

MARSH CREEK ROAD (ROAD NO. 8943) TRUCK RESTRICTION STUDY

SUBJECT: Truck restriction justification for Marsh Creek Road, between Byron Highway/State Route 4 and Bixler Road, based on roadway geometries and collision history.

BACKGROUND

A recent spike in truck traffic on Marsh Creek Road has resulted in numerous complaints from local residents. A common complaint is that trucks are encroaching upon opposing traffic and straying off the pavement, and this has prompted the County Traffic Engineer to investigate the geometric roadway conditions. This study analyzes if trucks are able to safely maneuver turns at intersections and the mid-block roadway dimensions are checked for conformance with accepted design criteria. Collision history is also provided for informational purposes only.

TRUCK TURNING

The investigation began by obtaining aerial photos of the subject intersections. The intersections studied are Marsh Creek Road at Bixler Road, and Marsh Creek Road at Byron Highway/State Route 4 (SR4).

A Caltrans-approved WB-50 truck turning template, which delineates the tracking wheel path of a truck, was superimposed on aerial photos to determine the ability of both intersections to accommodate the various truck turning movements.

Results: The intersection of Marsh Creek Road at Bixler Road in its present condition is unable to accommodate truck turning movements without encroaching upon the right of way of opposing vehicles, or without encroaching into unpaved portions within the roadway right of way. Unpaved shoulders do not have the structural capacity to withstand off-tracking by heavy vehicles, which results in rutting and depressing of the shoulders. Off-tracking by heavy vehicles may over time result in damage to the cross-culvert drainage inlet and outlet that crosses Marsh Creek Road at Bixler Road. An "Intersection Safety Summary" table, and the supporting aerials with imposed WB-50 truck turning templates, is included in the appendix.

The intersection of Marsh Creek Road at State Route 4 was recently improved to current standards to accommodate truck turning movements. An aerial with imposed WB-50 truck turning template is included in the appendix and shows truck turning movements with no encroachments to opposing traffic and unpaved surfaces.

EXISTING MID-BLOCK ROADWAY DESIGN

This investigation also documented an inventory of existing lane widths, shoulder conditions, posted speed limits, and average daily traffic (ADT) for Marsh Creek Road between Bixler Road and Byron Highway/SR4 to determine if they meet the minimum County design criteria provided under County Standard Plan CA53i.

Results: Marsh Creek Road over the limits of this study is generally a two-lane roadway with a paved width of 18 feet, unpaved shoulders, a posted speed limit of 35 miles per hour, and an ADT of 1,434 vehicles per day. Nine-foot lanes combined with unpaved shoulders do not provide for sufficient recovery zones for large vehicles that drift off the paved roadway or encroach onto the opposing traffic lane.

To meet current County minimum design criteria, Marsh Creek Road would have a paved roadway width of at least 24 feet (two 12-foot wide lanes), four- to six-foot wide paved shoulders.

COLLISION HISTORY

Collision histories from 2004 through 2008 for Marsh Creek Road, between Byron Highway/SR4 and Bixler Road, were researched for informational purposes. The County's Crossroads Traffic Collision database was used to generate reports on intersection and mid-block collisions and is included in the appendix of this report.

