

# ***NOBLESVILLE ROAD IMPACT FEE ZONE IMPROVEMENT PLAN***

***CITY OF NOBLESVILLE***



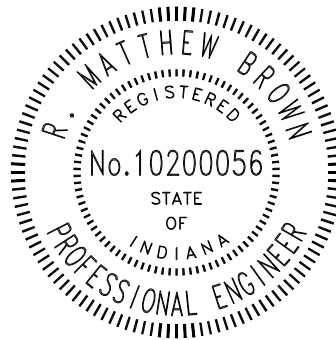
***MARCH 2024***

**CERTIFICATION**

I certify that this **ROAD IMPACT FEE ANALYSIS** has been prepared by me and under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering.

A&F ENGINEERING Co., LLC

March 12, 2024  
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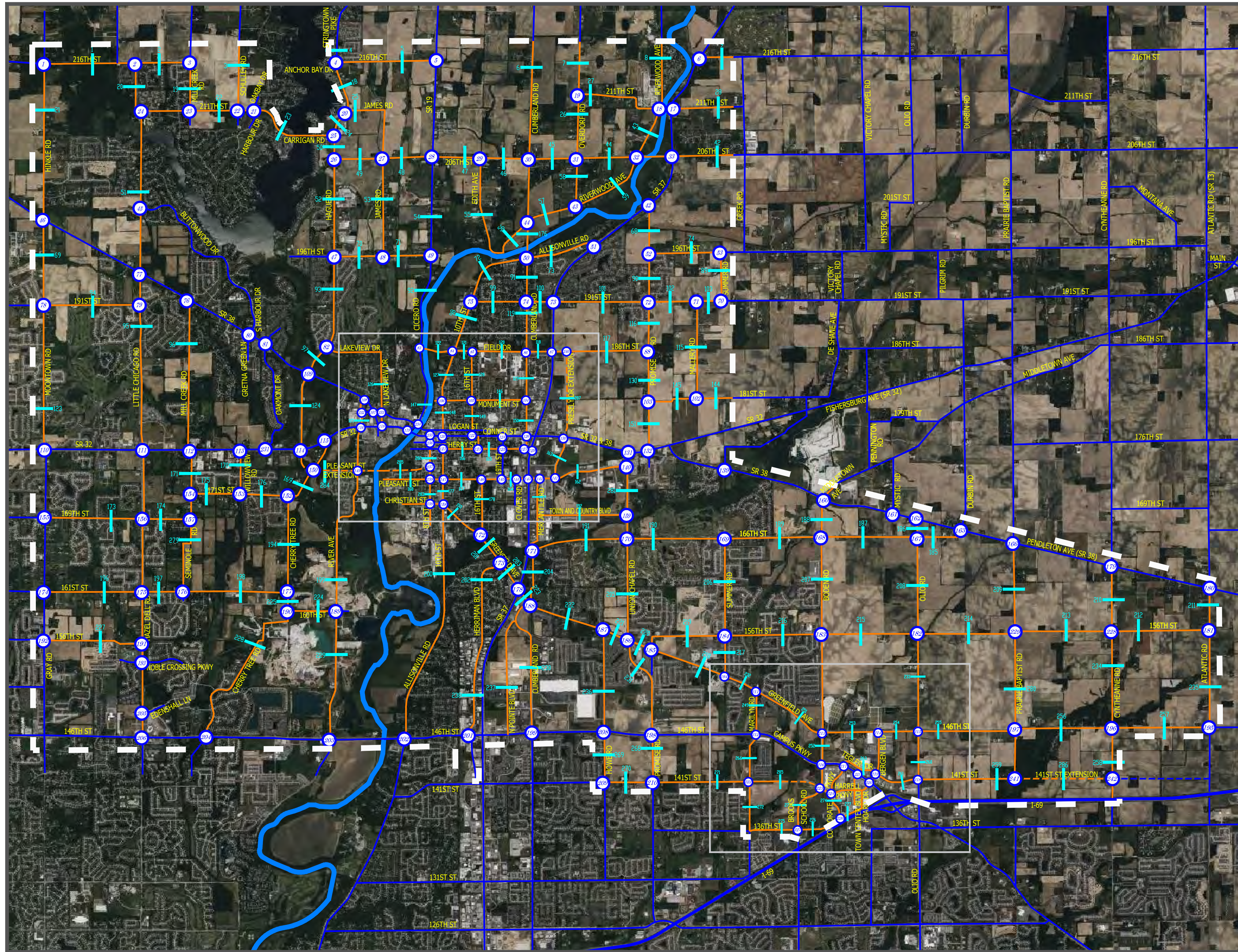
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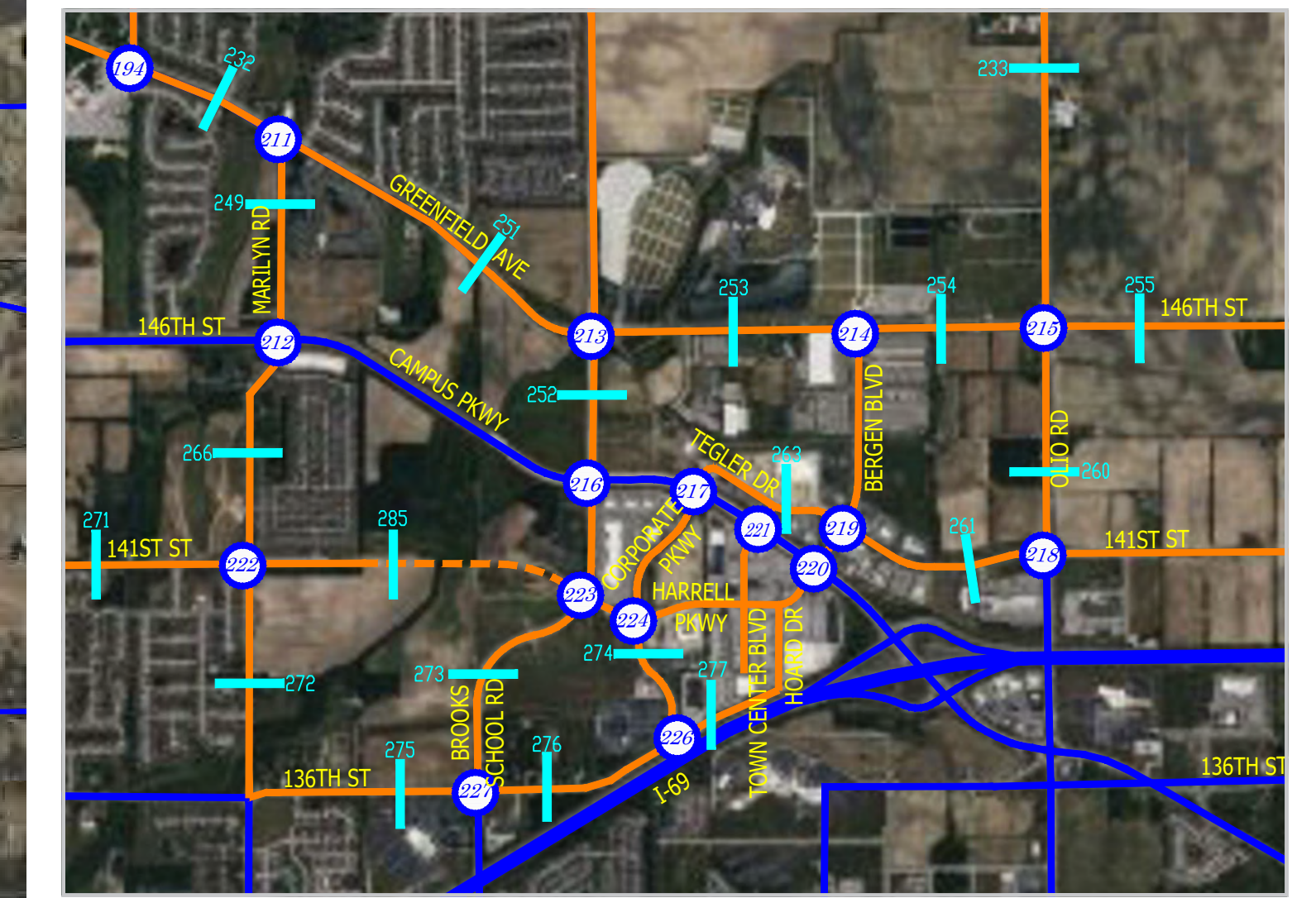
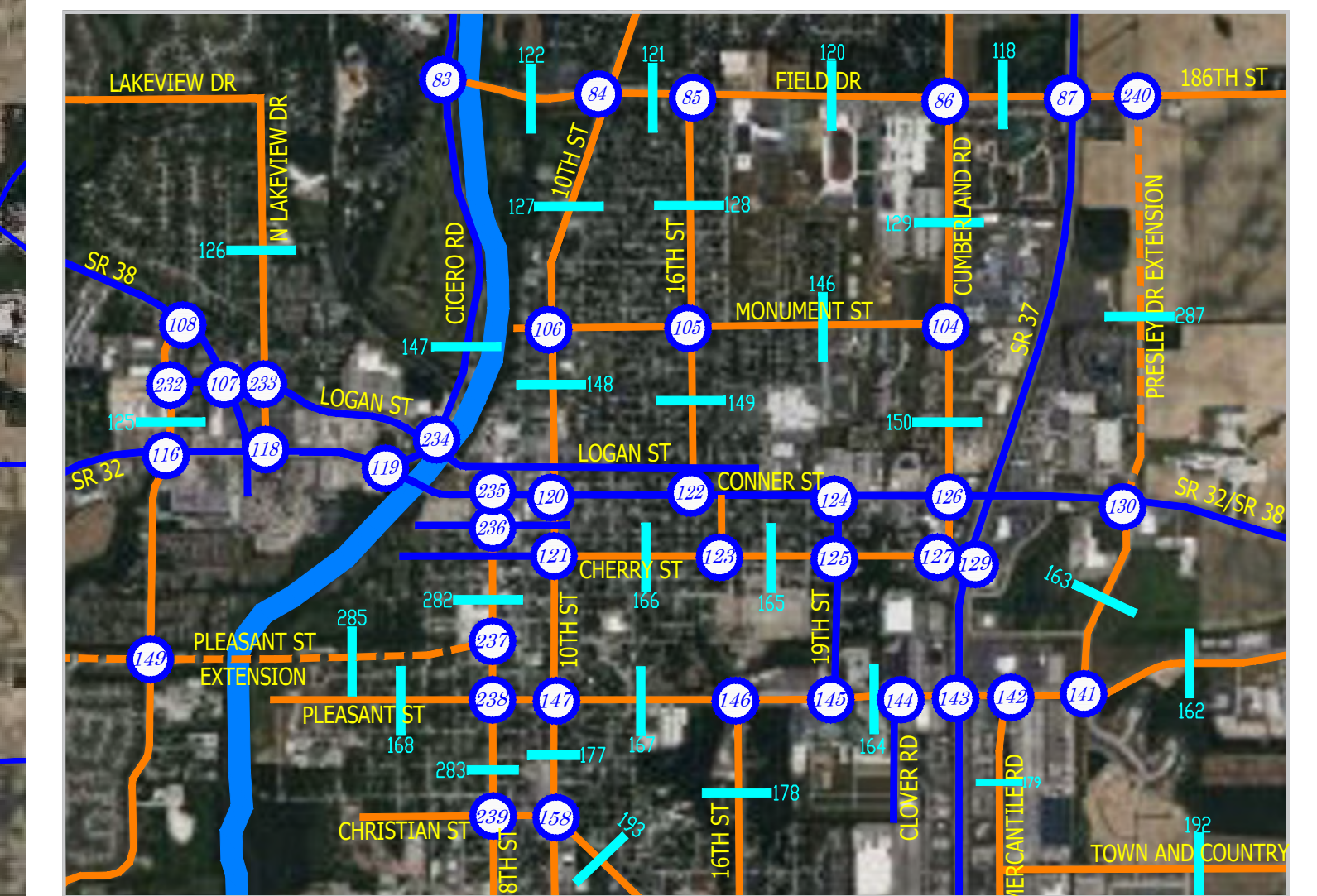
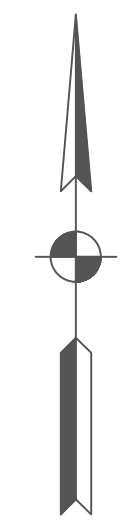
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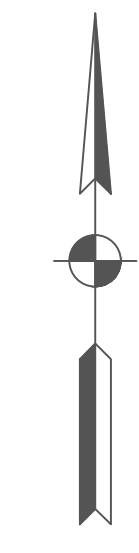
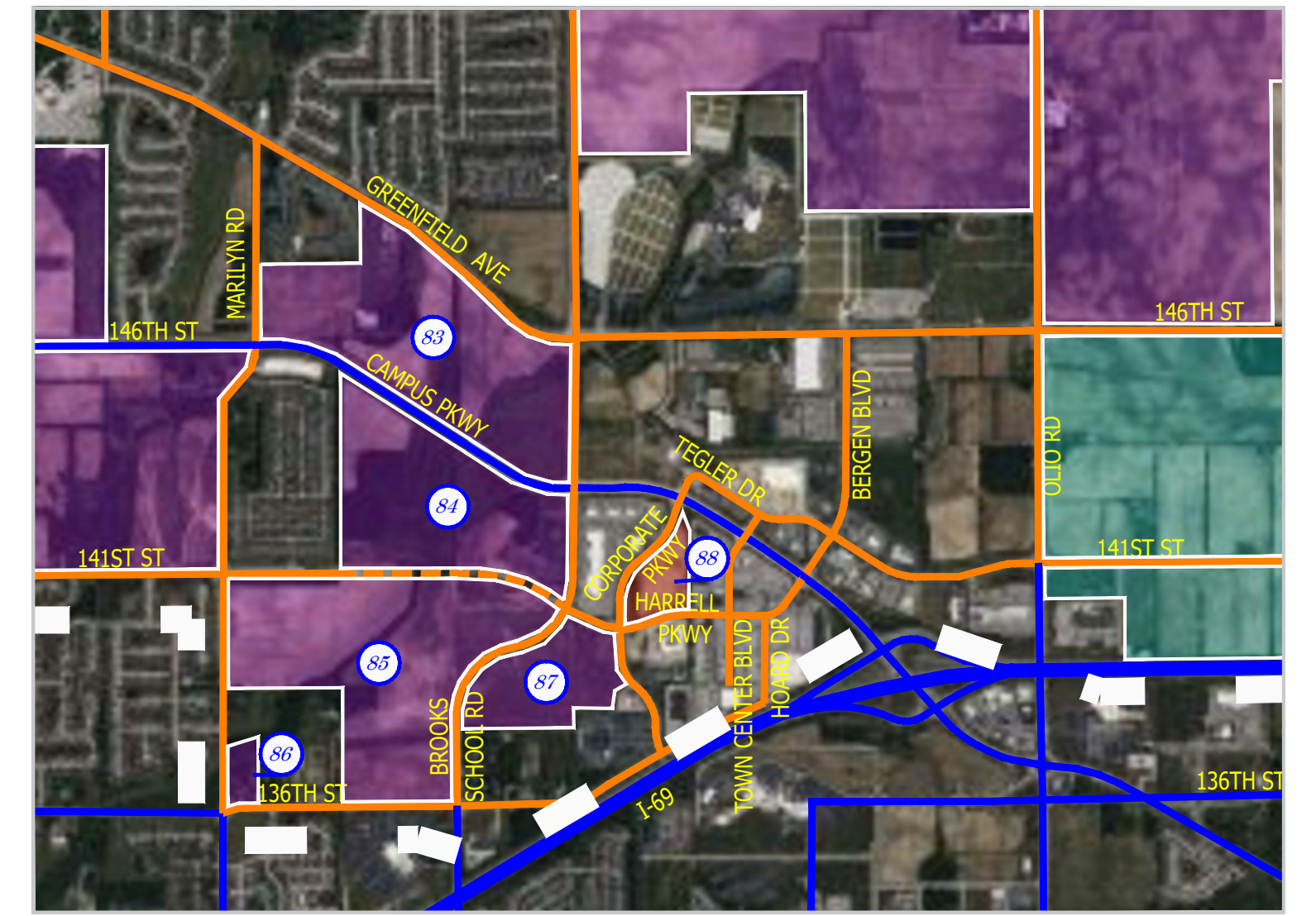
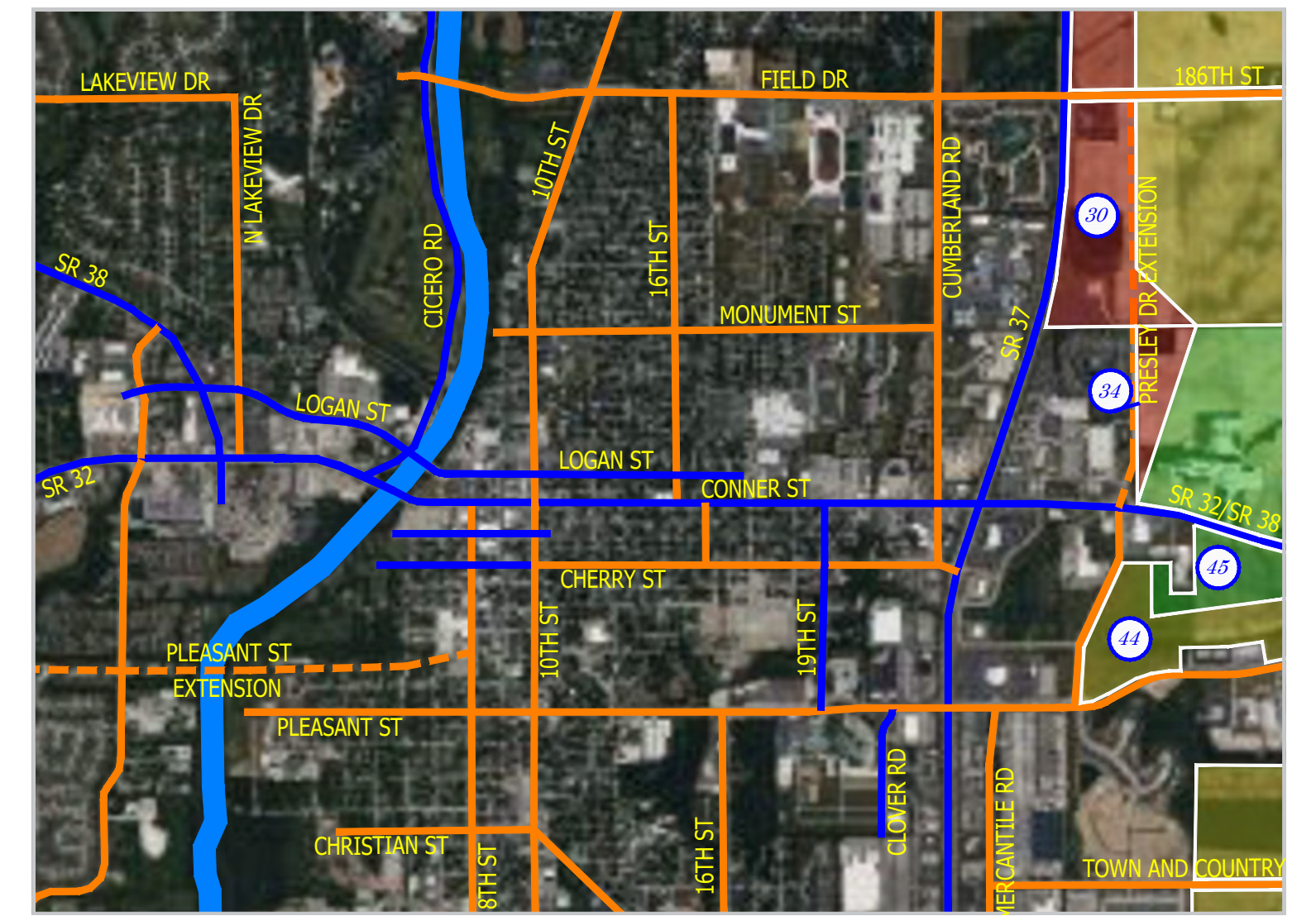
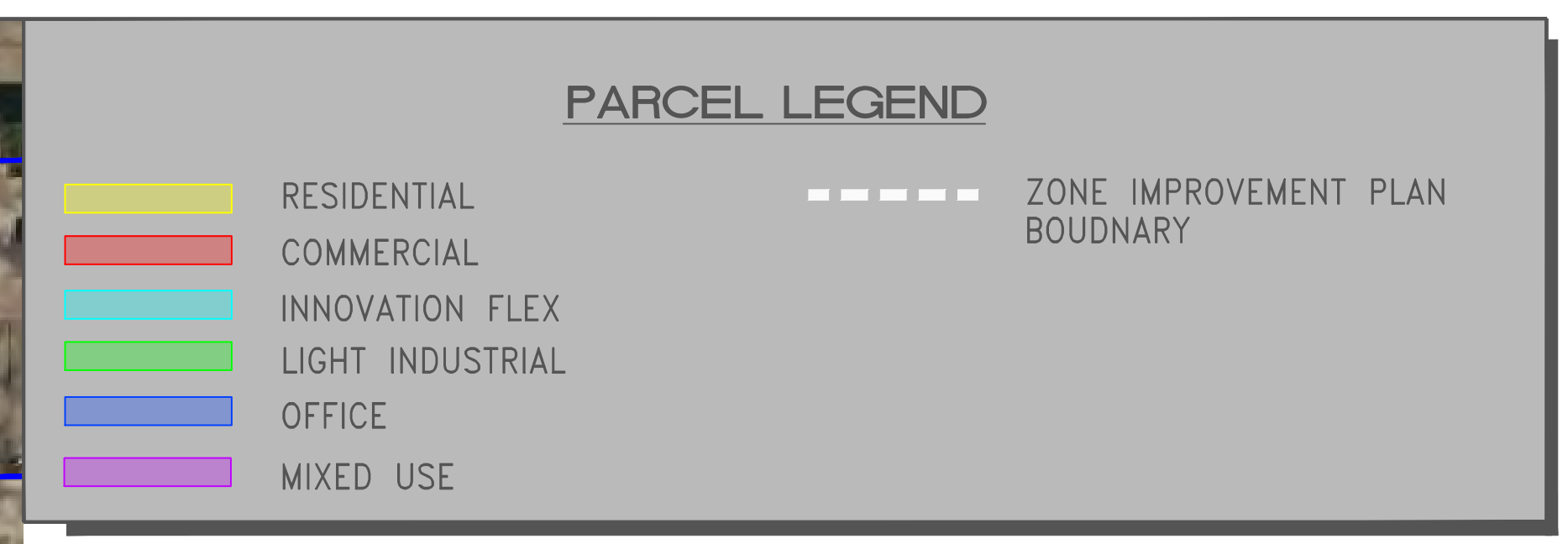
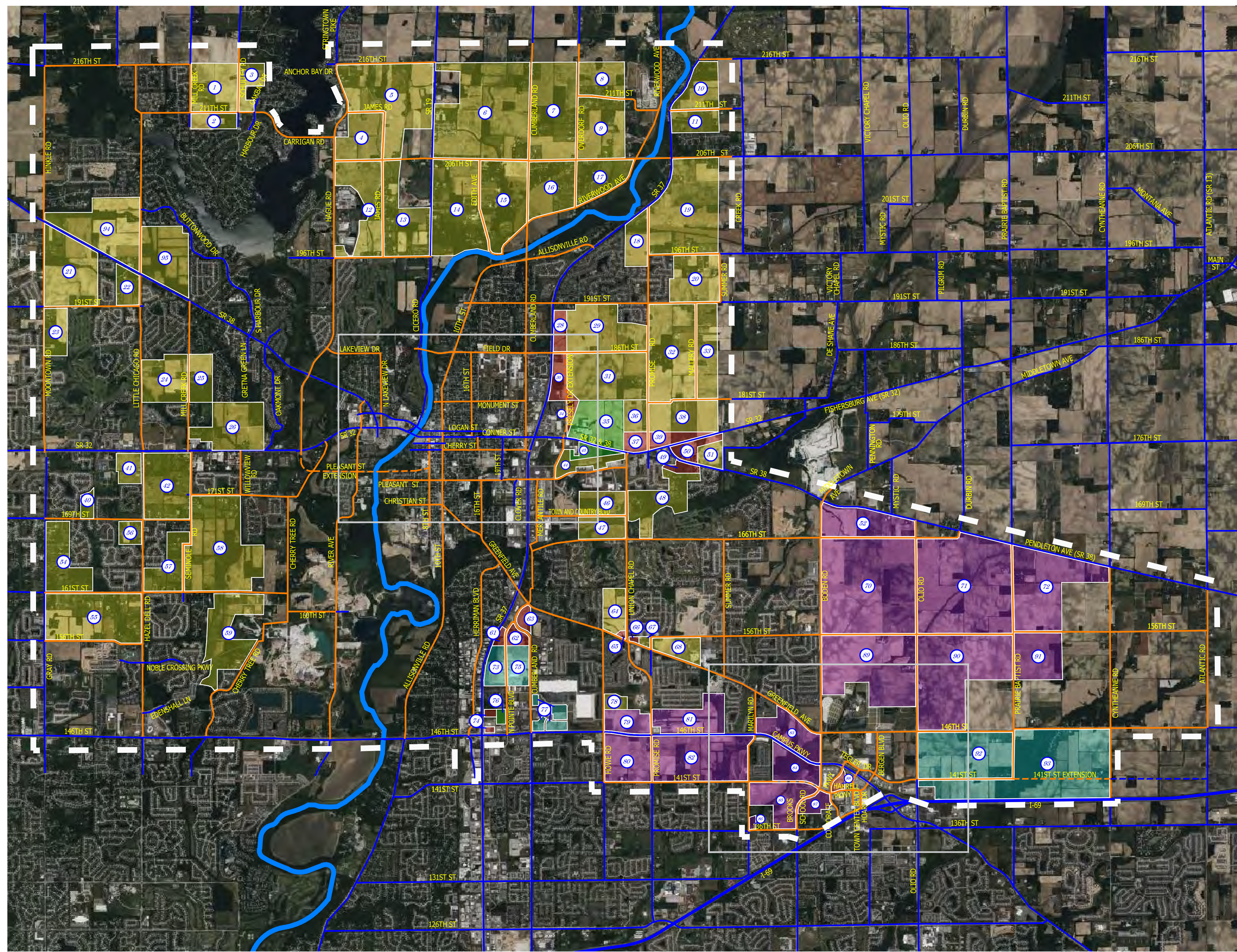
**LEGEND**

