



GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

Akron Office

520 South Main Street
Suite 2531
Akron, OH 44311

tel 330.572.2100
fax 330.572.2101
www.gpdgroup.com

Mr. David Griffith, P.E.
District 4 Highway Safety Engineer
ODOT District 4
2088 South Arlington Road
Akron, Ohio 44306

April 25, 2016
2015407.00

**State Route 241 Corridor and Safety Study
State Route 172 to Hills and Dales Road (PID 100471)
City of Massillon, Stark County, Ohio
*Response to DSRT Comments***

Dear Mr. Griffith:

Based upon comments that were received at the District Safety Review Team (DSRT) meeting regarding the above referenced project, GPD Group offers the following responses:

Comment 1: The District is concerned that the cost for right-of-way and utilities is low for the stretch south of Lake Avenue considering this is an urban setting with utility poles and houses located very close to the roadway.

Response 1: GPD Group took a closer look at the right-of-way cost estimate, the existing right-of-way width, the existing roadway cross section and the proposed improvements. Currently, State Route 241 south of Lake Avenue measures at a distance of 53' from the back of sidewalk on the east side of the roadway to the back of sidewalk on the west side of the roadway. The existing right-of-way width along State Route 241 in the same section is 60' according to the Stark County GIS Database. See the figure in **Attachment A** for a conceptual image showing the existing cross section width and right-of-way width. Additionally, during a site visit to the area on April 12th, surveyors were locating the property markers along State Route 241 which identified where the right-of-way ended and residential property began. The below pictures verify that there is approximately 3-4' behind the sidewalk on each side of the roadway that is still within the right-of-way and could be used for utility relocation without necessitating the purchase of additional right-of-way.



Comment 2: At the State Route 241 / Hills and Dales Road intersection, ODOT District 4 would prefer that traffic wishing to continue north on State Route 241 to not have to make a lane change. Under the configuration of the current proposal, the northbound travel lane forces traffic into the northbound right turn lane onto Hills and Dales Road. ODOT would prefer that this configuration be changed to have the travel lane feed into the northbound thru lane and then a right turn lane be created.

Response 2: This updated will be made. This configuration was originally proposed due to the fact that the northbound right turn volume is actually higher than the northbound thru volume. The update has been made based on the comment received by District 4 at the DSRT meeting. The updated rendering for State Route 241 is included in **Attachment B**. Additionally, this change required updating the cost estimate due to the additional widening cost and a right-of-way strip that needs to be acquired by the church south of State Route 241 near Hills and Dales Road. The updated cost estimate for the new project is located in **Attachment C** for your review. Due to the updated cost estimate, the safety application and single sheet summary also needed to be updated for this project. They are both included in **Attachment D**. The cost of this project increased by approximately \$300,000 due to this update. However, it should be noted that the safety funding request remains unchanged at \$3,180,000 and the additional money was allocated towards the City of Massillon's local share. A signed copy of the safety application has been received by the City of Massillon and will be submitted to ODOT District 4 as well.

If you have any questions, please feel free to contact me at (330) 572-2214 or via e-mail at mhobbs@gpdgroup.com. Thank you for your assistance with this project

Respectfully Submitted,



Michael A. Hobbs, P.E., PTOE
Principal / Traffic Engineering Practice Leader

MAH/cjd

Cc: Mr. Keith Dylewski, P.E. (City of Massillon) enc.
Mr. Jeff Dotson (SCATS) enc.
Mr. Dan Newcome (GPD Group) w/o enc.
Mr. Curtis Deibel (GPD Group) w/o enc.
File

