



DEPARTMENT OF ROAD & BRIDGE

Ken Haynes • Road Superintendent

Central Maintenance Facility

467 E. Topaz • P.O. Box 9 • Granby, Colorado 80446

Phone: 970-887-2123

Fax: 970-887-3168

11-30-2010

Fehr & Peers Transportation Consultants

Attn: Emily Gloeckner, P.E.

621 17th Street, Ste. 2301

Denver, CO 80293

Dear Ms. Gloeckner

Please find enclosed three (3) applications for CDOT Region 3 Intersection Analysis and Prioritization Requests.

Grand County Road & Bridge has taken a close look at all the local intersections that connect to the State highways in our County. We have highlighted three (3) intersections (applications attached to this letter), that pose significant safety concerns to the traveling public. The intersections are prioritized by need as follows:

1. US HWY 40 and Grand County Road 5
2. US HWY 40 and Grand County Road 54
3. Colorado HWY 9 and Grand County Road 1

After careful analysis of all data available, the above listed intersections have the greatest safety concern. We have determined that these intersections impact the traveling public the most. Grand County's leading responsibility is to provide the public with the safety roadways possible. Grand County Road & Bridge makes every effort to improve any hazard or unsafe condition along or adjacent to our roads and repairing these intersections would go a long way to improving safety for all roadway users.

Grand County Road & Bridge appreciates your time and consideration for these applications. Should you need any further information, please feel free to contact Alan Green.

Sincerely,

Ken Haynes
Road & Bridge Superintendent

Region 3 Intersection Analysis and Prioritization
Intersection Application

Requesting Agency

Agency Name	Grand County
Contact Person	Ken Haynes
Title	Road & Bridge Superintendent
Email	khaynes@co.grand.co.us
Phone Number	970-887-2123
Mailing Address	467 E. Topaz Ave P O Box 9 Granby, CO 80446

Intersection Location

Highway (example, US 50)	Colorado HWY 9		
Highway Milepost	MM137		
Local Cross Street name	County Road 1 (AKA Trough Road)		
Is the Cross Street (check one)	Public ROW XXX	Private Drive	Other

DEPARTMENT OF TRANSPORTATION
Traffic & Safety Section

Intersection Information

Type of Intersection (check one)	Signal	Minor St Stop XXX	All Way Stop	Other:
Nearby Driveways	Yes: Distance between intersections:			No
Traffic Mix (check all that apply)	Trucks XXX	Pedestrians	Bicycles XXX	Other:
Intersection Issues	Please describe the types of safety or operational issues at the intersection.			
Safety Issues:	When exiting from CR1 to HWY 9, there is a limited site distance to the North and South. Highway speed at this intersection is 55MPH. Logging trucks, rafting and oversized Recreational vehicle traffic are common at this intersection. These types of slow acceleration vehicles pose a safety threat to the oncoming HWY 9 traffic due to the limited site distance. These vehicle types cannot accelerate to highway speeds safely with out the risk of impeding the HWY 9 through traffic. Site distance is			
Operational Issues:	impaired South of CR1 because of a rise and site distance is impaired North of CR1 because of a cut bank and curve.			

Intersection Deficiencies

Please provide a brief description of the existing intersection deficiencies and associated safety concerns, including time of the concerns (day of the week/hour(s)/seasons/time/weekday/weekend/holiday/etc):

The issues with the intersection of Grand County Road 1 (CR1 / Trough Road) and HWY 9 traffic are many, including but not limited to the points listed below:

- 1) Traffic entering North or Southbound traffic flow on HWY 9 from CR1 is impaired due to the lack of site distance caused by topography. Southbound traffic on HWY 9 is on top of you before you know it.
- 2) During adverse weather conditions which are common to our County, acceleration onto HWY 9 can be slow due to the adverse road condition.
- 3) Highway speeds on HWY 9 are 55mph at this intersection and with the limited site distance, a safety hazard is present.
- 4) No acceleration or de-acceleration lanes are present on HWY 9 at this intersection.
- 5) Traffic Count data collected by Grand County on CR1 at this intersection in July of 2010 was 755ADT. Data collected on CR1 at this intersection in June of 2010 was 329. As indicated by these traffic counts, during the summer months traffic increases due to the recreational opportunities located on CR1.
- 6) CR1 is used by traffic as a bypass route when Interstate 70 is closed due to adverse weather conditions. Also, it is used as a cut across route for traffic traveling to Glenwood Springs by reducing traveling time by 30 minutes.
- 7) CR1 is used by recreationalist, logging trucks and the general public on a daily basis.

Mitigation

Please provide a brief description of possible mitigations, improvements, and/or projects to mitigate the safety concerns at the intersection:

The best mitigation practice for this intersection would be to widen HWY 9 at this intersection and lower the road alignment to allow for an acceleration lane and a de-acceleration lane and better line of sight.

This can be achieved by removing dirt from the east side of HWY9 at the intersection of CR1 and widening the highway to accommodate for the accel and decel lanes. Also, by lowering the current elevation of HWY 9 would allow for a better line of sight for southbound traffic on HWY 9.

Our records indicate that CDOT possesses an adequate amount of ROW is present to accomplish this.

Grand County is aware of the BLM historical site located on the west side of HWY 9 at CR1 and feel the only option for CDOT would be to expand the roadway to the east.

Please see Google Earth Street View for a more detailed view of the intersection.

Are there any existing plans for improvements for this intersection? Yes/No. If yes, please explain:

Unknown

Are any additional funding sources available for this project? Yes/No. If yes, please explain:

Unknown

Does this intersection have impacts to adjacent intersections, roadways, etc? If yes, please explain:

No

Additional Information

To assist in analyzing the intersection please attach the following information if available/applicable:

- Accident data, including police reports if available
- Traffic Volumes, such as AADT/ADT, peak hour volumes, peak hour turning movement counts
- Traffic Studies
- Pedestrian Counts
- Bicycle Counts
- Existing signal timing or Synchro files
- Existing construction plans
- Survey data
- Aerial photos
- Photographs of the intersection
- Right of Way maps
- Any other data/documentation to assist in analyzing the intersection

**Future Traffic Volumes for Highway 009D
From RefPoint 120 To RefPoint 140**

Route	Ref Point	End Ref Point	Start Point Description	AADT	AADTYR	AADT Single Trucks	AADT Comb. Trucks	Design Hour Volume (% of AADT)	AADT 2011	AADT Single Trucks 2011	AADT Comb. Trucks 2011
009D	126.042	136.608	ON SH 9 S/O CR 1	2,800	2009	120	230	14	2,971	127	244
009D	136.608	138.237	ON SH 9 N/O CR 1	3,500	2009	160	220	12	3,714	170	233
009D	138.237	138.633	ON SH 9, 6TH ST E/O 13TH ST, CR 396, KREMMLING	3,500	2009	130	220	12	3,672	136	231
009D	138.633	138.920	ON SH 9, 6TH ST S/O SH 40, PARK AVE, KREMMLING	3,900	2009	170	200	12	4,083	178	209

If you notice an error, bug or have any questions, Please [E-mail us](#).



Scale in Feet

1,500

750

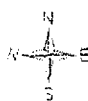
0

1,500 Feet





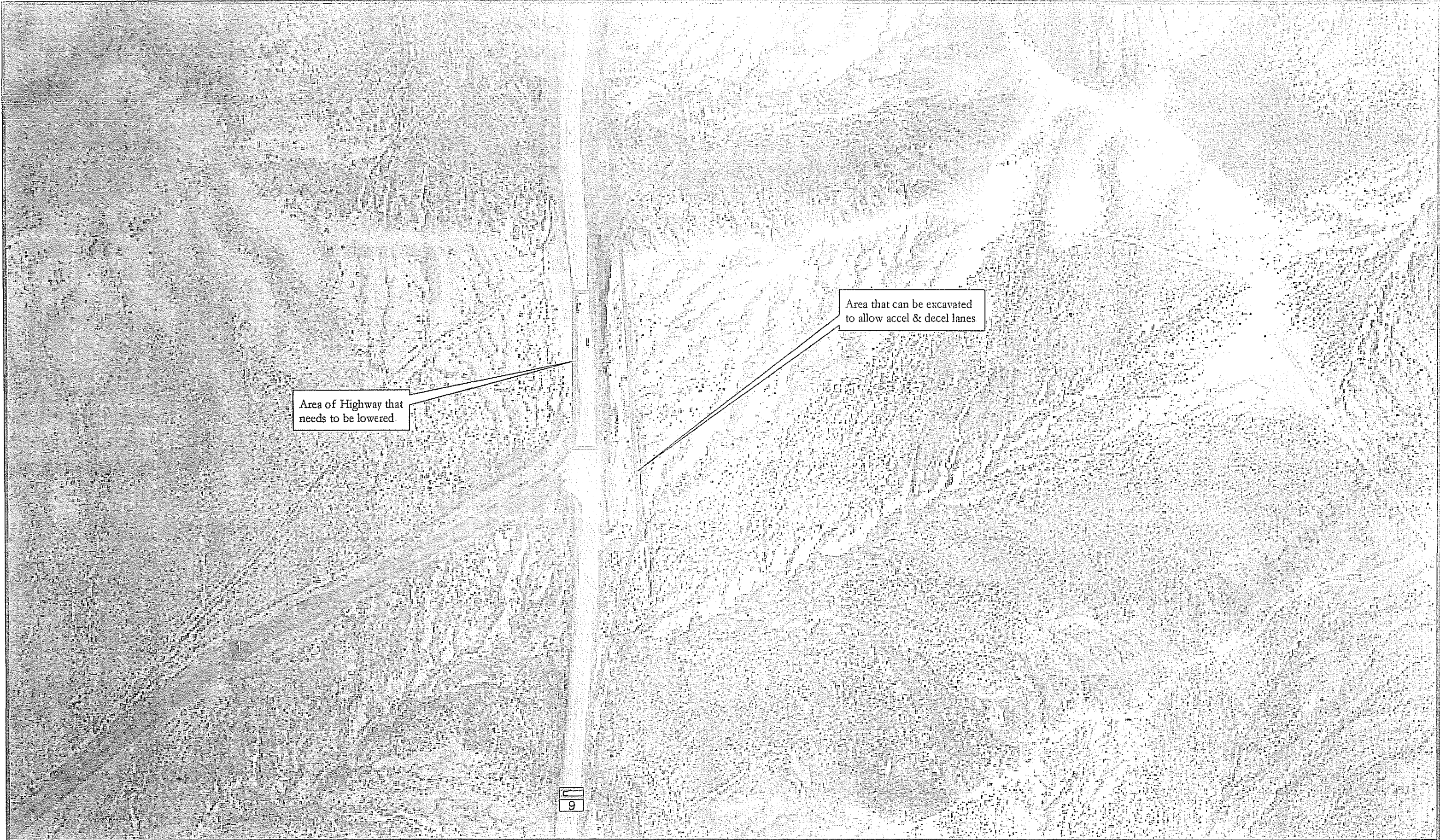
County Road 1 & Hwy 9





Map of the State of Texas
 showing the location of the
 State Capital at Austin
 and the location of the
 State University at
 Austin
 The State of Texas is
 bounded by the States of
 Louisiana, Arkansas, and
 Oklahoma to the west and
 south, and by the States
 of Missouri, Illinois,
 Indiana, and Kentucky to
 the east, and by the
 Gulf of Mexico to the
 south. The State of
 Texas is the largest
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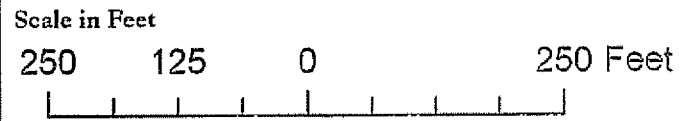




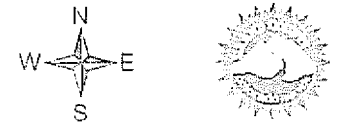
Area of Highway that needs to be lowered.