- EXISTING STUDY INTERSECTIONS
- ROADWAY SEGMENT COUNTS
- ROADWAY SEGMENT INCLUDED IN ANALYSIS
- ROADWAY SEGMENT EXCLUDED FROM ANALYSIS
- PROPOSED STUDY ROADWAY SEGMENT
- ZONE IMPROVEMENT PLAN BOUNDARY



*CITY OF NOBLESVILLE  
 ZONE IMPROVEMENT PLAN  
 STUDY AREA ROADWAY NETWORK*

*FIGURE 1*



*CITY OF NOBLESVILLE  
 ZONE IMPROVEMENT PLAN  
 VACANT LAND PARCELS*

*FIGURE 2*

## ***INTRODUCTION***

The City of Noblesville has undertaken a project to determine the amount of the Road Impact Fee that can be assessed against future developments that could be constructed within the City's limits over the next ten years. This analysis will project and evaluate the future impact of these developments on the roadway system. This report will serve as a Zone Improvement Plan for the study area.

In order to develop a meaningful road impact fee study, the Rational Nexus Theory was implemented. The Rational Nexus Theory states that new developments cannot be held responsible for the existing inadequacy of the existing street system. Therefore, this Zone Improvement Plan was developed in two separate parts. The first part determined the existing functionality of the intersections and roadways in the study area. Costs were then assigned to all intersection and roadway improvements that were needed to allow these intersections and roadways to function at the baseline levels of service with the existing traffic volumes. The second part of the analysis determined the traffic volumes that would be generated by the vacant parcels of land within the study area that could be developed over the next 10-year period. The generated traffic volumes were then assigned to the street system within the study area. The projected future traffic volumes were used to analyze the roadway system to determine the intersection and roadway improvements that would be necessary to accommodate the added traffic volumes and achieve the baseline levels of service. Cost estimates were then conducted for the recommended improvements. The road impact fee was then calculated by dividing the estimated cost to mitigate 10-year traffic volumes by the number of 24-hour weekday trips generated by the 10-year proposed developments identified by the City of Noblesville planning staff. This amount is the cost the development community will be required to fund to meet the future intersection and roadway needs of the City.

In determining the results of this analysis, A&F Engineering has followed acceptable traffic and transportation engineering methodologies and has completed this Zone Improvement Plan by following the Rational Nexus Theory to its complete understanding.

## ***PURPOSE***

The purpose of this project is as follows:

Existing Conditions – Review the major street network as it presently exists within the study area. If necessary, intersection and roadway improvements will be recommended based on the existing traffic volumes. Estimated construction costs will be determined for the corresponding intersection and roadway improvements.

Projected 10-Year Conditions – Estimate the trips that could be generated by the 10-year completely and partially vacant parcels of land as identified by the City of Noblesville planning staff within the study area. These trips will then be added to the existing traffic volumes to estimate the 10-year traffic volumes that will utilize the City’s roadway system. Intersection and roadway improvements will then be recommended based on these future traffic volumes. Estimated construction costs will be determined for the corresponding intersection and roadway improvements.

Road Impact Fee – Calculate the road impact fee based on the estimated construction costs to mitigate existing conditions, projected 10-year conditions, and the projected 24-hour weekday trips that will be generated by the 10-year vacant land parcels.

### ***STUDY AREA***

The study area for this Zone Improvement Plan has been determined based on guidelines set by the City of Noblesville. **Figure 1**, located at the front of this report, shows the Zone Improvement Plan boundary and the intersections and roadway segments that are included in the study area.

In order to create the 10-year traffic volumes, trips must be generated from vacant parcels within the study area. The City of Noblesville planning staff identified completely and partially vacant land parcels that would be developed within the next ten years and how they would develop. **Figure 2** shows the location and land uses of the vacant land parcels in reference to the study area roadway network.

### ***HISTORICAL ROADWAY FUNDING SOURCES***

Historically, the City of Noblesville has used various sources to fund road expenditures. These include the General Fund, Motor Vehicle Highway Distributions, Downtown Funds, Previously Collected Road Impact Fees, Bonds, LOIT Funds, Utility Funds, and Tax Incremental Financing Funds. **Table 1** is a summary of the funds received from each source over the past five years.

TABLE 1 – HISTORICAL ROADWAY FUNDING SOURCES

Source	2019	2020	2021	2022	2023	Total
General Fund	Outlined in previous Road Impact Fee Update Dated December 2021	\$780,423.55	\$4,550.32	\$3,500.60	\$405,472.04	<b>\$1,193,946.51</b>
MVH Distribution		\$888,673.95	\$606,300.97	\$500,963.38	\$209,283.04	<b>\$2,205,221.34</b>
Downtown		\$0.00	\$84,521.25	\$830,076.80	\$29,958.20	<b>\$944,556.25</b>
Impact Fees		\$210,380.32	\$2,588,069.51	\$4,186,353.12	\$1,164,506.02	<b>\$8,149,308.97</b>
Bonds		\$475,101.76	\$12,118,955.28	\$14,295,165.88	\$20,060,306.18	<b>\$46,949,529.10</b>
LOIT		\$0.00	\$11,350.00	\$0.00	\$0.00	<b>\$11,350.00</b>
Utility (Storm)		\$0.00	\$205,887.33	\$22,174.94	\$766,486.00	<b>\$994,548.27</b>
TIF		\$982,582.02	\$1,130,048.35	\$402,855.82	\$463,848.52	<b>\$2,979,334.71</b>
<b>Total</b>	---	<b>\$3,337,161.60</b>	<b>\$16,749,683.01</b>	<b>\$20,241,090.54</b>	<b>\$23,099,860.00</b>	<b>\$63,427,795.15</b>

## *SCOPE OF WORK*

The scope of work for this analysis is as follows:

### Existing Conditions

1. Determine the existing traffic volumes at all intersections and along all roadway segments.
  - a. Acquire weekday AM and PM peak hour Streetlight traffic count data at the existing study area intersections.
  - b. Acquire weekday Streetlight 24-hour traffic count data (Annual Daily Traffic Volumes [ADT]) along the existing study area roadway segments.
2. Inventory all existing study area intersections to determine traffic control and intersection geometrics.
3. Inventory all existing roadway segments to determine number of lanes, lane widths, and speed limits.
4. Prepare a capacity analysis for each intersection and each roadway segment using existing geometrics, existing traffic controls and existing traffic volumes. The capacity analysis will provide levels of service for each of the intersections and roadway segments which can be compared to the acceptable baseline level of service standards.
5. Make recommendations to improve the intersections and roadway segments that are below acceptable baseline levels of service to meet or exceed the baseline levels of service.
6. Estimate construction costs based on the corresponding intersection and roadway improvements needed to provide the baseline level of service for the existing traffic volumes.



### Projected 10-Year Conditions

1. Based on input from the City of Noblesville planning staff, identify all vacant and partially vacant parcels of land within the study area and confirm the potential future land uses and densities for those parcels.
2. Estimate the number of AM peak hour and PM peak hour trips that will be generated by the potential use of each of these parcels.
3. Assign and distribute the generated trips for the AM and PM peak hour periods throughout the street system.
4. Determine the total AM and PM peak hour generated trips from the vacant parcels at each intersection and along each roadway segment within the study area roadway network.
5. Add the generated trips to the existing traffic volumes to develop 10-year traffic volume estimates.
6. Prepare a capacity analysis for each intersection and each roadway segment using the projected 10-year traffic volumes. The capacity analysis will provide levels of service for the roadway segments and intersections which can be compared to the acceptable baseline level of service standards.
7. Make recommendations to improve the intersections and roadway segments that are below the acceptable baseline levels of service to meet or exceed the baseline levels of service.
8. Estimate construction costs based on the corresponding roadway and intersection improvements needed to accommodate the projected 10-year traffic volumes.

### Road Impact Fee Calculation

1. Estimate the 24-hour weekday trips that will be generated by the potential use of each vacant parcel.
2. Determine the construction costs associated with bringing the intersections and roadway segments to acceptable baseline levels of service for existing and 10-year traffic volume scenarios. The total road impact fee cost is then calculated from the difference in the 10-year construction costs and existing constructions costs and then adding the cost to perform the road impact fee study. This yields the total road impact fee cost.
3. Finally, divide the total road impact fee cost by the total 24-hour weekday trips generated by the identified vacant land parcels to yield the road impact fee per 24-hour weekday trip.

## ***EXISTING TRAFFIC DATA***

Existing turning movement traffic volume counts were obtained at the analysis intersections using Streetlight connected vehicle data within the Zone Improvement Area. The counts include an hourly total of all "through" traffic and all "turning" traffic at the intersection. The counts were made during the hours of 6:00 AM to 9:00 AM and 3:00 PM to 7:00 PM using data from April 2022 to October 2022. The "Intersection Volumes" tables shown in **Exhibit A** summarize the existing traffic volumes for the peak hours. The raw Streetlight data output sheets for the intersection traffic counts are included in **Appendix A**.

Directional traffic volume counts were obtained along the analysis roadway segments using Streetlight connected vehicle data within the Zone Improvement Area. These counts consider the average daily and AM and PM peak hour traffic volumes on Tuesdays, Wednesdays, and Thursdays from April 2022 to October 2022 to yield the roadway segment "Average Daily Traffic" (ADT). The "Segment Volumes" tables in **Exhibit B** summarize the existing traffic volumes for the peak hours and the ADT obtained from the roadway segment traffic counts. The raw data sheets for the roadway segment traffic counts are included in **Appendix B**.

Streetlight traffic volume data was previously validated as accurate by A&F Engineering and the Indianapolis Metropolitan Planning Organization.

## ***EXISTING INTERSECTION INVENTORY***

The following characteristics were identified for each study intersection within the study area:

- Traffic Controls
- Intersection Geometrics

## ***EXISTING ROADWAY SEGMENT INVENTORY***

Each study roadway within the study area was identified by dividing the roadway into analyzed segments. In general, each roadway segment was chosen based on a major change in traffic conditions or roadway characteristics. The characteristics that were included in the roadway segment analyses are:

- Number of Lanes
- Roadway Segment Length
- Speed Limits
- Percent No-Passing Zones
- Presence of Median or Passing Lanes

## ***VACANT LAND PARCELS – PROPOSED USES***

The vacant parcels of land included in this analysis and identified by the City of Noblesville planning staff are illustrated in **Figure 2**. The individual land uses and densities that could be built out in the next 10 years on these parcels were determined based on information provided by the City of Noblesville planning staff.

