Coonpath Road & Election House Road Feasibility Study

Draft Feasibility Study June 2024

BURGESS & NIPLE

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Error! Reference source not found. Error! Reference source not found.Figure 4 - Roundabout with **right turn lane Schematic Plan View**

Alternatives Considered and Dismissed

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Safety Performance

Crash Trends *Analysis*

Crash data from January 1, 2018 through December 31, 2022 was obtained for the study area from ODOT's GIS Crash Analysis Tool (GCAT) and analyzed using ODOT's Crash Analysis Module (CAM) tool. In the five-year period, 23 crashes occurred in the study area with 30 percent resulting in injury. There were no fatalities or serious injuries reported during this period.

Figure 5 shows the breakdown of crashes by severity per year. The year 2018 experienced the highest frequency of total crashes, with seven crashes. The year 2019 experienced the highest frequency of injury crashes, with three crashes. Over the last three years there is a trend of increase crashes.

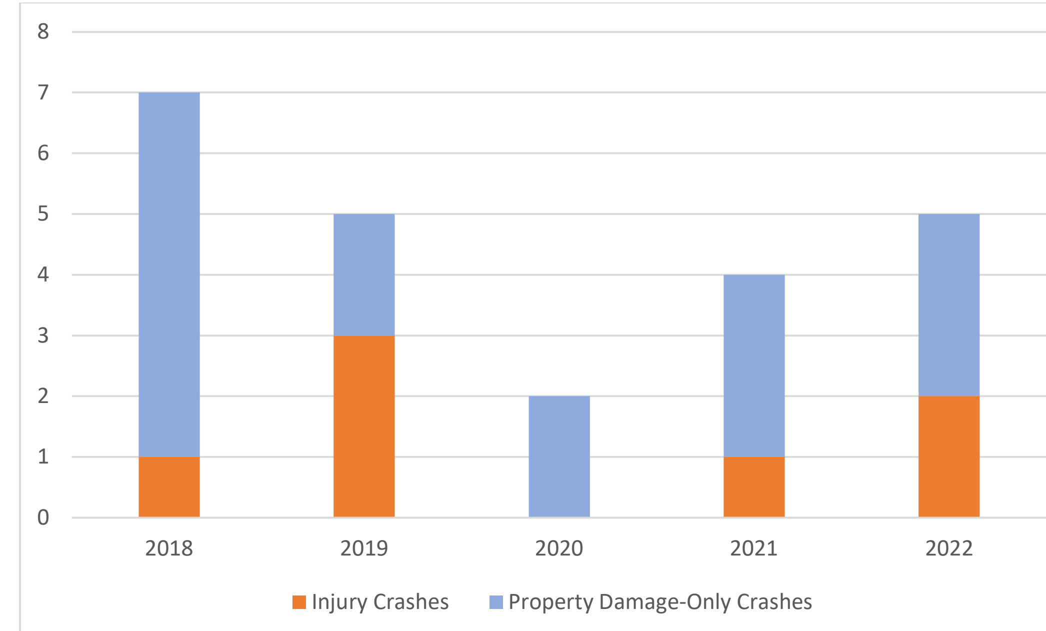

Figure 5: Crash Summary by Year

Figure 6 summarizes the crashes by type at the Coonpath Road at Election House Road intersection. The most prevalent crash type was rear end, which make up 57 percent of all crashes. This was followed by angle crashes, which make up 31 percent of all crashes.

Figure 6: Crash Summary by Type

All but one rear end crash occurred on the eastbound and westbound approaches of the intersection. Out of the 13 rear end crashes, four resulted in injury. Two other rear end crashes cited speed as a contributing factor.

Out of the seven angle crashes, one resulted in injury. All cited either "failure to yield" or "ran stop sign" as the primary contributing factor. Of the crashes that cited "failure to yield" it was not clear if this meant the driver failed to stop at the stop sign, or if there were discrepancies between who had the right of way. A detailed crash diagram and CAM tool output is provided in Appendix B.

Existing Safety Performance

Highway Safety Manual methodology was applied using ODOT's Economic Crash Analysis Tool (ECAT). This process allows users to assess the existing safety performance of a location based on a combination of historical crash data, existing roadway characteristics, and traffic volumes. The analysis output is provided via three values, define:

Predicted Crash Frequency (NPREDICTED) – defined as how a site would be expected to perform relative to 1,000 sites with comparable roadway characteristics and traffic volumes. This value is presented using units of crashes per year, and commonly broken down according to injury severity level.

Expected Crash Frequency (NEXPECTED) – defined as the average performance of a site, normalized over an extended period based on actual crash history. This value is presented using units of crashes per year, and commonly broken down according to injury severity level.

Potential for Safety Improvement (NPSI) – Difference between Expected Crash Frequency and Predicted Crash Frequency. A positive value indicates that the location is performing poorly compared to similar locations and safety improvements would likely have a significant impact on reducing crash frequency.

Injury Severity Levels are based on FHWA's KABCO rating scale where: K= fatal injury crash, A = incapacitating injury crash, B= non-incapacitating injury crash, C= possible injury, O= no injury/property damage only.

HSM Results for the study area are summarized in Table 2.

Table 2: HSM Results, Existing Conditions

	KA	B	C	O	TOTAL
TOTAL NPREDICTED	0.0200	0.2041	0.2985	1.1361	1.6587
TOTAL NEXPECTED	0.0292	0.2679	0.3883	1.8303	2.5157
TOTAL N PSI	**0.0092**	**0.0638**	**0.0898**	**0.6942**	**0.8570**

Findings show that the intersection is performing worse than would be predicted based on the roadway characteristics and traffic volumes. The intersection experiences approximately 0.86 more crashes per year than similar intersections.

