

# **Act 209**

## **Transportation Capital Improvements Plan**

Prepared for  
**FORKS TOWNSHIP**  
Northampton County, Pennsylvania



March 2022

G&A Job #20-12006A



**GILMORE & ASSOCIATES, INC.**  
ENGINEERING & CONSULTING SERVICES

## Table of Contents

Introduction.....	1
<i>Land Use Assumptions Report</i> .....	1
<i>Roadway Sufficiency Analysis Report</i> .....	2
Transportation Capital Improvements Plan.....	3
<i>Existing Transportation Capital Improvements Plan</i> .....	3
<i>Future Pass-Through Transportation Capital Improvements Plan</i> .....	3
<i>Future Development Transportation Capital Improvements Plan</i> .....	3
<i>Transportation Impact Fee</i> .....	6

## LIST OF FIGURES

- 
- |   |                             |
|---|-----------------------------|
| 1 | Transportation Service Area |
|---|-----------------------------|

## LIST OF TABLES

- |   |  |
|---|--|
| 1 | Transportation Capital Improvements Plan |
| 2 | Priority Projects List                   |
| 3 | Transportation Impact Fee                |

## APPENDICES

- |   |  |
|---|--|
| A | Cost Estimates                           |
| B | National Highway Construction Cost Index |

## Introduction

On behalf of Forks Township, Northampton County, Pennsylvania, this Transportation Capital Improvements Plan report was prepared in accordance with Pennsylvania Act 209 of December 19, 1990 (as amended) which allows municipalities to develop transportation impact fees to assist with the costs of necessary capital improvement projects due to increased development within the Township. According to Act 209, impact fees may be used for costs incurred for offsite improvements designated in the transportation capital improvements plan that are attributable to new development. However, the municipality still has the power to require onsite improvements for new development or subdivisions in accordance with the municipal subdivision and land development ordinance.

Forks Township appointed an Act 209 Traffic Impact Advisory Committee that assisted in developing land use assumptions for the determination of future growth and development within the Township, resulting in the preparation of the *Land Use Assumptions Report 2021*. The Committee then commissioned the preparation of the subsequent Roadway Sufficiency Analysis and Transportation Capital Improvements Plans. As stipulated in Act 209, the Board of Supervisors may periodically review the capital improvements plan and impact fee charges and make recommendations for revisions based on the following:

1. New subsequent development which has occurred in the Township;
2. Construction of capital improvements contained in the capital improvements plan have been completed;
3. Unavoidable delays in the construction of capital improvements contained in the plan beyond the responsibility or control of the Township;
4. Significant changes in the land use assumptions;
5. Significant changes in the estimated costs of the proposed transportation capital improvements;
6. Significant changes in the projected revenue from all sources listed needed for the construction of the transportation capital improvements.

This report serves as the basis for determining the impact fee through adoption of a new Transportation Impact Fee Ordinance that is assessed on new developments on a per trip (PM peak period) basis within the transportation service area identified in the *Land Use Assumptions Report 2021*.

## *Land Use Assumptions Report*

The Forks Township Traffic Impact Advisory Committee approved the *Land Use Assumptions Report 2021*, prepared by Gilmore & Associates, Inc. (G&A), at the March 31, 2022 public hearing. Further, the Board of Supervisors accepted the report through adoption of a municipal resolution on 4-7-2022.

The *Land Use Assumptions Report 2021* identified a short-term projection of potential development that is likely to occur before the end of 2040. For the residential development, the study reviewed two methodologies to determine the number of residential units that may be needed to accommodate growth in the Township: population-driven model and building-driven model. The population-driven model calculated the number of housing units needed to meet the population projections provided by the Lehigh Valley Planning Commission (LVPC). This methodology resulted in a projection of 802 housing units needed by 2030 and 1,614 housing units needed by 2040. The building-driven model is based on historical trends in development approvals and the number of actual units constructed since 2010. The methodology resulted in a projection of 2,234 potential housing units. The Act 209 advisory committee reviewed both

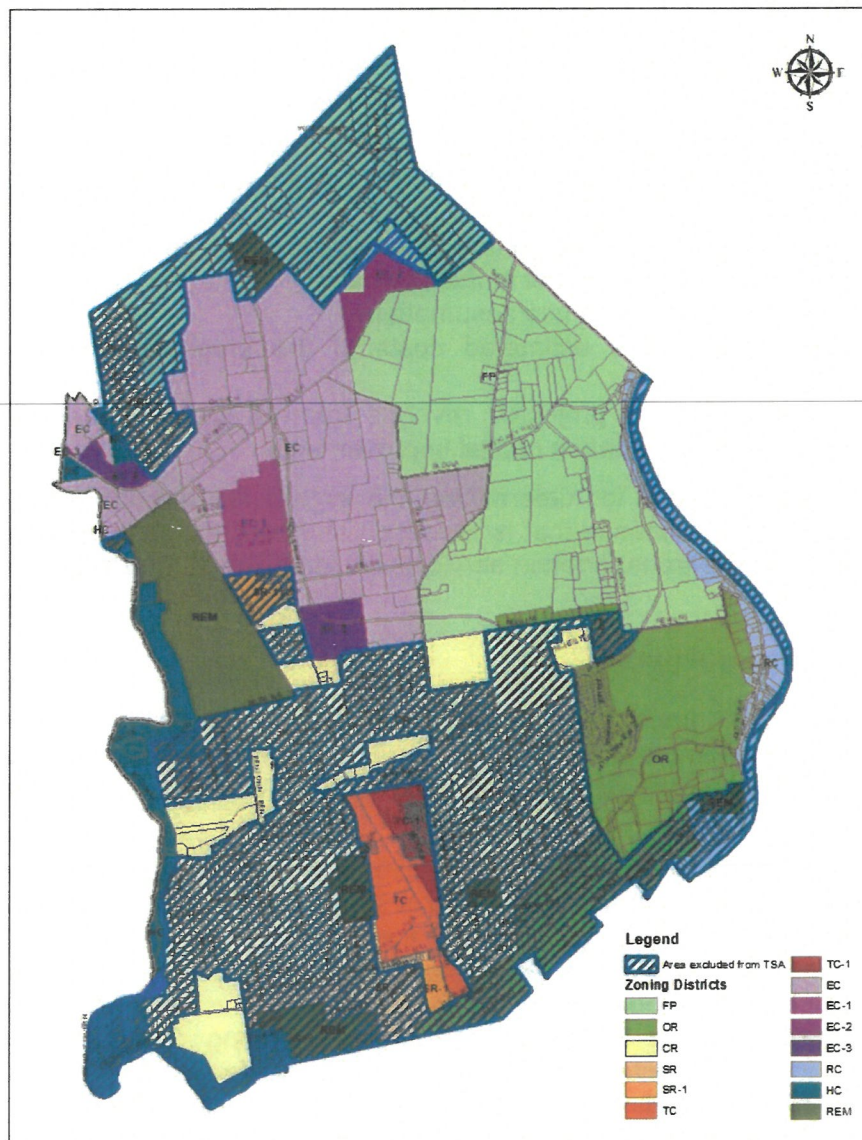


methodologies and determined that the building-driven model (2,234 potential housing units) should be used to depict the anticipated future development within the Township, providing a more conservative approach.

