

Categorical Exclusion
Appendix H
Air Quality

**Table 5.4:
TIP Projects Listing Cont.**

Sponsor: Indiana Department of Transportation											
Route Des# Length: Description:	Project Limits Planning Reference Federal Funding Source	Map ID Amendment/ Modification Date	Phase	All amounts in thousands					Planning/ Cost to Complete	Federal Share	State Share
				2020	2021	2022	2023	2024			
Warrick County											
SR 68	0.08 mi. W of SR 61		PE							\$ -	\$ -
1400157			RW	\$134						\$ 107	\$ 27
n/a	STBG, NHPP	9/12/2019	CN	\$310						\$ 248	\$ 62
Contract 38721; Small structure replacement.											
SR 68	Over Mill Creek, 0.26 mi E of SR 61		PE			\$181				\$ 145	\$ 36
2002063			RW					\$50		\$ 40	\$ 10
n/a	STBG	1/14/2021	CN						\$1,613	\$ -	\$ -
Contract 43235; Bridge construction											
I-64	Over Plum Creek, 3.92 mi W of SR 61, EBL & WBL		PE	\$289						\$ 231	\$ 58
1593068			RW							\$ -	\$ -
n/a	NHPP	10/10/2019	CN				\$3,646			\$ 2,917	\$ 729
Contract 39367; Replace Superstructure.											
SR 61	From 0.17 mi E of W Jct SR-62 to E Jct SR-62		PE							\$ -	\$ -
1592969			RW							\$ -	\$ -
n/a	STBG		CN	\$1,762						\$ 1,410	\$ 352
Contract 39377; HMA Overlay, preventative maintenance.											
SR 161	From E jct with SR 62 to W jct with SR 68		PE							\$ -	\$ -
1592941			RW	\$40						\$ 32	\$ 8
10.129 mi.	STBG	11/14/2019	CN	\$4,047						\$ 3,238	\$ 809
Contract 39380; Pavement HMA Overlay, structural.											
SR 68	Over Pigeon Creek Overflow, 2.08 mi. E of SR 57		PE							\$ -	\$ -
1593067			RW							\$ -	\$ -
n/a	STBG	7/30/2021	CN			\$50	\$1,990			\$ 1,632	\$ 408
Contract 39418; Bridge replacement, other construction; Includes Des# 1593066											
SR 66	0.16 mi. E of I-69 at Epworth Rd.		PE							\$ -	\$ -
1400195			RW							\$ -	\$ -
1.081 mi.	NHPP/HSIP	7/30/2021	CN	\$175			\$4,144			\$ 3,887	\$ 432
Contract 39921; Other intersection improvement											
SR 68	Over Old Pigeon Creek, 1.56 mi. E of SR 57		PE							\$ -	\$ -
1602256			RW							\$ -	\$ -
n/a	STBG		CN	\$3,286						\$ 2,629	\$ 657
Contract 40051; Bridge thin deck overlay.											
SR 68	Over Wallace Creek, 0.95 mi E of SR 161		PE							\$ -	\$ -
1700167			RW	\$30						\$ 24	\$ 6
n/a	STBG		CN			\$829				\$ 663	\$ 166
Contract 40541; Bridge replacement											
SR 161	10.46 mi. N Jct. SR 66		PE							\$ -	\$ -
1700170			RW	\$18						\$ 14	\$ 4
n/a	STBG		CN			\$2,025				\$ 1,620	\$ 405
Contract 40551; Small structure replacement.											
SR 662	From I-69 to Ellerbusch Rd.		PE							\$ -	\$ -
1701206			RW							\$ -	\$ -
1.55 mi.	STBG		CN	\$877						\$ 702	\$ 175
Contract 40626; HMA Overlay, preventative maintenance.											
SR 61	From 0.14 mi S of I-64 to 0.88 mi N of SR-68		PE	\$565						\$ 452	\$ 113
1800176			RW							\$ -	\$ -
0.88	STBG	4/9/2020, 9/10/20	CN							\$ -	\$ -
Contract 41407; HMA Overlay, preventative maintenance.											
I-64	CCTV Cameras/Detection from SR 69 to Lanesville		PE				\$155			\$ 140	\$ 16
1802047			RW							\$ -	\$ -
n/a	NHPP		CN					\$1,725		\$ 1,553	\$ 173
Contract 41768; ITS Traffic management systems.											
SR 61 & SR 68	Various locations		PE							\$ -	\$ -
Various			RW							\$ -	\$ -
n/a	STBG		CN		\$1,438					\$ 1,150	\$ 288
Contract 41048. Bridge Thin Deck Overlays. Includes locations outside MPO TIP area.											
I-64 & SR 68	Various locations		PE							\$ -	\$ -
Various			RW							\$ -	\$ -
n/a	NHPP, STBG		CN		\$3,258					\$ 2,606	\$ 652
Contract 41059; Bridge Deck Overlays. Includes locations outside MPO TIP area.											
SR 66	From 2.2 mi. E of SR 61 to US 231		PE							\$ -	\$ -
1592783			RW							\$ -	\$ -
15.91 mi.	NHPP		CN	\$6,279						\$ 5,023	\$ 1,256
Contract 39357; Pavement HMA Overlay, preventive maintenance. Includes locations outside EMPO TIP area.											