Proposed Safety Performance

Highway Safety Manual methodology was also applied using ODOT's Economic Crash Analysis Tool (ECAT) to evaluate the proposed safety performance for three alternatives:

1. No Build
2. Install a signal at the intersection with dedicated left turn lanes on all approaches and a dedicated right turn lane on the northbound approach.
3. Install a single lane roundabout with right turn bypass lane on the northbound approach.

Safety performance evaluation comparing the proposed alternatives to the No Build alternative is shown in Table 3 and Table 4. All analysis was performed using 2048 traffic volume projections.

Table 3: HSM Results, Proposed Signal

	KA	B	C	O	TOTAL
TOTAL NPREDICTED No Build	0.0424	0.3932	0.5646	2.2418	3.2420
TOTAL NPREDICTED Signal	0.1340	0.6377	0.9565	3.2498	4.9780
TOTAL N PSI	**0.0916**	**0.2445**	**0.3919**	**1.0080**	**1.7360**

Table 4: HSM Results, Proposed Roundabout

	KA	B	C	O	TOTAL
TOTAL NPREDICTED No Build	0.0424	0.3932	0.5646	2.2418	3.2420
TOTAL NPREDICTED Roundabout	0.0231	0.1947	0.2413	2.1897	2.6488
TOTAL N PSI	**-0.0193**	**-0.1985**	**-0.3233**	**-0.0521**	**-0.5932**

Findings show that installing a signal at the intersection is expected to increase overall crash frequency by approximately 1.74 crashes per year. Installing a roundabout at the intersection is expected to reduce overall crash frequency by approximately 0.59 crashes per year.

Traffic Operations

Environmental Screening

Utilities Impacts

Construction Cost Estimate

Chapter 5 Conclusions & Next Steps

Appendices

Signature Page

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Executive Summary

The purpose of the study is to develop an alternative to improve safety and operation of the Coonpath Road and Election House Road intersection.

The Coonpath Road and Election House Road intersection has experienced continued growth in recent years. This growth is projected to continue for the foreseeable future, fueled by the continued increase in population in the county and the increased use of US 33 across southeastern Ohio.

The current intersection is a traditional 4-way stop controlled intersection with no turn lanes. The traffic at the intersection is projected to be Level of Service “F” in the design year of 2048. Additionally, the current intersection is experiencing more crashes annually when compared to similar intersections.

This Feasibility study analyzed 3 alternatives:

- Alternative 1 (Signalized Intersection)
- Alternative 2 (Roundabout)
- Alternative 3 (Roundabout with right turn lane)

The Feasibility study looked at 5 key criteria to compare the alternatives:

- Safety Performance
- Traffic Operations
- Environmental Impacts
- Utilities Impacts
- Construction Cost Estimate

The proposed Roundabout with right turn lane offers the greatest safety and congestion benefits with minimal increased cost and impacts compared to the other proposed solutions. The Signalized Intersection is predicted to increase crashes but improve the vehicular capacity of the intersection. By comparison, the Roundabout with right turn lane alternative is predicted to have fewer crashes and reduced delay over the signalized intersection. Based on the increased benefits, the recommended alternative from this study is the roundabout with right turn lane alternative.

The right turn lane could be built with the initial roundabout project or be added in the future when traffic levels increase. This strategy could be used to phase the project and defer a portion of the cost of the project to a future time when gaining additional capacity is critical. It is recommended to purchase the right of way required for the right turn lane with the initial roundabout project to ensure future land use does not preclude this intersection enhancement.

Chapter 2 Introduction

Coonpath Road is an east-west corridor distributing traffic across central Fairfield County. Coonpath Road intersects US 33 at an interchange offering full movements, making it an attractive corridor for distribution of traffic in the region. This traffic is predominately residential and agricultural in nature. Election House Road is a north-south corridor connecting to Columbus-Lancaster Road which is a significant retail, commercial, and light industrial corridor for the region.

South of Coonpath Road, Election House Road has light industrial, retail, the Fairfield County airport, and the General Sherman Junior High School. North of Coonpath Road, Election House Road is predominantly residential and agricultural. This intersection provides a key link between the residential areas east, west, and north to the various destinations south of Election House Road.

The US 33 corridor, just over 2 miles to the west of this intersection, has continued to be widened and improved between Columbus and Southeastern Ohio, resulting in growth in traffic volumes. This growth along US 33 has translated into modest growth of 2-3% annually along Coonpath Road and Election House Road.

Existing Safety Analysis

- 23 crashes during the 5-year period of 2018-2022
- 56.5% (13) rear end crashes

Exiting Capacity Analysis

- Coonpath Road Currently has 8980 vehicles per day
- Election House Road currently has 4660 vehicle per day
- Current Level of Service is C
- The Intersection will operate at Level of Service F by 2048 with no improvements.

Purpose Statement

The purpose of the study is to identify alternatives to improve safety and reduce congestion at the Coonpath Road and Election House Road intersection.

