W.9.a.

AGENDA COVER MEMO

DATE: November 3, 2004

TO: Lane County Board of Commissioners

DEPARTMENT: Public Works

PRESENTED BY: Sonny Chickering, County Engineer

TITLE: IN THE MATTER OF DEFERRING A ROAD REALIGNMENT PROJECT ON KIRK ROAD, AT AND NEAR M.P. 1.38 IN FAVOR OF LOWER COST SAFETY MEASURES.

I. MOTION

Move approval of Board Order authorizing deferral of geometric improvements to a portion of Kirk Road.

II. ISSUE

Should Lane County expend Road Funds to realign a short segment of Kirk Rd. to address potential safety issues associated with the combination of vertical and horizontal curves at and near m.p. 1.38? Should such realignment be deferred in favor of lower cost safety measures.

III. DISCUSSION

A. Background

Realignment of this portion of Kirk Rd. was added to the County Force (CF) Scheduling Matrix in January of 2003 as a potential summer 2005 project. The CF Scheduling Matrix is equivalent to the Capital Improvement Program (CIP), but addresses projects that are smaller in magnitude and can be completed using County Road Maintenance crews. The project was added to the CF Matrix based on the concerns of a local resident who had observed vehicles leaving the roadway at this location.

Prior to proceeding with project design, road maintenance planning staff arranged an on-site public meeting and mailed invitations to all property owners abutting Kirk Road. On the evening of July 20, 2004 staff met with a group of approximately 25 property owners, residents and road users. The general consensus of the group was that they would prefer the County not realign the road, but instead install advisory signing such as Narrow Road, Curves Ahead, and Bus Stop Ahead. The underlying concern was that realignment or other upgrading of the road would encourage through traffic and increase vehicle speeds.

B. Analysis

Kirk Rd. is a Rural Local road that begins at Territorial Highway (ODOT) and terminates 1.872 miles later on the north side of Clear Lake Rd., opposite the floodgates of Fern Ridge Reservoir. The average daily traffic (ADT) was 155 vehicles per day in 2002, and County records indicate two injury accidents near m.p. 1.38; the first in September of 2000 and the other in June of 2001. The root cause of both accidents is listed as "Drinking/Influence of Drugs".

This segment of Kirk Rd. is narrow and has sharp variations in vertical and horizontal alignment that are out of character with the rest of the road. It is reasonable to believe this section of roadway may pose significant hazard to drivers during fog, ice or nighttime driving conditions. The risk is enhanced by the intersection of Fern Ridge Dr., a private, very low volume road that comes into Kirk at a steep angle very near the low point of a vertical curve.

Based on public comment received, the County Traffic Engineer reviewed the roadway in its entirety, and a signing plan was prepared and implemented. On September 1st and 2nd the County sign shop installed 11 curve and speed advisory signs throughout the length of the road. A "School Bus Stop Ahead" sign was also installed with the assistance of the Junction City School District. Initial response from the residents has been positive and the new advisory signing seems to be greatly appreciated.

The purpose of this agenda item is to obtain guidance from the Board regarding whether to proceed with additional safety improvement efforts, such as the proposed realignment project at and near m.p. 1.38. Staff has reviewed County, State and Federal road design standards as stipulated in LC 15.700 in order to formulate a recommendation in this regard. The results of this investigation are as follows:

County Standards

"LC 15.705 - Rural Local Road Standards" applies to existing rural local roads that are being reconstructed. The primary road standards with regard to Kirk Rd. would include a minimum 50' right-of-way, minimum 20' paved surface, an optional centerline stripe, and 10' clear zones along both sides of the road. The minimum pavement section would be 2" of asphalt pavement over 15" of base aggregate. The existing roadway at and near m.p. 1.38 is deficient in all of these requirements except right-of-way width.

State Standards

The *Oregon Highway Design Manual (ODOT 3-R Projects)* does contain information concerning whether to include safety improvements within pavement resurfacing, rehabilitation and restoration projects. Included in the analysis are consideration of the existing horizontal and vertical roadway alignment, traffic volumes, crash records, travel speeds, and the potential impacts of various types of improvements. For projects with alignment issues, low cost measures such as advisory signing and delineation striping are recommended as possible ways to address the problem short of road reconstruction. If reconstruction is approved, the document recommends additional measures such as shoulder widening, correction of roadway superelevation, removal of fixed object hazards, relocation of driveways, and illumination.

Federal Standards

The *AASHTO Guidelines for Geometric Design of Very Low Volume Local Roads (ADT < 400),* provides design criteria that are generally less restrictive than those used in new construction or reconstruction of higher volume roads such as those of the *AASHTO Policy on Geometric Design of Highways and Streets.* The low volume design guide states that changes to roadway or roadside geometrics are generally recommended only where there is a documentable site-specific safety problem than can potentially be corrected by a roadway or roadside improvement. Evidence of a site-specific safety problem may be: a pattern of curve-related crashes; physical evidence of curve problems such as skid marks, scarred trees or utility poles, substantial edge rutting or encroachments; a history of complaints from residents and/or local police; or measured or known speeds substantially higher than the intended design speed.

