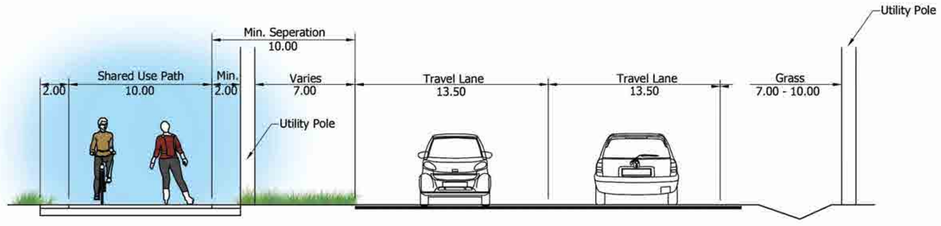
36). LAWTON STREET / GARNER STREET
SCALE: 1" = 10'
From Main St. to 14th St.



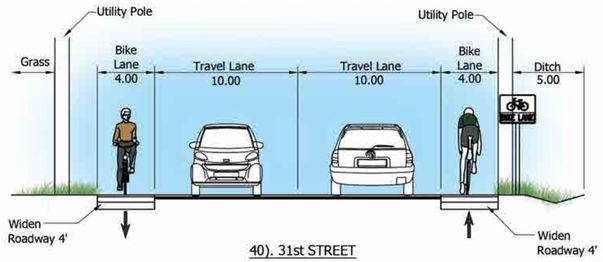
37). WASHINGTON STREET
SCALE: 1" = 10'
From 14th St. to 16th St. / HWY 103



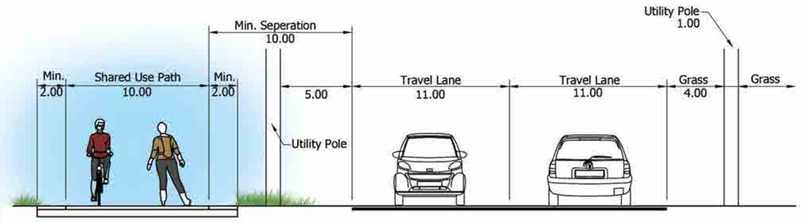
38). WASHINGTON STREET
SCALE: 1" = 10'
From 16th St. to 20th St.



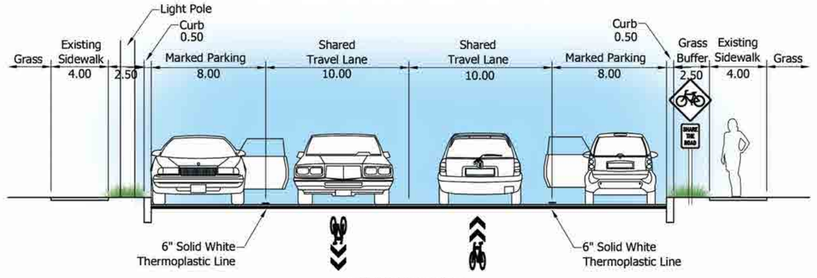
39). WASHINGTON STREET
SCALE: 1" = 10'
From 20th St. to Hillsboro Rd.



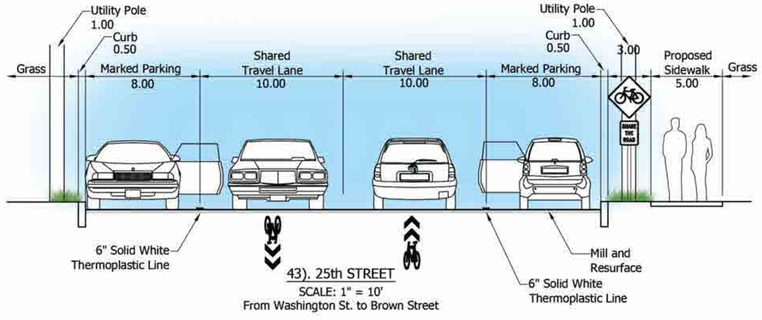
40). 31st STREET
SCALE: 1" = 10'
From SR 38 / Broad St. to Washington Street



41). HILLSBORO ROAD
SCALE: 1" = 10'
From Washington St.. to CR 150 N

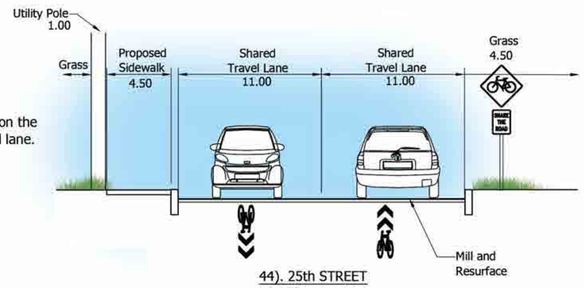


42 BRENTWOOD ROAD
SCALE: 1" = 10'
From Riley Rd. to Q Ave.

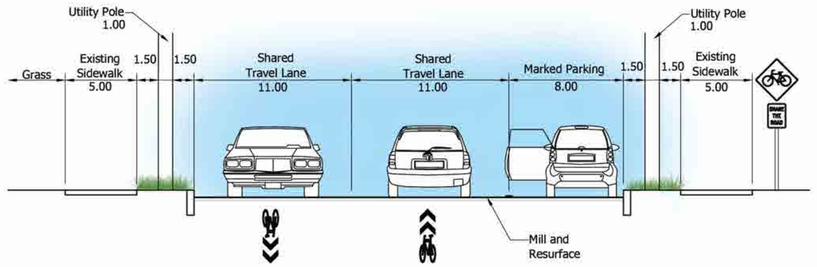


43). 25th STREET
SCALE: 1" = 10'
From Washington St. to Brown Street

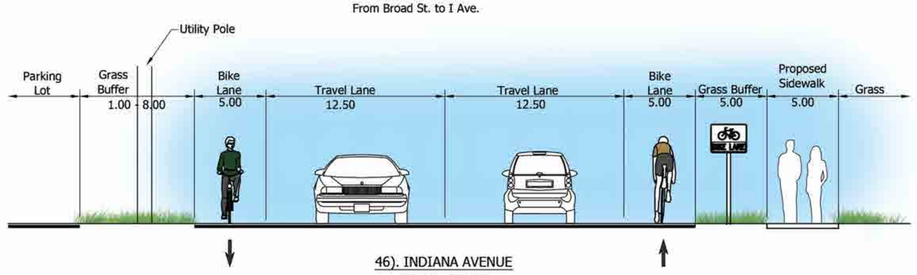
*NOTE:
Utilities relocated on the west side of travel lane.



44). 25th STREET
SCALE: 1" = 10'
From Brown St. to Broad St.

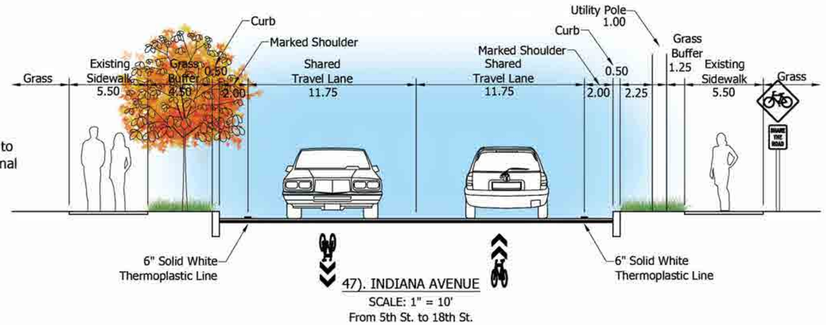


45). 25th STREET
SCALE: 1" = 10'
From Broad St. to I Ave.



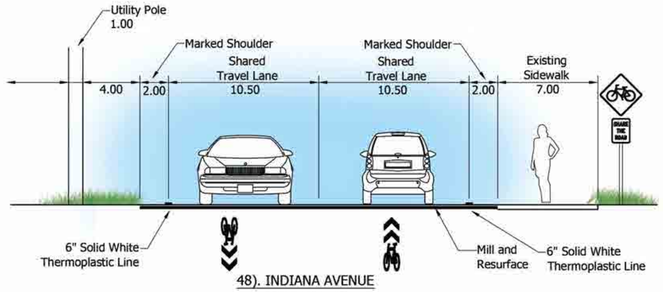
46). INDIANA AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to 5th St.

*NOTE:
Reduce posted speed to 25 MPH. Place additional "No Trucks" signs.

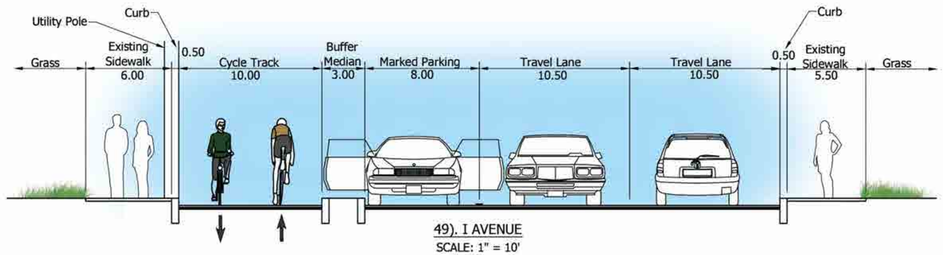


47). INDIANA AVENUE
SCALE: 1" = 10'
From 5th St. to 18th St.

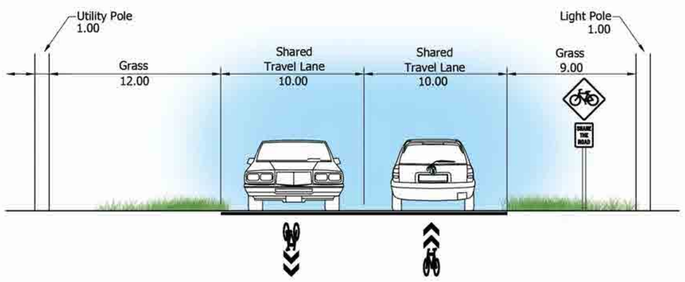
*NOTE:
Reduce posted speed to
25 MPH. Place additional No
Truck signs.



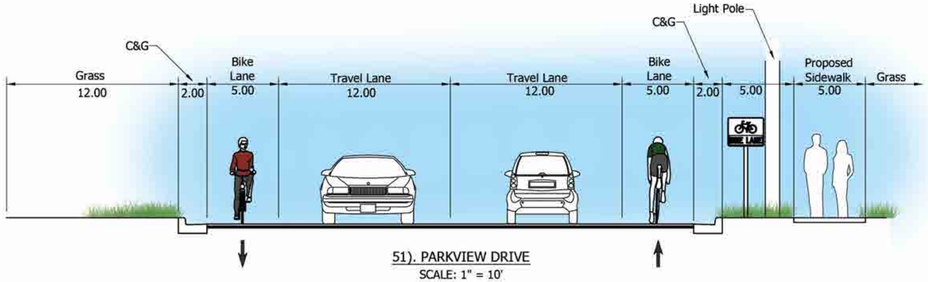
48). INDIANA AVENUE
SCALE: 1" = 10'
From 18th St. to 25th St.



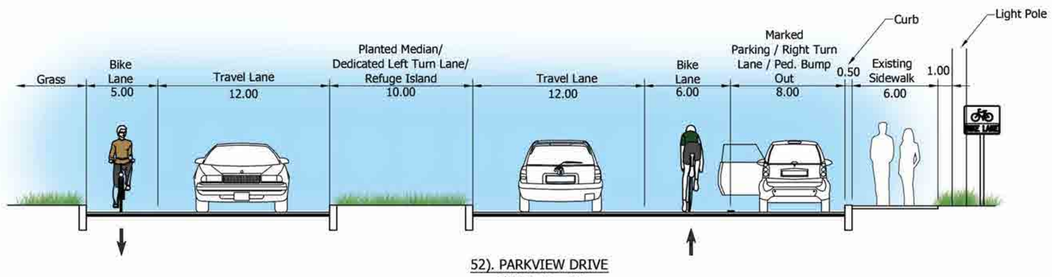
49). I AVENUE
SCALE: 1" = 10'
From 14th St. to 25th St.



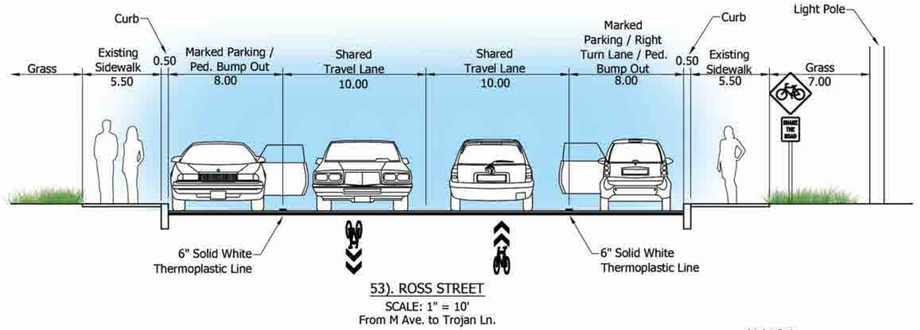
50). I AVENUE
SCALE: 1" = 10'
From 25th St. to Hunter Ave.



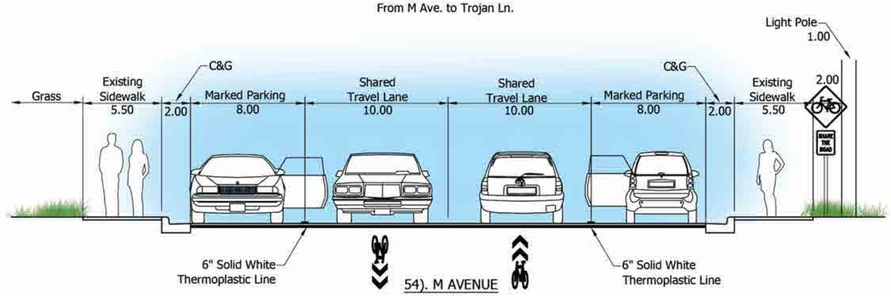
51). PARKVIEW DRIVE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Bundy Ave.



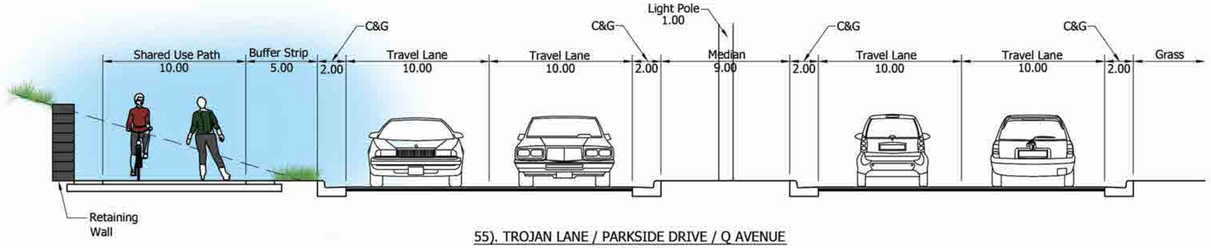
52). PARKVIEW DRIVE
SCALE: 1" = 10'
From Bundy Ave. to Ross St.



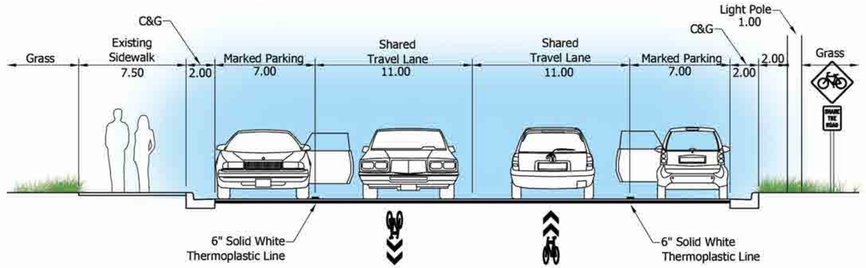
53). ROSS STREET
SCALE: 1" = 10'
From M Ave. to Trojan Ln.



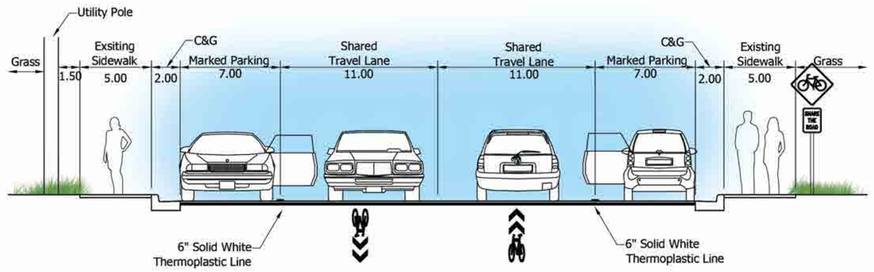
54). M AVENUE
SCALE: 1" = 10'
From Ross St. to Cherrywood Ln.



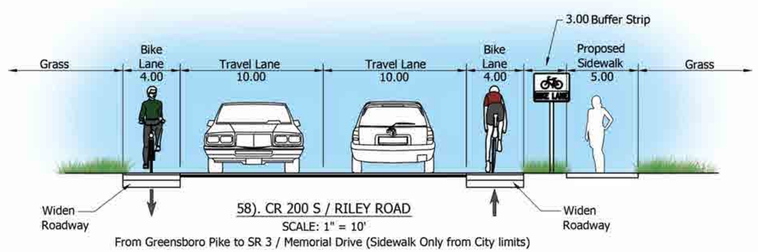
55). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Ross St.



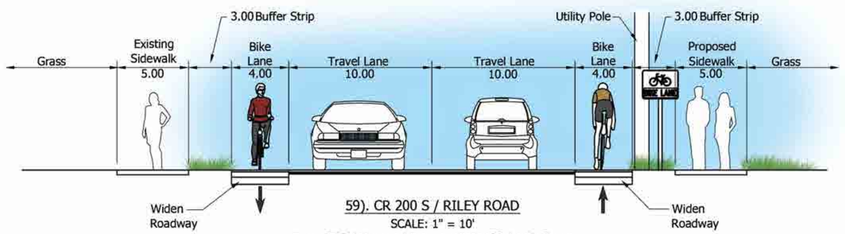
56). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From Ross St. to 14th St.



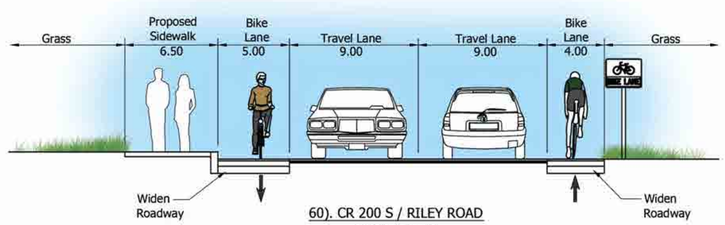
57). TROJAN LANE / PARKSIDE DRIVE / Q AVENUE
SCALE: 1" = 10'
From 14th St. to Troy Ave.



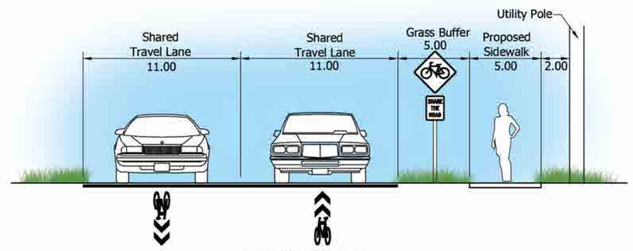
58). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From Greensboro Pike to SR 3 / Memorial Drive (Sidewalk Only from City limits)



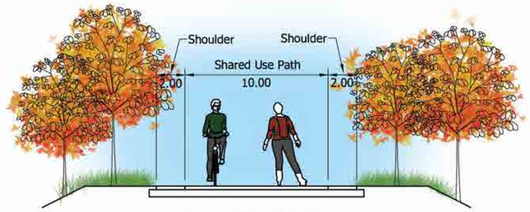
59). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From SR 3 / Memorial Drive to HWY 103 / 14th Street



60). CR 200 S / RILEY ROAD
SCALE: 1" = 10'
From HWY 103/ 14th Street to CR 250 E



61). MIDWAY DRIVE
SCALE: 1" = 10'
From SR 3 / Memorial Dr. to Free Rd.