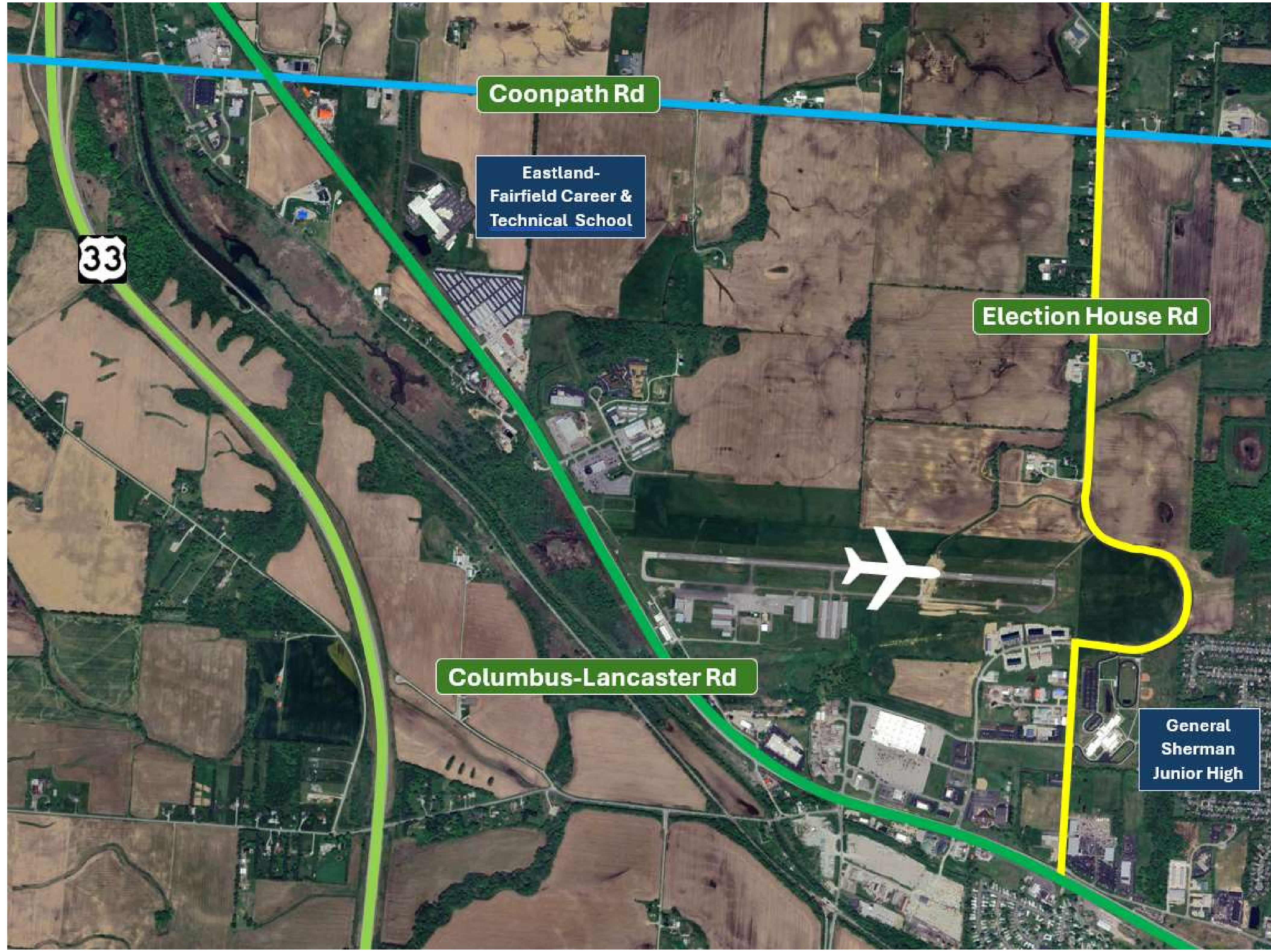

Figure 1 – Map of Area

Chapter 3 Alternatives Considered

3 Alternatives have been evaluated at this intersection:

- Alternative 1 - Signalized Intersection
- Alternative 2 - Roundabout
- Alternative 3 - Roundabout with right turn lane

The following design criteria has been set and was followed for the build alternatives studied:

Criteria	Coonpath Rd	Election House Rd
Functional Classification	Minor Arterial	Minor Collector
Locale (103.1 or 301-4)	N/A (Rural)	N/A (Rural)
Roadway Type	Rural	Rural
Design Speed	55 MPH	55 MPH
Legal Speed	55 MPH	55 MPH
National Truck Network	NO	NO
National Highway System	NO	NO
Design Vehicle	WB-62	WB-62
Check Vehicle	WB-67	WB-67
Lane Width	11'	11'
Treated Curbed Shoulder Width	1-2 Paved (or curb & gutter)	1-2 Paved (or curb & gutter)
Treated Uncurbed Shoulder Width	4'	4'
Graded Shoulder Width	4'	4'

Table 1 Design Criteria

Alternative 1 – Signalized Intersection

This alternative adds a traffic signal at the intersection. The addition of a signal will allow a greater control for traffic capacity by individual movements. The higher volume movements will then be able to receive increased priority with extra green time, potentially improving the overall operation and safety of the intersection. To optimize the alternative and add additional capacity, a left and right turn lane is added in the northbound direction and a left turn lane added in the east, west and southbound directions. Refer to *Figure 2* for the schematic plan view of Alternative 1.

Figure 2 - Signalized Intersection Schematic Plan View

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Alternative 2 – Roundabout

This alternative constructs a single lane roundabout at the intersection. Roundabouts have been a proven intersection upgrade improving both capacity and safety. The Federal Highway Administration has promoted roundabouts nationally and Ohio DOT has also continued to encourage roundabouts as one of the most effective intersections improvements for the same reason. See ODOT's link for additional information regarding roundabouts. Refer to *Figure 3* for the schematic plan view of Alternative 2.