Except in rare circumstances, the low volume design guide indicates there are generally more cost-effective solutions to identified horizontal curve problems on very low-volume local roads than reconstruction. Acceptable substitutes for curve reconstruction include measures to reduce speed in the curve (signing), measures to improve the roadside within the curve (widening shoulders), and measures to increase pavement friction within the curve. The guide states that

use of any of these measures should be accompanied by appropriate before and after studies to monitor their effectiveness.

For correction of vertical curve problems, the low volume guide states that the costs for even marginal or incremental improvements make reconstruction of very low-volume local roads to increase stopping sight distance not cost-effective except in unusual cases. Cited research indicates that, even on higher volume roadways, accidents associated with limited sight distance are extremely rare events. Furthermore, there was no indication that lengthening of the sight distance of a crest vertical curve has any demonstrable effect on reducing the number of collisions. Collisions related to limited sight distance are even less likely on very low-volume local roads than on the higher volume roads studied.

Staff Findings

1. The accident frequency at and near m.p. 1.38, as well as for the rest of Kirk Rd. is low.

2. The underlying cause of the two reported accidents near m.p. 1.38, "Drinking/Influence of Drugs" is not correctable by realignment of the road.

3. A property owner abutting m.p. 1.38 has relocated his driveway out of the horizontal curve, thus reducing the potential for multi-vehicle accidents at this location.

4. For low volume rural roadways, applicable design standards indicate lower cost solutions are generally more cost effective than road realignment.

5. All accidents since 2000 have involved "Driving Too Fast For Conditions – Not Speeding".

6. Recent installation of 11 curve and speed advisory signs by County staff will provide significant road tracking and speed control assistance to drivers of Kirk Road.

7. Public comment obtained at the July 20, 2004 on-site meeting does not support a road realignment project.

8. County staff is prepared to monitor the effect of the lower cost measures already installed, and to recommend further action if warranted.

C. Alternatives / Options

1. Approve Board Order deferring a road realignment project on Kirk Road. Direct staff to continue monitoring the roadway to assess the benefits and other impacts associated with the recently installed advisory signs. Actual cost of the sign installation to date is approximately $2,500.

2. Direct staff to proceed with design and construction of the originally proposed realignment project. The estimated cost would be approximately $125,000.

3. Direct staff to proceed in some other manner.

D. Recommendation

Option 1.

E. Timing

Option 1 - Monitoring of the roadway and the impacts of the installed advisory signs is already ongoing.

Option 2 - Surveying and design will commence immediately and construction will be scheduled for late summer of 2005.

IV. IMPLEMENTATION/FOLLOW-UP

If the Board directs staff to pursue options 2 or 3, staff will return with an amended Order for consideration and approval.

V. ATTACHMENTS

1. Twenty Five year reported accident history for Kirk Rd. – Road Management Information System (RMIS).

2. Current sign inventory for Kirk Rd. - Road Management Information System (RMIS).

3. LC 15.710, Diagram 12 - Typical Section for County maintained Rural Local roads.

4. Board Order
   - Exhibit A

Accident Inventory for Road 385600 - KIRK RD

Select an Accident:

MilePost	Date	Severity
0.060	10/06/2000	NONFATAL-VEHICULAR
0.660	01/25/1990	PROPERTY DAMAGE
0.860	04/21/1988	NONFATAL-VEHICULAR
1.372	06/16/2001	NONFATAL-VEHICULAR
1.450	09/05/2000	NONFATAL-VEHICULAR
999.999	07/21/1979	NONFATAL-VEHICULAR

URL: http://insidelane/RMIS/Accidentlist.asp?roadid=385600

Road Management Information System

Sign Inventory for Road 385600 - KIRK RD

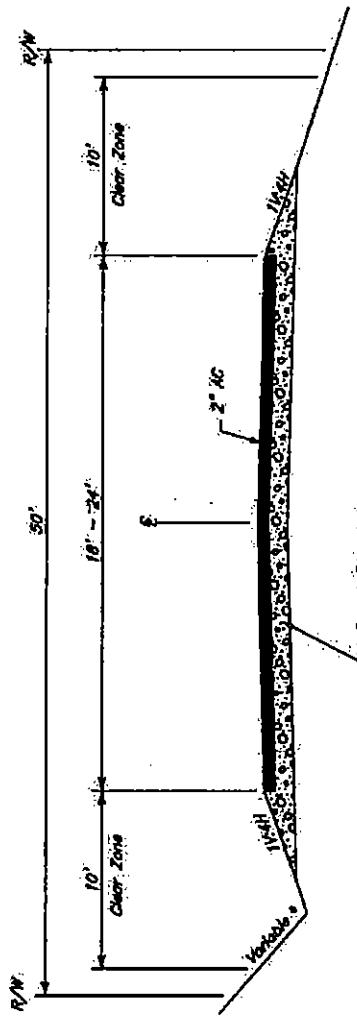
Pavement Markings Exist

Select a Sign:

MilePost	Seq	Dir	Sign	Description
0.224	0	R	W1-5R W13-1	WINDING ROAD RIGHT 25 M.P.H.
0.521	0	L	W1-5L W13-1	WINDING ROAD LEFT 25 M.P.H.
0.645	0	R	W1-3R W13-1	REVERSE TURN RIGHT 30 M.P.H.
0.828	0	L	W1-3R W13-1	REVERSE TURN RIGHT 30 M.P.H.
1.000	0	R	D10-1	MP 1
1.022	0	R	W1-3L W13-1	REVERSE TURN LEFT 30 M.P.H.
1.201	0	L	W1-3L W13-1	REVERSE TURN LEFT 30 M.P.H.
1.344	0	R	W1-5R W13-1	WINDING ROAD RIGHT 15 M.P.H.
1.398	0	R	W1-1aL	TURN LEFT WITH 15 MPH
1.491	0	R	W1-5L W13-1	WINDING ROAD LEFT 25 M.P.H.
1.517	0	L	W1-5L W13-1	WINDING ROAD LEFT 15 M.P.H.
1.797	0	L	W1-5L W13-1	WINDING ROAD LEFT 25 M.P.H.
1.860	0	R	R1-1	STOP
1.860	1	R	D3 D3	KIRK RD CLEAR LAKE RD

Diagram 12

Functional Class:
RURAL LOCAL



*Slope rate to be determined by geotechnical analysis and/or clear zone considerations.

Minimum Widths for Rural Local Roads in Feet Adjusted for ADT and Terrain.

TERRAIN	<100 ADT	100-250	251-400	>400 ADT
Level	18	20	24	24
Rolling	18	20	22	24
Mountainous	18	18	20	22

IN THE BOARD OF COMMISSIONERS OF LANE COUNTY
STATE OF OREGON

ORDER NO.) IN THE MATTER OF DEFERRING A ROAD
) REALIGNMENT PROJECT ON KIRK ROAD, AT AND
) NEAR M.P. 1.38 IN FAVOR OF LOWER COST SAFETY
) MEASURES.

WHEREAS, realignment of this portion of Kirk Rd. was added to the County Force (CF) Scheduling Matrix in January of 2003 as a potential summer 2005 project based on the concerns of a local resident who had observed vehicles leaving the roadway at this location; and

WHEREAS, records indicate Kirk Rd. is a rural local roadway within the County road network, and there have been two reported injury accidents at, and near m.p. 1.38 in the last four years; and

WHEREAS, the County Engineer has reviewed this portion of Kirk Rd. to assess the potential hazard to the public and to identify potential safety improvements to address the variations in vertical and horizontal alignment at and near this location; and

WHEREAS, County staff hosted an on-site meeting on July 20, 2004 with a group of approximately 25 property owners, residents and road users who generally opposed realignment of the road in favor of installation of advisory signing and speed control measures; and

WHEREAS, based on the results of his staff's technical analysis, the County Engineer has ordered the installation of eleven curve and speed advisory signs throughout the length of Kirk Rd., as well as installation of one "School Bus Stop Ahead" sign; and

WHEREAS, the County Engineer recommends deferring implementation of a full road realignment project in favor of the already implemented lower cost safety measures based on the findings in Exhibit A; **NOW THEREFORE, BE IT**

ORDERED, that realignment of Kirk Rd. at and near m.p. 1.38 be deferred in favor of already implemented lower cost safety measures; **AND BE IT FURTHER**

ORDERED, that County staff will continue monitoring the roadway to assess the benefits and impacts associated with the recently installed advisory signs.

DATED this _____ day of _____ 2004.

APPROVED AS TO FORM
Date 10-26-04 Lane County
OFFICE OF LEGAL COUNSEL

Bobby Green, Sr.
Chair, Lane County Board of
Commissioners

EXHIBIT A

Findings in support of deferring a proposed road realignment project on Kirk Road, at and near m.p. 1.38, in favor of lower cost safety measures;

1. The accident frequency at and near m.p. 1.38, as well as for the rest of Kirk Rd. is low.

2. The underlying cause of the two reported accidents near m.p. 1.38, "Drinking/Influence of Drugs" is not correctable by realignment of the road.

3. A property owner abutting m.p. 1.38 has relocated his driveway out of the horizontal curve, thus reducing the potential for multi-vehicle accidents at this location.

4. For low volume rural roadways, applicable design standards indicate lower cost solutions are generally more cost effective than road realignment.

5. All accidents since 2000 have involved "Driving Too Fast For Conditions – Not Speeding".

6. Recent installation of 11 curve and speed advisory signs by County staff will provide significant road tracking and speed control assistance to drivers of Kirk Road. A "School Bus Stop Ahead" sign has also been installed.

7. Public comment obtained at the July 20, 2004 on-site meeting does not support a road realignment project.

8. County staff is prepared to monitor the effect of the lower cost measures already installed, and to recommend further action if warranted.