Similarly, the *Land Use Assumptions Report 2021* identified the short-term projection for potential non-residential development based on the amount of developable land utilizing current zoning. This analysis identified the potential for 7,462,818 sf of non-residential development by 2040.

### *Roadway Sufficiency Analysis Report*

The Roadway Sufficiency Analysis Report established a transportation service area (TSA) of seven square miles that includes areas of Forks Township with the highest potential for future development, as shown on **Figure 1**. The report analyzed 26 study intersections within the TSA to determine necessary mitigation improvements for the Existing, Future Pass-Through, and Future Development conditions in order to meet the preferred levels of service (LOS). The



**Figure 1 – Transportation Service Area**



Transportation Impact Fee advisory Committee established a preferred LOS D for signalized locations for all movements and the overall intersection, and LOS D for critical movements at unsignalized locations.

## Transportation Capital Improvements Plan

The Transportation Capital Improvements Plan identifies improvements that are necessary at the study intersections based on the analysis of the roadway conditions contained in the *Roadway Sufficiency Analysis*. The plan is broken up into Existing, Future Pass-through and Future Development scenarios. It should be noted that the calculation for the transportation impact fee results from costs associated with the Future Development mitigation improvements only.

### *Existing Transportation Capital Improvements Plan*

The Existing Year PM peak hour traffic volumes were analyzed at the study area intersections to determine the existing levels of service throughout the study area. The results were compared to the preferred level of service for signalized and unsignalized intersections to identify locations that require mitigation. For signalized intersections, all movements must operate at LOS D or better, with an overall LOS D. For unsignalized intersections, the critical movements must operate at LOS D or better. Based on a review of the existing analyses in the Roadway Sufficiency Analysis Report, the intersections of Kesslersville Road & Sullivan Trail and Bushkill Drive & Zucksville Road require mitigation. A summary of the Existing conditions improvements and associated costs are provided in **Table 1** and included in **Appendix A**. These improvements are necessary to meet the preferred level of service criteria for intersections utilizing existing 2021 traffic volumes. **The total cost for the Existing Transportation Capital Improvements Plan is \$1,449,785.**

### *Future Pass-Through Transportation Capital Improvements Plan*

Similarly, the pass-through conditions were analyzed for future year 2040 at the study area intersections. Pass-through traffic consists of regional traffic that passes through the TSA to/from external destinations. This traffic utilizes some of the study area roadways and, therefore, needs to be included in the intersection analyses. Pass-through traffic is determined by identifying significant known future developments within Forks Township outside the TSA as well as in neighboring municipalities that will contribute traffic to the study area roadways. Based on a review of the future 2040 pass-through analyses, the intersection of Newlins Road West (western leg) & Sullivan Trail requires mitigation. Note that the future pass-through analysis included the existing mitigation improvements identified from the existing volume analysis. A summary of the Future Pass-Through improvements and associated costs are provided in **Table 1** and included in **Appendix A**. These improvements are necessary to meet the preferred level of service criteria for intersections utilizing future 2040 volumes associated with pass-through traffic from Forks Township developments outside the TSA and developments outside Forks Township, as well as background growth traffic. The mitigation improvements identified in the Existing Transportation Capital Improvements Plan were included in the level of service analysis for the Future Pass-Through Conditions. **The total cost for the Future Pass-Through Transportation Capital Improvements Plan is \$824,914.**

### *Future Development Transportation Capital Improvements Plan*

Lastly, future (year 2040) conditions consist of the traffic generated by the developments within the TSA that are proposed but not yet constructed and will utilize study area roadways. Based on

residential and non-residential development projections identified in the *Land Use Assumptions Report 2021*, the anticipated trip generation was estimated utilizing the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition*.

Based on a review of the future 2040 development analysis, the following intersections require mitigation:

- Church Lane & Sullivan Trail (SR 2025)
- Kesslersville Road (SR 1009) & Church Lane
- Bushkill Drive (SR 2019) & Uhler Road (SR 1002)
- Uhler Road (SR 1002) & Sullivan Trail (SR 2025)
- Uhler Road (SR 1002) & Kesslersville Road (SR 1009)
- Uhler Road (SR 1002) & E Braden Boulevard
- Richmond Road (SR 2021) & Newlins Road West
- Newlins Road West & Sullivan Trail (SR 2025)
- Kesslersville Road (SR 1009) & Sullivan Trail (SR 2025)
- Mecos Road & Sullivan Trail (SR 2025)
- Zucksville Road/Rennselaer Avenue & Sullivan Trail (SR 2025)
- Town Center Boulevard/Austin Drive & Sullivan Trail (SR 2025)
- Paxinosa Road West & Knox Avenue (SR 2025)
- Old Mill Road & Town Center Boulevard
- Bushkill Drive (SR 2019) & Zucksville Road (SR 2036)

A summary of the Future Development mitigation improvements and associated costs are provided in **Table 1** and included in **Appendix A**. These improvements are necessary to meet the preferred level of service criteria for intersections utilizing future 2040 volumes associated with proposed developments within the Township. The mitigation improvements identified in both the Existing and Future Pass-Through Transportation Capital Improvements Plan were included in the level of service analysis for the Future Development Conditions. There are several locations along both Uhler Road and Sullivan Trail where additional through lanes are recommended at individual intersections. In order to eliminate the hourglass effect between intersections, it is recommended to provide continuous widening between the individual intersections, which is noted in the Future Development costs. **The total cost for the Future Development Transportation Capital Improvements Plan is \$50,084,805.**