ATTACHMENT A

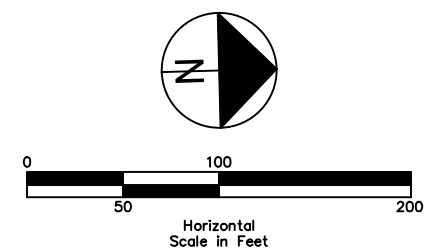
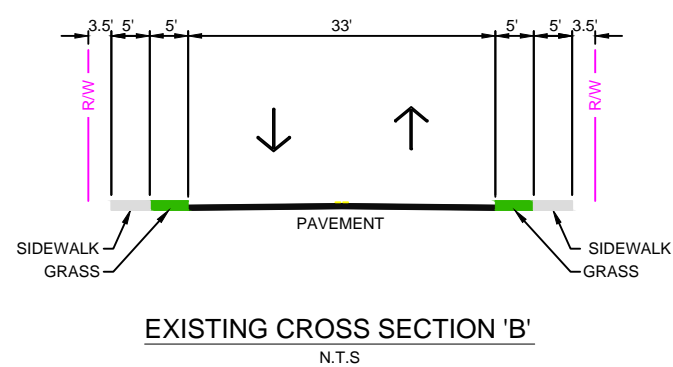
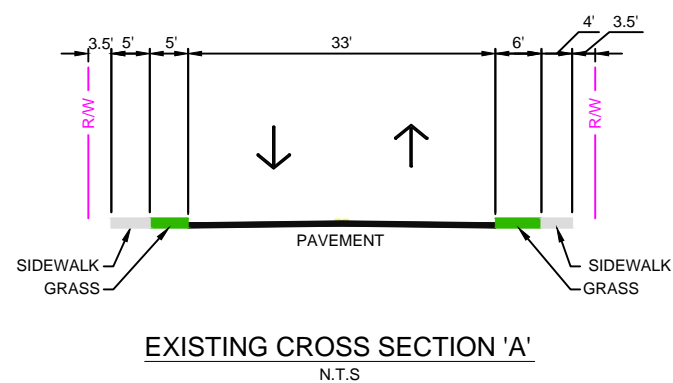
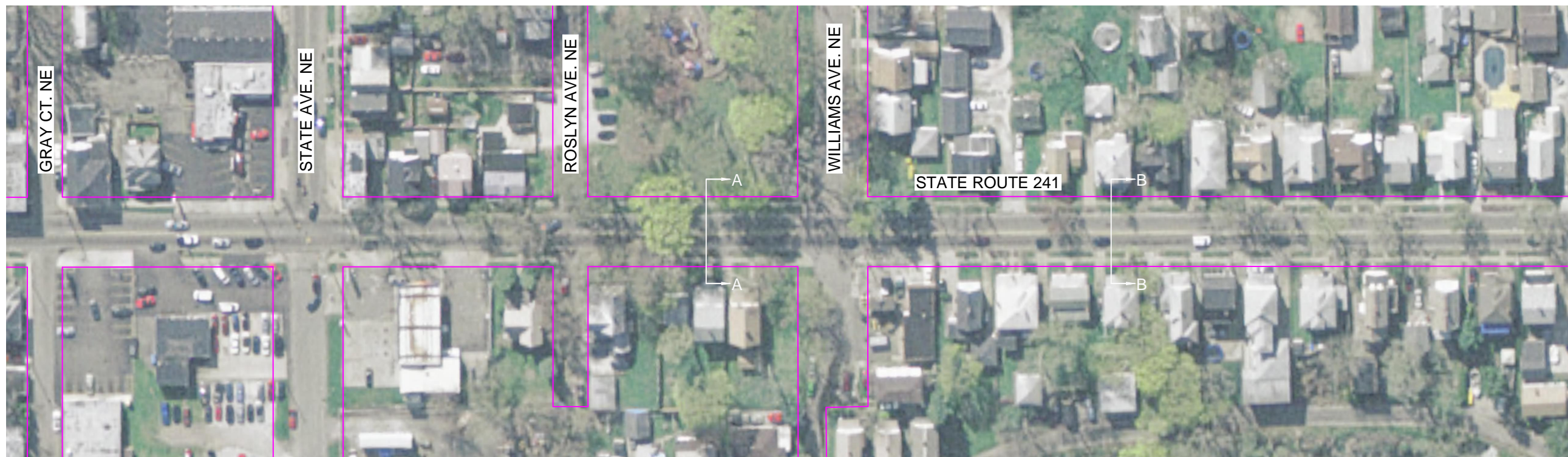
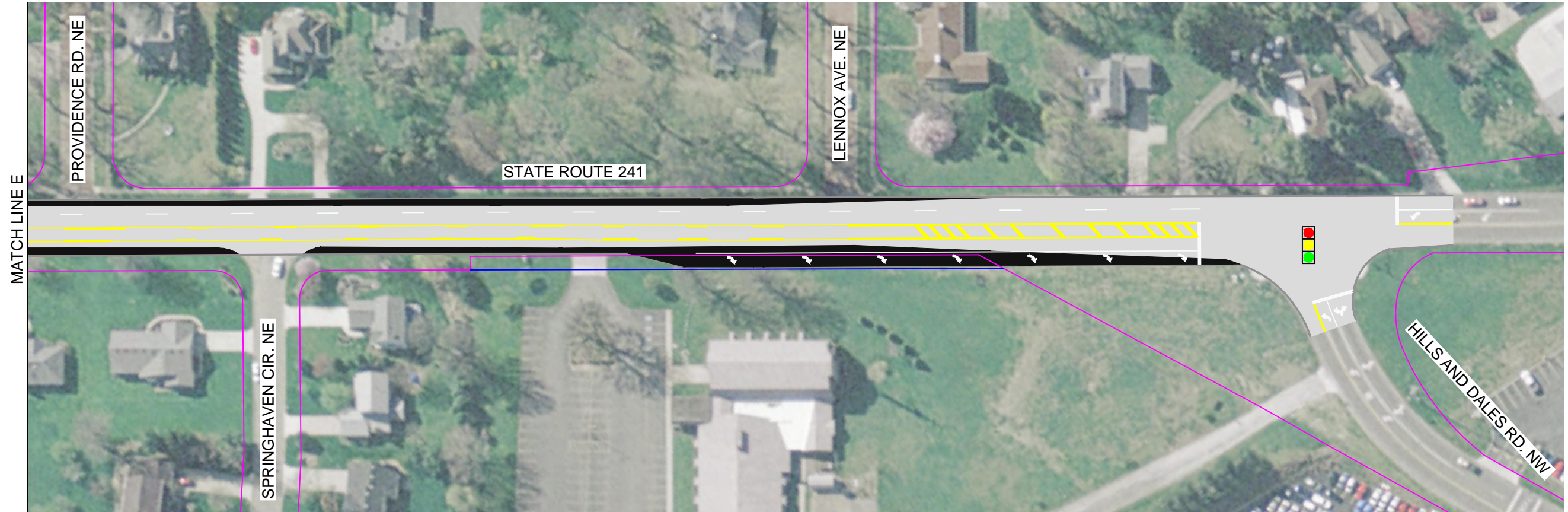









