KANSAS
DEPARTMENT OF TRANSPORTATION

Kathleen Sebelius, Governor
Deb Miller, Secretary

http://www.ksdot.org

August 21, 2007

Federal-aid HSIP safety projects
City of Lawrence
Douglas County

Frank Reeb
City Clerk
6 East 6th Street
Lawrence, Kansas 66044-0708

Dear Mr. Reeb:

Enclosed with this letter is a copy of the report that has been sent to the Federal Highway Administration (FHWA). These reports are required by the FHWA when federal funds are used to make safety improvements to intersections. You will find in the report, a copy of the cost to benefit sheet, a summary sheet and a collision diagram for the after crashes at these locations.

Listed below is a short summary of each project and scope for reference.

LOCATION	CITY	SCOPE	BENEFIT/COST RATIO	% REDUCED CRASHES
6th and Kasold	Lawrence	Left turn lanes added and upgrade traffic signal	2.52	48.78 %

If you have any questions or comments regarding this traffic study, please feel free to call our office at (785) 296-3618.

Sincerely,

Adam Pritchard, P.E.
Traffic Engineer

AMP:kr

BUREAU OF TRAFFIC ENGINEERING
David A. Church, P.E., Chief
Dwight D. Eisenhower State Office Building
700 S.W. Harrison Street; Topeka, KS 66603-3745 • (785) 296-3618 • Fax: (785) 296-3619
TTY (Hearing Impaired): (785) 296-3585 • e-mail: publicinfo@ksdot.org • Public Access at North Entrance of Building

STP Project Review Report

Date of Evaluation: 24-Jul-07

INTRODUCTION:

Evaluation No.:	FY 2003-0008	**Location:**	6th & Kasold
Project No.:	U-1929-01	**City:**	Lawrence
Letting Date:	6/18/2003	**County:**	DOUGLAS

Background Information:

Primary Scope: Geometric Changes with an Upgrade of the Existing Traffic Signals

The project's signals will be:	Fully Actuated Signals		
Status of Left-Turn Phasing:	Protected Only		
Status on left-turn lanes:	Double left turn added to project		
Was this an upgrade from pedestal- mounted signals ?	No		
What was the traffic control before this project ?	Actuated Signals		
What type of pedestrain phasing will be used ?	Pedestrain Push-Button Added	**Is there any parking restrictions now ?**	Existing No Parking

Accident Data:

PDO accidents prior to project:	20	**PDO accidents after project:**	16
Fatal accidents prior to project:	0	**Fatal accidents after project:**	0
Injury accidents prior to project:	19	**Injury accidents after project:**	5
Total Prior to Construction:	**39**	**Total After Construction:**	**21**
1998 to 1999		**2004 to 2006**	

	PDO Before	PDO After	Fatal Before	Fatal After	Injury Before	Injury After
Left Turn Accidents:	9	3	0	0	7	1
Rear End Accidents:	5	8	0	0	6	3
Right Angle Accidents:	4	1	0	0	6	0
All Side Swipe Accidents:	0	1	0	0	0	0
Head On Accidents:	0	0	0	0	0	0
Right Turn Accidents:	1	1	0	0	0	1
Backed Into Accidents:	0	0	0	0	0	0
Fixed Object Accidents:	1	2	0	0	0	0
Pedestrain Accidents:	N/A	N/A	0	0	0	0
Other Accidents:	0	0	0	0	0	0
Totals:	**20**	**16**	**0**	**0**	**19**	**5**

Prepared by: Adam Pritchard AMP Reviewed by: BDG Approved by: Brian Gower BDG

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Date of Evaluation: 24-Jul-07

Cost Analysis:

			Before	After
Cost of Right-way:	$0.00			
Cost of Utilities:	$0.00	**Cost per PDO Accident:**	$2,300.00	$2,000.00
Cost of Consultant:	$0.00	**Cost per Fatal/Injury:**	$148,800.00	$180,000.00
Cost of Construction:	$1,026,149.00			
Total Cost of Project:	$1,026,149.00	**Total Cost of Accidents Prior:**		$2,873,200.00
		Total Cost of Accidents After:		$932,000.00

