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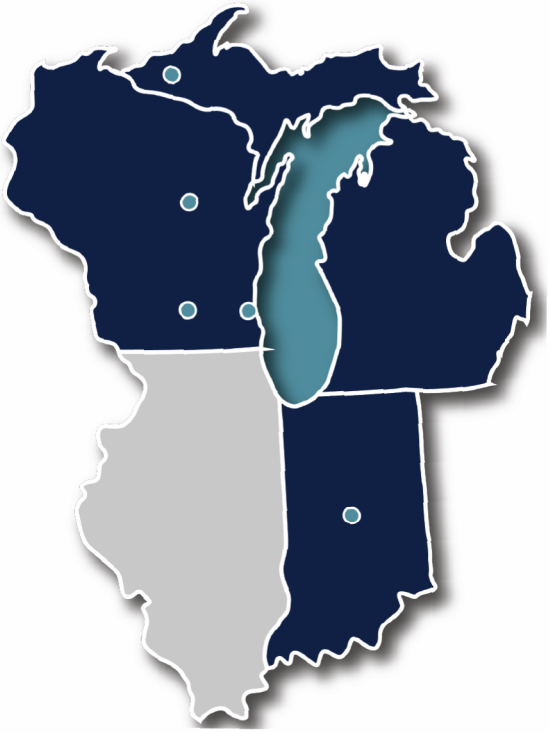

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www.emcsinc.com

December 22, 2025

Whitestown Zone Improvement Plan

Whitestown, Indiana

Prepared for:

Town of Whitestown

Prepared by:

EMCS, Inc.

I certify that this Zone Improvement Plan has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering.

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Indiana Registration #PE11200692
EMCS, Inc.

Daniel Dugan, EI
ET32200115
EMCS, Inc.

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Town of Whitestown Road Impact Fee
Study Intersections

WHITESTOWN
INDIANA

Study Intersections
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- Proposed Intersection
- Realigned Roadway Intersection

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- Town Limits

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300 E
650 E
100 S
600 E
700 E
775 E
150 S
575 E
200 S
500 E
PROPOSED 575 E REALIGNMENT
780 E
300 S
PERRY WORTH RD
450 E
INDIGO BLUE BLVD
400 S
ALBERT S WHITE DR
425 S
PROPOSED MAJOR ARTERIAL
S MAIN ST
PERRY BLVD
S INDIANAPOLIS RD
ANSON BLVD
450 S
500 S
525 S
550 S
NEW HOPE BLVD
CROWLEY PKWY
CENTRAL BLVD
PROPOSED RONALD REAGAN CORRIDOR
COMMERCE DR
E WHITESTOWN PKWY
ROYAL RUN BLVD
HUNT CLUB RD
700 S
425 E
CARDINAL LN
475 E
750 S
S WOLFE RD
600 E
65
865
267
Miles
0
0.25
0.5
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Town of Whitestown Road Impact Fee
Study Segments

WHITESTOWN
INDIANA

Study Intersections
- Existing Intersection
- Proposed Intersection
- Realigned Roadway Intersection

Study Segments
- Existing Segment
- Proposed Segment
- Realigned Roadway - Existing Segment
- Realigned Roadway - Proposed Segment
- Study Limits
- Town Limits

100 S · 150 S · 200 S · 300 S · 400 S · 425 S · 450 S · 500 S · 525 S · 550 S · 700 S · 750 S

300 E · 425 E · 450 E · 475 E · 500 E · 525 E · 575 E · 600 E · 650 E · 700 E · 775 E · 780 E

PROPOSED 575 E REALIGNMENT

PERRY WORTH RD · S INDIANAPOLIS RD · ANSON BLVD · PROPOSED MAJOR ARTERIAL · S MAIN ST · INDIGO BLUE BLVD · CROWLEY PKWY · NEW HOPE BLVD · CENTRAL BLVD · COMMERCE DR · PROPOSED RONALD REAGAN CORRIDOR · CARDINAL LN · ROYAL RUN BLVD · HUNT CLUB RD · S WOLFE RD · PERRY BLVD

65 · 865 · 267

0 0.25 0.5 Miles

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Town of Whitestown Road Impact Fee

Permitted and Active Development Sites

WHITESTOWN
INDIANA

Future Land Use

- Institutional
- Other (Planned Unit Development)
- Low-Density Residential
- Medium-Density Residential
- High-Density Residential
- Mixed Residential
- Mixed Use
- Commercial
- Light Industrial
- Heavy Industrial
- Floodplain
- Zone
- Study Limits
- Town Limits

1
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100 S
150 S
200 S
300 S
400 S
425 S
450 S
500 S
525 S
550 S
700 S
750 S
300 E
425 E
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475 E
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575 E
600 E
650 E
700 E
775 E
780 E
PERRY WORTH RD
ALBERT S WHITE DR
INDIGO BLUE BLVD
S MAIN ST
S INDIANAPOLIS RD
PERRY BLVD
ANSON BLVD
CROWLEY PKWY
NEW HOPE BLVD
CENTRAL BLVD
COMMERCE DR
E WHITESTOWN PKWY
ROYAL RUN BLVD
CARDINAL LN
HUNT CLUB RD
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267

N
Miles
0 0.25 0.5

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Town of Whitestown Road Impact Fee

Future Land Use

WHITESTOWN
INDIANA

Future Land Use

- Institutional
- Other (Planned Unit Development)
- Low-Density Residential
- Medium-Density Residential
- High-Density Residential
- Mixed Residential
- Mixed Use
- Commercial
- Light Industrial
- Heavy Industrial
- Floodplain
- Zone
- Study Limits
- Town Limits

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 41 42 43 44 45 46

100 S 150 S 200 S 300 S 400 S 450 S 500 S 525 S 550 S 700 S 750 S

300 E 425 E 450 E 475 E 500 E 525 E 575 E 600 E 650 E 700 E 775 E 780 E

PERRY WORTH RD
PERRY BLVD
S INDIANAPOLIS RD
ANSON BLVD
ALBERT S WHITE DR
INDIGO BLUE BLVD
S MAIN ST
CROWLEY PKWY
NEW HOPE BLVD
CENTRAL BLVD
E WHITESTOWN PKWY
COMMERCE DR
CARDINAL LN
ROYAL RUN BLVD
HUNT CLUB RD
S WOLFE RD

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1.0 Introduction

1.1 Purpose

The Town of Whitestown (Town) is investigating whether to add a Road Impact Fee for all new developments. Historically, the Town has relied on the local Metropolitan Planning Organization (MPO), and state funding for projects. **Table 1** shows a summary of recent funds used by the Town.