62). SHARED USE PATH
SCALE: 1" = 10'
Abandoned Railroads:

PRIORITY ROUTES

The following pages contain a general recommendations on the order that each facility should take priority over other facilities within each categoary.

In general most shared roadways and bike lanes can be installed for much cheaper than the other types of facilities. Some of these facilities might even be able to be installed by local forces. It was discussed that the county has a striping truck that would allow for certain routes to be installed for the price of material and man hours at less cost than is currently estimated in the cost opinion section of the plan. In this case it may be possible that several of these facilities end up being installed before most of the shared use trails which take considerably more funding and planning time.

When considering which routes to install first, any route that is close to a school or park should be given precedent over other routes.

PRIORITY ROUTES + PHASING

BIKE LANES:	**Phasing:**
- 14th Street	
From SR 103 to Michigan St.	2
- 31st Street	
From Washington St. to Broad St.	11
- Brooks Drive	
From CR 400 S to Commerce Dr.	8
- Bundy Avenue	
From SR 3 to 11th St.	3
- Commerce Drive	
From SR 3 to CR 300 S	6
- CR 200 S / Riley Road	
From Greensboro Pike to CR 250 E	9
- Executive Drive	
From SR 3 to Commerce Dr.	7
- Garner Street	
From Proposed Interurban Trail to Main St.	10
- **I Avenue	
From 14th St. to 25th St.	5
- Indiana Avenue	
From SR 3 to 5th St.	5
- Parkview Drive	
From SR 3 to Ross St.	4
- Washington Street	
From 16th St. to 20th St.	1

** Optional Facility. Each route bumps up one number.

CYCLE TRACKS:	**Phasing:**
- ** Cherrywood Avenue	
From Q Ave. to J Ave.	1
- I Avenue	
From 14th St. to 25th St.	1

PEDESTRIAN SIDEWALKS:	**Phasing:**
- 14th Street	
From Washington St. to Hospital Entrance Drive	6
- 25th Street	
From Washington St. to Broad St.	10

- Brooks Drive
  - From CR 400 S to Commerce Dr. 19
- Bundy Avenue
  - From SR 3 to Audubon Rd. 11
- Commerce Drive
  - From SR 3 to CR 300 S 17
- CR 200 S / Riley Road
  - From Spiceland Rd. to SR 3 15
  - From SR 3 to Cherrywood Ave. 1
  - From Cherrywood Ave. to Brentwood Rd. 14
- Executive Drive
  - From SR 3 to Commerce Dr. 18
- Indiana Avenue
  - From SR 3 to 5th St. 9
- M Avenue
  - From Main St. to Roosevelt Ave. 16
- Main Street
  - From CR 300 S to Jeffry St. 2
  - From Jeffry St. to Riley Rd. 20
- Midway Drive
  - From Free Rd. to SR 3 5
- New York Avenue
  - From SR 3 to 9th St. 8
- Parkview Drive
  - From SR 3 to West Entrance School Parking lot 4
- Q Avenue
  - From Main St. to Roosevelt Ave. 3
  - From 14th St. to Cottage Ave. 13
- State Road 3
  - From CR 300 S to New York Ave. 12
- Washington Street
  - From 14th St. to 16th St. 7

SHARED ROADWAYS: **Phasing:**

- 9th Street
  - From Plum St. to New York Ave. 5
- 11th Street
  - From Bundy Ave. to Plum St. 7
- 14th Street
  - From Michigan St. to Woodward Ave. 12
- 15th Street
  - From Thornburg St. to B Ave. 1

- 25th Street
  From Washington St. to I Ave. 2
- Brentwood Road
  From Riley Rd. to Q Ave. 14
- Garner Street
  From Main St. to 14th St. 4
- I Avenue
  From 25th St. to Grand Ave. 17
- Indiana Avenue
  From 5th St. to 25th St. 16
- M Avenue
  From Ross St. to Cherrywood Ave. 10
- Midway Drive
  From Free Rd. to SR 3 11
- Parkside Drive
  From Ross St. to Main St. 9
- Plum Street
  From 11th St. to 9th St. 6
- Q Avenue
  From Main St. to Cottage Ave. 13
- Ross Street
  From Trojan Ln. to Parkview Dr. 8
- Thornburg Street
  From 9th St. to 15th St. 15
- Washington Street
  From 14th St. to 16th St. 3

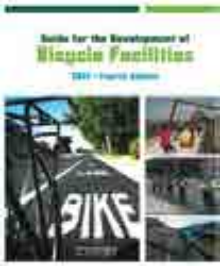
SHARED-USE PATHS: **Phasing:**

- Big Blue River Corridor
  From Honey Bee Line to CR 100 S 14
- Conrail RR Corridor
  From CR 275 W to SR 3 12
  From SR 3 to Wilbur Wright Trail 11
- CR 300 S + Walmart Spur
  From Walmart Parking Lot to Main St. 8
- Crown Equipment Property
  From I Ave. to Q Ave. 4
- Hillsboro Road
  From Washington St. to CR 150 N 5
- Honey Bee Line RR Corridor
  From Conrail Corridor to SR 3 13
- Interurban RR Corridor
  From Garner St. to CR 200 N 10

- Nickel Plate RR Corridor	
From CR 500 S to Riley Rd.	5
From Riley Rd. to I Ave.	4
From I Ave. to B Ave.	3
- Osborne Park	
From Hillsboro Rd. to Alabama St.	7
- State Road 3	
From CR 300 S to Trojan Ln.	17
From Trojan Ln. to Indiana Ave.	15
From Indiana Ave. to Wittenbreaker Ave.	16
- Trojan Lane	
From SR 3 to Ross St.	6
- Washington Street	
From 20th St. to Hillsboro Rd.	2
- Wilbur Wright Trail Extension (Phase 2)	1
- YMCA Property	9

TOTAL MILES OF BICYCLE + PEDESTRIAN FACILITIES SUMMARY

Bike Lanes:	9.7 miles
Cycle Track:	1.0 miles
Sidewalks:	13.2 miles
Shared Roadways:	8.8 miles
Shared Use Paths:	21.3 miles



BIKE FACILITY TYPES AND STANDARDS

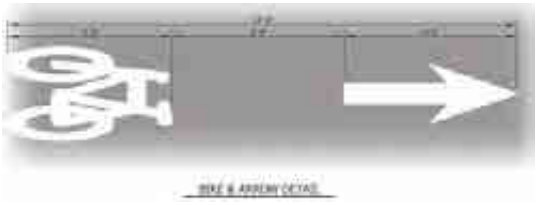
See the Types of Bicycle Facilities section for those that are recommended as part of this plan. As all long term plans are meant to be adaptable to new information, this one should be reviewed at regular intervals to see if any standards have changed. At the time this document was created there were several guidelines that apply: 1) The 2012 American Association of State Highway and Transportation Officials Guide for the Development of Bicycle Facilities and 2) The National Association of City Transportation Officials Urban Bikeway Design Guide. It is recommended that these guidelines as well as the standards outlined below be followed unless new standards or information become available.

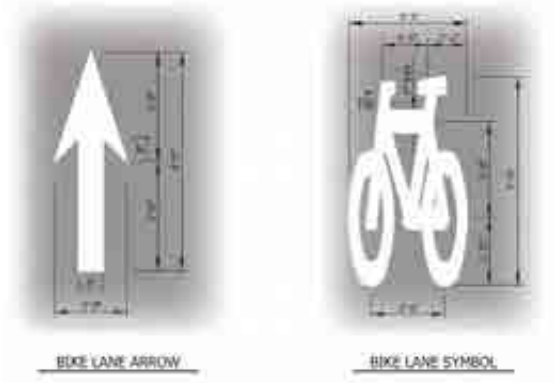
BIKE LANE WIDTH

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.

BIKE LANE MARKING AND SIGNAGE

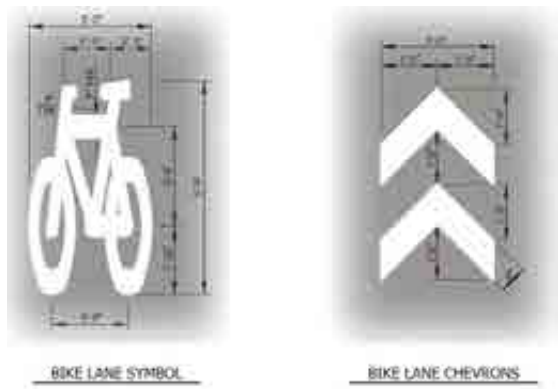
Bike lane markings shall consist of a bicycle symbol and an arrow placed together in the center of the lane. MUTCD sign R3-17 will also be used in conjunction with these markings. The bicycle symbol shall be placed so that it is the first symbol to be seen followed by the arrow. Bike lane markings and 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 ½ mile apart in rural sections and no more than 500 feet 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.

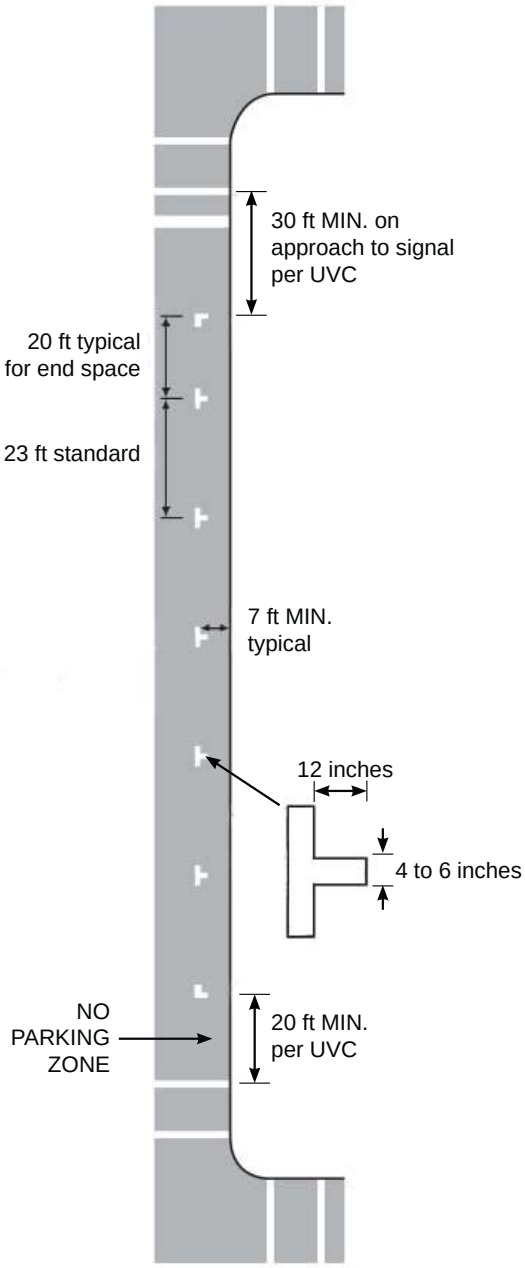




SHARED ROADWAY MARKING AND SIGNAGE

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 a apart on low volume roads and no more than 100 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 the shared roadway ending.

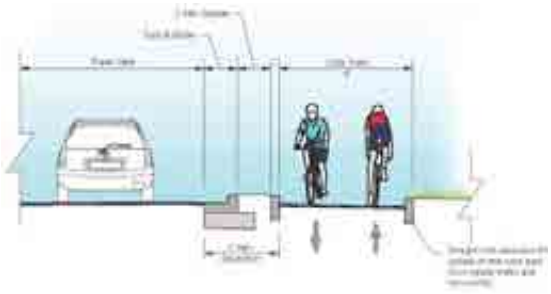




MARKED AUTOMOBILE PARKING

Marked automobile parking allows inexperienced bicyclists a place to ride out of traffic when there is not any vehicle occupying the space. Marking the parking space also gives vehicles driving along the roadway the perception that the lane is narrower and reduces speed. The recommended marked parking space is 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).

CYCLE TRACK MARKING AND SIGNAGE



The Cycle Tracks is a cross between a separated path and a conventional bike lane in that it is buffered from motor traffic, but is still a part of the roadway. There are two types of Cycle Tracks, a one-way cycle track and a two-way cycle track. Cycle tracks work best in locations where there are not too many roadway intersection crossings. A cycle track in constrained areas shall have minimum separation of 3 feet from the travel-way and be separated by delineator bollards. It is recommended that each cycle track be separated by separated from the travel-way by 5 feet and use a raised median for protections of the cyclist.

The two-way cycle track shall have a minimum width of 8 feet in constrained areas and it is recommended that the desired width should be 10 feet or wider to accommodate the volume of cyclists. A one-way cycle track has a lane on each side of the roadway riding with traffic. The minimum width for one lane of bicycle traffic is 5 feet.

Dive crossings should be kept to a minimum and marked with conflict zone markings at each crossing.

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:

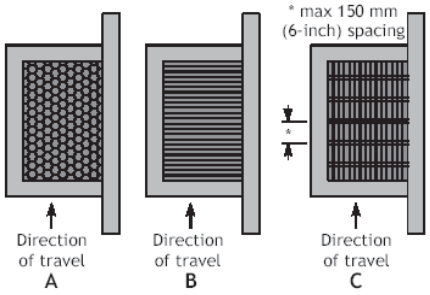
Example of Epoxy Bike Coating on Asphalt

1. An epoxy-modified, acrylic, waterborne coating has been successfully used for bike lanes in other large cities. 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 trail.
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. Go to www.cityrepair.org for more information.

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.

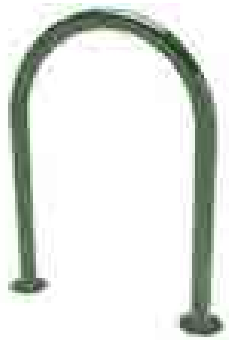
The gap between the drainage grate and its frame should be 1 inch or less. Several casting types are available. The most versatile is the octagon style.



BICYCLE FACILITY AMENITIES:

Bicycle Parking

Bicycle Parking should follow the Association of Pedestrian and Bicycle Professionals (APBP) Bicycle Parking Guidelines 2nd Edition. At the bare 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 shall not be used.



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.

Bike 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 bike is a minimum of 6 feet long.

Bicycle Repair Stand

Most experienced riders will carry some repair tools with them, however casual riders may be less likely to have them. A repair stand with tools will come in handy if placed around the community in convenient locations and or at locations where organized bicycle rides are likely to start from. The stand conveniently holds the bike by the seat and at a height easier for working on the bike. There are different configurations, but tools for minor repairs are secured to the stand by stainless steel aircraft cable. Tools that should be provided are allen wrenches, tire levers, screwdrivers, and a crescent wrench The finish should be powder coated to match surrounding amenities.

Bicycle Pump Bollard

Many experienced riders will carry small bicycle pumps or air canisters for emergency repairs, but a good bike pump always comes in handy. A secure urban bike pump in the shape of a bollard can provide cyclist with air while still being vandal resistant and aesthetically pleasing. The pump is securely attached to a concrete surface and the pump design is sturdy enough to handle urban conditions. The hose should be made of cut resistant material.

TRAIL TYPE

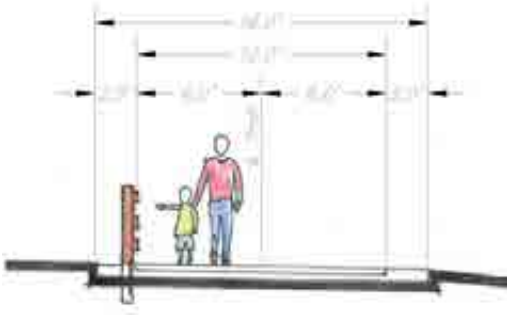
It is recommended that each trail be a universally accessible multi-use path. The American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (2012) and Chapter 51 of the Indiana Department of Transportation (INDOT) Design Manual defines a multi-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 trails 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 trail 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 may not be required for all trails, it is recommended that these guidelines be followed on all trail applications.

Multi-use Trail
Clear Creek Trail, Bloomington, IN

TRAIL WIDTH

AASHTO recommends a minimum width of 10 feet for shared used-paths, with 2 foot wide graded shoulders on either side of the trail. 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 trail (minimum) with 2 foot grass shoulders wherever possible. Only where absolutely necessary should an 8 foot trail with shoulders be implemented. This instance should only happen when the trail is considered a side 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 trail due to right-of-way or other limitations.



TRAIL SLOPE

It is important that the trail 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 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.

Multi-use Trail
Lafayette, IN

TRAIL SURFACE

The primary concern with trail surfacing is accommodating a variety of trail 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 trail users. It is non-traversable for in-line skaters and can be difficult for people in wheel chairs because not all stone trails 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 Trail Maintenance Section for further recommendation.

NATURAL AREAS / RUGGED TRAILS

This master plan identifies several trails that are through natural areas. These areas are more natural and rugged in character. Due to this fact, it may be necessary to use standards that allow for steeper slopes, however, they must still be safe for bicyclists to negotiate and accessibility must be provided unless another route can be used to access areas that someone might want to get to. In these instances, it is important to use a combination of the US. Access Board's 'Guide for Outdoor Developed Areas' and AASHTO's 'Guide for the Development of Bicycle Facilities'. Maintenance is additionally a consideration for trail surfacing.

Longitudinal Slope:

- 5% to 8.33% - 200 Feet Max. (length between landings / resting intervals)
- 8.33% to 10% - 30 Feet Max. (length between landings /resting intervals)

Cross Slope

- 2% Recommended
- 3% Maximum

Width:

- 8 Feet Minimum for Two Way Bike Travel

Resting/Landing Areas:

- Width - As wide as Trail or more
- Length - 10 Feet

Surface:

- Firm and Stable (As defined by US Access Board)
- Recommend Asphalt or Concrete for Slopes Greater than 5%
- Crushed Limestone (#73s)
  - Up to 5% (Stone will start to erode at slopes greater than 5%)
  - Limits Users of Trail
- Alternative Surface Material
  - *Road Oyl*:
    Formulated from pine tree resin, this cold applied product works best as a pavement binder when mixed with dense graded aggregate. Once the water evaporates from the mixture, the surface becomes very hard and resembles an asphalt surface. It can be difficult to apply and is more expenisve than other binders, but is proably one of the better suface stabilizers available.
  - *Stabilizer*:
    This is an organic and non-toxic product created with seed hulls of the plantego plant. The product is not able to stablize aggregate larger than 3/8" in diameter. Some surface ravelling can occur and become somewhat soft when exposed to moisture. As moisture evaporates the surface will become firm again. Seeds may also be able to sprout in the surface.
- Mulch or unreinforced dirt would not be acceptable

Trail Characteristics Signage (at Trailhead or Access Point) to include:
- Length of Trail or Trail Segment
- Surface Type
- Typical and Minimum Trail Width
- Typical and Maximum Running Slope (Profile / Graph Showing Where Slopes Occur on Trail)
- Typical and Maximum Cross Slope (Graph Showing Location of Slopes on Trail)

Construction:
- Environmentally sensitive construction techniques should also be considered for use in riparian zones and floodway areas well known to be periodically inundated by water and/or contain high quality vegetation. These techniques may include the use of small, light-weight equipment as well as increased erosion and sediment control measures.

DNR PERMITTING PROCESS

Any proposed trail or bridge structure within the floodway of a river, stream or creek, that has a drainage area larger than one square mile requires an Indiana Department of Natural Resources (IDNR) Construction in a Floodway Permit. A trail section and multiple bridges constructed in a single phase can be constructed under one permit provided they all occur within the same tributary. Each additional phase will require a separate permit even if construction occurs along the same tributary.