Summary:

ADT Prior:	34241	**ADT After:**	36000		
Interest Rate:	6	**Accident Rate Prior:**	15.60	**Total Accidents Prior:**	39
Service Life:	15 Years	**Accident Rate After:**	7.99	**Total Accidents After:**	21

% Reduction in Accident Rate :	48.78 %
Total Cost of Project to the State:	$1,026,149.00
Total Cost of Accidents Prior to Completion of the Project:	$2,873,200.00
Estimated Annual Return Calculation:	$215,315.00
Estimated Benefit to Cost Ratio:	10.32
Actual Benefit Due to Accident Reduction:	$164,848.00
Actual Benefit/Cost Ratio:	2.52

Note: Total Cost of Project is not used in Calculation of Benefit to Cost Ratio. Reason Being Cost of Right-of-Way, Utilities, and Consultant are not State Costs.

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BENEFIT TO COST ANALYSIS PRIOR TO CONSTRUCTION

LOCATION: US-40 and Kasold
CITY: Lawrence
COUNTY: Douglas
PROJECT NO. U-1929-01
LETTING DATE: 18-Jun-03

Accident Type	Factor	X	of Type	2 year total	=	Annual Reduction
Left-turn (on 6th)	0.78	x	PDO	7	=	2.73
Left-turn (on 6th)	0.78	x	Fatal\ Injury	4	=	1.56
Type B		x	PDO	0	=	0.00
Type B		x	Fatal\ Injury	0	=	0.00
Type C		x	PDO	0	=	0.00
Type C		x	Fatal\ Injury	0	=	0.00
Total Estimated Accident Reduction:				PDO	=	2.73
				Injury	=	1.56

AVERAGE ANNUAL BENEFITS:

1. Estimated reduction of PDO accidents:	2.73
2. Average cost of a PDO accident:	$2,300
3. Benefit from reduction in PDO accidents:	$6,279
4. Estimated reduction of injury accidents:	1.56
5. Average cost of an injury accident:	$148,800
6. Benefit from reduction in injury accidents:	$232,128
7. Average Annual Benefit:	**$238,407**

AVERAGE ANNUAL COST:

15 yr. Service life

1. Initial cost of improvement:	$200,000
2. Capitol recovery factor for service life:	0.10296
3. Annualized implementation cost:	$20,592
4. Annual maintenance cost:	$2,500
5. Average Annual Cost:	**$23,092**
6. Average Annual Net Return:	**$215,315**
TOTAL BENEFIT:	**$238,407**
IMPLEMENTATION COST:	**$200,000**
BENEFIT/COST RATIO:	**10.32**