Table 1: Funding Sources

Year	MVH	LR&S	Other
2020	$ 1,550,614.54	$ 100,000.00	$ 249,037.42
2021	$ 1,774,866.64	$ 130,403.00	$ 843,853.64
2022	$ 2,046,121.48	$ 200,000.00	$ 1,441,050.08
2023	$ 2,450,381.47	$ 88,063.71	$ 6,285,064.16
2024	$ 1,980,939.55	$ 146,274.51	$ 5,561,725.08
TOTAL	$ 9,802,923.68	$ 664,741.22	$ 14,380,730.48

Values shown represent Total Operating Disbursements
MVH is Motor Vehicle Highway and Motor Vehicle Highway Restricted
LR&S is Local Road & Street
Other funds include taxes and intergovernmental

EMCS was hired to prepare a traffic study comply with the Indiana Code 36-7-4-1300 Series requirements for impact fees. The code can be found in **Appendix A** of this report. This report serves as the Zone Improvement Plan for all road impact fee zones designated by the Town. This Zone Improvement Plan identifies anticipated roadway capital improvement needs to serve land-use development that may occur between 2025 and 2035. It also establishes the road impact fees and assessment rates that can be applied to new developments to help fund those roadway capital improvements.

The rational that impact fees are judged by is called Rational Nexus Theory. This theory states that there must be a "rational relationship" between fees imposed on new developments and the infrastructure that the fees are spent on. Put another way, impact fees should cover only the developer's share of needed infrastructure expansion, and the local jurisdiction is responsible for any existing deficiencies or any other deficiencies due to growth outside the Town. Therefore, the Impact Fee Calculation found in **Section 8.0** of this report consists of two parts. The first part is the cost to mitigate all existing deficiencies in the existing road network. The second part is the cost to improve the road network to accommodate the expected level of future development. The total cost is then calculated by subtracting the existing costs from the

future costs. From this total cost, the final impact fee is then derived and given on a per trip basis.

The Town's "impact fee advisory committee" (hereafter, "advisory committee") was established under Indiana Code 36-7-4-1312 to "serve in an advisory capacity to assist and advise the unit with regard to the adoption of an impact fee ordinance". The advisory committee was consulted frequently during the study, established the community level of service standards, and advised the selection of the impact zone and vacant land uses. Meeting minutes from each of the four meetings are included in **Appendix B**. The advisory committee was appointed by the Council President and per Indiana State Code, consisting of 7 members with at least 40% representing development, building, or real estate industry. The names and affiliations of the members of the advisory committee are also included in **Appendix B**.

2.0 Impact Zone

The Impact zone is defined in the Indiana State Code as "a geographic area" designated "for each infrastructure type" in which the impact fee may be collected and which the "capital improvements are located".

After consultation with the Town, an impact zone was established that includes vacant land within the Town of Whitestown as well as areas in Boone County with potential for annexation. All areas shown in the *Future Land Use Map* from the Town's *Comprehensive Plan 2022* were included in the impact zone as a starting point. The Town and advisory committee made slight modifications to that boundary. The zone improvement boundaries are shown with the label "Study Limits" on all the figures above, in the exhibits, and in the appendix. Chapter 4 of the *Comprehensive Plan 2022* can be found in **Appendix C**.

2.1 Study Intersections

The study intersections included in the impact zone are shown on the **Study Intersections** figure above and in the exhibits. The study intersections were chosen from the *Thoroughfare Plan*'s Proposed Network map. Intersections between any two roadways classified as a Collector or Arterial were prioritized. Feedback from the Town was given to help select the intersections to be included. The intersections were numbered sequentially from east to west then north to south, with a few exceptions. Several intersections were added/removed from the study in coordination with the Town.

2.2 Study Segments

The study segments are shown on the **Study Segments** figure above and in the exhibits. Segments are bounded by study intersections. The segments were numbered sequentially from west to east then north to south, with a few exceptions.

3.0 Existing Conditions

All existing geometric conditions for segments and intersections were field verified by EMCS in July 2025.

3.1 Traffic Data

All turning movement counts used in this study were conducted using video data collection by Gewalt Hamilton Associates, Inc. (GHA). Several turning movement count reports were provided by the Town and were able to be used for seven study intersections. The reports dated from September 2024 and each contained four to six hours of data. For all other study intersections, turning movement traffic volumes were collected for six hours on a typical weekday in May, June and November 2025. The data for these intersections was collected from 6 AM to 9 AM, and 3 PM to 6 PM. All counts used in this study included truck percentages and peak hour factors. No adverse weather was present. School was in session for the counts in May and November 2025 and September 2024. The counts taken in June 2025 while school was not in session were comparable to those taken while school was in session, therefore no adjustment was necessary.

Two peak hours are included in the analysis. AM and PM peaks varied by intersection, the actual peak hour for each intersection was used in the analysis. The existing traffic volume data including peak hours are included in **Appendix D**.

3.2 Segment Data

Hourly volumes for each segment were developed from the turning movement data of the boundary intersections. The total volume entering the segment at the upstream intersection and exiting at the downstream intersection was calculated. The higher of the upstream and downstream volumes was used to be conservative in the analysis.