**Table 1 – Transportation Capital Improvement Plan**

Intersection	Traffic Control	Improvement	Cost	Schedule
<b>Existing</b>				
Kesslersville Rd/ Sullivan Trail	Stop	Install traffic signal with ADA accommodations	\$665,955	2040
Bushkill Dr/ Zucksville Rd	Stop	Install traffic signal with ADA accommodations; associated drainage improvements (retaining wall, endwall, etc.)	\$783,830	2040
			<b>Existing Total:</b>	<b>\$1,449,785</b>
<b>Future Pass-Through</b>				
Newlins Rd West (west)/ Sullivan Trail	Stop	Install traffic signal with ADA accommodations	\$824,914	2040
			<b>Future Pass-Through Total:</b>	<b>\$824,914</b>
<b>Future Development</b>				
Church Ln/ Sullivan Trail	Stop	Install traffic signal with ADA accommodations (retaining wall)	\$914,834	2040
Kesslersville Rd/ Church Ln	Stop	Install NB left turn lane; install SB right turn lane	\$917,914	2040
Bushkill Dr/ Uhler Rd	Signal	Add through lanes in each direction on Uhler Rd; modify signal	\$3,063,224	2040
Uhler Rd/ Sullivan Trail	Signal	Add through lanes in each direction on Uhler Rd; add additional NB left turn lane; add NB right turn lane; add SB through lane; modify signal	\$2,891,433	2040
Uhler Rd/ Kesslersville Rd	Signal	Install EB/WB through lanes; install EB right turn lane; install WB left turn and right turn lanes; modify signal	\$4,690,629	2040
Uhler Rd/ E Braden Blvd	Stop	Install traffic signal with ADA accommodations	\$925,459	2040
Richmond Rd/ Newlins Rd West	Stop	Convert to all-way stop control	\$4,663	2040
Newlins Rd West/ Sullivan Trail	Stop	Realign offset approaches of Newlins Rd West to 4-leg intersection; install traffic signal with ADA accommodations; install EB/WB left turn lanes; install NB left/right turn lanes; install SB left/right turn lanes	\$3,545,602	2040
Kesslersville Rd/ Sullivan Trail	Signal	Install NB left/right turn lanes; modify signal	\$1,125,875	2040
Meco Rd/ Sullivan Trail	Signal	Install SB through lane; install additional WB left turn lane; modify signal	\$3,086,446	2040
Zucksville Rd/ Sullivan Trail	Signal	Install NB/SB through lanes; install EB right turn lane; modify signal	\$2,962,203	2040
Town Center Blvd/ Sullivan Trail	Signal	Install NB/SB through lanes; modify signal	\$2,437,730	2040
Paxinosa Rd West/ Knox Ave	Stop	Install traffic signal with ADA accommodations	\$878,800	2040
Old Mill Rd/Town Center Blvd	Stop	Install traffic signal with ADA accommodations	\$847,694	2040
Bushkill Dr/ Zucksville Rd	Signal	Install NB right turn lane; install SB left turn lane; modify signal	\$2,249,153	2040
Uhler Rd	N/A	Widen to provide EB/WB through lanes (Bushkill Dr to Kesslersville Rd)	\$9,994,658	2040
Sullivan Trail	N/A	Widen to provide NB/SB through lanes (Meco Rd to Old Mill Rd)	\$9,548,488	2040
			<b>Future Development Total:</b>	<b>\$50,084,805</b>



### Transportation Impact Fee

Transportation impact fees generate revenue for municipalities to fund capital improvement projects that are necessary due to new development within the transportation service area. Act 209 allows the Township to assess an impact fee on developers for offsite road improvements based on the amount of traffic generated by their development during the afternoon peak of the roadways.

As noted above, the total anticipated costs for the Future Development Transportation Capital Improvements Plan are \$50,084,805. Only fifty percent (50%) of the capital improvement costs along state-owned roads are eligible for inclusion in the calculation of the impact fee. It should be noted that the Old Mill Road/Town Center Boulevard intersection is the only location that is not along a state-owned roadway. In addition, some improvements, such as the widening of Uhler Road and Sullivan Trail, are more complex and involve a long design and approval process. Therefore, the Future Development projects were prioritized with an assumption that some of the more complex construction projects would be completed under future phases. As such, those costs were not included in the Capital Improvement costs utilized for the impact fee calculation, as noted in **Table 2**.

**Table 2 – Priority Projects List**

FUTURE PROJECT LOCATION	PROJECT COST	50% MAX ON STATE ROADS	PRIORITY PROJECTS
Church Ln/Sullivan Tr	\$914,834	\$457,417	\$457,417
Kesslerstown Rd/Church Ln	\$917,914	\$458,957	\$458,957
Bushkill Dr/Uhler Rd	\$3,063,224	\$1,531,612	\$1,531,612
Uhler Rd/Sullivan Tr	\$2,891,433	\$1,445,717	\$1,445,717
Uhler Rd/Kesslerstown Rd	\$4,690,629	\$2,345,315	\$2,345,315
Uhler Rd/E Braden Blvd	\$925,459	\$462,730	\$462,730
Richmond Rd/Newlins Rd	\$4,663	\$2,332	\$2,332
Newlins Rd/Sullivan Tr	\$3,545,602	\$1,772,801	\$1,772,801
Kesslerstown Rd/Sullivan Tr	\$1,125,875	\$562,937	\$562,937
Meco Rd/Sullivan Tr	\$3,086,446	\$1,543,223	\$1,543,223
Zucksville Rd/Sullivan Tr	\$2,962,203	\$1,481,101	\$1,481,101
Town Center Blvd/Sullivan Tr	\$2,437,730	\$1,218,865	\$1,218,865
Paxinosa Rd/Knox Ave	\$878,800	\$439,400	\$439,400
Old Mill Rd/Town Center Blvd	\$847,694	\$847,694	\$847,694
Bushkill Dr/Zucksville Rd	\$2,249,153	\$1,124,577	\$1,124,577
Widen Uhler Rd	\$9,994,658	\$4,997,329	
Widen Sullivan Tr	\$9,548,488	\$4,774,244	
<b>TOTAL</b>	<b>\$50,084,805</b>	<b>\$25,466,251</b>	<b>\$15,694,678</b>

Based on the calculated number of new trips from proposed developments within the Township that was identified in the Roadway Sufficiency Analysis Report, the calculated impact fee is \$3,244.71 per weekday afternoon peak hour trip as summarized in **Table 3** below.

**Table 3 – Transportation Impact Fee**

Total Future Development Transportation Costs	Proposed Development Trips	Calculated Impact Fee
\$15,694,678	4837 trips	\$3,244.71 per weekday PM peak hour trip

The Township should consider updating the Capital Improvement Plan and impact fee adopted by ordinance at least every two years, but not more than once a year, to account for increases in construction and land acquisition. The current National Highway Construction Cost Index is provided in **Appendix B** (current CCI 2.09). This index may be used to assist in determining future increases of the Traffic Impact Fee.

# APPENDIX A

## Cost Estimates

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JOB		20-12006A	
SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/25/2022
CHECKED BY	DAD	DATE	3/29/2022
SCALE	N.T.S.		

### Kesslersville Rd/Sullivan Trail - install traffic signal

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
Traffic Signal Installation					
9999-0001	Traffic Signal	LS	\$350,000.00	1	\$350,000
9999-0002	ADA Accessible Curb Ramp	EA	\$7,500.00	8	\$60,000
SUBTOTAL					\$410,000

UNIT COST OBTAINED FROM ECMS  
ROW HAS NOT BEEN RESEARCHED IN DETAIL  
ASSUMED AS TYPICAL FOR A PROJECT OF THIS  
MAGNITUDE

ADDITIONAL ROW MAY BE REQUIRED

MOBILIZATION	10%	\$41,000
MAINTENANCE OF TRAFFIC	5%	\$20,500
ADMIN COSTS	2%	\$8,200
DRAINAGE	10%	\$41,000
CONTINGENCY	10%	\$41,000
<b>CONSTRUCTION AND CONTINGENCIES</b>		<b>\$561,700</b>
ENGINEERING DESIGN/INSPECTION	15%	84,255
ROW/EASEMENTS		20,000
<b>CONSTRUCTION TOTAL</b>		<b>\$665,955</b>
ESCALATION (none)		1
<b>TOTAL PROJECT COST</b>		<b>\$665,955</b>











JOB	20-12006A	
SHEET NO.	1	OF 1
CALCULATED BY	KMN	DATE 3/29/2022
CHECKED BY	DAD	DATE 3/29/2022
SCALE	N.T.S.	