Indiana Department of Transportation (INDOT)
 State Preservation and Local Initiated Projects FY 2020 - 2024

SPONSOR	CONTR ACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	LOCATION	DISTRICT	MILES	FEDERAL CATEGORY	Total Cost of Project*	PROGRAM	PHASE	FEDERAL	MATCH	2020	2021	2022	2023	2024
Boonville	39840 / 1600891	M 12	ST 1025	Road Rehabilitation (3 R/4R Standards)	3rd Street (formerly SR 61)	Vincennes	1	STBG	\$3,184,109.82	Group III Program	RW	\$0.00	\$0.00	(\$438,600.00)	\$438,600.00			
										Local Funds	RW	\$0.00	\$0.00	(\$109,650.00)	\$109,650.00			
Comments: Move RW Phase from FY20 to FY21. Per EMPO TIP Letter 6/25/2020. AQC Exempt 7/2/2019.																		
Indiana Department of Transportation	39921 / 1400195	Init.	SR 66	Other Intersection Improvement	At Epworth Road, 0.16 mile E I-69	Vincennes	1.081	NHPP		Mobility Construction	CN	\$3,268,456.80	\$817,114.20	\$175,000.00	\$3,910,571.00			
Performance Measure Impacted: Safety																		
Indiana Department of Transportation	39921 / 1400195	M 33	SR 66	Other Intersection Improvement	At Epworth Road, 0.16 mile E I-69	Vincennes	1.081	NHPP	\$5,078,812.00	Mobility Construction	CN	\$186,732.80	\$46,683.20		(\$3,910,571.00)		\$4,143,987.00	
Performance Measure Impacted: Safety																		
Comments: MOVE FY 2021 CN funds of \$3,910,571.00 to FY 2023 and INCREASE to \$4,143,987.00. EMPO Modification letter 7/30/2021.																		
Indiana Department of Transportation	40051 / 1602256	Init.	SR 68	Bridge Thin Deck Overlay	Over Old Pigeon Creek, 1.56 miles E SR-57	Vincennes	0	STBG		Bridge Construction	CN	\$2,629,128.80	\$657,282.20	\$3,286,411.00				
Performance Measure Impacted: Bridge Condition																		
Indiana Department of Transportation	40541 / 1700167	Init.	SR 68	Bridge Replacement, Concrete	Over Wallace Creek, 00.95 miles E SR-161	Vincennes	0	STBG		Bridge Construction	CN	\$682,916.80	\$165,729.20			\$828,646.00		
										Bridge ROW	RW	\$24,000.00	\$6,000.00	\$30,000.00				
Indiana Department of Transportation	40551 / 1700170	Init.	SR 161	Small Structure Replacement	10.46 miles N Jct SR-66	Vincennes	0	STBG		Bridge Construction	CN	\$1,619,550.40	\$404,887.60			\$2,024,438.00		
										Bridge ROW	RW	\$14,400.00	\$3,600.00	\$18,000.00				
Performance Measure Impacted: Bridge Condition																		
Indiana Department of Transportation	40626 / 1701206	Init.	SR 662	HMA Overlay, Preventive Maintenance	From I-69 to Ellerbush Road, 1 .51 miles East of I-69	Vincennes	1.555	STBG		Road Construction	CN	\$701,681.60	\$175,420.40	\$877,102.00				
Performance Measure Impacted: Pavement Condition																		
Indiana Department of Transportation	41407 / 1800176	Init.	SR 61	HMA Overlay, Preventive Maintenance	From 0.14 mi S of I-64 to 0.88 mi N of SR-68 (Lynnville)	Vincennes	1.156	STBG		Road Construction	CN	\$576,800.00	\$144,200.00				\$721,000.00	
										Road ROW	RW	\$24,000.00	\$6,000.00			\$30,000.00		
Performance Measure Impacted: Pavement Condition																		
Indiana Department of Transportation	41407 / 1800176	A 22	SR 61	HMA Overlay, Preventive Maintenance	From 0.14 mi S of I-64 to 0.88 mi N of SR-68 (Lynnville)	Vincennes	1.156	STBG	\$6,578,000.00	Road Consulting	PE	\$451,600.00	\$112,900.00	\$564,500.00				
										Road ROW	RW	\$22,000.00	\$5,500.00				\$27,500.00	

*Estimated Costs left to Complete Project column is for costs that may extend beyond the four years of a STIP. This column is not fiscally constrained and is for information purposes.

Categorical Exclusion
Appendix I
Other Information



Lloyd Expressway (SR 62/66) Corridor Study

Des. No. 1592406
October 1, 2018



AECOM

 **Stantec**

Executive Summary

Introduction

The Lloyd Expressway (SR 62/SR 66) Corridor study was conducted by the Indiana Department of Transportation (INDOT) and the Evansville Metropolitan Planning Organization (EMPO). The study examines the need for and types of improvements necessary along the corridor, focusing on the area beginning in the west at St. Phillips Road in Posey County, passing through Vanderburgh County, and ending in the east at the SR 261 intersection in Warrick County. **Figure A** below provides an overview of the study area. Through a collaborative effort with the public, local government agencies, and the business community, this study will recommend a set of alternatives aimed at accommodating access in a responsible manner and will ultimately result in a plan that can be implemented to facilitate future access management opportunities.

The purpose of the study is to develop a plan to address current and projected traffic demands as well as safety concerns for both motorists and pedestrians to ensure future mobility along and around the corridor.