Area that can be excavated to allow accel & decel lanes

9



County Road 1 and HWY 9_#2



Map County # 1
Map 10000
Scale 1:50,000
Date 10/1/88
Author
Checked
Reviewed
Approved

Traffic Counts
 Highway 009D, RefPoint 126.042, Station 100524
 for October, 2005

Primary Direction (North)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
10/04/05	Tue	5	1	4	9	4	22	41	97	77	81	91	85	95	90	78	91	135	121	102	39	35	27	10	8	1348
10/05/05	Wed	3	4	5	6	8	13	39	81	68	78	63	81	76	109	78	97	111	130	109	66	37	40	23	13	1338

Secondary Direction (South)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
10/04/05	Tue	7	5	1	7	18	54	75	89	93	89	111	96	92	111	103	111	121	95	72	41	17	9	6	3	1426
10/05/05	Wed	4	5	7	7	20	48	71	81	95	81	79	118	83	93	95	99	115	92	79	55	33	21	11	5	1397

Composite Direction (North and South)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
10/04/05	Tue	12	6	5	16	22	76	116	186	170	170	202	181	187	201	181	202	256	216	174	80	52	36	16	11	2774
10/05/05	Wed	7	9	12	13	28	61	110	162	163	159	142	199	159	202	173	196	226	222	188	121	70	61	34	18	2735

Traffic Count

Date

7/28/2010

C.R.

1

Traffic counter located at:

CR1 & Hwy 9

DATE		TIME	ROLLING COUNT	COUNT
7/28/2010		9:30a	Set Up	0
7/29/2010		7:00a	651	651
7/30/2010				831
7/31/2010				831
8/1/2010				831
8/2/2010		7:00a	3976	832
8/3/2010		7:00a	4674	698
8/4/2010		7:00a	5317	643
8/5/2010				891
8/6/2010				891
8/7/2010				892
8/8/2010				892
8/9/2010		8:45a	9775	892
8/10/2010		8:00a	10579	804
8/11/2010		8:00a	11339	760

TOTAL	11339
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Daily average car count	755.9333333
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Traffic Count

Date 6/3/2010

C.R. 1

Traffic counter located at: At the intersection of CR1 & Hwy 9

DATE	TIME	ROLLING COUNT	COUNT
6/3/2010	12:30p		0
6/4/2010			126
6/5/2010			126
6/6/2010			126
6/7/2010	9:00a	504	126
6/8/2010	12:00p	1107	603
6/9/2010	9:00a	1523	416
6/10/2010	9:00a	1967	444
6/11/2010			394
6/12/2010			395
6/13/2010			394
6/14/2010	9:00a	3545	395
6/15/2010	7:00a	3894	349
6/16/2010	12:30p	4597	703
6/17/2010	8:30a	4942	345

TOTAL	4942
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Daily average car count	329.4666667
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Traffic Count

Date 2/12/2009

C. R. 1

Traffic counter located at CR1 @ Blue River Bridge

DATE	TIME	ROLLING COUNT	COUNT
2/13/2009	8:00a	297	297
2/14/2009	7:00a	628	331
2/15/2009	8:00a	959	331
2/16/2009			298
2/17/2009	8:00a	1555	298
2/18/2009	7:30a	2734	1179
2/19/2009	8:20a	3018	284
2/20/2009	7:00a	3262	244
2/21/2009			300
2/22/2009			301
2/23/2009	7:30a	4164	301
2/24/2009	8:00a	4435	271
2/25/2009	7:30a	4664	229
2/26/2009	8:30a	5019	355

Total	5019
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Daily average car count	358.5
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Vehicle General Flow Report - Grand Totals

Average Daily Traffic (ADT)

<u>Weekday</u>		<u>Weekend</u>		<u>Total ADT</u>	
Cars :	455 (83%)	Cars :	363 (81%)	Cars :	429 (82%)
Trucks :	91 (17%)	Trucks :	83 (19%)	Trucks :	88 (18%)
Total :	546	Total :	446	Total :	518

Speed Totals

50 % :	41.9 mph	Top Speed :	114.7 mph	Average Truck Speed :	42.6 mph
85 % :	50.7 mph	Low Speed :	2.7 mph	Average Car Speed :	42.3 mph
Avg :	42.4 mph				

Peak Hour Totals

AM Peak Hour (Volume)

Weekday : 10:00 - 11:00 (Avg 35)
Weekend : 10:45 - 11:45 (Avg 35)

AM Peak Hour (Speed)

00:30 - 01:30 (44.0 mph)
01:15 - 02:15 (55.5 mph)

PM Peak Hour (Volume)

Weekday : 12:15 - 13:15 (Avg 113)
Weekend : 14:30 - 15:30 (Avg 40)

PM Peak Hour (Speed)

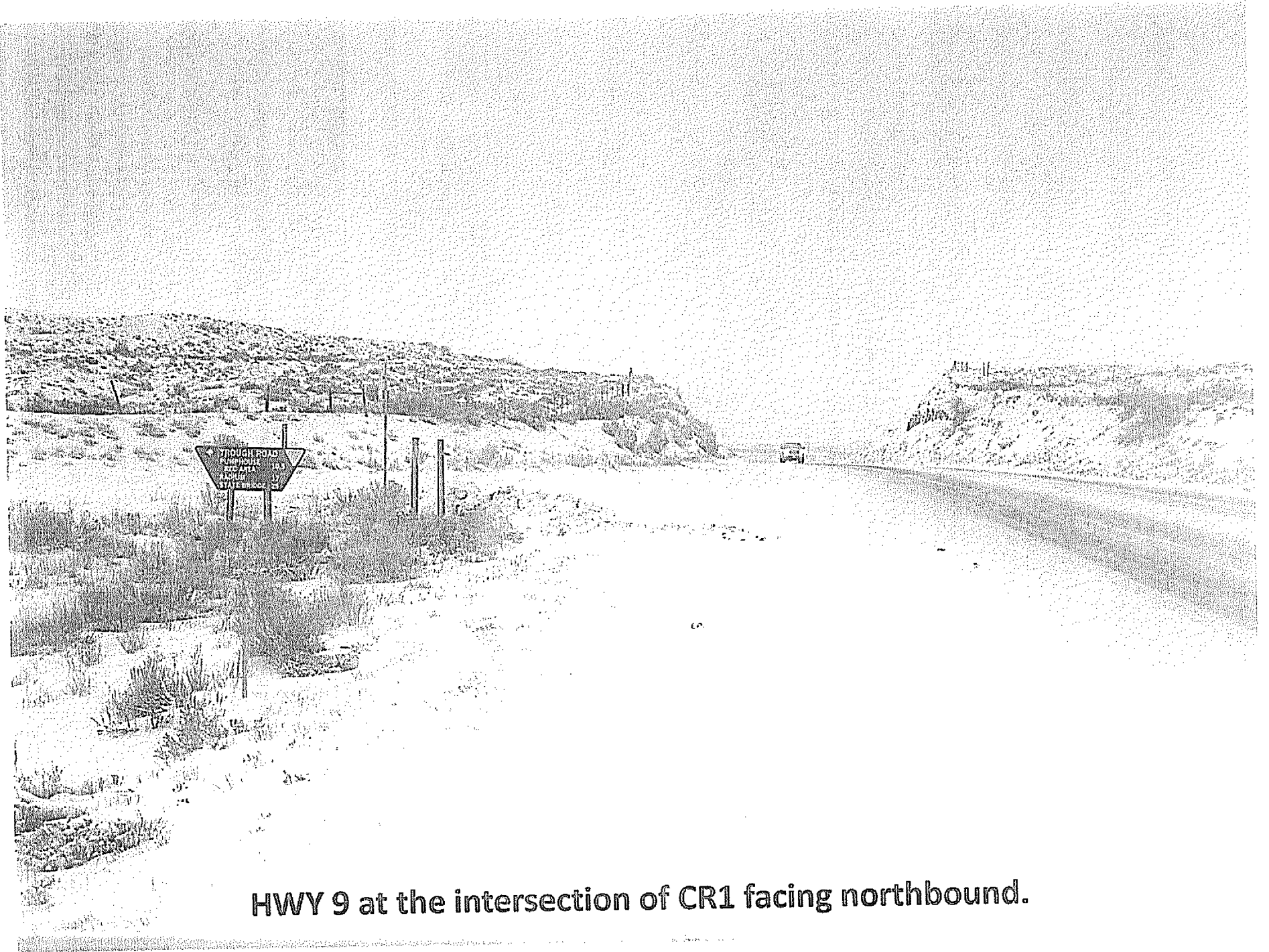
12:30 - 13:30 (57.9 mph)
15:45 - 16:45 (43.0 mph)

Grand Totals

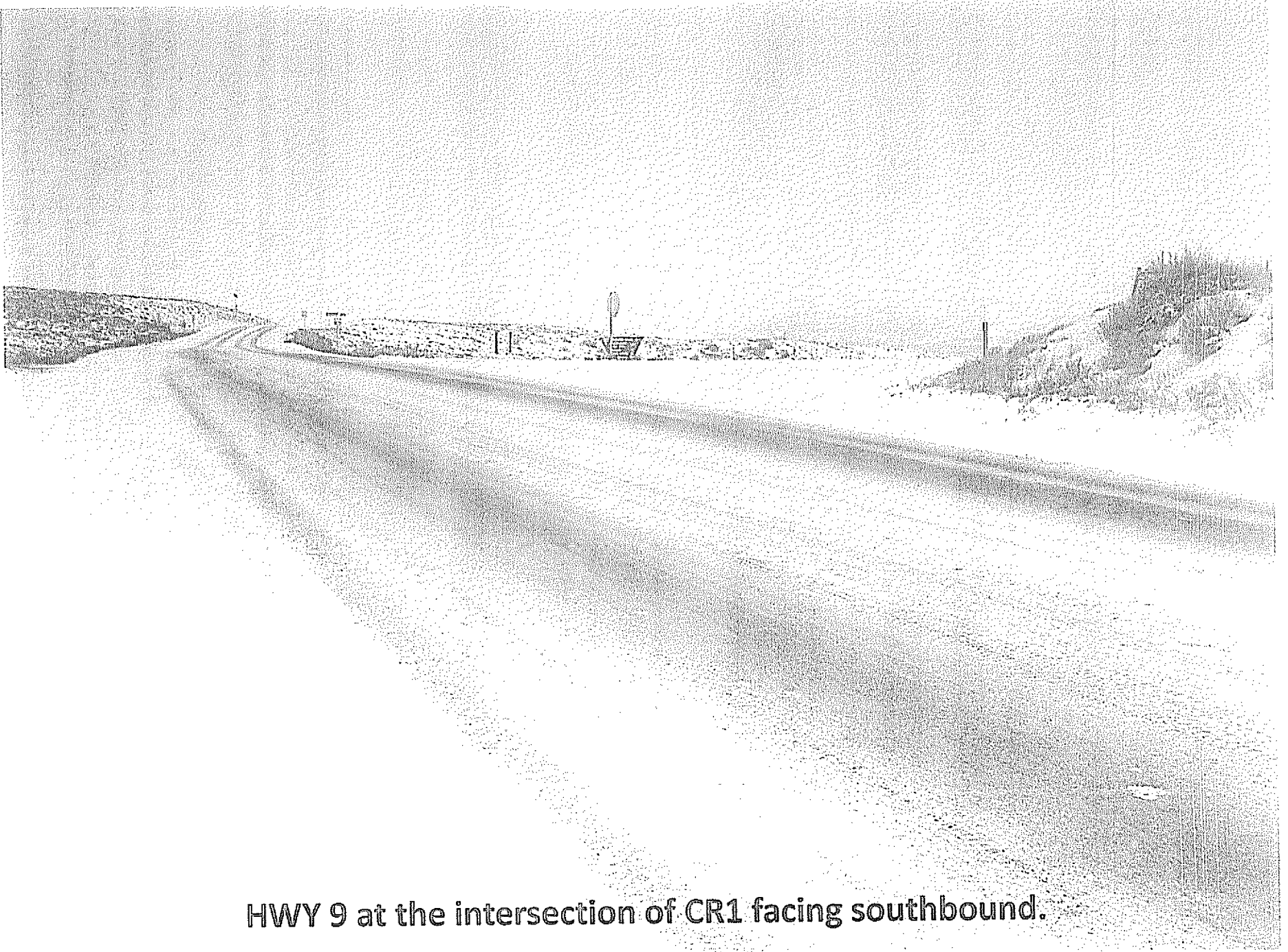
Total Cars :	9011 (429 ADT)	Average Length :	16.0 ft	Average Headway :	152.0 sec
Total Trucks :	1867 (88 ADT)	Average Axles :	5.0	Average Gap :	-700.5 sec
Total Volume :	10878 (518 ADT)				



