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Strand Associates, Inc.® (SAI)

Village of Gambier Multimodal Improvements

Village of Gambier

June 27, 2025

Agenda

- Objective
- Study Area and Scope Overview
- Crash Screening
- Pedestrian Volumes
- Speed Data Evaluation
- Proposed Countermeasures
- Next Steps

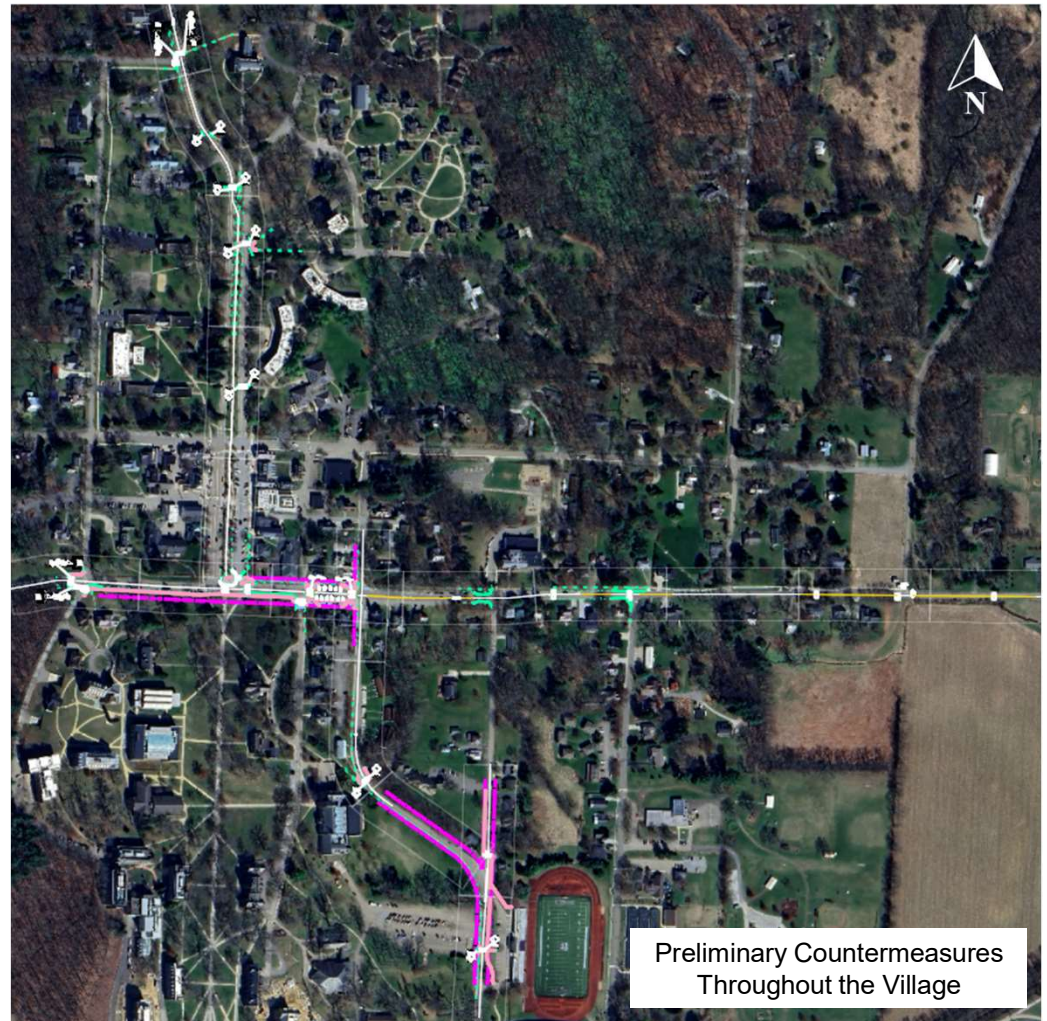


Objective

- The Village of Gambier applied for Transportation Alternatives funding within the previous year
- The Village developed conceptual ideas for the area, but Strand Associates was selected for an overall comprehensive plan to optimize use of potential available funding
- Strand developed several countermeasures to improve safety and network connectivity throughout The Village of Gambier
- Ultimately, this preliminary work will allow the Village to pursue the Transportation Alternatives Programs (TAP) and/or Safety funding through The Ohio Department of Transportation (ODOT)

Study Area and Scope Overview

- Data collection and analysis is an important first step to determine crash patterns, existing deficiencies, and areas of concerns
- The data collected and reviewed for this assessment was:
 - Crash data
 - Pedestrian volumes
 - Vehicular speed data
- Studied Corridors
 - Wiggin Street
 - Chase Avenue/Gaskin Avenue
 - S. Acland Street & Duff Street