Construction in a Floodway Permit typically takes 5 to 6 months to obtain and requires a $200 permit fee. Hydraulic modeling may be required to identify the impacts on the floodway. Boardwalk sections would also be covered under the permitting process. IDNR would consider the foundation spacing, the amount of fill required and the overall impacts to the floodway in analyzing the permit application.

OTHER PERMITS

There are several other permits that may be required in order to construct a trail. However, until actual construction documents are created it is hard to say which routes will require which permits. Below is a list of some of the more common permits that can be required.

1. Rule 5 – Required for any land disturbance over 1 acre.
2. US Army Corps of Engineers 404 Permit.
   a. Nationwide - Any disturbance of a stream or navigable waterway below ordinary high water and less than 350 lineal feet in length. Typically for very small disturbances.
   b. Regional General - Any disturbance of a stream or navigable waterway below ordinary high water and less than 350 lineal feet in length.
   c. Individual – Any disturbance of a stream or navigable waterway below ordinary high water and over 1000 lineal feet in length.
3. IDEM Section 401 – Required any time an Army Corps 404 permit is required.

TRAIL SUPPORT FACILITIES:

Providing accessibility to all users at key locations throughout the city is important to the success of each trail. Along with accessibility, users require that the trail 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 city and local businesses to provide secure bicycle parking and other trail 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 trail users.

Major Trailhead Example - C&O Trail
Merrillville, Indiana

Major Trailheads:

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

Due to the scope and type of facilities normally required for a major trailhead, it is difficult to locate them within the narrow constraints of a trail 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 trail users' needs.

Major Trailhead Example - C&O Trail
Merrillville, Indiana

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

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 trail users' needs. These trailheads may or may not have existing shelters. This trailhead should be easily accessible from the trail, including amenities such as trash receptacles, bicycle racks, and benches.

Shared Use Trailhead Example - Friendship Gardens
Plainfield, Indiana

Minor Trailheads:

Minor trailheads are similar to major trailheads in that they provide amenities to serve trail 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 trail intersections. Minor trailheads may provide benches, trash receptacles, bicycle racks, landscaping and signage, but usually will not provide parking.

Minor Trailhead Example - Clear Creek Trail
Bloomington, Indiana

Minor Trailhead Example - Whitelick Creek Trail
Plainfield, Indiana

Community Access Points:

The last type of trail support facility is the Community Access Point, which provides a minimal amount of amenities (perhaps 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 trail. 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 trail and getting trail 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.

BRIDGE DESIGN STANDARDS

All bridges will be designed for bicycle and pedestrian traffic. Due to maintenance and emergency needs the bridges will occasionally need to be used by light vehicular traffic, such as passenger vehicles and light trucks. Therefore, the structural design should be based on a five-ton vehicular loading.

Typically, the width of the finished deck surface is a minimum of 12 feet. This allows for a minimum 8 foot wide path with two foot shoulders on each side. The deck should be a structural concrete slab or timber decking spanning between superstructure members on all standard bridges. Timber decks are generally appropriate for renovated historic bridges.

Example of a Standard Bridge on the Monon Trail
Indianapolis, Indiana

All bridge railing should consist of tubular metal shapes, finished in the appropriate color. Color of bridges and bridge railing shall be based upon the color designated for the trail. Railings should be parallel with the trail centerline and 42 inches in height as recommended by AASHTO. The railing should be side mounted to the concrete bridge deck or the existing structure as indicated by each bridge's configuration. Where bridges cross roadways, an enclosure or high fence should be considered to prevent objects from falling onto the roadway below.

Example of a Standard Bridge on the Monon Trail
Indianapolis, Indiana

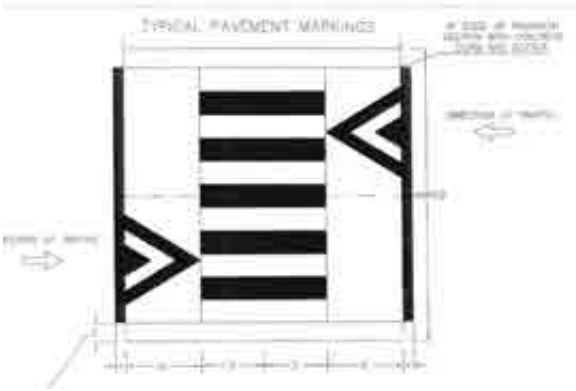
An approach barrier railing should be included at each end of each bridge. The approach barrier railing may consist of additional metal railing, wood railing, or stonewalls.

The approach pavement at the ends of the bridges should be a continuation of the trail pavement, with some variation based on each bridge configuration. Concrete approach slabs should be utilized where new construction dictates that the approaches are located on new fill material.

Adaptive reuse of historic bridge structures should be considered wherever possible. The reuse of these structures presents opportunities for historic and cultural interpretation and provides an opportunity for a signature gateway bridge.

Example of a Gateway Bridge on Tracy Trail
Greenwood, Indiana

Example of a Speed Tabel in a Residential Neighborhood



Example of a Speed Tabel Layout Design

REMOVABLE SPEED TABLES:

Speed tables are flat-topped speed humps which allow for the entire wheelbase of a car to rest on top of it. The flat top design allows cars to maintain slightly higher speeds than they would speed humps. Because they slow cars less than similar devices, speed tables are often used on roads with typical residential speed limits such as 20 to 25 MPH. Speed tables are effective in calming traffic on streets where the speed limit needs to be maintained rather than slowing cars more significantly. Traffic speed, volumes, and accidents have been shown to decrease when these devices are put into place.

Removable speed tables can be detached for road resurfacing, snow plows, or to test the products at numerous locations. Unlike asphalt and concrete speed tables, which must be destroyed during removal, the rubber tables can simply be removed and reinstalled.

Gradual and/or longer humps are more comfortable for bicyclists as well as pedestrians and other vehicle drivers. Speed tables will slow down traffic to provide for a safer pedestrian experience.

STREET INTERSECTION DESIGN:

Each street intersection should be examined individually as each has unique characteristics. Uniformity in the use of traffic control devices is critical to encourage proper and predictable behavior by trail users. The Manual on Uniform Traffic Control Devices (MUTCD) shall be followed for size, shape, color and placement of signs on both the trail and the street. In addition, coordination with the City of Lafayette should ensure the proper design and layout of traffic control devices necessary to warn vehicular traffic on public streets of trail crossings.

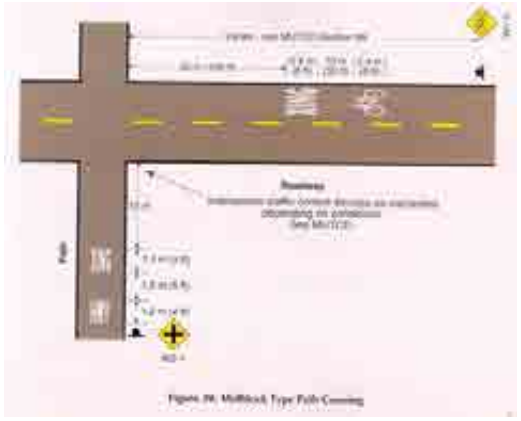
Example of a Street Crossing on the Monon Trail Carmel, Indiana

All street crossings will occur as at-grade. Traffic will have the right-of-way and trail 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 Lafayette.

At-Grade Road Crossing - Level 1:

- Used on local roads with a maximum of two lanes. Speed limit should be under 40 mph.
- 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 trail intersections
- Stop sign along the trail placed approximately 10 feet from the edge of the street.
- Crosswalk pavement markings at crossing point.
- “Trail Xing” markings on the roadway

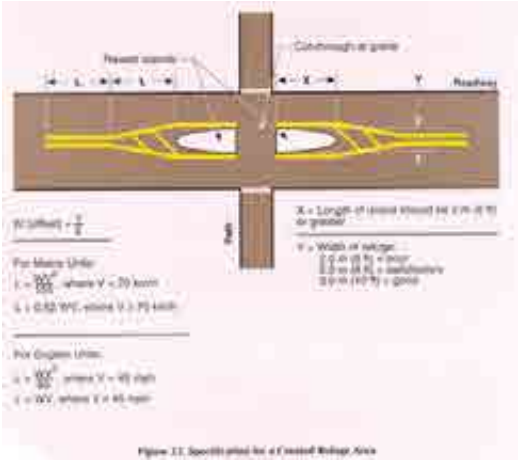


Example of an At-grade Crossing Level 1 - ‘Guide for the Development of Bicycle Facilities’ - AASHTO 1999

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

At-Grade Road Crossing - Level 2:

- Used on all roads with a maximum of two lanes and speed limit over 40 mph or greater.
- All treatments of a Level 1 Road Crossing apply
- In addition to Level 1, it is recommended that overhead flashers with signage be used, preferably with a motion activated warning signal. Flashers that are always on tend to be ignored or not noticed by the motorized vehicles because it isn't specific to if a trail user is in the area.



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

At Grade Road Crossing - Level 3:

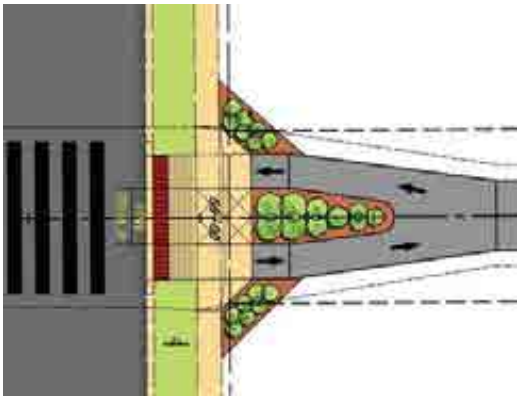
- Used on all roads where there are more than two lanes of travel
- All treatments of a Level 2 Crossing apply
- In addition to Level 2, median refuge areas allow trail users to cross one direction of traffic at a time (additional street right-of-way may be required)
- If, and ONLY IF, a refuge island isn't feasible, speed tables are a secondary option.

Example of a Speed Table

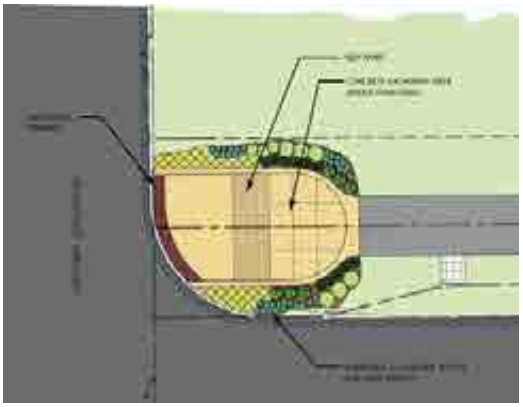
Trail Entry At Public Road Crossings

A public road crossing provides an opportunity to bring identity and attention to the trail. It also should provide plenty of room for 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 right.
- 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 trail 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 tail users to negotiate around. See the Site Furnishings section for bollard type.



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



Example of a Concrete Node Entry without Bollards

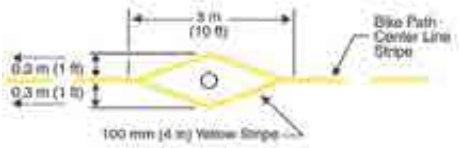


Figure 26. Barrier Post Striping

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

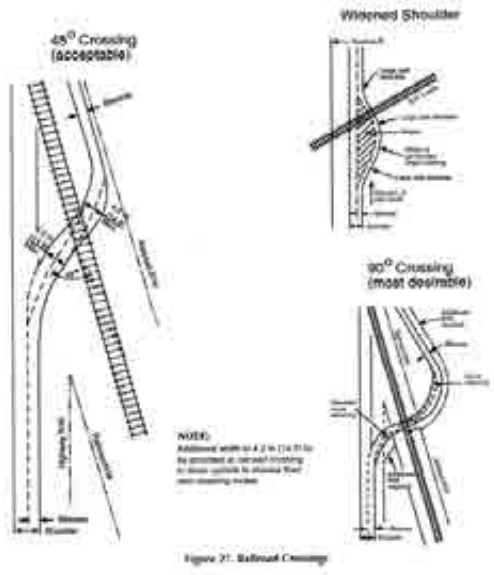
Example of a Concrete Node Entry with Bollard

RAILROAD INTERSECTION DESIGN

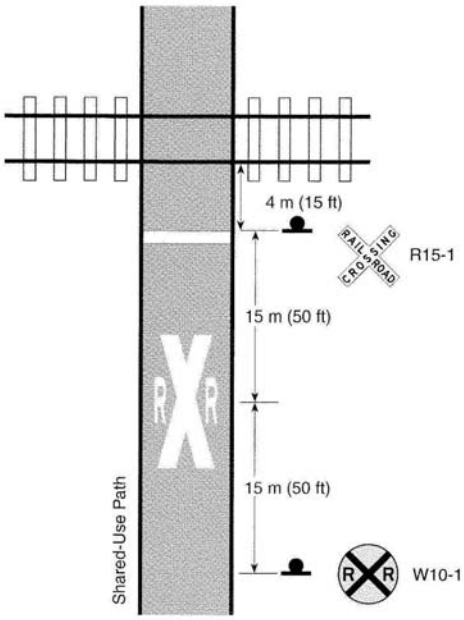
Due to the speed of train travel, sight distance needed to stop a train, and regulatory stipulations, it is recommended that wherever possible rail crossings occur at already existing road crossings. If an existing road crossing is not available then a bridge or tunnel may have to be utilized. Railroad 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

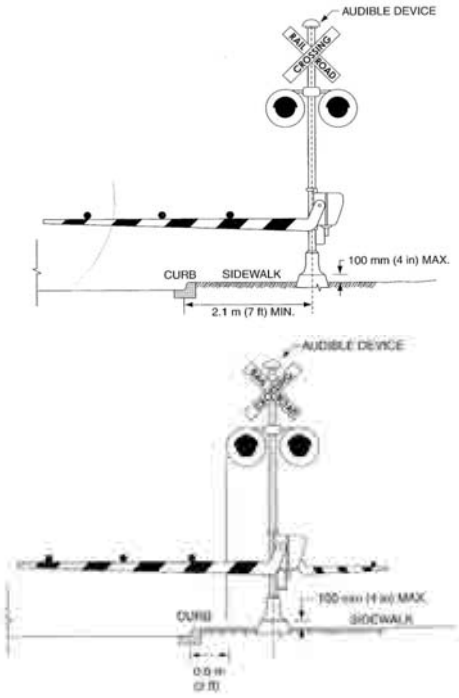
- It is advised to abide by the following treatments as a minimum for railroad crossings:
- A rubber panel crossing will be used with an asphalt approach.
- A rail warning sign shall be placed a minimum of 115 feet from the nearest rail
- A Crossbuck sign will be placed 15 feet from the nearest rail and shall have a sign denoting number of track crossings.
- Where existing gate arms are, a new pedestrian gate shall be placed if the path must go outside the post.
- A 24 inches stop bar will be placed approximately 15 feet from the nearest rail.
- The trail will have a minimum 45 degree skew from the center line of the rail with 90 degrees being desirable.
- The trail pavement width will be widened from 12 feet to 14 feet.
- Railroad pavement markings will be placed adjacent to the rail warning sign.



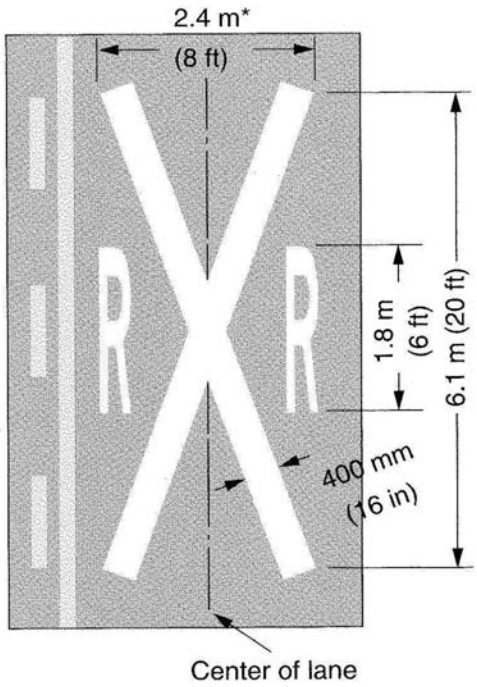
Rail Crossing Standards
'Guide for the Development of Bicycle Facilities' - AASHTO 1999



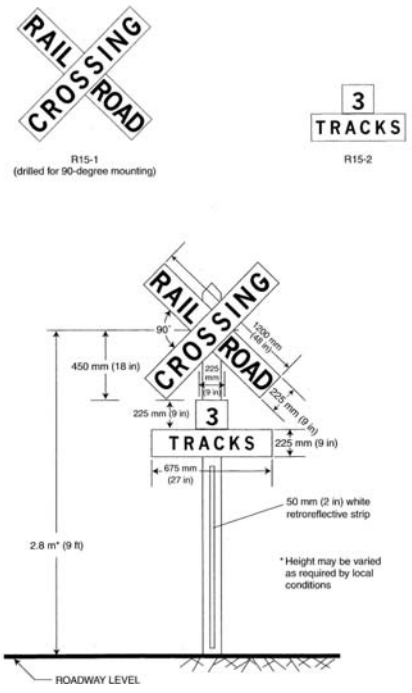
MUTCD (Figure 9B-3) Railroad Sign and Markings Locations for Shared-Use Paths



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

TRAIL SIGNAGE

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

Signs will need to be located so they are legible to trail 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 trail. The trails 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: Trail Traffic Signs, Trail Identity Signs, Trail Guidance and Interpretive Signs, and Mile Markers.

Trail Traffic Signs:

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

The design of the trail traffic signs should be consistent from trail to trail and will feature an aluminum sheet of alloy and temper, recommended by the aluminum producer, not less than 0.100 inch thickness. The trail traffic signs shall have a reflective sheeting material and silkscreen paint. The posts shall consist of a 6061 Alloy Aluminum, have a 3 ½ inch overall diameter and a wall thickness of 0.375 inches. These aluminum posts are required because they have less maintenance costs long term, they will not rot at the base and they cannot be easily cut, like wood. The posts shall have a powder coating based upon the color designated for the trail it is on. 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 trail's edge and be mounted at a height of 5 feet.

Additionally, any trail traffic sign which is below a power line shall be of a 4 inch square,

treated, wood post. Signs shall be a co-extruded HDPE sign board. These wooden posts shall only be under power lines as it will have more maintenance, a chance of rotting and can be easily cut. This has to be done under the power lines because of the electricity that can charge from the power lines to posts, if the posts are aluminum.

Trail Identity Signs:

The Trail 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 trail identity sign is intended to serve two functions: identify the main entry points to the trail and establish for the public a consistent and lasting identity for the trail. By selecting a consistent treatment for each trail it will help the trail user to know which trail they are currently on. Each sign should be designed to incorporate a unique feature of each trail. The City of Lafayette Park's logo should be incorporated into each sign and the identity sign should follow the same color scheme as the trail it is representing. The posts should be 4 inch overall diameter and made out of aluminum alloy with powder coating. 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 trail and street intersections and at other significant access points.

Trail Guidance & Interpretive Signs:

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

Trail guidance signs can be placed into two different categories. One type would be a directory sign which would show trail users how they can reach key destination points within the entire community. This sign would give an overall view of the entire trail 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 trail system. Directory signs would typically be placed at major trailheads or key trail 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 trail. These signs should be located at intersecting trails. A wayfinding sign should be at 24" x 36" or smaller, but at a scale that shows much more detail than the directory signs. The image to the left shows a good example of this type of sign.