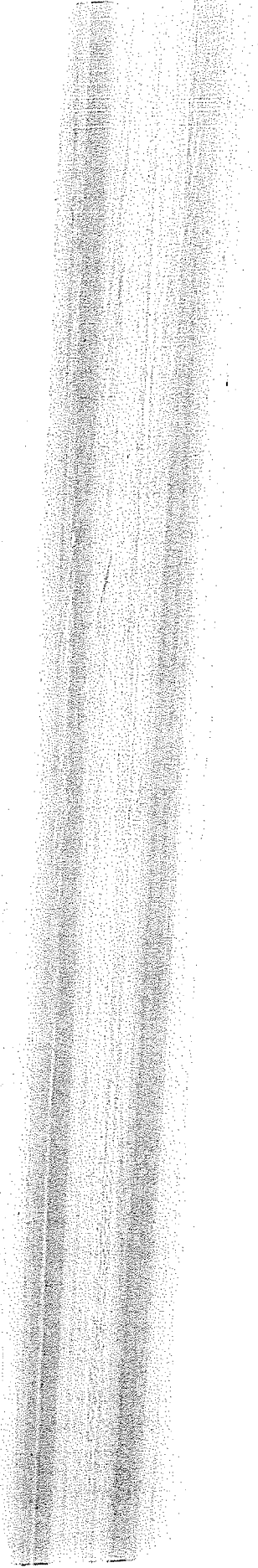
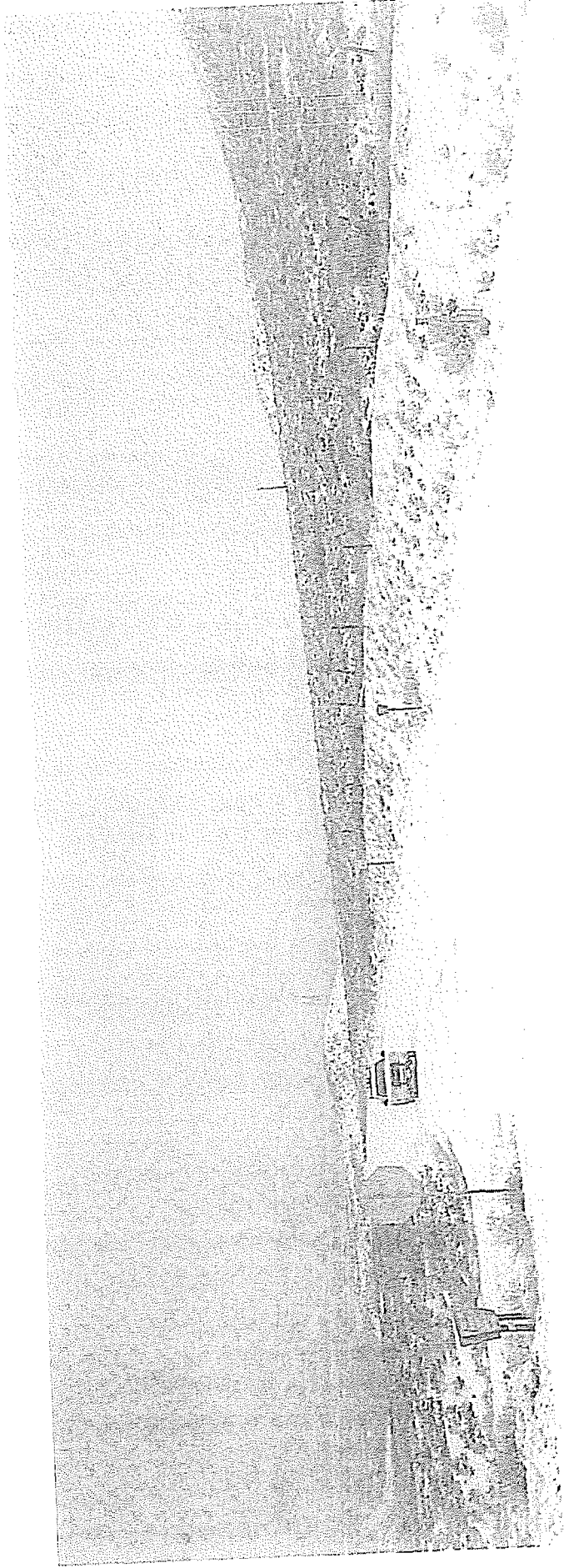
CR1 at the intersection of HWY 9 facing east.



HWY 9 at the intersection of CR1 facing northbound.



HWY 9 at the intersection of CR1 facing southbound.



HWY 9 at the intersection of CR1 facing west.



1/4 AC PLS 25971
SEC 37 SEC 18

HWY R.O.W.
PLS 27272

HWY R.O.W.
PLS 27272

HWY R.O.W. AC. TO 5'40"
PLS 27272 #3375

HWY R.O.W. AC.
PLS 27272 #3375

BY DECS
ALLOCATION

CO2 of MOUNT

TO HWY R.O.W. B/C /COMP ALLEGREE

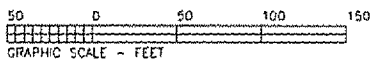
OSAKEL ROAD - County Road 1

Colorado Hwy 9

fast-1b

APPROXIMATE R.O.W.

fast-2a



BASIS OF BEARINGS: Assumed to be 45 DEGREES from Point #375 to east 1/4 section 17/10, monumented as shown.

Note: Utilities not shown.

2 County Road 1 "a.w." not shown

This drawing was produced for and per the request of the Grand County Road and Bridge Department, shows the result of a field survey done by me and under my direction.

Warren D. Ward, Colorado PLS 25971

Grand County Surveyor

Warren D. Ward, PLS 25971
308 Byers Ave. P.O. Box 117 Hot Sulphur Springs CO 80451
PHONE 970-725-3347 x100, FAX 970-725-3303

DIAGRAM
Intersection County Road 1 - Co. Highway 9
in the NE1/4NE1/4 Sec. 20

TIN, BEOW, 6th P.M.
Grand County, Colorado



DEPARTMENT OF ROAD & BRIDGE

Ken Haynes • Road Superintendent

Central Maintenance Facility

467 E. Topaz • P.O. Box 9 • Granby, Colorado 80446

Phone: 970-887-2123

Fax: 970-887-3168

11-30-2010

Fehr & Peers Transportation Consultants

Attn: Emily Gloeckner, P.E.

621 17th Street, Ste. 2301

Denver, CO 80293

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Grand County Road & Bridge has taken a close look at all the local intersections that connect to the State highways in our County. We have highlighted three (3) intersections (applications attached to this letter), that pose significant safety concerns to the traveling public. The intersections are prioritized by need as follows:

1. US HWY 40 and Grand County Road 5
2. US HWY 40 and Grand County Road 54
3. Colorado HWY 9 and Grand County Road 1

After careful analysis of all data available, the above listed intersections have the greatest safety concern. We have determined that these intersections impact the traveling public the most. Grand County's leading responsibility is to provide the public with the safety roadways possible. Grand County Road & Bridge makes every effort to improve any hazard or unsafe condition along or adjacent to our roads and repairing these intersections would go a long way to improving safety for all roadway users.

Grand County Road & Bridge appreciates your time and consideration for these applications. Should you need any further information, please feel free to contact Alan Green.

Sincerely,

Ken Haynes
Road & Bridge Superintendent

7008 1830 0000 5542 0717

Region 3 Intersection Analysis and Prioritization
Intersection Application

Requesting Agency

Agency Name	Grand County
Contact Person	Ken Haynes
Title	Road & Bridge Superintendent
Email	khaynes@co.grand.co.us
Phone Number	970-887-2123
Mailing Address	467 E. Topaz Ave P O Box 9 Granby, CO 80446

Intersection Location

Highway (example, US 50)	US HWY 40 and County Road 5 East Entrance.		
Highway Milepost	MM226		
Local Cross Street name	Grand County Road 5		
Is the Cross Street (check one)	Public ROW XXX	Private Drive XXX	Other

DEPARTMENT OF TRANSPORTATION
Traffic & Safety Section

Intersection Information

Type of Intersection (check one)	Signal	Minor St Stop XXX	All Way Stop	Other:
Nearby Driveways	Yes: Directly across from CR5 Distance between intersections: Intersection of CR8 is 1363ft east of CR5 on HWY 40 .			No
Traffic Mix (check all that apply)	Trucks XXX	Pedestrians XXX	Bicycles XXX	Other: Railroad
Intersection Issues	Please describe the types of safety or operational issues at the intersection.			
Safety Issues:	During daytime hours, high volumes of traffic affect the ability for vehicles exiting CR5 onto westbound HWY 40. When large vehicles enter westbound HWY 40 from CR5 they can and have caused the westbound HWY40 traffic to slow, impeding the flow of traffic.			
Operational Issues:	None			

Intersection Deficiencies

Please provide a brief description of the existing intersection deficiencies and associated safety concerns, including time of the concerns (day of the week/hour(s)/seasons/time/weekday/weekend/holiday/etc):

Issues with the intersection of County Road 5 (CR5) and westbound HWY 40 are many, including but not limited to the points listed below:

1) Holiday weekend and summertime Friday traffic, can especially exasperate wait times at this intersection. Wait times can last several minutes before any opportunity is available for a large vehicle to enter westbound HWY 40. There are two (2) gravel pits located within two (2) miles of this intersection. All pit traffic use this intersection which averages, 60 heavy trucks per day. As stated, delays lasting several minutes are not uncommon. Add to this mix the Union Pacific Railroad crossing approximately 115ft from the Highway entrance with an average of 28 to 30 trains daily causing traffic to back up significantly.

2) The Fraser ball fields are located approximately 880ft west of the intersection of CR5 and HWY 40. These ball fields are hosts to many events from hot air balloon rides, kids soccer games, softball games, war memorial ceremonies, holiday celebrations, and a new ice skating rink. With these types of activities near this intersection, an overload in traffic can occur at any time.

3) The intersection of CR50 is approximately 1090ft west of of HWY 40 and CR5 and is a primary access point for the Young Life Christian youth camp with an average of 1700 children per week which get transported mainly by bus through this intersection.

4) Traffic count data taken on 5-31-2005 at the intersection of CR5 and HWY 40 show an average daily traffic count of 1145 vehicles per 24hr period which is only likely to increase.

DEPARTMENT OF TRANSPORTATION
Traffic & Safety Section

Mitigation

Please provide a brief description of possible mitigations, improvements, and/or projects to mitigate the safety concerns at the intersection:

The traffic lane markings shown on the aerial map and photos(attached) indicate that the intersection of CR5 and HWY 40 is capable of meeting the demands of westbound traffic entering HWY 40 if the lane markings are simply re-aligned. No additional asphalt work would be required. Re-adjusting the lane markings allowing for an acceleration lane would decrease the current delays at this intersection and decrease the impact on westbound traffic by allowing westbound traffic to merge safely into 55mph traveling traffic.

By simply re-striping the current lane markings and placement of new signage, a minimum cost for a significant improvement to traffic flow and safety, Grand County feels this intersection can be safer than it currently is.

Please see Google Earth Street View for a more detailed view of the intersection.

Are there any existing plans for improvements for this intersection? Yes/No. If yes, please explain:

Unknown

Are any additional funding sources available for this project: Yes/No. If yes, please explain:

Unknown

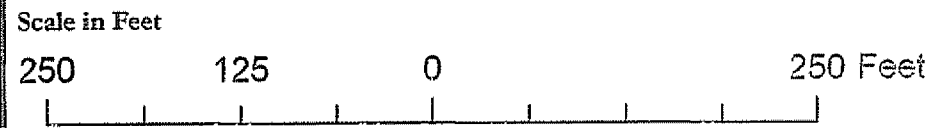
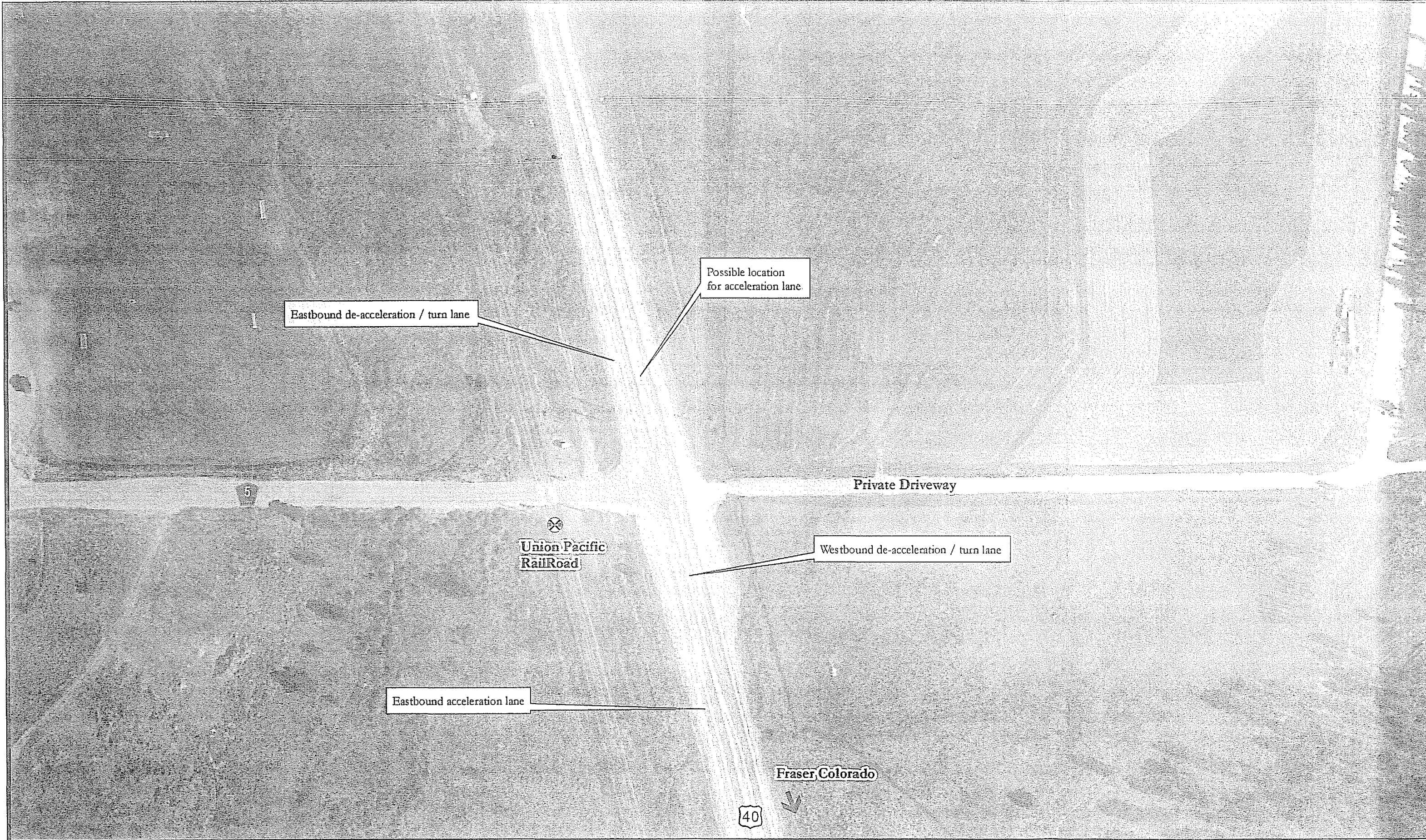
Does this intersection have impacts to adjacent intersections, roadways, etc? If yes, please explain:

Impact due to traffic delays can affect the events held at the Fraser ball fields at CR522, and events held at the Young Life Christian youth camp off CR50.

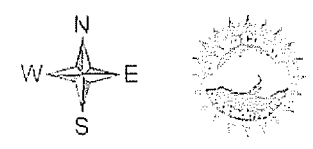
Additional Information

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- Existing construction plans
- Survey data
- Aerial photos
- Photographs of the intersection
- Right of Way maps
- Any other data/documentation to assist in analyzing the intersection



US HWY 40 & Grand County Road 5 East Entrance



NOTES: This map is for informational purposes only and is not intended to be used for any other purpose. The information on this map is for informational purposes only and is not intended to be used for any other purpose. The information on this map is for informational purposes only and is not intended to be used for any other purpose.

Traffic Count

Date 5/31/2005

C. R. 5 (east)

Traffic counter located 40ft. west of CR50

DATE	TIME	ROLLING COUNT	COUNT
5/31/2005	2:00p	812	812
6/1/2005	3:30p	1713	901
6/2/2005	3:50p	2462	749
6/3/2005			675
6/4/2005			675
6/5/2005			676
6/6/2005	8:10a	5164	676
6/7/2005	8:00a	6235	1071
6/8/2005			998
6/9/2005			998
6/10/2005			998
6/11/2005			998
6/12/2005			998
6/13/2005	9:00a	12225	1000
6/14/2005	9:00a	15374	3149
6/15/2005	10:00a	18328	2954

Total	18328
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Daily average car count	1145.5
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Traffic Counts
 Highway 040A, RefPoint 226.324, Station 101873
 for June, 2008

Primary Direction (East)

		Hour																							Total	
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
06/16/08	Mon	18	8	10	5	11	80	232	312	366	414	430	459	474	406	434	521	543	468	332	166	165	98	81	27	6060

Secondary Direction (West)

		Hour																							Total	
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
06/16/08	Mon	19	6	2	11	48	119	305	501	554	562	482	471	488	443	443	425	475	358	294	173	145	61	24	13	6422

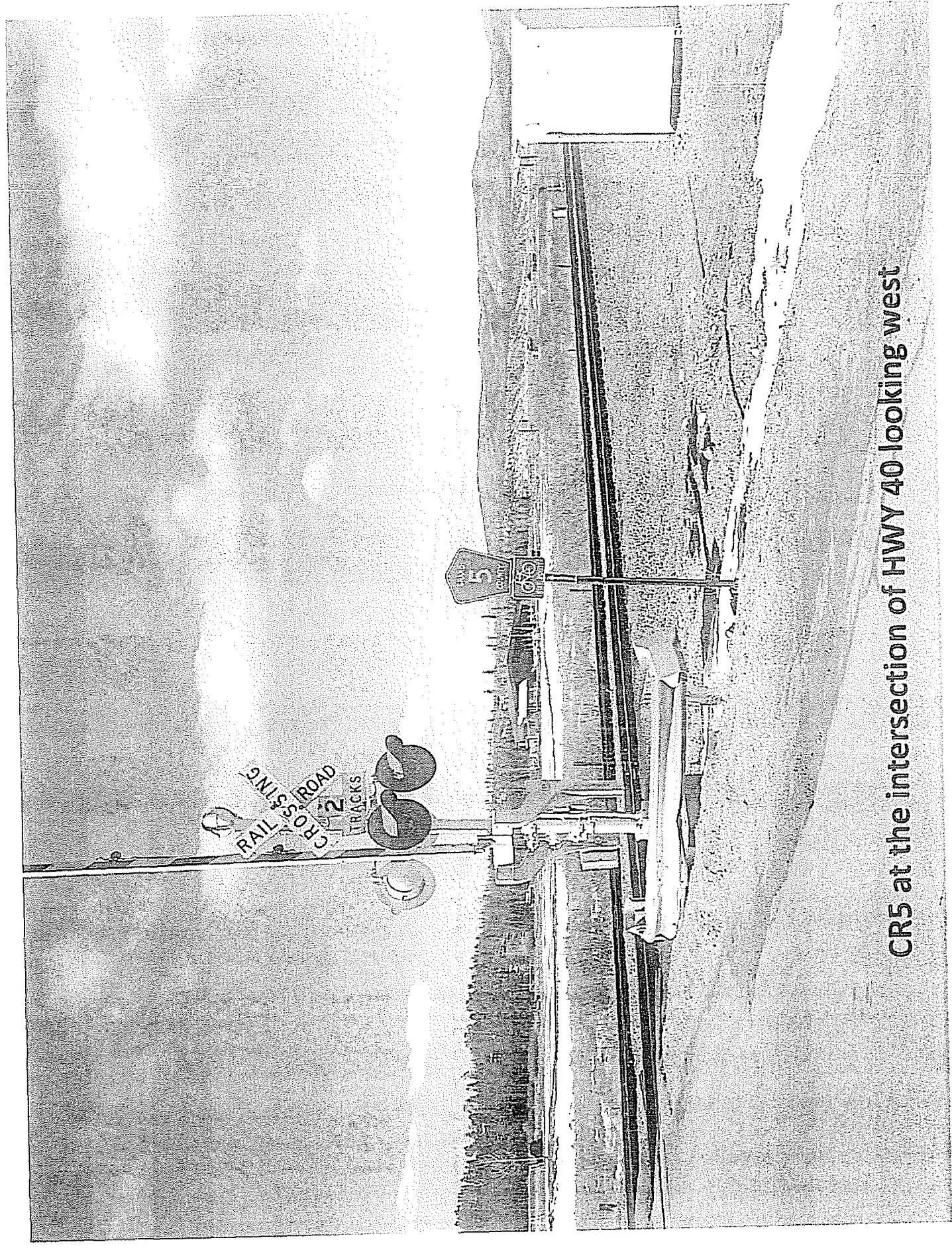
Composite Direction (East and West)

		Hour																							Total	
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
06/16/08	Mon	37	14	12	16	59	199	537	813	920	976	912	930	962	849	877	946	1018	826	626	339	310	159	105	40	12482

**Future Traffic Volumes for Highway 040
From RefPoint 222 To RefPoint 228**

Route	Ref Point	End Ref Point	Start Point Description	AADT	AADTYR	AADT Single Trucks	AADT Comb. Trucks	Design Hour Volume (% of AADT)	AADT 2011	AADT Single Trucks 2011	AADT Comb. Trucks 2011
040A	223.030	224.000	ON SH 40 E/O CR 822 & CR 526, TABERNASH	8,100	2009	250	240	12	8,489	262	252
040A	224.000	226.188	ON SH 40, ZEREX ST N/O CR 8, FRASER	8,700	2009	230	260	12	9,109	241	272
040A	226.188	226.835	ON SH 40, ZEREX ST S/O CR 8, FRASER	9,600	2009	250	290	12	10,032	261	303

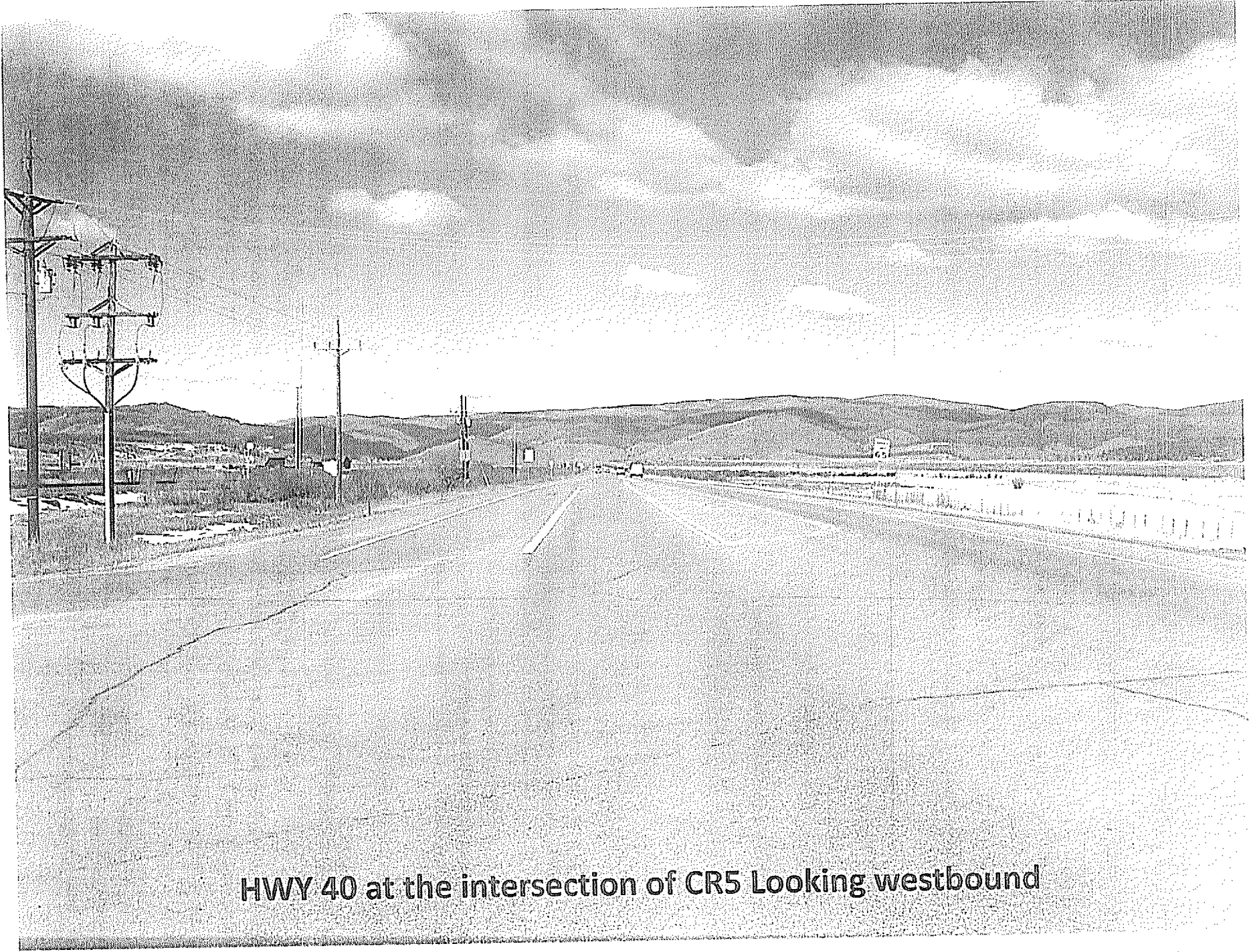
If you notice an error, bug or have any questions, Please [E-mail us](#).