### ***GENERATED TRIPS***

An estimate of generated traffic from each of the 10-year vacant parcel developments is a function of the size and character of each land use. The *ITE Trip Generation Manual (11<sup>th</sup> Edition)*<sup>1</sup> was used to calculate the total number of trips expected to be generated by each land use during the AM peak hour, PM peak hour, and 24-hour weekday period. The *ITE Trip Generation Manual* is a compilation of trip data for various land uses as collected by transportation professionals throughout the United States in order to establish the average number of trips generated by those land uses.

Based on the information provided by the City of Noblesville’s planning staff as well as data taken from *ITE Trip Generation Manual (11<sup>th</sup> Edition)*, the classifications and descriptions for each of the vacant parcel developments applicable to this study are as follows:

#### **Single-Family**

**Detached:** Single family detached land uses are defined as being composed of single-family detached homes on individual lots. A typical example of this land use is a suburban subdivision.

#### **Single-Family**

**Attached:** Single family attached land uses are defined as single-family attached homes that share a wall with an adjoining home. A typical example of this land use is duplex or town/rowhouses.

**Multifamily:** Multifamily housing generally includes apartments and condominiums located within the same building with at least three other dwelling units and that have two or three levels (floors).

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<sup>1</sup> *Trip Generation Manual*, Institute of Transportation Engineers, Eleventh Edition, 2021.

**Business Park:** A business park typically consists of flex-type or incubator one- or two-story buildings served by a common roadway system with flexible tenant spaces, which lends itself to a variety of uses. The rear side of the building is often served by a garage door. Tenants may be start-up companies or small mature companies that require a variety of space including offices, retail and wholesale stores, restaurants, recreational areas and warehousing, manufacturing, light industrial, or scientific research functions.

### **General Light**

**Industrial:** A general light industrial facility is typically devoted to a single use with an emphasis on activities other than manufacturing such as printing, material testing, and assembly of data processing equipment and typically has minimal office space.

**General Office:** General office land uses typically have multiple tenants and are locations where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted.

**General Retail:** The general retail land use includes neighborhood centers, regional shopping centers, and area service nodes that are planned, developed, owned, and managed as a shopping center.

### ***INTERNAL TRIPS***

Mixed-use developments typically generate internal trips between the individual land uses within the development. These internal trips do not access the public street system; therefore, they are not included in the capacity calculations. For the mixed-use developments considered in this report, the internal trip reduction rates outlined in the *ITE Trip Generation Handbook* were applied.

### ***PASS-BY TRIPS***

The retail land uses considered in this analysis will attract pass-by trips. Pass-by trips are trips already in the existing flow of traffic that enter the development, utilize the development, and then return to the roadway system. *ITE Trip Generation Handbook*<sup>2</sup> provides procedures, methodology, and data that can be used to estimate the number of pass-by trips generated by the retail land uses.

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<sup>2</sup> *Trip Generation Handbook*, Institute of Transportation Engineers, Eleventh Edition, 2021.

## ***ASSIGNMENT & DISTRIBUTION OF GENERATED TRIPS***

To determine the volume of traffic that will be added to the study area roadway network, the generated traffic must be assigned and distributed by direction to the public roadway at its intersection with the development access points, and then to each of the intersections throughout the study area. For each of the vacant parcels within the study area, the assignment and distribution of the generated trips were based on the existing traffic patterns, the location of population and employment centers in relation to the individual parcels, and the proposed street system within the study area. The assignment and distribution of the generated traffic for each parcel was expedited by using *PTV VISUM 22*<sup>3</sup>, a state-of-the-art transportation planning software package that utilizes origin-destination pairs and allows for changes in the roadway system and driver behavior to be considered when future traffic flows are determined.

## ***PROJECTED 10-YEAR TRAFFIC VOLUMES***

Information provided by the City of Noblesville planning staff was used to develop land use and density determinations for each parcel of vacant land. The generated traffic volumes from each parcel were totaled for both the AM peak hour and the PM peak hour at each of the study intersections and roadway segments. These generated volumes were then added to the existing traffic volumes at each intersection and roadway segment to obtain the 10-year traffic volumes. The projected 10-year traffic volumes are summarized for the AM peak hour and PM peak hour for each intersection on the “Intersection Volumes” tables in **Exhibit A** and for each roadway segment on the “Segment Volumes” tables in **Exhibit B**.

## ***PLEASANT STREET EXTENSION PROJECT***

Included within the traffic model is the proposed Pleasant Street Extension. This project will provide an additional east-west corridor crossing the White River in order to relieve traffic congestion in downtown Noblesville along SR 32. The project includes improvements to the existing Pleasant Street Corridor from SR 37 to the intersection of Hague Road and SR 32. The Pleasant Street Extension project is anticipated to be funded by several entities and multiple funding sources. **Table 2** shows the combined material, construction, and engineering costs associated with different phases of the Pleasant Street Extension project.

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<sup>3</sup> *PTV VISUM 2022.01-12*, PTV Group, 2022.

TABLE 2 – PLEASANT STREET EXTENSION COST SUMMARY

Construction Breakdown	Costs
Hague Road/SR 32 to 19 <sup>th</sup> Street	\$44,101,730
19 <sup>th</sup> Street to SR 37	\$35,313,200*

\*These costs have been excluded under the assumption that the majority or all of the costs could be funded by entities outside of the City of Noblesville.

Because the Pleasant Street Extension Project will mitigate existing deficiencies within the roadway network and will provide future capacity for 10-year traffic projections; these costs are shared 50/50 between existing and 10-year costs.

### ***TRAFFIC SIGNAL WARRANT ANALYSIS***

Peak Hour Traffic Signal Warrant analyses were conducted at two-way stop and all-way stop controlled intersections where the minor streets or the total intersection have been shown to operate below acceptable baseline levels of service to determine if the installation of a traffic signal or the construction of a roundabout should be considered under existing and/or 10-year conditions.

### ***CAPACITY ANALYSIS***

The "efficiency" of an intersection or roadway segment is based on its ability to accommodate the traffic volumes that approach the intersection or that travel along the roadway segment. It is defined by the Level-of-Service (LOS) of the intersection or roadway segment. The LOS is determined by a series of calculations commonly called a "capacity analysis". Input data into a capacity analysis include traffic volumes, intersection geometry, number and use of lanes, and, in the case of signalized intersections, traffic signal timing. To determine the LOS at each of the study intersections, a capacity analysis has been made using the recognized computer program *Synchro 11*<sup>4</sup>. This program allows multiple intersections to be analyzed and optimized using the capacity calculation methods outlined within the *Highway Capacity Manual (HCM 6<sup>th</sup> Edition)*<sup>5</sup>. To determine the LOS at each of the roadway segments, a capacity analysis has been performed using the computer program *HIGHPLAN*, which uses the capacity calculation methods outlined within the *Highway Capacity Manual (HCM)* for two-lane and multi-lane roadway segments.

<sup>4</sup> *Synchro/SimTraffic 11*, Cubic Transportation Systems, 2021.

<sup>5</sup> *Highway Capacity Manual Sixth Edition (HCM)* Transportation Research Board, The National Academies of Sciences, Washington, DC, 2017.

## ***DESCRIPTION OF LEVEL OF SERVICE – INTERSECTIONS***

The Level of Service (LOS) for an intersection is based on the average control delay (in seconds) that a vehicle would typically experience at the intersection. The following data obtained from the *Highway Capacity Manual (HCM)* describes the delay thresholds related to the levels of service for signalized intersections:

- Level of Service A** - describes operations with a very low delay, less than or equal to 10.0 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
- Level of Service B** - describes operations with delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression. More vehicles stop than LOS A, causing higher levels of average delay.
- Level of Service C** - describes operation with delay in the range of 20.1 seconds to 35.0 seconds per vehicle. These higher delays may result from failed progression. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- Level of Service D** - describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combinations of unfavorable progression. Many vehicles stop, and the proportion of vehicles not stopping declines. This is the limit of acceptable delay.
- Level of Service E** - describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. These high delay values generally indicate poor progression and long cycle lengths.
- Level of Service F** - describes operations with delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

The following *Highway Capacity Manual (HCM)* tables, show the delays related to the levels of service for unsignalized, signalized, and roundabout intersections:



Control Delay (seconds/vehicle)

<u>Level of Service</u>	<u>UNSIGNALIZED</u>	<u>SIGNALIZED/ROUNDBABOUT</u>
A	Less than or equal to 10	Less than or equal to 10
B	Between 10.1 and 15	Between 10.1 and 20
C	Between 15.1 and 25	Between 20.1 and 35
D	Between 25.1 and 35	Between 35.1 and 55
E	Between 35.1 and 50	Between 55.1 and 80
F	greater than 50	greater than 80

***DESCRIPTION OF LEVEL OF SERVICE – ROADWAY SEGMENTS***

The computer software *HIGHPLAN* was used to determine the Level of Service (LOS) for the two-lane roadway segments (one travel lane in each direction) and multilane roadway segments (more than one travel lane in each direction) in this study. In the *HIGHPLAN* software, the LOS for the two-lane roadway segments for urban/developed areas is based on the percentage free flow speed (the percentage of vehicular speed traveled in relation to the posted speed limit) that can be obtained over the roadway segment. For multilane roadway segments, the LOS is based on the density (passenger cars per mile per lane) of the roadway segment.

*HIGHPLAN* utilizes the following roadway variables in the determination of the LOS for two-lane and multilane roadway segments:

- Number of Lanes
- Roadway Segment Length
- Speed Limit
- Percent No-Passing Zone
- Presence of Median or Passing Lanes
- Average Daily Traffic (ADT)
- Directional Split of Peak Hour Traffic Volumes
- Peak Hour Factor (PHF)
- % Heavy Vehicles

The following tables show the criteria used by *HIGHPLAN* in determining the level of service for two-lane roadway segments and multilane roadway segments.



Level of Service Thresholds for Two-Lane Roadway Segments

<u>Level of Service</u>	<u>Percentage of Free Flow Speed (%)</u>	<u>Minimum Speed (mph)</u>
A	≥ 92	45
B	83-91.9	35
C	75-82.9	35
D	67-74.9	35
E	≤ 67	35
F	v/c ≥ 1.0	35

Level of Service Thresholds for Multilane Roadway Segments

<u>Level of Service</u>	<u>Density (pc/mi/ln)</u>	<u>Speed (mph)</u>
A	≤ 11	ALL
B	11.1-18	ALL
C	18.1-26	ALL
D	26.1-35	ALL
E	35.1-45	45-60
F	> 45	45-60

***BASELINE LEVEL OF SERVICE STANDARDS***

The City of Noblesville has established a minimum acceptable baseline level of service (LOS) standard that was used when performing the capacity analyses for the study intersections and roadway segments. Level of service ‘D’ has been selected as the minimum acceptable baseline LOS for intersections and level of service ‘E’ as the minimum acceptable baseline LOS for roadway segments in this Zone Improvement Plan. This standard is used for both existing conditions and projected 10-year conditions.

In some cases, it was not feasible to achieve the baseline level of service for an intersection. For those intersections that operate below acceptable baseline levels of service (LOS E and F), maximum efforts have been made to improve the level of service to a minimum of D. However, due to the fact that reasonable designs are not sufficient to achieve acceptable baseline levels of service in some instances, no further mitigations were considered for those intersections. This methodology applies to existing and 10-year analyses.

In addition to the LOS standards for roadway segments, a maximum width standard is considered. In this standard, a 20-foot-wide roadway with a 2-foot shoulder was considered to be the minimum acceptable cross-section of a roadway segment. However, the costs associated with widening any width deficient roadway segments were not considered as it was assumed that the roadway segments will be widened as development occurs along the frontage of these roadways.

## ***RECOMMENDED IMPROVEMENT CRITERIA***

Improvements were recommended for both the existing traffic volumes and the projected 10-year traffic volumes so that each study intersection/roadway segment will meet the minimum acceptable baseline level of service (LOS D/E). The recommended improvements only include those regarding the capacity of each study intersection/roadway segment. Road Impact Fees are calculated based on the improvements needed to enhance the capacity of each intersection/roadway segment, and the recommendations found in this report are based on improving said capacity. Typical improvements include: the addition of travel lanes, turn lanes, and changes in intersection control.

## ***SUMMARY TABLES FOR INTERSECTIONS***

A tabular summary of the analysis considering each study intersection is shown in the following pages. The existing level of service (LOS) results are shown in **Table 1** under the heading “Existing LOS”. The existing LOS results are based on the existing traffic control, existing intersection geometrics and the existing AM peak hour and PM peak hour traffic volumes. The existing intersection traffic volumes for the peak hours can be found in the intersection volume tables in **Exhibit A**.

Level of service “D” has been selected for this study by the City of Noblesville as the minimum acceptable baseline LOS for intersections. If necessary, mitigated conditions for the existing traffic volumes have been recommended for intersections that currently operate below the minimum acceptable baseline LOS. The resulting levels of service and recommended mitigations are shown in **Table 3** under the headings “Existing Mitigated LOS” and “Existing Mitigations/Notes”, respectively.

If necessary, mitigated conditions have been recommended so that the intersections will operate at acceptable baseline levels of service (LOS D) during the peak hours with the projected 10-year traffic volumes. This includes intersection improvements that are planned/proposed by the City Noblesville that will be constructed over the next 10 years. The LOS results for the projected 10-year traffic volumes along with the corresponding mitigations are shown in **Table 4** under the headings “10-Year Mitigated LOS” and “10-Year Mitigations/Notes”, respectively.

TABLE 3 – EXISTING INTERSECTION LEVEL OF SERVICE RESULTS

Int. ID	Intersection	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
		AM	PM	AM	PM	
1	216th St & Hinkle Rd	A	A	---	---	---
2	216th St & Little Chicago Rd	A	B	---	---	---
3	216th St & Mill Creek Rd	A	B	---	---	---
4	216th St & Hague Rd/Springtown Pike	B	B	---	---	---
5	216th St & SR 19	C	D	---	---	---
6	216th St & SR 37	C	D	---	---	---
17	211th St & SR 37	A	A	---	---	---
18	211th St & Riverwood Ave	A	A	---	---	---
19	211th St & Overdorf Rd	A	A	---	---	---
20	James Rd & Hague Rd	A	A	---	---	---
21	Carrigan Rd & Harbor Dr/Oakbay Dr	C	E	B	E	Reconfigure WB Approach to LT Lane and T&R Shared Lane; NB Left, and SB Left
22	211th St & Schulley Rd	B	D	---	---	---
23	211th St & Mill Creek Rd	B	C	---	---	---
24	211th St & Little Chicago Rd	B	C	---	---	---
25	Carrigan Rd & Hague Rd	A	A	---	---	---
26	206th St & Hague Rd	C	F	A	B	Add Traffic Signal; Add SB LT Lane; Add WB RT Lane
27	206th St & James Rd	B	C	---	---	---
28	206th St & SR 19	A	B	---	---	---
29	206th St & Edith Rd	B	C	---	---	---
30	206th St & Cumberland Rd	B	B	---	---	---
31	206th St & Overdorf Rd	B	B	---	---	---
32	206th St & Riverwood Ave	B	C	---	---	---
33	206th St & SR 37	B	B	---	---	---
42	SR 37 & Promise Rd	B	D	---	---	---
43	Riverwood Ave & Overdorf Rd	A	A	---	---	---
44	Cumberland Rd & Riverwood Ave	B	C	---	---	---
45	Little Chicago Rd & Buttonwood Dr	C	D	---	---	---
46	SR 38 & Hinkle Rd	E	F	---	---	Future INDOT Planned Traffic Signal; Therefore, No Recommended Improvements
47	196th St & Hague Rd	A	B	---	---	---
48	196th St & James Rd	B	B	---	---	---
49	196th St & SR 19	E	F	B	B	Construct 1-1 RAB

Int. ID	Intersection	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
		AM	PM	AM	PM	
50	Allisonville Rd & Cumberland Rd	A	A	---	---	---
51	Allisonville Rd & SR 37	B	D	---	---	---
52	196th St & Promise Rd	B	B	---	---	---
53	196th St & Summer Rd	A	A	---	---	---
70	191st St & Summer Rd	B	A	---	---	---
71	191st St & Mallery Rd (115th St)	A	A	---	---	---
72	191st St & Promise Rd	B	B	---	---	---
73	191st St & SR 37	E	C	---	---	Future INDOT Planned Improvements; Therefore, No Recommended Improvements
74	191st St & Cumberland Rd	B	C	---	---	---
75	191st St & 10th St	B	B	---	---	---
76	SR 38 & Mill Creek Rd	B	D	---	---	---
77	SR 38 & Little Chicago Rd	D	C	---	---	---
78	191st St & Moontown Rd	B	C	---	---	---
79	191st St & Little Chicago Rd	A	A	---	---	---
80	SR 38 & Harbour Dr	B	B	---	---	---
81	SR 38 & Oakmont Dr	E	F	---	---	Future INDOT Planned 1-1 RAB
82	Hague Rd & Lakeview Dr	C	D	---	---	---
83	Cicero Rd (SR 19) & Field Dr	B	F	B	D	Restripe WB to Left and Thru Shared and RT Lane; Split EB and WB Phasing; Add WB and NB RT Overlaps
84	10th St & Field Dr	B	D	---	---	---
85	Field Dr & 16th St	B	D	---	---	---
86	Field Dr & Cumberland Rd	A	B	---	---	---
87	186th St & SR 37	D	B	---	---	---
88	186th St & Promise Rd	B	B	---	---	---
102	181st St & Mallery Rd	A	A	---	---	---
103	181st St & Promise Rd	B	C	---	---	---
104	Cumberland Rd & Monument St	B	B	---	---	---
105	16th St & Monument St	A	A	---	---	---
106	Monument St & 10th St	B	C	---	---	---
107	Logan St & SR 38	B	B	---	---	---
108	SR 38 & River Ave	E	F	---	---	Reasonable Mitigations do not Improve LOS
109	Hague Rd & SR 38	B	B	---	---	---
110	SR 32 & Moontown Rd	C	D	---	---	---
111	SR 32 & Little Chicago Rd	C	D	---	---	---