Interpretive signs are another type of sign that provide educational information to trail users and enhance the trail experience. These signs help to convey the historical, cultural, or ecological significance of certain points along the trail. Examples would be the importance of protecting wetlands or water bodies, geological formations unique to the area, or a historically significant feature within the Lafayette 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. As opposed to other types of signs, the high pressure laminate has a very clean print, a long guarantee time of 10 years, has a low replacement cost, does not have the hassles of a frame, and resists shattering. The interpretive signs and guidance signs should be mostly conveyed graphically, with minimal text and at a size that is readable without having to bend over too far to see.

Mile Markers:

Mile markers provide orientation for trail users and emergency personnel as well as traveled distance along the trail. Distance along the trail should be marked in quarter-mile intervals or less by transverse pavement markings placed directly on top of the trail. Information included on the markers should be distance in miles and each trails logo. This type of mileage marker was chosen to be easily readable and reduce conflicts during routine maintenance such as mowing.

SITE FURNISHINGS

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

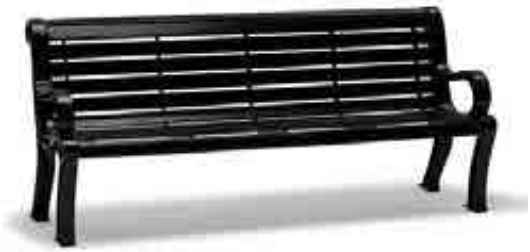
Locations of amenities along trails will depend on the characteristics of each trail segment and should be addressed on a case by case situation. The purpose of most trails is to move people from various locations and for recreation. As such people are less likely to stop in between access points. Benches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

Along with trail signage, site furniture will be among the most frequently utilized elements along the trail, setting the tone for the overall image of the trail system in the minds of the users. It is important that design standards for the trails' site furnishings be established to ensure overall consistency of design and trail image. The colors should be consistent with the trail 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 trails begin to be constructed. With establishing a color and style to use throughout the trail it will minimize the amount of cost for the City of La Porte because replacement parts can be stockpiled for ONE style of bench as opposed to 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.

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



Example of Bench w/ Back and Arm Rests

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

Example of Trash Receptacle

Bicycle Rack:

36” Bike Loop
Manufacturer: Keystone Ridge Designs
Model #: GV2E-4 or SN01-3
Color: Color to be based on designated trail color
Installation: In accordance with manufacturer’s instructions
Style: Loop (supports bicycle in two spots)

Example of U-Rack

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 (one accessible) & dog bowl
The fountain must have a firm and stable access path to it

TRAIL LANDSCAPING

The trail 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 trail experience, but also minimizes the amount of new landscaping necessary to improve the appearance of the trail system and screening of the trail from undesirable views and adverse adjacent trail conditions.

In areas along the trail 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 trail. 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 trail 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.

TRAIL LIGHTING

The trail system is intended for use during daylight hours only; therefore it is not anticipated that the trail 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 trail system. A great example of this is in Bloomington, Indiana where they have several trail systems and trailheads, all having similar lighting schemes.

TRAIL 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 trail needing to be maintained and the location of the trail. On a typical mile-long trail, it could be $3,000 (plus or minus) per year in maintenance costs. 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 trail maintenance items to keep in mind during the upkeep of the trails:

- 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

Trail 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, boy scouts, 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 trail systems. Since many trail users will use the system daily for recreational or commuting needs, they can monitor any unwanted behavior at the same time. 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, trail advocates, etc.

ACCESSIBILITY

As mentioned previously, all new trail 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 number of lanes to be crossed is greater than 75 feet or a pedestrian walking at 2.5 feet/second cannot completely cross the street
    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. All trailheads should consider including the following:
    a. Public Restroom Building
    b. Shelter for shade and to host downtown farmers markets
    c. Benches for resting
    d. Trash Receptacles
    e. Trees for shade
    f. Pedestrian Directory Sign
    g. Drinking Fountain
    h. Pet Waste Disposal
    i. Bike Racks
    j. 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
9. An ADA transition plan needs to be completed that includes assessment of the existing facilities and a plan for correcting those areas not in compliance

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:
Kathy Eaton-McKalip
LPA/MPO& Grants Administration
Indiana Department of Transportation
100 N. Senate Ave. IGCN 955
Indianapolis, IN 46204
keaton-mckalip@indot.in.gov

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
Kathy Eaton-McKalip
LPA/MPO& Grants Administration
Indiana Department of Transportation
100 N. Senate Ave. IGCN 955
Indianapolis, IN 46204
keaton-mckalip@indot.in.gov

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.

1. The Hope Initiative
   The Hope Initiative has been a willing coummunity partner on past projects and should be willing to help with future projects.

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

BIKE LANES:

Brooks Drive	
From CR 400 S to Commerce Dr.	$22,300.00
Commerce Drive	
From SR 3 to CR 300 S	$26,000.00
Executive Drive	
From SR 3 to Commerce Dr.	$15,125.00
CR 200 S / Riley Road	
From Greensboro Pike to CR 250 E	$1,198,620.00
Bundy Avenue	
From SR 3 to 11th St.	$280,460.00
Parkview Drive	
From SR 3 to Ross St.	$391,340.00
Indiana Avenue	
From SR 3 to 5th St.	$10,125.00
31st Street	
From Washington St. to Broad St.	$199,150.00
Garner Street	
From Proposed Interurban Trail to Main St.	$126,300.00
14th Street	
From Garner St. to Michigan St.	$132,500.00
Washington Street	
From 16th St. to 20th St.	$12,125.00
****I Avenue**	
From 14th St. to 25th St.	$26,625.00

** Facility type option for route

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

CYCLE TRACK:

****I Avenue** From 14th St. to 25th St.	$1,154,260.00
****Cherrywood Avenue** From Q Ave. to J Ave.	$783,550.00

** Facility type option for route

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

PEDESTRIAN SIDEWALK:

Brooks Drive	
From CR 400 S to Commerce Dr.	$166,500.00
Commerce Drive	
From SR 3 to CR 300 S	$188,900.00
Executive Drive	
From SR 3 to Commerce Dr.	$103,900.00
State Road 3	
From CR 300 S to New York Ave.	$766,200.00
Main Street	
From CR 300 S to Jeffry St.	$249,200.00
From Jeffry St. to Riley Rd.	
CR 200 S / Riley Road	
From Spiceland Rd. to SR 3	$97,200.00
From SR 3 to Cherrywood Ave.	$248,112.00
From Cherrywood Ave. to Brentwood Rd.	$155,000.00
Q Avenue	
From Main St. to Roosevelt Ave.	$56,797.95
From 14th St. to Cottage Ave.	$187,787.63
Midway Drive	
From Free Rd. to SR 3	$117,100.00
Parkview Drive	
From SR 3 to West Entrance School Parking lot	$92,400.00
Bundy Avenue	
From SR 3 to Audubon Rd.	$101,000.00
Indiana Avenue	
From SR 3 to 5th St.	$63,450.00
New York Avenue	
From SR 3 to 9th St.	$119,600.00
25th Street	
From Washington St. to Broad St.	$171,200.00
Washington Street	
From 14th St. to 16th St.	$61,800.00
14th Street	
From Washington St. to Hospital Entrance Driv	$92,250.00
M Avenue	
From Main St. to Roosevelt Ave.	$56,797.95

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

SHARED ROADWAY:

Midway Drive	
From Free Rd. to SR 3	$11,125.00
Brentwood Road	
From Riley Rd. to Q Ave.	$12,302.00
Q Avenue	
From Ross St. to Cottage Ave.	$30,400.00
Ross Street	
From Trojan Ln. to Parkview Dr.	$8,775.00
M Avenue	
From Ross St. to Cherrywood Ave.	$12,300.00
I Avenue	
From 25th St. to Grand Ave.	$10,300.00
25th Street	
From Washington St. to I Ave.	$269,000.00
11th Street	
From Bundy Ave. to Plum St.	$10,450.00
Plum Street	
From 11th St. to 9th St.	$6,250.00
9th Street	
From Plum St. to New York Ave.	$14,025.00
Thornburg Street	
From 9th St. to 15th St.	$31,706.00
Garner Street	
From Main St. to 14th St.	$8,000.00
Indiana Avenue	
From 5th St. to 25th St.	$104,917.62
14th Street	
From Michigan St. to Woodward Ave.	$66,818.36
15th Street	
From Thornburg St. to B Ave.	$15,125.00
Washington Street	
From 14th St. to 16th St.	$4,750.00

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

SHARED USE PATH:

Nickel Plate RR Corridor	
From CR 500 S to Riley Rd.	$1,388,130.00
From Riley Rd. to I Ave.	$529,290.00
From I Ave. to B Ave.	$213,000.00
CR 300 S + Walmart Spur	
From Walmart Parking Lot to Main St.	$576,780.00
State Road 3	
From CR 300 S to Trojan Ln.	$1,453,100.00
From Trojan Ln. to Indiana Ave.	$816,620.00
From Indiana Ave. to Wittenbreaker Ave.	$483,000.00
Trojan Lane	
From SR 3 to Ross St.	$769,120.00
Crown Equipment Property	
From I Ave. to Q Ave.	$385,060.00
Big Blue River Corridor	
From Honey Bee Line to CR 100 S	$192,611.50
Conrail RR Corridor	
From CR 275 W to SR 3	$1,707,520.00
From SR 3 to Wilbur Wright Trail	$579,270.00
Honey Bee Line RR Corridor	
From Conrail Corridor to SR 3	$937,920.00
Washington Street	
From 20th St. to Hillsboro Rd.	$358,120.00
Osborne Park	
From Hillsboro Rd. to Alabama St.	$188,790.00
Hillsboro Road	
From Washington St. to CR 150 N	$405,840.00
YMCA Property	$422,920.00
Interurban RR Corridor	
From Garner St. to CR 200 N	$1,418,480.00
Wilbur Wright Extension	$520,988.90

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

BROOKS DRIVE

Bicycle Lanes

0.6 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (3169 LFT / Side x2)	24	*EA*	$ 200.00	$ 4,800.00
Bike Lane Sign (Every 250 LFT) (3169 LFT / Side x2)	24	*EA*	$ 150.00	$ 3,600.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	6,338	*LFT*	$ 1.00	$ 6,400.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	-	*LS*	$ 11,790.09	$ -
Mobilization & Demobilization (5%)	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 16,154.22	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 55,462.81	$ -
Contingency (15%)	1	*LS*	$ 3,000.00	$ 3,000.00
Construction Total				$ 22,300.00
Total Estimated Phase 1 Costs				***$ 22,300.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

COMMERCE DRIVE

Bicycle Lanes

0.7 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (3677 LFT / Side x2)	28	*EA*	$ 200.00	$ 5,600.00
Bike Lane Sign (Every 250 LFT) (3677 LFT / Side x2)	28	*EA*	$ 150.00	$ 4,200.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	7,354	*LFT*	$ 1.00	$ 7,400.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	-	*LS*	$ 1,000.00	$ -
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 516.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 860.00	$ -
Contingency (15%)	1	*LS*	$ 4,300.00	$ 4,300.00
Construction Total				$ 26,000.00
Total Estimated Phase 1 Costs				***$ 26,000.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

EXECUTIVE DRIVE

Bicycle Lanes

0.3 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (1715 LFT / Side x2)	12	*EA*	$ 200.00	$ 2,400.00
Bike Lane Sign (Every 250 LFT) (1715 LFT / Side x2)	12	*EA*	$ 150.00	$ 1,800.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	3,430	*LFT*	$ 1.00	$ 3,500.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 231.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 385.00	$ -
Contingency (25%)	1	*LS*	$ 1,925.00	$ 1,925.00
Construction Total				$ 15,125.00
Total Estimated Phase 1 Costs				***$ 15,125.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

COUNTY ROAD 200 S

Bicycle Lanes

4.5 Miles

Item Improvement Description	Qty	Unit		Unit Cost		Cost
Bike Lane Symbol (Every 250 LFT) (23,899 LFT / Side x2)	190	*EA*	$	200.00	$	38,000.00
Bike Lane Sign (Every 250 LFT) (23,899 LFT / Side x2)	190	*EA*	$	150.00	$	28,500.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	47,798	*LFT*	$	1.00	$	47,800.00
New Pavement for Bike Lane [(23,899 x 4) x 2]						
HMA Surface, 165#/SYS, Type B	1742.0	*TON*	$	65.00	$	113,230.00
HMA Intermediate, 275#/SYS, Type B	2904.0	*TON*	$	60.00	$	174,240.00
6" Compacted Aggregate #53	7,035	*TON*	$	20.00	$	140,700.00
Subgrade Treatment Type III	21,243	*SYS*	$	10.00	$	212,500.00
Common Excavation	5,866	CYS		$15.00		$87,990.00
Maitenance of Traffic (3%)	1	*LS*	$	22,649.10	$	22,649.10
Earthwork	-	*LS*	$	20,000.00	$	-
Erosion Control	1	*LS*	$	15,000.00	$	15,000.00
Utility Relocations	1	*LS*	$	50,000.00	$	50,000.00
Construction Engineering (2.5%)	1	*LS*	$	18,874.25	$	18,874.25
Mobilization & Demobilization (5%)	1	*LS*	$	113,245.50	$	113,245.50
Clearing ROW (3%)	1	*LS*	$	22,649.10	$	22,649.10
Inflation (5% per year x 2)*	-	*LS*	$	37,748.50	$	-
Contingency (15%)	1	*LS*	$	113,245.50	$	113,245.50
Construction Total					$	1,198,623.45
Total Estimated Phase 1 Costs					***$***	***1,198,623.45***

Widden 4' on each side of roadway

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

BUNDY AVENUE

Bicycle Lanes

1.0 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (5521 LFT / Side x2)	44	*EA*	$ 200.00	$ 8,800.00
Bike Lane Sign (Every 250 LFT) (5521 LFT / Side x2)	44	*EA*	$ 150.00	$ 6,600.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	11,042	*LFT*	$ 1.00	$ 11,100.00
Bituminous Coldplaining, Up to 3.5" (SR3 to I Ave.)	2,233	*SYS*	$ 2.00	$ 4,466.00
HMA Surface, Type B (165# / SYS) (12' wide x 1675 LFT)(SR3 to I Ave.)	184	*TON*	$ 65.00	$ 11,960.00
Common Excavation (SR3 to I Ave.)	930	*CYS*	$ 25.00	$ 23,250.00
Road Widening (SR3 to I Ave.)(18' x 1675 LFT)				
HMA Surface, 165#/SYS, Type B	276.0	*TON*	$ 65.00	$ 17,940.00
HMA Intermediate, 275#/SYS, Type B	461.0	*TON*	$ 60.00	$ 27,660.00
6" Compacted Aggregate #53 (0.333T / SYS)	1,116	*TON*	$ 20.00	$ 22,400.00
Subgrade Treatment Type III	3,350	*SYS*	$ 10.00	$ 33,500.00
Maitenance of Traffic (3%)	1	*LS*	$ 5,030.28	$ 5,030.28
Earthwork	1	*LS*	$ 20,000.00	$ 20,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 30,000.00	$ 30,000.00
Construction Engineering (2.5%)	1	*LS*	$ 4,191.90	$ 4,191.90
Mobilization & Demobilization (5%)	1	*LS*	$ 8,383.80	$ 8,383.80
Clearing ROW (3%)	1	*LS*	$ 5,030.28	$ 5,030.28
Inflation (5% per year x 2)*	-	*LS*	$ 8,383.80	$ -
Contingency (15%)	1	*LS*	$ 25,151.40	$ 25,151.40
Construction Total				$ 280,463.66
Total Estimated Phase 1 Costs				***$ 280,463.66***

Narrow Roadway from I Ave to 11th St.

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

PARKVIEW DRIVE

Bicycle Lanes

0.5 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (2678 LFT / Side x2)	20	*EA*	$ 200.00	$ 4,000.00
Bike Lane Sign (Every 250 LFT) (2678 LFT / Side x2)	20	*EA*	$ 150.00	$ 3,000.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	5,356	*LFT*	$ 1.00	$ 5,400.00
Marked Parking (Bundy Ave to Ross Street)(1720 LFT)(8' x 23')	70	*Each*	$ 8.00	$ 600.00
BIOSWALE CENTER MEDIAN				
Integral Curb	3,440	*LFT*	$ 1.00	$ 3,500.00
HMA Patching, Type B (1405# / SYS)(3440 LFT x 4' Wide)	1,074	*TON*	$ 150.00	$ 161,100.00
Bioengineered Soil (18" x 6')	573	*CYS*	$ 70.00	$ 40,200.00
Topsoil (2' x 4' x 1720 LFT)	509	*CYS*	$ 50.00	$ 25,500.00
Plugs (Sedge, 18" OC)	7,568	*Each*	$ 5.00	$ 37,900.00
Maitenance of Traffic (3%)	1	*LS*	$ 8,436.00	$ 8,436.00
Earthwork	1	*LS*	$ 20,000.00	$ 20,000.00
Erosion Control	1	*LS*	$ 10,000.00	$ 10,000.00
Utility Relocations		*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 7,030.00	$ 7,030.00
Mobilization & Demobilization (5%)	1	*LS*	$ 14,060.00	$ 14,060.00
Clearing ROW (3%)	1	*LS*	$ 8,436.00	$ 8,436.00
Inflation (5% per year x 2)*	-	*LS*	$ 14,060.00	$ -
Contingency (15%)	1	*LS*	$ 42,180.00	$ 42,180.00
Construction Total				$ 391,342.00
Total Estimated Phase 1 Costs				***$ 391,342.00***

Add planted median from Bundy Ave. to Ross St.

