

Carbondale to Murphysboro Bike Route

JACKSON COUNTY

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PREPARED BY:
Southern Illinois Metropolitan Organization

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INTRODUCTION

A. Project Purpose and Study Area

The Study Area is located between the communities of Carbondale and Murphysboro in Jackson County, Illinois as shown in **Figure 1** below. The study area was established from the location of existing roadways that could reasonably be used to meet the study purpose of providing a safe and efficient bicycle route between Carbondale and Murphysboro. Illinois 13 established the northern boundary of the study area and Chautauqua Road established the southern boundary.

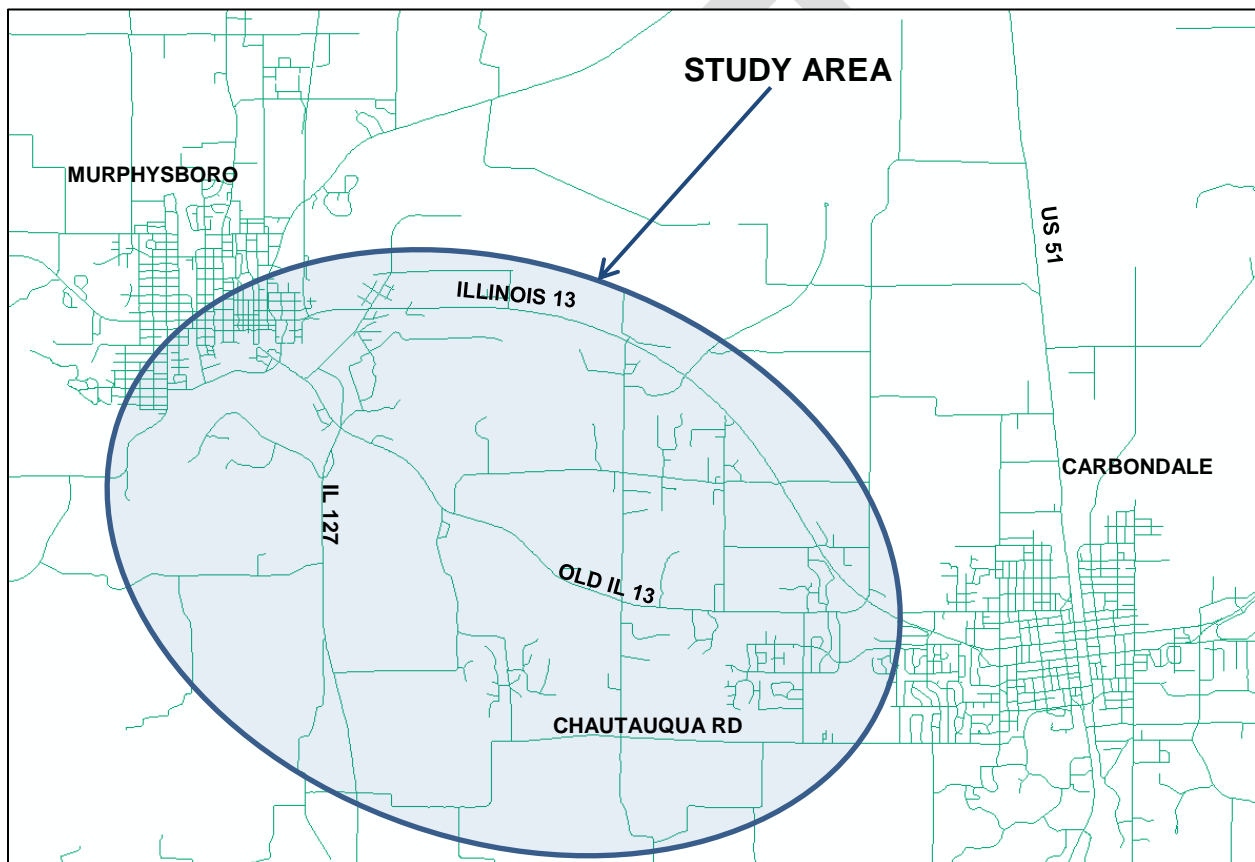


Figure 1- Study Area

B. Previous Studies

a. Carbondale Bicycle Master Plan

This study was completed in May of 2016 with the purpose of improving bicycling in Carbondale through the construction of additional facilities, education and encouragement. The plan also served as a road map for Carbondale to achieve Bike Friendly Community status as specific recommendations were included for achieving that goal. These efforts were successful as the city was awarded Bike Friendly status at the bronze level in November of 2016.

The Master Plan also establishes a comprehensive network of bike routes within Carbondale and the scope of this study includes identifying a connecting point in that network for a route westward to Murphysboro.

b. Greenways and Trails Plan for Jackson County

This study was completed in July of 2002 with the purpose of facilitating the development and expansion of bicycle and pedestrian trails in Jackson County. A specific recommendation of the study was development of a pedestrian and bicycle travelway between Carbondale and Murphysboro. The recommendation did not include a specific route or corridor for the trail although it did suggest pursuing the acquisition of the abandoned Illinois Central Railroad right of way as one alternative. For much of this rail corridor, the window of opportunity for a 'rails to trails' conversion appears to have closed as all of the right of way is now in private ownership and is divided into numerous small tracts with many different owners. Additionally, residential and business development has occurred on the right of way at some locations. However, from New Era Road westward to IL 13 there does exist a 1.9 mile segment that is undeveloped and involves only one private owner. Also, the 0.75 mile segment from IL 13 westward to Country Club Road is divided into only three parcels. Discussion of a potential conversion of these segments is included in the "Supplemental Connections" section of this report.

C. Project Study Group

A Project Study Group was assembled to assist in the study process. The Project Study Group consisted of local government officials and cycling advocates. The Illinois Department of Transportation, Jackson County, City of Carbondale, City of

Murphysboro, Jackson County Health Department, local cycling advocates and the Southern Illinois MPO were all represented on the study team. The team provided input regarding a target user group for the route, beginning and ending points, identification of alternatives, and evaluation of alternatives. A listing of the Study Group members is included in Exhibit 14.

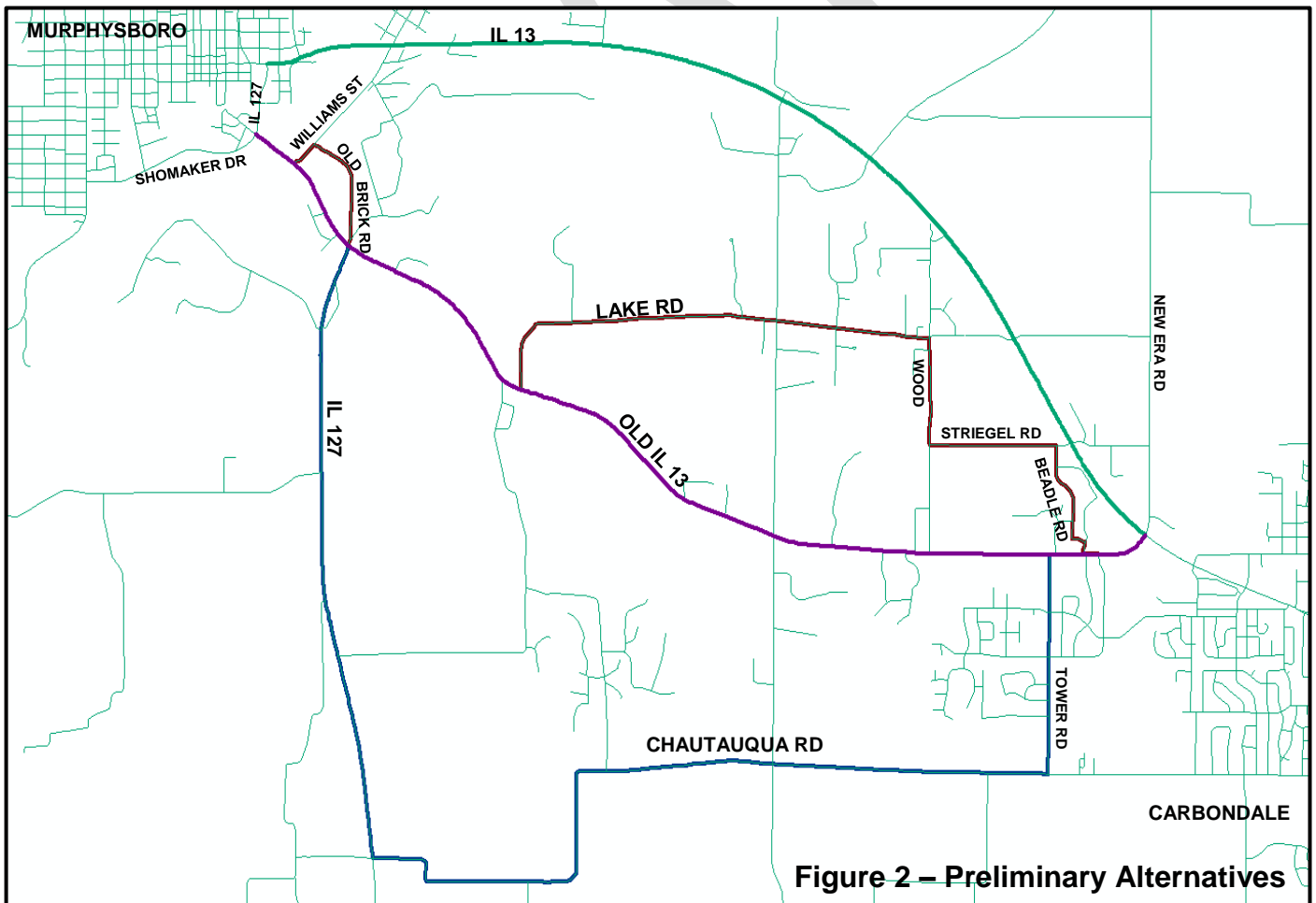
Preliminary Alternatives and Analysis

A. Alternatives Identified

The study team first evaluated the existing roadway network for bike route suitability. This analysis considered the use of existing roadways with only minor improvements such as route signage. The following routes were identified as preliminary alternatives:

- IL 13
- Old IL 13 (Murphysboro Road)
- Chautauqua Road
- Lake Road

The location of these routes is depicted in **Figure 2** below:



In Carbondale, all of the routes would terminate with a connection to the existing side path at the IL 13/New Era Road intersection. In Murphysboro, the IL 13 route would terminate at 4th Street and all other routes would terminate at the IL 127/Shomaker Drive intersection. The Chautauqua route would include segments along Old 13, Tower Road, IL 127, Old Brick Road and Williams Street as shown in **Figure 2**. The Lake Road route would utilize segments along Old 13, Beadle Road, Striegel Road, Wood Road, Old Brick Road and Williams Street.

B. Evaluation Criteria and Analysis

The existing roadways were evaluated primarily by the Bike Level of Service (BLOS) that each would provide. BLOS is a nationally used measure of on-road bicyclist comfort level. It is based on lane widths, shoulder widths, shoulder type, truck traffic volume, total traffic volume, posted speed and other factors. The BLOS method yields a rating from A to F with A being most suitable and F being least suitable. BLOS is also closely associated with the relative safety of the route (i.e. routes with higher comfort level are safer than routes with a lower comfort level). Bike Crashes in the study area are shown in **Exhibit 3**; there were no bike related crashes on any of the routes during the years 2009 to 2014.

In addition to BLOS, the alternatives were evaluated on the length of the route and whether the route provides access to desired destinations. A summary of the preliminary analysis is shown in **Table 1** below:

TABLE 1

ALTERNATIVE	BLOS	ROUTE LENGTH	ACCESS TO DESTINATIONS	RELATIVE SAFETY
ILLINOIS 13	C to B	5.5	GOOD	GOOD to FAIR
OLD IL 13	D	5.7	FAIR	POOR
LAKE ROAD	B to D	6.5	POOR	GOOD to POOR
CHAUTAUQUA ROAD	C to D	9.5	POOR	POOR

The study team determined that, without improvements, none of the routes would provide the level of service and safety that is desired. The IL 13 route would provide the best BLOS primarily due to the existing 10' wide paved shoulder that is present throughout the corridor. The consensus of the study team was that although IL 13 would provide a good accommodation for experienced cyclists, high traffic volumes would prevent it from meeting the goal of providing a safe and comfortable route for a majority of cyclists. The Old IL 13 route is very undesirable due to high traffic volumes and narrow or nonexistent paved

shoulders. The IL 127 section of the Chautauqua route is undesirable for the same reasons. The rural sections of the Lake Road alternative are more acceptable, but the required sections along Old IL 13 and Williams Street are also undesirable, again due to high traffic volumes and narrow or nonexistent paved shoulders. Additional details regarding the BLOS and existing conditions along each route are included in **Exhibits 4, 5, 6 and 7**. The existing conditions data was compiled from IDOT’s Illinois Roadway Information System (IRIS).

The Study Team recommended that the routes be reevaluated with improvements for accommodating bikes based on IDOT’s bike accommodation policies.

POLICY IMPROVEMENTS AND ALTERNATIVE ANALYSIS

A. Summary of Policy Improvements

Chapter 17 of IDOT’s Bureau of Design & Environment Manual and Chapter 42 of the IDOT Bureau of Local Roads & Streets Policy Manual) describe the policy improvements for state and local route bike accommodation. In accordance with those policies the required improvements for each alternative are summarized in **Table 2** below.

TABLE 2

ALTERNATIVE	IDOT POLICY	LOCAL POLICY
IL 13	SIDEPATH	—
OLD IL 13	6' OR 8' SHOULDER	—
<u>LAKE ROAD</u>		
Local Segments (urban)	—	SHARED LANE
Local Segments (rural)	—	4' SHOULDER
Old IL 13 segments	6' OR 8' SHOULDER	—
IL 127 segment	8' SHOULDER	—
<u>CHAUTAUQUA</u>		
Local Segments (urban)	—	SHARED LANE
Local Segments (rural)	—	4' SHOULDER
Old IL 13 segments	6' OR 8' SHOULDER	—
IL 127 segment	8' SHOULDER	—

For comparison purposes, the policy recommendations were largely adhered to. Any deviations from the policy recommendations are described in the following summaries.

B. IL 13

Due to high traffic volumes (approximately 16,000vpd) a policy accommodation requires a bidirectional side path to separate cyclists from traffic. Such a side path could be constructed on the south or north side of IL 13 with each option having certain advantageous and disadvantageous which are discussed in subsequent sections of this report.

C. OLD IL 13

Old IL 13 is primarily under IDOT's jurisdiction except for the section east of Tower Road which is Carbondale's jurisdiction. Since most of the route belongs to IDOT the Bureau of Design and Environment (BDE) policy was used throughout for comparison purposes. According to BDE Figure 17-2A, the policy accommodation would be an 8' shoulder for most of the route. The sections with posted speeds lower than 44mph (near the eastern and western ends of the route) could utilize a 6' shoulder; however, an 8' shoulder was used throughout for consistency.

D. LAKE ROAD

As shown in the **Table 2**, local policy accommodation for rural roadways is a 4' shoulder. However, due to relatively low traffic volumes (see **Exhibit 6**); the team determined that a shared lane accommodation would be appropriate for the Lake, Wood, Striegel, Beadle and Old Brick Road sections of this alternative.