Crash Screening

- Utilized ODOT TIMS and GCAT tools to compile and review crash data
- Crash data collected 2021 to 2024
 - All crashes downloaded within Village Limits (~40)
 - Filtering for Corridor limits with GIS = ~21 crashes
 - Filtering for Serious injuries with GIS = ~1
 - Filtering for Fatalities with GIS = ~0
- No discernable patterns or trends were found within the village limits
- Maps created for **Total Crashes** and the following crash trends:

Serious Injury



Fatal



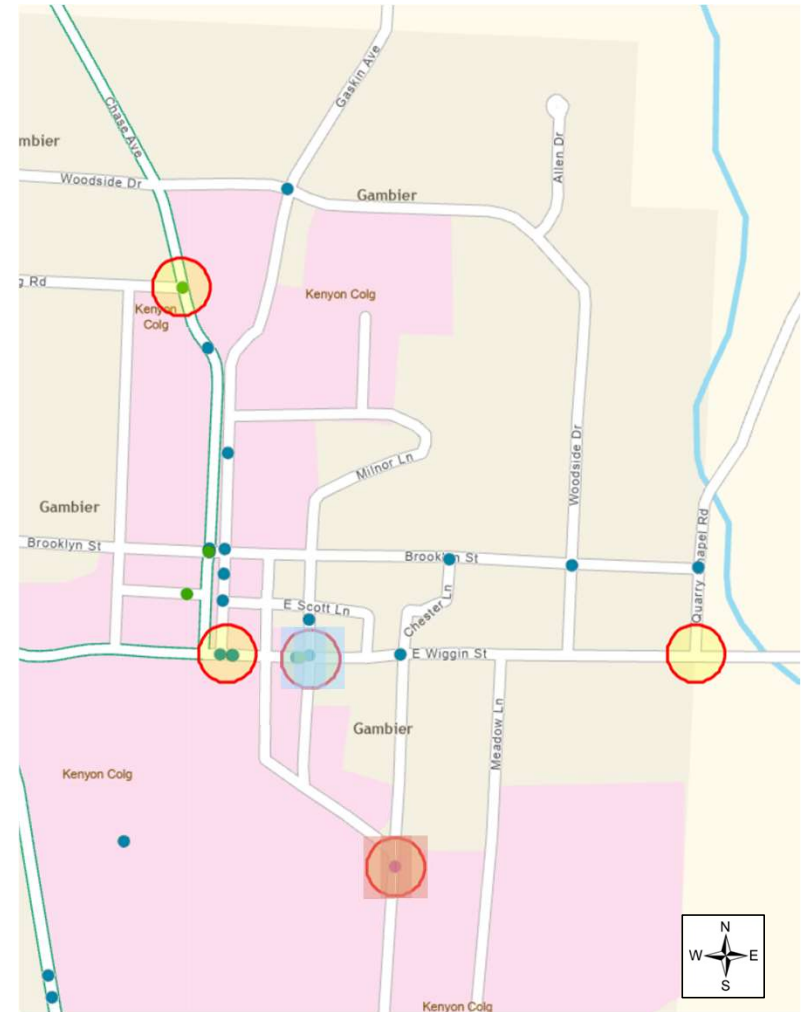
Pedestrian



Key Intersection Locations

- Possible severity of crashes or concentrations are higher in these areas compared to that of others
- Areas of concerns:
 - Wiggin Street & Gaskin Avenue
 - Wiggin Street & S. Acland Street
 - S. Acland Street & Duff Street
 - Chase Avenue & Kokosing Drive (due to speed change)
 - Wiggin Street & Quarrel Chapel Road. (complaints of higher speed and rolling stops)

Pedestrian Involved Crashes



Crash Data Analysis Results

- Wiggins Street
 - 7 total crashes (1 Pedestrian related)
 - 0 fatal, 0 serious injury, 1 minor injury, 6 PDO
- Chase Street
 - 8 total crashes
 - 0 fatal, 0 serious injury, 3 minor injury, 5 PDO
- Gaskin Avenue
 - 5 total crashes
 - 0 fatal, 0 serious injury, 0 minor injury, 5 PDO
- S. Acland Street and Duff Street
 - 1 total crash (1 Pedestrian related)
 - 0 fatal, 1 serious injury, 0 minor injury, 0 PDO