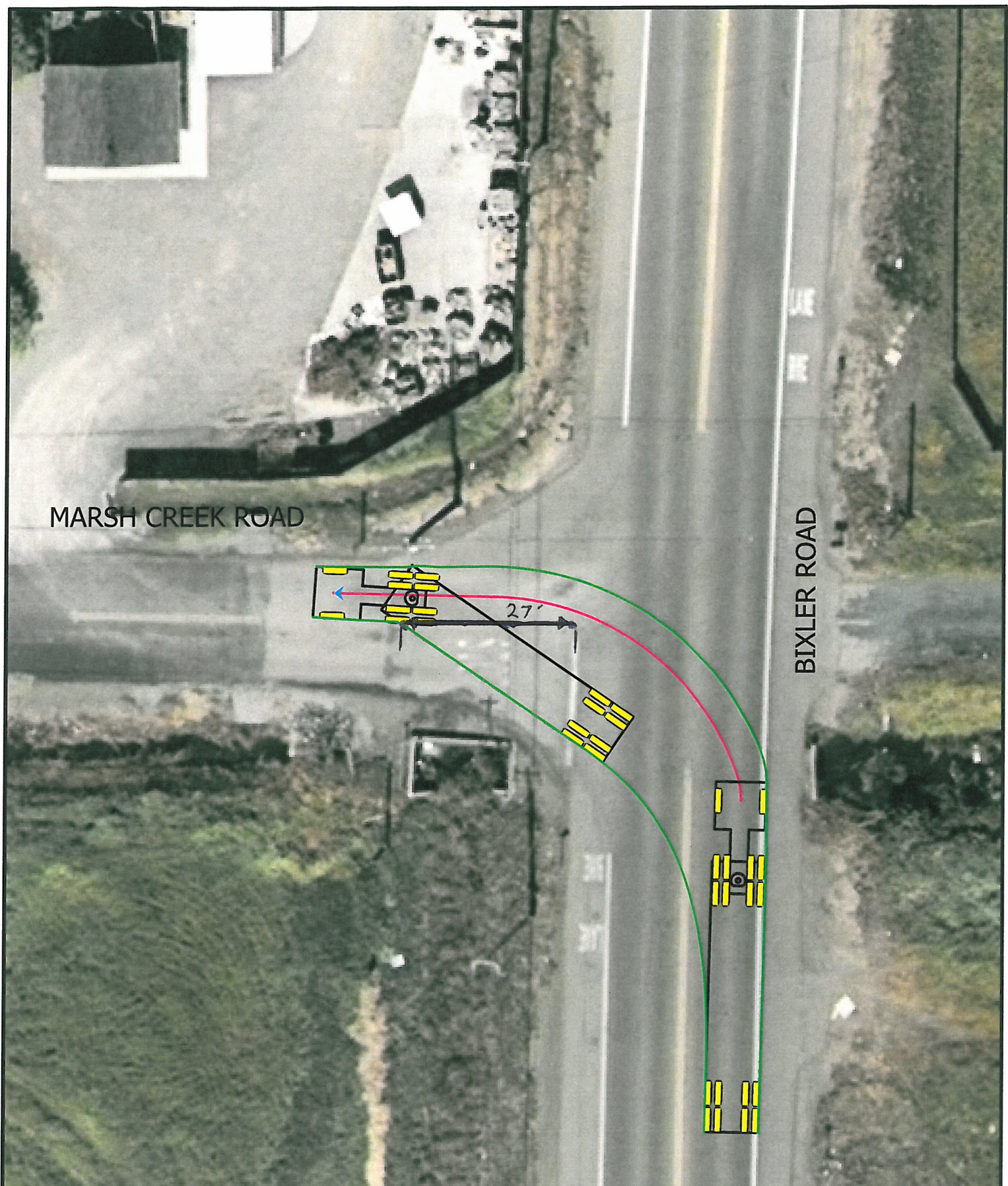
Marsh Creek Road is approximately one mile long between Byron Highway/SR4 and Bixler Road and had a total of two reported collisions over that time period. One injury was reported as a DUI sideswipe at the intersection of Marsh Creek Road @ Bixler Road, the other was a midblock broadside with no injuries reported.

RECOMMENDATION

The intersection of Marsh Creek Road at Bixler Road is unable to accommodate truck turning movements without encroaching onto opposing traffic or damaging unpaved shoulders and existing facilities, and the mid-block paved roadway is too narrow for the most part provides no shoulder for sufficient recovery area for trucks. These conditions, as supported by California Vehicle Code Section 35717, are the basis for restricting trucks on Marsh Creek Road.