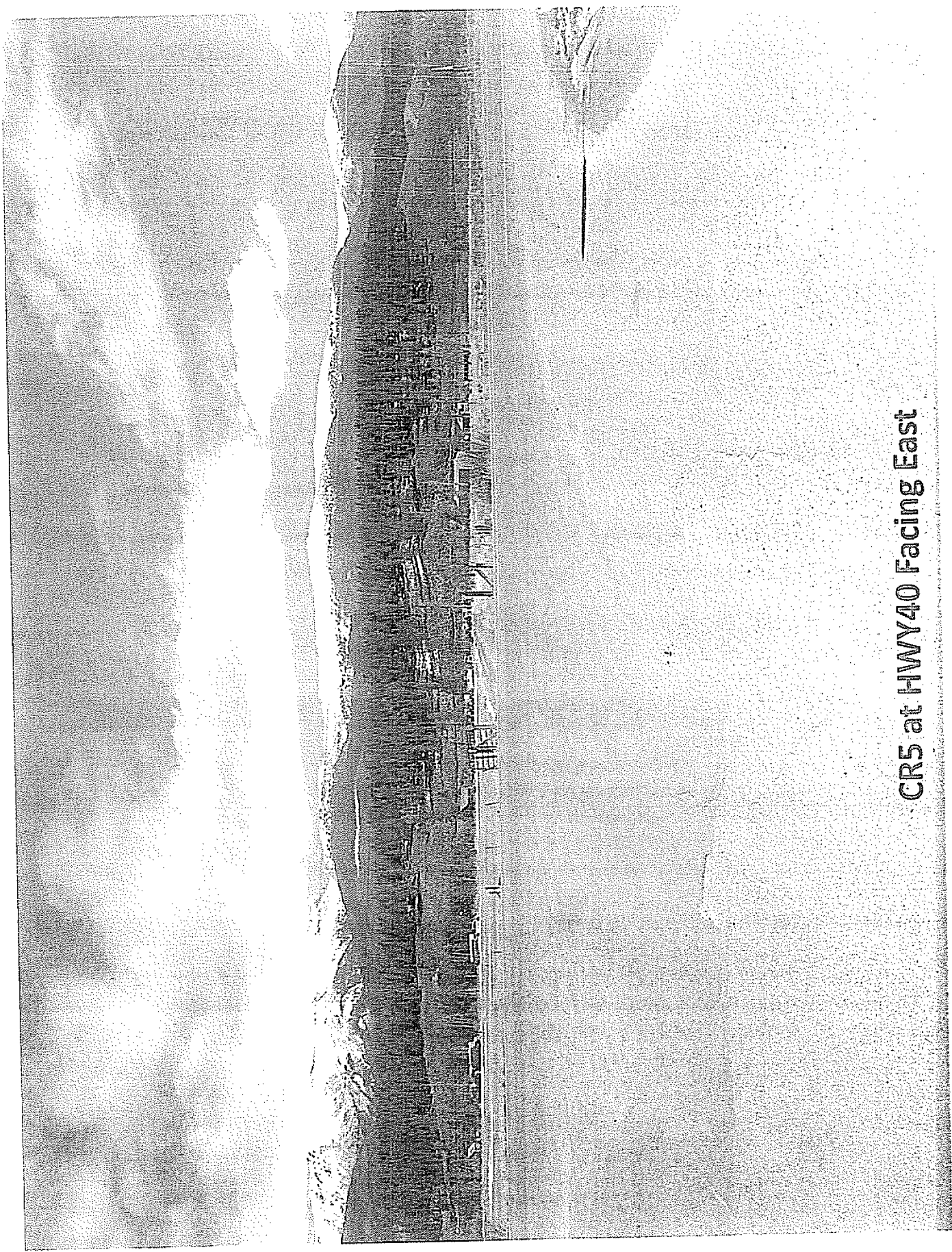
CR5 at the intersection of HWY 40 looking west

HWY 40 at the intersection of CR5 looking Eastbound

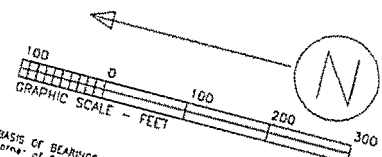




HWY 40 at the intersection of CR5 Looking westbound



CR5 at HWY40 Facing East



BASIS OF BEARINGS: Monumented as shown from the southeast
 corner of Section 10, assumed to be $97^{\circ}14'59''W$

SE CORNER
 SECTION 10
 T4S R3E S10E
 FD 1935 GLO B.C.

$112^{\circ}14'59''E$
 $155.49'$
 D.O.B.

FD P-C FLS 11111

FD P-C PLS 2693

$114^{\circ}55'01''W$ 5508.82'

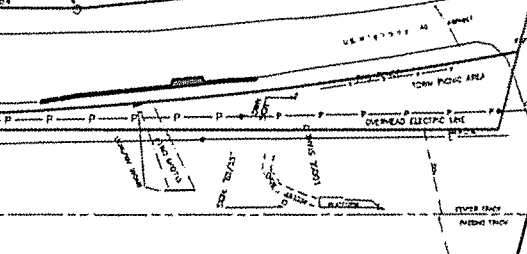
EAST HALF 43 FEET OF RAIL

EDGE OF ASPHALT

EDGE OF ASPHALT

FD CCHC 1016

BRURED MCI CABLE (FIELD VERIFICATION REQUIRED)



This report was prepared for the use and benefit of the Grand County Road and Bridge Department, and
 under the terms of a field order, given by me and under my direction.
 Surveyor G. W. H. Caldwell, February 1935.

CR54



DEPARTMENT OF ROAD & BRIDGE

Ken Haynes • Road Superintendent

Central Maintenance Facility

467 E. Topaz • P.O. Box 9 • Granby, Colorado 80446

Phone: 970-887-2123

Fax: 970-887-3168

11-30-2010

Fehr & Peers Transportation Consultants

Attn: Emily Gloeckner, P.E.

621 17th Street, Ste. 2301

Denver, CO 80293

Dear Ms. Gloeckner

Please find enclosed three (3) applications for CDOT Region 3 Intersection Analysis and Prioritization Requests.

Grand County Road & Bridge has taken a close look at all the local intersections that connect to the State highways in our County. We have highlighted three (3) intersections (applications attached to this letter), that pose significant safety concerns to the traveling public. The intersections are prioritized by need as follows:

1. US HWY 40 and Grand County Road 5
2. US HWY 40 and Grand County Road 54
3. Colorado HWY 9 and Grand County Road 1

After careful analysis of all data available, the above listed intersections have the greatest safety concern. We have determined that these intersections impact the traveling public the most. Grand County's leading responsibility is to provide the public with the safety roadways possible. Grand County Road & Bridge makes every effort to improve any hazard or unsafe condition along or adjacent to our roads and repairing these intersections would go a long way to improving safety for all roadway users.

Grand County Road & Bridge appreciates your time and consideration for these applications. Should you need any further information, please feel free to contact Alan Green.

Sincerely,

Ken Haynes
Road & Bridge Superintendent

Region 3 Intersection Analysis and Prioritization
Intersection Application

Requesting Agency

Agency Name	Grand County
Contact Person	Ken Haynes
Title	Road & Bridge Superintendent
Email	khaynes@co.grand.co.us
Phone Number	970-887-2123
Mailing Address	467 E. Topaz Ave P O Box 9 Granby, CO 80446

Intersection Location

Highway (example, US 50)	US HWY40 and County Road 54		
Highway Milepost	MM218		
Local Cross Street name	Grand County Road 54		
Is the Cross Street (check one)	Public ROW XXX	Private Drive	Other

DEPARTMENT OF TRANSPORTATION
Traffic & Safety Section

Intersection Information

Type of Intersection (check one)	Signal	Minor St Stop XXX	All Way Stop	Other:
Nearby Driveways	Yes: Distance between intersections: 1038ft east of CR54 (north side) 555ft east of CR54 (south side)			No
Traffic Mix (check all that apply)	Trucks XXX	Pedestrians	Bicycles XXX	Other:
Intersection Issues	Please describe the types of safety or operational issues at the intersection.			
Safety Issues:	<p>The HWY 40 westbound traffic must stop in the traveled lane while waiting for eastbound traffic to open in order to turn left onto CR54. This is a single lane, downhill left hand turn on very dangerous road. Travel speeds along this stretch of HWY 40 is 65mph. Left hand turning vehicles force following vehicles to stop as well. In many cases, these vehicles attempting to stop lose control due to adverse road conditions leading to the increase of traffic accidents.</p>			
Operational Issues:				

Intersection Deficiencies

Please provide a brief description of the existing intersection deficiencies and associated safety concerns, including time of the concerns (day of the week/hour(s)/seasons/time/weekday/weekend/holiday/etc):

The issues with the intersection of Grand County Road 54 (CR54) and westbound HWY 40 are many, including but not limited to the points listed below:

1) Westbound traffic is forced to stop in the travel lane to wait for any eastbound traffic before turning. This condition forces any other westbound vehicles to slow down or stop for the turning vehicle. This action is very dangerous as the westbound traffic is traveling downhill at 65mph and into a curve. The weather at this intersection for approximately six (6) months out of the year is hazardous due to being located on the north side of a mountain, and typical weather conditions commonly found in high mountain communities.

2) The Homestead Hills Subdivision's only access is through this intersection. In July of 2005, the average daily traffic (ADT) count was 117 vehicles. Due to the development in this area, these counts have easily increased in the last five (5) years.

3) The Snow Mountain Ranch/YMCA of the Rockies is located one (1) mile east of this intersection and has a steady traffic flow from that location to the town of Granby.

4) The Winter Park Highlands Subdivision is located 1.5 miles east of this intersection and has a steady traffic flow from that location to the town of Granby.

5) Numerous accidents occur on the HWY in this area because of the grade and curves in the road. Guardrail is located on the South side of the HWY

Mitigation

Please provide a brief description of possible mitigations, improvements, and/or projects to mitigate the safety concerns at the intersection:

The best mitigation practice for this area could include but is not limited to those listed below. Grand County's preference of which mitigation we would like to see to resolve this dangerous intersection is as follows:

- 1) Widening of the road in this area to accommodate for a full turn lane.
- 2) Re-adjustment of lane markings to allow a turn lane for the westbound traffic.
- 3) Signage indicating a turn lane, lane shift etc....

Please see Google Earth Street View for a more detailed view of the intersection.

Are there any existing plans for improvements for this intersection? Yes/No. If yes, please explain:
Unknown

Are any additional funding sources available for this project? Yes/No. If yes, please explain:
Unknown

Does this intersection have impacts to adjacent intersections, roadways, etc? If yes, please explain:
No

Additional Information

To assist in analyzing the intersection please attach the following information if available/applicable:

- Accident data, including police reports if available
- Traffic Volumes, such as AADT/ADT, peak hour volumes, peak hour turning movement counts
- Traffic Studies
- Pedestrian Counts
- Bicycle Counts
- Existing signal timing or Synchro files
- Existing construction plans
- Survey data
- Aerial photos
- Photographs of the intersection
- Right of Way maps
- Any other data/documentation to assist in analyzing the intersection

Future Traffic Volumes for Highway 040
From RefPoint 222 To RefPoint 223

Route	Ref Point	End Ref Point	Start Point Description	AADT	AADTYR	AADT Single Trucks	AADT Comb. Trucks	Design Hour Volume (% of AADT)	AADT 2011	AADT Single Trucks 2011	AADT Comb. Trucks 2011
040A	223.030	224.000	ON SH 40 E/O CR 822 & CR 526, TABERNASH	8,100	2009	250	240	12	8,489	262	252

If you notice an error, bug or have any questions, Please [E-mail us](#).