## Church Ln/Sullivan Trail - install signal and retaining wall

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Traffic Signal Installation</b>					
9999-0001	Traffic Signal	EA	\$350,000.00	1	\$350,000
9999-0002	Retaining Wall (assumed average 4' height)	LF	\$525.00	35	\$18,375
9999-0003	ADA Ramps	EA	\$7,500.00	6	\$45,000
9999-0004	Driveway adjustment	LS	\$10,000.00	1	\$10,000
0676-0001	Cement Concrete Sidewalk	SY	\$400.00	10	\$4,000
<b>SUBTOTAL</b>					<b>\$427,375</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION		10%	<b>\$42,738</b>
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC		5%	<b>\$21,369</b>
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS		2%	<b>\$8,548</b>
MAGNITUDE		DRAINAGE		5%	<b>\$21,369</b>
		CONTINGENCY		10%	<b>42,738</b>
ADDITIONAL ROW MAY BE REQUIRED		<b>CONSTRUCTION AND CONTINGENCIES</b>			<b>\$564,135</b>
		ENGINEERING DESIGN/INSPECTION		10%	<b>56,415</b>
		ROW/EASEMENTS			<b>\$20,000</b>
		<b>CONSTRUCTION TOTAL</b>			<b>\$640,550</b>
		ESCALATION (2% FOR 18 YEARS)			<b>1.4282</b>
		<b>TOTAL PROJECT COST</b>			<b>\$914,834</b>



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ENGINEERING & CONSULTING SERVICES

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SCALE N.T.S.

**ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP**

Church Ln/Kesslersville Rd - install NB LT lane, SB RT lane

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Widening for NB LT lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	505	\$37,875
0350-0106	6" Sub-Base	SY	\$30.00	1,200	\$36,000
0311-0526	Base Course	SY	\$50.00	1,200	\$60,000
0411-0982	Wearing Course	SY	\$20.00	1,200	\$24,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,200	\$2,400
9999-0001	Utility Relocation	EA	\$15,000.00	5	\$75,000
<b>Widening for SB RT lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	275	\$20,625
0350-0106	6" Sub-Base	SY	\$30.00	600	\$18,000
0311-0526	Base Course	SY	\$50.00	600	\$30,000
0411-0982	Wearing Course	SY	\$20.00	600	\$12,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	600	\$1,200
9999-0001	Utility Relocation	EA	\$15,000.00	3	\$45,000
9999-0002	Relocate Existing Fire Hydrant	EA	\$6,000.00	1	\$6,000
9999-0003	Relocate Existing Walking Path	LS	\$17,000.00	1	\$17,000
<b>SUBTOTAL</b>					<b>\$385,100</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION		10%	\$38,510
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC		5%	\$19,255
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS		2%	\$7,702
MAGNITUDE		DRAINAGE		5%	\$19,255
		CONTINGENCY		25%	96,275
ADDITIONAL ROW MAY BE REQUIRED		<b>CONSTRUCTION AND CONTINGENCIES</b>			<b>\$566,097</b>
SIGNAL LIKELY NOT FEASIBLE DUE TO PROXIMITY		ENGINEERING DESIGN/INSPECTION		10%	56,610
TO UHLER RD SIGNAL. ASSUME TURN LANES TO		ROW/EASEMENTS			\$20,000
MITIGATE AS MUCH AS FEASIBLE.		<b>CONSTRUCTION TOTAL</b>			<b>\$642,707</b>
		ESCALATION (2% FOR 18 YEARS)			1.4282
		<b>TOTAL PROJECT COST</b>			<b>\$917,914</b>









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**ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP**

Uhler Rd/Sullivan Trail - add through lane in each direction on Uhler, additional NB LT lane;

NB RT lane; SB through lane; signal retiming

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Widening for thru lanes - Uhler</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	1,010	\$75,750
0350-0106	6" Sub-Base	SY	\$30.00	2,300	\$69,000
0311-0526	Base Course	SY	\$50.00	2,300	\$115,000
0411-0982	Wearing Course	SY	\$20.00	2,300	\$46,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	2,300	\$4,600
9999-0001	Utility relocation	EA	\$15,000.00	7	\$105,000
<b>Widening for NB left-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	580	\$43,500
0350-0106	6" Sub-Base	SY	\$30.00	1,300	\$39,000
0311-0526	Base Course	SY	\$50.00	1,300	\$65,000
0411-0982	Wearing Course	SY	\$20.00	1,300	\$26,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,300	\$2,600
<b>Widening for NB right-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	175	\$13,125
0350-0106	6" Sub-Base	SY	\$30.00	390	\$11,700
0311-0526	Base Course	SY	\$50.00	390	\$19,500
0411-0982	Wearing Course	SY	\$20.00	390	\$7,800
0460-0001	Bituminous Tack Coat	SY	\$2.00	390	\$780
0676-0001	Cement Concrete Sidewalk	SY	\$400.00	150	\$60,000
4630-0010	Plain Cement Concrete Curb (includes removal)	LF	\$200.00	250	\$50,000
<b>Widening for SB through lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	505	\$37,875
0350-0106	6" Sub-Base	SY	\$30.00	1,150	\$34,500
0311-0526	Base Course	SY	\$50.00	1,150	\$57,500
0411-0982	Wearing Course	SY	\$20.00	1,150	\$23,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,150	\$2,300
9999-0001	Utility relocation	EA	\$15,000.00	3	\$45,000
9999-0002	Relocate existing guiderail	LS	\$6,000.00	1	\$6,000
9999-0003	Modify Traffic Signal	LS	\$350,000.00	1	\$350,000
9999-0004	ADA ramps	EA	\$7,500.00	8	\$60,000
9999-0005	Relocate business sign	LS	\$10,000.00	1	\$10,000
<b>SUBTOTAL</b>					<b>\$1,380,530</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION		10%	\$138,053
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC		5%	\$69,027
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS		2%	\$27,611
MAGNITUDE		DRAINAGE		5%	\$69,027
		CONTINGENCY		10%	138,053
ADDITIONAL ROW MAY BE REQUIRED					
		<b>CONSTRUCTION AND CONTINGENCIES</b>			<b>\$1,822,300</b>
		ENGINEERING DESIGN/INSPECTION		10%	182,230
		ROW/EASEMENTS			20,000
		<b>CONSTRUCTION TOTAL</b>			<b>\$2,024,530</b>
		ESCALATION (2% FOR 18 YEARS)			1.4282
		<b>TOTAL PROJECT COST</b>			<b>\$2,891,433</b>



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**ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP**

Uhler Rd/Kesslersville Rd - add through lane in each direction on Uhler, add EB RT lane;  
WB LT lane; WB RT lane; signal modification; new RR gates