https://www.transportation.ohio.gov/about-us/basics/roundabouts

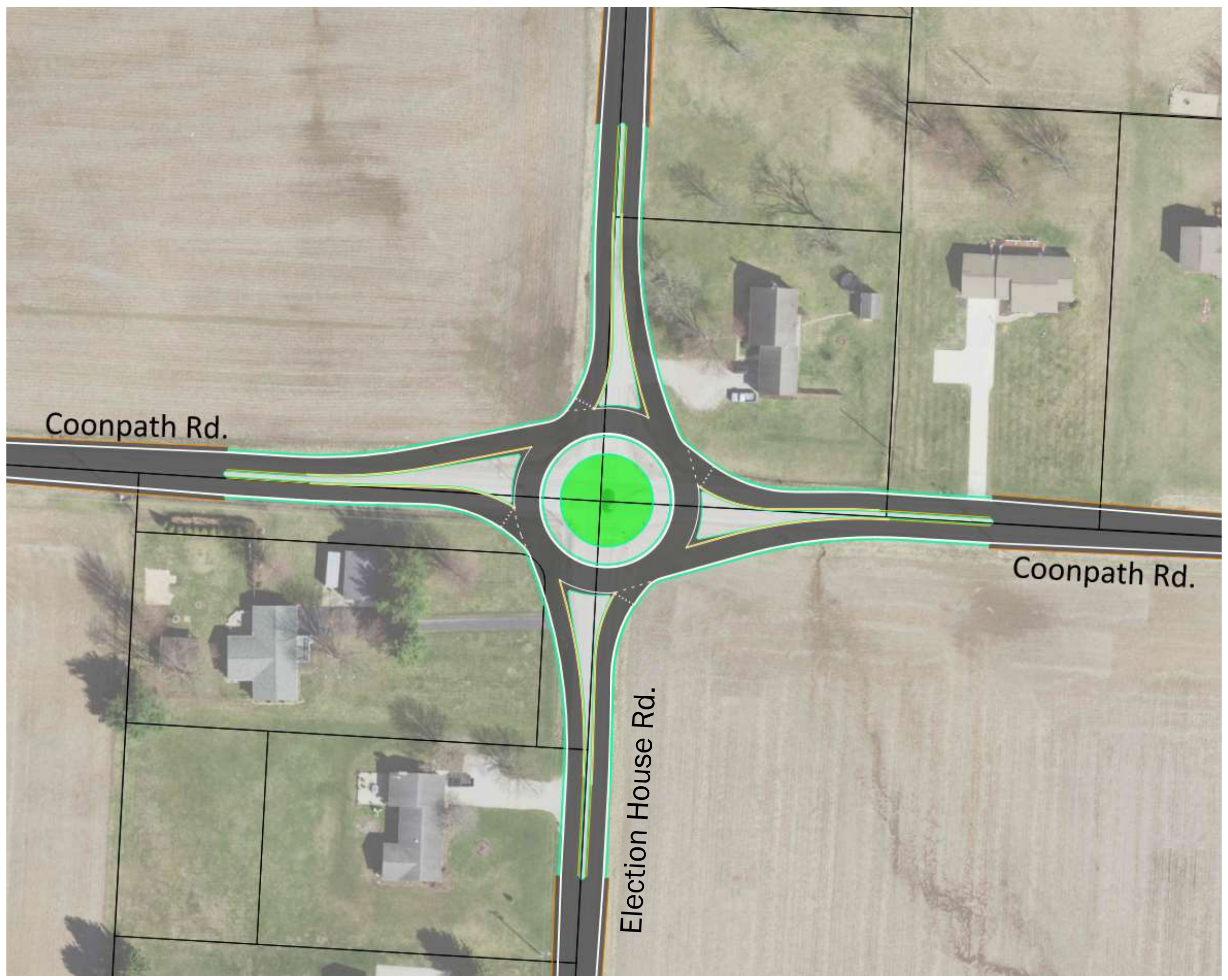

Figure 3 - Roundabout Schematic Plan View

Alternative 3 – Roundabout with right turn lane

The third and final alternative is a roundabout with the addition of a northbound right turn lane. This turn lane is needed due to the large number of vehicles making the northbound to eastbound movement in the design year. The northbound leg of the intersection had the largest right turning volume of any approach. This additional turn lane would further improve the capacity and operation of the overall roundabout with minimal impacts. However, the turn lane would not be need for capacity in the opening day. Refer to *Figure 4* for the schematic plan view of Alternative 3.