Traffic Counts
 Highway 040A, RefPoint 223.030, Station 101871
 for July, 2009

Primary Direction (East)

Date	Day	Hour																							Total	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22		23
07/08/09	Wed	29	13	7	2	6	37	78	194	272	315	327	374	359	360	365	370	424	435	298	169	192	128	82	29	4865
07/09/09	Thu	23	10	9	3	12	27	83	207	247	264	324	370	86	0	0	0	0	0	0	0	0	0	0	0	1665

Secondary Direction (West)

Date	Day	Hour																							Total	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22		23
07/08/09	Wed	14	7	3	7	17	37	142	275	389	332	328	339	365	351	372	372	390	385	286	220	148	83	57	29	4948
07/09/09	Thu	9	5	4	9	11	40	134	295	359	336	321	352	61	1	0	0	0	0	0	0	0	0	0	0	1937

Composite Direction (East and West)

Date	Day	Hour																							Total	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22		23
07/08/09	Wed	43	20	10	9	23	74	220	469	661	647	655	713	724	711	737	742	814	820	584	389	340	211	139	58	9813
07/09/09	Thu	32	15	13	12	23	67	217	502	606	600	645	722	147	1	0	0	0	0	0	0	0	0	0	0	3602

Traffic Count

Date 7/14/2005

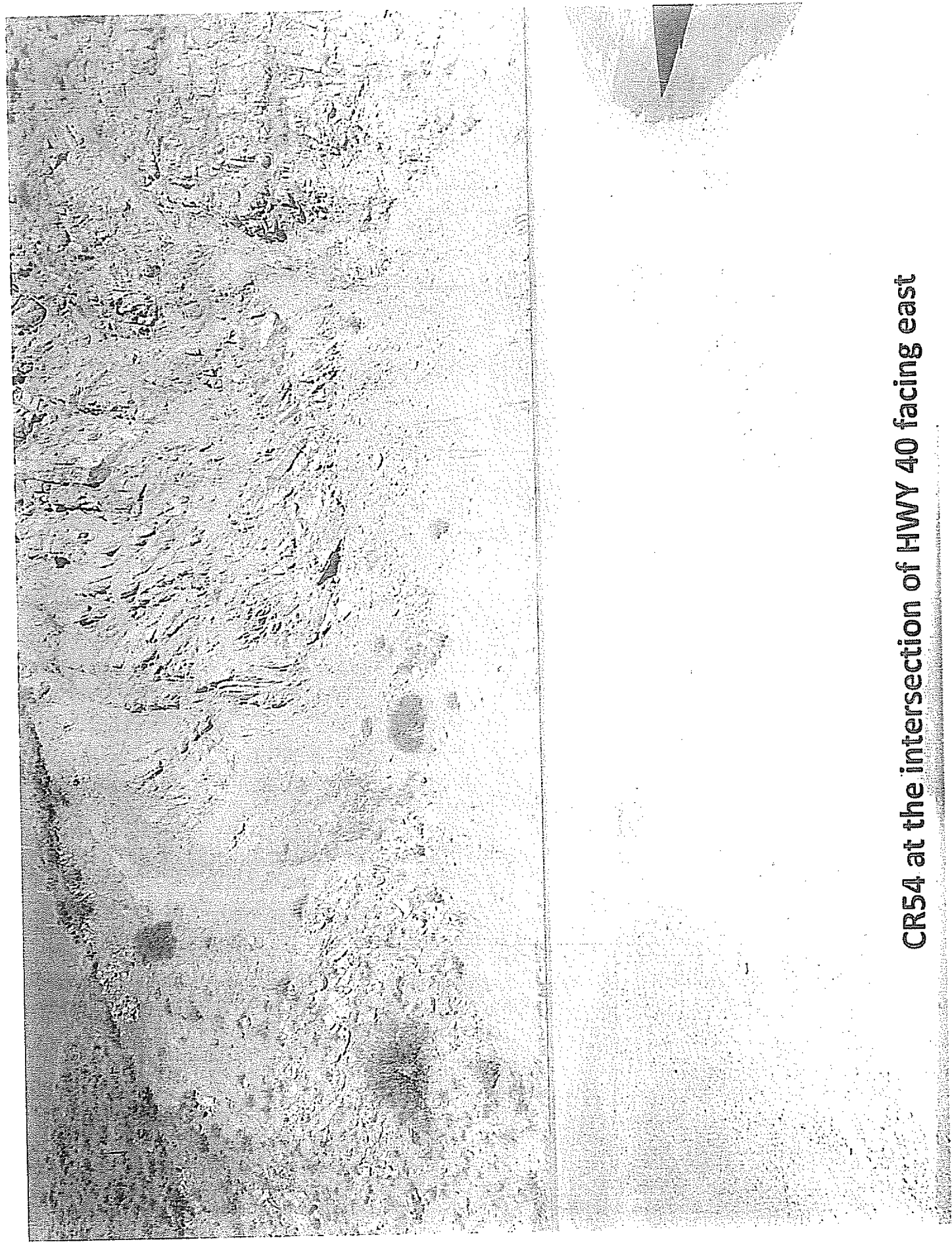
C. R. 54

Traffic counter located at 100 feet from Hwy 40

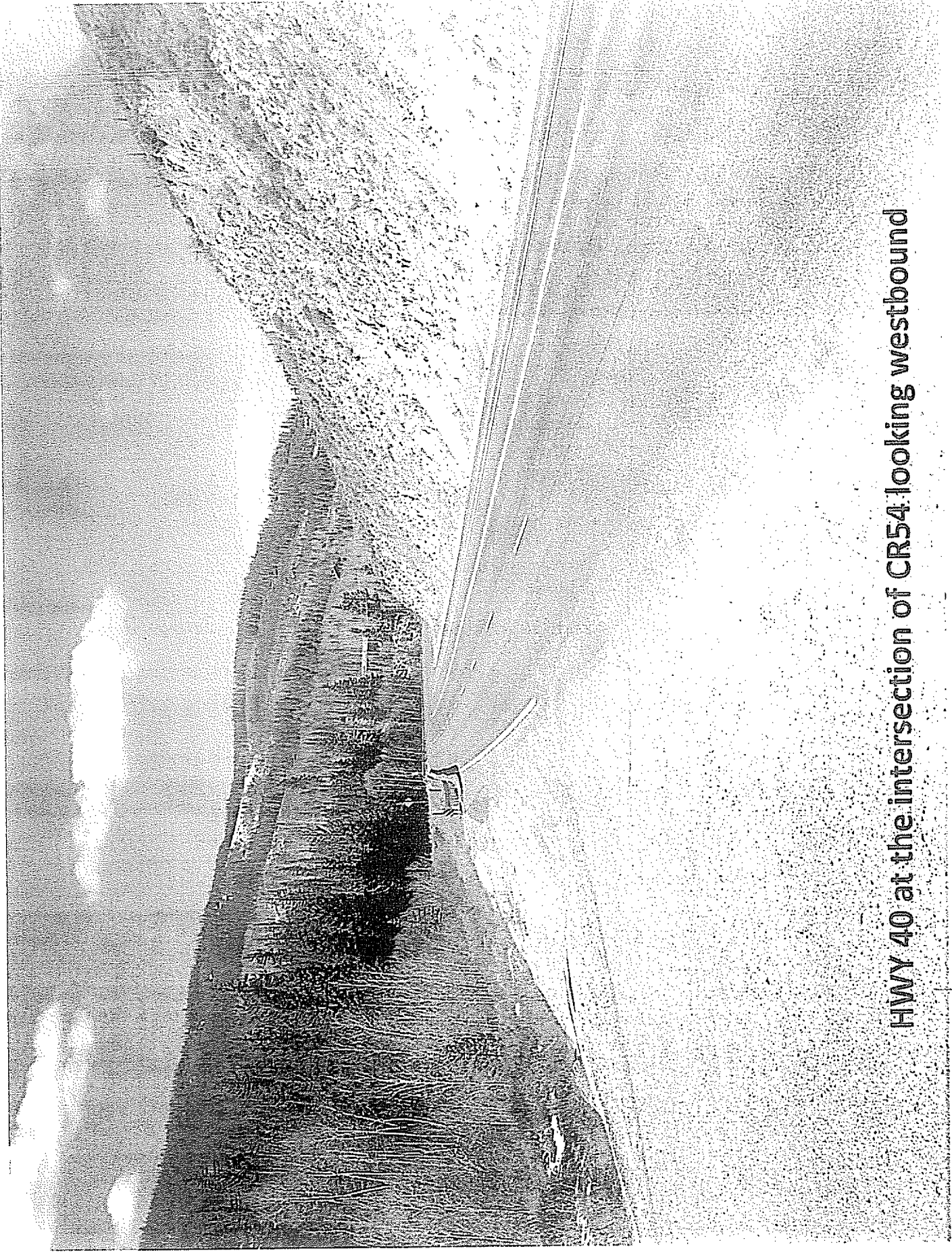
DATE	TIME	ROLLING COUNT	COUNT
7/14/2005		placed counter	
7/15/2005	8:40a	104	104
7/16/2005			159
7/17/2005			159
7/18/2005	9:00a	582	160
7/19/2005	10:20a	640	58
7/20/2005	11:40a	806	166
7/21/2005	9:40a	911	105
7/22/2005			106
7/23/2005			106
7/24/2005			106
7/25/2005	8:20a	1336	107
7/26/2005	9:10a	1412	76
7/27/2005	10:00a	1581	169
7/28/2005	9:20a	1643	62

Total	1643
-------	------

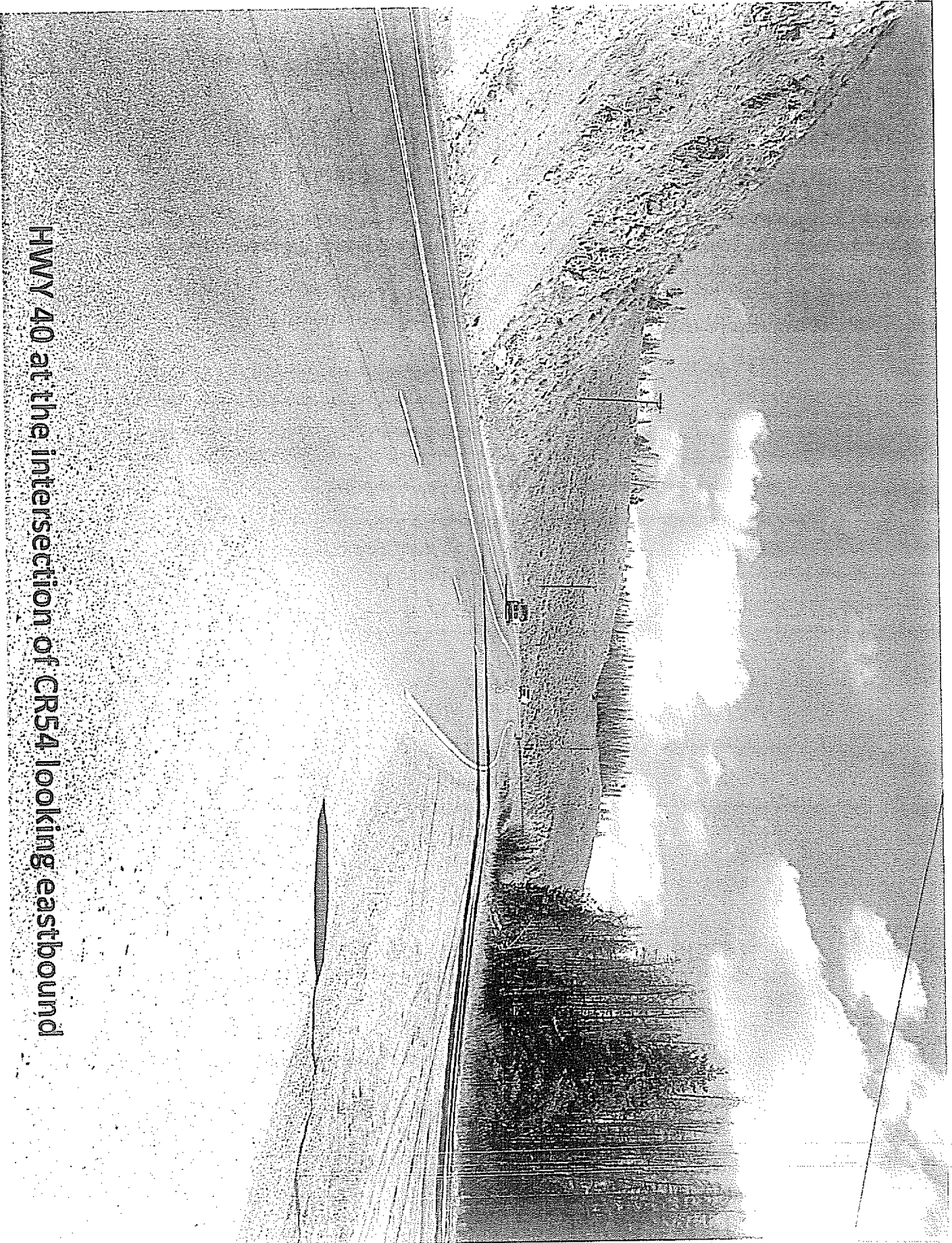
Daily average car count	117.35
-------------------------	--------