Int. ID	Intersection	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
		AM	PM	AM	PM	
112	<i>SR 32 &amp; Mill Creek Rd</i>	F	F	A	B	Per INDOT Plans, Construct 2-1 RAB
113	<i>SR 32 &amp; Willowview Rd</i>	C	F	C	F	Per INDOT Plans, Add EB & WB Thru Lanes and EB LT Lane
114	<i>SR 32 &amp; Hague Rd/Pleasant St Extension</i>	A	A	---	---	---
115	<i>SR 32 &amp; Cherry Tree Rd</i>	C	F	---	---	Completion of the Pleasant Street Extension will reduce minor street volumes. Therefore, No Recommended Improvements
116	<i>SR 32 &amp; River Ave</i>	A	B	---	---	---
117	<i>SR 32 &amp; SR 38</i>	A	B	---	---	---
118	<i>SR 32 &amp; Lakeview Dr</i>	B	B	---	---	---
119	<i>SR 32 &amp; Cicero Rd (SR 19)</i>	B	C	---	---	---
120	<i>SR 32 &amp; 10th St</i>	B	C	---	---	---
121	<i>Cherry St &amp; 10th St</i>	B	C	---	---	---
122	<i>SR 32 &amp; 16th St</i>	A	B	---	---	---
123	<i>Cherry St &amp; 16th St</i>	A	A	---	---	---
124	<i>Conner St &amp; 19th St</i>	B	B	---	---	---
125	<i>Cherry St &amp; 19th St</i>	A	A	---	---	---
126	<i>Conner St &amp; Cumberland Rd</i>	B	B	---	---	---
127	<i>Cherry St &amp; Cumberland Rd</i>	B	C	---	---	---
129	<i>SR 37 &amp; Cherry St</i>	C	C	---	---	---
130	<i>SR 32 &amp; Presley Dr (Extension)</i>	A	A	---	---	---
131	<i>SR 32 &amp; Union Chapel Rd</i>	A	A	---	---	---
132	<i>SR 32 &amp; Promise Rd</i>	B	A	---	---	---
139	<i>SR 38 &amp; De Shane Ave</i>	C	C	---	---	---
140	<i>Pleasant St &amp; Union Chapel Rd</i>	A	A	---	---	---
141	<i>Pleasant St &amp; Presley Dr</i>	A	A	---	---	---
142	<i>Pleasant St &amp; Mercantile Rd</i>	A	A	---	---	---
143	<i>Pleasant St &amp; SR 37</i>	C	C	---	---	---
144	<i>Pleasant St &amp; Clover Rd</i>	A	A	---	---	---
145	<i>Pleasant St &amp; 19th St</i>	A	A	---	---	---
146	<i>Pleasant St &amp; 16th St</i>	B	B	---	---	---
147	<i>Pleasant St &amp; 10th St</i>	A	A	---	---	---
149	<i>Pleasant St Extension &amp; River Ave</i>	---	---	---	---	Proposed Intersection

Int. ID	Intersection	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
		AM	PM	AM	PM	
150	Pleasant St Extension & Cherry Tree Rd	---	---	---	---	Proposed Intersection
152	171st St & Cherry Tree Rd	A	A	---	---	---
153	171st St & Willowview Rd	A	A	---	---	---
154	171st St & Mill Creek Rd	A	A	---	---	---
155	<i>169th St &amp; Gray Rd</i>	A	A	---	---	---
156	169th St & Hazel Dell Rd/Little Chicago Rd	B	B	---	---	---
157	169th St & Mill Creek Rd	A	A	---	---	---
158	10th St & Greenfield Ave/Christian Ave	A	A	---	---	---
159	Town and Country Blvd & Union Chapel Rd	A	A	---	---	---
160	<i>SR 38 &amp; Boden Rd (Middletown Rd)</i>	F	F	A	B	INDOT Planned 1-1 RAB
161	<i>SR 38 &amp; Mystic Rd</i>	C	C	---	---	---
162	<i>SR 38 &amp; Olio Rd</i>	D	D	---	---	---
163	<i>SR 38 &amp; Durbin Rd</i>	B	B	---	---	---
166	<i>SR 38 &amp; Prairie Baptist Rd</i>	C	C	---	---	---
167	166th St & Olio Rd	B	B	---	---	---
168	166th St & Boden Rd	B	B	---	---	---
169	166th St & Summer Rd	B	B	---	---	---
170	166th St & Union Chapel Rd	A	A	---	---	---
171	166th St & Mercantile Rd/Cumberland Rd	B	B	---	---	---
172	Greenfield Ave & 16th St	E	E	A	C	Add Traffic Signal; Add EB LT Lane
173	Greenfield Ave & Herriman Blvd	C	C	---	---	---
174	<i>161st St &amp; Gray Rd</i>	B	B	---	---	---
175	161st St & Hazel Dell Rd	A	A	---	---	---
176	161st St & Seminole Rd	A	A	---	---	---
177	161st St & Cherry Tree Rd	A	A	---	---	---
178	<i>SR 37 &amp; Greenfield Ave</i>	C	C	---	---	---
179	<i>SR 38 &amp; Cyntheanne Rd</i>	C	C	---	---	---
180	<i>SR 28 &amp; Atlantic Rd</i>	B	B	---	---	---
181	Atlantic Rd & 156th St	A	A	---	---	---
182	156th St & Olio Rd	B	B	---	---	---
183	156th St & Boden Rd	A	A	---	---	---
184	156th St & Summer Rd	A	A	---	---	---
185	Promise Rd & Greenfield Ave	B	B	---	---	---

Int. ID	Intersection	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
		AM	PM	AM	PM	
186	Greenfield Ave & Union Chapel Rd	A	A	---	---	---
187	Greenfield Ave & Howe Rd	A	A	---	---	---
188	Greenfield Ave & Cumberland Rd	C	C	---	---	---
189	160th St & River Ave	B	B	---	---	---
190	160th St & Cherry Tree Rd	A	A	---	---	---
191	156th St & Hazel Dell Rd	E	E	E	E	Reasonable Mitigations do not Improve LOS
192	156th St & Gray Rd	B	B	---	---	---
193	Hazell Dell Rd & Noble Crossing Pkwy	C	C	---	---	---
194	Summer Rd & Greenfield Ave	C	C	---	---	---
195	<i>146th St &amp; Atlantic Rd</i>	A	A	---	---	---
196	146th St & Cyntheanne Rd	B	B	---	---	---
197	146th St & Prairie Baptist Rd	A	A	---	---	---
198	<i>146th St &amp; Promise Rd</i>	C	C	---	---	---
199	<i>146th St &amp; Cumberland Rd</i>	C	C	---	---	---
201	<i>146th St Herriman Blvd</i>	B	B	---	---	---
202	<i>146th St &amp; Allisonville Rd</i>	C	C	---	---	---
203	<i>146th St &amp; River Ave</i>	C	C	---	---	---
204	<i>146th St &amp; Cherry Tree Rd</i>	B	B	---	---	---
205	Hazel Dell Pkwy St & Edenshall Ln	A	B	---	---	---
206	<i>146th St &amp; Hazel Dell Rd</i>	D	D	---	---	---
208	<i>146th St &amp; Howe Rd</i>	C	C	---	---	---
209	<i>141st St &amp; Howe Rd</i>	B	C	---	---	---
210	<i>141st St &amp; Promise Rd</i>	B	B	---	---	---
211	Greenfield Ave & Marilyn Rd	C	C	---	---	---
212	<i>146th St &amp; Marilyn Rd/Campus Pkwy</i>	B	B	---	---	---
213	146th St/Greenfield Ave & Boden Rd	B	B	---	---	---
214	146th Street & Bergen Blvd	B	B	---	---	---
215	146th Street & Olio Rd	A	A	---	---	---
216	<i>Campus Pkwy &amp; Boden Rd</i>	C	C	---	---	---

Int. ID	Intersection	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
		AM	PM	AM	PM	
217	<i>Campus Pkwy &amp; Corporate Pkwy</i>	B	B	---	---	---
218	<i>141st &amp; Olio Rd</i>	A	A	---	---	---
219	Tegler Dr & Bergen Blvd	B	B	---	---	---
220	<i>Campus Pkwy &amp; Bergen Blvd</i>	C	C	---	---	---
221	<i>Campus Pkwy &amp; Town Center Blvd</i>	B	B	---	---	---
222	141st St & Marilyn Rd	A	A	---	---	---
223	141st St (Extension) & Brooks School Rd	A	A	---	---	---
224	141st St (Harrell Pkwy) & Corporate Pkwy	A	A	---	---	---
226	136th St & Corporate Pkwy	A	A	---	---	---
227	<i>136th St &amp; Brooks School Rd</i>	A	A	---	---	---
228	156th St & Cyntheanne Rd	B	B	---	---	---
229	156th St & Prairie Baptist Rd	B	B	---	---	---
231	<i>SR 32 &amp; Oakmont Dr</i>	C	C	---	---	---
232	Logan St & River Ave	A	C	---	---	---
233	Logan St & Lakeview Dr	B	A	---	---	---
234	<i>Cicero Rd (SR 19) &amp; Logan St</i>	C	B	---	---	---
235	<i>SR 38 &amp; 8th St</i>	C	C	---	---	---
236	8th St & Maple Ave	B	B	---	---	---
237	8th St & Pleasant St Extension	---	---	---	---	Proposed Intersection
238	8th St & Pleasant St Extension	A	A	---	---	---
239	8th St & Christian Ave	B	B	---	---	---

Note: Italicized intersections or either partially or wholly controlled by entities other than the City of Noblesville.



TABLE 4 – 10-YEAR INTERSECTION LEVEL OF SERVICE RESULTS

Int. ID	Intersection	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
		AM	PM	AM	PM	
1	216th St & Hinkle Rd	A	A	---	---	---
2	216th St & Little Chicago Rd	A	B	---	---	---
3	216th St & Mill Creek Rd	A	B	---	---	---
4	216th St & Hague Rd/Springtown Pike	B	B	---	---	---
5	216th St & SR 19	E	F	B	B	Construct 1-1 RAB
6	216th St & SR 37	D	E	---	---	Reasonable Mitigations do not Improve LOS
17	211th St & SR 37	A	A	---	---	---
18	211th St & Riverwood Ave	A	A	---	---	---
19	211th St & Overdorf Rd	A	A	---	---	---
20	James Rd & Hague Rd	B	B	---	---	---
21	Carrigan Rd & Harbor Dr/Oakbay Dr	F	F	A	C	Construct 1-1 RAB
22	211th St & Schulley Rd	D	F	---	---	Reasonable Mitigations do not Improve LOS
23	211th St & Mill Creek Rd	C	D	---	---	---
24	211th St & Little Chicago Rd	C	C	---	---	---
25	Carrigan Rd & Hague Rd	A	C	---	---	---
26	206th St & Hague Rd	F	F	B	D	Construct 1-1 RAB
27	206th St & James Rd	C	E	---	---	Reasonable Mitigations do not Improve LOS
28	206th St & SR 19	B	F	C	D	Add Dual NB & SB LT Lanes, EB & WB LT Lanes, and WB RT Lane
29	206th St & Edith Rd	B	D	---	---	---
30	206th St & Cumberland Rd	B	C	---	---	---
31	206th St & Overdorf Rd	B	C	---	---	---
32	206th St & Riverwood Ave	C	C	---	---	---
33	206th St & SR 37	D	D	---	---	---
42	SR 37 & Promise Rd	F	F	A	D	Construct 1-1 RAB with EB RT Lane and WB LT Lane
43	Riverwood Ave & Overdorf Rd	A	A	---	---	---
44	Cumberland Rd & Riverwood Ave	D	F	---	---	Reasonable Mitigations do not Improve LOS
45	Little Chicago Rd & Buttonwood Dr	D	D	---	---	---

Int. ID	Intersection	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
		AM	PM	AM	PM	
46	<i>SR 38 &amp; Hinkle Rd</i>	F	F	---	---	Future INDOT Planned Traffic Signal; Therefore, No Recommended Improvements
47	196th St & Hague Rd	A	C	---	---	---
48	196th St & James Rd	B	B	---	---	---
49	<i>196th St &amp; SR 19</i>	F	F	A	C	Construct 2-1 RAB with NB LT Lane & SB Thru Lane and Thru/RT Shared Lane
50	Allisonville Rd & Cumberland Rd	A	D	---	---	---
51	<i>Allisonville Rd &amp; SR 37</i>	C	E	A	A	Construct 2-1 RAB
52	196th St & Promise Rd	C	C	---	---	---
53	196th St & Summer Rd	A	A	---	---	---
70	191st St & Summer Rd	A	A	---	---	---
71	191st St & Mallery Rd	A	A	---	---	---
72	191st St & Promise Rd	F	F	B	B	Construct 1-1 RAB
73	<i>191st St &amp; SR 37</i>	F	D	---	---	Future INDOT Planned Improvements; Therefore; No Recommended Improvements
74	191st St & Cumberland Rd	F	F	B	C	Construct 1-1 RAB
75	191st St & 10th St	B	B	---	---	---
76	<i>SR 38 &amp; Mill Creek Rd</i>	F	F	A	B	Construct 2-1 RAB
77	<i>SR 38 &amp; Little Chicago Rd</i>	F	F	D	D	Add NB RT Lane; Add EB & WB Thru Lanes
78	191st St & Moontown Rd	C	D	---	---	---
79	191st St & Little Chicago Rd	A	B	---	---	---
80	<i>SR 38 &amp; Harbour Dr</i>	D	E	B	B	Add EB & WB Thru Lanes
81	<i>SR 38 &amp; Oakmont Dr</i>	F	F	F	F	Future INDOT Planned 1-1 RAB
82	Hague Rd & Lakeview Dr	E	F	A	A	Construct 2-1 RAB
83	<i>Cicero Rd (SR 19) &amp; Field Dr</i>	C	F	---	---	Improvements to Intersection are not Feasible due to Bridge on Field Dr
84	10th St & Field Dr	C	F	C	D	Add NB LT Lane; Add EB LT Lane
85	Field Dr & 16th St	B	F	---	---	Reasonable Mitigations do not Improve LOS
86	Field Dr & Cumberland Rd	A	F	A	C	Add WB RT Lane
87	<i>186th St &amp; SR 37</i>	F	F	---	---	Future INDOT Planned Improvements; Therefore; No Recommended Improvements
88	186th St & Promise Rd	C	F	B	B	Construct 1-1 RAB
102	181st St & Mallery Rd	A	A	---	---	---
103	181st St & Promise Rd	F	F	B	C	Construct 1-1 RAB
104	Cumberland Rd & Monument St	B	B	---	---	---

Int. ID	Intersection	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
		AM	PM	AM	PM	
105	16th St & Monument St	A	A	---	---	---
106	Monument St & 10th St	B	C	---	---	---
107	<i>Logan St &amp; SR 38</i>	C	C	---	---	Future Planned 2-1 RAB
108	<i>SR 38 &amp; River Ave</i>	F	F	C	C	Add 2-1 RAB
109	<i>Hague Rd &amp; SR 38</i>	E	F	C	D	Add NB LT Lane; Add EB & WB Thru Lanes; Add EB LT Lane
110	<i>SR 32 &amp; Moontown Rd</i>	D	E	B	C	Per INDOT Plans, Construct 2-1 RAB
111	<i>SR 32 &amp; Little Chicago Rd</i>	C	F	C	F	Per INDOT Plans, Construct 2-2 RAB
112	<i>SR 32 &amp; Mill Creek Rd</i>	F	F	A	B	Per INDOT Plans, Construct 2-1 RAB
113	<i>SR 32 &amp; Willowview Rd</i>	F	F	C	F	Per INDOT Plans, Add EB & WB Thru Lanes, EB LT Lane, and NB RT Lane
114	<i>SR 32 &amp; Hague Rd/Pleasant St Extension</i>	E	F	---	---	Analyzed as planned; 2-2 RAB
115	<i>SR 32 &amp; Cherry Tree Rd</i>	C	F	---	---	Completion of the Pleasant St Extension Will Reduce Minor Street Volumes. Therefore, no Improvements Recommended.
116	<i>SR 32 &amp; River Ave</i>	A	B	---	---	---
117	<i>SR 32 &amp; SR 38</i>	C	F	B	D	Reconfigure SB Approach as Left & Left/Thru/Right Shared; Add WB RT Lane
118	<i>SR 32 &amp; Lakeview Dr</i>	B	C	---	---	---
119	<i>SR 32 &amp; Cicero Rd (SR 19)</i>	B	E	B	D	Add EB LT Lane
120	<i>SR 32 &amp; 10th St</i>	C	F	B	C	Add EB & WB Thru Lanes
121	Cherry St & 10th St	B	C	---	---	---
122	<i>SR 32 &amp; 16th St</i>	B	D	---	---	---
123	Cherry St & 16th St	A	A	---	---	---
124	<i>Conner St &amp; 19th St</i>	B	C	---	---	---
125	Cherry St & 19th St	A	A	---	---	---
126	<i>Conner St &amp; Cumberland Rd</i>	C	D	---	---	---
127	Cherry St & Cumberland Rd	B	C	---	---	---
129	<i>SR 37 &amp; Cherry St</i>	F	F	---	---	No Recommended Improvements Due to Limited Access
130	<i>SR 32 &amp; Presley Dr (Extension)</i>	B	C	---	---	---
131	<i>SR 32 &amp; Union Chapel Rd</i>	C	F	---	---	Reasonable Mitigations do not Improve LOS
132	<i>SR 32 &amp; Promise Rd</i>	F	F	F	F	Add SB RT Lane