BENEFIT TO COST ANALYSIS AFTER CONSTRUCTION

ADT Prior 34241
ADT After 36000

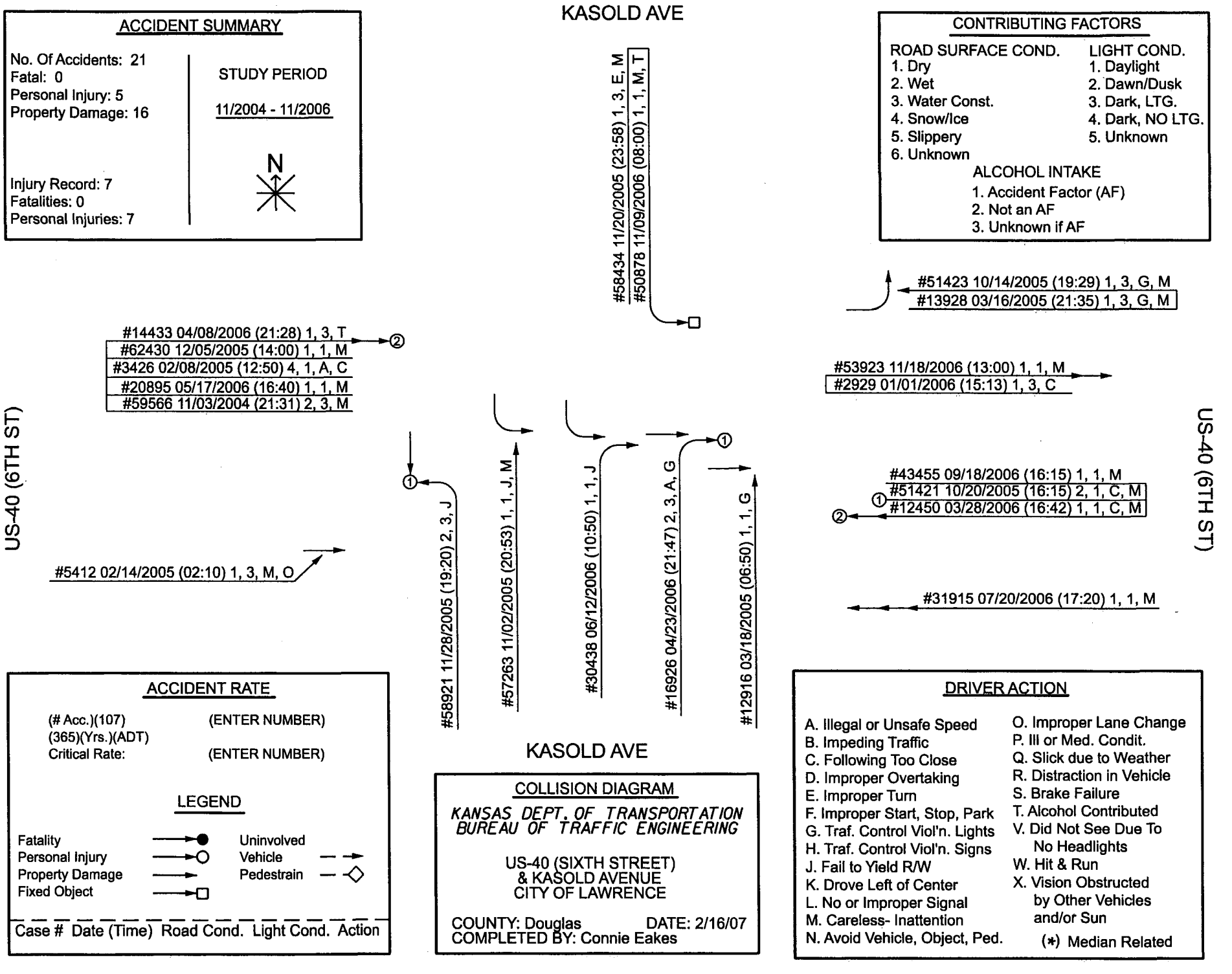
Accident Type	Factor	X	of Type	2 year total	=	Annual Reduction
Left-turn (on 6th)	1.00	x	PDO	4	=	2.00
Left-turn (on 6th)	1.00	x	Fatal\ Injury	1	=	0.50
Type B		x	PDO		=	0.00
Type B		x	Fatal\ Injury		=	0.00
Type C		x	PDO		=	0.00
Type C		x	Fatal\ Injury		=	0.00
Total Average Annual Crashes:				PDO	=	2.00
				Injury	=	0.50

AVERAGE ANNUAL BENEFITS:

1. Reduction of PDO accidents:	1.50
2. Average cost of a PDO accident:	$2,000
3. Benefit from reduction in PDO accidents:	$3,000
4. Reduction of fatal/ injury accidents:	1.50
5. Average cost of an injury accident:	$180,000
6. Benefit from reduction in injury accidents:	$270,000
7. Average Annual Benefit (after construction):	**$273,000**

AVERAGE ANNUAL COST:

1. **Actual** cost of entire project:	$1,026,149
2. Capitol recovery factor for service life:	0.10296
3. Annualized implementation cost:	$105,652
4. Annual maintenance cost:	$2,500
5. Average Annual Cost (after construction):	**$108,152**
6. Average Annual Net Return:	**$164,848**
TOTAL BENEFIT:	**$273,000**
TOTAL COST:	**$108,152**
BENEFIT/COST RATIO:	**2.52**


ACCIDENT SUMMARY
No. Of Accidents: 21
Fatal: 0
Personal Injury: 5
Property Damage: 16
STUDY PERIOD
11/2004 - 11/2006
N
Injury Record: 7
Fatalities: 0
Personal Injuries: 7
KASOLD AVE
#58434 11/20/2005 (23:58) 1, 3, E, M
#50878 11/09/2006 (08:00) 1, 1, M, T
CONTRIBUTING FACTORS
ROAD SURFACE COND.
1. Dry
2. Wet
3. Water Const.
4. Snow/Ice
5. Slippery
6. Unknown
LIGHT COND.
1. Daylight
2. Dawn/Dusk
3. Dark, LTG.
4. Dark, NO LTG.
5. Unknown
ALCOHOL INTAKE
1. Accident Factor (AF)
2. Not an AF
3. Unknown if AF
#51423 10/14/2005 (19:29) 1, 3, G, M
#13928 03/16/2005 (21:35) 1, 3, G, M
#14433 04/08/2006 (21:28) 1, 3, T
#62430 12/05/2005 (14:00) 1, 1, M
#3426 02/08/2005 (12:50) 4, 1, A, C
#20895 05/17/2006 (16:40) 1, 1, M
#59566 11/03/2004 (21:31) 2, 3, M
#53923 11/18/2006 (13:00) 1, 1, M
#2929 01/01/2006 (15:13) 1, 3, C
US-40 (6TH ST)
US-40 (6TH ST)
#43455 09/18/2006 (16:15) 1, 1, M
#51421 10/20/2005 (16:15) 2, 1, C, M
#12450 03/28/2006 (16:42) 1, 1, C, M
#5412 02/14/2005 (02:10) 1, 3, M, O
#31915 07/20/2006 (17:20) 1, 1, M
#58921 11/28/2005 (19:20) 2, 3, J
#57263 11/02/2005 (20:53) 1, 1, J, M
#30438 06/12/2006 (10:50) 1, 1, J
#16926 04/23/2006 (21:47) 2, 3, A, G
#12916 03/18/2005 (06:50) 1, 1, G
KASOLD AVE
ACCIDENT RATE
(# Acc.)(107) (ENTER NUMBER)
(365)(Yrs.)(ADT)
Critical Rate: (ENTER NUMBER)
LEGEND
Fatality
Personal Injury
Property Damage
Fixed Object
Uninvolved Vehicle
Pedestrain
Case # Date (Time) Road Cond. Light Cond. Action
COLLISION DIAGRAM
KANSAS DEPT. OF TRANSPORTATION
BUREAU OF TRAFFIC ENGINEERING
US-40 (SIXTH STREET)
& KASOLD AVENUE
CITY OF LAWRENCE
COUNTY: Douglas DATE: 2/16/07
COMPLETED BY: Connie Eakes
DRIVER ACTION
A. Illegal or Unsafe Speed
B. Impeding Traffic
C. Following Too Close
D. Improper Overtaking
E. Improper Turn
F. Improper Start, Stop, Park
G. Traf. Control Viol'n. Lights
H. Traf. Control Viol'n. Signs
J. Fail to Yield R/W
K. Drove Left of Center
L. No or Improper Signal
M. Careless- Inattention
N. Avoid Vehicle, Object, Ped.
O. Improper Lane Change
P. Ill or Med. Condit.
Q. Slick due to Weather
R. Distraction in Vehicle
S. Brake Failure
T. Alcohol Contributed
V. Did Not See Due To No Headlights
W. Hit & Run
X. Vision Obstructed by Other Vehicles and/or Sun
(*) Median Related