Activities performed included:

- Compiling an inventory of existing conditions
- Preparing a red flag summary, conducting traffic data counts
- Traffic forecasting (short-term 10-year forecasts as well as long-term, 20-year forecasts)
- Traffic simulation modeling
- Analyzing and proposing alternatives as well as cost estimates
- Conducting stakeholder involvement activities
- Producing a compilation of the findings

Figure A - Study Area



Existing Conditions

For the purpose of this study, the Lloyd Expressway Corridor has been categorized into four distinct sections based on the existing road and area conditions. The four sections include:

- Suburban Development from St. Phillips Road to Barker Avenue (5.5 miles)
- Downtown City Street from Barker Avenue to Fulton Avenue (1.5 miles)
- Expressway from Fulton Avenue to Vann Avenue (4.0 miles)
- Signalized Arterial from Vann Avenue to SR 261 (8.0 miles)

Several intersections have approach levels of service (LOS) of E or worse. These included Schutte Road, Rosenberger Avenue, Joseph Avenue, Burkhardt Road, Green River Road, and Cross Pointe Boulevard. The approaches where LOS values are less than desirable are mainly the side streets since they are typically penalized to keep the traffic flow on the Lloyd Expressway moving during the peak periods. No other intersections or segments are currently operating below LOS D. However, there are intersections operating at LOS D as well as specific movements that are at or below LOS D.

A three-year crash analysis was performed with crash data provided by the EMPO for the years 2014 through 2016. The data was viewed spatially in GIS, where crashes were attributed to appropriate intersections. Next, the crashes were separated in relation to various conditions, most importantly, by the following severity categories: fatal and incapacitating injury, injury, and property damage only. The data was analyzed with RoadHAT version 3.0, which produced an Index of Crash Frequency measure as well as an Index of Crash Severity measure. For intersections which exceeded a value of 1.00 for both measures, detailed crash diagrams were created for further analysis. After completion of the existing conditions inventory, the following intersections warranted further investigation based on their statistical crash analysis and/or LOS results:

- SR 62 / Schutte Road
- SR 62 / Boehne Camp Road
- SR 62 / Middle Mount Vernon Road
- SR 62 / Red Bank Road
- SR 62 / Rosenberger Avenue
- SR 62 / Igleheart Avenue Entrance Ramp
- SR 62 / Wabash Avenue
- SR 62 / St. Joseph Avenue
- SR 66 / Vann Avenue
- SR 66 / Stockwell Road
- SR 66 / Green River Road
- SR 66 / Fielding Road
- SR 66 / Brentwood Drive
- SR 66 / Burkhardt Road
- SR 66 / Cross Pointe Boulevard
- SR 66 / Epworth Road
- SR 66 / Country Place Drive
- SR 66 / Bell Road

University Parkway and Grimm Road were also investigated based on feedback in the initial stakeholder meetings. No roadway segments of SR 62 / 66 showed substandard crash or level of service performance warranting additional investigation.

Future Conditions

The EMPO Regional Travel Demand Model served as the basis for development of traffic forecasts and evaluation of alternatives. A set of microscopic traffic simulation models was developed for the purpose of evaluating the improvement alternatives. The TransModeler® traffic simulation software by Caliper® Corporation was used to examine AM and PM peak period traffic conditions for the following scenarios:

- Existing (year 2017) conditions
- Future (year 2025/2045) No Build conditions (where “No Build” means no additional projects beyond those that are already committed)
- Future (year 2025/2045) anticipated conditions associated with the various improvement alternatives that were considered

The EMPO Regional Travel Demand Model estimates two growth rates for the study area. The growth rates for both the Suburban Development and the Downtown City Street sections on the Lloyd Expressway were calculated to be 0.5% per year which represents lower growth portions of the corridor. The growth rates for both the Expressway and Signalized Arterial sections on the Lloyd Expressway were calculated to be 1.0% per year which represents higher growth portions of the corridor.

Recommendations

The Lloyd Expressway study resulted in several improvement alternatives recommended for future implementation. These improvement concepts focus on areas with existing safety concerns and other transportation deficiencies identified by the study team. The nature and likely causes of problems identified over the course of the study were examined through field reconnaissance, and improvement concepts were developed to address the identified problems. This study focused on short-term improvements (concepts that can be quickly and effectively implemented and that address current mobility and safety issues) and long-term improvements (concepts requiring more significant resources to implement or concepts that address future mobility issues). Improving safety throughout the corridor by providing greater visibility for left-turn vehicles, additional warning signage, providing pedestrian signals and a crosswalk at signalized intersections, eliminating weave movements, and alternative intersection design will improve both vehicular and pedestrian safety.

A range of concepts was developed based on the existing conditions analysis (i.e. traffic, crash history, and environmental overview) and input received from the study team and stakeholders/ local officials. It should be noted that these improvements are purely conceptual and that further details must be

examined in subsequent project phases. The various alternatives have not completed the full National Environmental Policy Act (NEPA) process. **Table A** below presents the short-term and long-term recommendations:

Table A – Short and Long-Term Recommendations

Intersection	Priority	Short Term (S) Long Term (L)	Recommendations	Crash Reduction Factor	2018 Estimated Cost
SR 62 / Schutte Rd	Medium	S	Signal Warning Signs/ Flashing Beacons	36.0%	\$65,000
SR 62 / Schutte Rd	Medium	L	Positive Offset Left Turn Lanes with Flashing Yellow Arrows	33.8%	\$910,000
SR 62 / Middle Mt. Vernon Rd	Low	S	Add Flashing Beacons	N/A	\$15,000
SR 62 / Middle Mt. Vernon Rd	Low	L	Right-in / Right-out	72.0%	\$200,000
SR 62 / Boehne Camp Rd	Medium	S	Signal Warning Signs/ Flashing Beacons	36.0%	\$65,000
SR 62 / Boehne Camp Rd	Medium	L	Positive Offset Left Turn Lanes with Flashing Yellow Arrows	33.8%	\$910,000
SR 62 / Red Bank Rd	Medium	S	Signal Warning Signs/ Flashing Beacons	36.0%	\$65,000
SR 62 / Red Bank Rd	Medium	S	Reconfiguration of WB Left Turn Lanes	57.0%	\$45,000
SR 62 / Rosenberger Ave	Medium	L	Positive Offset Left Turn Lanes with Flashing Yellow Arrows	33.8%	\$910,000
SR 62 / Igleheart Ave. Ramp	Medium	S	Improve Exit Guide & Warning Signage	40.8%	\$25,000
SR 62 / Igleheart Ave. Ramp	Medium	L	Geometric Configuration of Ramps	25.0%	\$1,240,000
SR 62 / St. Joseph Ave	Low	L	Reconfigure southbound approach	20.0%	\$35,000
SR 62 / Wabash Ave	Low	L	Lengthen SR 62 left turn lanes	25.2%	\$240,000
SR 66 / Vann Ave	High	L	Construct Right-in/Right-out	72.0%	\$120,000
SR 66 / Stockwell Road	Medium	L	Construct Displaced Left Turn Intersection	36.0%	\$3,150,000
SR 66 / Green River Road	High	S	Include WB SR 66 Exit Ramp right – turn in interchange traffic signal	94.0%	\$230,000
SR 66 / Fielding Road	Medium	S	Flashing Beacons / Near-Side Signals	27.0%	\$75,000
SR 66 / Brentwood Drive	Low	S	Replace EB 3-section head signals with single green arrows	N/A	\$10,000
SR 66 / Burkhardt Road	High	L	Construct Displaced Left Turn Intersection	36.0%	\$3,250,000
SR 66 / Cross Pointe Blvd	High	L	Construct Hybrid Displaced Left Turn / Boulevard Left Turn Intersection	24.0%	\$2,900,000
SR 66 / Epworth Rd	High	L	Construct Hybrid Displaced Left Turn / Boulevard Left Turn Intersection	24.0%	\$3,000,000
SR 66 / Grimm Road	Low	L	Construct Right-in/Right-out	72.0%	\$120,000
SR 66 / Country Place Drive	Low	S	Add Warning Signs / Flashing Beacons	N/A	\$15,000
SR 66 / Country Place Drive	Low	L	Right-in / Right-out	72.0%	\$200,000
SR 66 / Bell Road	Low	S	Flashing Beacons / Near-Side Signals	27.0%	\$75,000

Green shading denotes projects that are already programmed.

In the AM and PM peak period for the near future, 2025, analysis of the concepts above results in all average approach delays operating at LOS D or better, except for the minor approach on Joseph Avenue. Average travel speed decreases by 1 or 2 mph in the AM and PM peak periods. Travel times

with alternative recommendations in 2025 remained less than 30 minutes per direction per peak period across the entire corridor.

Pedestrian indications and crosswalks are recommended at the signalized intersections where engineering judgement indicates the need for provisions for a given pedestrian movement, particularly those crossing the Lloyd Expressway.

Alternative sheets in **Appendix C** more fully outline each of the recommendations.

Next Steps

The Lloyd Expressway Study resulted in several alternatives recommended for future implementation. These improvement concepts focus on areas with existing safety concerns and other transportation deficiencies identified by the study team. The nature and likely causes of problems identified over the course of the study were examined through field reconnaissance, and improvement alternatives were developed to address the identified problems. This study focused on short-term improvements (projects that can be quickly and effectively implemented and that address current mobility and safety issues) and long-term improvements (projects requiring more significant resources to implement or concepts that address future mobility issues). Improving safety throughout the corridor by providing greater visibility for left-turn vehicles, additional warning signage, providing pedestrian signals and a crosswalk at signalized intersections, eliminating weave movements and alternative intersection design will improve both vehicular and pedestrian safety.

The next steps will be deliberating the recommended alternatives at each intersection in the future state-wide call for projects. The alternatives will be scored against all other project submitted in the call with the highest scoring projects receiving funding.

Table of Contents

Executive Summary	1
Introduction.....	1
Existing Conditions.....	2
Future Conditions	3
Recommendations	3
Next Steps	5
Table of Contents	6
1. Introduction.....	9
2. Existing Conditions	11
Roadway Characteristics.....	11
Roadway Configuration.....	12
Pedestrian and Bicycle Accommodations.....	16
Land Use Information.....	21
Environmental Red Flag Analysis	25
Environmental Justice Analysis.....	26
Crash History Analysis.....	28
Existing Traffic Volumes and Operations Analysis.....	31
3. Future Conditions	37
Forecasted Traffic Volumes and Operations	37
4. Community and Stakeholder Involvement	42
5. Recommendations – Short and Long Term.....	43
Primary Intersection Recommendations	47
6. Next Steps	82
	Removed
Figures	
Figure 1.1 Study Area.....	9
Figure 2.1 Corridor Sections	11
Figure 2.2 Evansville Bicycle and Pedestrian Recommendations.....	19
Figure 2.3 Vanderburgh County Bicycle and Pedestrian Recommendations	20
Figure 2.4 Existing Land Use - West.....	22
Figure 2.5 Existing Land Use - Central.....	22
Figure 2.6 Existing Land Use - East.....	23
Figure 2.7 Identified Growth Areas	24
Figure 2.8 Environmental Justice Analysis, Minority Population	27
Figure 2.9 Environmental Justice Analysis, Low-Income Population	28
Figure 2.10 Summary of Crashes along the Lloyd Expressway.....	29
Figure 2.11 Intersections that Required Analysis through Crash Diagrams	30
Figure 2.12 Latest Average Daily Traffic (ADT) Counts and Volume to Capacity (V/C) Ratios	32
Figure 2.13 Existing AM Levels of Service (West).....	33
Figure 2.14 Existing AM Levels of Service (Middle).....	33
Figure 2.15 Existing PM Levels of Service (West).....	34
Figure 2.16 Existing PM Levels of Service (West).....	34