Int. ID	Intersection	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
		AM	PM	AM	PM	
139	<i>SR 38 &amp; De Shane Ave</i>	F	F	---	---	No Analysis Necessary; State Road and Road Excluded from Analysis
140	Pleasant St & Union Chapel Rd	A	A	---	---	---
141	Pleasant St & Presley Dr	A	A	---	---	---
142	Pleasant St & Mercantile Rd	A	A	---	---	---
143	<i>Pleasant St &amp; SR 37</i>	D	F	---	---	INDOT Planned Interchange; No Recommended Improvements
144	Pleasant St & Clover Rd	A	A	---	---	---
145	Pleasant St & 19th St	A	A	---	---	---
146	Pleasant St & 16th St	B	C	---	---	---
147	Pleasant St & 10th St	B	F	---	---	Analyzed as Planned; 2-1 RAB
149	Pleasant St Extension & River Ave	C	B	---	---	Construct Intersection as 1-1 RAB with WB RT Bypass Lane
150	Pleasant St Extension & Cherry Tree Rd	C	C	---	---	Construct Intersection with Cherry Tree Road as a LI/RI/RO approach which will stop for the Pleasant Street Extension
152	171st St & Cherry Tree Rd	A	A	---	---	---
153	171st St & Willowview Rd	A	B	---	---	---
154	171st St & Mill Creek Rd	A	B	---	---	---
155	<i>169th St &amp; Gray Rd</i>	A	C	---	---	---
156	169th St & Hazel Dell Rd/Little Chicago Rd	B	C	---	---	---
157	169th St & Mill Creek Rd	A	B	---	---	---
158	10th St & Greenfield Ave/Christian Ave	F	F	C	D	Reconstruct as a 2-2 RAB with NB & WB RT Lanes
159	Town and Country Blvd & Union Chapel Rd	A	A	---	---	---
160	<i>SR 38 &amp; Boden Rd (Middletown Rd)</i>	F	F	F	F	Future INDOT Planned 1-1 RAB
161	<i>SR 38 &amp; Mystic Rd</i>	F	F	---	---	No Analysis Necessary; State Road and Road Excluded from Analysis
162	<i>SR 38 &amp; Olio Rd</i>	F	F	B	C	Construct 2-1 RAB
163	<i>SR 38 &amp; Durbin Rd</i>	E	F	B	C	Construct 1-1 RAB
166	<i>SR 38 &amp; Prairie Baptist Rd</i>	F	F	B	C	Construct 1-1 RAB with NB LT Lane
167	166th St & Olio Rd	E	F	A	B	Construct 1-1 RAB with NB LT Lane
168	166th St & Boden Rd	F	F	A	B	Construct 2-1 RAB
169	166th St & Summer Rd	B	F	A	A	Construct 1-1 RAB
170	166th St & Union Chapel Rd	B	D	---	---	---
171	166th St & Mercantile Rd/Cumberland Rd	C	F	A	A	Construct 1-1 RAB

Int. ID	Intersection	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
		AM	PM	AM	PM	
172	Greenfield Ave & 16th St	C	F	B	C	Construct 2-1 RAB
173	Greenfield Ave & Herriman Blvd	F	F	C	C	Construct 2-1 RAB
174	161st St & Gray Rd	B	F	A	A	Construct 1-1 RAB
175	161st St & Hazel Dell Rd	B	D	---	---	---
176	161st St & Seminole Rd	A	B	---	---	---
177	161st St & Cherry Tree Rd	A	F	A	A	Construct 1-1 RAB
178	SR 37 & Greenfield Ave	F	F	F	F	Add SB LT Lane
179	SR 38 & Cyntheanne Rd	E	F	A	A	Construct 1-1 RAB
180	SR 28 & Atlantic Rd	C	D	---	---	---
181	Atlantic Rd & 156th St	A	A	---	---	---
182	156th St & Olio Rd	F	F	B	C	Planned 2-1 RAB
183	156th St & Boden Rd	A	E	---	---	Additional Improvements Unlikely at this Location.
184	156th St & Summer Rd	B	C	---	---	---
185	Promise Rd & Greenfield Ave	A	F	B	F	Construct 2-1 RAB with SB RT Lane
186	Greenfield Ave & Union Chapel Rd	F	F	F	F	Reconstruction of the Intersection as a 2-2 RAB
187	Greenfield Ave & Howe Rd	F	F	B	E	Add NB LT Lane
188	Greenfield Ave & Cumberland Rd	F	F	E	F	Add NB & WB LT Lanes; Add EB RT Lane; Add WB Thru Lane
189	160th St & River Ave	C	F	A	B	Construct 1-1 RAB
190	160th St & Cherry Tree Rd	B	C	---	---	---
191	156th St & Hazel Dell Rd	F	F	C	D	Construct 2-1 RAB
192	156th St & Gray Rd	B	C	---	---	---
193	Hazell Dell Rd & Noble Crossing Pkwy	D	C	---	---	---
194	Summer Rd & Greenfield Ave	F	F	A	C	Construct 2-1 RAB
195	146th St & Atlantic Rd	A	A	---	---	---
196	146th St & Cyntheanne Rd	B	B	---	---	---
197	146th St & Prairie Baptist Rd	F	F	B	B	Construct 2-1 RAB with EB RT Lane
198	146th St & Promise Rd	F	F	D	F	Add EB & WB Thru Lanes; Add EB & WB LT Lanes
199	146th St & Cumberland Rd	F	F	D	F	Add EB & WB Thru Lanes
201	146th St & Herriman Blvd	D	F	D	F	Add SB LT Lane
202	146th St & Allisonville Rd	E	F	---	---	Future Grade-Separated Interchange; No Analysis
203	146th St & River Ave	F	F	F	F	Add NB RT Lane; Add SB LT Lane (Developer Improvement)
204	146th St & Cherry Tree Rd	D	F	B	C	Add EB & WB Thru Lanes

Int. ID	Intersection	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
		AM	PM	AM	PM	
205	Hazel Dell Pkwy St & Edenshall Ln	B	C	---	---	---
206	146th St & Hazel Dell Rd	F	F	---	---	Future Grade-Separated Interchange; No Analysis
208	146th St & Howe Rd	F	F	F	F	Add EB LT Lane; Add EB & WB Thru Lanes
209	141st St & Howe Rd	C	F	A	B	Construct 1-1 RAB
210	141st St & Promise Rd	D	F	A	B	Planned 1-1 RAB. Paid with Previous Impact Fee Funds
211	Greenfield Ave & Marilyn Rd	F	F	B	B	Construct 2-1 RAB
212	146th St & Marilyn Rd/Campus Pkwy	F	F	C	D	Add EB & WB Thru Lanes
213	146th St/Greenfield Ave & Boden Rd	F	F	E	F	Add EB & WB Thru Lanes from Segment; Add Additional NB & WB LT Lanes
214	146th Street & Bergen Blvd	F	F	C	C	Add Traffic Signal
215	146th Street & Olio Rd	F	F	---	---	Further Improvements unlikely at this location
216	Campus Pkwy & Boden Rd	F	F	F	F	Add NB, EB, & WB LT Lanes; Add SB Thru Lane; Add EB & WB Thru Lanes
217	Campus Pkwy & Corporate Pkwy	D	F	D	F	Add NB LT Lane; Add NB & SB RT Lanes; Add EB RT Lane
218	141st & Olio Rd	F	F	E	F	Add SB & EB RT Lanes
219	Tegler Dr & Bergen Blvd	D	F	F	F	Add Dual NB RT Lanes; Add Dual WB LT Lanes
220	Campus Pkwy & Bergen Blvd	F	F	F	F	Add NB, SB, & WB RT Lanes; Add SB, EB, & WB LT Lanes; Add EB Thru Lane
221	Campus Pkwy & Town Center Blvd	F	F	F	E	Add SB & EB LT Lanes; Add SB & EB RT Lane
222	141st St & Marilyn Rd	A	B	---	---	---
223	141st St (Extension) & Brooks School Rd	C	F	A	D	Convert to 2-1 RAB with additional NB & SB Thru Lanes; Add WB RT Lane
224	141st St (Harrell Pkwy) & Corporate Pkwy	A	A	---	---	---
226	136th St & Corporate Pkwy	A	B	---	---	---
227	136th St & Brooks School Rd	A	C	---	---	---
228	156th St & Cyntheanne Rd	B	B	---	---	---
229	156th St & Prairie Baptist Rd	F	F	A	A	Construct 2-1 RAB; NB Lane from Segment

Int. ID	Intersection	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
		AM	PM	AM	PM	
231	<i>SR 32 &amp; Oakmont Dr</i>	F	F	D	F	Per INDOT Plans, Add EB & WB Thru Lanes and EB LT Lane
232	Logan St & River Ave	A	B	---	---	---
233	Logan St & Lakeview Dr	B	C	---	---	---
234	<i>Cicero Rd (SR 19) &amp; Logan St</i>	C	E	C	D	Add EB LT Lane
235	<i>SR 38 &amp; 8th St</i>	D	F	C	D	Add NB LT Lane; Add EB & WB Thru Lanes
236	8th St & Maple Ave	C	D	---	---	---
237	8th St & Pleasant St Extension	B	C	---	---	---
238	8th St & Pleasant St Extension	B	F	---	---	Analyzed as Designed
239	8th St & Christian Ave	F	F	C	C	Construct 1-1 RAB
240	186th St & Presley Dr Extension	A	B	---	---	Construction of the NB approach with a single lane. Presley Dr will stop for 186th St.
241	Prairie Baptist Rd & 141st St (Extension)	A	A	---	---	Construction of the WB approach with a single lane. Prairie Baptist Rd will stop for 141st St.
242	Cyntheanne Rd & 141st St Extension	B	B	---	---	Construction of the EB & WB Approaches with a single lane. 141st St will stop for Cyntheanne Rd.

Note: Italicized intersections or either partially or wholly controlled by entities other than the City of Noblesville.

## *SUMMARY TABLES FOR ROADWAY SEGMENTS*

A tabular summary of each roadway segment analysis is shown in the following pages. The existing level of service (LOS) results are based on the existing geometric conditions and existing AM peak hour and PM peak hour traffic volumes along each roadway segment. The existing peak hour traffic volumes as well as the existing average daily traffic volumes (ADT) for each roadway segment can be found on the “Roadway Segment Summary” tables in **Exhibit B**.

Level of service “E” has been selected for this study by the City of Noblesville as the minimum acceptable baseline LOS for roadway segments. If necessary, mitigated conditions for the existing traffic volumes have been recommended for roadway segments that currently operate below the minimum acceptable baseline LOS. The existing mitigated level of service and recommended existing mitigations to meet or exceed the baseline level of service can be found in **Table 5**.

The projected 10-year traffic volumes for the AM peak hour and PM peak hour have been projected for each roadway segment and can be found on the “Roadway Segment Summary” tables in **Exhibit B**. The 10-year level of service results, 10-year mitigated level of service, and recommended 10-year mitigations to meet or exceed the baseline level of service can be found in **Table 6**.



**TABLE 5 – EXISTING ROADWAY SEGMENT LEVEL OF SERVICE RESULTS**

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
1	216th St	Hinkle Rd - Little Chicago Rd	A	B	---	---	---
2	216th St	Little Chicago Rd - Mill Creek Rd	A	A	---	---	---
3	Schuller Rd	221st St - 211th St	A	A	---	---	---
4	Hague Rd	North of 216th St	B	C	---	---	---
5	216th St	Hague Rd - SR 19	A	B	---	---	---
6	Cumberland Rd	North of 206th St	A	B	---	---	---
7	Overdorf Rd	North of 211th St	A	A	---	---	---
8	Riverwood Ave	North of 211th St	B	B	---	---	---
9	216th St	SR 37 - Creek Rd	A	A	---	---	---
18	Hague Rd	211th St - 216th St	A	B	---	---	---
19	Mill Creek Rd	211th S - 216th St	A	A	---	---	---
20	Little Chicago Rd	211th St - 216th St	B	B	---	---	---
21	Hinkle Rd	216th St - SR 38	A	A	---	---	---
22	211th St	Mill Creek Rd - Schulley Rd	C	C	---	---	---
23	Carrigan Rd	Harbor Dr - Hague Rd	C	D	---	---	---
24	Hague Rd	Carrigan Rd - 211th St (James Rd)	B	C	---	---	---
25	211th St	Hague Rd - James Rd	A	A	---	---	---
26	Overdorf Rd	211th St - 206th St	A	A	---	---	---
27	211th St	Overdorf Rd - Riverwood Ave	A	A	---	---	---
28	211th St	SR 37 - Creek Rd	A	A	---	---	---
42	206th St	Creek Rd - SR 37	A	B	---	---	---
43	Riverwood Ave	206th St - 211th St	A	A	---	---	---
44	206th St	Riverwood Ave - Overdorf Rd	B	B	---	---	---
45	206th St	Overdorf Rd - Cumberland Rd	B	B	---	---	---
46	206th St	Cumberland Rd - Edith Ave	C	C	---	---	---
47	206th St	Edith Ave - Cicero Rd (SR 19)	B	C	---	---	---
48	206th St	Cicero Rd (SR 19) - James Rd	B	C	---	---	---
49	206th St	James Rd - Hague Rd	B	C	---	---	---
50	Hague Rd	Carrigan Rd - 206th St	C	D	---	---	---

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
51	Little Chicago Rd	Buttonwood Rd - 211th St	D	D	---	---	---
52	Hague Rd	206th St - 196th St	C	C	---	---	---
53	James Rd	196th St - 206th St	A	A	---	---	---
54	<i>Cicero Rd (SR 19)</i>	206th St - 196th St	C	C	---	---	---
55	Edith Ave	206th St - Riverwood Ave	A	A	---	---	---
56	Riverwood Ave	Edith Ave - Cumberland Rd	A	A	---	---	---
57	Riverwood Ave	Cumberland Rd - Overdorf Rd	A	A	---	---	---
58	Overdorf Rd	206th St - Riverwood Ave	A	A	---	---	---
59	Riverwood Ave	Overdorf Rd - 206th St	A	A	---	---	---
68	Promise Rd	SR 37 - 196th St	B	B	---	---	---
69	Moontown Rd	191st St - SR 38	A	A	---	---	---
70	196th St	Hague Rd - James Rd	C	C	---	---	---
71	196th St	James Rd - SR 19	C	C	---	---	---
72	Allisonville Rd	Cumberland Rd - 10th St	B	B	---	---	---
73	Allisonville Rd	Cumberland Rd - SR 37	B	B	---	---	---
74	196th St	Promise Rd - Summer Rd	A	A	---	---	---
89	Summer Rd	196th St - 191st St	A	A	---	---	---
90	Promise Rd	196th St - 191st St	B	B	---	---	---
91	Cumberland Rd	Allisonville Rd - 191st St	B	C	---	---	---
92	<i>Cicero Rd (SR 19)</i>	196th St - Field Dr	D	D	---	---	---
93a	Hague Rd	196th St - Lakeview Dr	C	D	---	---	---
93b	Hague Rd	196th St - Lakeview Dr	A	B	---	---	---
94	191st St	Little Chicago Rd - Moontown Rd	B	C	---	---	---
95	Little Chicago Rd	191st St - SR 32	A	A	---	---	---
96	Mill Creek Rd	SR 38 - SR 32	A	A	---	---	---
97	Hague Rd	Lakeview Dr - SR 38	A	B	---	---	---
98	10th St	Field Dr - 191st St	D	D	---	---	---
99	191st St	Cumberland Rd - 10th St	B	C	---	---	---

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
100	191st St	Cumberland Rd - SR 37	C	C	---	---	---
101	191st St	SR 37 - Promise Rd	C	C	---	---	---
102	191st St	Promise Rd - Mallery Rd	B	B	---	---	---
103	191st St	Mallery Rd - Summer Rd	B	B	---	---	---
115	Mallery Rd	191st St - 181st St	A	A	---	---	---
116	Promise Rd	191st St - 186th St	C	C	---	---	---
117	186th St	Promise Rd - SR 37	A	A	---	---	---
118	186th St	SR 37 - Cumberland Rd	C	D	---	---	---
119	Cumberland Rd	191st St - 186th St	B	C	---	---	---
120	Field Dr	Cumberland Rd - 16th St	C	D	---	---	---
121	Field Dr	16th St - 10th St	C	D	---	---	---
122	Field Dr	10th St - Cicero Rd (SR 19)	D	E	---	---	---
123	Moontown Rd	SR 32 - 191st St	B	B	---	---	---
124	Hague Rd	SR 32 - SR 38	A	A	---	---	---
125	River Ave	SR 32 - SR 38	C	C	---	---	---
126	N Lakeview Dr	Lakeview Dr - SR 32	C	C	---	---	---
127	10th St	Monument St - Field Dr	C	D	---	---	---
128	16th St	Field Dr - Monument St	B	B	---	---	---
129	Cumberland Rd	Monument St - Field Dr	C	C	---	---	---
130	Promise Rd	181st St - 186th St	C	C	---	---	---
144	181st St	Deshane Ave - Mallery Rd	A	A	---	---	---
145	181st St	Mallery Rd - Promise Rd	A	A	---	---	---
146	Monument St	Cumberland Rd - 16th St	C	B	---	---	---
147	<i>Cicero Rd (SR 19)</i>	Field Dr - Logan St	D	D	---	---	---
148	10th St	Monument St - Logan St	C	D	---	---	---
149	16th St	Monument St - Logan St	B	C	---	---	---
150	Cumberland Rd	Monument St - Conner St	C	D	---	---	---
151	Promise Rd	SR 32 - 181st St	C	C	---	---	---

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
162	Pleasant St	Presley Dr - Union Chapel Rd	A	A	---	---	---
163	Presley Dr	SR 32 - Pleasant St	B	B	---	---	---
164	Pleasant St	19th St - Clover Rd	C	D	---	---	---
165	Cherry St	16th St - 19th St	A	A	---	---	---
166	Cherry St	10th St - 16th St	A	A	---	---	---
167	Pleasant St	16th St - 10th St	C	D	---	---	---
168a	Pleasant St	8th St - 10th St	B	C	---	---	---
168b	Pleasant St	2nd St - 8th St	A	B	---	---	---
169	Cherry Tree Rd	SR 32 - 171st St	A	B	---	---	---
170	Willow view Rd	171st St - SR 32	A	A	---	---	---
171	Mill Creek Rd	SR 32 - 171st St	A	A	---	---	---
173	169th St	Hazel Dell Rd - Gray Rd	B	B	---	---	---
174	169th St	Hazel Dell Rd - Seminole Rd	A	A	---	---	---
175	171st St	Seminole Rd - Willow view Rd	B	B	---	---	---
176	171st St	Willow view Rd - Cherry tree Rd	B	B	---	---	---
177	Allisonville Rd	Pleasant St - Christian Rd	C	D	---	---	---
178	16th St	Greenfield Ave - Pleasant St	A	B	---	---	---
179	Mercantile Rd	Town and Country Blvd - Pleasant St	C	D	---	---	---
185	166th St	SR 38 - Olio Rd	A	A	---	---	---
186	Olio Rd	SR 38 - 166th St	B	B	---	---	---
187	166th St	Boden Rd - Olio Rd	A	A	---	---	---
188	Boden Rd	166th St - SR 38	B	B	---	---	---
189	166th St	Summer Rd - Boden Rd	A	B	---	---	---
190	166th St	Union Chapel Rd - Summer Rd	B	B	---	---	---
191	166th St	Union Chapel Rd - Mercantile Rd	B	B	---	---	---
192	Town and Country Blvd	Union Chapel Rd & Mercantile Rd	B	C	---	---	---
193	Greenfield Ave	16th St - Allisonville Rd	D	E	---	---	---
194	Cherry Tree Rd	161st St - 171st St	B	B	---	---	---
196	161st St	Gray Rd - Hazel Dell Rd	B	C	---	---	---