KABCO Scale for Crash Data

INJURY CODES	CONVERSION	DEFINITIONS / INSTRUCTIONS / NOTES
Fatal	K	Fatal: indicates the person was killed as a result of the collision and died within 30 days of the collision.
Incapacitating	A	Incapacitating: any non-fatal injury which prevents the person from walking, driving, or normally continuing the activities he/she was capable of performing prior to the collision and does require medical attention. Include severe lacerations, broken limbs, skull fracture, internal injuries, unconsciousness when leaving the scene, or inability to leave scene without assistance.
Non-incapacitating	B	Non-incapacitating: evident to observers at the collision scene such as minor lacerations, bruises, and abrasions.
Possible	C	Possible: claim of injury and/or pain that is not evident to the eye. Includes momentary unconsciousness, limping, nausea, and hysteria.
None detected	O	

PDO = Property Damage Only

Source: <https://highways.dot.gov/media/20141>

Crash Data Analysis Summary

Total Crashes (2021-2024): 21

0% Fatal Crashes

5% Serious Injury Crashes

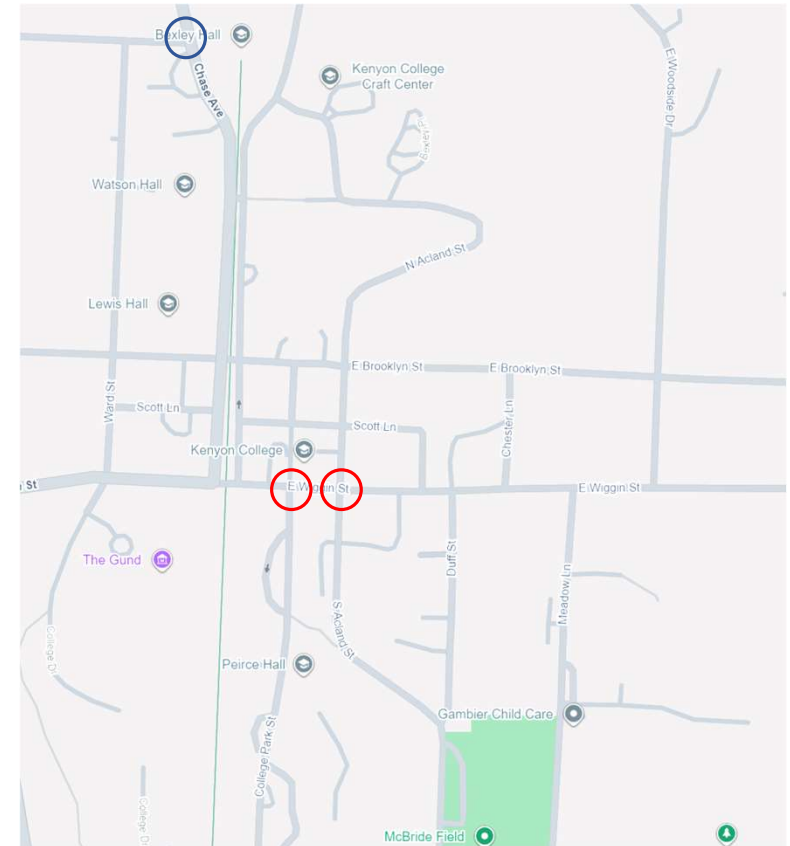
20% Minor Injury Crashes

75% Property Damage Only

- Based on the crash analysis, there does not appear to be a discernible pattern within the studied corridors. However, low-cost countermeasures can be implemented to prevent future issues from arising

Pedestrian Volume Counts

- The pedestrian volumes are confirmed by pedestrian volumes collected and field observations
- It is important to understand where pedestrian platoons are crossing throughout the Village to design potential safety adjustments to those areas
- Levels of pedestrian volumes may trigger the need for Pedestrian Hybrid Beacons or Rectangular Rapid-Flashing Beacons (RRFBs) to allow for safe crossing
- Data was collected in 2022 by:
 - Carpenter Marty (CM) Transportation Inc.