E. LAKE ROAD WITH OFF ROAD PATH OPTION

A modification of the Lake Road alternative was considered to eliminate the Old IL 13 segment which is costly and has extensive impacts to residential properties. This option would utilize an off road bike path from Lake Road westward to Old Brick Road utilizing segments of Youngman Road, Fiddler Ridge Road (a shared lane would accommodate bikes along these streets) and an existing city of Murphysboro platted street which extends from Youngman Road to Fiddler Ridge Road (see **Figure 3** below). A more detailed view with property boundaries shown is included in **Exhibit 6**.

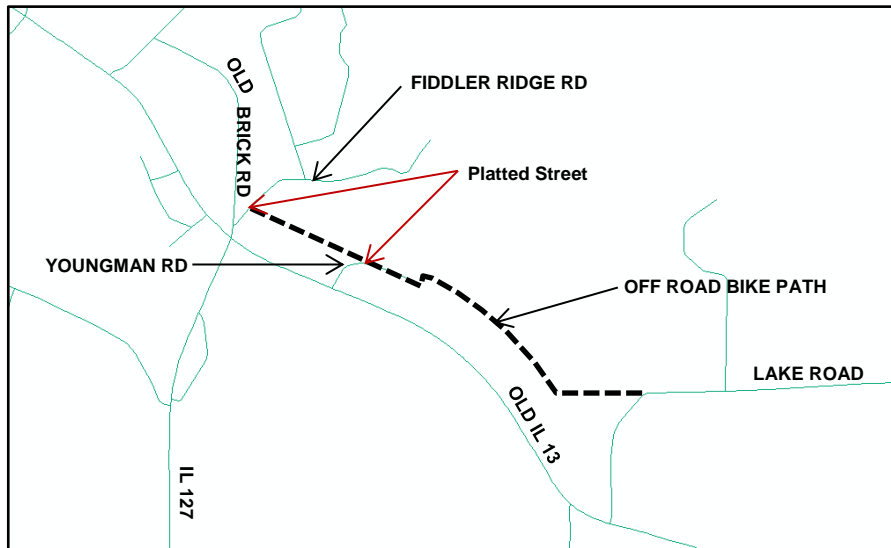


Figure 3 – Lake Road Off Road Path Option

F. CHAUTAUQUA ROAD

Similar to the Lake Road alternative, due to relatively low traffic volumes (see **Exhibit 7**); the team determined that a shared lane accommodation would be appropriate for the Chautauqua and Old Brick Road sections of this alternative.

G. ALTERNATIVE EVALUATION MATRIX

A comparison matrix of the alternatives was prepared to provide an objective analysis of how well each met the criteria established by the study team (see **Table 3** below). The alternatives were scored separately on seven different criteria and those scores were combined to provide a composite score. A preliminary cost for each alternative is also shown in the matrix. The cost of the alternatives was not included in the scoring criteria but cost was considered separately in the evaluation of each alternative.

TABLE 3 - BIKE ROUTE EVALUATION MATRIX

ALTERNATIVE	SEGMENT	SAFETY/BIKE LOS	ACCESS TO DESTINATIONS	RIDING EXPERIENCE	DISTANCE	PROPERTY IMPACTS	POTENTIAL WETLAND IMPACTS	T & E IMPACTS	APPROXIMATE PRELIMINARY COSTS	COMPOSITE SCORE
IL 13 (SOUTH SIDE)	New Era Road to Old Railroad Bridge	BEST (3)	BEST (3)	BEST (3)	1.91 miles	1 PARCEL	NONE	MODERATE (2)	\$1,720,000	3.1
	Old Railroad Bridge to Airport Road	BEST (3)	GOOD (2)	BEST (3)	0.37 miles	NONE	NONE	MODERATE (2)	\$310,000	
	Airport Road to Country Club Road	BEST (3)	BEST (3)	BEST (3)	0.53 miles	4 PARCELS	0.1 ACRES	LOW (3)	\$650,000	
	Country Club Road to Williams Street (Mud Creek Bridge)	BEST (3)	BEST (3)	BEST (3)	2.05 miles	20 PARCELS	NONE	LOW (3)	\$1,490,000	
	SEGMENT TOTAL								<u>\$750,000</u>	
	Williams Street to 4th Street (on North Side)	FAIR (1)	GOOD (2)	GOOD (2)	0.63 miles	NONE	NONE	LOW (3)	\$816,000	
	Average Score	2.6	2.6	2.8	5.49 Total miles BEST (3)	BEST (3)	GOOD (2)	2.6		
TOTAL COST								\$5,736,000		
IL 13 (NORTH SIDE)	New Era Road to Old Railroad Bridge	BEST (3)	GOOD (2)	BEST (3)	1.91 miles	3 PARCELS	0.5 ACRES	MODERATE (2)	\$2,040,000	2.9
	Old Railroad Bridge to Airport Road	BEST (3)	GOOD (2)	BEST (3)	0.37 miles	2 PARCELS	NONE	MODERATE (2)	\$393,000	
	Airport Road to Country Club Road	GOOD (2)	GOOD (2)	BEST (3)	0.53 miles	1 PARCEL	0.1 ACRES	LOW (3)	\$630,000	
	Country Club Road to Williams Street (Mud Creek Bridge)	BEST (3)	GOOD (2)	BEST (3)	2.05 miles	26 PARCELS	NONE	LOW (3)	\$1,850,000	
	SEGMENT TOTAL								<u>\$750,000</u>	
	Williams Street to 4th Street (on North Side)	GOOD (2)	GOOD (2)	GOOD (2)	0.63 miles	NONE	NONE	LOW (3)	\$640,000	
	Average Score	2.8	2	2.8	5.49 Total miles BEST (3)	BEST (3)	FAIR (1)	2.6		
TOTAL COST								\$6,303,000		
OLD IL 13	IL 13 to Bridge Street	POOR (0)	FAIR (1)	POOR (0)	5.7 miles BEST (3)	200 PARCELS POOR (0)	NONE BEST (3)	MODERATE (2)	\$18,800,000	1.5
LAKE ROAD	Old 13 Section (IL 127 to Lake Road- 1.1 Miles)	POOR (0)	FAIR (1)	FAIR (1)	6.5 miles GOOD (2)	62 PARCELS	NONE	MODERATE (2)	\$4,480,000	1.8
	All others	GOOD (2)	FAIR (1)	GOOD (2)		10 PARCELS	NONE	LOW (3)	<u>\$975,000</u>	
	Average Score	1	1	1.5		POOR (0)	BEST (3)	2.5		
TOTAL COST LAKE ROAD ALTERNATIVE								\$5,455,000		
LAKE ROAD (SIDE PATH OPTION)	Lake Road to Youngman Road	BEST (3)	POOR (0)	BEST (3)	6.6 miles GOOD (2)	3 PARCELS	0.6 ACRES	HIGH (0)	\$800,000	2.0
	All others	GOOD (2)	FAIR (1)	GOOD (2)		10 PARCELS	NONE	LOW (3)	<u>\$975,000</u>	
	Average Score	2.5	0.5	2.5		GOOD (2)	FAIR (1)	1.5		
TOTAL COST LAKE ROAD OPTION 2								\$1,775,000		
CHAUTAUQUA	IL 127 (Chautauqua to Old IL 13 - 2.9 Miles)	POOR (0)	FAIR (1)	FAIR (1)	9.5 miles POOR(0)	88 PARCELS	NONE	MODERATE (2)	\$10,080,000	1.6
	All Others	GOOD	FAIR (1)	GOOD		2 PARCELS	NONE	LOW (3)	<u>\$375,000</u>	
	Average Score	1	1	2		POOR(0)	BEST (3)	2.5		
TOTAL COST CHAUTAUQUA ALTERNATIVE								\$10,455,000		

BEST = 3, GOOD = 2, FAIR = 1, POOR = 0 For Environmental Impacts LOW = 3, MODERATE = 2, HIGH = 0

As shown in the matrix, the IL 13 alternatives have the highest scores with little separation between the north (2.9) and south (3.1) options. These alternatives scored well in all categories and have a relatively reasonable cost of about \$5M to \$6M. The Old IL 13 (1.5) and Chautauqua (1.6) alternatives have the lowest scores with each scoring poorly in the safety, access and property impacts categories. The Old IL 13 alternative is by far the most expensive since the shoulder widening required results in extensive right of way needs and reconstruction of the roadway embankment and drainage. For similar reasons, the Chautauqua alternative is the second most expensive due to the costs associated with rebuilding the 2.9 mile section of IL 127. The Lake Road alternative scores at 1.8 and has a cost similar to the IL 13 alternatives at \$5.5M. Elimination of the Old IL 13 section with the Side Path Option reduces the cost of the Lake Road alternative to \$1.8M making it the lowest cost alternative. There is a consequent increase in environmental and property impacts with the side path option so that the overall score is still relatively low at 2.0.

The study team recommended that the Old IL 13, Chautauqua and Lake Road Alternatives be eliminated from further consideration and that the recommended alternative should be selected from the IL 13 North and South alternatives.

H. SUPPLEMENTAL CONNECTIONS

The study team identified several supplemental connections that would greatly enhance the utility of the proposed bike route. These connections are described below.

a. Rail to Trail from New Era Road to IL 13

As described in the “Previous Studies” section of this report the abandoned Illinois Central railway from Murphysboro to Carbondale was identified as potential trail corridor in the Greenways and Trails Plan for Jackson County. Although much of this corridor is now fragmented into small parcels, the segment from New Era Road to IL 13 is a single parcel providing a better opportunity for a rail to trail conversion. The property boundaries for this segment are shown in **Exhibit 8**. This segment would also provide a direct connection to Carbondale’s proposed trail from New Era Road to Oakland Avenue. Carbondale was awarded an ITEP grant for construction of the New Era to Oakland trail in October of 2016. **Figure 4** below depicts this 1.9 mile supplemental connection as well as the western portion of Carbondale’s proposed trail. Conversion of this segment to a paved trail is estimated to cost approximately \$1,530,000. Since this segment is privately owned conversion would depend on the willingness of the property owner to sell or lease the abandoned railroad right of way.

Figure 4 – New Era to IL 13 Rail to Trail



b. Rail to Trail from IL 13 to Country Club Road

An additional potential trail segment using the abandoned Illinois Central right of way would be from IL 13 westward to Country Club Road (see **Figure 5**). Currently, ownership of this segment is divided into three parcels (see **EXHIBIT 9**). Conversion of this 0.75 mile segment to a paved trail is estimated to cost approximately \$600,000. Since this segment is privately owned, conversion would again depend on the willingness of the property owners to sell or lease the abandoned railroad right of way.

Figure 5 – IL 13 to Country Club Road Rail to Trail

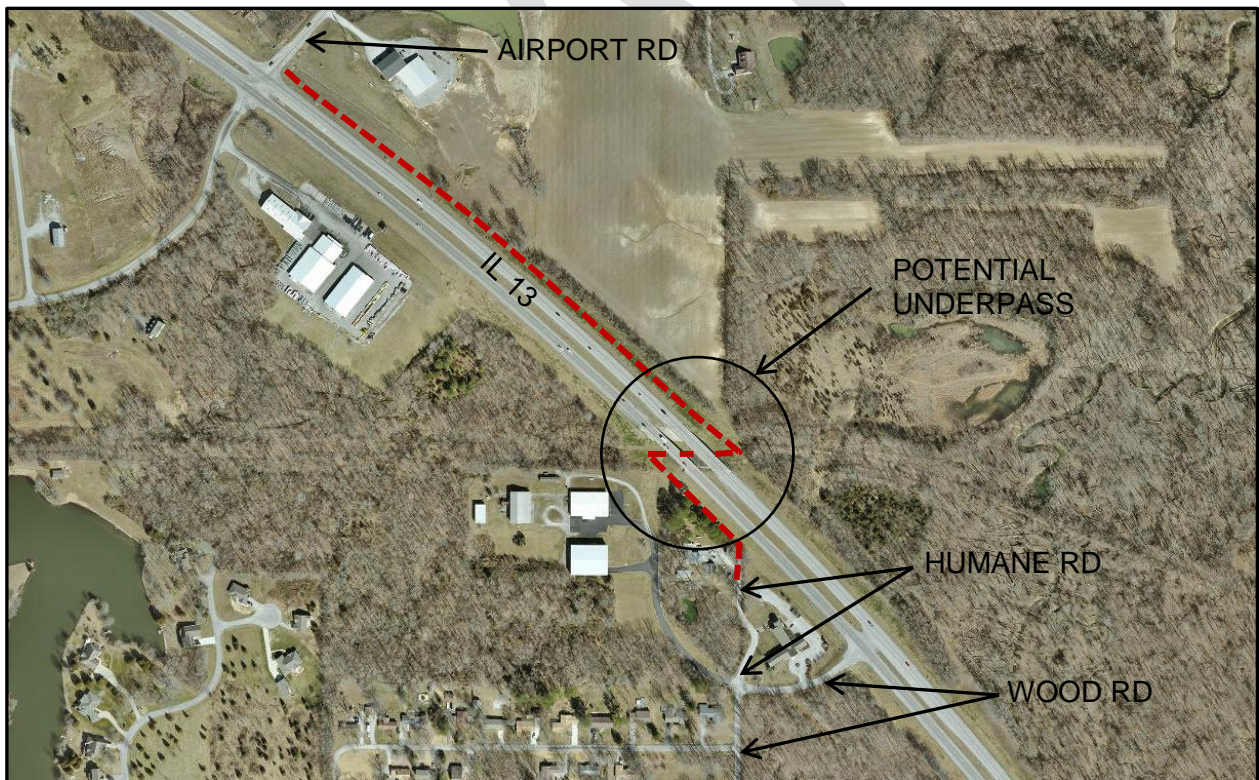


c. IL 13 underpass near Wood Road

An underpass using the old railroad alignment would greatly enhance the safety of the trail network by providing a grade separated crossing of IL 13. This underpass is desirable even as a standalone project since it could provide a convenient and safe connection from the population centers south of IL 13 to a popular cycling area around the Southern Illinois Airport. A standalone underpass project would need to include short trail sections connecting to Humane Road (500 feet) and Airport Road (2,000 feet) as shown in **Figure 6** below. The underpass would be a significant enhancement to a trail system utilizing the IL 13 corridor and either or both of the rail to trail supplemental connections.

IDOT District 9's FY-17 Highway Program includes a project to remove the IL 13 structures and eliminate the underpass by filling in the grade separation with earth embankment. Pending local participation, District 9 has agreed to delay this project and construct a large box culvert suitable for a trail under the highway. The cost for the box culvert and trail segments shown in **Figure 6** is estimated to be approximately \$715,000.