3.3 Segment Cross Section Requirements

In addition to traffic data, cross section data for each existing roadway was measured by EMCS. This data was then used to determine if any roadway widths are currently not meeting the standards set forth in the Town's Thoroughfare Plan. See **Section 5.1.1** for more details.

4.0 Future Land Uses 2035

4.1 Proposed Land Use

The expected parcels available to be developed by 2035 were initially selected by including all vacant land parcels shown in the *Future Land Use Map* from the Town's *Comprehensive Plan 2022*. All potential sites were included so that they could be included in the impact fee. After coordinating with the Town and the advisory committee, parcels that are extremely unlikely to be developed within the next 10 years were removed and a percentage factor was applied to each site based on the anticipated amount of development. To comply with the Rational Nexus Theory, any parcels currently under development or permitted to be built were excluded from the future analysis since they would not be subject to the impact fee and thus their impact (due to new trips) to the surrounding roadway should not be considered. Each parcel was categorized by land use based on the *Future Land Use Map* in Chapter 4 of the *Comprehensive Plan 2022* and coordination with the Town's Planning Department. Chapter 4 of the *Comprehensive Plan 2022* can be seen in **Appendix C**. The finalized land use map for this study can be found in the figures above, in the exhibits and in **Appendix E**. This map merely represents a potential build-out scenario, not official development plans.

4.2 Trip Generation

Trip generation is the process to estimate the number of new trips that a proposed development is expected to create. A trip represents a single journey from an origin to a destination. The process of trip generation for this analysis was accomplished by using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 12th Edition*.

4.2.1 Parcel Density

To generate trips for each parcel, a future land use type and specific independent variable were required to use the ITE Trip Generation Manual. The specific independent variable is either gross floor area or number of dwelling units.

The future land use types are described in the *Comprehensive Plan 2022*. Research was conducted into the typical densities of various land uses in Whitestown in terms of dwelling units per acre or in gross floor area per acre depending on the use. The results are summarized in **Table 2**.

Table 2: Land Use Definitions & Densities

Future Land Use		ITE Trip Generation Code	Description	Independent Variable	Density	
Low-Density Residential		210	Single-Family Detached Housing	*Dwelling Units*	*2.8*	*Dwelling Units/Acre*
Medium-Density Residential		215	Single-Family Attached Housing	*Dwelling Units*	*6.4*	*Dwelling Units/Acre*
High-Density Residential		220	Multifamily Housing (Low Rise)	*Dwelling Units*	*16.0*	*Dwelling Units/Acre*
Mixed Residential						
Low-Density Residential	*40%*	*210*	*Single-Family Detached Housing*	*Dwelling Units*	*2.8*	*Dwelling Units/Acre*
Medium-Density Residential	*40%*	*215*	*Single-Family Attached Housing*	*Dwelling Units*	*6.4*	*Dwelling Units/Acre*
High-Density Residential	*20%*	*220*	*Multifamily Housing (Low Rise)*	*Dwelling Units*	*16.0*	*Dwelling Units/Acre*
Institutional		532	Private School (K-12)	*Students*	*8.8*	*Students/Acre*
Commercial		820	Shopping Center	*1000 Sq. Ft.*	*6.3*	*1,000 Sq. Ft./Acre*
Light Industrial		110	General Light Industrial	*1000 Sq. Ft.*	*13.4*	*1,000 Sq. Ft./Acre*
Heavy Industrial		140	Manufacturing	*1000 Sq. Ft.*	*7.8*	*1,000 Sq. Ft./Acre*
Mixed Use						
High Density Residential	*50%*	*220*	*Multifamily Housing (Low Rise)*	*Dwelling Units*	*16.0*	*Dwelling Units/Acre*
General Office	*20%*	*710*	*General Office Building*	*1000 Sq. Ft.*	*11.6*	*1,000 Sq. Ft./Acre*
Retail	*30%*	*820*	*Shopping Center*	*1000 Sq. Ft.*	*6.3*	*1,000 Sq. Ft./Acre*

4.2.2 Site Generated Trips

The vacant land parcels identified in **Section 4.1** were measured in acres using county GIS data. The acreage of each parcel was then multiplied by the appropriate density for each land use to determine the independent variable (the number of dwelling units or gross floor area) expected for each parcel.

Each vacant land parcel was assigned a corresponding Land Use Code from the ITE *Trip Generation Manual*[1]. Mixed Residential and Mixed Use land uses were assigned a combination of three Land Use Codes based on research of existing sites in Whitestown and coordination with the Town. The independent variable was then used to calculate the number of daily and peak hour trips for each parcel. The resulting site generated trips are included in **Appendix F**.

4.2.3 Pass-by trips

Pass-by trips consist of those that currently exist on the adjacent roadway network and are an intermediate stop en route from a trip origin to a trip destination. Pass-by trips are generated primarily by commercial land use types such as Shopping Centers.

Pass-by trip percentages were determined by consulting the ITE *Trip Generation Handbook*[2] and were applied to the shopping center land uses. These are also included in the trip generation calculation in **Appendix F**. Since pass-by trips represent trips that are already on the roadway, they are not included in the overall trips for the impact fee calculation.

4.2.4 Internal Trips

Internal trips are trips which have origins and destinations within a development and never enter or exit the surrounding road network. For this analysis, the only instance where internal trip reductions would have been appropriate would be for a large commercial parcel with multiple out lots. The ITE land use code of 820, Shopping Center, was selected for these parcels because the rate includes a reduction for internal trips already. Therefore, no internal trip reduction was necessary.

4.3 Trip Distribution and Assignment

To develop traffic volumes from the proposed developments, the site generated trips were assigned and distributed to the surrounding roadways. Overall trip distribution percentages were developed using existing traffic counts, census commuting pattern data for Whitestown, and the gravity method as guidance.