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
197	161st St	Hazel Dell Rd - Seminole Rd	B	B	---	---	---
198	161st St	Seminole Rd - Cherry Tree Rd	A	C	---	---	---
199a	River Ave	160th Street - SR 32	B	B	---	---	---
199b	River Ave	160th Street - SR 32	C	C	---	---	---
199c	River Ave	160th Street - SR 32	C	C	---	---	---
200	Allisonville Rd	146th St - Christian St	C	C	---	---	---
201	Greenfield Ave	16th St - Herriman Blvd	D	E	---	---	---
202	Herriman Blvd	Stony Creek Way - Greenfield Ave	B	C	---	---	---
203	Greenfield Ave	SR 37 & Herriman Blvd	D	E	---	---	---
204	Cumberland Rd	166th St - Greenfield Ave	B	C	---	---	---
205	Union Chapel Rd	166th St - Greenfield Ave	C	D	---	---	---
206	Summer Rd	166th St - 156th St	B	B	---	---	---
207	Boden Rd	166th St - 156th St	A	C	---	---	---
208	Olio Rd	166th St - 156th St	B	B	---	---	---
209	Prairie Baptist Rd	156th St - SR 38	A	A	---	---	---
210	Cyntheanne Rd	SR 38 - 156th St	A	A	---	---	---
211	Atlantic Rd	SR 38 - 156th St	A	A	---	---	---
212	156th St	Cyntheanne Rd - Atlantic Rd	A	A	---	---	---
213	156th St	Prairie Baptist Rd - Cyntheanne Rd	A	A	---	---	---
214	156th St	Prairie Baptist Rd - Olio Rd	A	A	---	---	---
215	156th St	Boden Rd - Olio Rd	A	A	---	---	---
216	156th St	Boden Rd & Summer Rd	B	B	---	---	---
217	Summer Rd	156th St - Greenfield Ave	B	B	---	---	---
218	Greenfield Ave	Summer Rd - 156th St	C	D	---	---	---
219	156th St	Summer Rd - Greenfield Ave	A	B	---	---	---
220	Greenfield Ave	156th St - Union Chapel Rd	C	D	---	---	---

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
221	Greenfield Ave	Union Chapel Rd - Howe Rd	D	E	---	---	---
222	Greenfield Ave	Cumberland Rd - Howe Rd	D	E	---	---	---
223	Greenfield Ave	SR 37 - Cumberland Rd	B	B	---	---	---
224	160th St	River Ave - Cherry Tree Rd	A	B	---	---	---
225	Cherry Tree Rd	161st St - 160th St	B	C	---	---	---
227	156th St	Gray Rd - Hazal Dell Rd	A	A	---	---	---
228a	Cherry Tree Rd	160th St - 146th St	A	A	---	---	---
228b	Cherry Tree Rd	160th St - 146th St	A	A	---	---	---
229	River Ave	160th St - 146th St	B	C	---	---	---
230a	Cumberland Rd	146th Rd - Greenfield Ave	A	B	---	---	---
230b	Cumberland Rd	146th Rd - Greenfield Ave	C	D	---	---	---
230c	Cumberland Rd	146th Rd - Greenfield Ave	A	A	---	---	---
231a	Promise Rd/Union Chapel Rd	Greenfield Ave - 146th St	C	D	---	---	---
231b	Promise Rd/Union Chapel Rd	Greenfield Ave - 146th St	C	C	---	---	---
232	Greenfield Ave	Marilyn Rd - Summer Rd	C	D	---	---	---
233	Olio Rd	146th St - 156th St	B	C	---	---	---
234	Cyntheanne Rd	156th St - 146th St	A	A	---	---	---
235	Atlantic Rd	156th St - 146th St	A	A	---	---	---
236a	Howe Rd	146th St - Greenfield Ave	C	C	---	---	---
236b	Howe Rd	146th St - Greenfield Ave	C	C	---	---	---
237	North Pointe Blvd	146th St - Cumberland Rd	B	B	---	---	---
238	Herriman Blvd	Stony Creek Way - 146th St	C	C	---	---	---
249	Marilyn Rd	146th St - Greenfield Ave	B	C	---	---	---
251	Greenfield Ave	Marilyn Rd - Boden Rd	C	D	---	---	---
252	Boden Rd	Greenfield Ave - Campus Pkwy	B	B	---	---	---

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
253	146th St	Boden Rd - Bergen Blvd	C	C	---	---	---
254	146th St	Bergen Blvd - Olio Rd	B	C	---	---	---
255	146th St	Olio Rd - Prairie Baptist Rd	A	B	---	---	---
256	146th St	Prairie Baptist Rd - Cyntheanne Rd	A	A	---	---	---
257	146th St	Cyntheanne Rd - Atlantic Rd	A	A	---	---	---
258	Cyntheanne Rd	146th St - 136th St	A	A	---	---	---
259a	141st St	Olio Rd - Prairie Baptist Rd	A	A	---	---	---
259b	141st St	Olio Rd - Prairie Baptist Rd	A	B	---	---	---
260	Olio Rd	146th St - 141st St	A	A	---	---	---
261	141st St	Bergen Blvd - Olio Rd	A	A	---	---	---
263a	Tegler Dr	Corporate Pkwy - Bergen Blvd	B	B	---	---	---
263b	Tegler Dr	Corporate Pkwy - Bergen Blvd	A	A	---	---	---
266	Marilyn Rd	Campus Pkwy - 141st St	B	C	---	---	---
268	Promise Rd	141st St - 146th St	B	C	---	---	---
269	Howe Rd	146th St - 141st St	C	C	---	---	---
270	141st St	Howe Rd - Promise Rd	C	C	---	---	---
271	141st St	Marilyn Rd - Promise Rd	B	C	---	---	---
272	Marilyn Rd	136th St - 141st St	B	C	---	---	---
273	Brooks School Rd	136th St - Harrell Pkwy	C	D	---	---	---
274	Corporate Pkwy	136th St - Harrell Pkwy	A	B	---	---	---
275	136th St	Marilyn Rd - Brooks School Rd	A	B	---	---	---
276	136th St	Brooks School Rd - Corporate Pkwy	B	C	---	---	---
277	136th St	Corporate Pkwy - Howard Dr	B	C	---	---	---
279	Seminole Rd/Mill Creek Rd	161st St - 169th St	A	A	---	---	---

Seg. ID	Roadway	Location	Existing LOS		Existing Mitigated LOS		Existing Mitigations/Notes
			AM	PM	AM	PM	
280	Prairie Baptist Rd	146th St - 156th St	A	A	---	---	---
281	Union Chapel Rd	Town and Country Blvd - Pleasant St	A	A	---	---	---
282a	8th St	Walnut St - Cherry St	D	E	---	---	---
282b	8th St	Walnut St - Cherry St	D	E	---	---	---
283	8th St	Christian St - Walnut St	D	D	---	---	---
284	Cumberland Rd	Allisonville Rd - Riverwood Ave	B	C	---	---	---
285	Cumberland Rd	Riverwood Ave - 206th St	C	C	---	---	---

Note: Italicized roadway segments are not controlled by the City of Noblesville.



**TABLE 6 – 10-YEAR ROADWAY SEGMENT LEVEL OF SERVICE RESULTS**

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
1	216th St	Hinkle Rd - Little Chicago Rd	A	B	---	---	---
2	216th St	Little Chicago Rd - Mill Creek Rd	A	B	---	---	---
3	Schuller Rd	221st St - 211th St	A	B	---	---	---
4	Hague Rd	North of 216th St	B	C	---	---	---
5	216th St	Hague Rd - SR 19	B	B	---	---	---
6	Cumberland Rd	North of 206th St	B	B	---	---	---
7	Overdorf Rd	North of 211th St	A	A	---	---	---
8	Riverwood Ave	North of 211th St	B	A	---	---	---
9	216th St	SR 37 - Creek Rd	A	A	---	---	---
18	Hague Rd	211th St - 216th St	B	C	---	---	---
19	Mill Creek Rd	211th S - 216th St	A	B	---	---	---
20	Little Chicago Rd	211th St - 216th St	B	B	---	---	---
21	Hinkle Rd	216th St - SR 38	A	A	---	---	---
22	211th St	Mill Creek Rd - Schulley Rd	C	D	---	---	---
23	Carrigan Rd	Harbor Dr - Hague Rd	D	E	---	---	---
24	Hague Rd	Carrigan Rd - 211th St (James Rd)	B	C	---	---	---
25	211th St	Hague Rd - James Rd	A	A	---	---	---
26	Overdorf Rd	211th St - 206th St	A	A	---	---	---
27	211th St	Overdorf Rd - Riverwood Ave	A	A	---	---	---
28	211th St	SR 37 - Creek Rd	A	A	---	---	---
42	206th St	Creek Rd - SR 37	B	B	---	---	---
43	Riverwood Ave	206th St - 211th St	A	A	---	---	---
44	206th St	Riverwood Ave - Overdorf Rd	B	C	---	---	---
45	206th St	Overdorf Rd - Cumberland Rd	B	B	---	---	---
46	206th St	Cumberland Rd - Edith Ave	C	E	---	---	---
47	206th St	Edith Ave - Cicero Rd (SR 19)	C	D	---	---	---
48	206th St	Cicero Rd (SR 19) - James Rd	C	D	---	---	---
49	206th St	James Rd - Hague Rd	B	D	---	---	---
50	Hague Rd	Carrigan Rd - 206th St	D	E	---	---	---

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
51	Little Chicago Rd	Buttonwood Rd - 211th St	D	D	---	---	---
52	Hague Rd	206th St - 196th St	C	D	---	---	---
53	James Rd	196th St - 206th St	A	A	---	---	---
54	<i>Cicero Rd (SR 19)</i>	206th St - 196th St	D	D	---	---	---
55	Edith Ave	206th St - Riverwood Ave	A	A	---	---	---
56	Riverwood Ave	Edith Ave - Cumberland Rd	A	A	---	---	---
57	Riverwood Ave	Cumberland Rd - Overdorf Rd	A	A	---	---	---
58	Overdorf Rd	206th St - Riverwood Ave	A	A	---	---	---
59	Riverwood Ave	Overdorf Rd - 206th St	A	A	---	---	---
68	Promise Rd	SR 37 - 196th St	C	C	---	---	---
69	Moontown Rd	191st St - SR 38	A	B	---	---	---
70	196th St	Hague Rd - James Rd	C	C	---	---	---
71	196th St	James Rd - SR 19	C	C	---	---	---
72	Allisonville Rd	Cumberland Rd - 10th St	B	B	---	---	---
73	Allisonville Rd	Cumberland Rd - SR 37	B	B	---	---	---
74	196th St	Promise Rd - Summer Rd	A	A	---	---	---
89	Summer Rd	196th St - 191st St	A	A	---	---	---
90	Promise Rd	196th St - 191st St	C	C	---	---	---
91	Cumberland Rd	Allisonville Rd - 191st St	D	E	---	---	---
92	<i>Cicero Rd (SR 19)</i>	196th St - Field Dr	F	F	C	D	Widen from 2 to 4 lanes
93a	Hague Rd	196th St - Lakeview Dr	D	E	---	---	---
93b	Hague Rd	196th St - Lakeview Dr	B	B	---	---	---
94	191st St	Little Chicago Rd - Moontown Rd	C	C	---	---	---
95	Little Chicago Rd	191st St - SR 32	A	B	---	---	---
96	Mill Creek Rd	SR 38 - SR 32	A	B	---	---	---
97	Hague Rd	Lakeview Dr - SR 38	B	B	---	---	---
98	10th St	Field Dr - 191st St	D	D	---	---	---
99	191st St	Cumberland Rd - 10th St	B	C	---	---	---

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
100	191st St	Cumberland Rd - SR 37	D	E	---	---	---
101	191st St	SR 37 - Promise Rd	C	C	---	---	---
102	191st St	Promise Rd - Mallery Rd	B	B	---	---	---
103	191st St	Mallery Rd - Summer Rd	B	B	---	---	---
115	Mallery Rd	191st St - 181st St	A	A	---	---	---
116	Promise Rd	191st St - 186th St	D	D	---	---	---
117	186th St	Promise Rd - SR 37	B	C	---	---	---
118	186th St	SR 37 - Cumberland Rd	D	E	---	---	---
119	Cumberland Rd	191st St - 186th St	B	C	---	---	---
120	Field Dr	Cumberland Rd - 16th St	D	E	---	---	---
121	Field Dr	16th St - 10th St	D	E	---	---	---
122	Field Dr	10th St - Cicero Rd (SR 19)	E	E	---	---	---
123	Moontown Rd	SR 32 - 191st St	B	C	---	---	---
124	Hague Rd	SR 32 - SR 38	B	B	---	---	---
125	River Ave	SR 32 - SR 38	C	C	---	---	---
126	N Lakeview Dr	Lakeview Dr - SR 32	C	D	---	---	---
127	10th St	Monument St - Field Dr	C	D	---	---	---
128	16th St	Field Dr - Monument St	B	B	---	---	---
129	Cumberland Rd	Monument St - Field Dr	C	C	---	---	---
130	Promise Rd	181st St - 186th St	D	E	---	---	---
144	181st St	Deshane Ave - Mallery Rd	A	A	---	---	---
145	181st St	Mallery Rd - Promise Rd	A	A	---	---	---
146	Monument St	Cumberland Rd - 16th St	C	B	---	---	---
147	<i>Cicero Rd (SR 19)</i>	Field Dr - Logan St	D	E	---	---	---
148	10th St	Monument St - Logan St	C	D	---	---	---
149	16th St	Monument St - Logan St	B	C	---	---	---
150	Cumberland Rd	Monument St - Conner St	C	D	---	---	---
151	Promise Rd	SR 32 - 181st St	D	E	---	---	---

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
162	Pleasant St	Presley Dr - Union Chapel Rd	A	A	---	---	---
163	Presley Dr	SR 32 - Pleasant St	B	B	---	---	---
164	Pleasant St	19th St - Clover Rd	C	D	---	---	---
165	Cherry St	16th St - 19th St	A	A	---	---	---
166	Cherry St	10th St - 16th St	A	A	---	---	---
167	Pleasant St	16th St - 10th St	C	D	---	---	---
168a	Pleasant St	8th St - 10th St	E	E	---	---	---
168b	Pleasant St	2nd St - 8th St	D	E	---	---	---
169	Cherry Tree Rd	SR 32 - 171st St	A	B	---	---	---
170	Willow view Rd	171st St - SR 32	A	A	---	---	---
171	Mill Creek Rd	SR 32 - 171st St	A	B	---	---	---
173	169th St	Hazel Dell Rd - Gray Rd	B	C	---	---	---
174	169th St	Hazel Dell Rd - Seminole Rd	A	B	---	---	---
175	171st St	Seminole Rd - Willow view Rd	A	B	---	---	---
176	171st St	Willow view Rd - Cherry tree Rd	B	B	---	---	---
177	Allisonville Rd	Pleasant St - Christian Rd	E	E	---	---	---
178	16th St	Greenfield Ave - Pleasant St	A	B	---	---	---
179	Mercantile Rd	Town and Country Blvd - Pleasant St	C	D	---	---	---
185	166th St	SR 38 - Olio Rd	A	A	---	---	---
186	Olio Rd	SR 38 - 166th St	C	C	---	---	---
187	166th St	Boden Rd - Olio Rd	B	C	---	---	---
188	Boden Rd	166th St - SR 38	C	D	---	---	---
189	166th St	Summer Rd - Boden Rd	B	C	---	---	---
190	166th St	Union Chapel Rd - Summer Rd	C	D	---	---	---
191	166th St	Union Chapel Rd - Mercantile Rd	C	C	---	---	---
192	Town and Country Blvd	Union Chapel Rd & Mercantile Rd	B	C	---	---	---
193	Greenfield Ave	16th St - Allisonville Rd	F	F	D	D	Widen from 2 to 4 lanes*
194	Cherry Tree Rd	161st St - 171st St	B	B	---	---	---
196	161st St	Gray Rd - Hazel Dell Rd	C	C	---	---	---

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
197	161st St	Hazel Dell Rd - Seminole Rd	B	C	---	---	---
198	161st St	Seminole Rd - Cherry Tree Rd	B	D	---	---	---
199a	River Ave	160th Street - SR 32	B	B	---	---	---
199b	River Ave	160th Street - SR 32	C	C	---	---	---
199c	River Ave	160th Street - SR 32	C	C	---	---	---
200	Allisonville Rd	146th St - Christian St	C	C	---	---	---
201	Greenfield Ave	16th St - Herriman Blvd	F	F	D	D	Widen from 2 to 4 lanes*
202	Herriman Blvd	Stony Creek Way - Greenfield Ave	B	C	---	---	---
203	Greenfield Ave	SR 37 & Herriman Blvd	F	F	D	D	Widen from 2 to 4 lanes*
204	Cumberland Rd	166th St - Greenfield Ave	D	D	---	---	---
205	Union Chapel Rd	166th St - Greenfield Ave	D	E	---	---	---
206	Summer Rd	166th St - 156th St	B	B	---	---	---
207	Boden Rd	166th St - 156th St	C	E	---	---	---
208	Olio Rd	166th St - 156th St	F	F	B	C	Widen from 2 to 4 lanes
209	Prairie Baptist Rd	156th St - SR 38	D	E	---	---	---
210	Cyntheanne Rd	SR 38 - 156th St	A	A	---	---	---
211	Atlantic Rd	SR 38 - 156th St	A	A	---	---	---
212	156th St	Cyntheanne Rd - Atlantic Rd	A	A	---	---	---
213	156th St	Prairie Baptist Rd - Cyntheanne Rd	A	A	---	---	---
214	156th St	Prairie Baptist Rd - Olio Rd	A	B	---	---	---
215	156th St	Boden Rd - Olio Rd	C	D	---	---	---
216	156th St	Boden Rd & Summer Rd	C	C	---	---	---
217	Summer Rd	156th St - Greenfield Ave	B	B	---	---	---
218	Greenfield Ave	Summer Rd - 156th St	F	F	C	D	Widen from 2 to 4 lanes
219	156th St	Summer Rd - Greenfield Ave	B	C	---	---	---
220	Greenfield Ave	156th St - Union Chapel Rd	F	F	C	E	Widen from 2 to 4 lanes