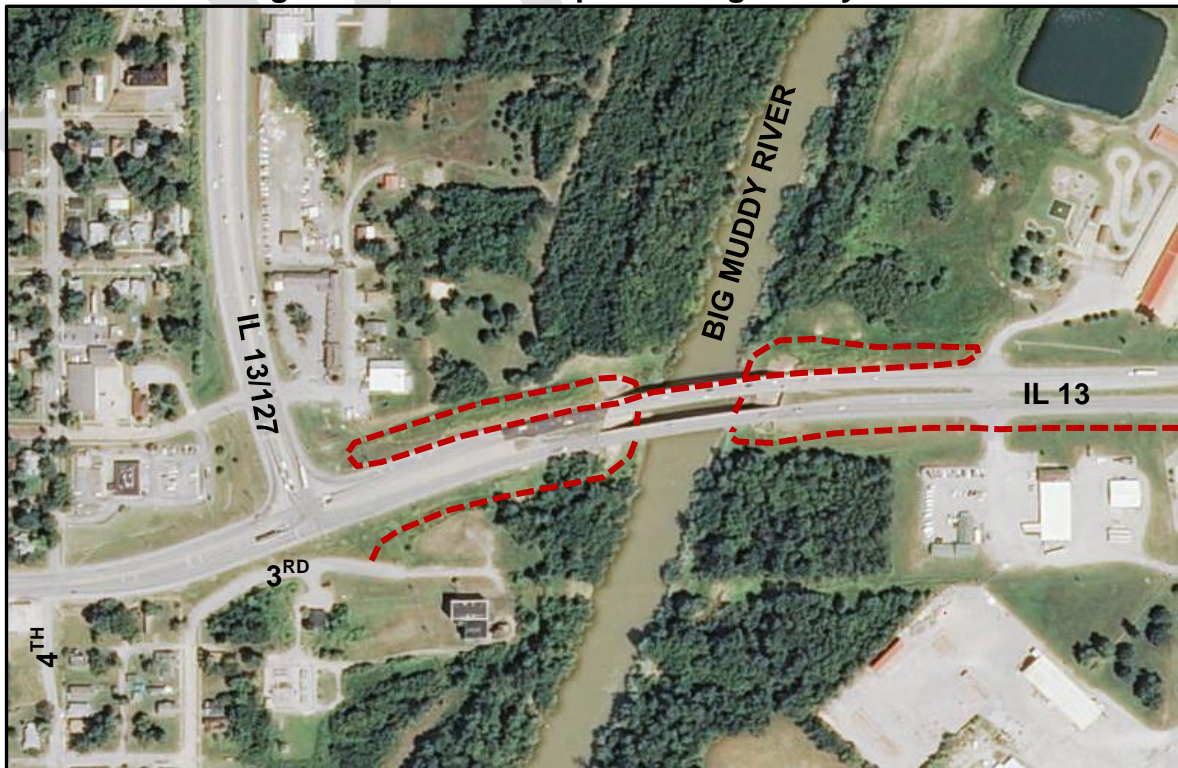
Figure 6 – Underpass and Connections to Humane and Airport Road



d. IL 13 Underpasses at the Big Muddy River

The westbound IL 13 bridge over the Big Muddy River includes a 10' wide outside shoulder and a 5' wide protected pedestrian walkway. The eastbound bridge has a 10' wide outside shoulder but does not have a pedestrian walkway. The 10' shoulder provides a reasonable accommodation for experienced cyclist's but the team determined that the unprotected shoulder was not an adequate accommodation for most cyclists. The decision of the team was that the preferred alternative should provide a connection to the pedestrian walkway so that less experienced cyclists would have the option to use it. Figure 6 below depicts how a bike route on the south side of IL 13 could cross under IL 13 on the banks of the Big Muddy River and connect with the existing walkway on the westbound lanes. These connecting loops could be used with either the north or south alternative to provide a grade separated IL 13 crossing. These routes would be subject to periodic flooding. A review of historical high water data reveals that between 1999 and 2015 (a period of 204 months) a trail at elevation 350.0 would have been flooded in 44 of those months. A trail at elevation 355.0 would have been flooded in only 15 of those months. A cross sectional view of the potential underpasses and historical high water data is included in **Exhibits 10** and **11**. The feasibility of these underpasses will need further engineering study but both appear feasible if the occasional overtopping and subsequent clean up were acceptable to the local agency with jurisdiction over the trail.

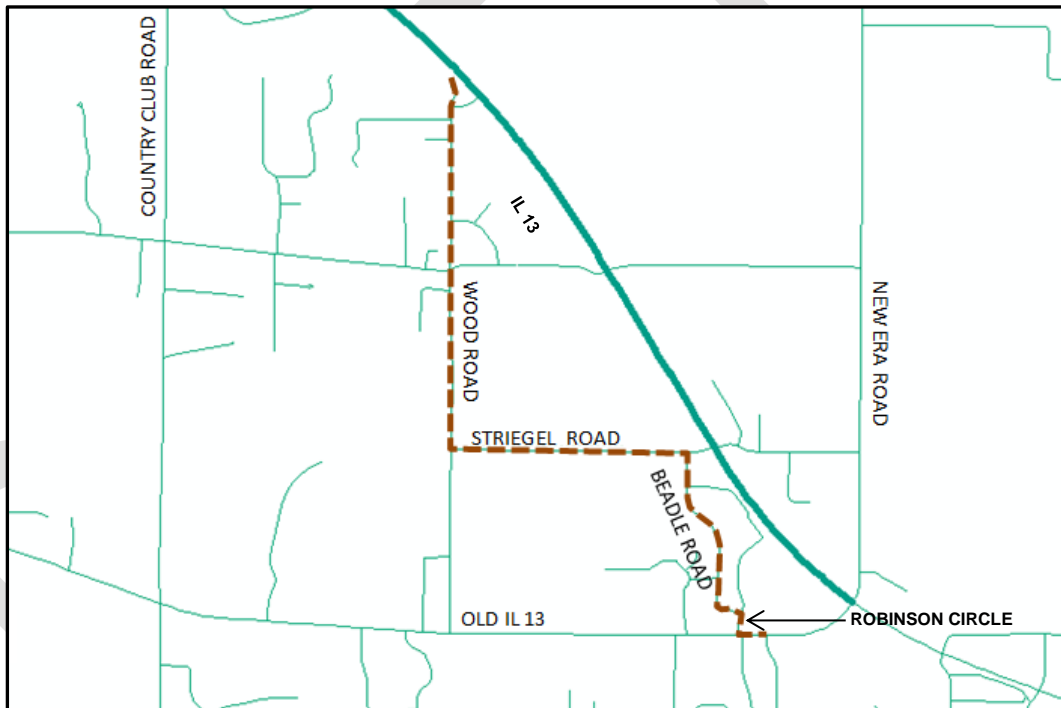
Figure 6 – IL 13 Underpass at Big Muddy River



e. Way Finding Route Signage

Way finding signage and “Share the Road” signs along Robinson Circle, Beadle Road, Striegel Road, Wood Road and Old IL13 as shown in **Figure 7** below should be erected to provide direction to the bike path from the residential areas south of IL 13. The bike accommodation would consist of a shared lane throughout except for the short section along Old IL 13. The route shown along Old Route 13 would be on an existing 6’ sidewalk. This sidewalk was constructed for multi-use purposes by the city of Carbondale, however, the 6’ width does not meet multi-use standards and consideration should be given to widening this sidewalk/trail.

Figure 7



RECOMMENDED ALTERNATIVE

A. Recommended Alternative

As stated previously, the Study Team determined that the Preferred Alternative should be selected from the IL 13 North and South alternatives. As shown in the evaluation matrix, the north and south alternatives in general have similar costs and impacts. However, there are advantageous and disadvantageous associated with certain segments. The most significant of these are listed below:

- From New Era Road to Wood Road the North Alternative is significantly more expensive due to the need for an enclosed drainage system to avoid impacts to commercial properties. Also, in this segment, the South Alternative would provide an easier connection to the existing bike trail on the south side of IL 13 east of New Era road.
- At Country Club Road the South Alternative would provide access to Wal-Mart while the North Alternative would provide access to the Jackson County Health Department.
- From Williams Street westward to an ending point in Murphysboro the North Alternative has the advantage of a direct connection to the pedestrian walkway on the westbound IL 13 structure over the Big Muddy River.
- From Williams Street westward the South Alternative has the advantage of not requiring a crossing of IL 13/127 but would require the use of the existing unprotected shoulder or an expensive retrofit to the eastbound IL 13 structure to provide a separated shared path. Another alternative would be to construct both of the IL 13 underpasses, however, these would be subject to periodic flooding.

The Study Team's recommendation for the Preferred Alternative is listed below:

- South IL 13 Alternative from New Era Road to the abandoned railway (1.91 miles). Approximate cost - \$1,720,000.
- North IL 13 Alternative from the abandoned railway to 4th Street in Murphysboro (3.58 miles). Approximate cost - \$3,870,000.
- Box Culvert underpass on the abandoned railway right of way with a connection to Humane Road and Airport road. Approximate cost - \$715,000.

B. Recommended Supplemental Connections

The Study Team also recommends that the supplemental connections listed below be pursued as opportunities become available to enhance the Preferred Alternative. These supplemental connections are not required for the plan to be implemented but would provide enhanced route connectivity. These are listed in priority order:

1. Wayfinding route signage along Wood, Striegel, Beadle, Robinson Circle and Old IL 13. Approximate cost - \$4,000.
2. New Era to IL 13 rail to trail conversion. Approximate cost - \$1,530,000.
3. Western IL 13 underpass at the Big Muddy River to provide a connection to 3rd Street. Approximate cost - \$330,000.
4. IL 13 to Country Club Road rail to trail conversion. Approximate cost \$600,000.

The Preferred Alternative and recommended supplemental connections are depicted on the following page and in **Exhibit 12**.

C. Prioritized Implementation Plan

A prioritized implementation plan for the Preferred Alternative and recommended supplemental connections is listed below and included in **Exhibit 13**. The plan identifies logical project segments and includes a preliminary cost estimate for each segment.

The IL 13 underpass is the first priority since this project would provide a much needed safe pathway across IL 13 and it provides the central feature in the future bike network. In addition, Phase I and II engineering for the underpass is already underway by IDOT District 9. The next project (way finding route signage) can be completed quickly and inexpensively by the city of Carbondale when the underpass is complete and the third project (New Era to IL 13 rail to trail) could be advanced by the city of Carbondale independently of any other segment, if the property could be acquired.

After completion of projects 1 and 2, priority is given to making the connection to Murphysboro since Carbondale will have connections to the underpass via the signed route, the side path to Airport Road and possibly the New Era to IL 13 rail to trail conversion route.

Prioritized Project List

1. IL 13 Underpass and trail from Humane Rd to Airport Rd
2. Way finding signage along Beadle, Striegel and Wood Rds.
3. 4th Street to Williams Street Segment
4. New Era to IL 13 Rail to Trail Conversion (if Right of Way can be acquired)
5. Airport Road to Country Club Road Segment
6. Williams Street to Watson Road Segment
7. Watson Road to Country Club Road Segment
8. New Era to Striegel Road Segment
9. Humane Road to Lake Road Segment
10. Lake Road to Striegel Road Segment
11. IL 13 Underpass at west bank of Big Muddy River
12. IL 13 to Country Club Road Rail to Trail Conversion (if Right of Way can be acquired)