Trips were then assigned to the study intersections for the existing year and 10-year models primarily using the software program PTV Vistro, with the assistance of PTV Visum to generate individual paths based on the estimated shortest travel times. The resulting turning movement volumes can be seen in **Appendix H**.

5.0 Geometric Considerations

5.1 Minimum Cross Section Criteria

The Town has defined cross section criteria for each type of roadway classification in its *Thoroughfare Plan*, shown below in **Table 3**. New roadways should be built following these criteria. Existing roads may not meet these criteria if they pre-date the *Thoroughfare Plan*, if they have been annexed by the Town, or if the classification of the road has been upgraded. Existing road cross sections were measured in this study and roads that fail to meet the *Thoroughfare Plan* criteria are documented in this study. The cost to improve these existing deficiencies is excluded from the impact fee.

Table 3: Thoroughfare Plan Minimum Lane Width Criteria for Segments

Roadway Classification	Travel Lane Width	# Of Travel Lanes
Major Arterial	12′	4
Minor Arterial	12′	3 or 4
Major Collector	11′	2 or 3
Minor Collector	11′	2
Local Street	11′	2

5.2 Existing Lane Width Deficiencies

The segments that fail to meet **5.1 Minimum Cross Section Criteria** and have deficient lane widths according to the *Thoroughfare Plan*'s requirements are shown in the exhibits. The cost to improve these segments to meet the *Thoroughfare Plan*'s criteria was included as an "existing cost" and thus not included in the impact fee calculation. Complete results are in **Appendix J**.

5.3 Committed Roadway Projects

Committed roadway projects are those which have been identified by the Town and are already funded for construction. The cost for these projects were not included in the impact fee calculation. Complete results are in **Appendix J**.

6.0 Analysis Criteria

The capacity analysis was performed for the AM and PM peak hours for all study intersections and segments for the following scenarios:

- Scenario 1A: Existing 2025 traffic volumes + permitted developments 2025 site generated trips + 2025 existing roadways conditions
- Scenario 1B: Existing 2025 traffic volumes + permitted developments 2025 site generated trips + 2025 mitigated roadways conditions
- Scenario 2A: Existing 2025 traffic volumes + permitted developments 2025 site generated trips + future land uses 2035 site generated trips + 2025 mitigated roadway conditions
- Scenario 2B: Existing 2025 traffic volumes + permitted developments 2025 site generated trips + future land uses 2035 site generated trips + 2035 mitigated roadway conditions

6.1 Level-of-Service Criteria

Indiana Code defines the term "community level of service" as "a quantitative measure of the service provided by the infrastructure that is determined by a unit to be appropriate." Level-of-service (LOS) is the standard parameter for measuring traffic operating conditions, as defined by the Transportation Research Board's *Highway Capacity Manual* (HCM)[3]. The LOS ranges from A-F with each indicating driving operations from best to worst. The Town and the advisory committee have determined a LOS of "C" or better to be its Community Level of Service for traffic operations at intersections, and "D" for all segments with the exception of some areas downtown or where pedestrian activity is high.

6.1.2 Intersection LOS

The intersection capacity analysis was performed using PTV Vistro 2022 with the HCM 7th Edition methodology. The HCM provides LOS criteria for signalized and unsignalized intersections which is shown in **Table 4**. Each letter represents a range of the average delay per vehicle. The LOS criteria for signalized intersections were also used for roundabouts.

Table 4: Level of Service – Unsignalized and Signalized Intersection Control Delay

LOS	Signalized Intersection Control Delay (sec/veh)	LOS	Unsignalized Intersection Control Delay (sec/veh)
A	<10	A	<10
B	>10 and <20	B	>10 and <15
C	>20 and <35	C	>15 and <25
D	>35 and <55	D	>25 and <35
E	>55 and <80	E	>35 and <50
F	>80	F	>50

6.1.3 Segment LOS

Two categories of road segment types were defined for the purpose of analyzing the level of service. Multi-lane road segments were analyzed as multilane highways which have an LOS based on the density of traffic flow. Two-lane road segments (one lane per direction) were analyzed as two-lane highways which have an LOS based on the density of following vehicles in the traffic flow. These criteria are shown for two-lane highways and multilane highways in **Tables 5 & 6**.

Table 5: New LOS Criteria for two-lane highways from the HCM 7th Edition

	Follower Density (followers/mile/lane)	
LOS	**Higher-Speed Highways Posted Speed Limit ≥ 50 mi/h**	**Lower-Speed Highways Posted Speed Limit < 50 mi/h**
A	≤2.0	≤2.5
B	>2.0 and ≤4.0	>2.5 and ≤5.0
C	>4.0 and ≤8.0	>5.0 and ≤10.0
D	>8.0 and ≤12.0	>10.0 and ≤15.0
E	>12.0	>15.0
F	Demand exceeds capacity	

Table 6: LOS Criteria for multi-lane highways from the HCM 7th Edition

LOS	**Density (passenger cars/mile/lane)**
A	≤11
B	>11 and ≤18
C	>18 and ≤26
D	>26 and ≤35
E	>35 and ≤45
F	Demand exceeds capacity OR density >45

7.0 Capacity Analysis Results

7.1 Existing-Year Analysis Results

Only two intersections in the Town's jurisdiction and two segments operated below the community level of service in the existing scenario (which includes developments under construction). Intersections and segments which were below the community level of service as well as the improvements needed to be at or above the community level of service are shown in the exhibits. The complete capacity analysis results are available in **Appendix I**.

7.2 10-Year Analysis Results

Intersections and segments which were below the community level of service as well as the improvements needed are shown in the exhibits. These facilities were improved to be at or above the community level of service in most cases, and as close as possible to the community level of service in a few cases where no further reasonable improvements remained. The complete capacity analysis results are available in **Appendix I**. The improvements in this report are planning level recommendations and do not constitute design recommendations.