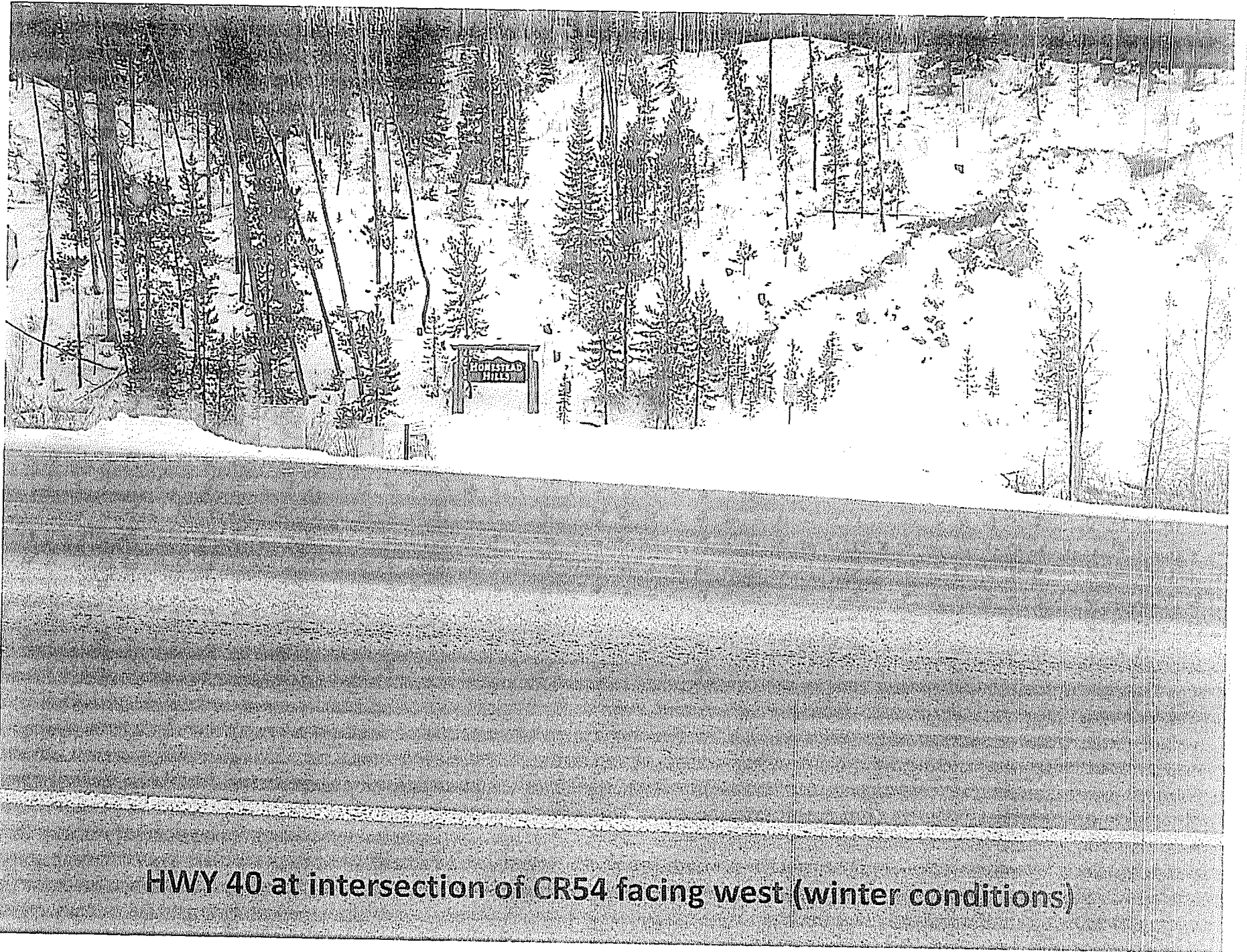
CR54 at the intersection of HWY 40 facing east



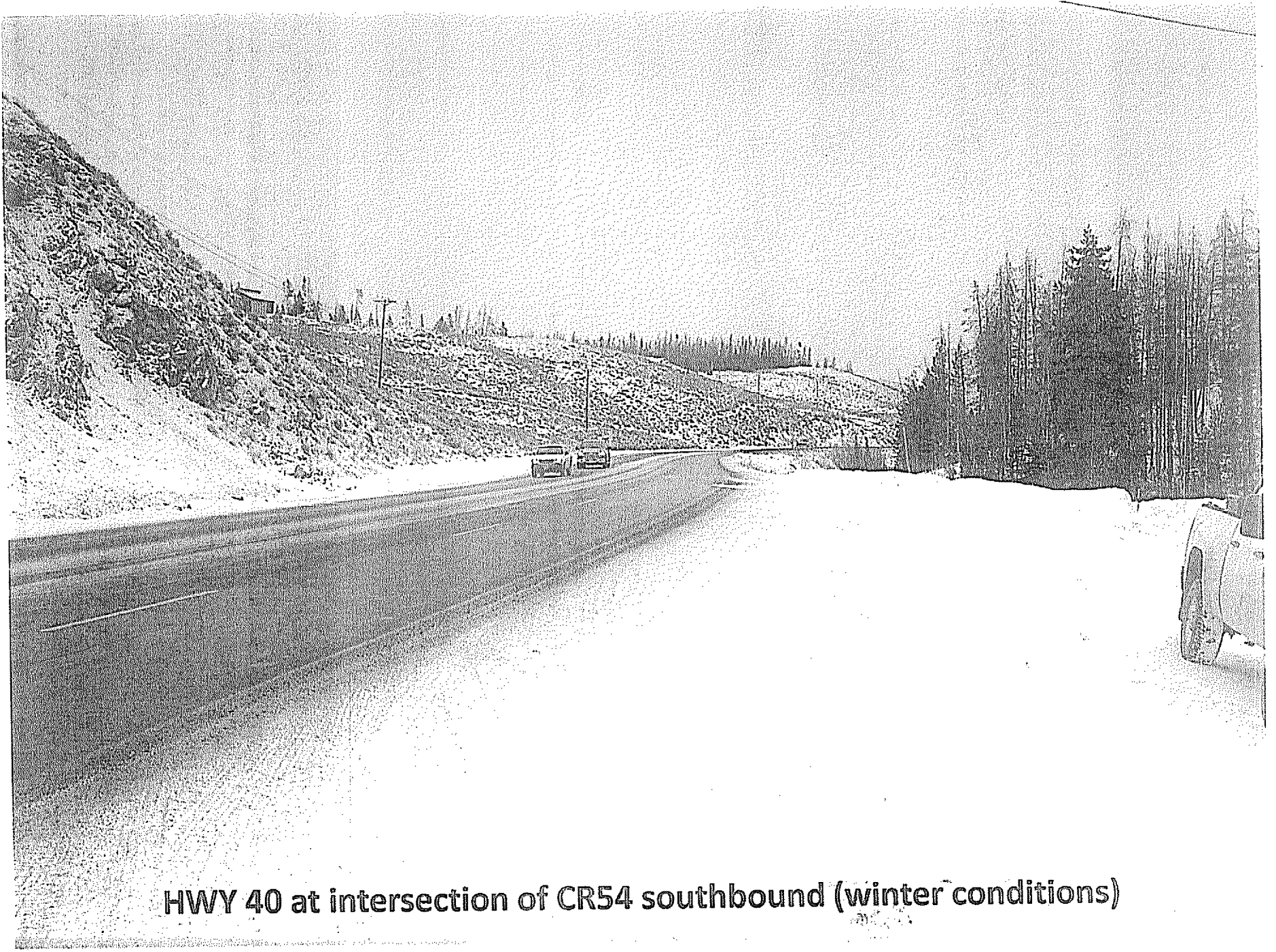
HWY 40 at the intersection of CR54 looking westbound



HWY 40 at the intersection of CR54 looking eastbound



HWY 40 at intersection of CR54 facing west (winter conditions)



HWY 40 at intersection of CR54 southbound (winter conditions)



HWY 40 and Intersection of CR54 westbound (winter conditions)



Mile Marker 217 approx 2950 ft from Intersection of CR54

40

One (1) lane going westbound downhill

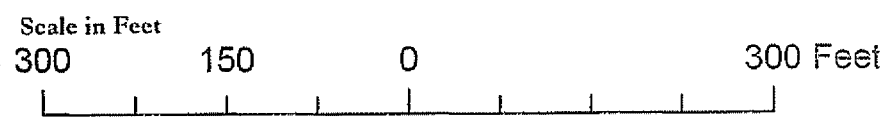
Mile Marker 218 approx 2345 ft from Intersection of CR54

Westbound travel ←

Eastbound travel →

Two (2) lanes going eastbound uphill

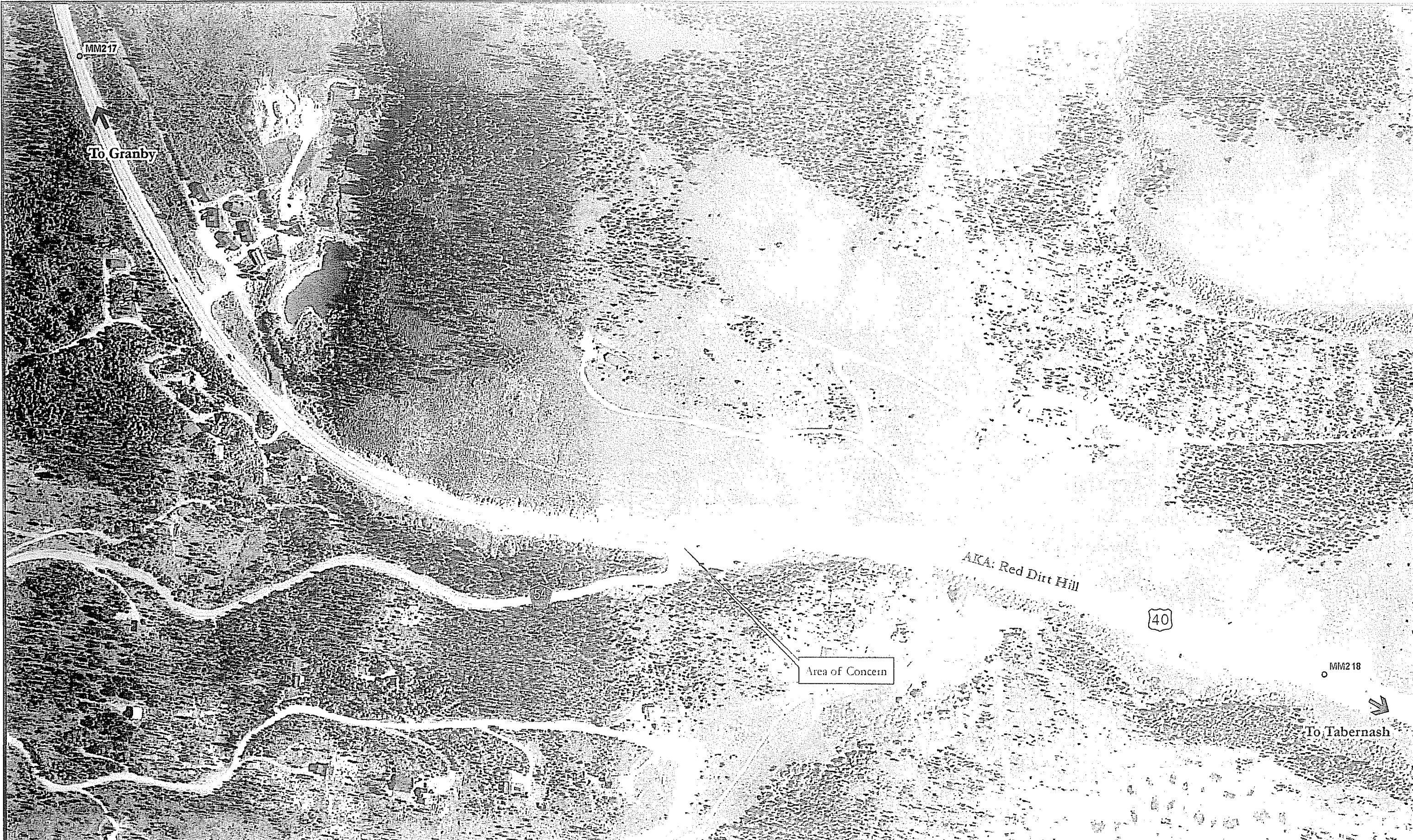
54



County Road 54 & HWY 40 #2



NOTES
 1. This plan shows the proposed location of the project. The actual location of the project may vary slightly from the proposed location shown on this plan.
 2. The project is subject to the approval of the Utah Department of Transportation. The project may be modified or cancelled at any time without notice.
 3. The project is subject to the approval of the local government. The project may be modified or cancelled at any time without notice.
 4. The project is subject to the approval of the public. The project may be modified or cancelled at any time without notice.
 5. The project is subject to the approval of the state. The project may be modified or cancelled at any time without notice.