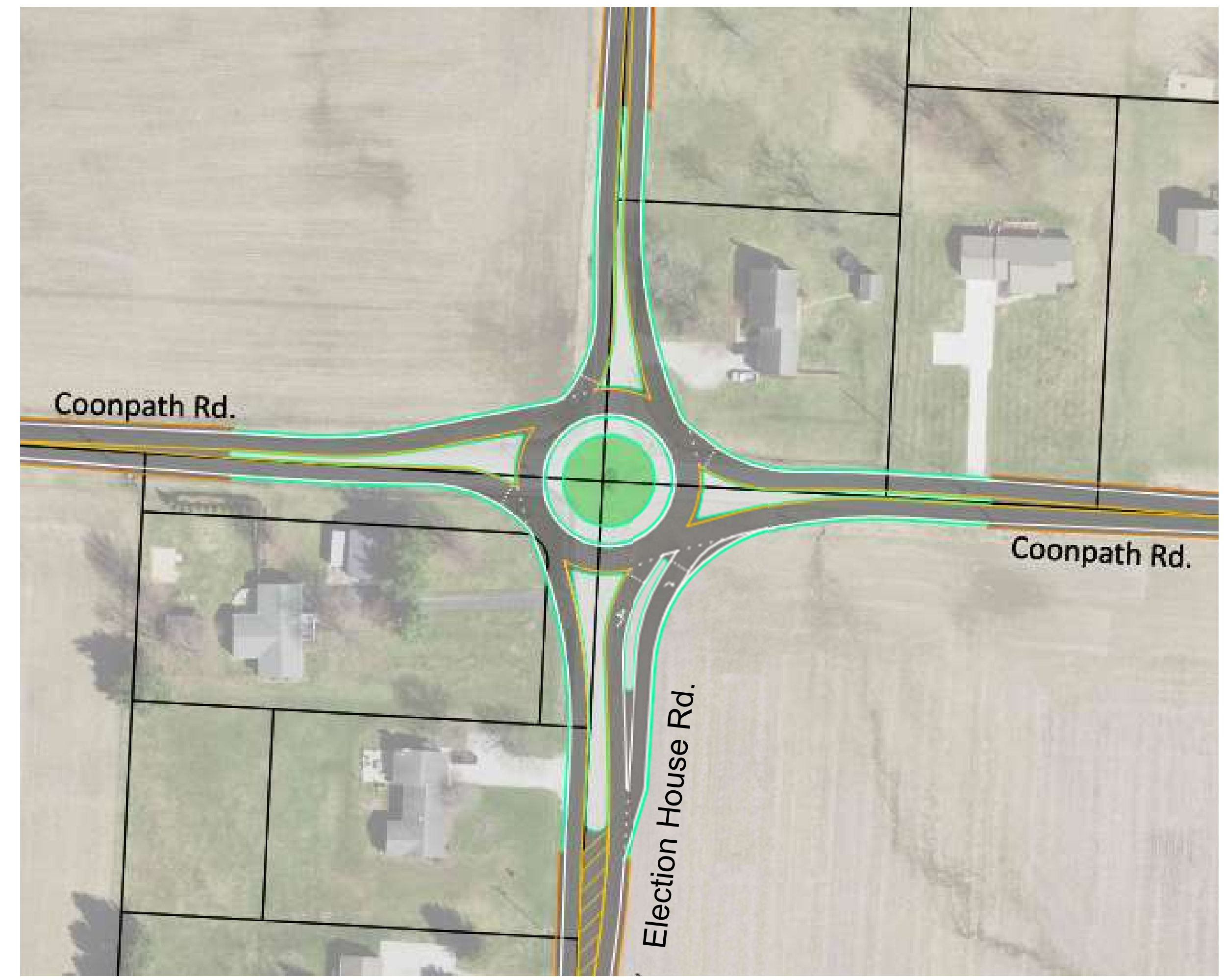

Figure 4 - Roundabout with right turn lane Schematic Plan View

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Additionally, an upgraded 4-way stop controlled intersection was considered. The alternative was analyzed with an additional left turn lane on all four legs to improve capacity. The capacity analysis showed that the intersection would operate at a Level of Service of "F" in the design year, indicating it didn't address the critical safety and congestion needs. See *Appendix E* for the detailed HCS analysis of this alternative. For this reason, this alternative was dismissed from further consideration.

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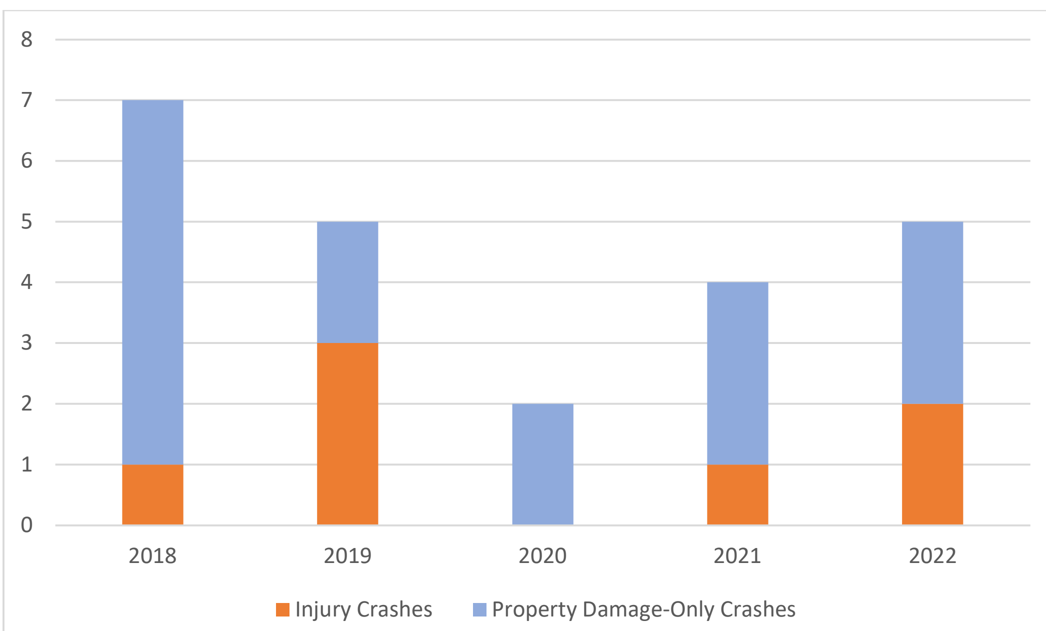

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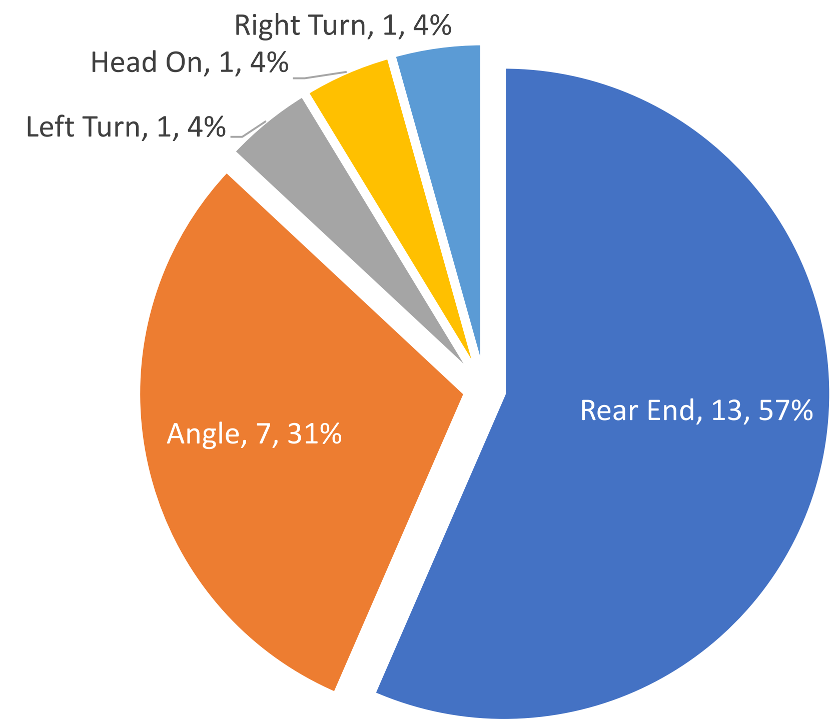