8.0 Improvement Costs

The proposed costs are summarized in **Tables 7** & **8** and shown in detail in **Appendix J**. The Indianapolis Metropolitan Planning Organization has recently updated the cost estimating tool for their 2029 call for projects. This was used as a basis for the unit costs. Construction costs for the improvements were based on a per/foot of turn lane or travel lane, per intersection for signal, or per roundabout for roundabout improvement.

Table 7: Intersection Improvement Costs

Intersection	Existing Improvements	Today's Cost	10-Year Improvements	$ 10-Year Additional Cost
1: 100 S & 400 E	No improvement needed	$-	No improvement needed	$-
2: 100 S & 500 E	No improvement needed	$-	Convert to All-way stop	$-
3: 100 S & 650 E	No improvement needed	$-	Convert to All-way stop	$-
4: 200 S & 575 E (realigned to 600 E in 10-Year Scenario)	New Roadway, 50% Cost	$0.065 M	Build All-way stop	$0.130 M
5: 650 E & 200 S	No improvement needed	$-	Convert to All-way stop	$-
6: 200 S & 700 E	No improvement needed	$-	No improvement needed	$-
7: 500 E & Future Minor Collector	n/a	$-	Build Two-way stop	$-
8: 600 East (575 Realigned) & Future Minor Collector	n/a	$-	Build All-way stop	$-
9: 650 E/Main St & Madera Drive	No improvement needed	$-	No improvement needed	$-
10: 700 E & Future Minor Collector	New Roadway, 50% Cost	$0.950 M	Build Single Lane Roundabout	$1.900 M
11: Pierce Street/300 S & 575 E (realigned to 600 E in 10-Year Scenario)	n/a	$1.375 M	Build Multilane Roundabout	$2.750 M
12: Main & Pierce	No improvement needed	$-	Convert to Single Lane Roundabout	$1.900 M
13: Pierce Street & 700 E	No improvement needed	$-	Convert to Single Lane Roundabout	$1.900 M
14: Pierce Street & 300 S/Albert South White Drive	No improvement needed	$-	Convert to Multilane Roundabout	$2.880 M
15: Main Street & Future Minor Collector	n/a	$-	Build All-way stop	$-
16: Albert S. White Drive & Future Minor Collector	New Roadway, 50% Cost	$1.375 M	Build Multilane Roundabout	$2.750 M
17: 400 E & Perry Worth Road	No improvement needed	$-	No improvement needed	$-
20: Albert S. White Dr. (400 S) & 400 E	No improvement needed	$-	Add turn lanes	$0.540 M
21: Albert S. White Dr. (400 S) & 450 E/Anson Blvd	No improvement needed	$-	Add turn lanes	$0.540 M
22: Albert S. White Dr. (400 S) & 500 E	No improvement needed	$-	Convert to Signal	$0.270 M
23: Albert S. White Dr. (400 S) & 575 E	New Roadway, 50% Cost	$0.590 M	Convert to Signal	$1.180 M
24: 400 S & 650 E	No improvement needed	$- *	Add turn lanes	$0.520 M
25: 400 S/Albert S. White Drive & 400 S/Ginger Way	No improvement needed	$-	Convert to Multilane Roundabout	$2.880 M
26: 700 E & 425 S	No improvement needed	$-	Convert to Single Lane Roundabout	$1.900 M
27: SR 267 & Indianapolis Road	No improvement needed	$-	Signal Mod: added thru lanes	$0.075 M
28: Perry Worth Road & 450 S	No improvement needed	$-	No improvement needed	$-

Intersection	Existing Improvements	Today's Cost	10-Year Improvements	$ 10-Year Additional Cost
29: Anson Blvd & 450 S	No improvement needed	$-	No improvement needed	$-
30: 450 S & 500 E	No improvement needed	$-	No improvement needed	$-
31: 450S & 575 E	New Roadway, 50% Cost	$1.375 M	Convert to Multilane Roundabout	$2.750 M
32: Anson Blvd & 500 S	No improvement needed	$-	No improvement needed	$-
34: 500 S & 575 E	New Roadway, 50% Cost	$1.570 M	Convert to Multilane Roundabout	$3.140 M
35: 500S & 650 E	No improvement needed	$- *	Convert to Multilane Roundabout	$2.750 M
36: Perry Worth Road & 500 S	No improvement needed	$-	No improvement needed	$-
37: 550 S & 475 E	No improvement needed	$-	No improvement needed	$-
38: 550 S & Indianapolis Road	No improvement needed	$-	Convert to Multilane Roundabout	$2.880 M
41: Perry Worth Road & 550 S	New Roadway, 50% Cost	$0.205 M	Add turn lanes	$0.410 M
42: Indianapolis Road & Commerce Drive	No improvement needed	$-	No improvement needed	$-
43: Perry Worth Road & Juniors Way	No improvement needed	$-	No improvement needed	$-
44: 650 E & Central Blvd	No improvement needed	$- *	No improvement needed	$-
45: Central Blvd & Heartland Drive	No improvement needed	$-	No improvement needed	$-
46: Veterans Drive & Central Boulevard	No improvement needed	$-	Convert to Multilane Roundabout	$2.750 M
47: Perry Worth Road & Mills Drive	No improvement needed	$-	No improvement needed	$-
48: 650 E & Mills Drive	No improvement needed	$-	No Reasonable Improvements	$-
49: Whitestown Parkway & 425 E	No improvement needed	$-	No improvement needed	$-
50: Whitestown Parkway & 475 E	Convert to All-way stop	$-	Convert to Multilane Roundabout	$2.750 M
51: Whitestown Parkway & 525 E/Commerce Drive	Convert to Single Lane Roundabout	$1.900 M	Convert to Multilane Roundabout	$2.750 M
52: Whitestown Parkway & Indianapolis Road	No improvement needed	$-	Add turn lanes	$0.130 M
55: Whitestown Parkway & Perry Worth Road	No improvement needed	$-	Add turn lanes	$0.410 M
56: Whitestown Parkway & 650 E	No improvement needed	$-	Add turn lanes	$0.410 M
57: Whitestown Parkway & Heartland Drive	No improvement needed	$-	No Reasonable Improvements	$-
58: Whitestown Parkway & Veterans Drive/700 E	No improvement needed	$-	Add turn lanes	$0.540 M
59: Indianapolis Road & Future Minor Collector	New Roadway, 50% Cost	$1.375 M	Build Multilane Roundabout	$2.750 M
60: 750 S & 425 E	No improvement needed	$-	No improvement needed	$-
61: 750 S & 475 E	No improvement needed	$-	No improvement needed	$-
62: County Road 750 S & 600 E	No improvement needed	$-	No improvement needed	$-
63: Indianapolis Road & 750 S	No improvement needed	$-	Convert to Single Lane Roundabout	$1.900 M
64: SR 267 & Proposed Ronald Reagan Corridor	n/a	$-	Build Multilane Roundabout	$-
65: Proposed Ronald Reagan Spur & 475 E	New Roadway, 50% Cost	$1.375 M	Build Multilane Roundabout	$2.750 M