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
221	Greenfield Ave	Union Chapel Rd - Howe Rd	F	F	C	E	Widen from 2 to 4 lanes
222	Greenfield Ave	Cumberland Rd - Howe Rd	F	F	C	E	Widen from 2 to 4 lanes
223	Greenfield Ave	SR 37 - Cumberland Rd	E	F	C	D	Widen from 2 to 4 lanes
224	160th St	River Ave - Cherry Tree Rd	B	C	---	---	---
225	Cherry Tree Rd	161st St - 160th St	B	D	---	---	---
227	156th St	Gray Rd - Hazal Dell Rd	C	C	---	---	---
228a	Cherry Tree Rd	160th St - 146th St	A	B	---	---	---
228b	Cherry Tree Rd	160th St - 146th St	A	B	---	---	---
229	River Ave	160th St - 146th St	C	D	---	---	---
230a	Cumberland Rd	146th Rd - Greenfield Ave	A	B	---	---	---
230b	Cumberland Rd	146th Rd - Greenfield Ave	E	E	---	---	---
230c	Cumberland Rd	146th Rd - Greenfield Ave	C	D	---	---	---
231a	Promise Rd/Union Chapel Rd	Greenfield Ave - 146th St	D	E	---	---	---
231b	Promise Rd/Union Chapel Rd	Greenfield Ave - 146th St	D	E	---	---	---
232	Greenfield Ave	Marilyn Rd - Summer Rd	F	F	C	E	Widen from 2 to 4 lanes
233	Olio Rd	146th St - 156th St	F	F	C	C	Widen from 4 to 6 lanes
234	Cyntheanne Rd	156th St - 146th St	B	B	---	---	---
235	Atlantic Rd	156th St - 146th St	A	A	---	---	---
236a	Howe Rd	146th St - Greenfield Ave	D	D	---	---	---
236b	Howe Rd	146th St - Greenfield Ave	C	D	---	---	---
237	North Pointe Blvd	146th St - Cumberland Rd	D	E	---	---	---
238	Herriman Blvd	Stony Creek Way - 146th St	C	C	---	---	---
249	Marilyn Rd	146th St - Greenfield Ave	C	C	---	---	---
251	Greenfield Ave	Marilyn Rd - Boden Rd	F	F	C	E	Widen from 2 to 4 lanes

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
252	Boden Rd	Greenfield Ave - Campus Pkwy	D	F	C	D	Widen from 4 to 6 lanes
253	146th St	Boden Rd - Bergen Blvd	F	F	C	D	Widen from 2 to 4 lanes
254	146th St	Bergen Blvd - Olio Rd	F	F	C	D	Widen from 2 to 4 lanes
255	146th St	Olio Rd - Prairie Baptist Rd	F	F	D	D	Widen from 2 to 4 lanes
256	146th St	Prairie Baptist Rd - Cyntheanne Rd	A	A	---	---	---
257	146th St	Cyntheanne Rd - Atlantic Rd	A	A	---	---	---
258	Cyntheanne Rd	146th St - 136th St	A	A	---	---	---
259a	141st St	Olio Rd - Prairie Baptist Rd	F	F	C	D	Widen from 2 to 4 lanes**
259b	141st St	Olio Rd - Prairie Baptist Rd	F	F	C	C	Widen from 2 to 4 lanes**
260	Olio Rd	146th St - 141st St	B	B	---	---	---
261	141st St	Bergen Blvd - Olio Rd	C	C	---	---	---
263a	Tegler Dr	Corporate Pkwy - Bergen Blvd	C	D	---	---	---
263b	Tegler Dr	Corporate Pkwy - Bergen Blvd	A	B	---	---	---
266	Marilyn Rd	Campus Pkwy - 141st St	C	D	---	---	---
268	Promise Rd	141st St - 146th St	C	D	---	---	---
269	Howe Rd	146th St - 141st St	C	C	---	---	---
270	141st St	Howe Rd - Promise Rd	C	C	---	---	---
271	141st St	Marilyn Rd - Promise Rd	D	E	---	---	---
272	Marilyn Rd	136th St - 141st St	C	D	---	---	---
273	Brooks School Rd	136th St - Harrell Pkwy	D	E	---	---	---
274	Corporate Pkwy	136th St - Harrell Pkwy	A	B	---	---	---
275	136th St	Marilyn Rd - Brooks School Rd	B	B	---	---	---
276	136th St	Brooks School Rd - Corporate Pkwy	B	C	---	---	---
277	136th St	Corporate Pkwy - Howard Dr	B	C	---	---	---

Seg. ID	Roadway	Segment	10-Year LOS		10-Year Mitigated LOS		10-Year Mitigations/Notes
			AM	PM	AM	PM	
279	Seminole Rd/Mill Creek Rd	161st St - 169th St	A	B	---	---	---
280	Prairie Baptist Rd	146th St - 156th St	F	F	C	C	Widen from 2 to 4 lanes
281	Union Chapel Rd	Town and Country Blvd - Pleasant St	A	B	---	---	---
282a	8th St	Walnut St - Cherry St	E	E	---	---	---
282b	8th St	Walnut St - Cherry St	E	E	---	---	---
283	8th St	Christian St - Walnut St	F	F	D	D	Widen from 2 to 4 lanes
284	Cumberland Rd	Allisonville Rd - Riverwood Ave	C	E	---	---	---
285	Cumberland Rd	Riverwood Ave - 206th St	C	C	---	---	---
286	141st St Extension	Prairie Baptist Road - Cyntheanne Road	A	A	---	---	---
287	Presley Drive Extension	Phillip Dr - 186th St	A	A	---	---	---
288	141st Street (Extension)	Marilyn Rd - Brooks School Rd	A	B	---	---	---
289	Pleasant Street	SR 32/Hague Rd - 19 <sup>th</sup> St	D	E	---	---	---

\*A previous grant study has shown that there is no need to widen these roadway segments. Therefore, no cost is applicable.

\*\*Masterplan development documents have shown the roadway will remain as two lanes. Therefore, no cost is applicable.

Note: Italicized roadway segments are not controlled by the City of Noblesville.



## ***SCHEDULE OF IMPROVEMENTS***

The recommended intersection and roadway improvements identified in this study should be reviewed on a yearly basis to determine an implementation schedule that addresses those areas that are most impacted by traffic generated from new development.

## ***ESTIMATED CONSTRUCTION COSTS***

The year 2023 construction costs were developed using the Indianapolis MPO Cost Estimate Spreadsheet. The intersection unit construction cost inputs for this sheet were estimated based on 2023 bid documents for various projects within the greater Indianapolis area. The roadway segment unit construction costs were taken from the INDOT Cost Estimate Sheet. **Table 7** is a summary of the 2023 unit costs used to formulate the construction costs for each intersection and roadway segment improvement. The table also shows a comparison of the 2020 and 2023 construction costs as well as a calculation of yearly inflation of prices. Finally, the table also includes the Federal Highway Administration’s National Highway Construction Cost Indices and the annual percentage increase of these indices.

TABLE 7 – INFLATION OF CONSTRUCTION COSTS

<b>Unit Item</b>	<b>2020 Cost</b>	<b>2023 Cost</b>	<b>Annual Percentage Increase</b>
Turn Lane	\$160,000.00	\$350,000.00	39.58%
New Traffic Signal	\$150,000.00	\$240,000.00	20.00%
Single-Lane Roundabout	\$1,250,000.00	\$2,000,000.00	20.00%
Double-Lane Roundabout	\$1,600,000.00	\$2,800,000.00	25.00%
1 Mile of 2-Lane Road	\$3,370,000.00*	\$5,220,000.00*	18.30%
1 Mile of Widening from 2 to 4 Lanes	\$3,460,000.00*	\$5,370,000.00*	18.40%
<b>FHWA Construction Cost Indices</b>	<b>2020 Cost Indices</b>	<b>2023 Cost Indices</b>	<b>Annual Percentage Increase</b>
NHCCI	1.911	2.962	18.33%
NHCCI Seasonally Adjusted	1.933	2.926	17.12%

\*These are approximate construction costs. Actual construction costs may vary from one roadway segment to another.

**Table 8** is a summary of the estimated construction costs that will be required to bring the intersections up to acceptable baseline level of service standards (LOS D) to accommodate either the existing traffic volumes or the projected 10-year traffic volumes. The table shows the estimated construction costs associated with the improvements recommended to mitigate the existing traffic conditions (Today's Cost) and the projected 10-year traffic conditions (10-Year Cost). All construction estimates are based on year 2023 construction costs.

**Table 9** is a summary of the estimated construction costs that will be required to bring the roadways up to acceptable baseline level of service standards (LOS E) to accommodate either the existing traffic volumes or the projected 10-year traffic volumes. The table shows the estimated construction costs associated with the improvements recommended to mitigate the existing traffic conditions (Today's Cost) and the projected 10-year traffic conditions (10-Year Cost). All construction estimates are based on year 2023 construction costs.

A percentage has been applied to the total intersection and roadway segment costs in order to estimate the cost of utility work for each improvement. This cost may include the cost to reroute, remove, or move existing utilities within the right of way in order to complete the proposed intersection and/or roadway segment improvements. For this Zone Improvement Plan, a rate of 10% of the total improvement costs was assumed to cover construction costs related to utilities. However, this 10% was not applied to the cost of the Pleasant Street Extension Project. The construction costs shown in **Table 8** and **Table 9** do not include utility costs. The utility costs are shown in **Table 10**.

TABLE 8 – ESTIMATED INTERSECTION CONSTRUCTION COSTS

Int. ID	Intersection	Today's Cost	Ten-year Cost	Applicable Impact Fee
5	<i>216th St &amp; SR 19</i>	\$0	\$1,535,000	\$1,535,000
6	<i>216th St &amp; SR 37</i>	\$0	\$0	\$0
21	211th St & Harbor Dr/Oakbay Dr	\$0	\$3,070,000	\$3,070,000
22	211th St & Schulley Rd	\$0	\$0	\$0
26	206th St & Hague Rd	\$1,450,000	\$3,070,000	\$1,620,000
27	206th St & James Rd	\$0	\$0	\$0
28	<i>206th St &amp; SR 19</i>	\$0	\$1,610,000	\$1,610,000
42	<i>SR 37 &amp; Promise Rd</i>	\$0	\$1,535,000	\$1,535,000
44	Cumberland Rd & Riverwood Ave	\$0	\$0	\$0
46	<i>SR 38 &amp; Hinkle Rd</i>	\$0	\$0	\$0
49	<i>196th St &amp; SR 19</i>	\$1,535,000	\$1,842,500	\$307,500
51	<i>Allisonville Rd &amp; SR 37</i>	\$0	\$1,842,500	\$1,842,500
72	191st St & Promise Rd	\$0	\$3,070,000	\$3,070,000
73	<i>191st St &amp; SR 37</i>	\$0	\$0	\$0
74	191st St & Cumberland Rd	\$0	\$3,070,000	\$3,070,000
76	<i>SR 38 &amp; Mill Creek Rd</i>	\$0	\$1,842,500	\$1,842,500
77	<i>SR 38 &amp; Little Chicago Rd</i>	\$0	\$530,000	\$530,000
80	<i>SR 38 &amp; Harbour Dr</i>	\$0	\$0	\$0
81	<i>SR 38 &amp; Oakmont Dr</i>	\$0	\$0	\$0
82	Hague Rd & Lakeview Dr	\$0	\$3,685,000	\$3,685,000
83	Cicero Rd (SR 19) & Field Dr	\$7,500	\$0	(\$7,500)
84	10th St & Field Dr	\$0	\$1,080,000	\$1,080,000
85	Field Dr & 16th St	\$0	\$0	\$0
86	Field Dr & Cumberland Rd	\$0	\$530,000	\$530,000
87	<i>186th St &amp; SR 37</i>	\$0	\$0	\$0
88	186th St & Promise Rd	\$0	\$3,070,000	\$3,070,000
103	181st St & Promise Rd	\$0	\$3,070,000	\$3,070,000
107	<i>Logan St &amp; SR 38</i>	\$921,250*	\$1,842,500	\$921,250
108	<i>SR 38 &amp; River Ave</i>	\$0	\$1,842,500	\$1,842,500
109	<i>Hague Rd &amp; SR 38</i>	\$0	\$530,000	\$530,000
110	<i>SR 32 &amp; Moontown Rd</i>	\$0	\$0	\$0
111	<i>SR 32 &amp; Little Chicago Rd</i>	\$0	\$0	\$0
112	<i>SR 32 &amp; Mill Creek Rd</i>	\$0	\$0	\$0
113	<i>SR 32 &amp; Willowview Rd</i>	\$0	\$0	\$0
114	<i>SR 32 &amp; Hague Rd/Pleasant St Extension</i>	\$0***	\$0***	\$0
115	<i>SR 32 &amp; Cherry Tree Rd</i>	\$0	\$0	\$0
117	<i>SR 32 &amp; SR 38</i>	\$0	\$0	\$0
119	<i>SR 32 &amp; Cicero Rd (SR 19)</i>	\$0	\$0	\$0
120	<i>SR 32 &amp; 10th St</i>	\$0	\$0	\$0

<b>Int. ID</b>	<b>Intersection</b>	<b>Today's Cost</b>	<b>Ten-year Cost</b>	<b>Applicable Impact Fee</b>
129	<i>SR 37 &amp; Cherry St</i>	\$0	\$0	\$0
131	<i>SR 32 &amp; Union Chapel Rd</i>	\$0	\$0	\$0
132	<i>SR 32 &amp; Promise Rd</i>	\$0	\$530,000	\$530,000
139	<i>SR 38 &amp; De Shane Ave</i>	\$0	\$0	\$0
143	<i>Pleasant St &amp; SR 37</i>	\$0	\$0	\$0
147	<i>Pleasant St &amp; 10th St</i>	\$0***	\$0***	\$0
158	<i>10th St &amp; Greenfield Ave/Christian Ave</i>	\$0	\$4,235,000	\$4,235,000
160	<i>SR 38 &amp; Boden Rd (Middletown Rd)</i>	\$0	\$0	\$0
161	<i>SR 38 &amp; Mystic Rd</i>	\$0	\$0	\$0
162	<i>SR 38 &amp; Olio Rd</i>	\$0	\$1,842,500	\$1,842,500
163	<i>SR 38 &amp; Durbin Rd</i>	\$0	\$1,535,000	\$1,535,000
166	<i>SR 38 &amp; Prairie Baptist Rd</i>	\$0	\$2,085,000	\$2,085,000
167	<i>166th St &amp; Olio Rd</i>	\$0	\$3,070,000	\$3,070,000
168	<i>166th St &amp; Boden Rd</i>	\$1,842,500*	\$3,685,000	\$1,842,500
169	<i>166th St &amp; Summer Rd</i>	\$0	\$3,070,000	\$3,070,000
171	<i>166th St &amp; Mercantile Rd/Cumberland Rd</i>	\$0	\$3,070,000	\$3,070,000
172	<i>Greenfield Ave &amp; 16th St</i>	\$920,000	\$3,070,000	\$2,150,000
173	<i>Greenfield Ave &amp; Herriman Blvd</i>	\$0	\$3,070,000	\$3,070,000
174	<i>161st St &amp; Gray Rd</i>	\$0	\$767,500	\$767,500
177	<i>161st St &amp; Cherry Tree Rd</i>	\$0	\$3,070,000	\$3,070,000
178	<i>SR 37 &amp; Greenfield Ave</i>	\$0	\$0	\$0
179	<i>SR 38 &amp; Cyntheanne Rd</i>	\$0	\$1,535,000	\$1,535,000
182	<i>156th St &amp; Olio Rd</i>	\$1,535,000*	\$3,070,000	\$1,535,000
183	<i>156th St &amp; Boden Rd</i>	\$0	\$0	\$0
185	<i>Promise Rd &amp; Greenfield Ave</i>	\$0	\$4,235,000	\$4,235,000
186	<i>Greenfield Ave &amp; Union Chapel Rd</i>	\$0	\$1,230,000	\$1,230,000
187	<i>Greenfield Ave &amp; Howe Rd</i>	\$0	\$530,000	\$530,000
188	<i>Greenfield Ave &amp; Cumberland Rd</i>	\$0	\$1,610,000	\$1,610,000
189	<i>160th St &amp; River Ave</i>	\$0	\$3,070,000	\$3,070,000
191	<i>156th St &amp; Hazel Dell Rd</i>	\$0	\$3,685,000	\$3,685,000
194	<i>Summer Rd &amp; Greenfield Ave</i>	\$0	\$3,070,000	\$3,070,000
197	<i>146th St &amp; Prairie Baptist Rd</i>	\$0	\$1,312,500	\$1,312,500
198	<i>146th St &amp; Promise Rd</i>	\$0	\$0	\$0
199	<i>146th St &amp; Cumberland Rd</i>	\$0	\$0	\$0
201	<i>146th St Herriman Blvd</i>	\$0	\$530,000	\$530,000
202	<i>146th St &amp; Allisonville Rd</i>	\$0	\$0	\$0
203	<i>146th St &amp; River Rd</i>	\$0	\$530,000	\$530,000
204	<i>146th St &amp; Cherry Tree Rd</i>	\$0	\$0	\$0
206	<i>146th St &amp; Hazel Dell Rd</i>	\$0	\$0	\$0
208	<i>146th St &amp; Howe Rd</i>	\$0	\$0	\$0

Int. ID	Intersection	Today's Cost	Ten-year Cost	Applicable Impact Fee
209	<i>141st St &amp; Howe Rd</i>	\$0	\$3,070,000	\$3,070,000
210	<i>141st St &amp; Promise Rd</i>	\$0	\$0	\$0
211	Greenfield Ave & Marilyn Rd	\$0	\$3,685,000	\$3,685,000
212	<i>146th St &amp; Marilyn Rd/Campus Pkwy</i>	\$0	\$0	\$0
213	146th St/Greenfield Ave & Boden Rd	\$0	\$530,000	\$530,000
214	146th Street & Bergen Blvd	\$0	\$185,000	\$185,000
215	146th Street & Olio Rd	\$0	\$0	\$0
216	<i>Campus Pkwy &amp; Boden Rd</i>	\$0	\$530,000	\$530,000
217	<i>Campus Pkwy &amp; Corporate Pkwy</i>	\$0	\$1,610,000	\$1,610,000
218	<i>141st &amp; Olio Rd</i>	\$0	\$1,080,000	\$1,080,000
219	Tegler Dr & Bergen Blvd	\$0	\$2,150,000	\$2,150,000
220	<i>Campus Pkwy &amp; Bergen Blvd</i>	\$0	\$1,610,000	\$1,610,000
221	<i>Campus Pkwy &amp; Town Center Blvd</i>	\$0	\$1,080,000	\$1,080,000
223	141st St (Extension) & Brooks School Rd	\$0	\$1,145,000	\$1,145,000
229	156th St & Prairie Baptist Rd	\$0	\$3,155,000	\$3,155,000
231	<i>SR 32 &amp; Oakmont Dr</i>	\$0	\$0	\$0
234	<i>Cicero Rd (SR 19) &amp; Logan St</i>	\$0	\$530,000	\$530,000
235	<i>SR 38 &amp; 8th St</i>	\$0	\$530,000	\$530,000
238	8th St & Pleasant St Extension	\$0***	\$0***	\$0
239	8th St & Christian Ave	\$0	\$3,070,000	\$3,070,000
240	186th St & Presley Dr Extension	\$0**	\$0**	\$0
241	Prairie Baptist Rd & 141st St (Extension)	\$0**	\$0**	\$0
242	Cyntheanne Rd & 141st St Extension	\$0**	\$0**	\$0
<b>Total</b>		<b>\$8,211,250</b>	<b>\$120,135,000</b>	<b>\$111,923,750</b>

\*Planned Improvement; Cost Shared between the City and Future Development

\*\*Proposed Intersection Costs are Attributed to the Proposed Roadway Segments

\*\*\*Improvement Costs are Considered in the Total Cost for the Pleasant Street Extension Project in **Table 8**

Note: Italicized intersections are either partially or wholly controlled by entities other than the City of Noblesville.