FIGURE 1

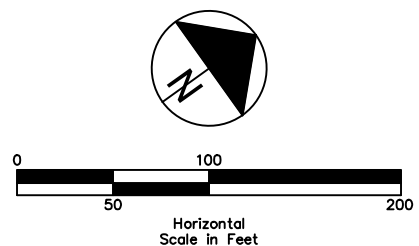
EXISTING CROSS SECTION


APRIL 2016

ATTACHMENT B



LEGEND	
	PROPOSED RESURFACING
	PROPOSED CURB
	PROPOSED SIDEWALK
	PROPOSED WIDENING
	PROPOSED RIGHT OF WAY
	EXISTING RIGHT OF WAY
	PROPOSED SIGNAL RECONSTRUCTION / MODIFICATION





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FIGURE 6

PROPOSED IMPROVEMENT
 RENDERING
 SHEET 6 OF 6

JANUARY 2016

ATTACHMENT C

Preliminary Cost Estimate

ITEM	DESCRIPTION	TOTAL QUANTITY	UNIT	ESTIMATED PRICE	TOTAL COST
	ROADWAY				
201	CLEARING AND GRUBBING	1	LS	\$10,000	\$10,000
202	PAVEMENT REMOVED	3,200	SY	\$10	\$32,000
202	CONCRETE WALK REMOVED	5,300	SF	\$3	\$15,900
202	CURB REMOVED	13,160	FT	\$3	\$39,480
203	EXCAVATION / EMBANKMENT	4,700	CY	\$10	\$47,000
252	FULL DEPTH PAVEMENT SAWING	16,800	FT	\$2	\$33,600
659	SEEDING & MULCHING	13,800	SY	\$4	\$55,200
832	EROSION CONTROL	1	LS	\$40,000	\$40,000
	EROSION CONTROL PLAN	1	LS	\$5,000	\$5,000
	ROADWAY SUBTOTAL:				\$278,180
	DRAINAGE				
202	PIPE REMOVED, 24" AND UNDER	7,000	FT	\$20	\$140,000
202	CATCH BASIN REMOVED	47	EACH	\$400	\$18,800
605	UNDERDRAINS	16,800	FT	\$12	\$201,600
611	STORM CONDUIT, TYPE B OR C	8,700	FT	\$70	\$609,000
603	CATCH BASIN, NO. 3A	56	EACH	\$2,250	\$126,000
603	MANHOLE, NO. 3	10	EACH	\$3,000	\$30,000
	DRAINAGE SUBTOTAL:				\$1,125,400
	PAVEMENT				
254	PAVEMENT PLANNING, ASPHALT CONCRETE	32,800	SY	\$3	\$98,400
441	DRIVEWAYS	3,000	SY	\$45	\$135,000
448	ROADWAY FULL DEPTH WIDENING	6,300	SY	\$75	\$472,500
448	ROADWAY RESURFACING	32,800	SY	\$12	\$393,600
609	CURB, TYPE 6	15,860	FT	\$15	\$237,900
608	CONCRETE SIDEWALK	5,300	SF	\$8	\$42,400
	PAVEMENT SUBTOTAL:				\$1,379,800
	TRAFFIC CONTROL				
	SIGNING	1	LS	\$50,000	\$50,000
	STRIPING	1	LS	\$25,000	\$25,000
	TRAFFIC CONTROL SUBTOTAL:				\$75,000
	SIGNALIZATION				
632	TRAFFIC SIGNAL RECONSTRUCTION	5	EACH	\$120,000	\$600,000
632	TRAFFIC SIGNAL MODIFICATION	0	EACH	\$20,000	\$0
632	TRAFFIC SIGNAL INTERCONNECTION	1	LS	\$40,000	\$40,000
	SIGNALIZATION SUBTOTAL:				\$640,000
	MAINTENANCE OF TRAFFIC				
	MAINTENANCE OF TRAFFIC	1	LS	\$175,000	\$175,000
	MAINTENANCE OF TRAFFIC SUBTOTAL:				\$175,000

Preliminary Cost Estimate

ITEM	DESCRIPTION	TOTAL QUANTITY	UNIT	ESTIMATED PRICE	TOTAL COST
	MISCELLANEOUS				
614	MAINTAINING TRAFFIC	1	LS	\$50,000	\$50,000
619	FIELD OFFICE	12	MON	\$1,600	\$19,200
623	CONSTRUCTION LAYOUT STAKES	1	LS	\$28,000	\$28,000
624	MOBILIZATION	1	LS	\$100,000	\$100,000
SPECIAL	PERFORMANCE BOND	1	LS	\$28,000	\$28,000
	MISCELLANEOUS SUBTOTAL:				\$225,200
	RIGHT OF WAY				
	TEMPORARY R/W TAKE - COMMERCIAL	14	EACH	\$5,000	\$70,000
	TEMPORARY R/W TAKE - RESIDENTIAL	78	EACH	\$2,000	\$156,000
	PERMANENT R/W TAKE - MINOR - COMMERCIAL	3	EACH	\$25,000	\$75,000
	PERMANENT R/W TAKE - MINOR - RESIDENTIAL	9	EACH	\$10,000	\$90,000
	ACQUISITION SERVICES	104	EACH	\$5,000	\$520,000
	RIGHT OF WAY SUBTOTAL:				\$911,000
	TOTAL CONSTRUCTION AND RIGHT OF WAY COST:				\$4,809,580
	DESIGN ENGINEERING COST:	(13% OF CONSTR. & R/W COST)			\$625,245
	GEOTECHNICAL ENGINEERING COST:	(1.5% OF CONSTR. & R/W COST)			\$72,144
	ENVIRONMENTAL COST:	(2% OF CONSTR. & R/W COST)			\$96,192
	SUBSURFACE UTILITY ENGINEERING (SUE):	(3% OF CONSTR. & R/W COST)			\$144,287
	DESIGN CONTINGENCY COSTS	(15% OF CONSTR. & R/W COST)			\$721,437
	PROJECT SUBTOTAL:				\$6,468,885
	3% INFLATION CONTINGENCY OVER 5 YEARS (15%):				\$970,333
	PROJECT TOTAL WITHOUT CONSTRUCTION INSPECTION				\$7,439,218
	CONSTRUCTION INSPECTION COST:	(10% OF PROJECT TOTAL)			\$743,922
	TOTAL:				\$8,183,140

ATTACHMENT D

General Project Information

Project Sponsoring Agency	City of Massillon
Project Name	State Route 241 Widening (STA-241-9.71)
PID	100471
Project Manager	Mr. Keith A. Dylewski, P.E., P.S
Contact Phone	(330) 830-1722
Contact Email	kdylewski@massillonohio.com