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Findings show that the intersection is performing worse than would be predicted based on the roadway characteristics and traffic volumes. The intersection experiences approximately 0.86 more crashes per year than similar intersections.

Proposed Safety Performance

Highway Safety Manual methodology was also applied using ODOT's Economic Crash Analysis Tool (ECAT) to evaluate the proposed safety performance for three alternatives:

4. No Build
5. Install a signal at the intersection with dedicated left turn lanes on all approaches and a dedicated right turn lane on the northbound approach.
6. Install a single lane roundabout with right turn bypass lane on the northbound approach.

Safety performance evaluation comparing the proposed alternatives to the No Build alternative is shown in Table 3 and Table 4. All analysis was performed using 2048 traffic volume projections.

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Findings show that installing a signal at the intersection is expected to increase overall crash frequency by approximately 1.74 crashes per year. Installing a roundabout at the intersection is expected to reduce overall crash frequency by approximately 0.59 crashes per year.

Traffic Operations

Data Collected

Turning movements were conducted using Miovision at the study intersection on Thursday, February 15, 2024. The AM peak hour for the study area was identified as 6:45-7:45 AM and the PM peak hour was determined to be 4:15-5:15 PM. A seasonal adjustment factor has been applied to the counts to determine AADT in accordance with the procedures outlined by ODOT's Modeling and Forecasting office. Copies of the traffic counts and figures showing the 2024 Existing traffic volumes are contained in Appendix D.

Design Year Intersection Traffic Forecasts

Future year No-Build traffic forecasts were developed by Burgess & Niple. The ODOT Traffic Forecast Management System(TFMS) was used to determine the annual growth rate at Coonpath Road and Election House Road intersection. TFMS predicts that the corridor will have a nearly flat annual growth rate of 2.2%. In addition to the annual growth rate, a Design Hour Volume (DHV) factor was applied. The DVH factor converts the peak hour volume to the 30th highest hour volume. Based on counts being conducted on a Thursday in February the DHV factor of 1.27.

With the application of the annual growth rate and DHV factor, the 2024 peak hour traffic counts were increased to 2048 design hour volumes using the following calculations:

- 2048 Projected increase = 2.2% per year x 24 years x 1.27 = 94.1%

Capacity Analysis

Capacity Analysis for the alternatives was conducted using the 2048 traffic projections. Highway Capacity Software (HCS), version 2023 was used for the analysis. The operational goals for the traffic analysis are that the overall intersection operates with a Level of Service (LOS) of D or better, each movement at LOS E or better, a volume to capacity (v/c) ratio of less than 0.93, and a queue storage ratio (QSR) of less than 1.0. Intersection capacity results are discussed in this chapter and detailed outputs of the HCS analysis are contained in Appendix E.

Existing 4-way Stop

The No Build alternative at the existing intersection is projected to be at LOS F in the design year. The analysis shows a projected average delay of 278 seconds per vehicle in the PM peak and 275 seconds per vehicle in the AM Peak. The only direction not expected to exceed LOS F is the southbound direction due to lower traffic volumes on the north approach leg.

Table 5 2048 No Build Coonpath Rd & Election House Road

		Eastbound Coonpath Rd	Westbound Coonpath Rd	Northbound Election House Rd	Southbound Election House Rd
2048 No Build AM		TRL	TRL	TRL	TRL
LOS	F	D	F	C	C
Delay	275.0	25.3	470.2	15.7	19.0
95th %ile Queue		115	1846	53	84
2048 No Build PM		TRL	TRL	TRL	TRL
LOS	F	F	F	F	D
Delay	278.3	396.1	343.4	125.6	26.0
95th %ile Queue		1228	1073	489	96

Improved 4-way stop

By adding an additional turn lane in each direction, the projected delay per vehicle will improve from 275 to 152 seconds per vehicle. Although this is a significant improvement the overall intersection LOS will remain an F in the design year. Therefore, this is not considered as a viable alternative.

Table 6 2048 Improved 4-way Stop Coonpath Road & Election House Road

		Eastbound Coonpath Rd		Westbound Coonpath Rd		Northbound Election House Rd		Southbound Election House Rd	
		L	TR	L	TR	L	TR	L	TR
2048 4 Way Stop with additional Turnlane AM									
LOS	F	B	D	C	F	B	B	B	C
Delay	151.8	11.0	25.6	15.8	312.7	11.8	14.7	11.8	17.6
95th %ile Queue		5	140	56	1233	5	42	8	71
		24.7 C		253.3 F		14.4 B		16.8 C	
		L	TR	L	TR	L	TR	L	TR
2048 4 Way Stop with additional Turnlane PM									
LOS	F	B	F	C	F	B	F	B	C
Delay	150.3	14.2	307.2	23.2	111.9	12.1	118.5	13.9	20.5
95th %ile Queue		20	980	88	434	3	469	10	66
		275.1 F		83.2 F		116.3 F		19.3 C	

Signalized Intersection

This alternative signalizes the intersection with the addition of turn lanes in each direction. Left turn lanes were placed on all approaches and a right only turn lane was placed on the northbound approach. The signal allows for the distribution of green time and balancing of the delay for individual movements. This signal is projected to operate at a LOS C in the AM and LOS D in the PM design year. This alternative provides good operation overall, however, the northbound through movement is at a LOS E which is acceptable but less than optimal. The average vehicular delay is 28.6 seconds in 2048 AM Peak and 42 seconds in the PM Peak. This is a significant delay savings over the exiting 4-way stop condition intersection treatment.