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Widening for thru lanes - Uhler</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	1,010	\$75,750
0350-0106	6" Sub-Base	SY	\$30.00	2,300	\$69,000
0311-0526	Base Course	SY	\$50.00	2,300	\$115,000
0411-0982	Wearing Course	SY	\$20.00	2,300	\$46,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	2,300	\$4,600
9999-0001	Utility relocation	EA	\$15,000.00	14	\$210,000
9999-0002	Driveway Adjustments	LS	\$50,000.00	1	\$50,000
<b>Widening for EB right-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	230	\$17,250
0350-0106	6" Sub-Base	SY	\$30.00	510	\$15,300
0311-0526	Base Course	SY	\$50.00	510	\$25,500
0411-0982	Wearing Course	SY	\$20.00	510	\$10,200
0460-0001	Bituminous Tack Coat	SY	\$2.00	510	\$1,020
<b>Widening for WB left-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	500	\$37,500
0350-0106	6" Sub-Base	SY	\$30.00	1,100	\$33,000
0311-0526	Base Course	SY	\$50.00	1,100	\$55,000
0411-0982	Wearing Course	SY	\$20.00	1,100	\$22,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,100	\$2,200
<b>Widening for WB right-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	250	\$18,750
0350-0106	6" Sub-Base	SY	\$30.00	550	\$16,500
0311-0526	Base Course	SY	\$50.00	550	\$27,500
0411-0982	Wearing Course	SY	\$20.00	550	\$11,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	550	\$1,100
9999-0003	Modify Traffic Signal	LS	\$350,000.00	1	\$350,000
9999-0004	ADA ramps	EA	\$7,500.00	8	\$60,000
9999-0005	PUC Coordination	LS	\$350,000.00	1	\$350,000
9999-0006	Railroad gate system	LS	\$500,000.00	1	\$500,000
<b>SUBTOTAL</b>					<b>\$2,124,170</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION	10%	\$212,417	
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC	5%	\$106,209	
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS	2%	\$42,483	
MAGNITUDE		DRAINAGE	5%	\$106,209	
		CONTINGENCY	10%	\$212,417	
ADDITIONAL ROW MAY BE REQUIRED		<b>CONSTRUCTION AND CONTINGENCIES</b>		<b>\$2,803,904</b>	
		ENGINEERING DESIGN/INSPECTION	10%	\$280,390	
		ROW/EASEMENTS		\$200,000	
		<b>CONSTRUCTION TOTAL</b>		<b>\$3,284,294</b>	
		ESCALATION (2% FOR 18 YEARS)		1.4282	
		<b>TOTAL PROJECT COST</b>		<b>\$4,690,629</b>	





JOB	20-12006A		
SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/25/2022
CHECKED BY	DAD	DATE	
SCALE	N.T.S.		

ENGINEER'S OPINION OF PROBABLE COST - Existing TCIP					
Braden Blvd/Uhler Rd - install traffic signal					
ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Traffic Signal Installation</b>					
9999-0001	Traffic Signal	EA	\$350,000.00	1	\$350,000
9999-0002	ADA Ramps	EA	\$7,500.00	11	\$82,500
<b>SUBTOTAL</b>					<b>\$432,500</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION		10%	\$43,250
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC		5%	\$21,625
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS		2%	\$8,650
MAGNITUDE		DRAINAGE		5%	\$21,625
		CONTINGENCY		10%	43,250
ADDITIONAL ROW MAY BE REQUIRED					
<b>CONSTRUCTION AND CONTINGENCIES</b>					<b>\$570,900</b>
ENGINEERING DESIGN/INSPECTION				10%	57,090
ROW/EASEMENTS					20,000
<b>CONSTRUCTION TOTAL</b>					<b>\$647,990</b>
ESCALATION (2% FOR 18 YEARS)					1.4282
<b>TOTAL PROJECT COST</b>					<b>\$925,459</b>



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ENGINEERING & CONSULTING SERVICES

JOB 20-12006A  
SHEET NO. 1 OF 1  
CALCULATED BY KMN DATE 3/25/2022  
CHECKED BY DAD DATE  
SCALE N.T.S.

**ENGINEER'S OPINION OF PROBABLE COST - Existing TCIP**

Richmond Rd & W Newlins Rd - Install 4-way stop

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
Traffic Signal Installation					
0931-0001	Post Mounted Signs, Type B	SF	\$50.00	30	\$1,500
0960-0021	24" White Hot Thermoplastic Pavement Markings	LF	\$15.00	50	\$750





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ENGINEERING & CONSULTING SERVICES

JOB 20-12006A  
SHEET NO. 1 OF 1  
CALCULATED BY KMN DATE 3/24/2022  
CHECKED BY DAD DATE 3/29/2022  
SCALE N.T.S.

ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP					
Newlins Rd/Sullivan Trail - realign intersection, install traffic signal; EB/WB LT lanes; NB/SB LT lane; NB/SB RT lane					
ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
Roadway Realignment					
0203-0001	Class 1 Excavation	CY	\$75.00	900	\$67,500
9311-0001	Full Depth Pavement	SY	\$105.00	2,000	\$210,000
0676-0001	Cement Concrete Sidewalk	SY	\$225.00	560	\$126,000
0630-0010	Plain Cement Concrete Curb (includes removal)	LF	\$200.00	1,000	\$200,000
9999-0001	6'x6' Concrete Box Culvert	EA	\$30,000.00	1	\$30,000
Traffic Signal Installation					
9999-0002	Traffic Signal	LS	\$350,000.00	1	\$350,000
9999-0003	ADA Accessible Curb Ramp	EA	\$7,500.00	8	\$60,000
9999-0004	Utility Relocation	EA	\$15,000.00	6	\$90,000
Widening for NB LT lane					
0203-0001	Class 1 Excavation	CY	\$75.00	460	\$34,500
0350-0106	6" Sub-Base	SY	\$30.00	1,035	\$31,050
0311-0526	Base Course	SY	\$50.00	1,035	\$51,750
0411-0982	Wearing Course	SY	\$20.00	1,035	\$20,700
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,035	\$2,070
Widening for NB RT lane					
0203-0001	Class 1 Excavation	CY	\$75.00	175	\$13,125
0350-0106	6" Sub-Base	SY	\$30.00	390	\$11,700
0311-0526	Base Course	SY	\$50.00	390	\$19,500
0411-0982	Wearing Course	SY	\$20.00	390	\$7,800
0460-0001	Bituminous Tack Coat	SY	\$2.00	390	\$780
9999-0004	Utility Relocation	EA	\$15,000.00	2	\$30,000
Widening for SB LT lane					
0203-0001	Class 1 Excavation	CY	\$75.00	460	\$34,500
0350-0106	6" Sub-Base	SY	\$30.00	1,035	\$31,050
0311-0526	Base Course	SY	\$50.00	1,035	\$51,750
0411-0982	Wearing Course	SY	\$20.00	1,035	\$20,700
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,035	\$2,070
9999-0004	Utility Relocation	EA	\$15,000.00	2	\$30,000
Widening for SB RT lane					
0203-0001	Class 1 Excavation	CY	\$75.00	230	\$17,250
0350-0106	6" Sub-Base	SY	\$30.00	510	\$15,300
0311-0526	Base Course	SY	\$50.00	510	\$25,500
0411-0982	Wearing Course	SY	\$20.00	510	\$10,200
0460-0001	Bituminous Tack Coat	SY	\$2.00	510	\$1,020
9999-0005	Relocate Existing Guiderail	LS	\$25,000.00	1	\$25,000
SUBTOTAL					\$1,620,815
COMMENTS:					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION	10%	\$162,082	
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC	5%	\$81,041	
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS	2%	\$32,416	
MAGNITUDE		DRAINAGE	5%	\$81,041	
		CONTINGENCY	15%	243,122	
ADDITIONAL ROW MAY BE REQUIRED					
CONSTRUCTION AND CONTINGENCIES					\$2,220,517
ENGINEERING DESIGN/INSPECTION			10%	222,050	
ROW/EASEMENTS			40,000		
CONSTRUCTION TOTAL					\$2,482,567
ESCALATION (2% PER YEAR FOR 18 YEARS)			1.4282		
TOTAL PROJECT COST					\$3,545,602



GILMORE & ASSOCIATES, INC.  
ENGINEERING & CONSULTING SERVICES

JOB 20-12006A  
SHEET NO. 1 OF 1  
CALCULATED BY KMN DATE 3/29/2022  
CHECKED BY DAD DATE  
SCALE N.T.S.

**ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP**

Sullivan Trail/Kessler'sville Rd - NB LT and RT lanes

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Widening for NB right-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	350	\$26,250
0350-0106	6" Sub-Base	SY	\$30.00	780	\$23,400
0311-0526	Base Course	SY	\$50.00	780	\$39,000
0411-0982	Wearing Course	SY	\$20.00	780	\$15,600
0460-0001	Bituminous Tack Coat	SY	\$2.00	780	\$1,560
<b>Widening for NB left-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	450	\$33,750
0350-0106	6" Sub-Base	SY	\$30.00	1,000	\$30,000
0311-0526	Base Course	SY	\$50.00	1,000	\$50,000
0411-0982	Wearing Course	SY	\$20.00	1,000	\$20,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,000	\$2,000
9999-0001	ADA ramps	EA	\$7,500.00	8	\$60,000
9999-0002	Utility Relocation	EA	\$15,000.00	13	\$195,000
<b>SUBTOTAL</b>					<b>\$496,560</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS			MOBILIZATION	10%	\$49,656
ROW HAS NOT BEEN RESEARCHED IN DETAIL			MAINTENANCE OF TRAFFIC	5%	\$24,828
ASSUMED AS TYPICAL FOR A PROJECT OF THIS			ADMIN COSTS	2%	\$9,931
MAGNITUDE			DRAINAGE	10%	\$49,656
			CONTINGENCY	10%	\$49,656
ADDITIONAL ROW MAY BE REQUIRED			<b>CONSTRUCTION AND CONTINGENCIES</b>		<b>\$680,287</b>
			ENGINEERING DESIGN/INSPECTION	10%	\$68,030
			ROW/EASEMENTS		\$40,000
			<b>CONSTRUCTION TOTAL</b>		<b>\$788,317</b>
			ESCALATION (2% FOR 18 YEARS)		1.4282
			<b>TOTAL PROJECT COST</b>		<b>\$1,125,875</b>





GILMORE & ASSOCIATES, INC.  
ENGINEERING & CONSULTING SERVICES

JOB 20-12006A  
SHEET NO. 1 OF 1  
CALCULATED BY KMN DATE 3/29/2022  
CHECKED BY DAD DATE  
SCALE N.T.S.

**ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP**  
**Sullivan Trail/Meco Rd - SB thru and WB LT lanes**

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Widening for SB thru lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	505	\$37,875
0350-0106	6" Sub-Base	SY	\$30.00	1,150	\$34,500
0311-0526	Base Course	SY	\$50.00	1,150	\$57,500
0411-0982	Wearing Course	SY	\$20.00	1,150	\$23,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,150	\$2,300
0630-0010	Plain Cement Concrete Curb (includes removal)	LF	\$200.00	150	\$30,000
0676-0001	Cement Concrete Sidewalk	SY	\$225.00	31	\$6,975
9999-0001	Utility Relocation	EA	\$15,000.00	8	\$120,000
9999-0002	Driveway adjustments	LS	\$25,000.00	1	\$25,000
<b>Widening for WB left-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	410	\$30,750
0350-0106	6" Sub-Base	SY	\$30.00	920	\$27,600
0311-0526	Base Course	SY	\$50.00	920	\$46,000
0411-0982	Wearing Course	SY	\$20.00	920	\$18,400
0460-0001	Bituminous Tack Coat	SY	\$2.00	920	\$1,840
0630-0010	Plain Cement Concrete Curb (includes removal)	LF	\$200.00	700	\$140,000
0676-0001	Cement Concrete Sidewalk	SY	\$225.00	280	\$63,000
9999-0002	Driveway adjustments	LS	\$50,000.00	1	\$50,000
9999-0003	ADA ramps	EA	\$7,500.00	5	\$37,500
9999-0004	Modify Traffic Signal	LS	\$350,000.00	1	\$350,000
<b>SUBTOTAL</b>					<b>\$1,102,240</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION		10%	\$110,224
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC		5%	\$55,112
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS		2%	\$22,045
MAGNITUDE		DRAINAGE		10%	\$110,224
		CONTINGENCY		10%	\$110,224
ADDITIONAL ROW MAY BE REQUIRED		<b>CONSTRUCTION AND CONTINGENCIES</b>			<b>\$1,510,069</b>
		ENGINEERING DESIGN/INSPECTION		10%	151,005
		ROW/EASEMENTS			500,000
		<b>CONSTRUCTION TOTAL</b>			<b>\$2,161,074</b>
		ESCALATION (2% FOR 18 YEARS)			1.4282
		<b>TOTAL PROJECT COST</b>			<b>\$3,086,446</b>



GILMORE & ASSOCIATES, INC.  
ENGINEERING & CONSULTING SERVICES

JOB 20-12006A  
SHEET NO. 1 OF 1  
CALCULATED BY KMN DATE 3/29/2022  
CHECKED BY DAD DATE  
SCALE N.T.S.

**ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP**  
**Sullivan Trail/Zucksville Rd - NB/SB thru and EB RT lanes**

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
Widening for NB & SB thru lanes					
0203-0001	Class 1 Excavation	CY	\$75.00	1,010	\$75,750
0350-0106	6" Sub-Base	SY	\$30.00	2,300	\$69,000
0311-0526	Base Course	SY	\$50.00	2,300	\$115,000
0411-0982	Wearing Course	SY	\$20.00	2,300	\$46,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	2,300	\$4,600
0630-0010	Plain Cement Concrete Curb (includes removal)	LF	\$200.00	600	\$120,000
0676-0001	Cement Concrete Sidewalk	SY	\$225.00	140	\$31,500
9999-0001	Utility Relocation	EA	\$15,000.00	13	\$195,000
9999-0002	Driveway Adjustment	LS	\$80,000.00	1	\$80,000
Widening for EB right-turn lane					
0203-0001	Class 1 Excavation	CY	\$75.00	260	\$19,500
0350-0106	6" Sub-Base	SY	\$30.00	590	\$17,700
0311-0526	Base Course	SY	\$50.00	590	\$29,500
0411-0982	Wearing Course	SY	\$20.00	590	\$11,800
0460-0001	Bituminous Tack Coat	SY	\$2.00	590	\$1,180
9999-0003	Reconstruct retaining wall (assume 1' height)	LF	\$250.00	120	\$30,000
9999-0002	Driveway Adjustment	LS	\$30,000.00	1	\$30,000
9999-0004	ADA ramps	EA	\$7,500.00	10	\$75,000
9999-0005	Modify Traffic Signal	LS	\$375,000.00	1	\$375,000





JOB		20-12006A	
SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/29/2022
CHECKED BY	DAD	DATE	
SCALE	N.T.S.		