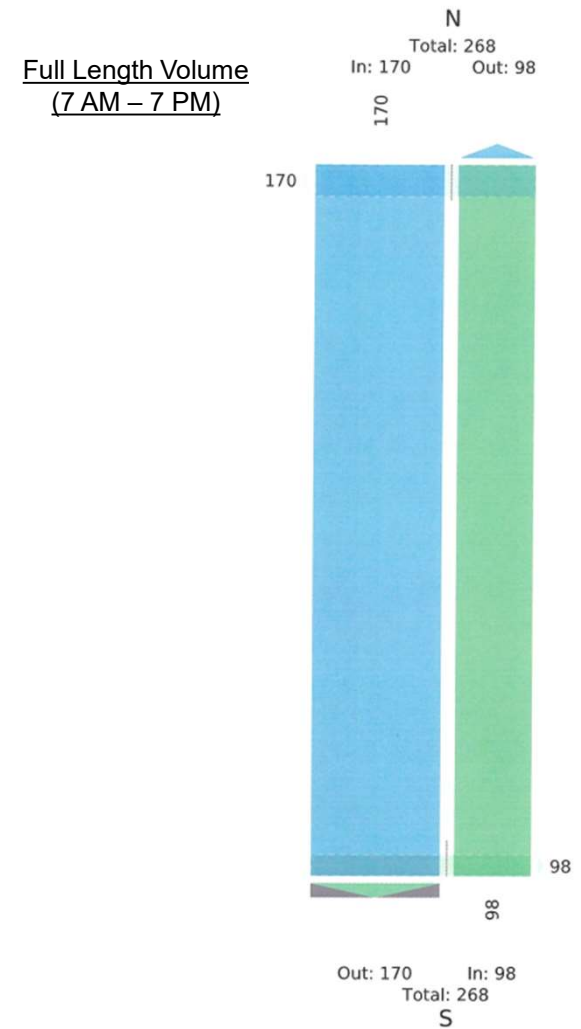


- High Pedestrian Crossing
- Proposed RRFB Location



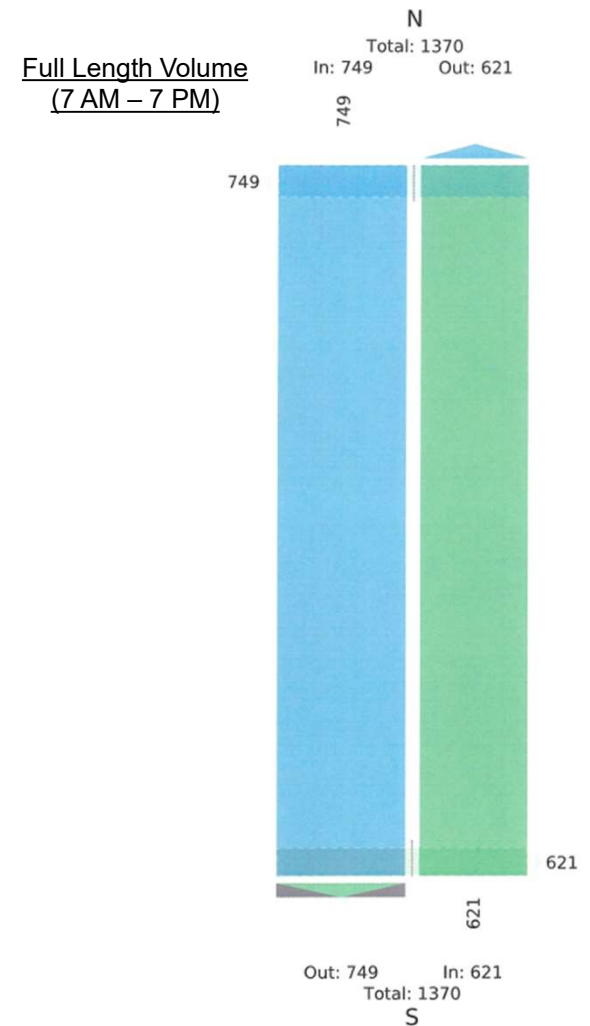
Pedestrian Volumes

- Wigin Street & S. Acland Street Crossing
 - Highest pedestrian crossing
 - Time Period: AM Peak (7:45 - 8:45 AM), Midday Peak (11:30 - 12:30 PM), and PM Peak (3:30 – 4:30 PM)
 - 1 crash involving pedestrian
 - 0 fatal, 0 serious injury, 1 minor injury



Pedestrian Volumes

- Wiggan Street & Center Run/College Park Crossing
 - High pedestrian crossing
 - Time period: AM Peak (8:45 – 9:45 AM), Midday Peak (11:30 – 12:30 PM), PM Peak (6 – 7 PM)
 - 0 crashes involving pedestrian
 - 0 fatal, 0 serious injury, 0 minor injury



Pedestrian Pattern Takeaways

- Wiggins Street & Center Run/College Park Crossing and Wiggins Street/S. Acland Street crossings exhibit the highest concentration of pedestrians crossing throughout the day
- These crossings present the highest possibility of conflict between crossing pedestrians and vehicular traffic
- Curb bump outs with raised crosswalks are proposed to achieve
 1. Shorter crossing distances
 2. Higher visibility
 3. Maintaining reduced vehicular speeds throughout the corridor