Table 7 2048 Signalized Coonpath Road & Election House Road

		Eastbound Coonpath Rd		Westbound Coonpath Rd		Northbound Election House Rd			Southbound Election House Rd	
		L	TR	L	TR	L	T	R	L	TR
2048 Signal with additional Turnlane AM										
LOS	C	B	B	B	C	C	D	C	C	D
Delay	28.6	19.6	17.7	11.5	31.8	35.0	37.3	31.8	33.2	43.7
V/C		0.12	0.39	0.36	0.88	0.17	0.21	0.30	0.11	0.86
QSR		0.04	0.22	0.31	0.65	0.07	0.06	0.28	0.10	0.24
95th %ile Queue		11	218	93	646	21	56	98	30	244
		17.8 B		27.8 C		33.8 C			42.4 D	
2048 Signal with additional Turnlane PM										
LOS	D	B	D	C	C	D	E	D	D	D
Delay	42.0	15.8	53.9	34.4	22.1	37.7	63.7	46.2	35.9	41.5
V/C		0.24	0.96	0.91	0.61	0.06	0.84	0.79	0.26	0.6
QSR		0.17	0.77	0.93	0.36	0.04	0.30	0.96	0.15	0.22
95th %ile Queue		50	770	279	362	11	296	335	44	219
		49.7 D		26.1 C		53.2 D			40.5 D	

Roundabout

This alternative constructs a single lane roundabout at the intersection. The proposed roundabout would operate at an overall LOS C with an average delay of 19.2 seconds in the 2048 AM peak hour and 24.0 in the 2048 PM peak hour. The northbound movement would operate at a LOS E and average delay of 36.7 seconds per vehicle. A second roundabout was developed to further relieve this future congestion for comparison. This improved roundabout alternative would operate at the highest level of the alternatives with the PM Peak hour average delay further reduced to 18 seconds per vehicle.

Table 8 2048 Roundabout Coonpath Road & Election House Road

		Eastbound Coonpath Rd	Westbound Coonpath Rd	Northbound Election House Rd	Southbound Election House Rd
		R	R	R	R
2048 Roundabout AM					
LOS	C	A	C	A	C
Delay	19.4	8.8	24.9	6.5	20.9
V/C		0.41	0.89	0.22	0.58
95th %ile Queue		52	339.0	24	94.2
		R	R	L	R
2048 Roundabout PM					
LOS	C	D	C	E	A
Delay	24.0	27.6	15.6	36.7	9.8
V/C		0.86	0.71	0.86	0.34
95th %ile Queue		276	159	245	38

Table 9 2048 Roundabout with right turn lane Coonpath Road & Election House Road

		Eastbound Coonpath Rd	Westbound Coonpath Rd	Northbound Election House Rd		Southbound Election House Rd
		R	R	L	R	R
2048 Roundabout AM						
LOS	C	A	C	A	A	C
Delay	19.2	8.8	24.9	4.7	5.1	20.9
V/C		0.41	0.89	0.09	0.12	0.58
95th %ile Queue		52	339.0	8	11	94.2
		8.8 A	24.9 C	49.9 A		20.9 C
		R	R	L	R	R
2048 Roundabout PM						
LOS	C	D	C	A	B	A
Delay	18.0	27.6	15.6	9.6	11.7	9.8
V/C		0.86	0.71	0.33	0.44	0.34
95th %ile Queue		276	159	36	56	38
		27.6 D	15.6 C	10.8 B		9.8 A

Environmental Screening

This Environmental Screening for the Coonpath and Election House intersection was evaluated by Burgess & Niple (B&N) on April 11, 2024. The desktop reconnaissance utilized the following resources: aerial imagery, Untied States Geological Survey(USGS) topographic mapping, United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping, USFWS Threatened & Endangered Species, Federal Emergent Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Cultural Resources, Regulated Materials Review, and Underserved Population Review. Mapping and data from these various agencies are located in Appendix F. Resources found during the desktop reconnaissance are discussed in this chapter.

Aerial imagery was assessed using Google Imagery and Environmental Systems Research Institute (ESRI) World Imagery. The intersection is in a rural setting, with the surrounding land composed of residential and agricultural. There are active row-cropping fields and residential homes with maintained lawns. Sporadic trees are found in the residential properties. The study area is on the USGS 7.5-minute Carroll Quadrangle, OH topographic map. The study area is located at approximately 880 feet above mean sea level.

The USFWS National Wetland Inventory (NWI) mapping depicts no features within the study area. While the NWI mapping is a useful tool for preliminary assessments, an on-site survey may be required to ensure there are not any unmapped features within the study area such as wetlands or small streams within the right-of-way. The study area is found on the FEMA FIRM panel 39045C0145G (eff. 1/6/2012). The study area is within Zone X, indicating an area of minimal flood hazard.

The USFWS Information for Planning and Consultation (IPaC) system was accessed to identify any potential federally threatened or endangered species within the study area. Two endangered species may be present within the study area, the Indiana bat (*Myotis sodalis*) and the Northern Long-eared bat (*Myotis septentrionalis*). One proposed endangered species, the Tricolored bat (*Perimyotis subflavus*), is also potentially within the study area. The Monarch butterfly (*Danaus Plexippus*) is a candidate species potentially within the study area. To protect the bat species, the USFWS will likely recommend seasonal tree clearing between October 1 and March 31.