Figure 2.17 Existing PM Levels of Service (Middle).....	35
Figure 2.18 Existing PM Levels of Service (East).....	35
Figure 5.1 Afternoon Sunlight at SR 66 / Bell Road	45
Figure 5.2 Near-Side Signal Depiction	45
Figure 5.3 Double Red Signal Configuration	46
Figure 5.4 Schutte Road Location Map.....	51
Figure 5.5 Middle Mount Vernon Road Location Map.....	53
Figure 5.6 Boehne Camp Road Location Map.....	54
Figure 5.7 Red Bank Road Location Map.....	56
Figure 5.8 Rosenberger Avenue Location Map	58
Figure 5.9 SR 62 / Igleheart Avenue Location Map	REMOVED 60
Figure 5.10 St. Joseph Avenue Location Map	63
Figure 5.11 Wabash Avenue Location Map.....	63
Figure 5.12 Vann Avenue Location Map.....	65
Figure 5.13 Stockwell Road Location Map	67
Figure 5.14 Green River Road Location Map	69
Figure 5.15 Fielding Road Location Map	70
Figure 5.16 Brentwood Drive Location Map.....	71
Figure 5.17 Burkhardt Road Location Map.....	71
Figure 5.18 Cross Pointe Boulevard Location Map.....	73
Figure 5.19 Epworth Road Location Map	75
Figure 5.20 Grimm Road Location Map.....	77
Figure 5.21 Country Place Drive Location Map	78
Figure 5.22 Bell Road Location Map.....	79

Tables

Table 2.1 Bike and Pedestrian Facilities within the Lloyd Expressway Corridor.....	17
Table 2.2 Bike and Pedestrian Plans	18
Table 2.3 2017 Existing AM Peak Average Delays and Levels of Service	36
Table 2.4 2017 Existing PM Peak Average Delays and Levels of Service.....	36
Table 3.1 Growth Rates	REMOVED 38
Table 3.2 2025 No Build AM Peak Average Delays and Levels of Service.....	39
Table 3.3 2025 No Build PM Peak Average Delays and Levels of Service.....	39
Table 3.4 Model Network Recommendations	40
Table 3.5 Recommendation Results for 2025 AM Peak.....	40
Table 3.6 Recommendation Results for 2025 PM Peak.....	41
Table 5.1 Summary of Improvement Recommendations	47
Table 5.2 University Parkway Analysis Results	50
Table 5.3 Schutte Road Recommendation Analysis Results.....	52
Table 5.4 Schutte Road Recommendation Cost Effectiveness.....	52
Table 5.5 Middle Mount Vernon Road Recommendation Cost Effectiveness	54
Table 5.6 Boehne Camp Road Recommendation Analysis Results.....	55
Table 5.7 Boehne Camp Road Recommendation Cost Effectiveness	56
Table 5.8 Red Bank Road Recommendation Analysis Results	57

Table 5.9 Red Bank Road Recommendation Cost Effectiveness.....	57
Table 5.10 Rosenberger Avenue Recommendation Analysis Results	59
Table 5.11 Rosenberger Avenue Recommendation Cost Effectiveness.....	59
Table 5.12 Igleheart Avenue Ramp Recommendation Analysis Results	61
Table 5.13 Igleheart Avenue Ramp Recommendation Cost Effectiveness.....	61
Table 5.14 St. Joseph Avenue Recommendation Analysis Results	62
Table 5.15 St. Joseph Avenue Recommendation Cost Effectiveness	63
Table 5.16 Wabash Avenue Recommendation Analysis Results	64
Table 5.17 Wabash Avenue Recommendation Cost Effectiveness.....	64
Table 5.18 Vann Avenue Recommendation Analysis Results.....	REMOVED 66
Table 5.19 Vann Avenue Recommendation Cost Effectiveness.....	REMOVED 66
Table 5.20 Stockwell Road Recommendation Analysis Results	68
Table 5.21 Stockwell Road Recommendation Cost Effectiveness.....	68
Table 5.22 Burkhardt Road Recommendation Analysis Results.....	72
Table 5.23 Burkhardt Road Recommendation Cost Effectiveness	72
Table 5.24 Cross Pointe Boulevard Recommendation Analysis Results	74
Table 5.25 Cross Pointe Boulevard Recommendation Cost Effectiveness.....	74
Table 5.26 Epworth Road Recommendation Analysis Results.....	76
Table 5.27 Epworth Road Recommendation Cost Effectiveness	76
Table 5.28 Country Place Drive Recommendation Cost Effectiveness	REMOVED 79

Appendix A - Red Flag Investigation	Removed
Appendix B – Crash Analysis	Excerpt B-111
Appendix C – Alternative Recommendation Sheets	Excerpt C16

Table 5.24 Cross Pointe Boulevard Recommendation Analysis Results

Intersection Alternative	Intersection Leg	2017 Existing LOS				2045 Future LOS				CMF*	Estimated Cost
		AM Peak	Delay (s)	PM Peak	Delay (s)	AM Peak	Delay (s)	PM Peak	Delay (s)		
Cross Pointe Blvd. No Build	NB	D	37	D	38	D	41	D	37	0.00	\$0
	SB	D	37	E	62	D	41	E	70		
	EB	C	25	D	40	C	35	F	30		
	WB	D	51	F	83	F	81	F	174		
	Total Intersection	D	41	E	59	E	59	C	91		
Cross Pointe Blvd. Hybrid Boulevard Lt / DLT	NB					C	23	C	27	0.76 ¹	\$3,100,000
	SB					C	26	B	14		
	EB					A	5	A	5		
	WB					A	4	A	6		
	Total Intersection					A	9	A	9		
Cross Pointe Blvd. Boulevard Left	NB					D	47	D	45	0.49 ²	\$2,750,000
	SB					D	37	E	79		
	EB					D	40	A	8		
	WB					B	16	B	17		
	Total Intersection					C	28	C	20		
Cross Pointe Blvd. WB Dual Left-Turn Lanes	NB					D	50	D	39	0.748 ₃	\$900,000
	SB					D	49	F	92		
	EB					D	24	C	31		
	WB					C	44	D	40		
	Total Intersection					D	39	D	43		

* Crash Modification Factor from Federal Highway Administration Clearinghouse
 1. FHWA-HRT-09-060 Alternative Intersections/Interchanges: Informational Report (AIIR)
 2. Create Directional Median Openings to Allow Left-Turns and U-Turns
 3. Install Left-Turn Lane

Table 5.25 shows the cost-effectiveness of each alternative versus reduction in delay and reduction in crashes.