Speed Data Evaluation

- Evaluated each corridor for average and 85th –percentile speed to determine if a speeding pattern is observed
 - Each corridor had 85th –percentile speeds that were very close to the posted speed limits
 - 85th –percentile speed represents the point where 85% of drivers are traveling at or below a speed. This tends to reflect the speed most drivers consider safe and reasonable for that corridor. It's useful to compare 85th –percentile speed against speed limit to determine if any large speed differentials exist, which can indicate speeding could be an issue.
 - Comparing the 50th –percentile (average) speed against the posted speed limit metrically useful to determine if the posted speed limit is in line with driver's anticipation



Speed data collected from Streetlight

Speed Data Evaluation (cont.)





- All 50th –percentile speeds suggest that posted speed limit is accurate for the corridor and driver behavior adheres to the limit
- 85th –percentile speeds all appear to be within acceptable range from the posted speed limits, but do still show a portion of the traffic traveling at higher rates of speed
 - Introducing curb bumpouts, speed humps, and higher visibility for pedestrian crossings can help to reduce this 85th –percentile speed back down closer to the posted speed limit and reduce likelihood of severe crashes
- Areas to recognize where speed increases were observed:
 - Intersection of Quarrel Chapel Road and Wiggin Street
 - Intersection of Chase Avenue and Kokosing Drive

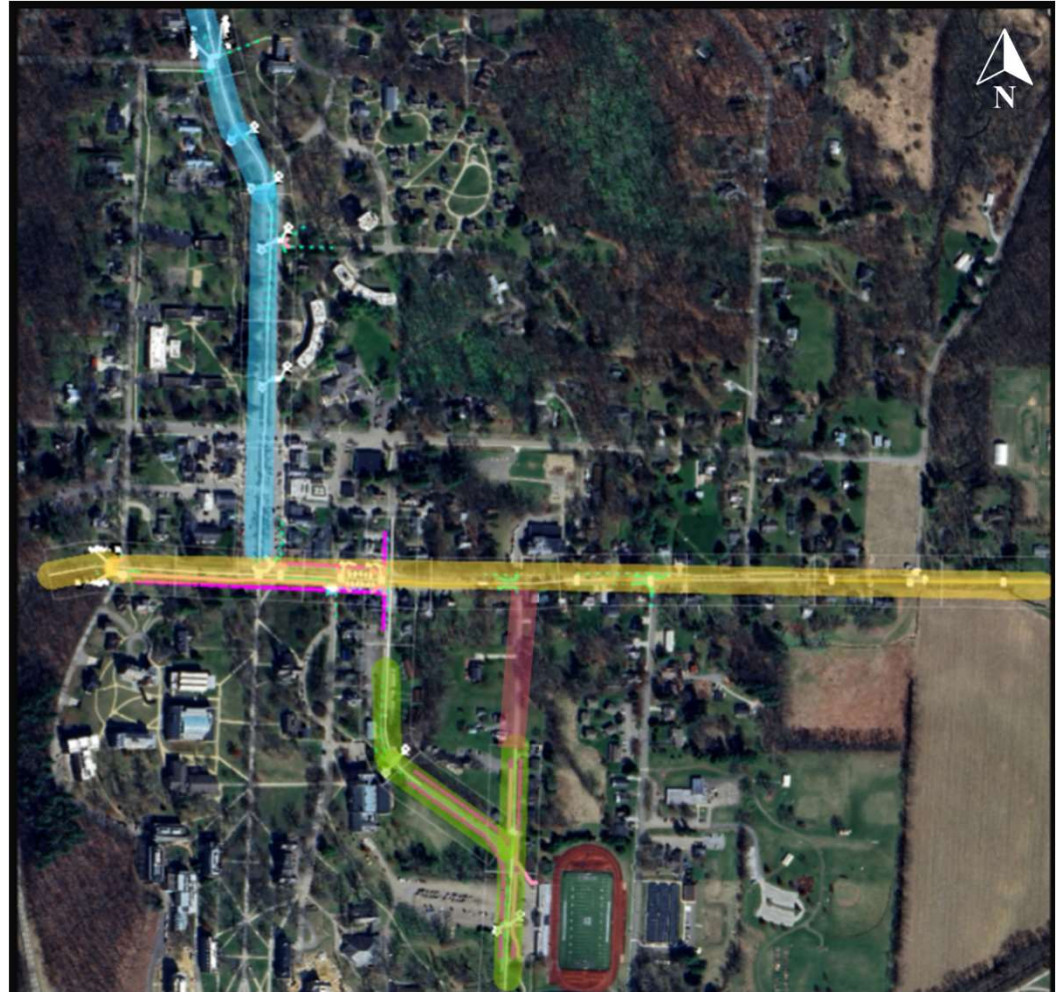
	E. Wiggling St. Speed Data		
	Posted Speed Limit	50% Speed (mph)	85% Speed (mph)
New Castle Rd. to Chase Ave.	25	26	33
Chase Ave. to Quarry Chapel Rd.	25	21	28
Quarry Chapel Rd. to 1,000 east	40	39	48