Location Information

ODOT District	4	County	STA
Route Number	SR-241R	Road Name	Wales Road
Begin Logpoint	9.710	End Logpoint	11.160
Begin Latitude	40.800	Begin Longitude	-81.510
End Latitude	40.820	End Longitude	-81.504

Project Description

Summary of Crash Patterns

In 2016, GPD Group completed a comprehensive tabulation of the crashes for the three (3) most recent years of crash data (2012 – 2014) along the State Route 241 corridor in the City of Massillon, Ohio. This crash data showed a large number of crashes along the corridor, particularly along the roadway segments, suggesting that there were safety issues along the corridor and a more detailed analysis was needed to determine the extent of the problem(s) and what could be done to address them.

A review of the crash patterns indicates that safety and operational issues exist within the study area. The large number of rear-end crashes occurring in the segments and at unsignalized intersections in the thru travel lanes suggests that turning vehicles in those lanes impede following traffic, resulting in these rear-end crashes. Thru vehicles are unable to get around left turning traffic as State Route 241 is a two (2) lane facility throughout the study area, causing congestion and rear-end related crashes throughout the corridor.

Summary of Recommended Countermeasures

1. Widen State Route 241 to accommodate a center two-way left turn lane throughout the study area.
2. Resurface State Route 241 throughout the study area.
3. Add traffic signal back plates to the existing traffic signal at the State Route 241 / Hills and Dales Road intersection.
4. Reconstruct traffic signals at the remaining four (4) traffic signals within the study area.
5. Optimize signal timings at all study intersections.
6. Add a westbound right turn overlap phase at the State Route 241 / State Route 172 intersection.
7. Add a westbound right turn overlap phase at the State Route 241 / Hankins Road intersection.
8. Add a southbound and eastbound right turn overlap phase at the State Route 241 / Lake Avenue intersection.

Project Priority Information

- State Route 241 / State Route 172 intersection (#10 intersection within the City of Massillon)

It should be noted that the above citywide ranking was performed by GPD Group based on the SCATS crash report.

Crash Data					
Crash Totals					
	Fatal & Serious Injury (KA)	Visible Injury (B)	Non-Visible (C)	Property Damage Only (O)	Total
Existing Conditions: Predicted Crash Frequency	0.8745	3.4721	4.5774	23.8408	32.76
Existing Conditions: Expected Crash Frequency	0.8692	3.4794	4.6338	27.9042	36.89
Potential for Safety Improvement	-0.0053	0.0073	0.0564	4.0634	4.12
Proposed Conditions: Predicted Crash Frequency	0.5843	2.4600	3.3356	19.1619	25.54
Observed Crashes	0.6667	5.3333	7.0000	42.0000	55.00
Observed People Injury Totals					
	Fatal Injury (K)	Serious Injury (A)	Visible Injury (B)	Non-Visible (C)	Total
Observed People Injury Totals	0.6667	0.3333	7.0000	9.6667	17.67
Application Scoring					
Category	Scoring Value	Points Awarded	Points Possible		
Expected Crash Frequency	36.89	10	10		
Ratio of Observed Fatal and Serious Injuries to Observed Total Crashes	0.02	1	5		
% of the Potential for Safety Improvement to Total Expected Crashes	11.17%	20	20		
Relative Severity Index	\$22,763	2	10		
Equivalent Property Damage Only Index	2.82	2	5		
Volume to Capacity Ratio	0.91	8	10		
Benefit Cost Ratio	0.46	0	30		
Safety Funding Request Percentage	38.86%	10	10		
Total		53	100		

Strategic Highway Safety Plan	
Functional Class	Other Principal Arterial Roadway
Major Route AADT	20,190
Ohio Emphasis Area	Emphasis Area V - Incident and Congestion Related Crashes
Ohio Emphasis Area Subcategory	Rear End Crashes
FHWA Emphasis Area	Improving the design and operation of highway intersections
FHWA Improvement Category	Roadway
FHWA Improvement Subcategory	Roadway widening - add lane(s) along segment

Work Locations					
NLFID	Begin Logpoint	End Logpoint	Begin Latitude	Begin Longitude	Location Termini (i.e. from Street 1 to Street 2)
SSTASR00241**C	9.710	11.160	40.800	-81.5099	State Route 172 to Hills and Dales Road