CARBONDALE TO MURPHYSBORO BIKE ROUTE

PREFERRED ALTERNATIVE AND RECOMMENDED SUPPLEMENTAL CONNECTIONS

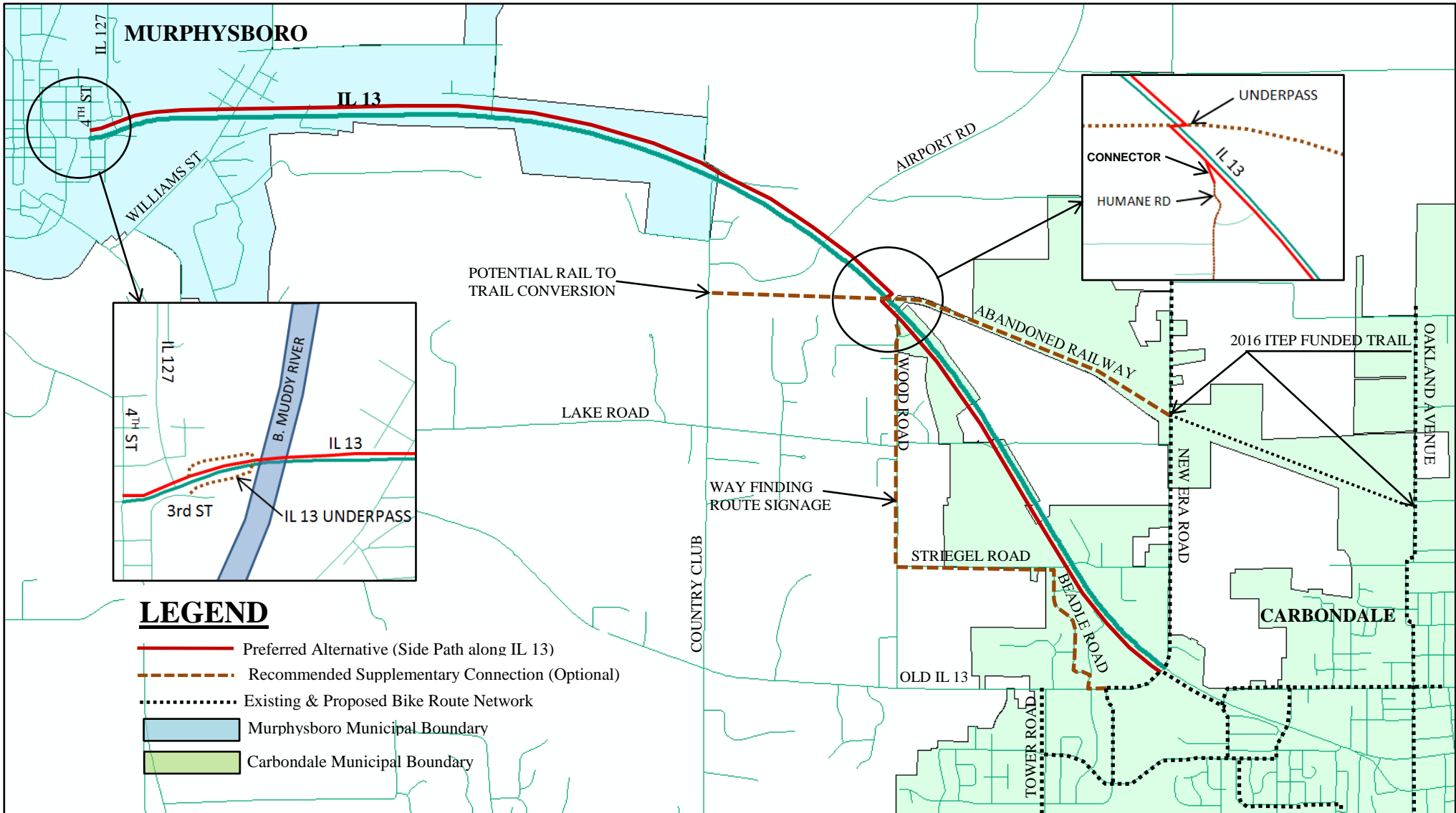


EXHIBIT 1

PROJECT LOCATION AND STUDY AREA

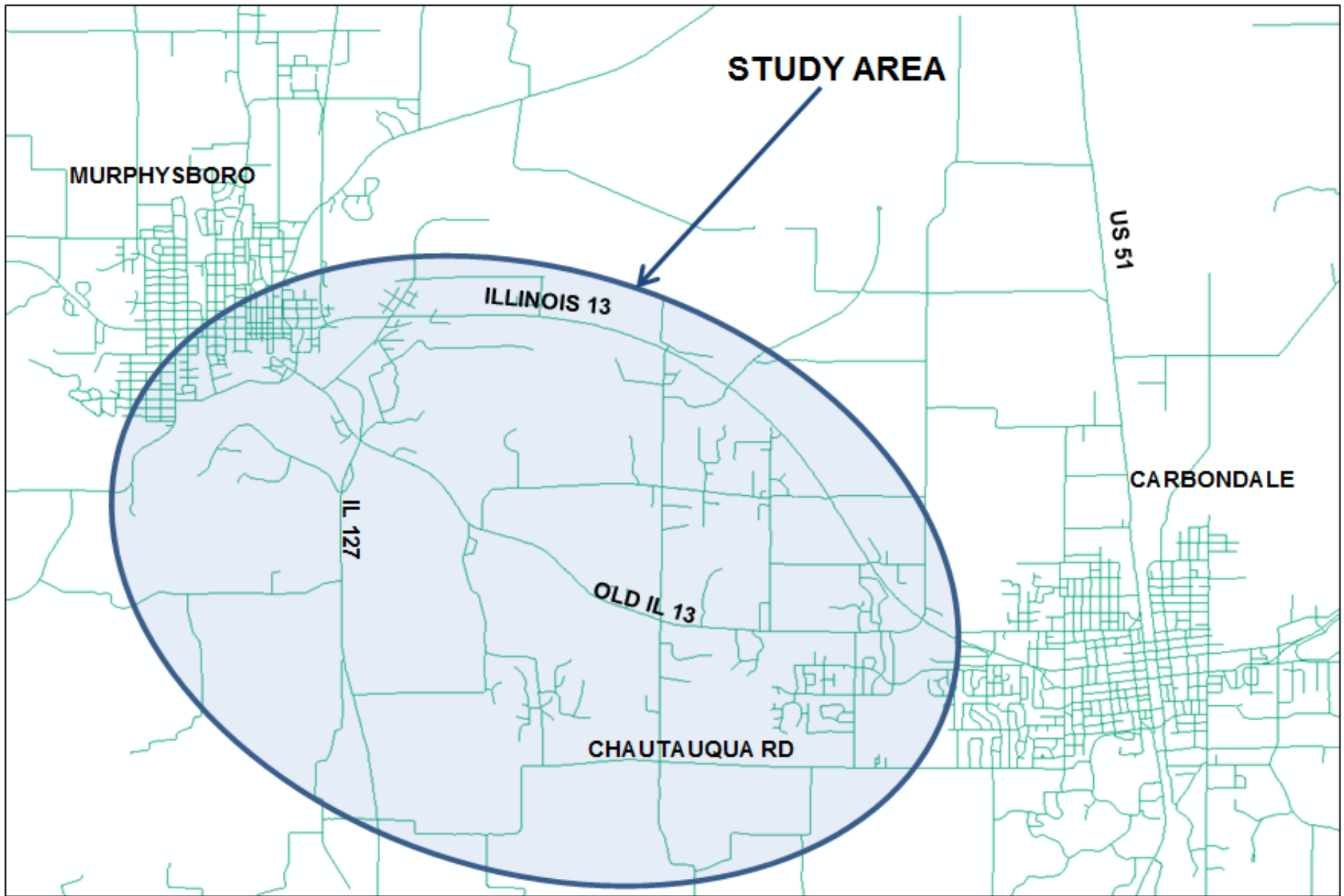


EXHIBIT 2

PRELIMINARY ALTERNATIVES

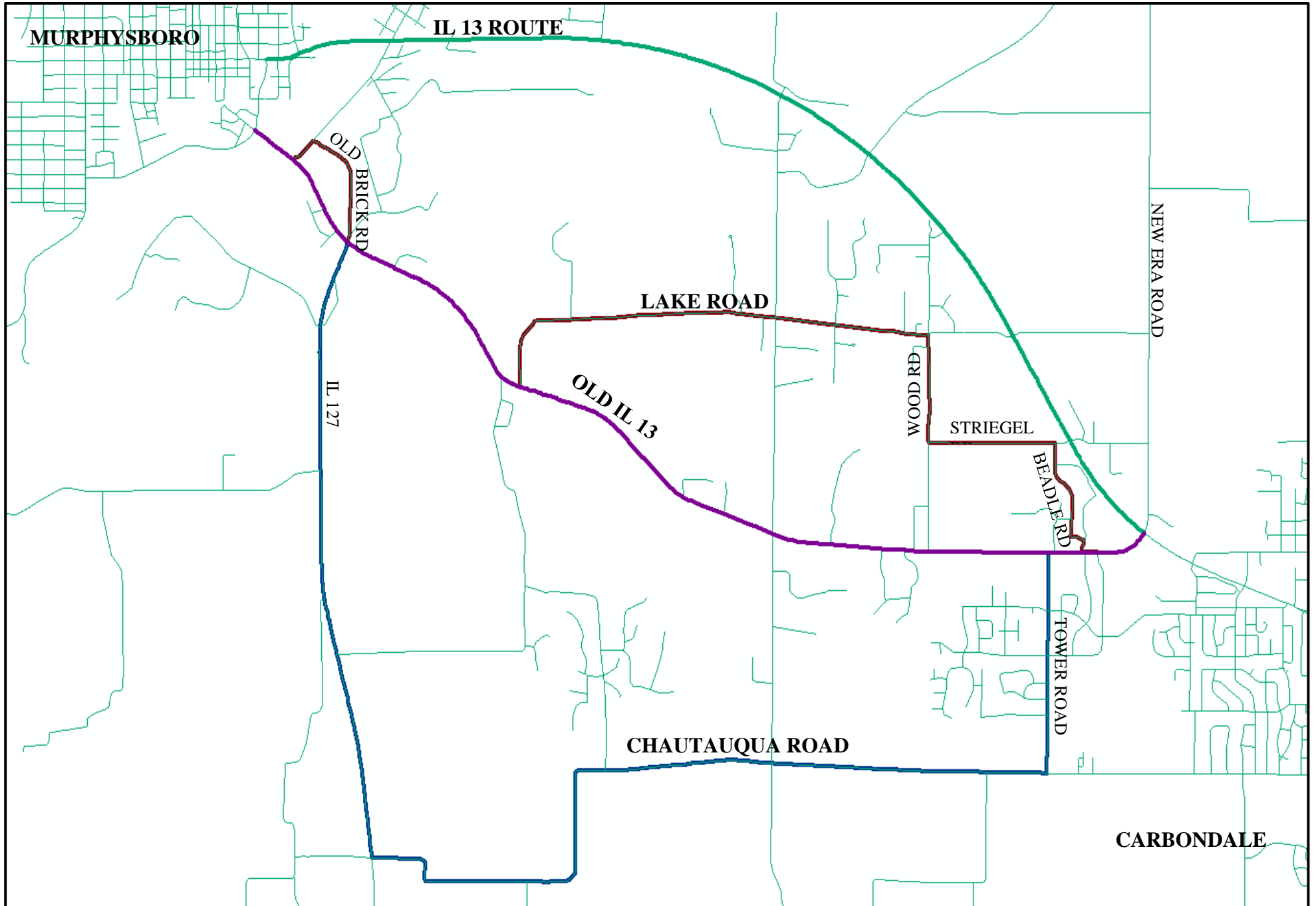


EXHIBIT 3

BIKE CRASHES IN STUDY AREA - (2009-2014)

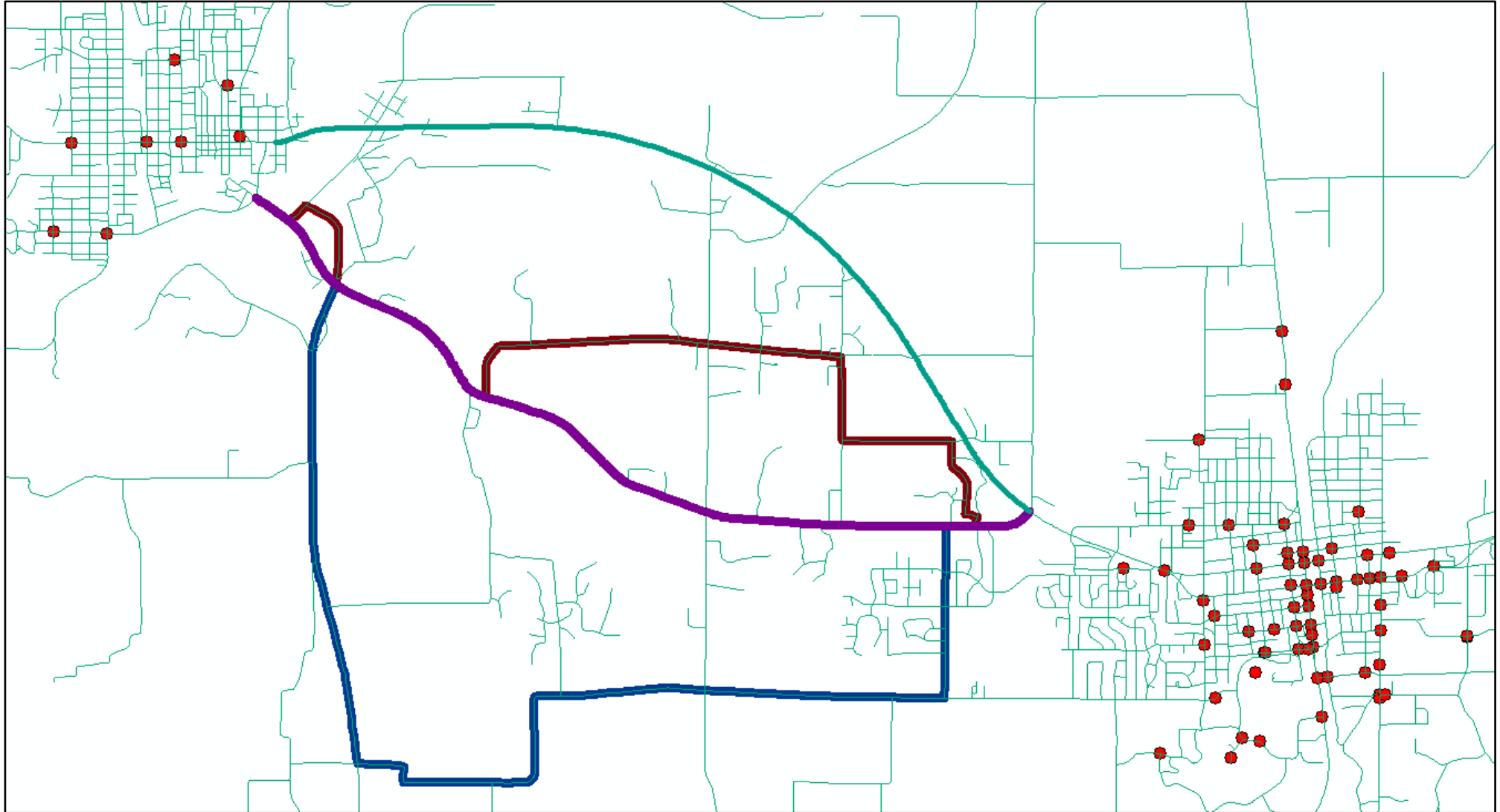
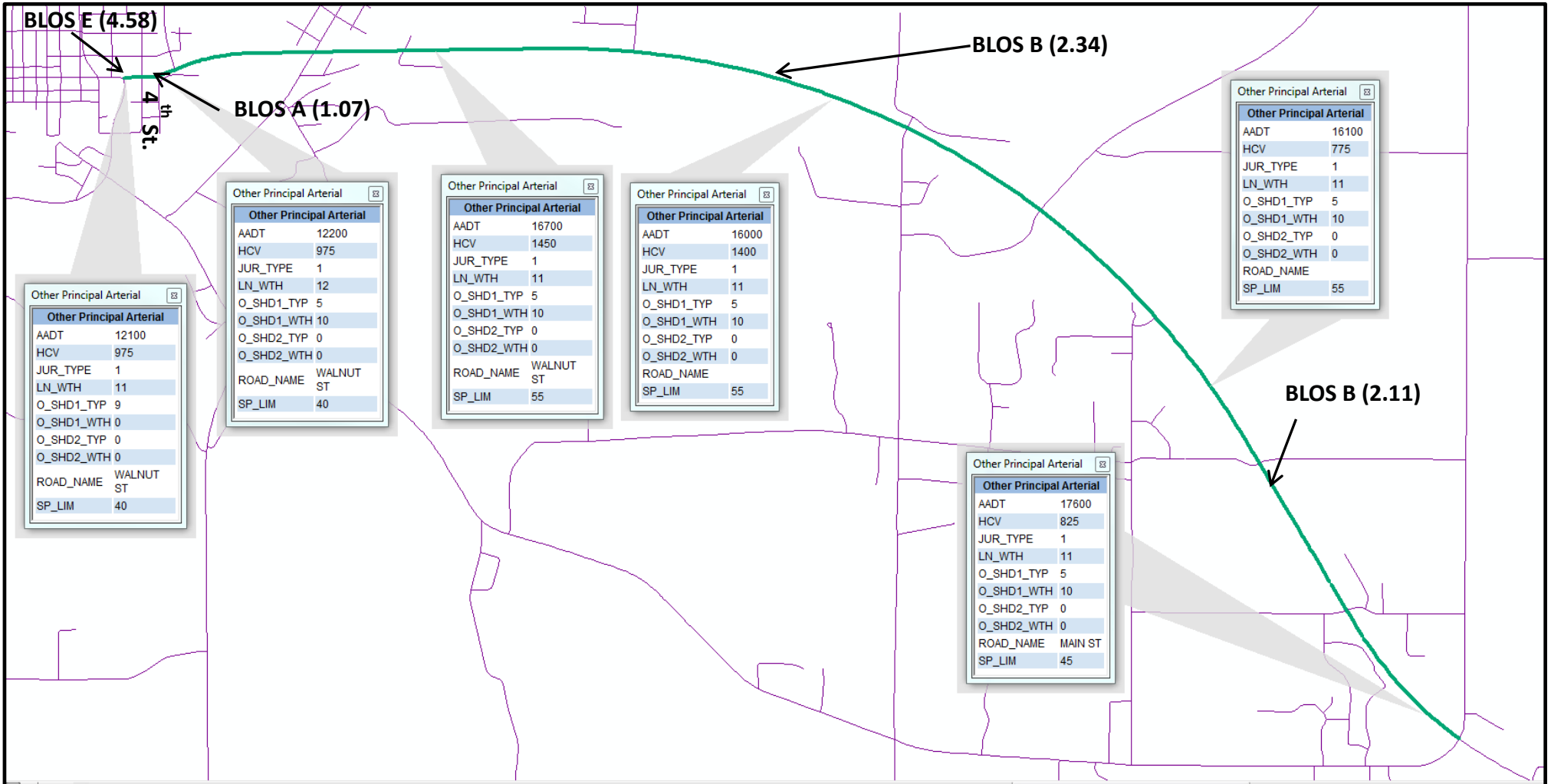
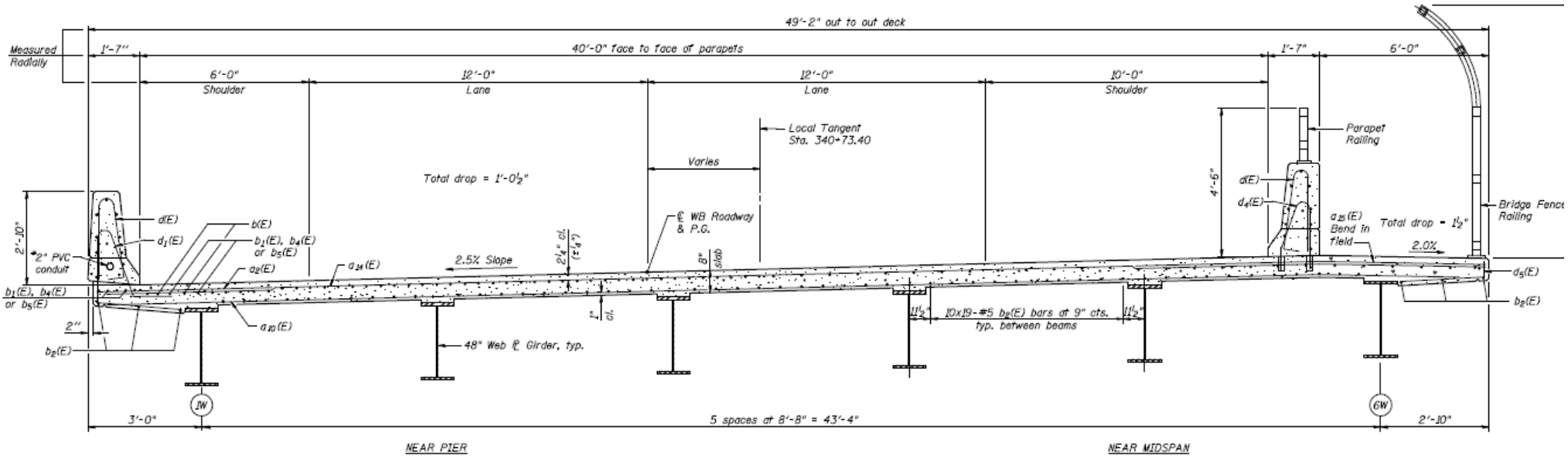