Intersection	Existing Improvements	Today's Cost	10-Year Improvements	$ 10-Year Additional Cost
66: Proposed Ronald Reagan Corridor & Proposed Ronald Reagan Spur	New Roadway, 50% Cost	$1.375 M	Build Multilane Roundabout	$2.750 M
67: Proposed Ronald Reagan Corridor & Whitestown Parkway	New Roadway, 50% Cost	$1.440 M	Build Multilane Roundabout	$2.880 M
68: Proposed Ronald Reagan Corridor & 750 S	New Roadway, 50% Cost	$1.440 M	Build Multilane Roundabout	$2.880 M
69: 100 S & 600 E	No improvement needed	$-	No improvement needed	$-
70: 300 S & 400 E	No improvement needed	$-	No Reasonable Improvements	$-
71: SR 267 & 550 S	Convert to Single Lane Roundabout	$-	Convert to Multilane Roundabout	$-
72: 750 S & 450 E	No improvement needed	$-	No improvement needed	$-
Total		**$16.410 M**		**$59.695 M**

*Add thru lanes cost applied on segment level.
† Intersection in another municipality: 0% of cost applied to fee.
‡ Intersection controlled by the state: 50% of costs applied to fee.

Notes:
Intersections 18, 19, 33, 39, 40, 53, & 54 removed intentionally.

Table 8: Segment Improvement Costs

Segment	From/To	Existing Improvement	Today's Costs	10-Year Improvement	$ 10-Year Additional Cost
1: 100 S	400 E – 500 E	Segment Upgrades	$1.044 M	-	$-
2: 100 S	500 E – 650 E	Segment Upgrades	$1.615 M	-	$-
3: 650 E	200 S – 100 S	Segment Upgrades	$1.050 M	-	$-
4: 200 S	500 E – 575 E	Segment Upgrades	$0.549 M	-	$-
5: 200 S	575 E – 650 E	Segment Upgrades	$0.819 M	-	$-
6: 200 S	650 E – 700 E	Segment Upgrades	$0.524 M	-	$-
7: 200 S	700 E – Limits	Segment Upgrades	$0.362 M	-	$-
8: Future Minor Collector	500 E – 600 E (575 Realigned)	Future Roadway, 50% cost	$1.497 M	New 2 lane roadway	$2.994 M
9: 575 E	Proposed – 200 S	Future Roadway, 50% cost	$0.908 M	New 2 lane roadway	$1.815 M
10: 575 E	Pierce Street/300 S – Proposed	Future Roadway, 50% cost	$1.028 M	New 4 lane roadway	$2.056 M
11: Proposed/Madera Drive	600 E (575 Realigned) – 650 E/Main Street	Segment Upgrades	$0.513 M	-	$-
12: 650 E	Madera Drive – 200 S	Segment Upgrades	$0.674 M	-	$-
13: Main Street	Pierce Street/300 S – Madera Drive	Segment Upgrades	$0.370 M	-	$-
14: 700 E	Proposed – 200 S	Segment Upgrades	$0.528 M	-	$-
15: 700 E	Pierce Street/300 S – Proposed	Segment Upgrades	$0.520 M	-	$-
16: Future Minor Collector	700 E – Limits	Future Roadway, 50% cost	$1.159 M	New 2 lane roadway	$2.318 M
17: 300 S	Limits – 575 E	Segment Upgrades	$0.645 M	-	$-
18: Pierce Street/300 S	575 E – Main Street	Segment Upgrades	$0.817 M	-	$-
19: Pierce Street	Main Street – 700 E	Segment Upgrades	$0.524 M	-	$-
20: Pierce Street/300 S	700 E – Albert S White Drive	-	$-	Segment Upgrades	$0.111 M
21: Albert S White Drive	Pierce Street/300 S – Limits	-	$-	Widen to 4 lanes	$1.262 M
22: 400 E	Perry Worth Road – Limits	Segment Upgrades	$0.952 M	-	$-
23: 400 E	Perry Worth Drive – Albert S White Drive	Segment Upgrades	$0.297 M	-	$-
24: 450 E	Albert S White Drive – Limits	Segment Upgrades	$0.699 M	Widen to 4 lanes	$1.353 M
25: 500 E	Albert S White Drive – Limits	Segment Upgrades	$0.691 M	Widen to 4 lanes	$1.339 M
26: 575 E	Albert S White Drive – 300 S	Future Roadway, 50% cost	$2.753 M	New 4 lane roadway	$5.505 M
27: Main Street	Proposed – Pierce Street/300 S	Segment Upgrades	$0.563 M	-	$0.113 M
28: Main Street	Albert S White Drive – Proposed	Segment Upgrades	$0.484 M	Widen to 4 lanes	$0.605 M
29: Future Minor Collector	Main Street – Albert S White Drive	Future Roadway, 50% cost	$0.740 M	New 2 lane roadway	$1.480 M
30: Albert S White Dr	Proposed – Pierce Street/300 S	Segment Upgrades	$0.563 M	Widen to 4 lanes	$1.089 M

