

RATE OF RETURN - ECONOMIC ANALYSIS WORKSHEET

County Scioto Main Roadway 139 Intersecting Roadway Rosemont

Begin SLM 1.66 End SLM N/A

Ohio Department of Transportation
Office of Traffic Engineering

Prepared by JFR Date 03/12/07

Year	TIME OF DAY			ROADWAY CONDITION			CRASH TYPE						Total				
	DAY	NITE	N. S.	DRY	WET	N. S.	L. T.	R. T.	ANGLE	REAREND	HEAD ON	S. S.		F. O.	OTHER	PDO	I/F
2003	2	0	0	2	0	0	1	0	0	2	0	0	0	0	0	0	2
2004	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1
2005	1	1	0	1	0	0	1	0	0	1	0	0	0	0	0	0	1
TOTAL	4	1	0	4	1	0	4	0	0	3	0	0	0	0	0	0	4
AVG.	1.33	0.33	0.00	1.33	0.33	0.00	1.33	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33

RECOMMENDED IMPROVEMENTS	CRASH TYPE		PDO CRASHES				INJ. - FAT. CRASHES								
	R1	R2	R3	R4	RT	AVG PDO	EST. RED.	R1	R2	R3	R4	RT	AVG INJ-FAT	EST. RED.	
1. Install left-turn lane with signal.	0.20				0.20	0.33	0.07	0.20				0.20	0.67	0.13	
2.															
3.															
4.															
5.															
6.															
7.															
8.															
ESTIMATED PDO CRASH REDUCTION													0.27	ESTIMATED INJ. - FAT. CRASH REDUCTION	0.13

Project Service Life 10 years
 Present ADT (PADT) 8035
 Future ADT (FADT) 9325

Average ADT = (PADT + FADT)/2 = (8035 + 9324.9455) / 2 = 8679.9728
 ADT Factor = Average ADT / PADT = 8680 / 8035 = 1.08

Average Annual Benefits

Annual PDO Benefits = Estimated PDO Crash Reduction * Avg PDO Cost	=	0.27	*	\$2,500	=	\$667
Annual INJ.-FAT. Benefits = Estimated INJ.-FAT. Crash Reduction * Avg INJ.-FAT. Cost	=	0.13	*	\$67,900	=	\$9,053
Total Benefits					=	\$9,720
Average Annual Benefits = Total Benefits * ADT Factor	=	1.08	*	\$9,720	=	\$10,500

Rate of Return

Project Cost	\$620,000
Maintenance and Energy Costs	\$1,000
Salvage Value	\$1,000
Rate of Return	-24%

Scioto County and Rosemont 139 - 1.66

Date: 03/12/07

Study Prepared by: JFR

ADT of Main Road = 8035

Total # of Crashes (2003 - 2005) = 6

The problematic deficiencies are summarized below:

Crash Statistics	
Time of Day:	Crash Type:
Day 83%	Left Turn 50%
Night 17%	Right Turn 0%
N.S. 0%	Angle 0%
Roadway Conditions:	
Day 83%	Rear End 50%
Dry 83%	Head On 0%
Wet 17%	Side Swipe 0%
N.S. 0%	Fixed Object 0%
Other 0%	
Crash Severity:	
Day 83%	Property Damage Only 67%
Night 17%	Injury / Fatality 33%
N.S. 0%	

Recommended Improvements: Install left-turn lane with signal.
Total Estimated Cost for Improvements: \$620,000

Score Summary:

District 9 Categories

Points	Description
2	This location is an intersection
0	This location is not School related
0	This location is not prone to heavy fog
0	This location does not have pedestrian traffic
2	This location is a signalized intersection
0	This location does not meet any turn lane warrants
0	On a scale of 0-5, the severity of the problem is rated at a 0
4	Subtotal

HSP Threshold Calculations

Frequency	=	total # crashes	=	6
Density	=	Frequency (Length in miles)*	=	6.00
Crash Rate	=	(# crashes)(1 million) (365)(3)(ADT)(Length in miles)*	=	0.68
Rate of Return	=	From Economic Analysis Sheet	=	-24%
EPPDO	=	# of PDO's x 1.0 # of Injuries x 6.9 # of Fatalities x 292.9	=	17.80
EPPDO	=	(EPPDO)(1 million)	=	2.02
Rate	=	(365)(3)(ADT)(Length in miles)*	=	27115
RSI	=	Σ(Relative cost per crash) (Total # of crashes)	=	3.0%
% Trucks	=		=	
Subtotal				15
Total				19

*Sections Only

Scioto County: 139 and Rosemont

County: Scioto
 Main Route: 139
 Beginning S.L.M.: 1.66
 Ending S.L.M.: N/A
 Intersecting Route: Rosemont
 Date: 03/12/07
 Prepared By: JFR

Intersection

ADT - Major Route 8035

ADT - Minor Route 6220

% Truck Traffic 3.0%

School Area

Fog Area

Pedestrians

Total # of Accidents 6

Intersection is currently signalized

Turn Lane Warrant(s)

met (if applicable)

Problem Severity (0-5)

Please list:

Year:	# of Accidents in	Crash #	Severity	Light	Roadway Condition	Crash Type	Case #																																																																																																
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