EXHIBIT 4

IL 13 ROUTE – BLOS & IRIS DATA



IL 13 ROUTE – WESTBOUND BIG MUDDY RIVER STRUCTURE



*Conduit shall have a minimum clearance of 1 1/2" from all reinforcement

CROSS SECTION

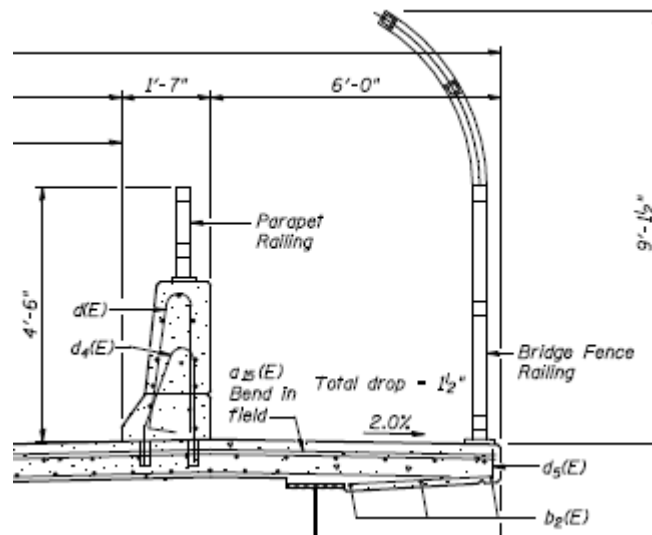


EXHIBIT 5

OLD IL 13 ROUTE – BLOS & IRIS DATA

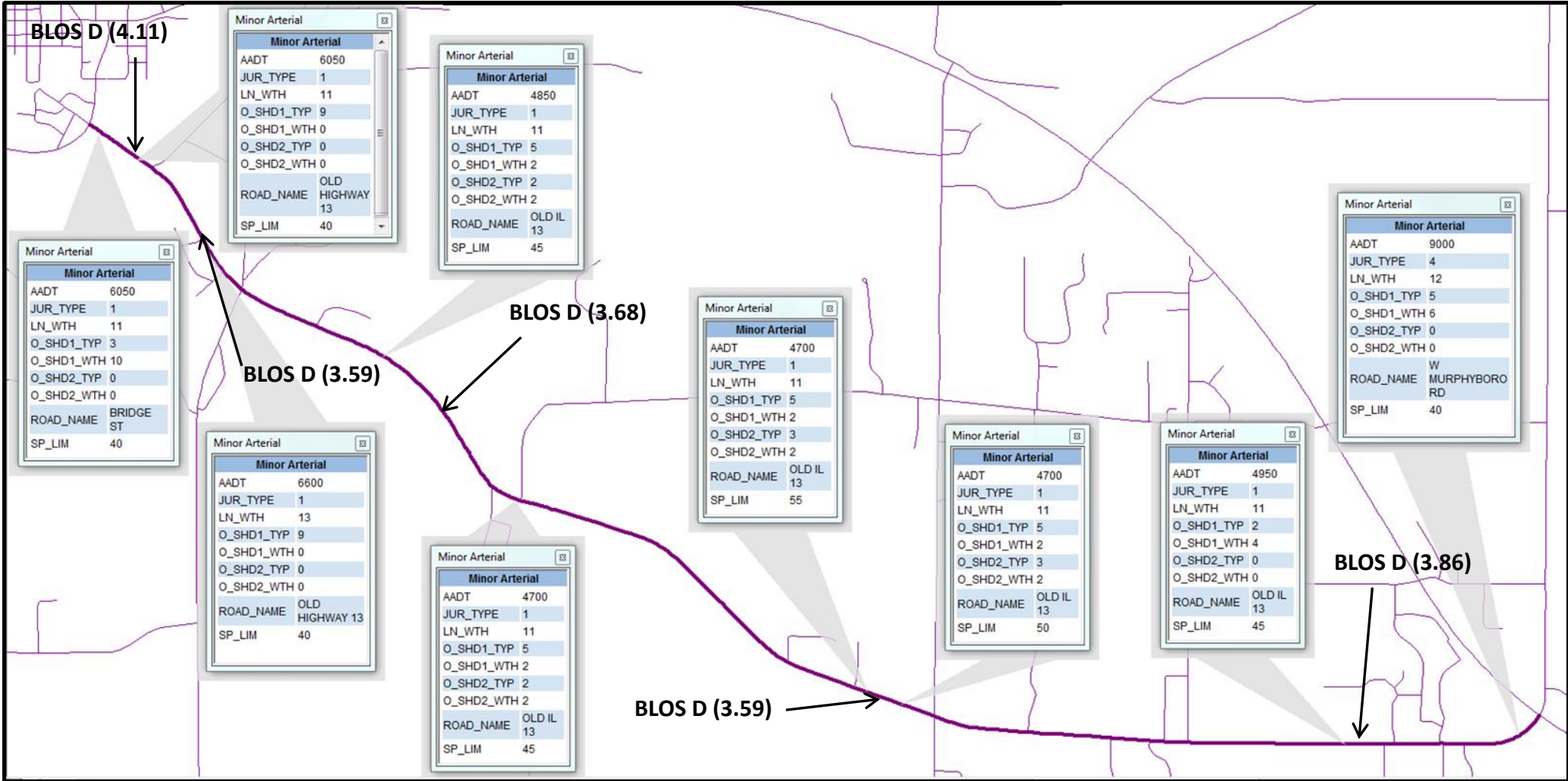
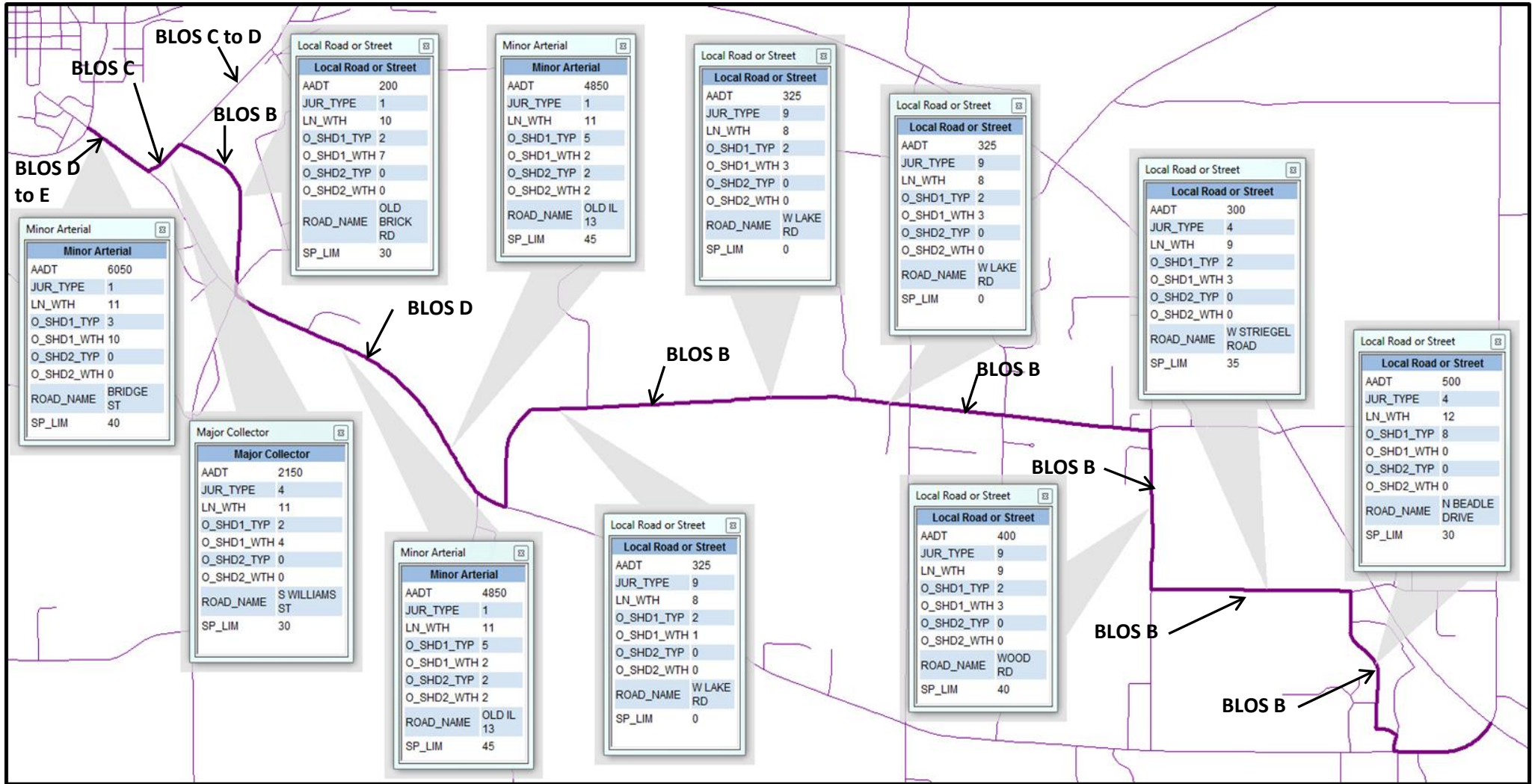