Proposed Countermeasures

- Overall concept plan and limits of impact

Legend

-  Chase Ave./Gaskin Ave. Corridor
-  Wiggin St. Corridor
-  S. Acland St./Duff St. Corridor
-  Duff St. Corridor (Alternative #1)



Wiggin Street Corridor

- Goal
 - Improve network connectivity
 - Promote safer/more visible crossings
 - Address speed concerns to the east of corridor
- Project Cost Estimate



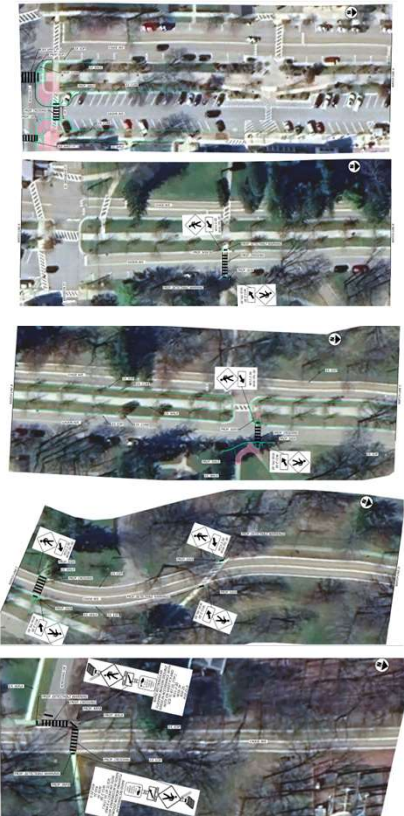
Cost Estimate - Wiggins Street Improvements						
ITEM	EXTENSION	UNIT	DESCRIPTION	QUANTITY	UNIT COST	COST
202	E23000	SY	Pavement Removed	2,000	\$24.00	\$48,000.00
202	E30000	SF	Walk Removed	1,630	\$8.00	\$13,040.00
202	E32000	FT	Curb Removed	600	\$21.00	\$12,600.00
202	E32500	FT	Curb and Gutter Removed	100	\$25.00	\$2,500.00
202	E58100	EA	Catch Basin Removed	1	\$800.00	\$800.00
301	E56000	CY	Asphalt Concrete Base, PG64-22, (449)	40	\$370.00	\$14,800.00
304	E20000	CY	Aggregate Base	60	\$115.00	\$6,900.00
441	E50000	CY	Asphalt Concrete Surface Course, Type 1, (448), PB4-22	25	\$210.00	\$5,250.00
441	E50300	CY	Asphalt Concrete Intermediate Course, Type 2, (448)	15	\$215.00	\$3,225.00
608	E10000	SF	4" Concrete Walk	9,655	\$10.00	\$96,550.00
608	E52000	SF	Curb Ramp	1,520	\$26.00	\$39,520.00
608	E53020	SF	Detectable Warning	280	\$28.00	\$7,840.00
609	E12000	FT	Combination Curb and Gutter, Type 2	150	\$60.00	\$9,000.00
609	E160000	FT	Curb, Type 2-B	1,300	\$15.00	\$19,500.00
611	E04400	FT	12" Conduit, Type B	150	\$145.00	\$21,750.00
611	E98150	EA	Catch Basin, No. 3	5	\$6,500.00	\$32,500.00
611	E98574	EA	Manhole, No. 3	1	\$7,000.00	\$7,000.00
630	E97700	EA	Signing, Misc.: Solar Powered Rectangular Rapid Flashing Beacon (RRFB) Sign Assembly	2	\$10,000.00	\$20,000.00
644	E00500	FT	Stop Line	50	\$15.00	\$750.00
644	E00630	FT	Crosswalk Line, 24"	525	\$7.50	\$3,937.50
TOTAL						\$365,462.50
TOTAL W/ 25% CONTINGENCY						\$456,828.13
INFLATION TO MID-2028 (14.0%)						\$63,955.94
ENVIRONMENTAL & FINAL DESIGN						\$104,156.81
R/W ACQUISITION & UTILITY RELOCATIONS						\$22,000.00
ESTIMATED PROJECT TOTAL						\$646,940.88