Table 5.25 Cross Pointe Boulevard Recommendation Cost Effectiveness

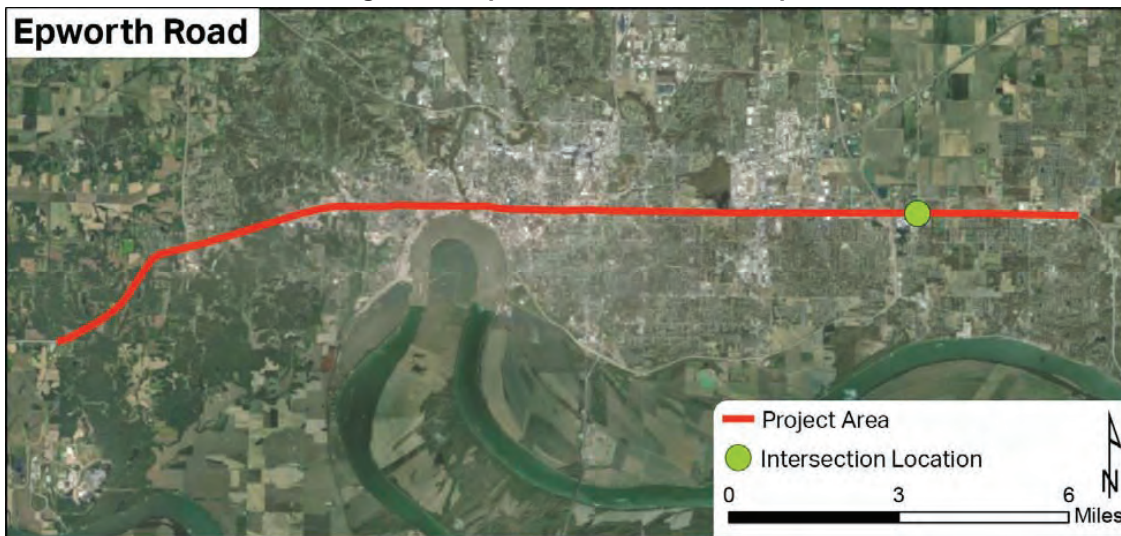
Intersection Alternative	Avg. Delay 2045 (s)	Delay Reduction (s)	Delay Cost Effectiveness	Crash Reduction %	Crash Cost Effectiveness \$ / % Reduction
Hybrid Boulevard Lt / DLT	9.0	66.0	\$46,970/s	24.0	\$129,167
Boulevard Left	24.0	51.0	\$53,922/s	51.0	\$53,922
WB Dual Left Turn Lanes	41.0	34.0	\$26,471/s	25.2	\$35,714

Although the westbound dual left-turn lanes alternative is more cost-effective than the hybrid boulevard left / DLT, the dual left-turn lanes did not resolve all LOS problems in the future. In addition, the crash analysis indicated mostly rear-end crashes on the mainline. Additionally, the hybrid boulevard left / DLT option moves the westbound left turn movement further from the I-69 interchange, which requires less weaving to make the left turn. Therefore, the hybrid boulevard left / DLT is the recommended alternative. The recommended alternative should also consider the side path planned for Cross Pointe in the Evansville Bicycle and Pedestrian Plan.

SR 66 / Epworth Road

The need for improvements at the intersection of SR 66 and Epworth Road is evidenced by a high number of crashes along SR 66. The crashes are predominantly rear-end with a considerable amount of eastbound and westbound left turn crashes. The I_{CF} is 2.89 while the I_{CC} is 3.31. Higher crash indexes are likely related to congestion. There were approximately 141 crashes at the intersection between 2014 and 2016. Approximately 76% of the crashes occurred along SR 66. The intersection is located approximately 1,500 feet east of the exit ramp from northbound I-69, which results in a less than desirable weaving situation for vehicles exiting the interstate and wishing to turn left onto northbound Epworth. Environmental concerns in the vicinity of the intersection include open water in the southwest quadrant, a former mine site east of the intersection, nearby environmental justice population areas and potential wetlands on the south side of the roadway.

Figure 5.19 Epworth Road Location Map



The purpose of the improvement is to reduce the number of crashes within the intersection. Displaced left turns and a bow tie intersection are viable alternatives to reduce crashes at this location. Both options would eliminate left turning movements from the mainline. The bow tie intersection would require motorists to make a right turn and pass through a roundabout instead of making left turns from the mainline. **Table 5.26** shows the LOS results and crash modification factors for the alternatives.