EXHIBIT 6

LAKE ROAD ROUTE – BLOS & IRIS DATA



LAKE ROAD ROUTE – Off Road Path Option

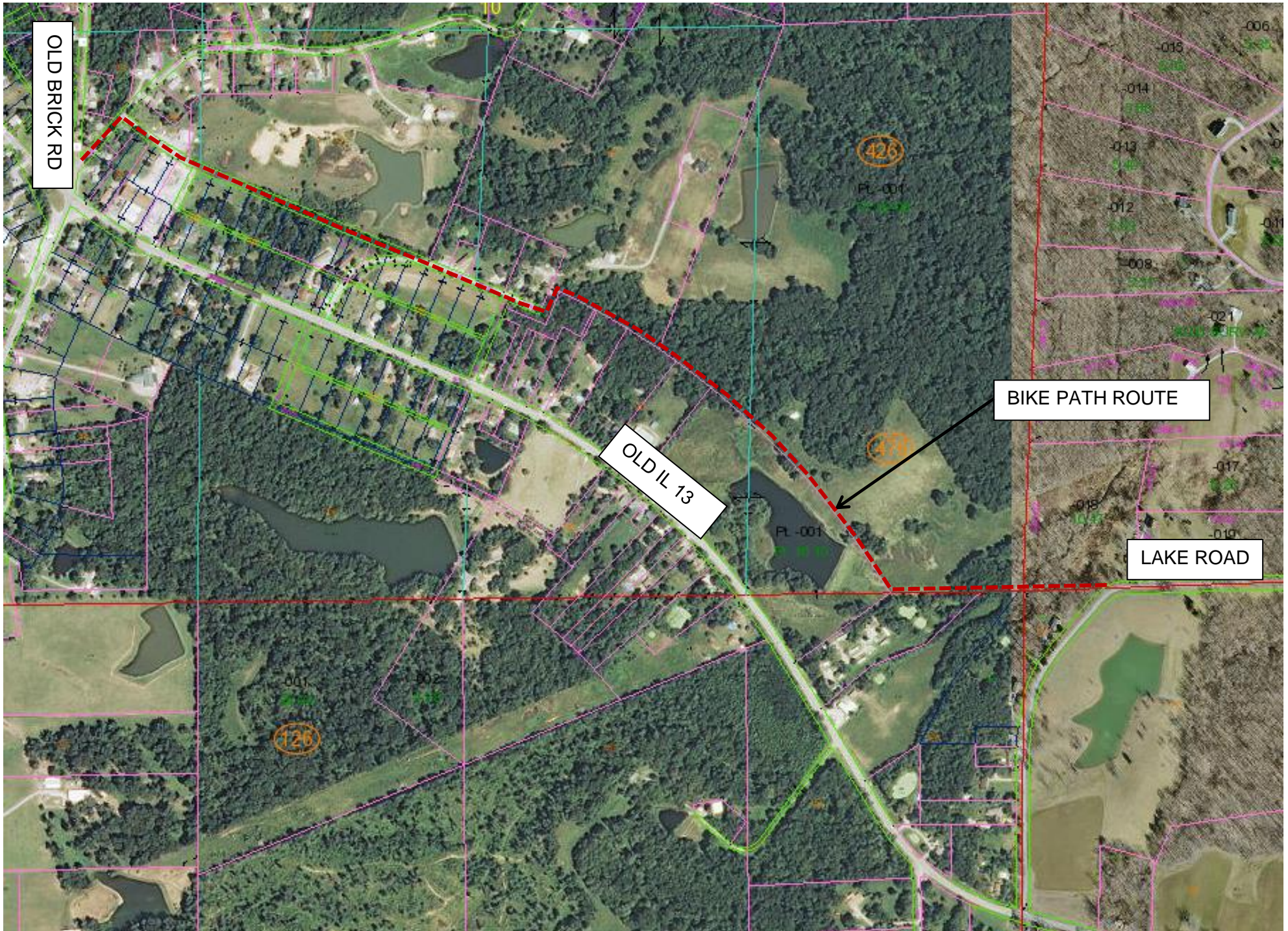


EXHIBIT 7

CHAUTAUQUA ROUTE – BLOS & IRIS DATA

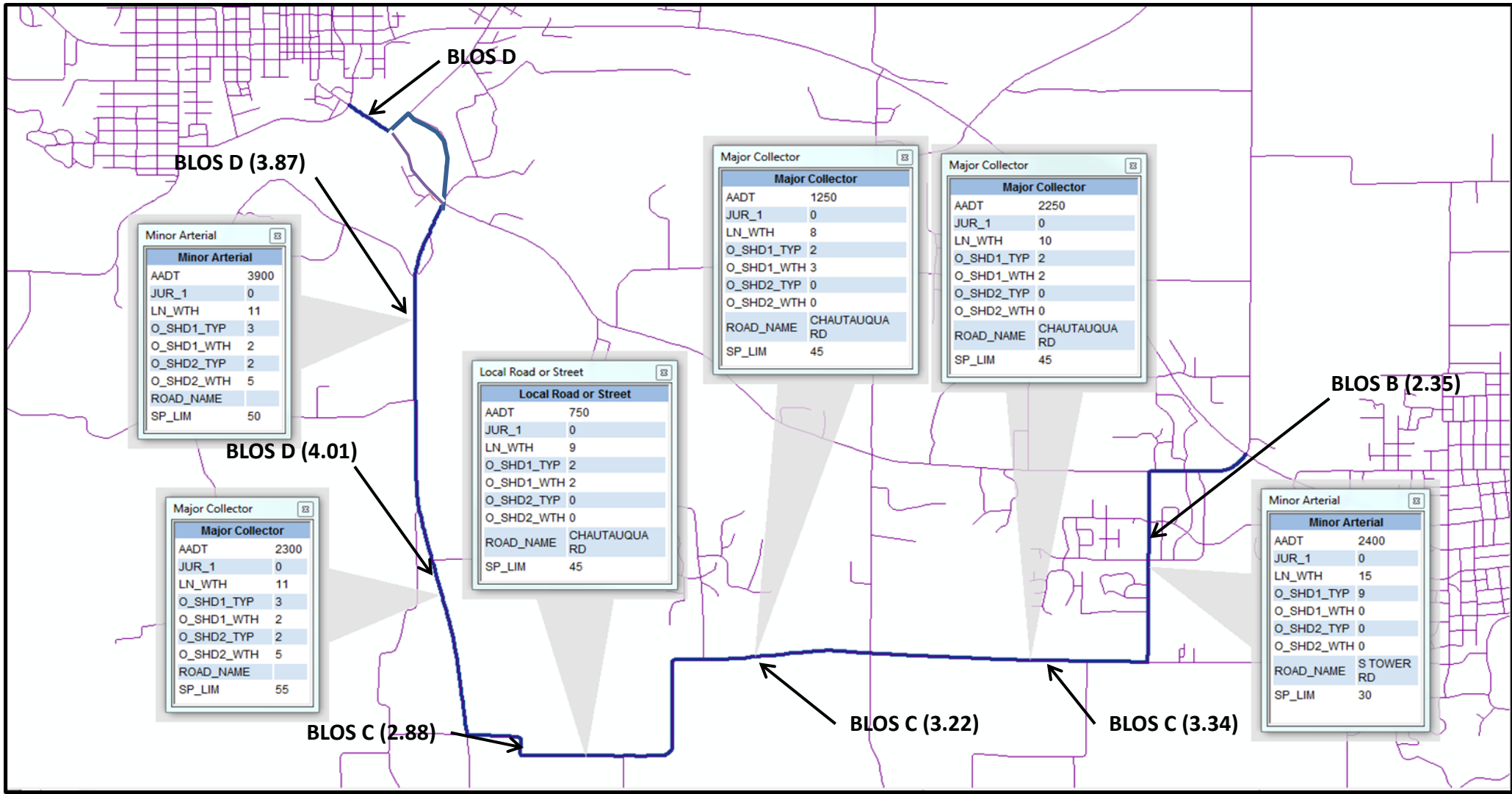


EXHIBIT 8

NEW ERA TO IL 13 Rail to Trail Segment



NEW ERA TO IL 13 ABANDONED RAILWAY PARCEL

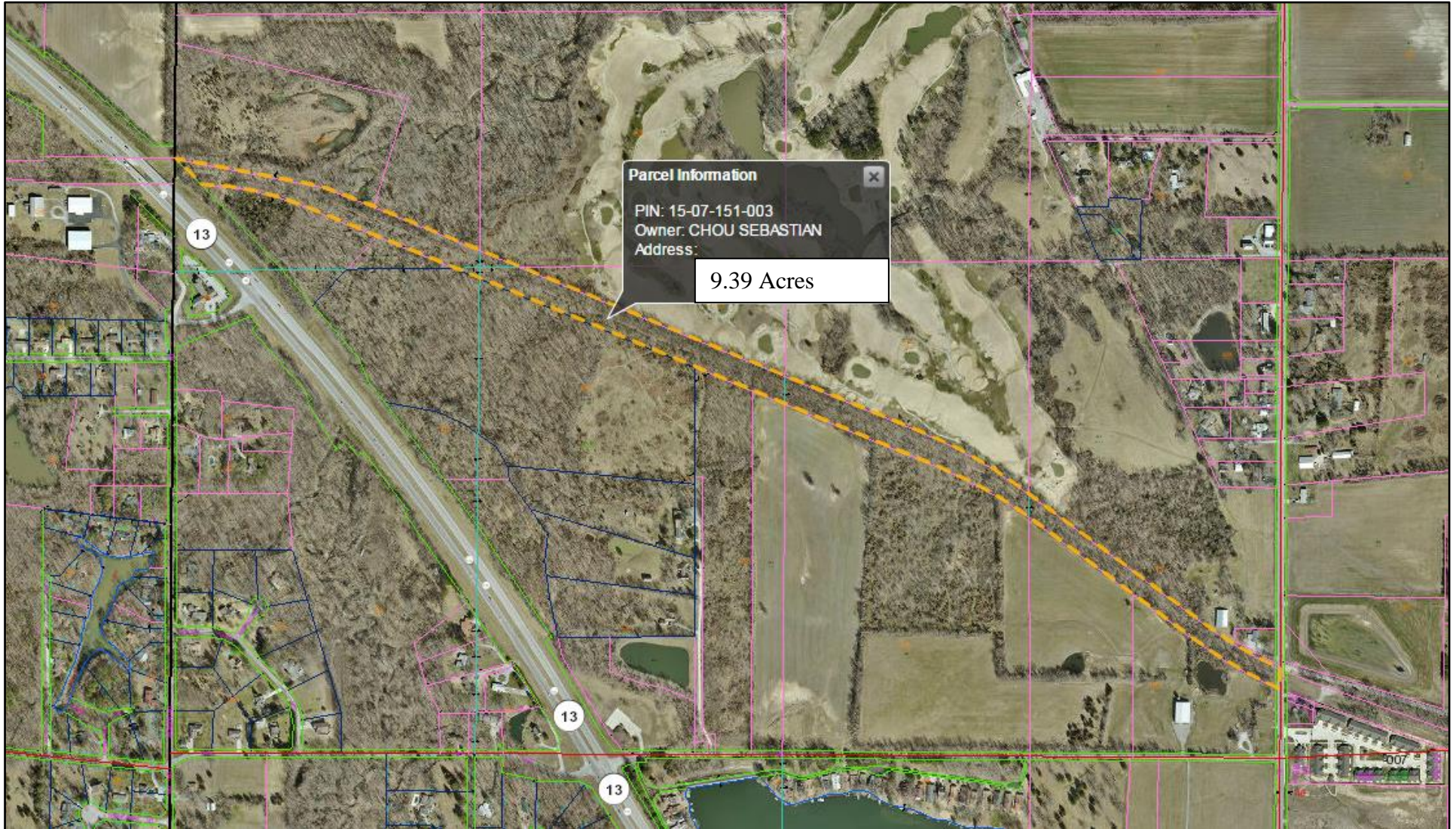


EXHIBIT 9

IL 13 to Country Club Road Rail to Trail Segment



IL 13 to Country Club Road Abandoned Railway Parcels

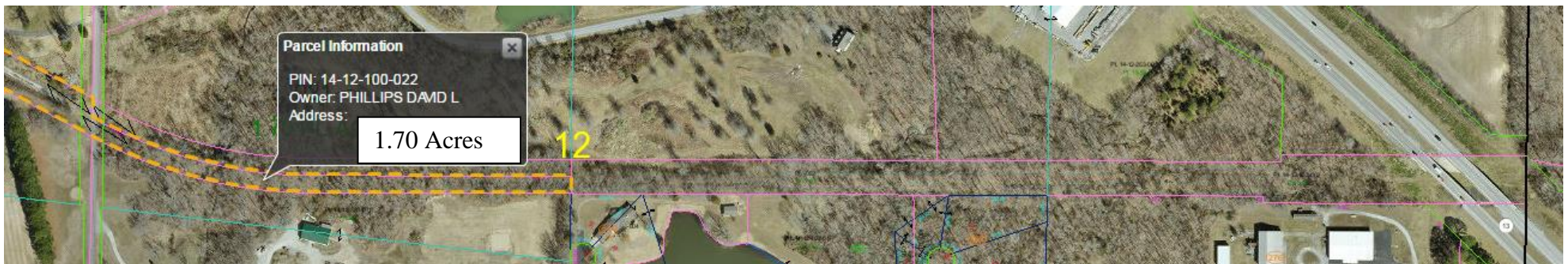


EXHIBIT 10

BIG MUDDY RIVER BIKE TRAIL UNDERPASSES



UNDERPASSES CROSS SECTION VIEW

9-0049 was originally built in 1974 along F.A. 14, Section 12-2B-2. The back to back " " and the out-to-out deck width is 42'-0". The structure consists of a three span continuous structure horizontally curved supported on pile stub abutments and solid wall piers. Structure to be

be maintained by providing a temporary crossover from the existing eastbound roadway to the existing Stage I. Upon completion of the new eastbound structure, traffic will be maintained with a temporary westbound roadway to the eastbound structure for Stage II.

- ① Bridge Fence Railing, Std. R-33 on north side of structure light poles not shown for clarity.
- ② Measured radially.
- ③ For Section A-A, see sheet 2 of 53.
- ④ DS-11 Drainage Scuppers to be located on the south side of each end of the structure.
- ⑤ For light pole locations, pole heights, and anchor bolt pattern see Lighting Plan Details.
- ⑥ Slope 1:2 (V:H) at right angles to abutment along face of wall typical.
- ⑦ Permanent Ground Anchor and Tie Rod, typical.

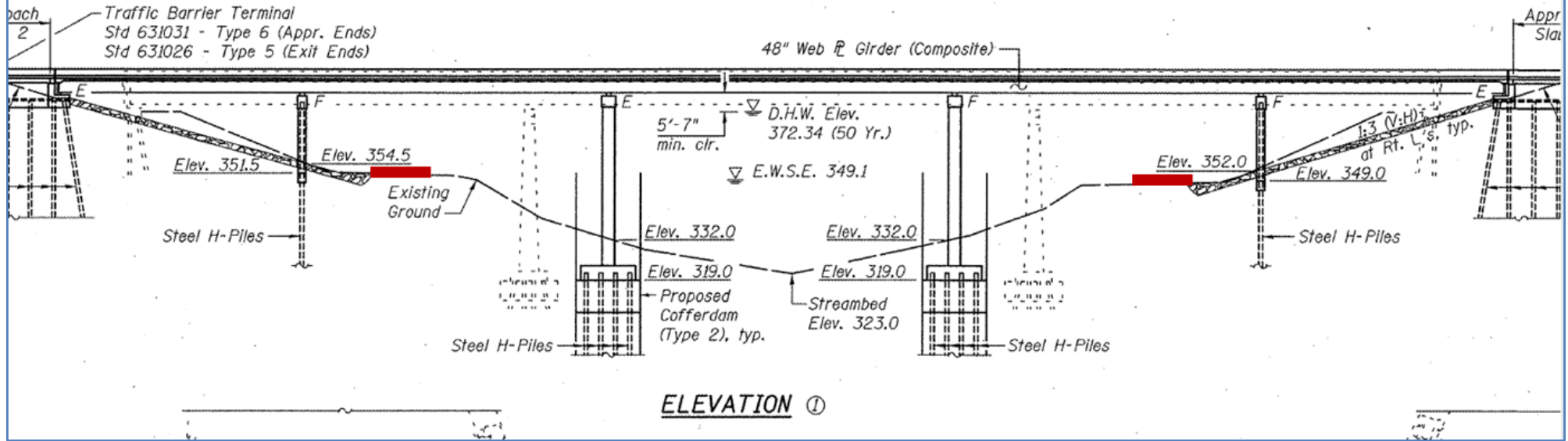


EXHIBIT 11

BIG MUDDY RIVER GAUGE READINGS BY MONTH

	Raw Gauge Readings (Gauge Elevation is 335.5)											
Year	Jan	Feb	mar	April	may	June	July	Aug	Sep	Oct	Nov	Dec
1999	13.78	19.33	14.27	20.15	18.8	14.75	8.593	4.216	3.188	3.201	3.137	
2000		6.069	7.783		6.03	14.35	10.91	6.396	4.066	3.462	4.395	5.407
2001				13.68	15.71	16.28	6.51	3.881	3.892	8.091	4.743	17.41
2002		12.39	17.3	16.72	25.72	12.15	4.898		3.645	3.525	3.687	5.455
2003	7.356	9.213		7.939	17.25	13.43	5.486	4.104		3.405	4.108	3.79
2004		5.591	10.24	8.08		15.55	6.435	4.665	4.505	4.138	10.52	10.45
2005	19.46	11.65	7.982	8.997	5.362	5.341	3.704	3.586	3.799	3.441	7.525	4.493
2006	6.548	8.037	19.64	9.531	10.23	7.103	6.732		5.233	6.305	10.43	13.01
2007	16.2	11.92	11.66	13.56	12.69	6.432	4.062	3.931	4.363	4.135	3.392	7.914
2008	5.425	14.99		26.86	20.52	21.31	17.42	7.908	10	4.106	3.907	4.966
2009	5.448	10.72	10.52	17.58	24.14	15.34	13.88	7.032	5.523	14.2	16.84	13.79
2010	13.25	11.93	15.3	17.07	18.85	17.33	19.53	15.18	8.917	8.005	3.983	3.899
2011	4.004	7.697	18.57	19.14	29.72	22.09	21.11	11.39	5.664	4.413	7.416	17.92
2012	9.614	9.74	9.915	7.147	6.326	3.914	3.501	3.523	4.618	3.865	3.735	3.846
2013	10.26	10.77	16.83	17.1	19.96	21.91	11.21	5.594	4.049	3.756	4.822	11.66
2014	9.817	6.389	6.188	16.63	16.08	12.94	13.7			7.205	3.991	6.61
2015	8.593	5.633	17.28	15.47	9.603	22.42	22.49	8.009	4.526	3.98	8.035	