Chase Avenue and Gaskin Avenue Corridor

- Goals
 - Implementation of new curb ramps
 - Adherence to ADA standards
 - Additional signage for crossings
 - Rectangular Rapid-Flashing Beacon (RRFB) implementation to north of corridor
 - As speeds begin to increase, but crossing still exists

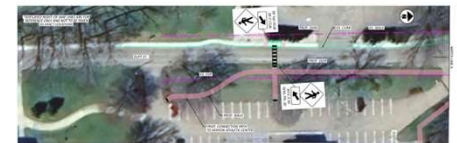
● Project Cost Estimate

Cost Estimate - Chase Ave & Gaskin Ave Improvements						
ITEM	EXTENSION	UNIT	DESCRIPTION	QUANTITY	UNIT COST	COST
202	E23000	SF	Pavement Removed	43	\$24.00	\$1,032.00
202	E30000	SF	Walk Removed	310	\$8.00	\$2,480.00
202	E32000	FT	Curb Removed		\$21.00	\$0.00
202	E32500	FT	Curb and Gutter Removed	8	\$23.10	\$184.80
202	E58100	EA	Catch Basin Removed		\$800.00	\$0.00
301	E56000	CY	Asphalt Concrete Base, PG64-22, (449)	2	\$370.00	\$740.00
304	E20000	CY	Aggregate Base	3	\$115.00	\$345.00
441	E50000	CY	Asphalt Concrete Surface Course, Type 1, (448), PG4-22	1	\$210.00	\$210.00
441	E50300	CY	Asphalt Concrete Intermediate Course, Type 2, (448)	1	\$215.00	\$215.00
608	E10000	SF	4" Concrete Walk	400	\$10.00	\$4,000.00
608	E52000	SF	Curb Ramp	240	\$26.00	\$6,240.00
608	E53020	SF	Detectable Warning	140	\$27.50	\$3,850.00
609	E12000	FT	Combination Curb and Gutter, Type 2	8	\$58.90	\$471.20
609	E160000	FT	Curb, Type 2-B	70	\$13.50	\$945.00
611	E04400	FT	12" Conduit, Type B		\$145.00	\$0.00
611	E98150	EA	Catch Basin, No. 3		\$6,400.00	\$0.00
611	E98574	EA	Manhole, No. 3		\$6,800.00	\$0.00
630	E97700	EA	Signing, Misc.: Solar Powered Rectangular Rapid Flashing Beacon (RRFB) Sign Assembly	2	\$10,000.00	\$20,000.00
644	E00500	FT	Stop Line	12	\$15.30	\$183.60
644	E00630	FT	Crosswalk Line, 24"	300	\$6.50	\$1,950.00
TOTAL						\$42,846.60
TOTAL W/ 25% CONTINGENCY						\$53,558.25
INFLATION TO MID-2028 (14.0%)						\$7,498.16
ENVIRONMENTAL & FINAL DESIGN						\$12,211.28
R/W ACQUISITION & UTILITY RELOCATIONS						\$0.00
ESTIMATED PROJECT TOTAL						\$73,267.69



S. Acland Street and Duff Street

- Goal
 - Spot improvements along Acland (additional signage and safer/more visible crossings)
 - Connectivity from student housing to sports/recreational facilities along Duff Street
 - Adherence to ADA standards
- Project Cost Estimate