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

INDIANA AVENUE

Bicycle Lanes

0.14 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (760 LFT / Side x2)	6	*EA*	$ 200.00	$ 1,200.00
Bike Lane Sign (Every 250 LFT) (760 LFT / Side x2)	6	*EA*	$ 150.00	$ 900.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	1,520	*LFT*	$ 1.00	$ 1,600.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 111.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 185.00	$ -
Contingency (25%)	1	*LS*	$ 925.00	$ 925.00
Construction Total				$ 10,125.00
Total Estimated Phase 1 Costs				***$ 10,125.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

31st STREET

Bicycle Lanes

0.76 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (4025 LFT / Side x2)	32	*EA*	$ 200.00	$ 6,400.00
Bike Lane Sign (Every 250 LFT) (4025 LFT / Side x2)	32	*EA*	$ 150.00	$ 4,800.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	8,050	*LFT*	$ 1.00	$ 8,100.00
New Pavement for Bike Lane [(4025 x 4) x 2 SFT]				
HMA Surface, 165#/SYS, Type B	296.8	*TON*	$ 65.00	$ 19,292.00
HMA Intermediate, 275#/SYS, Type B	426.0	*TON*	$ 60.00	$ 25,560.00
6" Compacted Aggregate #53	1,191	*TON*	$ 20.00	$ 23,900.00
Subgrade Treatment Type III	3,577	*SYS*	$ 10.00	$ 35,800.00
Maitenance of Traffic	1	*LS*	$ 3,715.56	$ 3,715.56
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 20,000.00	$ 20,000.00
Construction Engineering (2.5%)	1	*LS*	$ 3,096.30	$ 3,096.30
Mobilization & Demobilization (5%)	1	*LS*	$ 6,192.60	$ 6,192.60
Clearing ROW (3%)	1	*LS*	$ 3,715.56	$ 3,715.56
Inflation (5% per year x 2)*	-	*LS*	$ 6,192.60	$ -
Contingency (15%)	1	*LS*	$ 18,577.80	$ 18,577.80
Construction Total				$ 199,149.82
Total Estimated Phase 1 Costs				***$ 199,149.82***

Widden roadway 4' on each side

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

GARNER STREET

Bicycle Lanes

0.40 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (2120 LFT / Side x2)	16	*EA*	$ 200.00	$ 3,200.00
Bike Lane Sign (Every 250 LFT) (2120 LFT / Side x2)	16	*EA*	$ 150.00	$ 2,400.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	4,240	*LFT*	$ 1.00	$ 4,300.00
New Pavement for Bike Lane [(2120 LFT x 4 Ft) x 2 Sides]				
HMA Surface, 165#/SYS, Type B	156.3	*TON*	$ 65.00	$ 10,159.50
HMA Intermediate, 275#/SYS, Type B	259.9	*TON*	$ 60.00	$ 15,594.00
6" Compacted Aggregate #53	627	*TON*	$ 20.00	$ 12,600.00
Subgrade Treatment Type III	1,884	*SYS*	$ 10.00	$ 18,900.00
Maitenance of Traffic	1	*LS*	$ 2,014.61	$ 2,014.61
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 20,000.00	$ 20,000.00
Construction Engineering (2.5%)	1	*LS*	$ 1,678.84	$ 1,678.84
Mobilization & Demobilization (5%)	1	*LS*	$ 3,357.68	$ 3,357.68
Clearing ROW (3%)	1	*LS*	$ 2,014.61	$ 2,014.61
Inflation (5% per year x 2)*	-	*LS*	$ 3,357.68	$ -
Contingency (15%)	1	*LS*	$ 10,073.03	$ 10,073.03
Construction Total				$ 126,292.25
Total Estimated Phase 1 Costs				***$ 126,292.25***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

NORTH 14th STREET

Bicycle Lanes

0.26 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (1402 LFT / Side x2)	10	*EA*	$ 200.00	$ 2,000.00
Bike Lane Sign (Every 250 LFT) (1402 LFT / Side x2)	10	*EA*	$ 150.00	$ 1,500.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	2,804	*LFT*	$ 1.00	$ 2,900.00
New Pavement for Bike Lane [(2231 LFT x 4 FT) x 2 Sides]				
HMA Surface, 165#/SYS, Type B	164.0	*TON*	$ 65.00	$ 10,660.00
HMA Intermediate, 275#/SYS, Type B	273.0	*TON*	$ 60.00	$ 16,380.00
6" Compacted Aggregate #53 (0.333T / SYS)	660	*TON*	$ 20.00	$ 13,200.00
Subgrade Treatment Type III	1,983	*SYS*	$ 10.00	$ 19,900.00
Maitenance of Traffic	1	*LS*	$ 1,996.20	$ 1,996.20
Earthwork	1	*LS*	$ 20,000.00	$ 20,000.00
Erosion Control	1	*LS*	$ 7,000.00	$ 7,000.00
Utility Relocations	1	*LS*	$ 20,000.00	$ 20,000.00
Construction Engineering (2.5%)	1	*LS*	$ 1,663.50	$ 1,663.50
Mobilization & Demobilization (5%)	1	*LS*	$ 3,327.00	$ 3,327.00
Clearing ROW (3%)	1	*LS*	$ 1,996.20	$ 1,996.20
Inflation (5% per year x 2)*	-	*LS*	$ 3,327.00	$ -
Contingency (15%)	1	*LS*	$ 9,981.00	$ 9,981.00
Construction Total				$ 132,503.90
Total Estimated Phase 1 Costs				***$ 132,503.90***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

WASHINGTON STREET

Bicycle Lanes

0.22 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (1210 LFT / Side x2)	8	*EA*	$ 200.00	$ 1,600.00
Bike Lane Sign (Every 250 LFT) (1210 LFT / Side x2)	8	*EA*	$ 150.00	$ 1,200.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	2,420	*LFT*	$ 1.00	$ 2,500.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 159.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 265.00	$ -
Contingency (25%)	1	*LS*	$ 1,325.00	$ 1,325.00
Construction Total				$ 12,125.00
Total Estimated Phase 1 Costs				***$ 12,125.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

****I AVENUE**

Bicycle Lanes

0.67 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Bike Lane Symbol (Every 250 LFT) (3545 LFT / Side x2)	28	*EA*	$ 200.00	$ 5,600.00
Bike Lane Sign (Every 250 LFT) (3545 LFT / Side x2)	28	*EA*	$ 150.00	$ 4,200.00
Restriping for Road Re-Work [Solid White for Bike Lane (x2 / Side)]	7,090	*LFT*	$ 1.00	$ 7,100.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 507.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 845.00	$ -
Contingency (25%)	1	*LS*	$ 4,225.00	$ 4,225.00
Construction Total				$ 26,625.00
Total Estimated Phase 1 Costs				***$ 26,625.00***

** Facility type option for route

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

****I AVENUE**

Two-Way Cycle Track

0.67 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (Asphalt 11' x 3538' x 1.5')	2162.0	*CYS*	$ 150.00	$ 324,300.00
HMA Milling, 1.5"	1706.8	*SYS*	$ 4.00	$ 6,827.20
HMA Surface, 165#/SYS, Type B	141.6	*TON*	$ 65.00	$ 9,204.00
HMA Patching, Type B (1405# / SYS) (8' x 3538 LFT)	2210.0	*TON*	$ 135.00	$ 298,350.00
Bike Lane Symbol (EVERY 350 LFT)	20.0	*EA*	$ 200.00	$ 4,000.00
Restriping for Bike Lane [YELLOW CENTER LINE DASHED]	3545.0	*LFT*	$ 5.00	$ 17,725.00
Intersection Improvements (Signage)	8	*EA*	$ 1,000.00	$ 8,000.00
Side Ditch and Shoulder Grading (inlcudes seeding)	0.0	*LFT*	$ 8.00	$ -
Curb (2 x 3545')	7,090	*LFT*	$ 20.00	$ 141,800.00
General Trail Landscape Work	-	*LS*	$ 50,000.00	$ -
Inlet - every 300' on curb	-	*EA*	$ 500.00	$ -
18" RCP	-	*LFT*	$ 30.00	$ -
Marked Parking (8'x23')(Solid White 4" Tick Line)	154.0	*EA*	$ 10.00	$ 1,540.00
Unit Pavers (includes sand settig bed)	7,075	*SFT*	$ 11.00	$ 77,825.00
Compacted Aggregate (4" Deep) (0.222 T/SYS) (under pavers)	175	*TON*	$ 45.00	$ 7,875.00
Geotextiles for Unit Pavers	786	*SYS*	$ 5.00	$ 3,930.00
Maitenance of Traffic (2%)	1	*LS*	$ 18,027.52	$ 18,027.52
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 22,534.41	$ 22,534.41
Mobilization & Demobilization (5%)	1	*LS*	$ 45,068.81	$ 45,068.81
Clearing ROW (3%)	1	*LS*	$ 27,041.29	$ 27,041.29
Inflation (5% per year x 2)*	-	*LS*	$ 45,068.81	$ -
Contingency (15%)	1	*LS*	$ 135,206.43	$ 135,206.43
Construction Total				$ 1,154,254.66
Total Estimated Phase 1 Costs				***$ 1,154,254.66***

** Facility type option for route

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

****CHERRYWOOD AVENUE**

Two-Way Cycle Track

0.41 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (Asphalt 11' x 2142' x 1.5')	1547.0	*CYS*	$ 150.00	$ 232,050.00
HMA Milling, 1.5"	1428.0	*SYS*	$ 4.00	$ 5,712.00
HMA Surface, 165#/SYS, Type B	200.0	*TON*	$ 65.00	$ 13,000.00
HMA Patching, Type B (1405# / SYS) (8' x 2164 LFT)	1351.0	*TON*	$ 150.00	$ 202,650.00
Bike Lane Symbol (EVERY 350 LFT)	12.0	*EA*	$ 200.00	$ 2,400.00
Restriping for Bike Lane [YELLOW CENTER LINE DASHED]	2142.0	*LFT*	$ 5.00	$ 10,710.00
Compacted Aggregate (12' Wide - 6" Deep) (0.333 T/SYS)		*TON*	$ 20.00	$ -
Intersection Improvements (Signage)	7	*EA*	$ 1,000.00	$ 7,000.00
Side Ditch and Shoulder Grading (inlcudes seeding)	0.0	*LFT*	$ 8.00	$ -
Curb (2 x 2142')	4,284	*LFT*	$ 20.00	$ 85,680.00
General Trail Landscape Work	-	*LS*	$ 50,000.00	$ -
Inlet - Every 300' on curb	-	*EA*	$ 500.00	$ -
18" RCP	-	*LFT*	$ 30.00	$ -
Unit Pavers (includes sand settig bed)	4,330	*SFT*	$ 11.00	$ 47,630.00
Compacted Aggregate (4" Deep) (0.333 T/SYS) (under pavers)	54	*TON*	$ 45.00	$ 2,430.00
Geotextiles for Unit Pavers	482	*SYS*	$ 5.00	$ 2,410.00
Maitenance of Traffic (2%)	1	*LS*	$ 12,136.64	$ 12,136.64
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 15,170.80	$ 15,170.80
Mobilization & Demobilization (5%)	1	*LS*	$ 30,341.60	$ 30,341.60
Clearing ROW (3%)	1	*LS*	$ 18,204.96	$ 18,204.96
Inflation (5% per year x 2)*	-	*LS*	$ 30,341.60	$ -
Contingency (15%)	1	*LS*	$ 91,024.80	$ 91,024.80
Construction Total				$ 783,550.80
Total Estimated Phase 1 Costs				***$ 783,550.80***

** Facility type option for route

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

BROOKS DRIVE

Pedestrian Sidewalk

0.6 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 3169' x .333') / 27	195.5	*CYS*	$ 150.00	$ 29,325.00
Sidewalk, 4" (5' x 3169') / 9	1760.5	*SYS*	$ 40.00	$ 70,420.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.54	*Miles*	$ 6,000.00	$ 3,240.00
Curb (10 LFT / Ramp)	-	*LFT*	$ 15.00	$ -
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	-	*SYS*	$ 120.00	$ -
Maitenance of Traffic (2%)	1	*LS*	$ 2,059.70	$ 2,059.70
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,574.63	$ 2,574.63
Mobilization & Demobilization (5%)	1	*LS*	$ 5,149.25	$ 5,149.25
Clearing ROW (3%)	1	*LS*	$ 3,089.55	$ 3,089.55
Inflation (5% per year x 2)*	-	*LS*	$ 5,149.25	$ -
Contingency (20%)	1	*LS*	$ 20,597.00	$ 20,597.00
Construction Total				$ 166,455.13
Total Estimated Phase 1 Costs				***$ 166,455.13***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

COMMERCE DRIVE

Pedestrian Sidewalk

0.7 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 3677' x .333') / 27	226.7	*CYS*	$ 150.00	$ 34,005.00
Sidewalk, 4" (5' x 3677') / 9	2042.8	*SYS*	$ 40.00	$ 81,712.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.7	*Miles*	$ 6,000.00	$ 4,200.00
Curb (10 LFT / Ramp)	-	*LFT*	$ 15.00	$ -
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	-	*SYS*	$ 120.00	$ -
Maitenance of Traffic (2%)	1	*LS*	$ 2,398.34	$ 2,398.34
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,997.93	$ 2,997.93
Mobilization & Demobilization (5%)	1	*LS*	$ 5,995.85	$ 5,995.85
Clearing ROW (3%)	1	*LS*	$ 3,597.51	$ 3,597.51
Inflation (5% per year x 2)*	-	*LS*	$ 5,995.85	$ -
Contingency (20%)	1	*LS*	$ 23,983.40	$ 23,983.40
Construction Total				$ 188,890.03
Total Estimated Phase 1 Costs				***$ 188,890.03***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

EXECUTIVE DRIVE

Pedestrian Sidewalk

0.3 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 1715' x .333') / 27	105.8	*CYS*	$ 150.00	$ 15,870.00
Sidewalk, 4" (5' x 1715') / 9	952.8	*SYS*	$ 40.00	$ 38,112.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.3	*Miles*	$ 6,000.00	$ 1,800.00
Curb (10 LFT / Ramp)	-	*LFT*	$ 15.00	$ -
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	-	*SYS*	$ 120.00	$ -
Maitenance of Traffic (2%)	1	*LS*	$ 1,115.64	$ 1,115.64
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 1,394.55	$ 1,394.55
Mobilization & Demobilization (5%)	1	*LS*	$ 2,789.10	$ 2,789.10
Clearing ROW (3%)	1	*LS*	$ 1,673.46	$ 1,673.46
Inflation (5% per year x 2)*	-	*LS*	$ 2,789.10	$ -
Contingency (20%)	1	*LS*	$ 11,156.40	$ 11,156.40
Construction Total				$ 103,911.15
Total Estimated Phase 1 Costs				***$ 103,911.15***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

STATE ROAD 3

Pedestrian Sidewalk

3.26 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 17,209' x .333') / 27	1061.2	*CYS*	$ 150.00	$ 159,180.00
Sidewalk, 4" (5' x 17,209') / 9	9560.5	*SYS*	$ 40.00	$ 382,420.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	3.26	*Miles*	$ 6,000.00	$ 19,560.00
Curb (10 LFT / Ramp)	220	*LFT*	$ 15.00	$ 3,300.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	107.8	*SYS*	$ 120.00	$ 12,936.00
Maitenance of Traffic (2%)	1	*LS*	$ 11,547.92	$ 11,547.92
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 14,434.90	$ 14,434.90
Mobilization & Demobilization (5%)	1	*LS*	$ 28,869.80	$ 28,869.80
Clearing ROW (3%)	1	*LS*	$ 17,321.88	$ 17,321.88
Inflation (5% per year x 2)*	-	*LS*	$ 28,869.80	$ -
Contingency (15%)	1	*LS*	$ 86,609.40	$ 86,609.40
Construction Total				$ 766,179.90
Total Estimated Phase 1 Costs				***$ 766,179.90***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

MAIN STREET

Pedestrian Sidewalk

0.5 Miles from CR 300 S to Jeffry St.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 2640' x .333') / 27	162.8	*CYS*	$ 150.00	$ 24,420.00
Sidewalk, 4" (5' x 2640') / 9	1466.6	*SYS*	$ 40.00	$ 58,664.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.5	*Miles*	$ 6,000.00	$ 3,000.00
Curb (10 LFT / Ramp)	10.0	*LFT*	$ 15.00	$ 150.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	4.9	*SYS*	$ 120.00	$ 588.00
Maitenance of Traffic (2%)	1	*LS*	$ 1,736.44	$ 1,736.44
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,170.55	$ 2,170.55
Mobilization & Demobilization (5%)	1	*LS*	$ 4,341.10	$ 4,341.10
Clearing ROW (3%)	1	*LS*	$ 2,604.66	$ 2,604.66
Inflation (5% per year x 2)*	-	*LS*	$ 4,341.10	$ -
Contingency (15%)	1	*LS*	$ 13,023.30	$ 13,023.30
Construction Total				$ 140,698.05
Total Estimated Phase 1 Costs				***$ 140,698.05***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

MAIN STREET

Pedestrian Sidewalk

0.5 Miles - Jeffry St. to Riley Rd.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 2640' x .333') / 27	162.8	*CYS*	$ 150.00	$ 24,420.00
Sidewalk, 4" (5' x 2640') / 9	1466.6	*SYS*	$ 40.00	$ 58,664.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.5	*Miles*	$ 6,000.00	$ 3,000.00
Curb (10 LFT / Ramp)	10.0	*LFT*	$ 15.00	$ 150.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	4.9	*SYS*	$ 120.00	$ 588.00
Maitenance of Traffic (2%)	1	*LS*	$ 1,736.44	$ 1,736.44
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,170.55	$ 2,170.55
Mobilization & Demobilization (5%)	1	*LS*	$ 4,341.10	$ 4,341.10
Clearing ROW (3%)	1	*LS*	$ 2,604.66	$ 2,604.66
Inflation (5% per year x 2)*	-	*LS*	$ 4,341.10	$ -
Contingency (15%)	1	*LS*	$ 13,023.30	$ 13,023.30
Construction Total				$ 140,698.05
Total Estimated Phase 1 Costs				***$ 140,698.05***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

RILEY ROAD / CR 200 S

Pedestrian Sidewalk

Miles from Spiceland Rd. to SR 3

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 1594' x .333') / 27	98.3	*CYS*	$ 150.00	$ 14,745.00
Sidewalk, 4" (5' x 1594') / 9	885.5	*SYS*	$ 40.00	$ 35,420.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.3	*Miles*	$ 6,000.00	$ 1,800.00
Curb (10 LFT / Ramp)	10.0	*LFT*	$ 15.00	$ 150.00
Curb Ramp, Concrete Type G (4.9 SYS x Ramps)	4.9	*SYS*	$ 120.00	$ 588.00
Maitenance of Traffic (2%)	1	*LS*	$ 1,054.06	$ 1,054.06
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 1,317.58	$ 1,317.58
Mobilization & Demobilization (5%)	1	*LS*	$ 2,635.15	$ 2,635.15
Clearing ROW (3%)	1	*LS*	$ 1,581.09	$ 1,581.09
Inflation (5% per year x 2)*	-	*LS*	$ 2,635.15	$ -
Contingency (15%)	1	*LS*	$ 7,905.45	$ 7,905.45
Construction Total				$ 97,196.33
Total Estimated Phase 1 Costs				***$ 97,196.33***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

RILEY ROAD / CR 200 S

Pedestrian Sidewalk

0.98 Miles from SR 3 to Cherrywood Ave.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 5216' x .333') / 27	318.7	*CYS*	$ 150.00	$ 47,805.00
Sidewalk, 4" (5' x 5216') / 9	2897.7	*SYS*	$ 40.00	$ 115,908.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.98	*Miles*	$ 6,000.00	$ 5,880.00
Curb (10 LFT / Ramp)	20.0	*LFT*	$ 15.00	$ 300.00
Curb Ramp, Concrete Type G (4.9 SYS x Ramps)	9.8	*SYS*	$ 120.00	$ 1,176.00
Maitenance of Traffic (2%)	1	*LS*	$ 3,421.38	$ 3,421.38
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 4,276.73	$ 4,276.73
Mobilization & Demobilization (5%)	1	*LS*	$ 8,553.45	$ 8,553.45
Clearing ROW (3%)	1	*LS*	$ 5,132.07	$ 5,132.07
Inflation (5% per year x 2)*	-	*LS*	$ 8,553.45	$ -
Contingency (15%)	1	*LS*	$ 25,660.35	$ 25,660.35
Construction Total				$ 248,112.98
Total Estimated Phase 1 Costs				***$ 248,112.98***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

RILEY ROAD / CR 200 S

Pedestrian Sidewalk

0.56 Miles from Cherrywood Ave. to Brentwood Rd.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 2962' x .333') / 27	182.6	*CYS*	$ 150.00	$ 27,390.00
Sidewalk, 4" (5' x 2962') / 9	1645.5	*SYS*	$ 40.00	$ 65,820.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.56	*Miles*	$ 6,000.00	$ 3,360.00
Curb (10 LFT / Ramp)	20.0	*LFT*	$ 15.00	$ 300.00
Curb Ramp, Concrete Type G (4.9 SYS x Ramps)	9.8	*SYS*	$ 120.00	$ 1,176.00
Maitenance of Traffic (2%)	1	*LS*	$ 1,960.92	$ 1,960.92
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,451.15	$ 2,451.15
Mobilization & Demobilization (5%)	1	*LS*	$ 4,902.30	$ 4,902.30
Clearing ROW (3%)	1	*LS*	$ 2,941.38	$ 2,941.38
Inflation (5% per year x 2)*	-	*LS*	$ 4,902.30	$ -
Contingency (15%)	1	*LS*	$ 14,706.90	$ 14,706.90
Construction Total				$ 155,008.65
Total Estimated Phase 1 Costs				***$ 155,008.65***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