BIG MUDDY RIVER - WATER DEPTH OVER/UNDER ELEVATION 350 BY MONTH

	Depth Over or Under Elevation 350.0											
year	Jan	Feb	mar	April	may	June	July	Aug	Sep	Oct	Nov	Dec
1999	-0.718	4.831	-0.229	5.649	4.304	0.245	-5.907	-10.284	-11.312	-11.299	-11.363	-14.5
2000	-14.5	-8.431	-6.717	-14.5	-8.47	-0.148	-3.59	-8.104	-10.434	-11.038	-10.105	-9.093
2001	-14.5	-14.5	-14.5	-0.817	1.205	1.779	-7.99	-10.619	-10.608	-6.409	-9.757	2.905
2002	-14.5	-2.11	2.797	2.223	11.215	-2.347	-9.602	-14.5	-10.855	-10.975	-10.813	-9.045
2003	-7.144	-5.287	-14.5	-6.561	2.75	-1.073	-9.014	-10.396	-14.5	-11.095	-10.392	-10.71
2004	-14.5	-8.909	-4.257	-6.42	-14.5	1.053	-8.065	-9.835	-9.995	-10.362	-3.976	-4.047
2005	4.963	-2.851	-6.518	-5.503	-9.138	-9.159	-10.796	-10.914	-10.701	-11.059	-6.975	-10.007
2006	-7.952	-6.463	5.136	-4.969	-4.267	-7.397	-7.768	-14.5	-9.267	-8.195	-4.071	-1.493
2007	1.698	-2.579	-2.837	-0.938	-1.81	-8.068	-10.438	-10.569	-10.137	-10.365	-11.108	-6.586
2008	-9.075	0.492	-14.5	12.362	6.023	6.811	2.916	-6.592	-4.497	-10.394	-10.593	-9.534
2009	-9.052	-3.777	-3.985	3.082	9.638	0.844	-0.62	-7.468	-8.977	-0.305	2.337	-0.715
2010	-1.248	-2.573	0.8	2.573	4.353	2.827	5.03	0.684	-5.583	-6.495	-10.517	-10.601
2011	-10.496	-6.803	4.068	4.637	15.218	7.593	6.605	-3.109	-8.836	-10.087	-7.084	3.421
2012	-4.886	-4.76	-4.585	-7.353	-8.174	-10.586	-10.999	-10.977	-9.882	-10.635	-10.765	-10.654
2013	-4.242	-3.735	2.327	2.595	5.463	7.406	-3.292	-8.906	-10.451	-10.744	-9.678	-2.84
2014	-4.683	-8.111	-8.312	2.133	1.584	-1.557	-0.805	-14.5	-14.5	-7.295	-10.509	-7.89
2015	-5.907	-8.867	2.781	0.966	-4.897	7.918	7.989	-6.491	-9.974	-10.52	-6.465	-14.5
Yellow highlighted cells show overtopping - out of 204 months trail would be overtopped in 44 of those - 21%												

BIG MUDDY RIVER WATER LEVEL OVER/UNDER ELEVATION 355 BY MONTH

	Depth Over or Under Elevation 355.0											
year	Jan	Feb	mar	April	may	June	July	Aug	Sep	Oct	Nov	Dec
1999	-5.718	-0.169	-5.229	0.649	-0.696	-4.755	-10.907	-15.284	-16.312	-16.299	-16.363	-19.5
2000	-19.5	-13.431	-11.717	-19.5	-13.47	-5.148	-8.59	-13.104	-15.434	-16.038	-15.105	-14.093
2001	-19.5	-19.5	-19.5	-5.817	-3.795	-3.221	-12.99	-15.619	-15.608	-11.409	-14.757	-2.095
2002	-19.5	-7.11	-2.203	-2.777	6.215	-7.347	-14.602	-19.5	-15.855	-15.975	-15.813	-14.045
2003	-12.144	-10.287	-19.5	-11.561	-2.25	-6.073	-14.014	-15.396	-19.5	-16.095	-15.392	-15.71
2004	-19.5	-13.909	-9.257	-11.42	-19.5	-3.947	-13.065	-14.835	-14.995	-15.362	-8.976	-9.047
2005	-0.037	-7.851	-11.518	-10.503	-14.138	-14.159	-15.796	-15.914	-15.701	-16.059	-11.975	-15.007
2006	-12.952	-11.463	0.136	-9.969	-9.267	-12.397	-12.768	-19.5	-14.267	-13.195	-9.071	-6.493
2007	-3.302	-7.579	-7.837	-5.938	-6.81	-13.068	-15.438	-15.569	-15.137	-15.365	-16.108	-11.586
2008	-14.075	-4.508	-19.5	7.362	1.023	1.811	-2.084	-11.592	-9.497	-15.394	-15.593	-14.534
2009	-14.052	-8.777	-8.985	-1.918	4.638	-4.156	-5.62	-12.468	-13.977	-5.305	-2.663	-5.715
2010	-6.248	-7.573	-4.2	-2.427	-0.647	-2.173	0.03	-4.316	-10.583	-11.495	-15.517	-15.601
2011	-15.496	-11.803	-0.932	-0.363	10.218	2.593	1.605	-8.109	-13.836	-15.087	-12.084	-1.579
2012	-9.886	-9.76	-9.585	-12.353	-13.174	-15.586	-15.999	-15.977	-14.882	-15.635	-15.765	-15.654
2013	-9.242	-8.735	-2.673	-2.405	0.463	2.406	-8.292	-13.906	-15.451	-15.744	-14.678	-7.84
2014	-9.683	-13.111	-13.312	-2.867	-3.416	-6.557	-5.805	-19.5	-19.5	-12.295	-15.509	-12.89
2015	-10.907	-13.867	-2.219	-4.034	-9.897	2.918	2.989	-11.491	-14.974	-15.52	-11.465	-19.5
Yellow highlighted cells show overtopping - out of 204 months trail would be overtopped in 15 of those - 7%												

EXHIBIT 12

CARBONDALE TO MURPHYSBORO BIKE ROUTE

PREFERRED ALTERNATIVE AND RECOMMENDED SUPPLEMENTAL CONNECTIONS

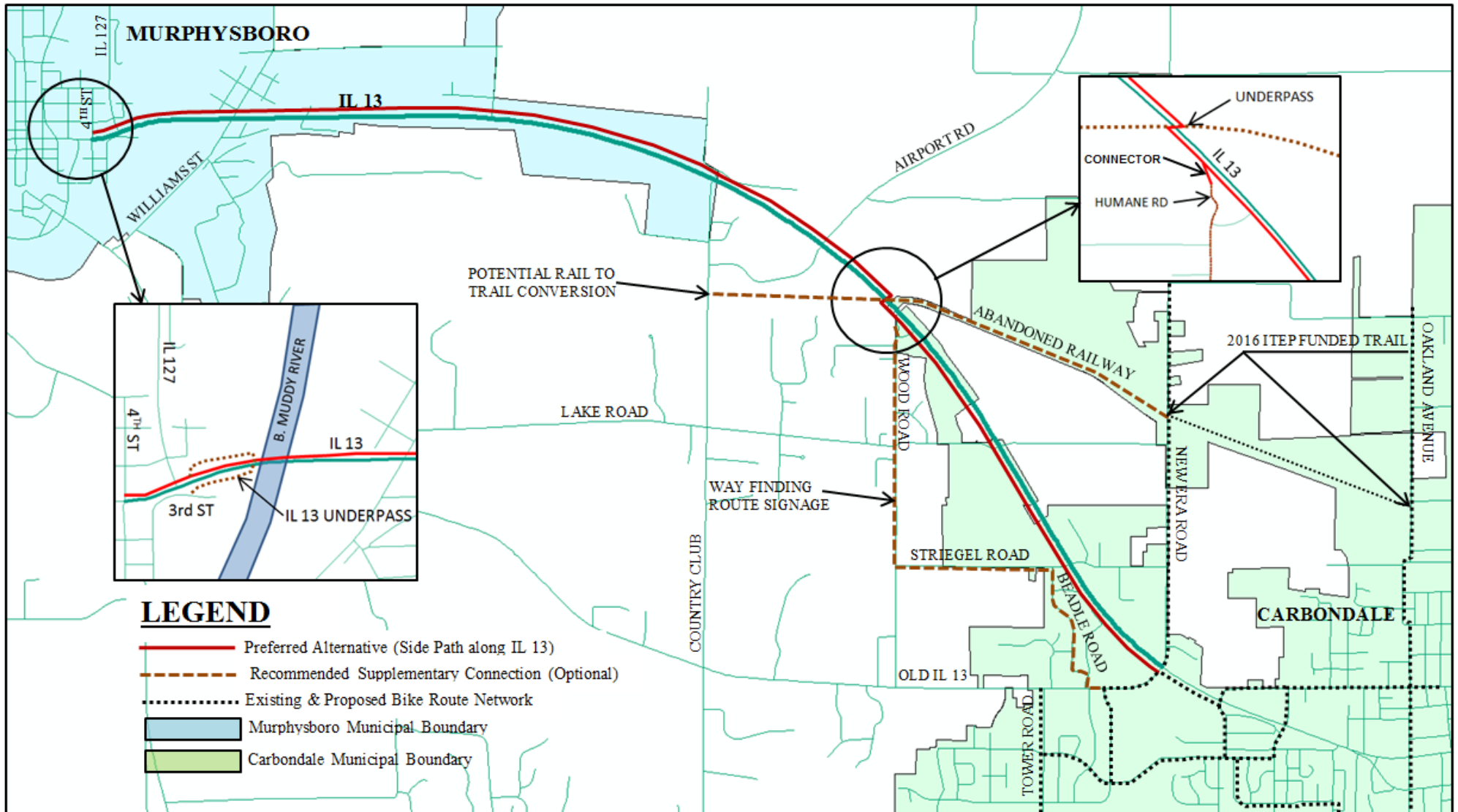
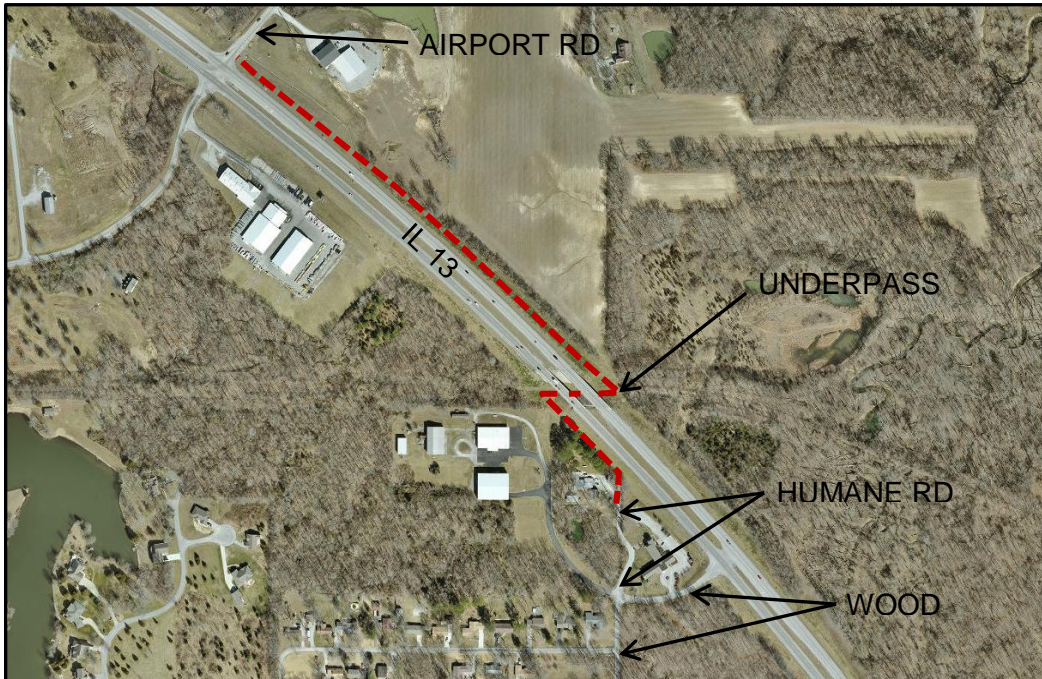


EXHIBIT 13

Prioritized Projects List

1. IL 13 Underpass and associated trail segments



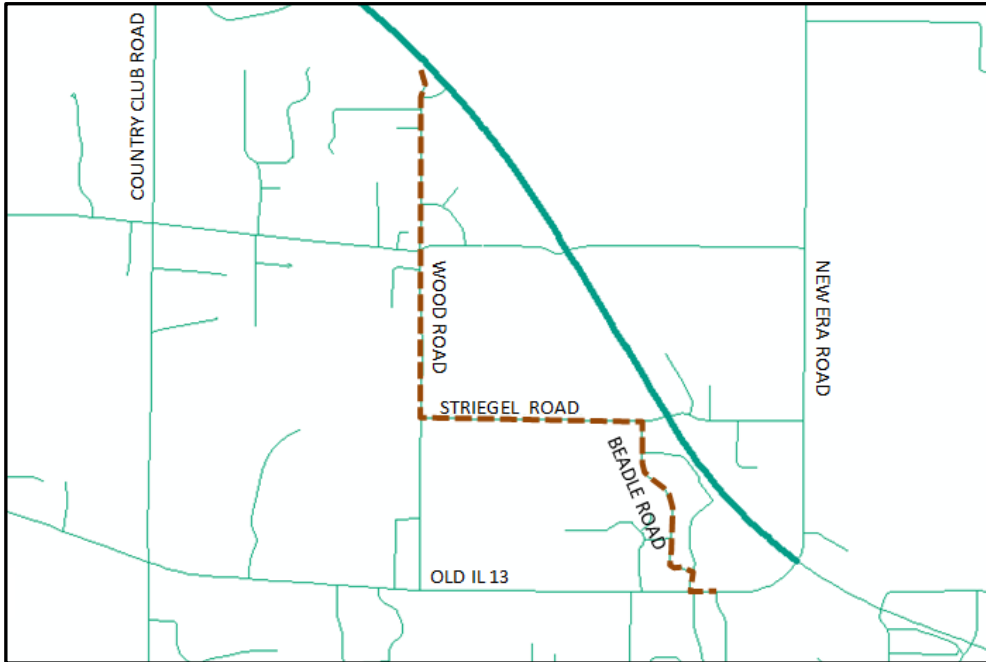
Estimated Cost

Underpass Culvert	\$500,000
Paved Trail Segments (~2500')	\$215,000
Utilities (none visible off right of way)	<u>\$0**</u>
TOTAL	\$715,000*

*Note: This cost is based on construction of the underpass and trail as part of a larger IDOT contract to remove the IL 13 bridges that currently span the abandoned railroad.

**For all utility estimates it is assumed that utilities on existing IDOT right of way will be moved at the utility company's expense.