Cost Estimate - S. Acland St & Duff St Improvements						
ITEM	EXTENSION	UNIT	DESCRIPTION	QUANTITY	UNIT COST	COST
202	E23000	SY	Pavement Removed	13	\$24.00	\$312.00
202	E30000	SF	Walk Removed	510	\$8.00	\$4,080.00
202	E32000	FT	Curb Removed	56	\$21.00	\$1,176.00
202	E32500	FT	Curb and Gutter Removed		\$23.10	\$0.00
202	E58100	EA	Catch Basin Removed		\$800.00	\$0.00
301	E56000	CY	Asphalt Concrete Base, PG64-22, (449)	1.5	\$370.00	\$555.00
304	E20000	CY	Aggregate Base	2.5	\$115.00	\$287.50
441	E50000	CY	Asphalt Concrete Surface Course, Type 1, (448), P64-22	1	\$210.00	\$210.00
441	E50300	CY	Asphalt Concrete Intermediate Course, Type 2, (448)	1	\$215.00	\$215.00
608	E10000	SF	4" Concrete Walk	5000	\$10.00	\$50,000.00
608	E52000	SF	Curb Ramp	170	\$26.00	\$4,420.00
608	E53020	SF	Detectable Warning	84	\$27.50	\$2,310.00
609	E12000	FT	Combination Curb and Gutter, Type 2		\$58.90	\$0.00
609	E160000	FT	Curb, Type 2-B	60	\$13.50	\$810.00
611	E04400	FT	12" Conduit, Type B		\$145.00	\$0.00
611	E98150	EA	Catch Basin, No. 3		\$6,400.00	\$0.00
611	E99574	EA	Manhole, No. 3		\$8,800.00	\$0.00
630	E97700	EA	Signing, Misc.: Solar Powered Rectangular Rapid Flashing Beacon (RRFB) Sign Assembly		\$10,000.00	\$0.00
644	E00500	FT	Stop Line	12	\$15.30	\$183.60
644	E00630	FT	Crosswalk Line, 24"	100	\$6.50	\$650.00
TOTAL						\$65,209.10
TOTAL W/ 25% CONTINGENCY						\$81,511.38
INFLATION TO MID-2028 (14.0%)						\$11,411.59
ENVIRONMENTAL & FINAL DESIGN						\$18,584.59
R/W ACQUISITION & UTILITY RELOCATIONS						\$50,000.00
ESTIMATED PROJECT TOTAL						\$161,507.56

Duff Street Sidewalk (Alternative #1)

- Goal
 - Extend proposed sidewalk north along Duff Street
 - Connectivity from Acland Street intersection to Wiggin Street
 - Adherence to ADA standards
- Project Cost Estimate



Cost Estimate - Duff St Sidewalk Improvements						
ITEM	EXTENSION	UNIT	DESCRIPTION	QUANTITY	UNIT COST	COST
202	E23000	SY	Pavement Removed	610	\$24.00	\$14,640.00
202	E30000	SF	Walk Removed		\$8.00	\$0.00
202	E32000	FT	Curb Removed		\$21.00	\$0.00
202	E32500	FT	Curb and Gutter Removed		\$23.10	\$0.00
202	E58100	EA	Catch Basin Removed		\$800.00	\$0.00
301	E56000	CY	Asphalt Concrete Base, PG64-22, (449)	12	\$370.00	\$4,440.00
304	E20000	CY	Aggregate Base	24	\$115.00	\$2,760.00
441	E50000	CY	Asphalt Concrete Surface Course, Type 1, (448), P64-22	6	\$210.00	\$1,260.00
441	E50300	CY	Asphalt Concrete Intermediate Course, Type 2, (448)		\$215.00	\$0.00
452	E10010	SY	Non-Reinforced Portland Cement Concrete Pavement	25	\$95.00	\$2,375.00
608	E10000	SF	4" Concrete Walk	4400	\$10.00	\$44,000.00
608	E52000	SF	Curb Ramp	70	\$26.00	\$1,820.00
608	E53020	SF	Detectable Warning	66	\$27.50	\$1,815.00
609	E12000	FT	Combination Curb and Gutter, Type 2		\$58.90	\$0.00
609	E160000	FT	Curb, Type 2-B		\$13.50	\$0.00
611	E04400	FT	12" Conduit, Type B		\$145.00	\$0.00
611	E98150	EA	Catch Basin, No. 3		\$6,400.00	\$0.00
611	E99574	EA	Manhole, No. 3		\$6,800.00	\$0.00
630	E97700	EA	Signing, Misc.: Solar Powered Rectangular Rapid Flashing Beacon (RRFB) Sign Assembly		\$10,000.00	\$0.00
644	E00500	FT	Stop Line		\$15.30	\$0.00
644	E00630	FT	Crosswalk Line, 24"	80	\$6.50	\$520.00
TOTAL						\$73,630.00
TOTAL W/ 25% CONTINGENCY						\$92,037.50
INFLATION TO MID-2028 (14.0%)						\$12,885.25
ENVIRONMENTAL & FINAL DESIGN						\$20,984.55
R/W ACQUISITION & UTILITY RELOCATIONS						\$20,000.00
ESTIMATED PROJECT TOTAL						\$145,907.30



Next Steps

- The Village of Gambier will need to continue to work along side with the Ohio Department of Transportation (ODOT) to pursue Safety Funding in order to preform the design
- Minimal R/W is anticipated, but there may be some need (as provided in cost estimates)



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