Q AVENUE

Pedestrian Sidewalk

0.11 Miles from Main St. to Roosevelt Ave.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 600' x .333') / 27	37.0	*CYS*	$ 150.00	$ 5,550.00
Sidewalk, 4" (5' x 600') / 9	333.3	*SYS*	$ 40.00	$ 13,332.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.11	*Miles*	$ 6,000.00	$ 660.00
Curb (10 LFT / Ramp)	20	*LFT*	$ 15.00	$ 300.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	9.8	*SYS*	$ 120.00	$ 1,176.00
Maitenance of Traffic (2%)	1	*LS*	$ 420.36	$ 420.36
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 525.45	$ 525.45
Mobilization & Demobilization (5%)	1	*LS*	$ 1,050.90	$ 1,050.90
Clearing ROW (3%)	1	*LS*	$ 630.54	$ 630.54
Inflation (5% per year x 2)*	-	*LS*	$ 1,050.90	$ -
Contingency (15%)	1	*LS*	$ 3,152.70	$ 3,152.70
Construction Total				$ 56,797.95
Total Estimated Phase 1 Costs				***$ 56,797.95***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

Q AVENUE

Pedestrian Sidewalk

0.69 Miles from 14th St. to Cottage Ave.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 3660' x .333') / 27	225.7	*CYS*	$ 150.00	$ 33,855.00
Sidewalk, 4" (5' x 3660') / 9	2033.3	*SYS*	$ 40.00	$ 81,332.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.69	*Miles*	$ 6,000.00	$ 4,140.00
Curb (10 LFT / Ramp)	60	*LFT*	$ 15.00	$ 900.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	29.4	*SYS*	$ 120.00	$ 3,528.00
Maitenance of Traffic (2%)	1	*LS*	$ 2,475.10	$ 2,475.10
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 3,093.88	$ 3,093.88
Mobilization & Demobilization (5%)	1	*LS*	$ 6,187.75	$ 6,187.75
Clearing ROW (3%)	1	*LS*	$ 3,712.65	$ 3,712.65
Inflation (5% per year x 2)*	-	*LS*	$ 6,187.75	$ -
Contingency (15%)	1	*LS*	$ 18,563.25	$ 18,563.25
Construction Total				$ 187,787.63
Total Estimated Phase 1 Costs				***$ 187,787.63***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

MIDWAY DRIVE

Pedestrian Sidewalk

0.5 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 2696' x .333') / 27	166.3	*CYS*	$ 150.00	$ 24,945.00
Sidewalk, 4" (5' x 2696') / 9	1497.7	*SYS*	$ 40.00	$ 59,908.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.5	*Miles*	$ 6,000.00	$ 3,000.00
Curb (10 LFT / Ramp)	-	*LFT*	$ 15.00	$ -
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	-	*SYS*	$ 120.00	$ -
Maitenance of Traffic (2%)	1	*LS*	$ 1,757.06	$ 1,757.06
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,196.33	$ 2,196.33
Mobilization & Demobilization (5%)	1	*LS*	$ 4,392.65	$ 4,392.65
Clearing ROW (3%)	1	*LS*	$ 2,635.59	$ 2,635.59
Inflation (5% per year x 2)*	-	*LS*	$ 4,392.65	$ -
Contingency (15%)	1	*LS*	$ 13,177.95	$ 13,177.95
Construction Total				$ 117,067.58
Total Estimated Phase 1 Costs				***$ 117,067.58***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

PARKVIEW DRIVE

Pedestrian Sidewalk

0.25 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 1344' x .333') / 27	82.8	*CYS*	$ 150.00	$ 12,420.00
Sidewalk, 4" (5' x 1344') / 9	746.6	*SYS*	$ 40.00	$ 29,864.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.25	*Miles*	$ 6,000.00	$ 1,500.00
Curb (10 LFT / Ramp)	70	*LFT*	$ 15.00	$ 1,050.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	34.3	*SYS*	$ 120.00	$ 4,116.00
Maitenance of Traffic (2%)	1	*LS*	$ 979.00	$ 979.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 1,223.75	$ 1,223.75
Mobilization & Demobilization (5%)	1	*LS*	$ 2,447.50	$ 2,447.50
Clearing ROW (3%)	1	*LS*	$ 1,468.50	$ 1,468.50
Inflation (5% per year x 2)*	-	*LS*	$ 2,447.50	$ -
Contingency (15%)	1	*LS*	$ 7,342.50	$ 7,342.50
Construction Total				$ 92,411.25
Total Estimated Phase 1 Costs				***$ 92,411.25***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

BUNDY AVENUE

Pedestrian Sidewalk

1.0 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 1344' x .333') / 27	82.8	*CYS*	$ 150.00	$ 12,420.00
Sidewalk, 4" (5' x 1344') / 9	746.6	*SYS*	$ 40.00	$ 29,864.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1	*Miles*	$ 6,000.00	$ 6,000.00
Curb (10 LFT / Ramp)	100.0	*LFT*	$ 15.00	$ 1,500.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	49.0	*SYS*	$ 120.00	$ 5,880.00
Maitenance of Traffic (2%)	1	*LS*	$ 1,113.28	$ 1,113.28
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 1,391.60	$ 1,391.60
Mobilization & Demobilization (5%)	1	*LS*	$ 2,783.20	$ 2,783.20
Clearing ROW (3%)	1	*LS*	$ 1,669.92	$ 1,669.92
Inflation (5% per year x 2)*	-	*LS*	$ 2,783.20	$ -
Contingency (15%)	1	*LS*	$ 8,349.60	$ 8,349.60
Construction Total				$ 100,971.60
Total Estimated Phase 1 Costs				***$ 100,971.60***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

INDIANA AVENUE

Pedestrian Sidewalk

0.14 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 760' x .333') / 27	46.8	*CYS*	$ 150.00	$ 7,020.00
Sidewalk, 4" (5' x 760') / 9	422.2	*SYS*	$ 40.00	$ 16,888.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.14	*Miles*	$ 6,000.00	$ 840.00
Curb (10 LFT / Ramp)	20.0	*LFT*	$ 15.00	$ 300.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	9.8	*SYS*	$ 120.00	$ 1,176.00
Maitenance of Traffic (2%)	1	*LS*	$ 524.48	$ 524.48
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 655.60	$ 655.60
Mobilization & Demobilization (5%)	1	*LS*	$ 1,311.20	$ 1,311.20
Clearing ROW (3%)	1	*LS*	$ 786.72	$ 786.72
Inflation (5% per year x 2)*	-	*LS*	$ 1,311.20	$ -
Contingency (15%)	1	*LS*	$ 3,933.60	$ 3,933.60
Construction Total				$ 63,435.60
Total Estimated Phase 1 Costs				***$ 63,435.60***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

NEW YORK AVENUE

Pedestrian Sidewalk

0.39 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 2111' x .333') / 27	130.2	*CYS*	$ 150.00	$ 19,530.00
Sidewalk, 4" (5' x 2111') / 9	1172.7	*SYS*	$ 40.00	$ 46,908.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.39	*Miles*	$ 6,000.00	$ 2,340.00
Curb (10 LFT / Ramp)	20.0	*LFT*	$ 15.00	$ 300.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	9.8	*SYS*	$ 120.00	$ 1,176.00
Maitenance of Traffic (2%)	1	*LS*	$ 1,405.08	$ 1,405.08
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 1,756.35	$ 1,756.35
Mobilization & Demobilization (5%)	1	*LS*	$ 3,512.70	$ 3,512.70
Clearing ROW (3%)	1	*LS*	$ 2,107.62	$ 2,107.62
Inflation (5% per year x 2)*	-	*LS*	$ 3,512.70	$ -
Contingency (15%)	1	*LS*	$ 10,538.10	$ 10,538.10
Construction Total				$ 119,573.85
Total Estimated Phase 1 Costs				***$ 119,573.85***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

25TH STREET

Pedestrian Sidewalk

0.62 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 3307' x .333') / 27	203.9	*CYS*	$ 150.00	$ 30,585.00
Sidewalk, 4" (5' x 3307') / 9	1837.2	*SYS*	$ 40.00	$ 73,488.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.62	*Miles*	$ 6,000.00	$ 3,720.00
Curb (10 LFT / Ramp)	40.0	*LFT*	$ 15.00	$ 600.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	19.6	*SYS*	$ 120.00	$ 2,352.00
Maitenance of Traffic (2%)	1	*LS*	$ 2,214.90	$ 2,214.90
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,768.63	$ 2,768.63
Mobilization & Demobilization (5%)	1	*LS*	$ 5,537.25	$ 5,537.25
Clearing ROW (3%)	1	*LS*	$ 3,322.35	$ 3,322.35
Inflation (5% per year x 2)*	-	*LS*	$ 5,537.25	$ -
Contingency (15%)	1	*LS*	$ 16,611.75	$ 16,611.75
Construction Total				$ 171,199.88
Total Estimated Phase 1 Costs				***$ 171,199.88***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

WASHINGTON STREET

Pedestrian Sidewalk

0.13 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 721' x .333') / 27	44.5	*CYS*	$ 150.00	$ 6,675.00
Sidewalk, 4" (5' x 721') / 9	400.5	*SYS*	$ 40.00	$ 16,020.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.13	*Miles*	$ 6,000.00	$ 780.00
Curb (10 LFT / Ramp)	20.0	*LFT*	$ 15.00	$ 300.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	9.8	*SYS*	$ 120.00	$ 1,176.00
Maitenance of Traffic (2%)	1	*LS*	$ 499.02	$ 499.02
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 623.78	$ 623.78
Mobilization & Demobilization (5%)	1	*LS*	$ 1,247.55	$ 1,247.55
Clearing ROW (3%)	1	*LS*	$ 748.53	$ 748.53
Inflation (5% per year x 2)*	-	*LS*	$ 1,247.55	$ -
Contingency (15%)	1	*LS*	$ 3,742.65	$ 3,742.65
Construction Total				$ 61,812.53
Total Estimated Phase 1 Costs				***$ 61,812.53***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

N. 14TH STREET

Pedestrian Sidewalk

0.27 Miles

Item Improvement Description	Qty	Unit		Unit Cost		Cost
Common Excavation (5' x 1453' x .333') / 27	89.6	*CYS*	$	150.00	$	13,440.00
Sidewalk, 4" (5' x 1453') / 9	807.2	*SYS*	$	40.00	$	32,288.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.27	*Miles*	$	6,000.00	$	1,620.00
Curb (10 LFT / Ramp)	20.0	*LFT*	$	15.00	$	300.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	9.8	*SYS*	$	120.00	$	1,176.00
Maitenance of Traffic (2%)	1	*LS*	$	976.48	$	976.48
Earthwork	1	*LS*	$	5,000.00	$	5,000.00
Erosion Control	1	*LS*	$	15,000.00	$	15,000.00
Utility Relocations	1	*LS*	$	10,000.00	$	10,000.00
Construction Engineering (2.5%)	1	*LS*	$	1,220.60	$	1,220.60
Mobilization & Demobilization (5%)	1	*LS*	$	2,441.20	$	2,441.20
Clearing ROW (3%)	1	*LS*	$	1,464.72	$	1,464.72
Inflation (5% per year x 2)*	-	*LS*	$	2,441.20	$	-
Contingency (15%)	1	*LS*	$	7,323.60	$	7,323.60
Construction Total					$	92,250.60
Total Estimated Phase 1 Costs					***$***	***92,250.60***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

HENRY COUNTY HOSPITAL DRIVE / ALABAMA STREET

Pedestrian Sidewalk

0.54 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 2851' x .333') / 27	175.8	*CYS*	$ 150.00	$ 26,370.00
Sidewalk, 4" (5' x 2851') / 9	1583.8	*SYS*	$ 40.00	$ 63,352.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.54	*Miles*	$ 6,000.00	$ 3,240.00
Curb (10 LFT / Ramp)	50.0	*LFT*	$ 15.00	$ 750.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	24.5	*SYS*	$ 120.00	$ 2,940.00
Maitenance of Traffic (2%)	1	*LS*	$ 1,874.24	$ 1,874.24
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 2,342.80	$ 2,342.80
Mobilization & Demobilization (5%)	1	*LS*	$ 4,685.60	$ 4,685.60
Clearing ROW (3%)	1	*LS*	$ 2,811.36	$ 2,811.36
Inflation (5% per year x 2)*	-	*LS*	$ 4,685.60	$ -
Contingency (15%)	1	*LS*	$ 14,056.80	$ 14,056.80
Construction Total				$ 152,422.80
Total Estimated Phase 1 Costs				***$ 152,422.80***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

M AVENUE

Pedestrian Sidewalk

0.11 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Common Excavation (5' x 600' x .333') / 27	37.0	*CYS*	$ 150.00	$ 5,550.00
Sidewalk, 4" (5' x 600') / 9	333.3	*SYS*	$ 40.00	$ 13,332.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.11	*Miles*	$ 6,000.00	$ 660.00
Curb (10 LFT / Ramp)	20.0	*LFT*	$ 15.00	$ 300.00
Curb Ramp, Concrete Type G (4.9 SYS x # Ramps)	9.8	*SYS*	$ 120.00	$ 1,176.00
Maitenance of Traffic (2%)	1	*LS*	$ 420.36	$ 420.36
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 525.45	$ 525.45
Mobilization & Demobilization (5%)	1	*LS*	$ 1,050.90	$ 1,050.90
Clearing ROW (3%)	1	*LS*	$ 630.54	$ 630.54
Inflation (5% per year x 2)*	-	*LS*	$ 1,050.90	$ -
Contingency (15%)	1	*LS*	$ 3,152.70	$ 3,152.70
Construction Total				$ 56,797.95
Total Estimated Phase 1 Costs				***$ 56,797.95***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

MIDWAY DRIVE

Shared Roadway

0.5 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection) x2	18.0	*EA*	$ 200.00	$ 3,600.00
Sharrow Signage (Every 400 LFT) x 2	14.0	*EA*	$ 150.00	$ 2,100.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization (5%)	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 171.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 285.00	$ -
Contingency (25%)	1	*LS*	$ 1,425.00	$ 1,425.00
Construction Total				$ 11,125.00
Total Estimated Phase 1 Costs				***$ 11,125.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

BRENTWOOD ROAD

Shared Roadway

0.50 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection) x2	18.0	*EA*	$ 200.00	$ 3,600.00
Sharrow Signage (Every 400 LFT) x2	14.0	*EA*	$ 150.00	$ 2,100.00
Marked Parking (4" Solid White "Tick" Marking)(8' x 23' Space)	230	*EA*	$ 8.00	$ 1,840.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 377.00	$ 377.00
Clearing ROW (3%)	-	*LS*	$ 226.20	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 377.00	$ -
Contingency (25%)	1	*LS*	$ 1,885.00	$ 1,885.00
Construction Total				$ 12,302.00
Total Estimated Phase 1 Costs				***$ 12,302.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

PARKSIDE DRIVE

Shared Roadway

0.25 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection) x 2	8.0	*EA*	$ 200.00	$ 1,600.00
Sharrow Signage (Every 400 LFT) x 2	6.0	*EA*	$ 150.00	$ 900.00
Marked Parking (4" Solid White "Tick" Marking) (7' x 23' Space)	56	*EA*	$ 8.00	$ 5,600.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 405.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 405.00	$ -
Contingency (20%)	1	*LS*	$ 1,620.00	$ 1,620.00
Construction Total				$ 13,720.00
Total Estimated Phase 1 Costs				***$ 13,720.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

Q AVENUE

Shared Roadway

1.1 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection) x 2	40.0	*EA*	$ 200.00	$ 8,000.00
Sharrow Signage (Every 400 LFT) x 2	14.0	*EA*	$ 150.00	$ 2,100.00
Marked Parking (4" Solid White "Tick" Marking)(7' x 23' Space)	230	*EA*	$ 8.00	$ 1,840.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 597.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 597.00	$ -
Contingency (20%)	1	*LS*	$ 2,388.00	$ 2,388.00
Construction Total				$ 18,328.00
Total Estimated Phase 1 Costs				***$ 18,328.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

ROSS STREET

Shared Roadway

0.25 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection) x 2	10.0	*EA*	$ 200.00	$ 2,000.00
Sharrow Signage (Every 400 LFT) x 2	6.0	*EA*	$ 150.00	$ 900.00
Marked Parking (4" Solid White "Tick" Marking)(8' x 23' Space)(0.50/ LFT)	115	*EA*	$ 8.00	$ 920.00
Maitenance of Traffic (10%)	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization (5%)	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 114.60	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 191.00	$ -
Contingency (25%)	1	*LS*	$ 955.00	$ 955.00
Construction Total				$ 8,775.00
Total Estimated Phase 1 Costs				***$ 8,775.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

M AVENUE

Shared Roadway

0.48 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	18.0	*EA*	$ 200.00	$ 3,600.00
Sharrow Signage (Every 400 LFT)	8.0	*EA*	$ 150.00	$ 1,200.00
Marked Parking (4" Solid White "Tick" Marking)(8' x 23' Space)(0.50/ LFT)	230	*EA*	$ 8.00	$ 1,840.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 199.20	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 332.00	$ -
Contingency (25%)	1	*LS*	$ 1,660.00	$ 1,660.00
Construction Total				$ 12,300.00
Total Estimated Phase 1 Costs				***$ 12,300.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

I AVENUE

Shared Roadway

0.15 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	6.0	*EA*	$ 200.00	$ 1,200.00
Sharrow Signage (Every 400 LFT)	4.0	*EA*	$ 150.00	$ 600.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 90.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 54.00	$ -
Contingency (15%)	1	*LS*	$ 3,000.00	$ 3,000.00
Construction Total				$ 10,300.00
Total Estimated Phase 1 Costs				***$ 10,300.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

25th STREET

Shared Roadway

1.5 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	57.0	*EA*	$ 200.00	$ 11,400.00
Sharrow Signage (Every 400 LFT)	40.0	*EA*	$ 150.00	$ 6,000.00
Bituminous Cold Planning, Up to 3.5" (I Ave to Broad Street)	15,500	*SYS*	$ 0.80	$ 12,400.00
HMA Surface, Type D (165# / SYS) (I Ave to Broad Street)	1280	*TON*	$ 80.00	$ 102,400.00
Bituminous Cold Planning, Up to 3.5" (Broad St. to Brown St.)	4,033	*SYS*	$ 0.80	$ 3,226.40
HMA Surface, Type D (165# / SYS) (Broad St. to Brown St.)	332	*TON*	$ 80.00	$ 26,560.00
Bituminous Cold Planning, Up to 3.5" (Brown St. to Washington)	6,700	*SYS*	$ 0.80	$ 5,360.00
HMA Surface, Type D (165# / SYS) (Brown St. to Washington)	553	*TON*	$ 80.00	$ 44,240.00
Marked Parking (4" White "Tick")(8' x 23' Space) (I Ave to Broad Street)	200	*EA*	$ 8.00	$ 1,600.00
Marked Parking (4" White "Tick")(8' x 23') (Brown St. to Washington)	145	*EA*	$ 8.00	$ 1,160.00
Maitenance of Traffic (3%)	1	*LS*	$ 6,430.39	$ 6,430.39
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 5,358.66	$ 5,358.66
Mobilization & Demobilization (5%)	1	*LS*	$ 10,717.32	$ 10,717.32
Clearing ROW (3%)	-	*LS*	$ 6,430.39	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 10,717.32	$ -
Contingency (15%)	1	*LS*	$ 32,151.96	$ 32,151.96
Construction Total				$ 269,004.73
Total Estimated Phase 1 Costs				***$ 269,004.73***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

11th STREET

Shared Roadway

0.32 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	12.0	*EA*	$ 200.00	$ 2,400.00
Sharrow Signage (Every 400 LFT)	8.0	*EA*	$ 150.00	$ 1,200.00
Marked Parking (4" White "Tick")(8' x 23' Space) (I Ave to Broad Street)	145.0	*EA*	$ 8.00	$ 1,160.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 142.80	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 238.00	$ -
Contingency (25%)	1	*LS*	$ 1,190.00	$ 1,190.00
Construction Total				$ 10,450.00
Total Estimated Phase 1 Costs				***$ 10,450.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