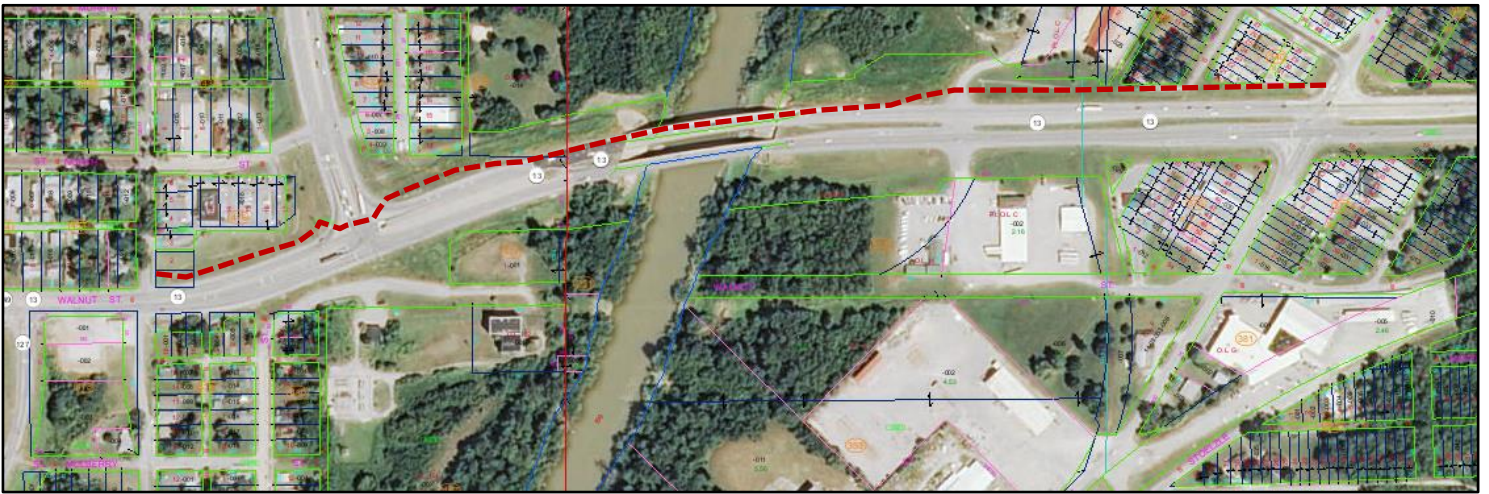
2. Way Finding Signage along Wood, Striegel and Beadle Roads



Estimated Cost

Bike Route Signage	\$4,000
Right of Way	\$0
Utilities	<u>\$0</u>
TOTAL	\$4,000

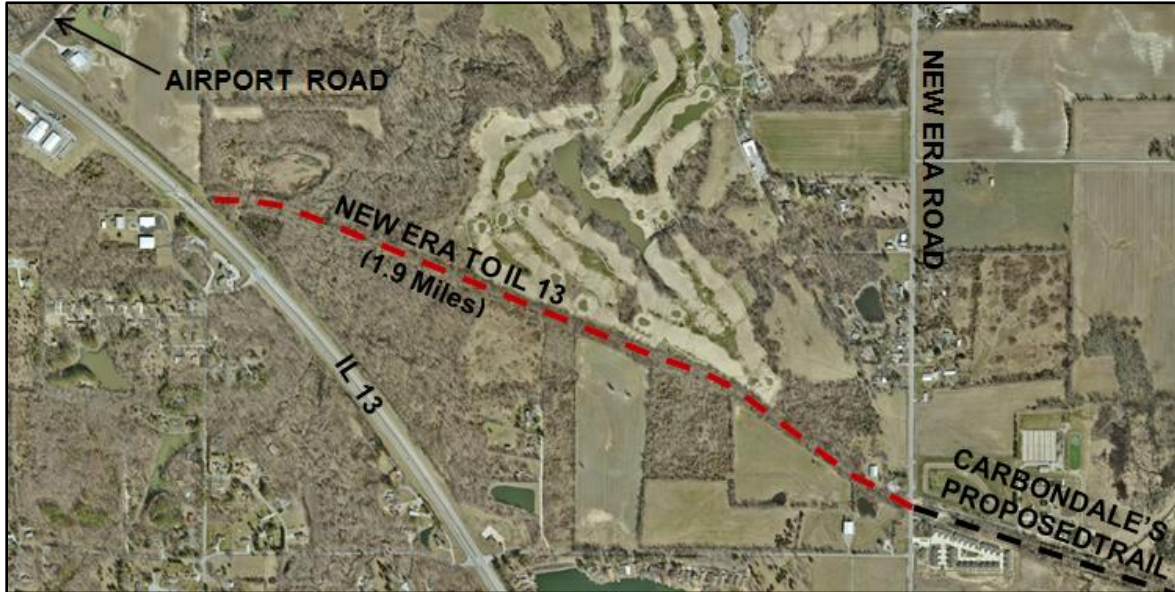
3. 4th Street to Williams Street Segment



Estimated Cost

Paved Trail Construction (2,850')	\$640,000
Right of Way - none	\$0
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$640,000

4. New Era to IL 13 rail to trail conversion



Estimated Cost

Paved Trail Construction	\$1,130,000
Lighting	\$340,000
Right of Way (9.39 acres)	<u>\$60,000</u>
TOTAL	\$1,530,000*

*Note: Cost of this trail could be reduced by approximately \$500,000 if an aggregate surface were used instead of a paved surface; elimination of lighting would save an additional \$340,000 for a total savings of \$840,000.

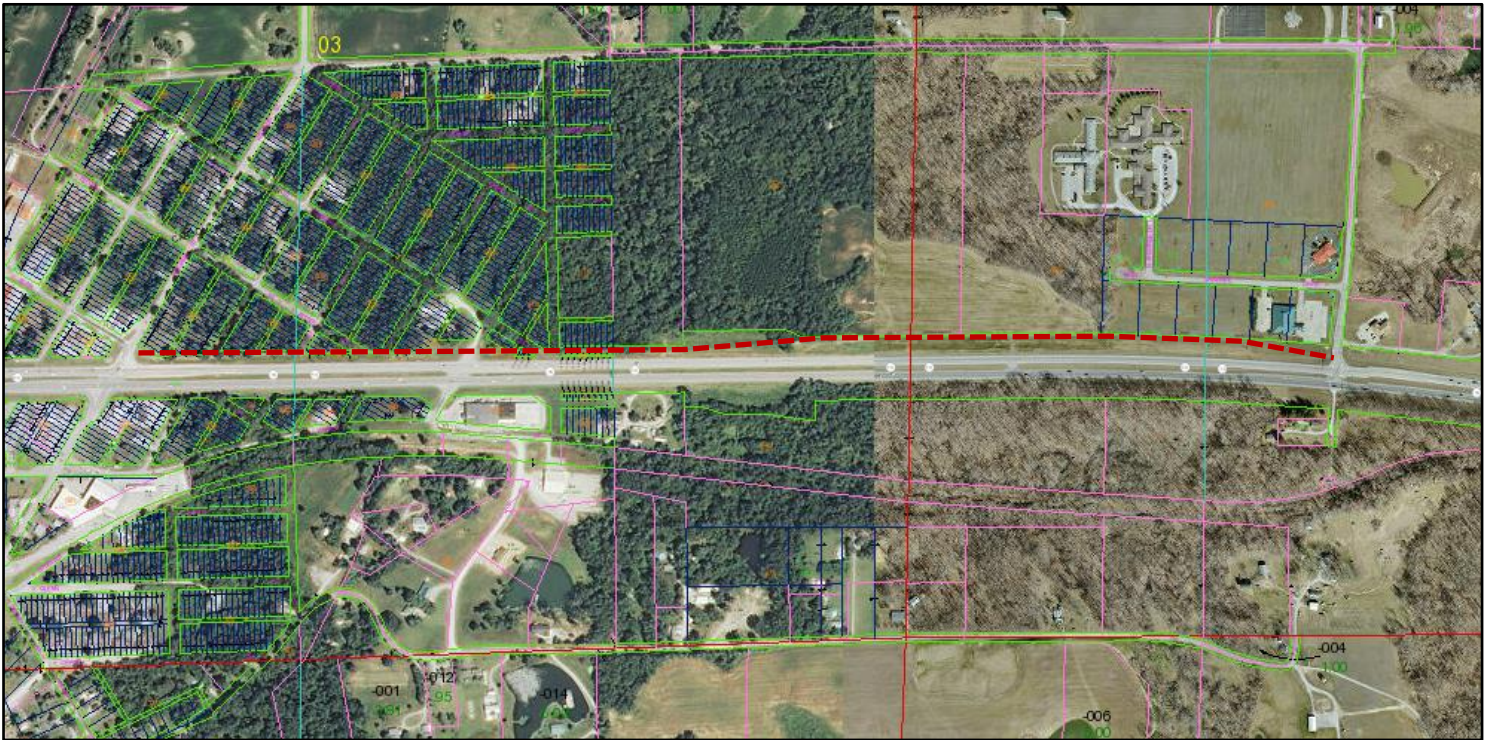
5. Airport Road to Country Club Road Segment



Estimated Cost

Paved Trail Segment (2,800')	\$615,000
Right of Way	\$15,000
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$630,000

6. Williams Street to Watson Road Segment (324+50 to 268+00 = 5,650 ft.)



Estimated Cost

Trail Construction	\$850,000
Right of Way	\$150,000
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$1,000,000

7. Watson Road to Country Club Road Segment (268+00 to 216+50 = 5,150 ft.)



Estimated Cost

Trail Construction	\$850,000
Mud Creek Ped./Bike Bridge	\$750,000
Right of Way	\$40,000 (easements)
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$1,640,000

8. New Era Road to Striegel Road Segment (68+00 to 98+50 = 3,050 ft.)



Estimated Cost

Trail Construction	\$430,000
Right of Way (various easements)	\$20,000
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$450,000

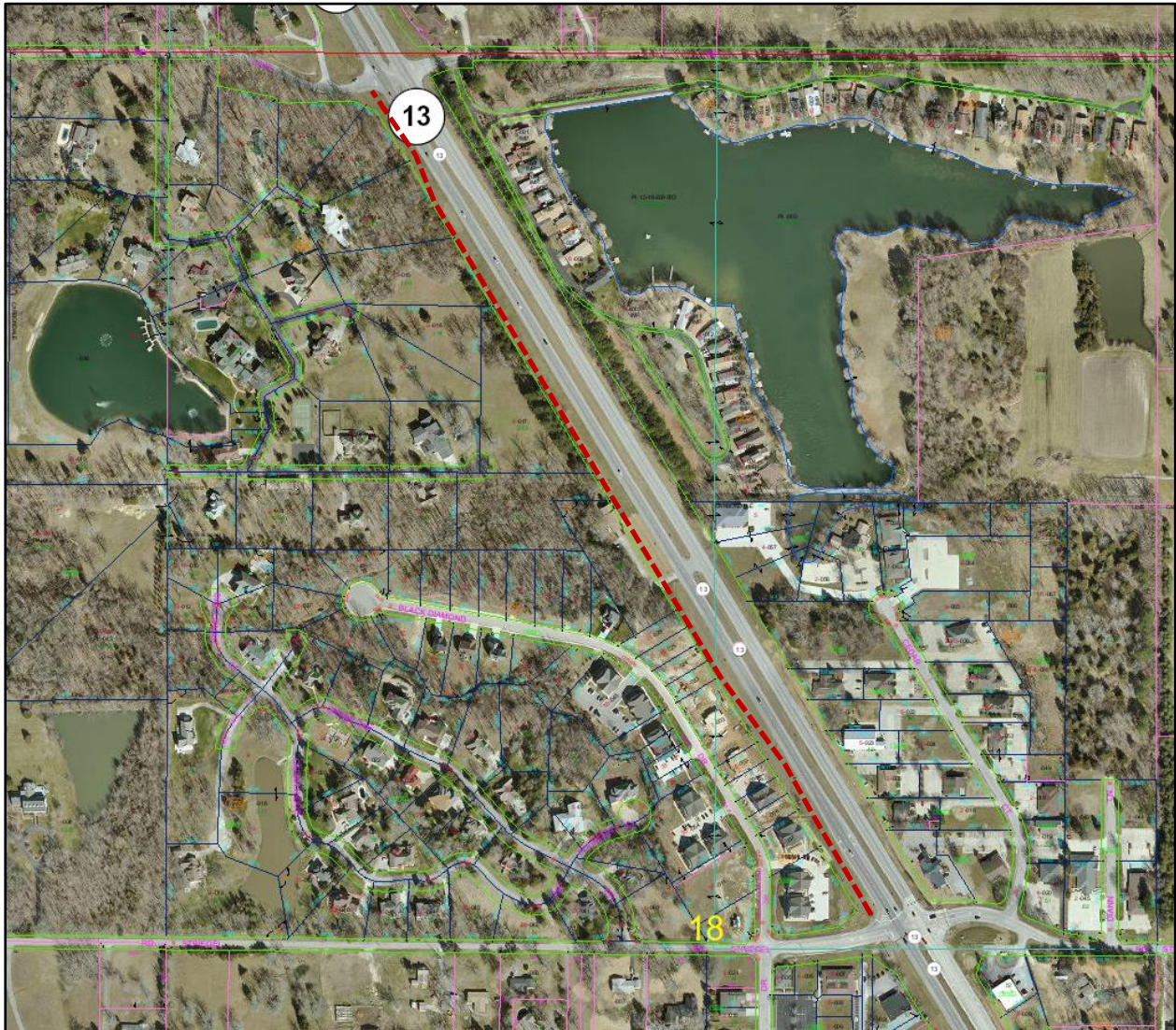
9. Humane Road to Lake Road Segment (166+00 to 128+50 = 3,750 ft.)



Estimated Cost

Trail Construction	\$700,000
Right of Way (1 parcel SE corner of Wood rd., easements throughout ~ 5 parcels)	\$40,000
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$740,000

10. Lake Road to Striegel Road Segment (128+50 to 98+50 = 3,000 ft.)



Estimated Cost

Trail Construction	\$510,000
Right of Way (various easements)	\$20,000
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$530,000

11. IL 13 Underpass connection to 3rd Street (~ 1,500 ft. of additional trail)



Estimated Cost

Trail Construction	\$300,000
Right of Way	\$30,000
Utilities (none visible off right of way)	<u>\$0</u>
TOTAL	\$330,000

12. IL 13 to Country Club Road Rail to Trail Conversion (0.75 Miles)



Estimated Cost

Trail Construction	\$525,000
Right of Way (3 parcels ~ 10 acres)	\$75,000
Utilities (none visible)	<u>\$0</u>
TOTAL	\$600,000

EXHIBIT 14

PROJECT STUDY GROUP TEAM MEMBERS

- Carrie Nelsen – IDOT District 9, Program Development Engineer
- Julie Klamm – IDOT District 9, Environmental Coordinator
- Ed Barsotti – RIDE Illinois, Chief Programs Officer
- Dan Bost – Jackson County Board Member
- Julie Peterson – Jackson County Board Member
- Grant Guthman – Jackson County Engineer
- Will Stephens – Mayor of Murphysboro
- Chris Wallace – City of Carbondale, Development Services Director
- Michelle McLernon – Jackson County Health Department, Director of Health Education
- Audrey Wagner – SIU Department of Geography and Environmental Resources, Lecturer
- Joe Zdankiewicz – SIMPO, Director of Transportation Planning
- Beau Henson – Greater Egypt Regional Planning Commission, Economic Dev. Specialist