

Act 209

Transportation Capital Improvements Plan

Prepared for
FORKS TOWNSHIP
Northampton County, Pennsylvania



March 2022

G&A Job #20-12006A

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

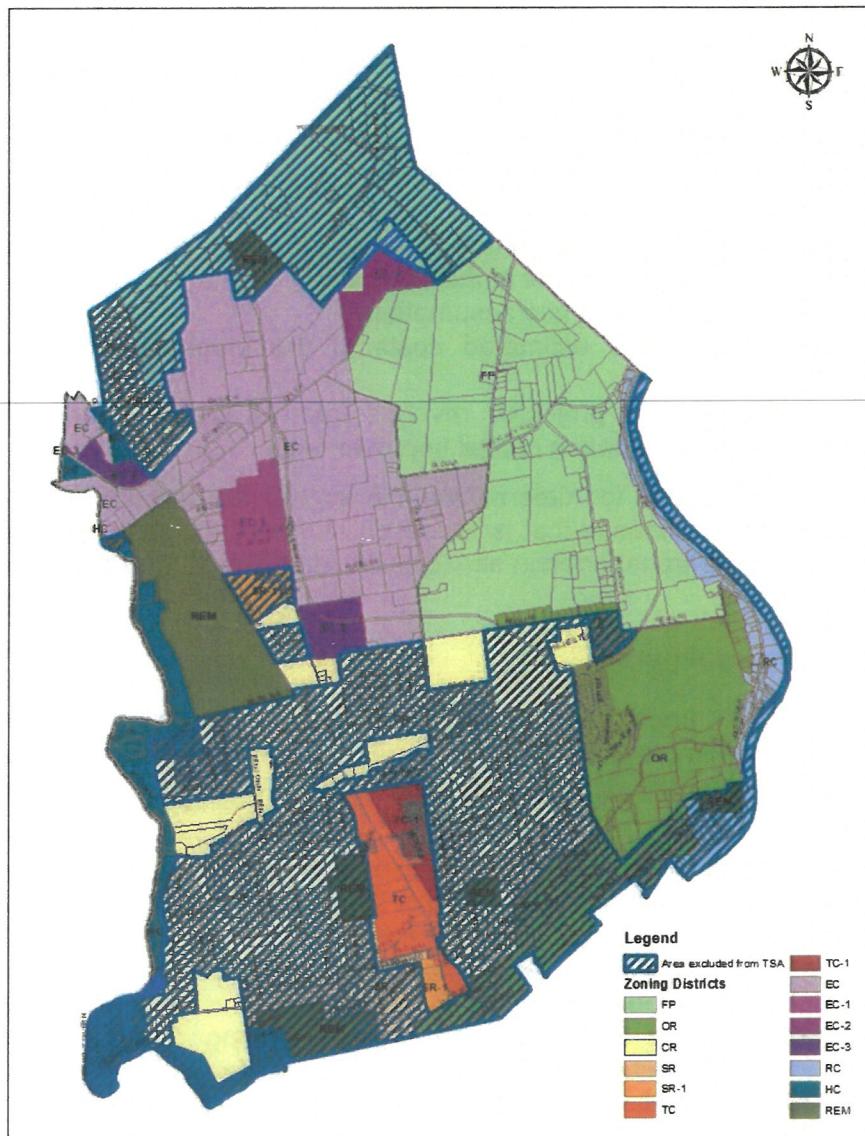


Figure 1 – Transportation Service Area

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, 11th 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)
- Meco Road & Sullivan Trail (SR 2025)
- Zucksville Road/Rensselaer 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
Existing				
Kesslersville Rd/ Sullivan Trail	Stop	Install traffic signal with ADA accommodations	\$665,955	2040
Bushkill Dr/ Zucksille Rd	Stop	Install traffic signal with ADA accommodations; associated drainage improvements (retaining wall, endwall,etc.)	\$783,830	2040
Existing Total:				\$1,449,785
Future Pass-Through				
Newlins Rd West (west)/ Sullivan Trail	Stop	Install traffic signal with ADA accommodations	\$824,914	2040
Future Pass-Through Total:				\$824,914
Future Development				
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
Zucksille 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/ Zucksille 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
Future Development Total:				\$50,084,805

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
Kesslersville 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/Kesslersville 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
Kesslersville 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	
TOTAL	\$50,084,805	\$25,466,251	\$15,694,678

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





GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

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.		

ENGINEER'S OPINION OF PROBABLE COST - Existing TCIP

Kesslersville Rd/Sullivan Trail - install traffic signal



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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
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ENGINEER'S OPINION OF PROBABLE COST - Existing TCIP

Bushkill Dr/Zucksburg Rd - install traffic signal, associated drainage improvements and retaining wall



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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.		

ENGINEER'S OPINION OF PROBABLE COST - Pass-through TCIP

W Newlins Rd/Sullivan Trail - install traffic signal



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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.

ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP

Church Ln/Sullivan Trail - install signal and retaining wall



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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.

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
Widening for NB LT lane					
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
Widening for SB RT lane					
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
			SUBTOTAL		\$385,100
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					
SIGNAL LIKELY NOT FEASIBLE DUE TO PROXIMITY TO UHLER RD SIGNAL. ASSUME TURN LANES TO MITIGATE AS MUCH AS FEASIBLE.					
			CONSTRUCTION AND CONTINGENCIES		\$566,097
			ENGINEERING DESIGN/INSPECTION	10%	56,610
			ROW/EASEMENTS		\$20,000
			CONSTRUCTION TOTAL		\$642,707
			ESCALATION (2% FOR 18 YEARS)		1.4282
			TOTAL PROJECT COST		\$917,914



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SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/29/2022
CHECKED BY	DAD	DATE	3/29/2022
SCALE	N.T.S.		

ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP

Bushkill Dr/Uhler Rd - add through lane in each direction on Uhler, adjust signal timings



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

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	
Widening for thru lanes - Uhler						
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	
Widening for NB left-turn lane						
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	
Widening for NB right-turn 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	
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	
Widening for SB through lane						
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	
			SUBTOTAL			\$1,380,530
COMMENTS:						
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 MAGNITUDE	ADMIN COSTS		2%			\$27,611
	DRAINAGE		5%			\$69,027
ADDITIONAL ROW MAY BE REQUIRED	CONTINGENCY		10%			138,053
	CONSTRUCTION AND CONTINGENCIES					\$1,822,300
	ENGINEERING DESIGN/INSPECTION		10%			182,230
	ROW/EASEMENTS					20,000
	CONSTRUCTION TOTAL					\$2,024,530
	ESCALATION (2% FOR 18 YEARS)					1.4282
	TOTAL PROJECT COST					\$2,891,433



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SCALE N.T.S.

ENGINEER'S OPINION OF PROBABLE COST - Future Development TCIP						
Uhler Rd/Kesslersville Rd - add thru 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	
Widening for thru lanes - Uhler						
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	
Widening for EB right-turn 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	
Widening for WB left-turn lane						
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	
Widening for WB right-turn lane						
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	
	SUBTOTAL				\$2,124,170	
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						
	CONSTRUCTION AND CONTINGENCIES				\$2,803,904	
	ENGINEERING DESIGN/INSPECTION		10%		\$280,390	
	ROW/EASEMENTS		5%		\$200,000	
	CONSTRUCTION TOTAL				\$3,284,294	
	ESCALATION (2% FOR 18 YEARS)				1.4282	
	TOTAL PROJECT COST				\$4,690,629	



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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



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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



GILMORE & ASSOCIATES, INC.
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.



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/Kesslersville Rd - NB LT and RT lanes



GILMORE & ASSOCIATES, INC.
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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



GILMORE & ASSOCIATES, INC.
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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



GILMORE & ASSOCIATES, INC.
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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/Town Center Blvd/Austin Dr - NB/SB thru 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	550	\$110,000
0676-0001	Cement Concrete Sidewalk	SY	\$225.00	100	\$22,500
9999-0001	Utility Relocation	EA	\$15,000.00	6	\$90,000
9999-0002	Driveway Adjustment	LS	\$70,000.00	1	\$70,000
9999-0004	ADA ramps	EA	\$7,500.00	10	\$75,000
9999-0005	Traffic Signal	LS	\$375,000.00	1	\$375,000
9999-0006	Business Sign Relocations	LS	\$30,000.00	1	\$30,000
					\$1,082,850
COMMENTS:					
UNIT COST OBTAINED FROM ECMS	MOBILIZATION		10%		\$108,285
ROW HAS NOT BEEN RESEARCHED IN DETAIL	MAINTENANCE OF TRAFFIC		5%		\$54,143
ASSUMED AS TYPICAL FOR A PROJECT OF THIS MAGNITUDE	ADMIN COSTS		2%		\$21,657
ADDITIONAL ROW MAY BE REQUIRED	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



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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



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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

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



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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/Zucksille Rd - NB RT and SB LT lanes



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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 Uhler Rd to 2 lanes in each direction (Bushkill Dr to Kesslersville Rd) - approx. 1 mile of widening



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JOB	20-12006A		
SHEET NO.	1	OF	1
CALCULATED BY	KMN	DATE	3/29/2022
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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

PROJECT	Project Cost	50% Max on State Roads
EXISTING		
Kesslersville Rd/Sullivan Trail - Install traffic signal	\$665,955	\$332,978
Bushkill Dr/Zuckserville Rd - Install traffic signal, associated drainage improvements and retaining wall	\$783,830	\$391,915
PASS-THRU		
W Newlins Rd/Sullivan Trail - install traffic signal	\$824,914	\$412,457
FUTURE		
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 LT lane; 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
Zuckserville 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	\$437,694
Bushkill Dr/Zuckserville 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