Table 5.26 Epworth Road Recommendation Analysis Results

Intersection Alternative	Intersection Leg	2017 Existing LOS				2045 Future LOS				CMF*	Estimated Cost
		AM Peak	Delay (s)	PM Peak	Delay (s)	AM Peak	Delay (s)	PM Peak	Delay (s)		
Epworth Road No Build	NB	D	43	D	41	D	50	D	42	0.00	\$0
	SB	C	26	C	24	C	32	C	34		
	EB	B	17	C	22	C	21	C	27		
	WB	C	34	C	31	F	85	C	23		
	Total Intersection	C	28	C	26	E	56	C	27		
Epworth Road Hybrid Boulevard Lt / DLT	NB					D	43	C	32	0.76 ¹	\$3,000,000
	SB					D	38	D	55		
	EB					A	5	A	4		
	WB					A	9	A	8		
	Total Intersection					B	13	B	12		
Epworth Road Bow-Tie	NB					C	49	C	41	0.64 ²	\$2,400,000
	SB					C	46	C	37		
	EB					B	25	D	30		
	WB					C	43	C	23		
	Total Intersection					C	35	C	29		

* Crash Modification Factor from Federal Highway Administration Clearinghouse
 1. FHWA-HRT-09-060 Alternative Intersections/Interchanges: Informational Report (AIIR)
 2. Install Single Lane Roundabout

Table 5.27 shows the cost effectiveness of each alternative verses reduction in delay and reduction in crashes.

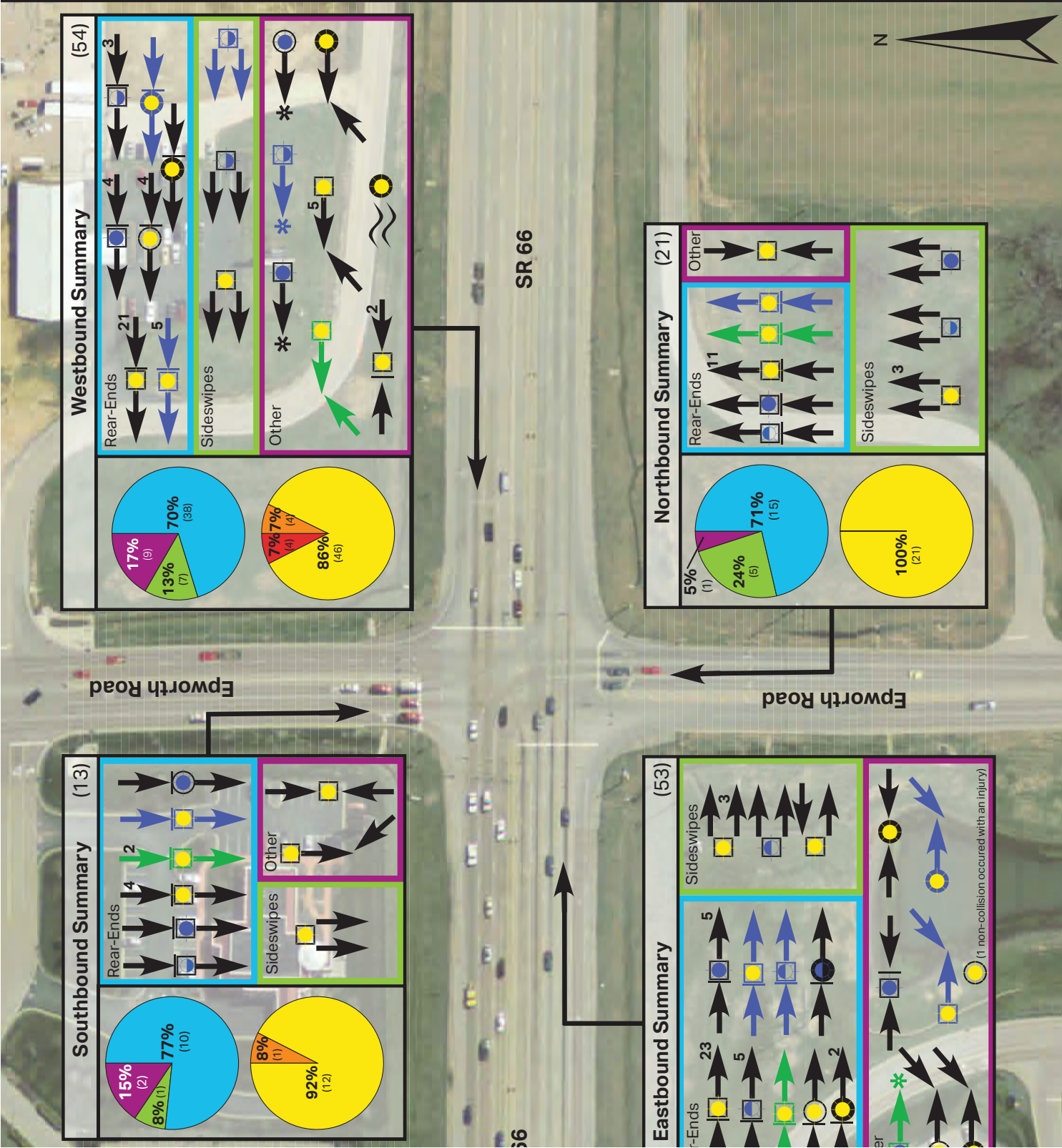
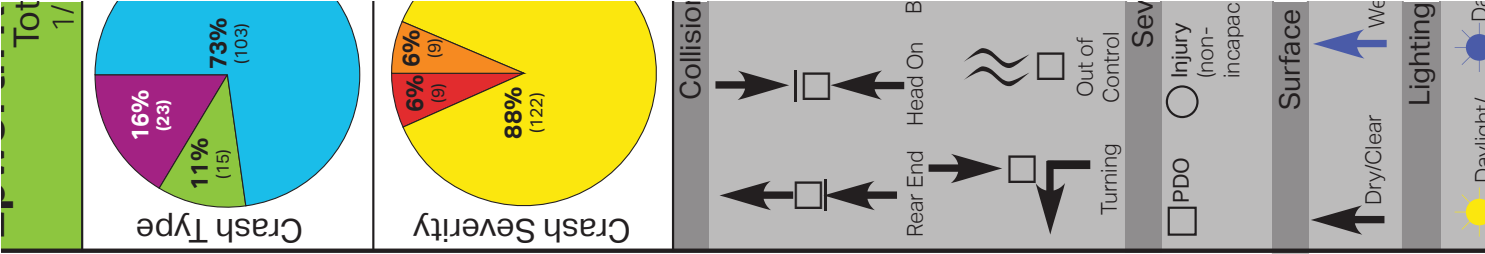
Table 5.27 Epworth Road Recommendation Cost Effectiveness