TIME PLOTTED =>

DATE PLOTTED =>



Contra Costa County
Public Works
Department

255 GLACIER DRIVE MARTINEZ, CALIFORNIA 94553 PH: (925) 313-2000 FAX: (925) 313-2333

TRUCK TURNING EXHIBIT

MARSH CREEK ROAD/BIXLER ROAD INTERSECTION

1" = 20'

DB: AV

CB:

DATE: JUNE 2010

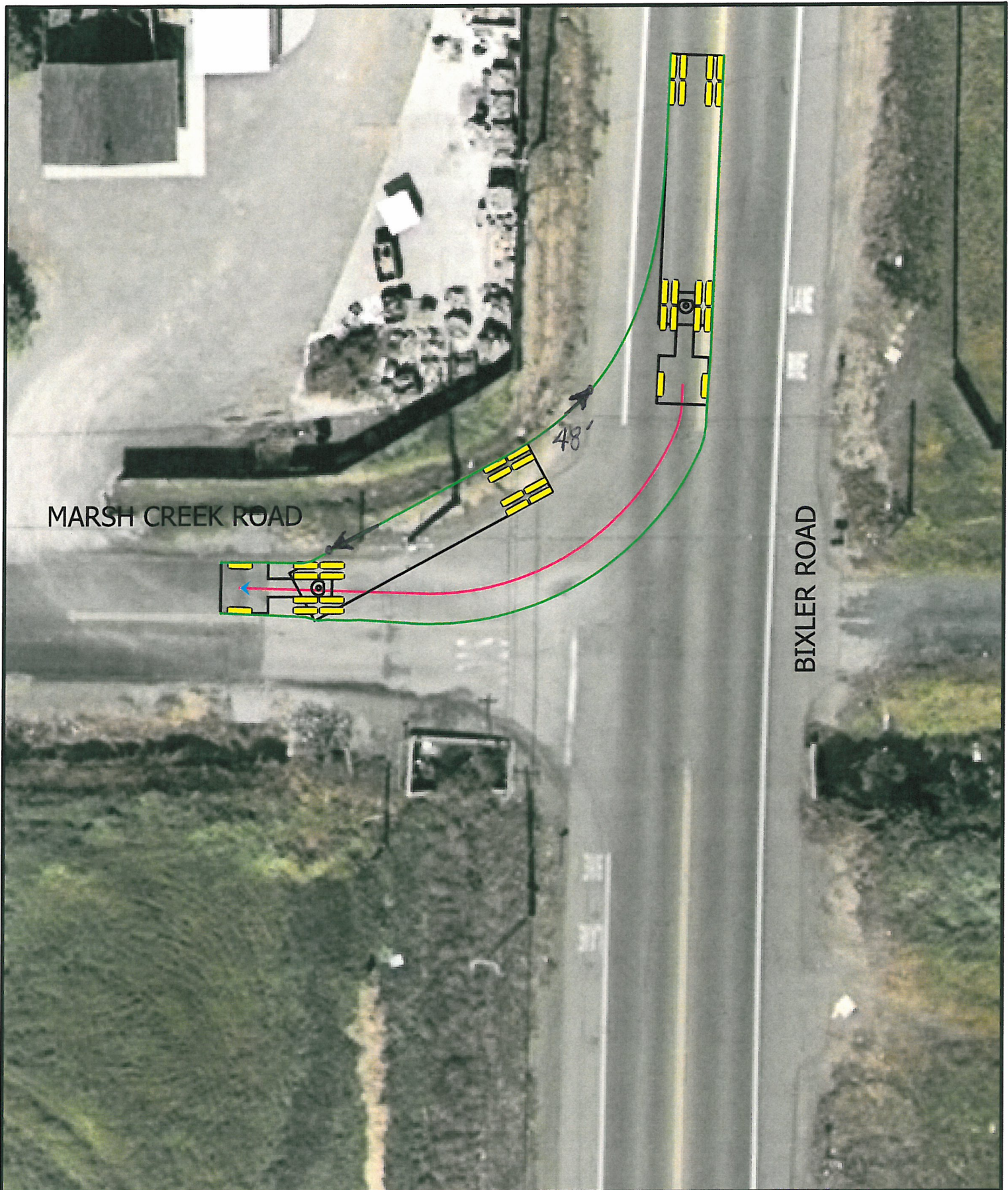
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1" = 20'