Segment	From/To	Existing Improvement	Today's Costs	10-Year Improvement	$ 10-Year Additional Cost
31: Albert S White Dr	700 E/Ginger Way – Proposed	-	$-	Widen to 4 lanes	$1.269 M
32: Albert S White Drive	I-65 – 400 E	Segment Upgrades	$0.281 M ‡	Widen to 6 lanes	$0.163 M ‡
33: Albert S White Drive	400 E – 450 E/Anson Blvd	Segment Upgrades	$0.266 M	Widen to 6 lanes	$0.573 M
34: Albert S White Drive	450 E/Anson Blvd – 500 E	Segment Upgrades	$0.525 M	-	$-
35: Albert S White Drive	500 E – 575 E	Segment Upgrades	$0.794 M	-	$-
36: Albert S White Dr	575 E – 650 E	-	$-	Widen to 4 lanes	$2.526 M
37: Albert S White Drive	650 E – 700 E/Ginger Way	-	$-	Widen to 4 lanes	$1.435 M
38: Indianapolis Road	Limits – State Road 267	-	$-	-	$-
39: State Road 267	Indianapolis Road – I-65	-	$-	-	$-
40: Perry Worth Road	Albert S White Drive – 450 S	Segment Upgrades	$0.789 M	-	$-
41: Anson Blvd	450 S – Albert S White Drive	Segment Upgrades	$0.540 M	-	$-
42: 500 E	450 S – Albert S White Drive	-	$-	-	$-
43: 575 E	450 S – Albert S White Drive	Future Roadway, 50% cost	$1.275 M	New 4 lane roadway	$2.549 M
44: 650 E	500 S – 400 S/Albert S White Drive	Widen to 4 Lanes	$3.037 M	-	$-
45: 700 E	400 S/Albert S White Drive – 425 S	Segment Upgrades	$0.204 M	-	$-
46: 425 S	700 E – Limits	Segment Upgrades	$0.335 M	-	$-
47: State Road 267	Limits – Indianapolis Road	-	$-	Widen to 4 lanes	$1.146 M ‡
48: Indianapolis Road	550 S – State Road 267	-	$-	-	$-
49: 450 S	Perry Worth Road – Anson Blvd	-	$-	-	$-
50: 450 S	Anson Blvd – 500 E	Segment Upgrades	$0.437 M	-	$-
51: 450 S	500 E – 575 E	Segment Upgrades	$0.894 M	-	$-
52: 700 E	Limits – 425 S	Segment Upgrades	$0.520 M	-	$-
53: Perry Worth Road	450 S – 500 S	Segment Upgrades	$0.813 M	-	$-
54: Anson Blvd	500 S – 450 S	-	$-	-	$-
55: 575 E	500 S – 450 S	Future Roadway, 50% cost	$1.287 M	New 4 lane roadway	$2.574 M
56: 500 S	Perry Worth Road – Anson Blvd	-	$-	-	$-
57: 500 S	Anson Blvd – 575 E	-	$-	-	$-
58: 500 S	575 E – 650 E	-	$-	-	$-
59: Perry Worth Road	550 S – 500 S	Segment Upgrades	$0.843 M	-	$-
60: 575 E	Perry Worth Road – 500 S	Future Roadway, 50% cost	$1.671 M	New 4 lane roadway	$3.341 M

Segment	From/To	Existing Improvement	Today's Costs	10-Year Improvement	$ 10-Year Additional Cost
61: 650 E/S Main St	Central Blvd – 500 S	Widen to 4 Lanes	$1.874 M	-	$-
62: 550 S	Limits – 475 E	Segment Upgrades	$0.802 M	-	$-
63: 550 S	475 E – Indianapolis Road	Segment Upgrades	$0.227 M	Widen to 4 lanes	$0.438 M
64: 550 S	Indianapolis Rd – I-65	-	$-	-	$-
65: 550 S	I-65 – Perry Worth Road	-	$-	Widen to 6 lanes	$0.419 M
66: Proposed Ronald Reagan Corridor	Proposed Ronald Reagan Spur – SR 267	Future Roadway, 50% cost	$2.076 M	New 4 lane roadway	$4.152 M
67: Proposed Ronald Reagan Spur	Proposed Ronald Reagan Corridor – 475 E	Future Roadway, 50% cost	$1.024 M	New 4 lane roadway	$2.047 M
68: 475 E	Proposed – 550 S	-	$-	Widen to 4 lanes	$1.145 M
69: Indianapolis Road	Commerce Drive – 550 S	-	$-	-	$-
70: Perry Worth Road	550 S – Juniors Way	Segment Upgrades	$0.619 M	-	$-
71: Juniors Way	Perry Worth Road – New Hope Blvd	-	$-	-	$-
72: Proposed Ronald Reagan Corridor	Whitestown Parkway – Proposed Ronald Reagan Spur	Future Roadway, 50% cost	$1.385 M	New 4 lane roadway	$2.770 M
73: 475 E	Whitestown Parkway – Proposed	-	$-	-	$-
74: Commerce Drive	Whitestown Parkway – Indianapolis Road	-	$-	-	$-
75: Indianapolis Road	Whitestown Parkway – Commerce Drive	-	$-	-	$-
76: Perry Worth Road	Mills Drive – Juniors Way	Segment Upgrades	$0.739 M	-	$-
77: Perry Worth Road	Whitestown Parkway – Mills Drive	-	$-	-	$-
78: Mills Drive	Perry Worth Road – Main Street	No Reasonable Improvements	$-	-	$-
79: 650 E/S Main Street	Mills Drive – Central Blvd	-	$-	-	$-
80: 650 E/S Main Street	Whitestown Parkway – Mills Drive	-	$-	-	$-
81: Central Blvd	650 E/S Main Street – Heartland Drive	-	$-	-	$-
82: Heartland Drive	Whitestown Parkway – Central Blvd	-	$-	-	$-
83: Central Blvd	Heartland Drive – Veterans Drive	-	$-	-	$-
84: 700 E	Central Blvd – Limits	Segment Upgrades	$0.282 M	Widen to 4 lanes	$0.545 M
85: Veterans Drive	Whitestown Parkway – Central Blvd	-	$-	Widen to 4 lanes	$0.620 M
86: Whitestown Parkway	Limits – 425 E	Segment Upgrades	$0.260 M	-	$-
87: Whitestown Parkway	425 E – Proposed	Segment Upgrades	$0.376 M	-	$-