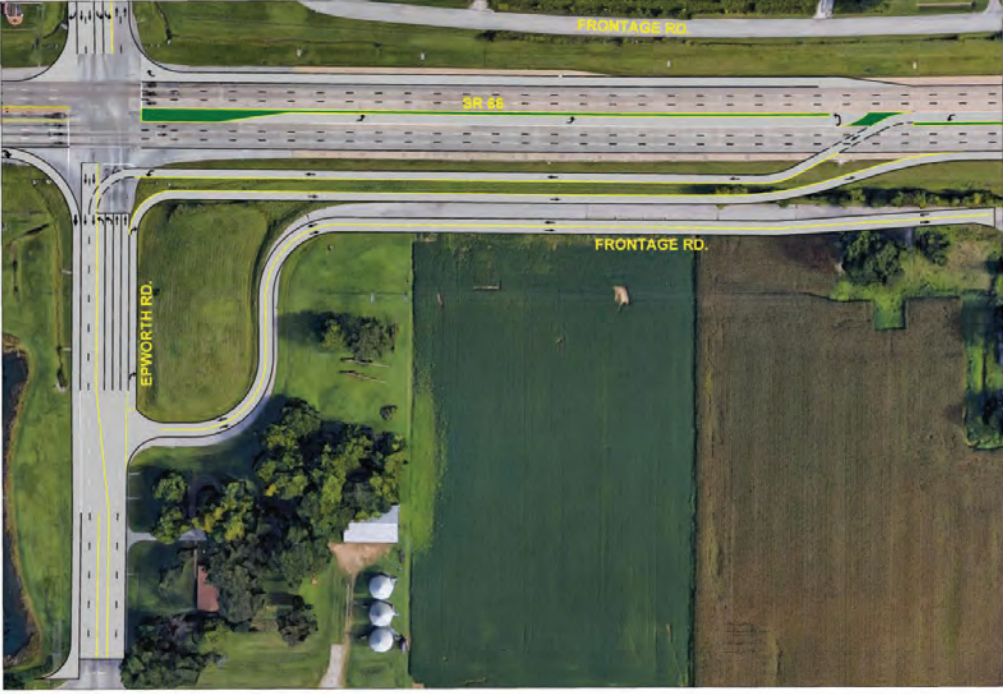
Intersection Alternative	Avg. Delay 2045 (s)	Delay Reduction (s)	Delay Cost Effectiveness	Crash Reduction %	Crash Cost Effectiveness \$ / % Reduction
Hybrid Boulevard Lt / DLT	12.5	29.0	\$103,448/s	24.0	\$125,000
Bow-Tie	32.0	9.5	\$252,632/s	36.0	\$66,667

The hybrid boulevard left / DLT is much more effective at reducing congestion on the mainline where the majority of crashes occur and also improves the weaving conditions between I-69 and the intersection. Therefore, the hybrid boulevard left / DLT is the recommended alternative. Ideally, improvements at Epworth would coincide with the implementation of improvements proposed at Grimm Road.

SR 66 / Grimm Road

Grimm Road is currently an unsignalized intersection with the minor roads stop controlled. The I_{CF} is 0.15 while the I_{CC} is 0.38, which indicates the intersection is statistically average from a safety perspective. Environmental concerns in the vicinity of the intersection include potential wetlands on the south side of the roadway.



P	LOCATION SR 66 at Epworth Road	PRIORITY: High	
DESCRIPTION P - Construct Hybrid Displaced Left Turn / Boulevard Left Turn Intersection at Epworth Road		COST ESTIMATE PE: \$600,000 ROW: \$100,000 Utilities: \$0 Construction: \$2,300,000 Total: \$3,000,000	
<p>This section of SR 66 carries about 40,000 vehicles per day (VPD). Traffic is expected to grow about 1.0% per year. The purpose of the improvement is to reduce the number of crashes within the intersection. There were approximately 141 collisions at the intersection between 2014 and 2016. Approximately 76% of the crashes occurred along SR 66.</p> <p>There are no short-term recommendations.</p> <p>The long-term recommendation P) is to construct a hybrid displaced left turn / boulevard left turn intersection for the SR 66 approaches. Westbound left turn would use the DLT configuration. Eastbound left turns would use the boulevard left configuration. The proposed recommendation will improve the LOS and reduce crashes as it will limit the number of conflict points.</p> 			

Land and Water Conservation Fund (LWCF) County Property List for Indiana (Last Updated July 2020)

ProjectNumber	SubProjectCode	County	Property
1800082	1800082	Warrick	Newburgh Community Park and Newburgh Community Pool
1800383	1800383	Warrick	Newburgh-Amax Athletic Park & Ed Gesser Soccer
1800405	1800405O	Warrick	Little Pigeon Creek Wetland Conservation Area

*Park names may have changed. If acquisition of publically owned land or impacts to publically owned land is anticipated, coordination with IDNR, Division of Outdoor Recreation, should occur.