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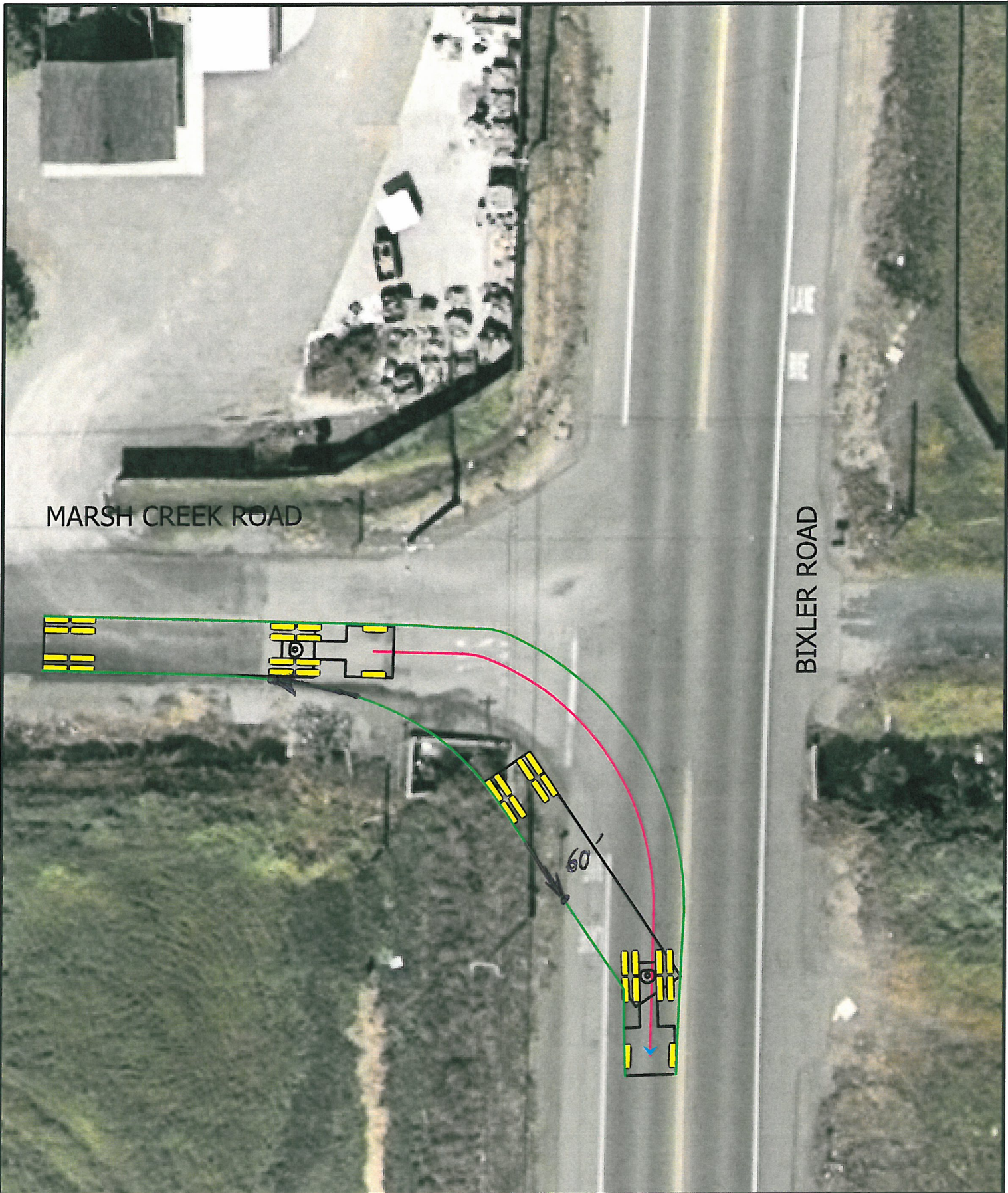
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1" = 20'

