



ENGINEERING Ltd.

July 7, 1993
Project No. TRITR-92052G-08-713A1

Tri-Trend, Inc.
P.O. Box 40
Timnath, CO 80547

RE: Pavement Thickness Designs - Silver Oaks Subdivision

Gentlemen:

At your request, Landmark Laboratories has recalculated the pavement thickness design for streets within the mentioned subdivision. These designs have been performed in accordance with A.A.S.H.T.O. Guide for Design of Pavement Structures. Design criteria was supplied by the City of Fort Collins.

An R-value of 6, Resilient Modulus of 4,330 p.s.i., and an overall Standard Deviation (50) of 0.14 was used for all designs. These thicknesses are also based on the Hot Bituminous Pavement (H.B.P.) having an R-value of 95 or greater and Aggregate Base Course (A.B.C.) having an R-value between 78-83. The M_2 factor is based on a value of 1.0. The percent reliability, 18 kip Equivalent Daily Load Application (EDLA) and design serviceability loss (A.P.S.I.) varied for each streets. These different values along with pavement thickness section options are listed below.

Bronson Street (Collector)

ESAL = 20
Δ P.S.I. = 2.0

85% Reliability
Structural No. = 3.0

<u>H.B.P.</u>	<u>A. B. C.</u>	<u>TOTAL THICKNESS</u>	
4"	10-1/2"	14-1/2"	EAST END 2.92 ✓
5"	7-1/2"	12-1/2"	WEST END 3.03 ✓
7"	--	7"	

3921 West Eisenhower Blvd.
Loveland, Colorado 80537

Dale D. Olhausen, P.E. & L.S.
President



Tri-Trend, Inc.
 Project No. TRITR-92052G-08-713A1
 July 7, 1993
 Page 2

Auntie Stone (Collector)

ESAL = 15
 Δ P.S.I. = 2.0

85% Reliability
 Structural No. = 2.85

2.80 ✓

<u>H.B.P.</u>	<u>A. B. C.</u>	<u>TOTAL THICKNESS</u>
4"	9-1/2"	13-1/2" 2.81
4-1/2"	7-1/2"	12" 2.81
6-1/2"	-	6-1/2"

Silver Trails Dr. & Silver Oaks Place (Residential)

ESAL = 5
 Δ P.S.I. = 2.5

70% Reliability
 Structural No. = 2.3

2.13

<u>H.B.P.</u>	<u>A. B. C.</u>	<u>TOTAL THICKNESS</u>
3"	8"	11" 2.20 ✓
4"	4-1/2"	8-1/2" 2 ✓
5-1/2"	-	5-1/2" 4.2 = 4.2 ✓

Taft Hill (Arterial)

ESAL = 190
 Δ P.S.I. = 2.0

90% Reliability
 Structural No. 4.35

4.28

<u>H.B.P.</u>	<u>A. B. C.</u>	<u>TOTAL THICKNESS</u>
6"	14-1/2"	20-1/2" 4.24
8"	7"	15" 4.29
10"	-	10"

Tri-Trend, Inc.
Project No. TRITR-92052G-08-713A1
July 7, 1993
Page 3

If you have any questions, please call our office.

Sincerely,

Landmark Engineering Ltd.


Larry Miller
Geologist

LAM/ej



The above has reviewed and approved by Martin Reynolds, Colo. P.E. 23847.