Project Funding							
Project Phase	Safety Study	Interchange Mod. Study	PE - Environmental	PE - Detailed Design	Right of Way /Utilities	Construction	Total
Fiscal Year	2016		2017	2018	2019	2020	
Project Phase Completed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	
Previous Safety	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
New Safety	\$0.00	\$0.00	\$564,934.00	\$278,251.00	\$819,900.00	\$1,516,915.00	\$3,180,000.00
Sponsor Funding	\$0.00	\$0.00	\$62,770.00	\$30,917.00	\$91,100.00	\$1,545,526.00	\$1,730,313.00
Secured Scats Funding	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,272,827.00	\$3,272,827.00
Total	\$0.00	\$0.00	\$627,704.00	\$309,168.00	\$911,000.00	\$6,335,268.00	\$8,183,140.00

Additional Funding Detail

\$3,272,827 of STP funding has been secured by the City of Massillon from SCATS. This project was added to the TIP in February of 2015.

The City of Massillon will provide the local funding from their general fund as well as from a potential future funding requests including Issue I, etc.

It should be noted that the funding request is being made for FY 2020 to align with the previously awarded STP funding from SCATS.

Project Development		
Project Phase	Completed by	Completion Date
Safety Study	GPD Group	Feb-16

Applicant Information		
Name	Title	Phone Number
Mr. Keith A. Dylewski, P.E., P.S	City Engineer	(330) 830-1722
Signature		Date

Version: 20150917

The following information should be included in submission of the safety project application:

1. An electronic copy of the Safety Engineering Study
2. All Excel Analysis Files
May include Crash Analysis Module (CAM) Tool, Economic Crash Analysis Tool (ECAT), HSIP Application and Scoring Tool.
3. Benefit-Cost Results (Economic Analysis)
4. DSRT approval signatures

SAFETY APPLICATION SUMMARY

State Route 241 Corridor and Safety Study

District 4

City of Massillon, Stark County, Ohio
May 2016

Priority Ranking

#10 – Intersection – State Route 241 / State Route 172 – Intersection Ranks within City of Massillon Based on SCATS Crash Report.

Crash Data

CATEGORY	DATA	SCORE
Expected Crash Frequency	36.89	10
Ratio of Fatal and Serious to Total	0.02	1
% of Potential for Safety Improvement	11.17%	20
Relative Severity Index	\$22,763	2
Equivalent Property Only Index	2.82	2
Volume to Capacity Ratio	0.91	8
Benefit / Cost Ratio	0.46	0
Safety Fund Request Percentage	38.86%	10
Total Project Score		53

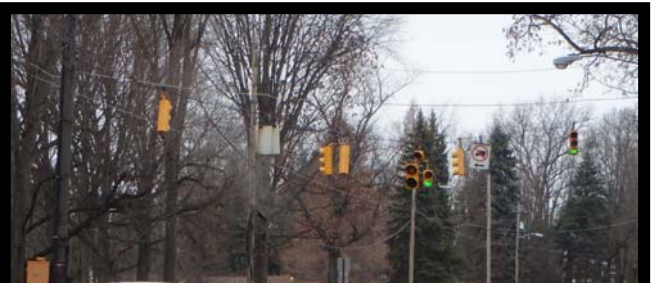
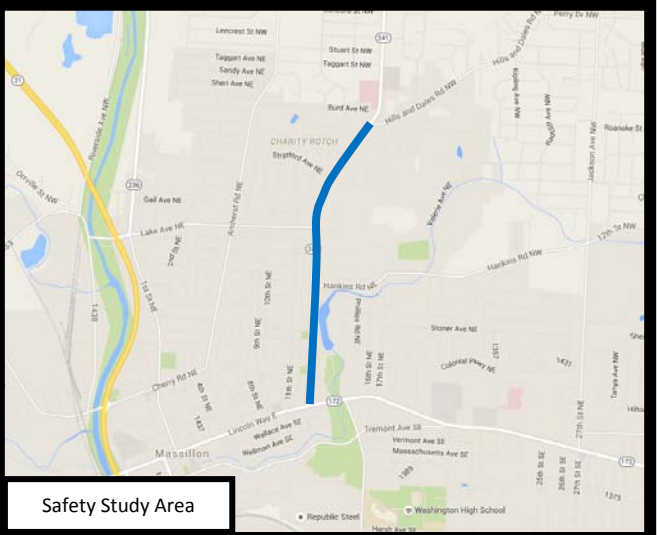
Proposed Countermeasures

- Widen State Route 241 to accommodate a center two-way left turn lane.
- Resurface State Route 241 throughout the study area.
- Add traffic signal back plates at State Route 241 / Hills and Dales Road.
- Reconstruct traffic signals at the four (4) remaining signalized intersections.
- Optimize signal timings at all study intersections.
- Add a WB right turn overlap phase at State Route 241 / State Route 172.
- Add a WB right turn overlap phase at State Route 241 / Hankins Road.
- Add SB and WB right turn overlap phases at State Route 241 / Lake Avenue.