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CB:

DATE: JUNE 2010

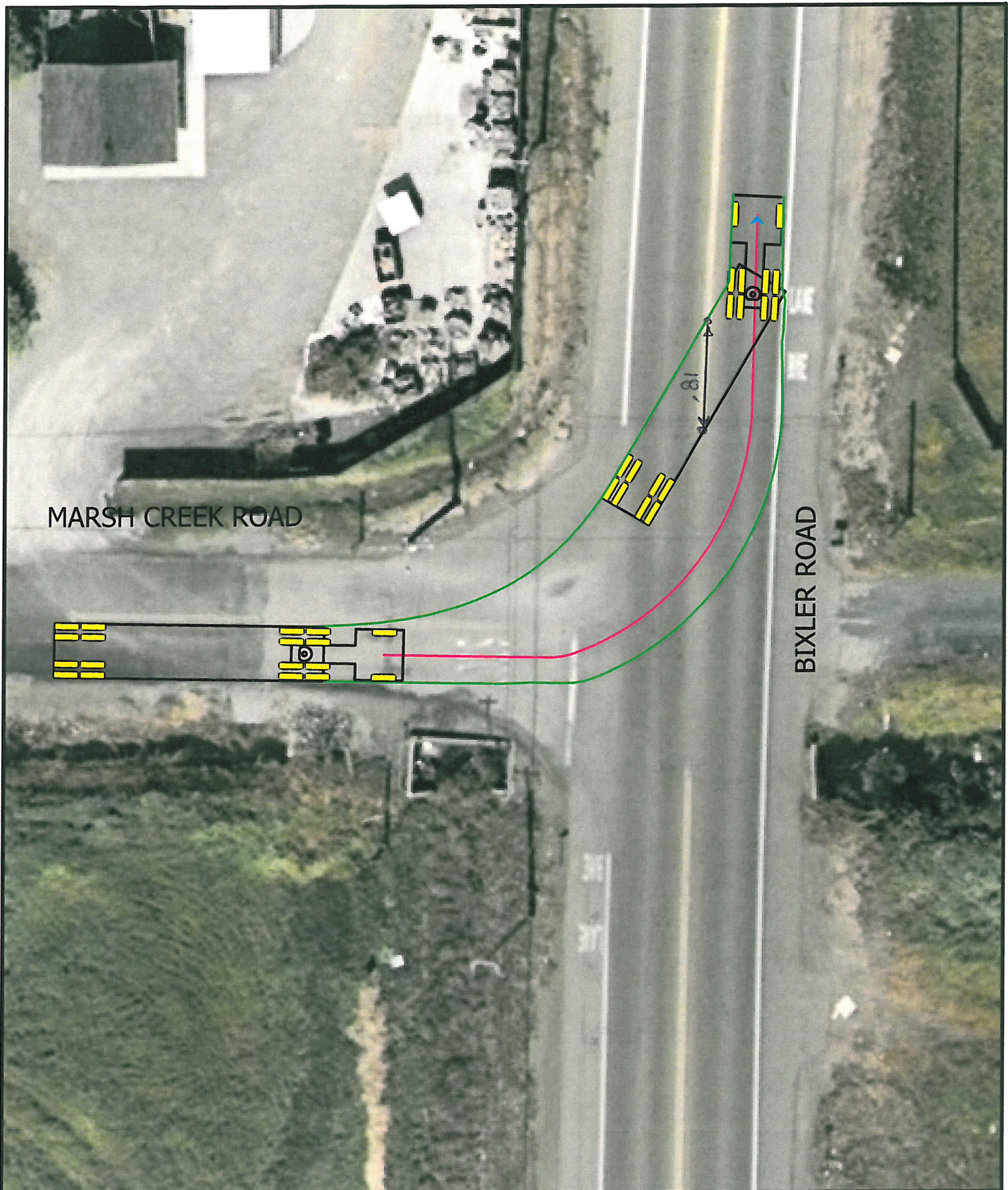
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TRUCK TURNING EXHIBIT