Segment	From/To	Existing Improvement	Today's Costs	10-Year Improvement	$ 10-Year Additional Cost
88: Whitestown Parkway	Proposed – 475 E	Segment Upgrades	$0.147 M	Widen to 4 lanes	$0.283 M
89: Whitestown Parkway	475 E – Commerce Drive	Segment Upgrades	$0.525 M	Widen to 4 lanes	$1.016 M
90: Whitestown Parkway	Commerce Drive – Indianapolis Road	Segment Upgrades	$0.615 M	Widen to 4 lanes	$1.192 M
91: Whitestown Parkway	Indianapolis Road – I-65	-	$-	Widen to 6 lanes	$0.718 M
92: Whitestown Parkway	I-65 – Perry Worth Road	-	$-	Widen to 7 lanes	$0.712 M
93: Whitestown Parkway	Perry Worth Road – 650 E/S Main Street	-	$-	Widen to 6 lanes	$0.727 M
94: Whitestown Parkway	650 E/S Main Street – Heartland Drive	-	$-	-	$-
95: Whitestown Parkway	Heartland Drive – Veterans Drive	-	$-	-	$-
96: Whitestown Parkway	700 E – Limits	-	$-	-	$-
97: Proposed Ronald Reagan Corridor	750 S – Whitestown Parkway	n/a	$-	New 4 lane roadway	$- †
98: Indianapolis Road	Whitestown Parkway – Proposed	-	$-	Widen to 4 lanes	$2.176 M
99: Future Minor Collector	Development – Indianapolis Road	Future Roadway, 50% cost	$0.272 M	New 2 lane roadway	$0.544 M
100: Indianapolis Road	750 S – Proposed	-	$-	Widen to 4 lanes	$1.926 M
101: 750 S	Limits – 425 E	Segment Upgrades	$0.133 M	-	$-
102: 750 S	425 E – Proposed	Segment Upgrades	$0.404 M	-	$-
103: 750 S	Proposed – 475 E	Segment Upgrades	$0.125 M	-	$-
104: 750 S	475 E – 600 E	Segment Upgrades	$1.299 M	-	$-
105: 750 S	600 E – Indianapolis Road	Segment Upgrades	$0.735 M	-	$-
106: Proposed Ronald Reagan Corridor	Limits – 750 S	Future Roadway, 50% cost	$1.646 M	New 4 lane roadway	$3.291 M
107: 600 E	Limits – 750 S	Segment Upgrades	$0.262 M	-	$-
108: Indianapolis Road	750 S – Limits	-	$-	-	$-
109: 600 E (575 Realigned)	200 S – 100 S	Future Roadway, 50% cost	$1.517 M	New 2 lane roadway	$3.034 M
Total			**$54.740 M**		**$65.370 M**

† Segment in another municipality: 0% of cost applied to fee.
‡ Segment controlled by the state: 50% of costs applied to fee.

9.0 Impact Fee Calculation

The impact fee calculation is shown below in **Table 9**. **Section 10.0** contains an example of what an assessed fee to a developer would look like and how that compares to various improvements that could be made with the assessed fee.

Table 9: Impact Fee Calculation

	Existing Cost	10-Year Cost
Intersections	$16,410,000.00	$59,695,000.00
Segments	$54,740,000.00	$65,370,000.00
Total Cost	$71,150,000.00	$125,065,000.00
Total Impact Fee Cost (10-Year Cost - Existing Cost)		$53,915,000.00
Cost of Zone Improvement Plan Study		$244,000.00
Total Cost		**$54,159,000.00**
Total Number of New Trips (24-Hour)		170,052
Resulting Impact Fee / Trip		**$318.48**

10.0 Example Fee Assessment

An example fee assessment was calculated in **Table 12** for several hypothetical developments.

Table 10: Example Fee Assessment

Land-Use	ITE Code	Size	24-Hour Trips	Road Impact Fee per 24-Hour Trip	Total Fee Collected
Single Family Dwelling	210	1 DU	9.4	$318.48	$2,993.71
		10 DU	94	$318.48	$29,937.12
Light Industrial	110	100,000 SF	457	$318.48	$145,545.36
Fast Food Restaurant*	934	2,000 SF	935	$318.48	$297,778.80

*This Land Use and some other commercial land uses allow for pass-by trip reduction, the number shown here is without that application and represents the total trips

References

1. Trip Generation Manual. 11th ed., Institute of Transportation Engineers, 2021.
2. Hooper, K. G., & Institute Of Transportation Engineers. (2017). Trip generation handbook. (3rd Edition). Institute Of Transportation Engineers.
3. Highway Capacity Manual: A Guide for Multimodal Mobility Analysis. Transportation Research Board, 2022.