**TABLE 9 – ESTIMATED ROADWAY SEGMENT CONSTRUCTION COSTS**

<b>Seg. ID</b>	<b>Street</b>	<b>Location</b>	<b>Today's Cost</b>	<b>Ten-year Cost</b>	<b>Applicable Impact Fee</b>
92	<i>Cicero Rd (SR19)</i>	196th St - Field Dr	\$0	\$0	\$0
193	Greenfield Ave	16th St - Allisonville Rd	\$0	\$0	\$0
201	Greenfield Ave	16th St - Herriman Blvd	\$0	\$0	\$0
203	Greenfield Ave	SR 37 & Herriman Blvd	\$0	\$0	\$0
208	Olio Rd	166th St - 156th St	\$0	\$4,950,000	\$4,950,000
218	Greenfield Ave	Summer Rd - 156th St	\$0	\$4,400,000	\$4,400,000
220	Greenfield Ave	156th St - Union Chapel Rd	\$0	\$1,600,000	\$1,600,000
221	Greenfield Ave	Union Chapel Rd - Howe Rd	\$0	\$1,600,000	\$1,600,000
222	Greenfield Ave	Cumberland Rd - Howe Rd	\$0	\$4,260,000	\$4,260,000
223	Greenfield Ave	SR 37 - Cumberland Rd	\$0	\$1,240,000	\$1,240,000
232	Greenfield Ave	Marilyn Rd - Summer Rd	\$0	\$6,180,000	\$6,180,000
233	Olio Rd	146th St - 156th St	\$0	\$0	\$0
251	Greenfield Ave	Marilyn Rd - Boden Rd	\$0	\$2,760,000	\$2,760,000
252	Boden Rd	Greenfield Ave - Campus Pkwy	\$0	\$0	\$0
253	146th St	Boden Rd - Bergen Blvd	\$0	\$3,270,000	\$3,270,000
254	146th St	Bergen Blvd - Olio Rd	\$0	\$2,710,000	\$2,710,000
255	146th St	Olio Rd - Prairie Baptist Rd	\$0	\$5,490,000	\$5,490,000
259a	141st St	Olio Rd - Prairie Baptist Rd	\$0	\$3,940,000	\$3,940,000
259b	141st Str	Olio Rd - Prairie Baptist Rd	\$0	\$1,120,000	\$1,120,000
280	Prairie Baptist Rd	146th St - 156th St	\$0	\$4,950,000	\$4,950,000
283	8th St	Christian St - Walnut St	\$0	\$0	\$0
286	141st St Extension	Prairie Baptist Rd - Cyntheanne Rd	\$2,215,000*	\$4,430,000	\$2,215,000
287	Presley Drive Extension	Phillip Dr - 186th St	\$1,190,000*	\$2,380,000	\$1,190,000
288	141 St Extension	Marilyn Rd - Brooks School Rd	\$1,190,000*	\$2,380,000	\$1,190,000
289	Pleasant St Extension	SR 32/Hague Rd - 19 <sup>th</sup> St	\$22,050,865*	\$44,101,730**	\$22,050,865
<b>Total</b>			<b>\$26,645,865</b>	<b>\$101,761,730</b>	<b>\$75,115,865</b>

\*Planned Improvement; Cost Shared between the City and Future Development

\*\*Improvement Includes all Intersection and Roadway Segment Costs Associated with Pleasant St Extension Project

Note: Italicized roadway segments are not controlled by the City of Noblesville.

## TOTAL COSTS

**Table 10** summarizes the total “Today’s Cost” and “10-Year Cost” for the study area intersections and roadways.

TABLE 10 – TOTAL COSTS

	Today’s Cost	10-Year Cost	Applicable Road Impact Fee Cost
Intersections (Table 7)	\$8,211,250.00	\$120,135,000.00	\$123,116,125.00
Roadways (Table 8)	\$26,645,865.00	\$101,761,730.00	\$75,115,865.00
Utilities (10%) *	\$1,280,625.00	\$17,779,500.00	\$16,498,875.00
<b>Total Cost</b>	<b>\$36,137,740.00</b>	<b>\$239,676,230.00</b>	<b>\$203,538,490.00</b>

\*Utility Costs were calculated excluding the Pleasant St Extension Project Costs.

## GENERATED 24-HOUR TRIPS

The total number of trips that will be generated during a 24-hour weekday period for each of the vacant parcel developments has been determined. **Table 11** identifies each of the vacant parcels, the assumed land use, and the 10-year build-out size.

TABLE 11 – SUMMARY OF VACANT LAND PARCELS

Parcel #	Land Use Distribution	ITE Code	Development Size
1	SF Residential	210	180 DU
2	SF Residential	210	57 DU
3	SF Residential	210	66 DU
4	SF Residential	210	15 DU
5	SF Residential	210	59 DU
6A	SF Residential	210	79 DU
6B	Mixed Residential	220, 215, 210	12 DU
7	SF Residential	210	46 DU
8	SF Residential	210	17 DU
9	SF Residential	210	30 DU
10	SF Residential	210	29 DU
11	SF Residential	210	19 DU
12	SF Residential	210	29 DU
13	SF Residential	210	31 DU
14	SF Residential	210	49 DU
15	SF Residential	210	25 DU
16	SF Residential	210	25 DU
17	SF Residential	210	18 DU
18	SF Residential	210	21 DU
19	SF Residential	210	107 DU

Parcel #	Land Use Distribution	ITE Code	Development Size
20	SF Residential	210	41 DU
21	SF Residential	210	298 DU
22A	SF Residential	210	52 DU
22B	Infill Residential	220, 215, 210	14 DU
23	SF Residential	210	90 DU
24A	SF Residential	210	26 DU
24B	Infill Residential	220, 215, 210	12 DU
25	SF Residential	210	21 DU
26A	SF Residential	210	24 DU
26B	Mixed Residential	220, 215, 210	29 DU
28A	Retail	820	51,810 SF
28B	Office	710	12,953 SF
29A	Infill Residential	220, 215, 210	55 DU
29B	Mixed Residential	220, 215, 210	12 DU
30A	Retail	820	76,430 SF
30B	Office	710	19,108 SF
31A	Infill Residential	220, 215, 210	47 DU
31B	Mixed Residential	220, 215, 210	32 DU
32A	SF Residential	210	106 DU
32B	Infill Residential	220, 215, 210	21 DU
33	SF Residential	210	56 DU
34A	Retail	820	16,887 SF
34B	Office	710	4,222 SF
35	Light Industrial	110	294,466 SF
36	Mixed Residential	220, 215, 210	22 DU
37A	Retail	820	34,228 SF
37B	Office	710	8,557 SF
38	Infill Residential	220, 215, 210	61 DU
39A	Retail	820	46,459 SF
39B	Office	710	11,615 SF
40	SF Residential	210	24 DU
41A	Infill Residential	220, 215, 210	18 DU
41B	Mixed Residential	220, 215, 210	28 DU
42A	Infill Residential	220, 215, 210	140 DU
42B	Mixed Residential	220, 215, 210	52 DU
44	Infill Residential	220, 215, 210	27 DU
45	Light Industrial	110	94,090 SF
46	Infill Residential	220, 215, 210	94 DU
47	SF Residential	210	83 DU
48A	SF Residential	210	58 DU
48B	Infill Residential	220, 215, 210	118 DU



Parcel #	Land Use Distribution	ITE Code	Development Size
49A	Retail	820	54,164 SF
49B	Office	710	13,541 SF
50A	Retail	820	110,318 SF
50B	Office	710	27,580 SF
51	Mixed Residential	220, 215, 210	47 DU
52A	Mixed Residential	220, 215, 210	233 DU
52B	Retail	820	5,030 SF
52C	Office	710	1,258 SF
54	SF Residential	210	153 DU
55	SF Residential	210	315 DU
56	SF Residential	210	37 DU
57	Infill Residential	220, 215, 210	95 DU
58A	Infill Residential	220, 215, 210	18 DU
58B	Infill Residential	220, 215, 210	235 DU
59	SF Residential	210	12 DU
61A	Retail	820	62,558 SF
61B	Office	710	15,639 SF
62A	Retail	820	144,322 SF
62B	Office	710	36,080 SF
63A	Retail	820	115,818 SF
63B	Office	710	28,954 SF
64	SF Residential	210	144 DU
65A	Retail	820	28,196 SF
65B	Office	710	7,049 SF
66A	Retail	820	27,561 SF
66B	Office	710	6,890 SF
67	Infill Residential	220, 215, 210	15 DU
68	SF Residential	210	138 DU
70A	Mixed Residential	220, 215, 210	780 DU
70B	Retail	820	16,801 SF
70C	Office	710	4,200 SF
71A	Mixed Residential	220, 215, 210	748 DU
71B	Retail	820	1,6154 SF
71C	Office	710	4,038 SF
72A	Mixed Residential	220, 215, 210	350 DU
72B	SF Residential	210	53 DU
72C	Retail	820	8,679 SF
72D	Office	710	2,170 SF
73	Innovation Flex	770	527,184 SF
74A	Retail	820	61,746 SF
74B	Office	710	15,437 SF

Parcel #	Land Use Distribution	ITE Code	Development Size
75	Innovation Flex	770	625,328 SF
76	Light Industrial	110	97,793 SF
77	Innovation Flex	770	449,407 SF
78	SF Residential	210	336 DU
79A	Innovation Flex	770	220,158 SF
79B	Retail	820	44,878 SF
79C	Office	710	11,220 SF
80A	Innovation Flex	770	462,475 SF
80B	Retail	820	94,274 SF
80C	Office	710	23,569 SF
81A	Innovation Flex	770	448,637 SF
81B	Retail	820	91,454 SF
81C	Office	710	22,863 SF
82A	Innovation Flex	770	945,148 SF
82B	Retail	820	192,666 SF
82C	Office	710	48,166 SF
83A	MF Residential	220	128 DU
83B	Retail	820	16,000 SF
84A	MF Residential	220	88 DU
84B	Retail	820	13,000 SF
85A	SF Residential	210	256 DU
85B	MF Residential	220	457 DU
85C	Retail	820	26,950 SF
86	Office	710	22,400 SF
87A	Retail	820	387,684 SF
87B	Office	710	33,285 SF
87C	MF Residential	220	300 DU
88A	Retail	820	283,519 SF
88B	Office	710	70,880 SF
89A	Retail	820	8,456 SF
89B	Office	710	2,114 SF
89C	Mixed Residential	220, 215, 210	392 DU
89D	Mixed Residential	220, 215, 210	26 DU
90A	Mixed Residential	220, 215, 210	554 DU
90B	Retail	820	11,936 SF
90C	Office	710	2,984 SF
91A	Mixed Residential	220, 215, 210	187 DU
91B	Retail	820	4,034 SF
91C	Office	710	1,008 SF
92A	Innovation Flex	770	239,2714 SF
92B	Retail	820	336,330 SF

Parcel #	Land Use Distribution	ITE Code	Development Size
92C	Office	710	84,082 SF
93A	Innovation Flex	770	1,623,518 SF
93B	Retail	820	228,208 SF
93C	Office	710	57,052 SF
93D	Innovation Flex	770	529,690 SF
93E	Retail	820	75,272 SF
93F	Office	710	18,818 SF
94A	SF Residential	210	271 DU
94B	Infill Residential	220, 215, 210	47 DU
95	SF Residential	210	226 DU

**Notes:** DU = Dwelling Unit; SF = Square Feet

The *ITE Trip Generation Manual (11<sup>th</sup> Edition)* was used to generate the number of 24-hour weekday trips generated by the parcels listed above. The total number of 24-hour generated trips that will be used for the road impact fee calculation is 337,279 trips.

### **ROAD IMPACT FEE**

The method used for determining the road impact fee is based on the sum of the road impact fee construction costs for all study intersections and roadways added to the cost of performing the road impact fee study. The road impact fee account balances as of 12/31/2023 are subtracted to yield the total road impact fee cost. This total road impact fee cost is then divided by the total number of 24-hour trips that will be generated by the 10-year vacant land parcels. **Table 12** shows the calculation for the road impact fee.

$$\text{Impact Fee} = \frac{\text{Cost}^{10\text{-Year}} - \text{Cost}^{\text{Existing}} + \text{Cost}^{\text{Impact Fee Study}} - (\text{Road Impact Fees Balance})}{(\text{Generated 24 Hour Trips})}$$

$$\$583.90/\text{trip} = \frac{\$239,676,230 - \$36,137,740 + \$206,000 - \$6,805,702.65}{337,279 \text{ trips}}$$

TABLE 12 – CALCULATION OF ROAD IMPACT FEE

Total Applicable Road Impact Fee Cost		\$203,538,490.00
Cost of Performing Road Impact Fee Study		\$206,000.00
Road Impact Fee Balance (as of 12/31/2023)		\$6,805,702.65
<b>Total Road Impact Fee Cost</b>		<b>\$196,938,787.35</b>
24-Hour Trips from Vacant Land Parcel Developments		337,279
<b>Road Impact Fee per 24-Hour Generated Trip</b> (Equals Total Road Impact Fee Cost divided by the 24-hour trips)		<b>\$583.90</b>

### ***ANNUAL ROAD IMPACT FEE EVALUATION***

The estimated construction costs that have been used to determine the road impact fee presented in this report are based on year 2023 construction costs. Therefore, it may be necessary to re-evaluate the road impact fee on an annual basis to reflect the annual inflation of construction costs, any major changes in the proposed land uses analyzed, or any changes to the planned intersection/roadway segment improvements in this study.

### ***EXAMPLES OF TYPICAL ROAD IMPACT FEES COLLECTED***

For all land uses, the number of 24-hour weekday trips generated by each would need to be determined on a case-by-case basis using the methods and procedures outlined in the most recent edition of the *ITE Trip Generation Manual* and or using relevant data provided by the developer. The number of generated 24-hour trips for the new development is then multiplied by the road impact fee per trip to determine the assessed fee. **Table 13** shows typical road impact fees that could be collected for a variety of land uses. For each land use, the table lists the ITE Code classification, a range of typical sizes, the 24-hour weekday trips generated and the resulting road impact fee. It should be noted that the land uses listed in the table are only a small sample of the different types of land uses classified by the *ITE Trip Generation Manual*.

TABLE 13 – ROAD IMPACT FEE EXAMPLES

Land Use	ITE Code	Size	24-Hour Trips	Road Impact Fee	Road Impact Fee Collected
General Industrial	110	500,000 SF	2,435	\$583.90	\$1,421,796.50
Manufacturing	140	500,000 SF	2,375	\$583.90	\$1,386,762.50
Warehousing	150	500,000 SF	855	\$583.90	\$499,234.50
Self-Storage	151	300 Units	54	\$583.90	\$31,530.60
Single Family Residential	210	100 DU	943	\$583.90	\$550,617.70

Land Use	ITE Code	Size	24-Hour Trips	Road Impact Fee	Road Impact Fee Collected
Multifamily Residential (Low -Rise)	220	200 DU	1,348	\$583.90	\$787,097.20
Multifamily Residential (Mid -Rise)	221	300 DU	1,362	\$583.90	\$795,271.80
Multifamily Residential w/ Ground Floor Commercial	230	150 DU	516	\$583.90	\$301,292.40
Senior Adult Housing (Detached)	251	100 DU	431	\$583.90	\$251,660.90
Senior Adult Housing (Attached)	252	200 DU	648	\$583.90	\$378,367.20
Assisted Living	254	100 DU	260	\$583.90	\$151,814.00
Residential Planned Unit Development	270	300 DU	2,193	\$583.90	\$1,280,492.70
Hotel	310	150 Rooms	1,199	\$583.90	\$700,096.10
Day Care Center	565	100 Students	159	\$583.90	\$92,840.10
Nursing Home	620	50,000 SF	338	\$583.90	\$197,358.20
Nursing Home	620	100 Beds	306	\$583.90	\$178,673.40
General Office	710	50,000 SF	542	\$583.90	\$316,473.80
Medical Office	720	5,000 SF	180	\$583.90	\$105,102.00
Discount Super Store	813	200,000 SF	7,374*	\$583.90	\$4,305,678.60
General Retail	820	150,000 SF	3,665*	\$583.90	\$2,139,993.50
Supermarket	850	75,000 SF	4,500*	\$583.90	\$2,627,550.00
Pharmacy w/out Drive Through	850	15,000 SF	635*	\$583.90	\$370,776.50
Pharmacy w/ Drive Through	880	17,500 SF	880*	\$583.90	\$513,832.00
Drive-In Bank	881	5,000 SF	356*	\$583.90	\$207,868.40
Quality Restaurant	912	10,000 SF	470*	\$583.90	\$274,433.00
High-Turnover Restaurant	931	5,000 SF	306*	\$583.90	\$178,673.40
Fast Food Restaurant w/ Drive Through	932	5,000 SF	1,172*	\$583.90	\$684,330.80
Convenience Store/Gas Station	934	12 VFP	1,400*	\$583.90	\$817,460.00

Notes

DU = Dwelling Unit, SF = Square Feet

\*Commercial land uses attract pass-by trips. Therefore, the trips shown above represent the total number of non-pass-by 24-hour trips.