MARSH CREEK ROAD/BIXLER ROAD INTERSECTION

1"=20'

DB: AV

CB:

DATE: JUNE 2010

SHEET

OF

FILE =>

STATE ROUTE 4

MARSH CREEK ROAD



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Department

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TRUCK TURNING EXHIBIT

MARSH CREEK ROAD/STATE ROUTE 4 INTERSECTION

SCALE 1"=40'

DB: AV

CB:

DATE: JUNE 2010

SHEET

OF

APPENDIX

Marsh Creek Road Truck Restrictions Study – Intersection Safety Summary

Crossroads Traffic Collision Database – Traffic Collision History Reports

Contra Costa County Public Works Department Standard Plan CA53i

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INTERSECTION SAFETY SUMMARY
MARSH CREEK ROAD (#8943) @ BIXLER ROAD AND STATE ROUTE 4

Intersection	Northbound Approach	Southbound Approach	Eastbound Approach	Westbound Approach
Marsh Creek Rd.@ Bixler Road	Truck left turn onto WB Marsh Creek Road encroaches 27 LF of EB Marsh Creek Road.	Truck right turn onto WB Marsh Creek Road encroaches 48 LF of unpaved shoulder..	Truck right turn onto SB Bixler Road encroaches 60 LF of unpaved shoulder. Truck left turn onto NB Bixler Road encroaches 18 LF of SB Bixler Road.	No westbound approach.
Marsh Creek Rd.@ SR4	No encroachments.	No encroachments.	No encroachments.	No encroachments.

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Contra Costa County
Traffic Engineering Division
Traffic Collision History Report
Midblock Collisions

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Street: MARSH CREEK ROAD
Limit 1: BIXLER ROAD
Limit 2: BYRON HIGHWAY

Date Range Reported: 1/1/2004 - 12/31/2008

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# KId
1413085	5/4/04 17:35	0' In Int.	BIXLER ROAD/MARSH CREEK ROAD	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Making Left Turn	Driving Under Influence	1	0
1518583	6/20/04 18:40	1000' West of	MARSH CREEK ROAD/BIXLER ROAD	Broadside	Other Motor Vehicle	South	Making U Turn	West	Proceeding Straight	Improper Turning	0	0

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6/22/2010
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Street: MARSH CREEK ROAD
Limit 1: BIXLER ROAD
Limit 2: BYRON HIGHWAY

Date Range Reported: 1/1/2004 - 12/31/2008

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# Kld
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Total Number of Collisions: 2 Segment Length: 1.01 miles (5,331')

Settings Used For Query

<u>Parameter</u>	<u>Setting</u>
Limit 1	Include Intersection Related
Limit 2	Include Intersection Related
Intermediate Intersections	Do Not Include Intersection Related