Cultural resources were assessed using mapping the Ohio State Historic Preservation Office (OSHPO) provided. Mapping provided by OSHPO shows there are no known historical properties or archaeological sites within or adjacent to the study area. As the farm fields have had minimal earth disturbance, a Phase I archaeological survey may be required.

Regulated Materials were assessed utilizing the ODOT Ohio Regulated Properties Search (ORPS) tool. There are no properties within or adjacent to the study area with regulated materials or past incidents.

The ODOT Transportation Information Mapping System (TIMS) was utilized to determine demographics of the people living within the study area. The study area is within four separate census tracts. In the southwest tract, the population is 1% people of color and 27% of the population is low income. The southeast tract population has 11% of people designated as low income and 12% of the population are people of color. Within the northeast tract, 10% of the population is considered low income, and 5% of the population are people of color. In the northwest tract, 11% of the population is low income and 12% of the population is comprised of people of color.

The above information was obtained from public agency records and reflects the information contained in their data bases. A detailed environmental review including field investigations will likely be required during preliminary and detailed design to determine if any undocumented environmental attributes are present within the study area.

Utilities Impacts

Existing private and public utilities and respective owners were determined by submitting an OUPS ticket and reviewing record plans.

- South Central Power Overhead powerlines are located on the west side of Election House Road and south side of Coonpath.
- AT&T has buried cable on the north side of Coonpath Road and on the eastside of election house road. AT&T's buried cables also travel under the Election House Road immediately south of the intersection and under Coonpath Road immediately west of the intersection.
- Northeast Ohio Natural Gas services all buildings along Coonpath Road and Election House Rd. The lines are buried on the northside of Coonpath Rd. Along Election House Road the buried lines are west of the road to the south of the intersection then cross over and travel on the eastern side of the roadway.

See *Appendix G* for detailed responses from the utility owners in the area.

Construction Cost Estimate

Construction cost estimates were prepared for all the alternatives. These construction cost estimates assumed the big-ticket items, such as pavement areas, curb, barrier, and earthwork were quantified using CADD areas. Other items, such as drainage, traffic control, and maintenance of traffic (MOT), were reported as a raw percentage of the total construction cost or based on similar projects due to the lack of detailed design completed at this time. The cost estimate utilized 2024 bid tabs for unit costs, and the entire estimate was inflated for 2027 year of construction using an inflation percentage increase of 17.9%. A 30% contingency was applied to the construction cost subtotal due to the level of uncertainty that still exists with the design. The table shows the estimated construction costs for the three Build alternatives. Refer to Appendix H of this report for the Construction Cost Estimates for each Build alternative.

Alternative	Construction Cost Estimate
Signalized Intersection	$2,401,000
Roundabout	$2,662,000
Roundabout with right turn lane	$2,809,000

Table 10 - Construction Cost Estimates

All alternative costs are relatively close with the signalized intersection as being the lowest cost. However, the ongoing operational and safety benefits often favor the roundabouts increase costs. Cost Estimates are Construction only.

Chapter 5 Conclusions & Next Steps

The matrix comparing all alternatives across the 5 Key Criteria discussed in Chapter 4. The No Build 4-way stop does not meet the purpose of the project by not improving safety or congestion. Therefore, the No Build is not being considered for advancement.

The Safety analysis shows the roundabout alternatives could reduce the predicted number of crashes when compared to similar intersections and the signalized intersection is likely to increase crashes overall when compared to similar intersections.

Traffic performance shows the roundabout alternatives exhibit better LOS performance than the signalized intersection as well. The roundabout with a northbound turn lane will further improve operations. The northbound movement is projected to be at LOS E in the design year unless the turn lane is constructed.

Environmental impacts are minimal with all alternatives and therefore is not a significant differentiating factor in selecting the alternative. Utility impacts are also similar in all alternatives and not a significant differentiating factor.

The Roundabout with right turn lane alternative has the greatest benefits in both the Safety Performance and the Traffic Operations category with minimal additional impacts to the surrounding area in comparison to the remaining intersection alternatives.

The right turn lane could be built with the initial roundabout project or be added in the future when traffic levels increase. This strategy could be used to phase the project and defer a portion of the cost of the project to a future time when gaining additional capacity is critical. It is recommended to purchase the right of way required for the right turn lane with the initial roundabout project to ensure future land use does not preclude this intersection enhancement.

Coonpath Road & Election House Road				
	No Build	Alternative 1	Alternative 2	Alternative 3
Evaluation Criteria	4-Way Stop	Signal	Roundabout	Roundabout w/Turn Lane
Safety Performance	○	◔	●	●
Traffic Operations	○	◑	◕	●
Environmental Impacts	●	◕	◕	◕
Utility Impacts	●	◕	◕	◕
Cost Estimates	●	◕	◕	◕

Good	●
Fair	◕
Satisfactory	◑
Unsatisfactory	◔
Pooor	○

Table 11 – Evaluation Matrix

Next Steps

Depending on which alternative described in this study is carried forward into the next phase of project development, further investigation and information gathering may be necessary to confirm impacts and meet the needs established by the design process. Here are the recommendations for next steps:

- Identify potential funding partners and obtain funding for the project. Potential sources include ODOT Safety Program, CEAO Safety, Federal Grant opportunities (Safe Streets for All), CORPO and Local Funding opportunities.
- Obtain Survey and Geotechnical information to advance the project design
- Develop detailed horizontal and vertical geometry of the Recommended Alternative and evaluate/optimize the right-of-way impacts.
- On site Environmental Screening
- Phase I archaeological Survey
- Advance the Recommended Alternative through the Design and NEPA process