Project Funding

PROJECT PHASE	FISCAL YEAR	SECURED SCATS	NEW SAFETY	SPONSOR	TOTAL
Interchange Mod. Study	N/A	\$0.00	\$0.00	\$0.00	\$0.00
Environmental / PE:	2017	\$0.00	\$564,934.00	\$62,770.00	\$627,704.00
Detailed Design:	2018	\$0.00	\$278,251.00	\$30,917.00	\$309,168.00
ROW / Utilities:	2019	\$0.00	\$819,900.00	\$91,100.00	\$911,000.00
Construction:	2020	\$3,272,827.00	\$1,516,915.00	\$1,545,526.00	\$6,335,268.00
Total:		\$3,272,827.00	\$3,180,000.00	\$1,730,313.00	\$8,183,140.00

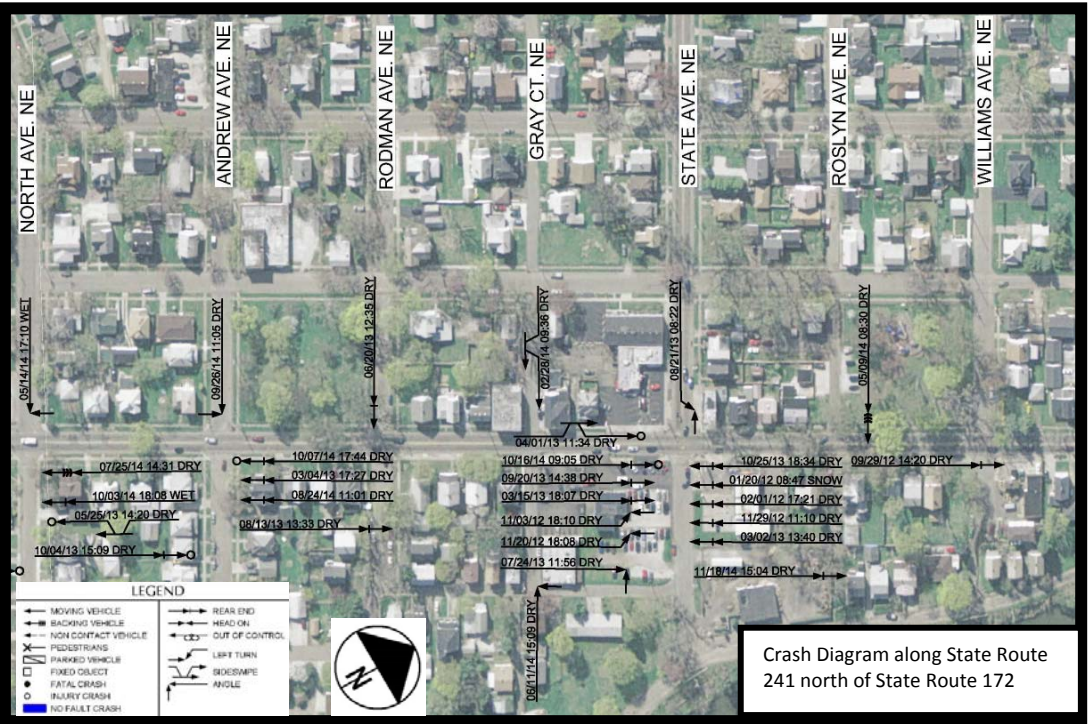
\$3,272,827 of STP funding has been secured from SCATS. The project was added to the TIP in February of 2015. Massillon will provide local funding from the general fund and from potential future local funding requests such as Issue I. Construction funding is being requested in FY 2020 to align with the previously awarded STP funding from SCATS.



Traffic Signal Heads at the State Route 241 / Lake Avenue intersection.



Traffic Signal Controller at the State Route 241 / State Avenue intersection.



Safety Study and Application Prepared By:



Kathy Catazarro-Perry, Mayor
Massillon
City of Champions