PLUM STREET

Shared Roadway

0.11 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	4.0	*EA*	$ 200.00	$ 800.00
Sharrow Signage (Every 400 LFT)	4.0	*EA*	$ 150.00	$ 600.00
Marked Parking (4" White "Tick")(8' x 23' Space) (I Ave to Broad Street)	50.0	*EA*	$ 8.00	$ 400.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization (5%)	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 54.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 90.00	$ -
Contingency (25%)	1	*LS*	$ 450.00	$ 450.00
Construction Total				$ 6,250.00
Total Estimated Phase 1 Costs				***$ 6,250.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

9th STREET

Shared Roadway

0.52 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	22.0	*EA*	$ 200.00	$ 4,400.00
Sharrow Signage (Every 400 LFT)	16.0	*EA*	$ 150.00	$ 2,400.00
Marked Parking (4" White "Tick")(8' x 23' Space) (I Ave to Broad Street)	240.0	*EA*	$ 8.00	$ 1,920.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization	1	*LS*	$ 2,000.00	$ 2,000.00
Clearing ROW (3%)	-	*LS*	$ 261.60	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 436.00	$ -
Contingency (25%)	1	*LS*	$ 2,180.00	$ 2,180.00
Construction Total				$ 15,400.00
Total Estimated Phase 1 Costs				***$ 15,400.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

THORNBURG STREET

Shared Roadway

0.39 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	14.0	*EA*	$ 200.00	$ 2,800.00
Sharrow Signage (Every 400 LFT)	10.0	*EA*	$ 150.00	$ 1,500.00
Bituminous Cold Planning, Up to 3.5"	2401	*SYS*	$ 0.80	$ 1,920.80
HMA Surface, Type D (165# / SYS)	199.3	*TON*	$ 80.00	$ 15,944.00
Maitenance of Traffic	1	*LS*	$ 2,500.00	$ 2,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	-	*LS*	$ 1,000.00	$ -
Mobilization & Demobilization (5%)	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 664.94	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 1,108.24	$ -
Contingency (25%)	1	*LS*	$ 5,541.20	$ 5,541.20
Construction Total				$ 31,706.00
Total Estimated Phase 1 Costs				***$ 31,706.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

GARNER STREET

Shared Roadway

0.30 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	10.0	*EA*	$ 200.00	$ 2,000.00
Sharrow Signage (Every 400 LFT)	8.0	*EA*	$ 150.00	$ 1,200.00
Maitenance of Traffic	1	*LS*	$ 1,500.00	$ 1,500.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization (5%)	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 96.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 160.00	$ -
Contingency (25%)	1	*LS*	$ 800.00	$ 800.00
Construction Total				$ 8,000.00
Total Estimated Phase 1 Costs				***$ 8,000.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

INDIANA AVENUE

Shared Roadway

1.35 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	48.0	*EA*	$ 200.00	$ 9,600.00
Sharrow Signage (Every 400 LFT)	36.0	*EA*	$ 150.00	$ 5,400.00
Additional "No Truck" Signs	6.0	*EA*	$ 200.00	$ 1,200.00
Bituminous Cold Planning, Up to 3.5"	7288.8	*SYS*	$ 0.80	$ 5,831.04
HMA Surface, Type D	604.97	*TON*	$ 80.00	$ 48,397.60
Marked Shoulder (Solid White Thermoplastic Solid Line, 6")	14,240	*LFT*	$ 0.70	$ 9,968.00
Maitenance of Traffic (3%)	1	*LS*	$ 2,411.90	$ 2,411.90
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 2,009.92	$ 2,009.92
Mobilization & Demobilization (5%)	1	*LS*	$ 4,019.83	$ 4,019.83
Clearing ROW (3%)	-	*LS*	$ 2,411.90	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 4,019.83	$ -
Contingency (20%)	1	*LS*	$ 16,079.33	$ 16,079.33
Construction Total				$ 104,917.62
Total Estimated Phase 1 Costs				***$ 104,917.62***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

14th STREET + WOODWARD AVE UNDERPASS

Shared Roadway

0.15 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	6.0	*EA*	$ 200.00	$ 1,200.00
Sharrow Signage (Every 400 LFT)	4.0	*EA*	$ 150.00	$ 600.00
Straight Curb (240 LFT South)+ (240 LFT North)	480.0	*LFT*	$ 20.00	$ 9,600.00
Common Excavation (1.5 ft deep x 480 LFT x 4 ft wide)	106.6	*CYS*	$ 160.00	$ 17,056.00
Asphalt patching (HMA Type B) (1405 # / SYS)	74	*TON*	$ 150.00	$ 11,100.00
Maitenance of Traffic (3%)	1	*LS*	$ 1,186.68	$ 1,186.68
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (3%)	1	*LS*	$ 1,186.68	$ 1,186.68
Mobilization & Demobilization (5%)	1	*LS*	$ 1,977.80	$ 1,977.80
Clearing ROW (3%)	-	*LS*	$ 1,186.68	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 1,977.80	$ -
Contingency (20%)	1	*LS*	$ 7,911.20	$ 7,911.20
Construction Total				$ 66,818.36
Total Estimated Phase 1 Costs				***$ 66,818.36***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

15th STREET + A AVENUE + B AVENUE

Shared Roadway

0.85 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	30.0	*EA*	$ 200.00	$ 6,000.00
Sharrow Signage (Every 400 LFT)	22.0	*EA*	$ 150.00	$ 3,300.00
Maitenance of Traffic	1	*LS*	$ 1,000.00	$ 1,000.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 1,000.00	$ 1,000.00
Mobilization & Demobilization (5%)	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 279.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 465.00	$ -
Contingency (25%)	1	*LS*	$ 2,325.00	$ 2,325.00
Construction Total				$ 15,125.00
Total Estimated Phase 1 Costs				***$ 15,125.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

WASHINGTON STREET

Shared Roadway

0.14 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
Sharrow Pavement Marking (Every 300 LFT + 2 per Major Intersection)	6.0	*EA*	$ 200.00	$ 1,200.00
Sharrow Signage (Every 400 LFT)	4.0	*EA*	$ 150.00	$ 600.00
Maitenance of Traffic	1	*LS*	$ 1,000.00	$ 1,000.00
Earthwork	-	*LS*	$ 5,000.00	$ -
Erosion Control	-	*LS*	$ 15,000.00	$ -
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	-	*LS*	$ 1,000.00	$ -
Mobilization & Demobilization (5%)	1	*LS*	$ 1,500.00	$ 1,500.00
Clearing ROW (3%)	-	*LS*	$ 54.00	$ -
Inflation (5% per year x 2)*	-	*LS*	$ 54.00	$ -
Contingency (25%)	1	*LS*	$ 450.00	$ 450.00
Construction Total				$ 4,750.00
Total Estimated Phase 1 Costs				***$ 4,750.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

NICKEL PLATE RAILROAD CORRIDOR - 1

Shared Use Path

3.6 Miles from CR 500 S to Riley Rd.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	3.60	*Miles*	$ 240,000.00	$ 864,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (6 Intersections)	240.0	*SYS*	$ 45.00	$ 10,800.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	6	*EA*	$ 5,000.00	$ 30,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	1	*EA*	$ 40,000.00	$ 40,000.00
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP AHEAD, STOP/ YIELD) (Intersection x 4)	28	*EA*	$ 500.00	$ 14,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC DOES	28	*EA*	$ 100.00	$ 2,800.00
Trail Identification Signage	7	*EA*	$ 2,500.00	$ 17,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	7	*EA*	$ 2,500.00	$ 17,500.00
Mile Markers @ 1/4 mile intervals	14	*EA*	$ 500.00	$ 7,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	3.6	*Miles*	$ 6,000.00	$ 21,600.00
Trailhead	1	*LS*	$ 20,000.00	$ 20,000.00
General Trail Landscape Work	1	*LS*	$ 20,000.00	$ 20,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 21,304.00	$ 21,304.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 26,630.00	$ 26,630.00
Mobilization & Demobilization (5%)	1	*LS*	$ 53,260.00	$ 53,260.00
Clearing ROW (3%)	1	*LS*	$ 31,956.00	$ 31,956.00
Inflation (5% per year x 2)*	-	*LS*	$ 53,260.00	$ -
Contingency (15%)	1	*LS*	$ 159,780.00	$ 159,780.00
Construction Total				$ 1,388,130.00
Total Estimated Phase 1 Costs				***$ 1,388,130.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

NICKEL PLATE RAILROAD CORRIDOR - 2

Shared Use Path

1 Mile from Riley Rd. to I Ave.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.00	*Miles*	$ 240,000.00	$ 240,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (6 Intersections)	320.0	*SYS*	$ 45.00	$ 14,400.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	8	*EA*	$ 5,000.00	$ 40,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP AHEAD, STOP/ YIELD) (Intersection x 4)	32	*EA*	$ 500.00	$ 16,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC DOES	32	*EA*	$ 100.00	$ 3,200.00
Trail Identification Signage	8	*EA*	$ 2,500.00	$ 20,000.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	4	*EA*	$ 2,500.00	$ 10,000.00
Mile Markers @ 1/4 mile intervals	4	*EA*	$ 500.00	$ 2,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1	*Miles*	$ 6,000.00	$ 6,000.00
Trailhead	1	*LS*	$ 30,000.00	$ 30,000.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 7,832.00	$ 7,832.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 9,790.00	$ 9,790.00
Mobilization & Demobilization (5%)	1	*LS*	$ 19,580.00	$ 19,580.00
Clearing ROW (3%)	1	*LS*	$ 11,748.00	$ 11,748.00
Inflation (5% per year x 2)*	-	*LS*	$ 19,580.00	$ -
Contingency (15%)	1	*LS*	$ 58,740.00	$ 58,740.00
Construction Total				$ 529,290.00
Total Estimated Phase 1 Costs				***$ 529,290.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

NICKEL PLATE RAILROAD CORRIDOR - 3

Shared Use Path

0.4 Mile from I Ave. to B Ave.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	0.40	*Miles*	$ 240,000.00	$ 96,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (6 Intersections)	120.0	*SYS*	$ 45.00	$ 5,400.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	3	*EA*	$ 5,000.00	$ 15,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP AHEAD, STOP/ YIELD) (Intersection x 4)	12	*EA*	$ 500.00	$ 6,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC DOES	12	*EA*	$ 100.00	$ 1,200.00
Trail Identification Signage	3	*EA*	$ 2,500.00	$ 7,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	1	*EA*	$ 500.00	$ 500.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.4	*Miles*	$ 6,000.00	$ 2,400.00
Trailhead	-	*LS*	$ 20,000.00	$ -
General Trail Landscape Work	1	*LS*	$ 7,000.00	$ 7,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 2,870.00	$ 2,870.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 3,587.50	$ 3,587.50
Mobilization & Demobilization (5%)	1	*LS*	$ 7,175.00	$ 7,175.00
Clearing ROW (3%)	1	*LS*	$ 4,305.00	$ 4,305.00
Inflation (5% per year x 2)*	-	*LS*	$ 7,175.00	$ -
Contingency (15%)	1	*LS*	$ 21,525.00	$ 21,525.00
Construction Total				$ 212,962.50
Total Estimated Phase 1 Costs				***$ 212,962.50***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

COUNTY ROAD 300 S + WALMART SPUR

Shared Use Path

1.1 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.10	*Miles*	$ 240,000.00	$ 264,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (2 Intersections)	80.0	*SYS*	$ 45.00	$ 3,600.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	1	*EA*	$ 5,000.00	$ 5,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	1	*EA*	$ 90,000.00	$ 90,000.00
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	8	*EA*	$ 500.00	$ 4,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC DOES NOT S	8	*EA*	$ 100.00	$ 800.00
Trail Identification Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	3	*EA*	$ 2,500.00	$ 7,500.00
Mile Markers @ 1/4 mile intervals	4	*EA*	$ 500.00	$ 2,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1.1	*Miles*	$ 6,000.00	$ 6,600.00
Trailhead	1	*LS*	$ 20,000.00	$ 20,000.00
General Trail Landscape Work	1	*LS*	$ 15,000.00	$ 15,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 8,420.00	$ 8,420.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 20,000.00	$ 20,000.00
Construction Engineering (2.5%)	1	*LS*	$ 10,525.00	$ 10,525.00
Mobilization & Demobilization (5%)	1	*LS*	$ 21,050.00	$ 21,050.00
Clearing ROW (3%)	1	*LS*	$ 12,630.00	$ 12,630.00
Inflation (5% per year x 2)*	-	*LS*	$ 21,050.00	$ -
Contingency (15%)	1	*LS*	$ 63,150.00	$ 63,150.00
Construction Total				$ 576,775.00
Total Estimated Phase 1 Costs				***$ 576,775.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

STATE ROAD 3

Shared Use Path

1.5 Miles from CR 300 S to Trojan Ln.

Item Improvement Description	Qty	Unit		Unit Cost		Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.50	*Miles*	$	240,000.00	$	360,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection)	320.0	*SYS*	$	45.00	$	14,400.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	5	*EA*	$	5,000.00	$	25,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	-	*EA*	$	40,000.00	$	-
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	3	*EA*	$	90,000.00	$	270,000.00
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD) (# Intersections x 4)	32	*EA*	$	500.00	$	16,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC DOES	32	*EA*	$	100.00	$	3,200.00
Trail Identification Signage	8	*EA*	$	2,500.00	$	20,000.00
Interpretive Signage	-	*EA*	$	2,500.00	$	-
Directory Signage	4	*EA*	$	2,500.00	$	10,000.00
Mile Markers @ 1/4 mile intervals	6	*EA*	$	500.00	$	3,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1.5	*Miles*	$	6,000.00	$	9,000.00
General Trail Landscape Work	1	*LS*	$	20,000.00	$	20,000.00
Pavement Removal	10,470	*SYS*	$	7.00	$	73,290.00
Combined Curb & Gutter Remove	7,963	*LFT*	$	5.00	$	39,816.50
Combined Curb & Gutter	7,963	*LFT*	$	15.00	$	119,449.50
Inlet - Every 300'	26	*EA*	$	500.00	$	13,000.00
Modular Block Wall (includes Reinforcing and Excavation)	300	*SYS*	$	400.00	$	120,000.00
Maitenance of Traffic (2%)	1	*LS*	$	22,323.12	$	22,323.12
Earthwork	1	*LS*	$	5,000.00	$	5,000.00
Erosion Control	1	*LS*	$	15,000.00	$	15,000.00
Utility Relocations	1	*LS*	$	10,000.00	$	10,000.00
Construction Engineering (2.5%)	1	*LS*	$	27,903.90	$	27,903.90
Mobilization & Demobilization (5%)	1	*LS*	$	55,807.80	$	55,807.80
Clearing ROW (3%)	1	*LS*	$	33,484.68	$	33,484.68
Inflation (5% per year x 2)*	-	*LS*	$	55,807.80	$	-
Contingency (15%)	1	*LS*	$	167,423.40	$	167,423.40
Construction Total					$	1,453,098.90
Total Estimated Phase 1 Costs					***$***	***1,453,098.90***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

STATE ROAD 3

Shared Use Path

1.3 Miles from Trojan Ln. to Indiana Ave.

Item Improvement Description	Qty	Unit		Unit Cost		Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.30	*Miles*	$	240,000.00	$	312,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (16 Intersections)	160.0	*SYS*	$	45.00	$	7,200.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	4	*EA*	$	5,000.00	$	20,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	-	*EA*	$	40,000.00	$	-
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	-	*EA*	$	90,000.00	$	-
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD) (# Intersections x 4)	16	*EA*	$	500.00	$	8,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC DOES	16	*EA*	$	100.00	$	1,600.00
Trail Identification Signage	4	*EA*	$	2,500.00	$	10,000.00
Interpretive Signage	-	*EA*	$	2,500.00	$	-
Directory Signage	4	*EA*	$	2,500.00	$	10,000.00
Mile Markers @ 1/4 mile intervals	5	*EA*	$	500.00	$	2,500.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1.3	*Miles*	$	6,000.00	$	7,800.00
General Trail Landscape Work	1	*LS*	$	15,000.00	$	15,000.00
Pavement Removal	9,388	*SYS*	$	7.00	$	65,716.00
Combined Curb & Gutter Remove	7,042	*LFT*	$	5.00	$	35,210.00
Combined Curb & Gutter	7,042	*LFT*	$	15.00	$	105,630.00
Inlet - Every 300'	23	*EA*	$	500.00	$	11,500.00
Maitenance of Traffic (3%)	1	*LS*	$	18,364.68	$	18,364.68
Earthwork	1	*LS*	$	5,000.00	$	5,000.00
Erosion Control	1	*LS*	$	15,000.00	$	15,000.00
Utility Relocations	1	*LS*	$	10,000.00	$	10,000.00
Construction Engineering (2.5%)	1	*LS*	$	15,303.90	$	15,303.90
Mobilization & Demobilization (5%)	1	*LS*	$	30,607.80	$	30,607.80
Clearing ROW (3%)	1	*LS*	$	18,364.68	$	18,364.68
Inflation (5% per year x 2)*	-	*LS*	$	30,607.80	$	-
Contingency (15%)	1	*LS*	$	91,823.40	$	91,823.40
Construction Total					$	816,620.46
Total Estimated Phase 1 Costs					***$***	***816,620.46***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

STATE ROAD 3

Shared Use Path

0.5 Miles from Indiana Ave. to Wittenbreaker Ave.

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	0.50	*Miles*	$ 240,000.00	$ 120,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (16 Intersections)	120.0	*SYS*	$ 45.00	$ 5,400.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	2	*EA*	$ 5,000.00	$ 10,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	1	*EA*	$ 90,000.00	$ 90,000.00
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD) (# Intersections x 4)	12	*EA*	$ 500.00	$ 6,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC DOES	12	*EA*	$ 100.00	$ 1,200.00
Trail Identification Signage	3	*EA*	$ 2,500.00	$ 7,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	2	*EA*	$ 2,500.00	$ 5,000.00
Mile Markers @ 1/4 mile intervals	2	*EA*	$ 500.00	$ 1,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.5	*Miles*	$ 6,000.00	$ 3,000.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Pavement Removal	4,019	*SYS*	$ 7.00	$ 28,130.20
Combined Curb & Gutter Remove	3,015	*LFT*	$ 5.00	$ 15,075.00
Combined Curb & Gutter	3,015	*LFT*	$ 15.00	$ 45,225.00
Inlet - Every 300'	10	*EA*	$ 500.00	$ 5,000.00
Maitenance of Traffic (3%)	1	*LS*	$ 10,575.91	$ 10,575.91
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 8,813.26	$ 8,813.26
Mobilization & Demobilization (5%)	1	*LS*	$ 17,626.51	$ 17,626.51
Clearing ROW (3%)	1	*LS*	$ 10,575.91	$ 10,575.91
Inflation (5% per year x 2)*	-	*LS*	$ 17,626.51	$ -
Contingency (15%)	1	*LS*	$ 52,879.53	$ 52,879.53
Construction Total				$ 483,001.31
Total Estimated Phase 1 Costs				***$ 483,001.31***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