**Sullivan Trail/Town Center Blvd/Austin Dr - NB/SB thru lanes**

[illegible]**SUBTOTAL**

**\$1,082,850**

## COMMENTS:

## UNIT COST OBTAINED FROM ECMS

ROW HAS NOT BEEN RESEARCHED IN DETAIL

ASSUMED AS TYPICAL FOR A PROJECT OF THIS

# MAGNITUDE

ADDITIONAL ROW MAY BE REQUIRED

## MOBILIZATION

10%

**\$108,285**

## MAINTENANCE OF TRAFFIC

5%

\$54,143

## ADMIN COSTS

2%

\$21,657

# DRAINAGE

10%

**\$108,285**

## CONTINGENCY

10%

108,285

## CONSTRUCTION AND CONTINGENCIES

**\$1,483,505**

**ENGINEERING DESIGN/INSPECTION**

10%

148,350

## ROW/EASEMENTS

75,000

## CONSTRUCTION TOTAL

**\$1,706,855**

**ESCALATION (2% FOR 18 YEARS)**

1.4282

## TOTAL PROJECT COST

**\$2,437,730**



JOB 20-12006A  
 SHEET NO. 1 OF 1  
 CALCULATED BY KMN DATE 3/29/2022  
 CHECKED BY DAD DATE         
 SCALE N.T.S.

**ENGINEER'S OPINION OF PROBABLE COST - Existing TCIP**  
**Knox Ave/Paxinosa Rd - install traffic signal w/ADA accommodations**

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
Traffic Signal Installation					
9999-0001	Traffic Signal	EA	\$350,000.00	1	\$350,000
9999-0002	ADA Ramps	EA	\$7,500.00	8	\$60,000





JOB	20-12006A		
SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/29/2022
CHECKED BY	DAD	DATE	
SCALE	N.T.S.		

**Old Mill Rd/Town Center Blvd - install traffic signal; ADA accommodations**

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Traffic Signal Installation</b>					
9999-0001	Traffic Signal	EA	\$350,000.00	1	\$350,000
9999-0002	ADA Ramps	EA	\$7,500.00	6	\$45,000
<b>SUBTOTAL</b>					<b>\$395,000</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION		10%	\$39,500
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC		5%	\$19,750
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS		2%	\$7,900
MAGNITUDE		DRAINAGE		5%	\$19,750
		CONTINGENCY		10%	39,500
ADDITIONAL ROW MAY BE REQUIRED					
		<b>CONSTRUCTION AND CONTINGENCIES</b>			<b>\$521,400</b>
		ENGINEERING DESIGN/INSPECTION		10%	52,140
		ROWEASEMENTS			20,000
		<b>CONSTRUCTION TOTAL</b>			<b>\$593,540</b>
		ESCALATION (2% FOR 18 YEARS)			1.4282
		<b>TOTAL PROJECT COST</b>			<b>\$847,694</b>



GILMORE & ASSOCIATES, INC.  
ENGINEERING & CONSULTING SERVICES

JOB 20-12006A  
SHEET NO. 1 OF 1  
CALCULATED BY KMN DATE 3/29/2022  
CHECKED BY DAD DATE  
SCALE N.T.S.

**ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP**

**Bushkill Dr/Zucksville Rd - NB RT and SB LT lanes**

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Widening for NB right-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	440	\$33,000
0350-0106	6" Sub-Base	SY	\$30.00	980	\$29,400
0311-0526	Base Course	SY	\$50.00	980	\$49,000
0411-0982	Wearing Course	SY	\$20.00	980	\$19,600
0460-0001	Bituminous Tack Coat	SY	\$2.00	980	\$1,960
9999-0001	Utility Relocation	EA	\$15,000.00	2	\$30,000
0630-0010	Plain Cement Concrete Curb (includes removal)	LF	\$200.00	320	\$64,000
9999-0002	Driveway adjustment	LS	\$10,000.00	1	\$10,000
9999-0003	Reset existing fence	LS	\$2,000.00	1	\$2,000
<b>Widening for SB left-turn lane</b>					
0203-0001	Class 1 Excavation	CY	\$75.00	505	\$37,875
0350-0106	6" Sub-Base	SY	\$30.00	1,150	\$34,500
0311-0526	Base Course	SY	\$50.00	1,150	\$57,500
0411-0982	Wearing Course	SY	\$20.00	1,150	\$23,000
0460-0001	Bituminous Tack Coat	SY	\$2.00	1,150	\$2,300
9999-0002	Driveway adjustment	LS	\$10,000.00	1	\$10,000
9999-0004	ADA ramps	EA	\$7,500.00	4	\$30,000
9999-0005	Modify Traffic Signal	LS	\$350,000.00	1	\$350,000
<b>SUBTOTAL</b>					<b>\$784,135</b>
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION	10%	\$78,414	
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC	5%	\$39,207	
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS	2%	\$15,683	
MAGNITUDE		DRAINAGE	15%	\$117,620	
ADDITIONAL ROW MAY BE REQUIRED		CONTINGENCY	10%	\$78,414	
<b>CONSTRUCTION AND CONTINGENCIES</b>				<b>\$1,113,472</b>	
		ENGINEERING DESIGN/INSPECTION	10%	\$111,345	
		ROW/EASEMENTS		\$350,000	
<b>CONSTRUCTION TOTAL</b>				<b>\$1,574,817</b>	
		ESCALATION (2% FOR 18 YEARS)		1.4282	
<b>TOTAL PROJECT COST</b>				<b>\$2,249,153</b>	





JOB	20-12006A		
SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/29/2022
CHECKED BY	DAD	DATE	
SCALE	N.T.S.		

**Widen Uhler Rd to 2 lanes in each direction (Bushkill Dr to Kessler'sville Rd) - approx. 1 mile of widening**

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
Widening for EB/WB thru lanes					
9999-0001	Roadway	MI	\$4,000,000.00	0.96	\$3,840,000
				</	



JOB	20-12006A		
SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/29/2022
CHECKED BY	DAD	DATE	
SCALE	N.T.S.		

### ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP

**Widen Sullivan Trail to 2 lanes in each direction (Meco Rd to Old Mill Rd) - approx. 0.91 mile of widening**

ITEM NUMBER	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL PRICE
<b>Widening for EB/WB thru lanes</b>					
9999-0001	Roadway	MI	\$4,000,000.00	0.91	\$3,640,000
<b>SUBTOTAL</b>					\$3,640,000
<b>COMMENTS:</b>					
UNIT COST OBTAINED FROM ECMS		MOBILIZATION		10%	\$364,000
ROW HAS NOT BEEN RESEARCHED IN DETAIL		MAINTENANCE OF TRAFFIC		5%	\$182,000
ASSUMED AS TYPICAL FOR A PROJECT OF THIS		ADMIN COSTS		2%	\$72,800
MAGNITUDE		DRAINAGE		15%	\$546,000
		CONTINGENCY		10%	364,000
ADDITIONAL ROW MAY BE REQUIRED		<b>CONSTRUCTION AND CONTINGENCIES</b>			<b>\$5,168,800</b>
		ENGINEERING DESIGN/INSPECTION		10%	516,880
		ROWEASEMENTS			1,000,000
		<b>CONSTRUCTION TOTAL</b>			<b>\$6,685,680</b>
		ESCALATION (2% FOR 18 YEARS)			1.4282
<b>TOTAL PROJECT COST</b>					<b>\$9,548,488</b>



PROJECT	Project Cost	50% Max on State Roads
<b>EXISTING</b>		
Kesslersville Rd/Sullivan Trail - Install traffic signal	\$665,955	\$332,978
Bushkill Dr/Zucksville Rd - Install traffic signal, associated drainage improvements and retaining wall	\$783,830	\$391,915
<b>PASS-THRU</b>		
W Newlins Rd/Sullivan Trail - install traffic signal	\$824,914	\$412,457
<b>FUTURE</b>		
Church Ln/Sullivan Trail - install traffic signal, retaining wall	\$914,834	\$457,417
Kesslersville Rd/Church Ln - 250' NB left turn lane, 275' SB right turn lane	\$917,914	\$458,957
Bushkill Dr/Uhler Rd - EB/WB through lanes	\$3,063,224	\$1,531,612
Uhler Rd/Sullivan Trail - EB/WB thru lanes; additional NB LT lane; NB RT lane; SB thru lane	\$2,891,433	\$1,445,717
Uhler Rd/Kesslersville Rd - EB/WB thru lanes; EB/WB RT lanes; WB LT lane	\$4,690,629	\$2,345,315
Uhler Rd/E Braden Blvd - Install traffic signal	\$925,459	\$462,730
Richmond Rd/Newlins Rd - Install all-way stop control	\$4,663	\$2,332
Newlins Rd/Sullivan Trail - realign intersection, install traffic signal; EB/WB LT lanes; NB/SB RT lane	\$3,545,602	\$1,772,801
Kesslersville Rd/Sullivan Trail - NB LT/RT lanes	\$1,125,875	\$562,937
Meco Rd/Sullivan Trail - SB Thru lane; additional WB LT lane	\$3,086,446	\$1,543,223
Zucksville Rd/Rennselaer Ave/Sullivan Trail - NB/SB thru lanes; EB RT lane	\$2,962,203	\$1,481,101
Town Center Blvd/Austin Dr/Sullivan Trail - NB/SB thru lanes	\$2,437,730	\$1,218,865
Paxinosa Rd/Knox Ave - Install traffic signal	\$878,800	\$439,400
Old Mill Rd/Town Center Blvd - Install traffic signal	\$847,694	\$847,694
Bushkill Dr/Zucksville Rd	\$2,249,153	\$1,124,577
Widen Uhler Rd between Bushkill Dr & Kesslersville Rd to provide additional thru lane in each direction	\$9,994,658	\$4,997,329
Widen Sullivan Trail between Meco Rd & Old Mill Rd to provide additional thru lane in each direction	\$9,548,488	\$4,774,244

TOTAL (FUTURE ONLY) \$25,466,250

Priority projects \* \$15,694,677  
# OF PROPOSED DEVELOPMENT TRIPS 4837

CALCULATED ACT 209 FEE \$3,244,71

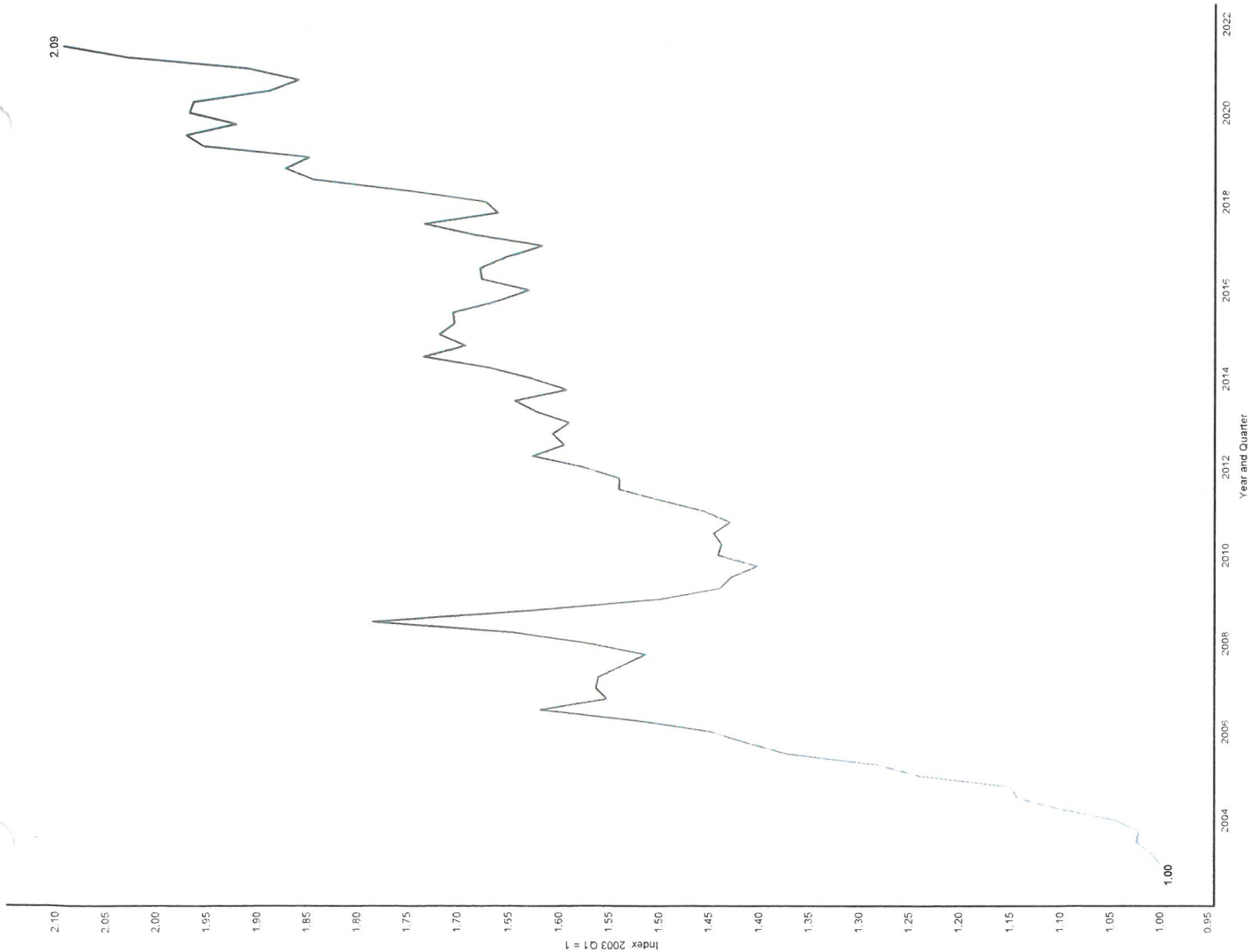
## APPENDIX B

### National Highway Construction Cost Index

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