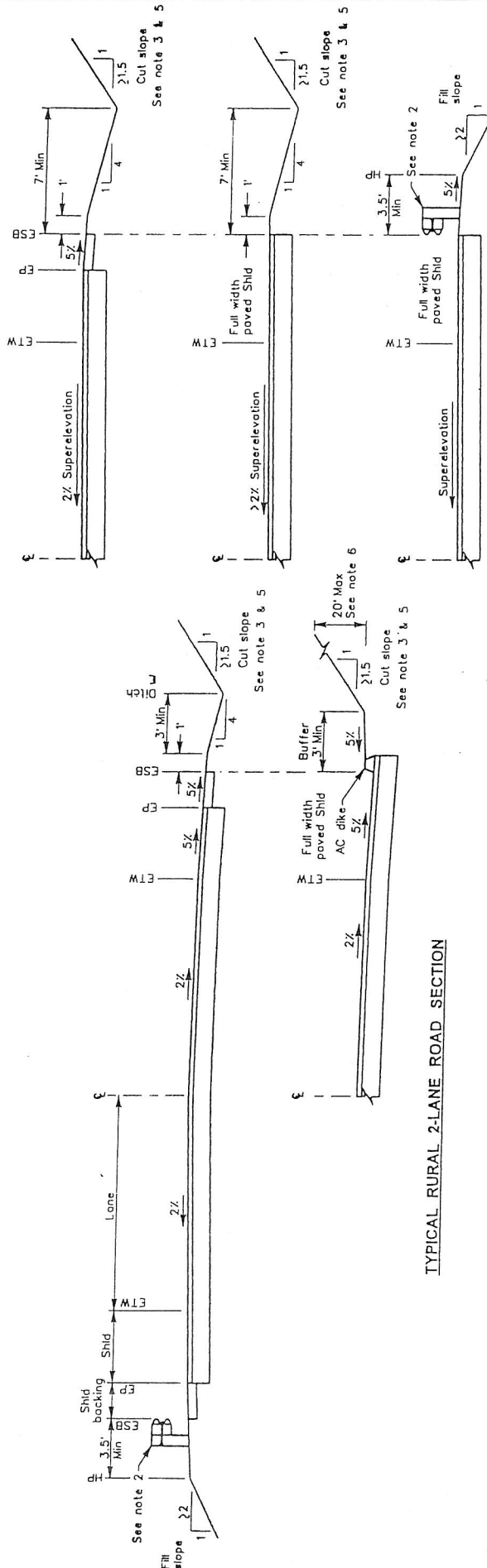
PROFESSIONAL ENGINEER
R. MITCH AVALLON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
2-28-02

PUBLIC WORKS DIRECTOR
 The County of Contra Costa or its officers or agents, hereby certify that the accuracy and completeness of these plans is the responsibility of the engineer or architect.

TWO LANE RURAL SHOULDER/LANE WIDTHS

ADT <250	<400	<1000	<3000	<6000	>6000
1.5' / 0'11"	0' / 1'11"	2' / 1'11"	2' / 2'12"	3' / 4'12"	3' / 5'12"
0' / 1'11"	2' / 1'11"	2' / 4'12"	2' / 5'12"	2' / 6'12"	0' / 8'12"



TYPICAL RURAL 2-LANE ROAD SECTION

NOTES:

- These guidelines do not override County Ordinance Code requirements for development projects.
- Guardrail may be required, depending on embankment height and slope. (See Caltrans Guidelines)
- Distance to cut slope from ETW may be increased for sight distance in curves. (See Caltrans Design Manual)
- Use desirable if it does not significantly increase R/W or construction costs, especially where there is high percentage of trucks.
- A wider swale and/or buffer between toe of slope and roadway should be considered where there is potential rock fall, the slope is highly erosive or there is significant longitudinal surface flows.
- If cut slope is > 20' to bench or top of cut, buffer width shall be increased.
- Design ADT shall be approved by the Public Works Department.

TYPICAL RURAL 2-LANE ROAD SUPERELEVATED SECTION

COUNTY OF CONTRA COSTA PUBLIC WORKS DEPARTMENT MARTINEZ, CALIFORNIA	
STANDARD PLAN	
TWO LANE RURAL ROAD GUIDELINES	
2-02	Supersedes Standard Plan CA53 dated 11-99
NO.	DATE
REVISION	DESCRIPTION
BY	CHECKED BY: M. HOLLINGSWORTH
SCALE: NO. SCALE	DATE: 2-02
DRAWN BY: L. COSTA	PLAN NO. CA53i