TROJAN LANE

Shared Use Path

0.51 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	0.51	*Miles*	$ 240,000.00	$ 122,400.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (X Intersections)	40.0	*SYS*	$ 45.00	$ 1,800.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	1	*EA*	$ 5,000.00	$ 5,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Ma	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Marki	2	*EA*	$ 90,000.00	$ 180,000.00
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	4	*EA*	$ 500.00	$ 2,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRA	4	*EA*	$ 100.00	$ 400.00
Trail Identification Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	-	*EA*	$ 500.00	$ -
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.51	*Miles*	$ 6,000.00	$ 3,060.00
General Trail Landscape Work	1	*LS*	$ 7,000.00	$ 7,000.00
Modular Block Wall (includes Reinforcing and Excavation)	613	*SYS*	$ 400.00	$ 245,200.00
Maitenance of Traffic (2%)	1	*LS*	$ 11,437.20	$ 11,437.20
Earthwork	1	*LS*	$ 20,000.00	$ 20,000.00
Erosion Control	1	*LS*	$ 10,000.00	$ 10,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 14,296.50	$ 14,296.50
Mobilization & Demobilization (5%)	1	*LS*	$ 28,593.00	$ 28,593.00
Clearing ROW (3%)	1	*LS*	$ 17,155.80	$ 17,155.80
Inflation (5% per year x 2)*	-	*LS*	$ 28,593.00	$ -
Contingency (15%)	1	*LS*	$ 85,779.00	$ 85,779.00
Construction Total				$ 769,121.50
Total Estimated Phase 1 Costs				***$ 769,121.50***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

East Property Edge of Crown Between I AVENUE and Q AVENUE

Shared Use Path

0.50 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	0.50	*Miles*	$ 240,000.00	$ 120,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (2 Intersections)	80.0	*SYS*	$ 45.00	$ 3,600.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	-	*EA*	$ 5,000.00	$ -
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavemen	2	*EA*	$ 40,000.00	$ 80,000.00
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement M	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	8	*EA*	$ 500.00	$ 4,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS	8	*EA*	$ 100.00	$ 800.00
Trail Identification Signage	2	*EA*	$ 2,500.00	$ 5,000.00
Interpretive Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	2	*EA*	$ 500.00	$ 1,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.5	*Miles*	$ 6,000.00	$ 3,000.00
Trailhead	1	*LS*	$ 50,000.00	$ 50,000.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 5,648.00	$ 5,648.00
Earthwork	1	*LS*	$ 10,000.00	$ 10,000.00
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 7,060.00	$ 7,060.00
Mobilization & Demobilization (5%)	1	*LS*	$ 14,120.00	$ 14,120.00
Clearing ROW (3%)	1	*LS*	$ 8,472.00	$ 8,472.00
Inflation (5% per year x 2)*	-	*LS*	$ 14,120.00	$ -
Contingency (15%)	1	*LS*	$ 42,360.00	$ 42,360.00
Construction Total				$ 385,060.00
Total Estimated Phase 1 Costs				***$ 385,060.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

BIG BLUE RIVER

Shared Use Path

0.65 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	0.51	*Miles*	$ 240,000.00	$ 122,400.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (X Intersections	0.0	*SYS*	$ 45.00	$ -
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	-	*EA*	$ 5,000.00	$ -
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Paveme	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	-	*EA*	$ 500.00	$ -
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS	-	*EA*	$ 100.00	$ -
Trail Identification Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	2	*EA*	$ 500.00	$ 1,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.51	*Miles*	$ 6,000.00	$ 3,060.00
Maitenance of Traffic (2%)	1	*LS*	$ 2,629.20	$ 2,629.20
Earthwork	1	*LS*	$ 10,000.00	$ 10,000.00
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 3,286.50	$ 3,286.50
Mobilization & Demobilization (5%)	1	*LS*	$ 6,573.00	$ 6,573.00
Clearing ROW (3%)	1	*LS*	$ 3,943.80	$ 3,943.80
Inflation (5% per year x 2)*	-	*LS*	$ 6,573.00	$ -
Contingency (15%)	1	*LS*	$ 19,719.00	$ 19,719.00
Construction Total				$ 192,611.50
Total Estimated Phase 1 Costs				***$ 192,611.50***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

CONRAIL RAILROAD CORRIDOR

Shared Use Path

3.4 Miles from CR 275 W to SR 3

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	3.40	*Miles*	$ 240,000.00	$ 816,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection)	240.0	*SYS*	$ 45.00	$ 10,800.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	3	*EA*	$ 5,000.00	$ 15,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement M	3	*EA*	$ 40,000.00	$ 120,000.00
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Mar	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	24	*EA*	$ 500.00	$ 12,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TR	24	*EA*	$ 100.00	$ 2,400.00
Trail Identification Signage	6	*EA*	$ 2,500.00	$ 15,000.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	6	*EA*	$ 2,500.00	$ 15,000.00
Mile Markers @ 1/4 mile intervals	13	*EA*	$ 500.00	$ 6,500.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1	*Miles*	$ 6,000.00	$ 6,000.00
Proposed Bridge Structure [($1100 x LFT) x 1.5] (up to 120 LFT)	120	*LFT*	$ 1,650.00	$ 297,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 26,314.00	$ 26,314.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 32,892.50	$ 32,892.50
Mobilization & Demobilization (5%)	1	*LS*	$ 65,785.00	$ 65,785.00
Clearing ROW (3%)	1	*LS*	$ 39,471.00	$ 39,471.00
Inflation (5% per year x 2)*	-	*LS*	$ 65,785.00	$ -
Contingency (15%)	1	*LS*	$ 197,355.00	$ 197,355.00
Construction Total				$ 1,707,517.50
Total Estimated Phase 1 Costs				***$ 1,707,517.50***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

CONRAIL RAILROAD CORRIDOR

Shared Use Path

1 Miles from SR 3 to Wilbur Wright Trail

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.00	*Miles*	$ 240,000.00	$ 240,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (7 Intersections)	40.0	*SYS*	$ 45.00	$ 1,800.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	-	*EA*	$ 5,000.00	$ -
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement M	1	*EA*	$ 40,000.00	$ 40,000.00
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Mar	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	-	*EA*	$ 500.00	$ -
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TR	-	*EA*	$ 100.00	$ -
Trail Identification Signage	2	*EA*	$ 2,500.00	$ 5,000.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	4	*EA*	$ 500.00	$ 2,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0	*Miles*	$ 6,000.00	$ -
Proposed Bridge Structure [($1100 x LFT) x 1.5] (up to 120 LFT)	-	*LFT*	$ 1,650.00	$ -
Modular Block Wall (includes Reinforcing and Excavation)	280	*SYS*	$ 400.00	$ 112,000.00
Wooden Rail with grab bar	250	*LFT*	$ 110.00	$ 27,500.00
Maitenance of Traffic (2%)	1	*LS*	$ 8,616.00	$ 8,616.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 15,000.00	$ 15,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 10,770.00	$ 10,770.00
Mobilization & Demobilization (5%)	1	*LS*	$ 21,540.00	$ 21,540.00
Clearing ROW (3%)	1	*LS*	$ 12,924.00	$ 12,924.00
Inflation (5% per year x 2)*	-	*LS*	$ 21,540.00	$ -
Contingency (15%)	1	*LS*	$ 64,620.00	$ 64,620.00
Construction Total				$ 579,270.00
Total Estimated Phase 1 Costs				***$ 579,270.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

HONEY BEE LINE RAILROAD CORRIDOR

Shared Use Path

1.05 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.05	*Miles*	$ 240,000.00	$ 252,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (X Intersections)	40.0	*SYS*	$ 45.00	$ 1,800.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	-	*EA*	$ 5,000.00	$ -
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Marki	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings	3	*EA*	$ 90,000.00	$ 270,000.00
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	4	*EA*	$ 500.00	$ 2,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFI	4	*EA*	$ 100.00	$ 400.00
Trail Identification Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	4	*EA*	$ 500.00	$ 2,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1.05	*Miles*	$ 6,000.00	$ 6,300.00
Proposed Bridge Structure [($1100 x LFT) x 1.5] (up to 120 LFT)	100	*LFT*	$ 1,650.00	$ 247,500.00
Maitenance of Traffic (2%)	1	*LS*	$ 15,740.00	$ 15,740.00
Earthwork	1	*LS*	$ 10,000.00	$ 10,000.00
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 19,675.00	$ 19,675.00
Mobilization & Demobilization (5%)	1	*LS*	$ 39,350.00	$ 39,350.00
Clearing ROW (3%)	-	*LS*	$ 23,610.00	$ -
Inflation (5% per year x 2)*	1	*LS*	$ 39,350.00	$ 39,350.00
Contingency (15%)	1	*LS*	$ 11,805.00	$ 11,805.00
Construction Total				$ 937,920.00
Total Estimated Phase 1 Costs				***$ 937,920.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

WASHINGTON STREET

Shared Use Path

0.75 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	0.75	*Miles*	$ 240,000.00	$ 180,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (3 Intersections)	120.0	*SYS*	$ 45.00	$ 5,400.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	3	*EA*	$ 5,000.00	$ 15,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement M	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Mar	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	12	*EA*	$ 500.00	$ 6,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TF	12	*EA*	$ 100.00	$ 1,200.00
Trail Identification Signage	2	*EA*	$ 2,500.00	$ 5,000.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	3	*EA*	$ 500.00	$ 1,500.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.75	*Miles*	$ 6,000.00	$ 4,500.00
Trailhead	1	*LS*	$ 30,000.00	$ 30,000.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 5,222.00	$ 5,222.00
Earthwork	1	*LS*	$ 5,000.00	$ 5,000.00
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 6,527.50	$ 6,527.50
Mobilization & Demobilization (5%)	1	*LS*	$ 13,055.00	$ 13,055.00
Clearing ROW (3%)	-	*LS*	$ 7,833.00	$ -
Inflation (5% per year x 2)*	1	*LS*	$ 13,055.00	$ 13,055.00
Contingency (15%)	1	*LS*	$ 39,165.00	$ 39,165.00
Construction Total				$ 358,124.50
Total Estimated Phase 1 Costs				***$ 358,124.50***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

OSBOURNE PARK

Shared Use Path

0.45 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	0.45	*Miles*	$ 240,000.00	$ 108,000.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (X Intersections)	40.0	*SYS*	$ 45.00	$ 1,800.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	1	*EA*	$ 5,000.00	$ 5,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Paveme	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement M	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	2	*EA*	$ 500.00	$ 1,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS	2	*EA*	$ 100.00	$ 200.00
Trail Identification Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	1	*EA*	$ 500.00	$ 500.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.45	*Miles*	$ 6,000.00	$ 2,700.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 2,684.00	$ 2,684.00
Earthwork	1	*LS*	$ 10,000.00	$ 10,000.00
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	-	*LS*	$ 10,000.00	$ -
Construction Engineering (2.5%)	1	*LS*	$ 3,355.00	$ 3,355.00
Mobilization & Demobilization (5%)	1	*LS*	$ 6,710.00	$ 6,710.00
Clearing ROW (3%)	-	*LS*	$ 4,026.00	$ -
Inflation (5% per year x 2)*	1	*LS*	$ 6,710.00	$ 6,710.00
Contingency (15%)	1	*LS*	$ 20,130.00	$ 20,130.00
Construction Total				$ 188,789.00
Total Estimated Phase 1 Costs				***$ 188,789.00***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

HILLSBORO ROAD

Shared Use Path

1.01 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.01	*Miles*	$ 240,000.00	$ 242,400.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (X Intersection	80.0	*SYS*	$ 45.00	$ 3,600.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	2	*EA*	$ 5,000.00	$ 10,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Paven	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavemen	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	8	*EA*	$ 500.00	$ 4,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROS	8	*EA*	$ 100.00	$ 800.00
Trail Identification Signage	2	*EA*	$ 2,500.00	$ 5,000.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	4	*EA*	$ 500.00	$ 2,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1.01	*Miles*	$ 6,000.00	$ 6,060.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 5,727.20	$ 5,727.20
Earthwork	1	*LS*	$ 10,000.00	$ 10,000.00
Erosion Control	1	*LS*	$ 5,000.00	$ 5,000.00
Utility Relocations	1	*LS*	$ 20,000.00	$ 20,000.00
Construction Engineering (2.5%)	1	*LS*	$ 7,159.00	$ 7,159.00
Mobilization & Demobilization (5%)	1	*LS*	$ 14,318.00	$ 14,318.00
Clearing ROW (3%)	-	*LS*	$ 8,590.80	$ -
Inflation (5% per year x 2)*	1	*LS*	$ 14,318.00	$ 14,318.00
Contingency (15%)	1	*LS*	$ 42,954.00	$ 42,954.00
Construction Total				$ 405,836.20
Total Estimated Phase 1 Costs				***$ 405,836.20***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

YMCA PROPERTY

Shared Use Path

1.17 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.17	*Miles*	$ 240,000.00	$ 280,800.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (X Intersections)	1.0	*SYS*	$ 45.00	$ 45.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	1	*EA*	$ 5,000.00	$ 5,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Mark	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Marking	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	4	*EA*	$ 500.00	$ 2,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFI	4	*EA*	$ 100.00	$ 400.00
Trail Identification Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	4	*EA*	$ 500.00	$ 2,000.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.51	*Miles*	$ 6,000.00	$ 3,060.00
60" Culvert	20	*LFT*	$ 115.00	$ 2,300.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 6,212.10	$ 6,212.10
Earthwork	1	*LS*	$ 10,000.00	$ 10,000.00
Erosion Control	1	*LS*	$ 10,000.00	$ 10,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 7,765.13	$ 7,765.13
Mobilization & Demobilization (5%)	1	*LS*	$ 6,212.10	$ 6,212.10
Clearing ROW (3%)	-	*LS*	$ 9,318.15	$ -
Inflation (5% per year x 2)*	1	*LS*	$ 15,530.25	$ 15,530.25
Contingency (15%)	1	*LS*	$ 46,590.75	$ 46,590.75
Construction Total				$ 422,915.33
Total Estimated Phase 1 Costs				***$ 422,915.33***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

INDIANA UNION TRACTION CO. ELECTRIC INTERURBAN RAILRAOD CORRIDOR

Shared Use Path

1.42 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.42	*Miles*	$ 240,000.00	$ 340,800.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (2 Intersections)	80.0	*SYS*	$ 45.00	$ 3,600.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	1	*EA*	$ 5,000.00	$ 5,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings)	1	*EA*	$ 40,000.00	$ 40,000.00
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	8	*EA*	$ 500.00	$ 4,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC D(	8	*EA*	$ 100.00	$ 800.00
Trail Identification Signage	2	*EA*	$ 2,500.00	$ 5,000.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	5	*EA*	$ 500.00	$ 2,500.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	0.51	*Miles*	$ 6,000.00	$ 3,060.00
Proposed Bridge Structure @ Big Blue River	1,400	*SFT*	$ 120.00	$ 168,000.00
Proposed Historic Bridge Structure @ Memorial Park	1	*LS*	$ 470,000.00	$ 470,000.00
Proposed 60" Culvert @ Memorial Creek (South)	40	*LFT*	$ 115.00	$ 4,600.00
Proposed 60" Culvert @ Memorial Creek (North)	40	*LFT*	$ 115.00	$ 4,600.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 21,289.20	$ 21,289.20
Earthwork	1	*LS*	$ 20,000.00	$ 20,000.00
Erosion Control	1	*LS*	$ 10,000.00	$ 10,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 26,611.50	$ 26,611.50
Mobilization & Demobilization (5%)	1	*LS*	$ 53,223.00	$ 53,223.00
Clearing ROW (3%)	-	*LS*	$ 31,933.80	$ -
Inflation (5% per year x 2)*	1	*LS*	$ 53,223.00	$ 53,223.00
Contingency (15%)	1	*LS*	$ 159,669.00	$ 159,669.00
Construction Total				$ 1,418,475.70
Total Estimated Phase 1 Costs				***$ 1,418,475.70***

NEW CASTLE BICYCLE AND PEDESTRIAN MASTER PLAN

WILBUR WRIGHT TRAIL EXTENSION

Shared Use Path

1.32 Miles

Item Improvement Description	Qty	Unit	Unit Cost	Cost
10' Wide Asphalt Trail w/ 2' Shoulders	1.32	*Miles*	$ 240,000.00	$ 316,800.00
Special Conc. Pavement, 6" Thick (40 SYS per intersection) (2 Intersections)	40.0	*SYS*	$ 45.00	$ 1,800.00
Intersection Improvements @ - Level 1 (Signage, Pavement Markings)	1	*EA*	$ 5,000.00	$ 5,000.00
Intersection Improvements @ - Level 2 (Overhead Flasher, Signage, Pavement Markings	-	*EA*	$ 40,000.00	$ -
Intersection Improvements @ - Level 3 (Median, Signal, Signage, Pavement Markings)	-	*EA*	$ 90,000.00	$ -
Regulatory, Warning, & Guidance Signage (STOP, YIELD, STOP AHEAD)	4	*EA*	$ 500.00	$ 2,000.00
Regulatory, Warning, & Guidance Signage (NO MOTOR VEHICLES, CROSS TRAFFIC [	4	*EA*	$ 100.00	$ 400.00
Trail Identification Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Interpretive Signage	-	*EA*	$ 2,500.00	$ -
Directory Signage	1	*EA*	$ 2,500.00	$ 2,500.00
Mile Markers @ 1/4 mile intervals	5	*EA*	$ 500.00	$ 2,500.00
Seeding ($6000 per mile)(assumes an average disturbance of 6 feet)	1.32	*Miles*	$ 6,000.00	$ 7,920.00
Trailhead	1	*LS*	$ 20,000.00	$ 20,000.00
General Trail Landscape Work	1	*LS*	$ 10,000.00	$ 10,000.00
Maitenance of Traffic (2%)	1	*LS*	$ 7,428.40	$ 7,428.40
Earthwork	1	*LS*	$ 20,000.00	$ 20,000.00
Erosion Control	1	*LS*	$ 10,000.00	$ 10,000.00
Utility Relocations	1	*LS*	$ 10,000.00	$ 10,000.00
Construction Engineering (2.5%)	1	*LS*	$ 9,285.50	$ 9,285.50
Mobilization & Demobilization (5%)	1	*LS*	$ 18,571.00	$ 18,571.00
Clearing ROW (3%)	-	*LS*	$ 11,142.60	$ -
Inflation (5% per year x 2)*	1	*LS*	$ 18,571.00	$ 18,571.00
Contingency (15%)	1	*LS*	$ 55,713.00	$ 55,713.00
Construction Total				$ 520,988.90
Total Estimated Phase 1 Costs				***$ 520,988.90***

RECOMMENDATIONS AND OPTIONS

ROUTE OPTIONS

A. A shared use path is shown along Cherrywood Avenue from Riley Road to 14th Street. This route assumes that the City can acquire the land from the railroad which has started pulling up tracks. The shared use path is the best option due to the park like setting for users and the separation from vehicular traffic. Should the City have a difficult time acquiring the land from the railroad, then there is an option to install a Cycle Track from Q Avenue to 14th Street. This would still not solve the problem of connecting from Riley Road to Q Avenue and it may be necessary to install sidewalk and widen the roadway for bike lanes. It would also create a difficult intersection for the Cycle Track users at Q Avenue (transition from Bike Lane on both sides to Cycle Track on one side of the road.

B. A Cycle Track is shown along the North Side of I Avenue from 16th Street to 25th Street. This treatment creates the best solution for not having to cross bicyclists mid-block for the shared use path shown along 16th Street and Cherrywood Avenue. It would also avoid a mid-block crossing of cyclists at 25th Street. However, an option to this treatment would be bike lanes along I Avenue.

LAND ACQUISITION

It is recommended that in order to speed up project time lines and to make sure that opportunities are not missed, any available land within the area of the proposed routes be acquired as soon as possible by the municipality.

DEVELOPMENT

These plans are intended as guide map to the locations and development of the bicycle network. They are not intended to be used as construction plans. A qualified engineer and / or landscape architect should help guide the installation of the facilities. For example, while the proposed cross sections and standards do give considerable guidance regarding installation of the shared roadways and bike lanes, it would be advisable to have someone develop a simple striping and/ or widening plan to help guide local forces or a contractor on how to install a facility along a particular route even though these facilities seem to be considerably more simple than a cycle track or shared use path that are proposed. Each intersection treatment presents its own unique set of circumstances and would be difficult to fully address in a master plan.