MM2 17

To Granby

54

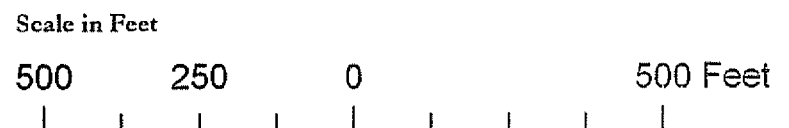
AKA: Red Dirt Hill

40

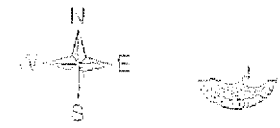
MM2 18

To Tabernash

Area of Concern



Grand County Road 54 & HWY 40



NOTICE
This map is for informational purposes only and is not intended to be used as a legal document. It is subject to change without notice. The information contained herein is based on the best available information at the time of publication. The user assumes all responsibility for any errors or omissions. The user also assumes all liability for any damages or losses resulting from the use of this map. The user agrees to hold the County of Grand County harmless from any and all claims, damages, or losses of any kind, including reasonable attorneys' fees, arising from the use of this map. The user further agrees to indemnify and hold the County of Grand County harmless from any and all claims, damages, or losses of any kind, including reasonable attorneys' fees, arising from the use of this map.

Grand County Road & Bridge

CDOT Region 3 Intersection Analysis and Prioritization

County Road 5

Priority #1

Region 3 Intersection Analysis and Prioritization
Intersection Application

Requesting Agency

Agency Name	Grand County
Contact Person	Ken Haynes
Title	Road & Bridge Superintendent
Email	khaynes@co.grand.co.us
Phone Number	970-887-2123
Mailing Address	467 E. Topaz Ave P O Box 9 Granby, CO 80446

Intersection Location

Highway (example, US 50)	US HWY 40 and County Road 5 East Entrance.		
Highway Milepost	MM226		
Local Cross Street name	Grand County Road 5		
Is the Cross Street (check one)	Public ROW XXX	Private Drive XXX	Other

DEPARTMENT OF TRANSPORTATION

Traffic & Safety Section

Intersection Information

Type of Intersection (check one)	Signal	Minor St Stop XXX	All Way Stop	Other:
Nearby Driveways	Yes: Directly across from CR5 Distance between intersections: Intersection of CR8 is 1363ft east of CR5 on HWY 40 .			No
Traffic Mix (check all that apply)	Trucks XXX	Pedestrians XXX	Bicycles XXX	Other: Railroad
Intersection Issues	Please describe the types of safety or operational issues at the intersection.			
Safety Issues:	During daytime hours, high volumes of traffic affect the ability for vehicles exiting CR5 onto westbound HWY 40. When large vehicles enter westbound HWY 40 from CR5 they can and have caused the westbound HWY40 traffic to slow, impeding the flow of traffic.			
Operational Issues:	None			

DEPARTMENT OF TRANSPORTATION

Traffic & Safety Section

Intersection Deficiencies

Please provide a brief description of the existing intersection deficiencies and associated safety concerns, including time of the concerns (day of the week/hour(s)/seasons/time/weekday/weekend/holiday/etc):

Issues with the intersection of County Road 5 (CR5) and westbound HWY 40 are many, including but not limited to the points listed below:

1) Holiday weekend and summertime Friday traffic, can especially exasperate wait times at this intersection. Wait times can last several minutes before any opportunity is available for a large vehicle to enter westbound HWY 40. There are two (2) gravel pits located within two (2) miles of this intersection. All pit traffic use this intersection which averages, 60 heavy trucks per day. As stated, delays lasting several minutes are not uncommon. Add to this mix the Union Pacific Railroad crossing approximately 115ft from the Highway entrance with an average of 28 to 30 trains daily causing traffic to back up significantly.

2) The Fraser ball fields are located approximately 880ft west of the intersection of CR5 and HWY 40. These ball fields are hosts to many events from hot air balloon rides, kids soccer games, softball games, war memorial ceremonies, holiday celebrations, and a new ice skating rink. With these types of activities near this intersection, an overload in traffic can occur at any time.

3) The intersection of CR50 is approximately 1090ft west of of HWY 40 and CR5 and is a primary access point for the Young Life Christian youth camp with an average of 1700 children per week which get transported mainly by bus through this intersection.

4) Traffic count data taken on 5-31-2005 at the intersection of CR5 and HWY 40 show an average daily traffic count of 1145 vehicles per 24hr period which is only likely to increase.

DEPARTMENT OF TRANSPORTATION

Traffic & Safety Section

Mitigation

Please provide a brief description of possible mitigations, improvements, and/or projects to mitigate the safety concerns at the intersection:

The traffic lane markings shown on the aerial map and photos (attached) indicate that the intersection of CR5 and HWY 40 is capable of meeting the demands of westbound traffic entering HWY 40 if the lane markings are simply re-aligned. No additional asphalt work would be required. Re-adjusting the lane markings allowing for an acceleration lane would decrease the current delays at this intersection and decrease the impact on westbound traffic by allowing westbound traffic to merge safely into 55mph traveling traffic.

By simply re-striping the current lane markings and placement of new signage, a minimum cost for a significant improvement to traffic flow and safety, Grand County feels this intersection can be safer than it currently is.

Please see Google Earth Street View for a more detailed view of the intersection.

Are there any existing plans for improvements for this intersection? Yes/No. If yes, please explain:

Unknown

Are any additional funding sources available for this project? Yes/No. If yes, please explain:

Unknown

Does this intersection have impacts to adjacent intersections, roadways, etc? If yes, please explain:

Impact due to traffic delays can affect the events held at the Fraser ball fields at CR522, and events held at the Young Life Christian youth camp off CR50.

DEPARTMENT OF TRANSPORTATION

Traffic & Safety Section

Additional Information

To assist in analyzing the intersection please attach the following information if available/applicable:

- Accident data, including police reports if available
- Traffic Volumes, such as AADT/ADT, peak hour volumes, peak hour turning movement counts
- Traffic Studies
- Pedestrian Counts
- Bicycle Counts
- Existing signal timing or Synchro files
- Existing construction plans
- Survey data
- Aerial photos
- Photographs of the intersection
- Right of Way maps
- Any other data/documentation to assist in analyzing the intersection



Eastbound de-acceleration / turn lane.

Possible location for acceleration lane.

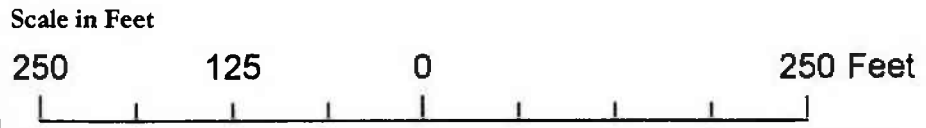
Westbound de-acceleration / turn lane.

Eastbound acceleration lane

Union Pacific
RailRoad

Private Driveway

Fraser Colorado



US HWY 40 & Grand County Road 5 East Entrance



Image Data from Denver Regional
Aerial Photography Project
UTM Zone 13 N, NAD 83
Aerial Photography
2004

Grand County U.S.S. 2004 County Government
Copyright © 2004 Grand County, P.O. Box 804
100 Highway 40, Grand, CO 80441
Phone (303) 733-2141 Fax (303) 733-2044

Grand County
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is not suitable for general geographic
navigation. GRAND COUNTY SHALL NOT
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its accuracy is made by the County of Grand,
Colorado.

Traffic Counts
Highway 040A, RefPoint 226.324, Station 101873
for June, 2008

Primary Direction (East)

Hour

Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
06/16/08	Mon	18	8	10	5	11	80	232	312	366	414	430	459	474	406	434	521	543	468	332	166	165	98	81	27	6060

Secondary Direction (West)

Hour

Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
06/16/08	Mon	19	6	2	11	48	119	305	501	554	562	482	471	488	443	443	425	475	358	294	173	145	61	24	13	6422

Composite Direction (East and West)

Hour

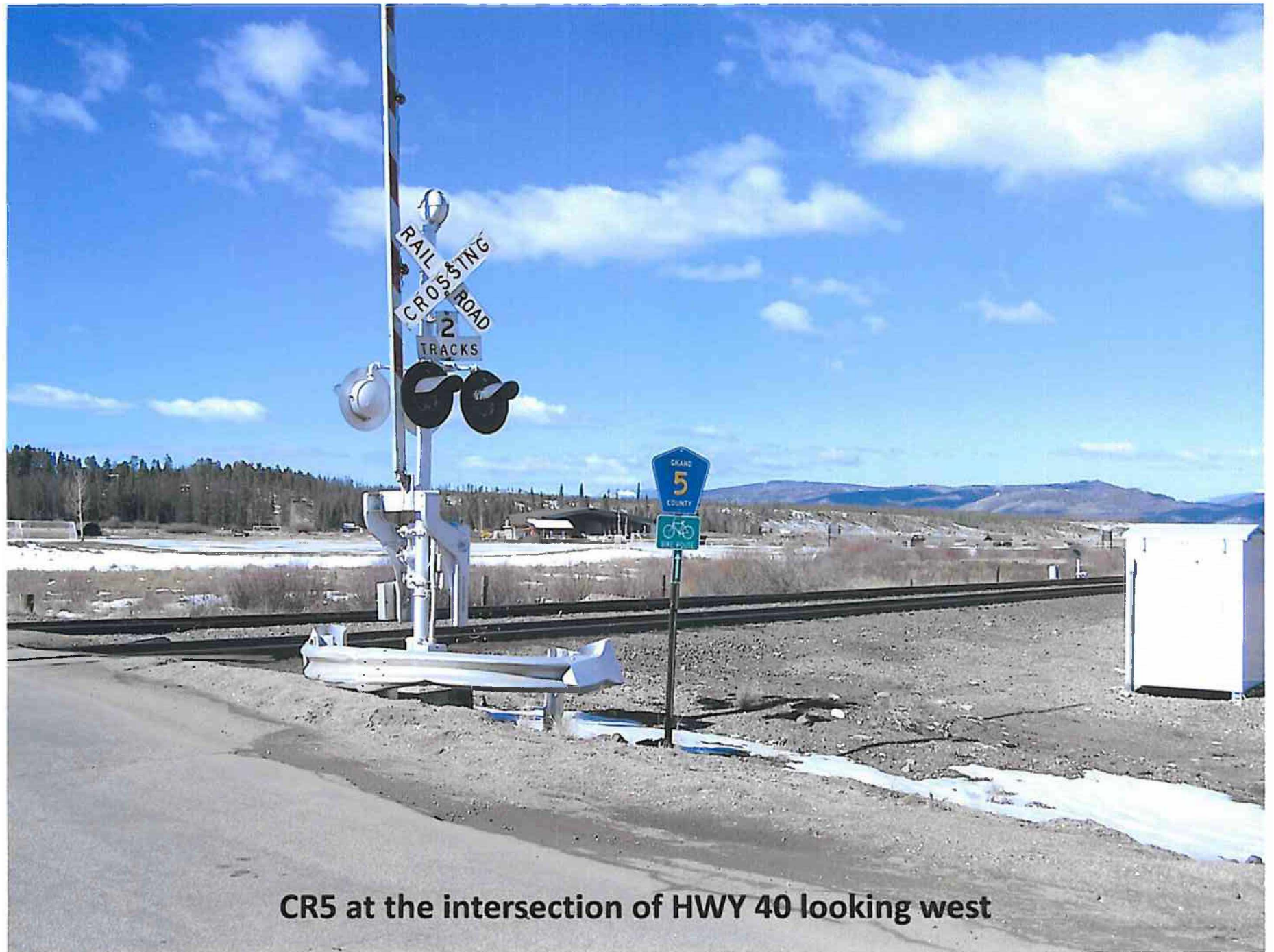
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
06/16/08	Mon	37	14	12	16	59	199	537	813	920	976	912	930	962	849	877	946	1018	826	626	339	310	159	105	40	12482

Future Traffic Volumes for Highway 040

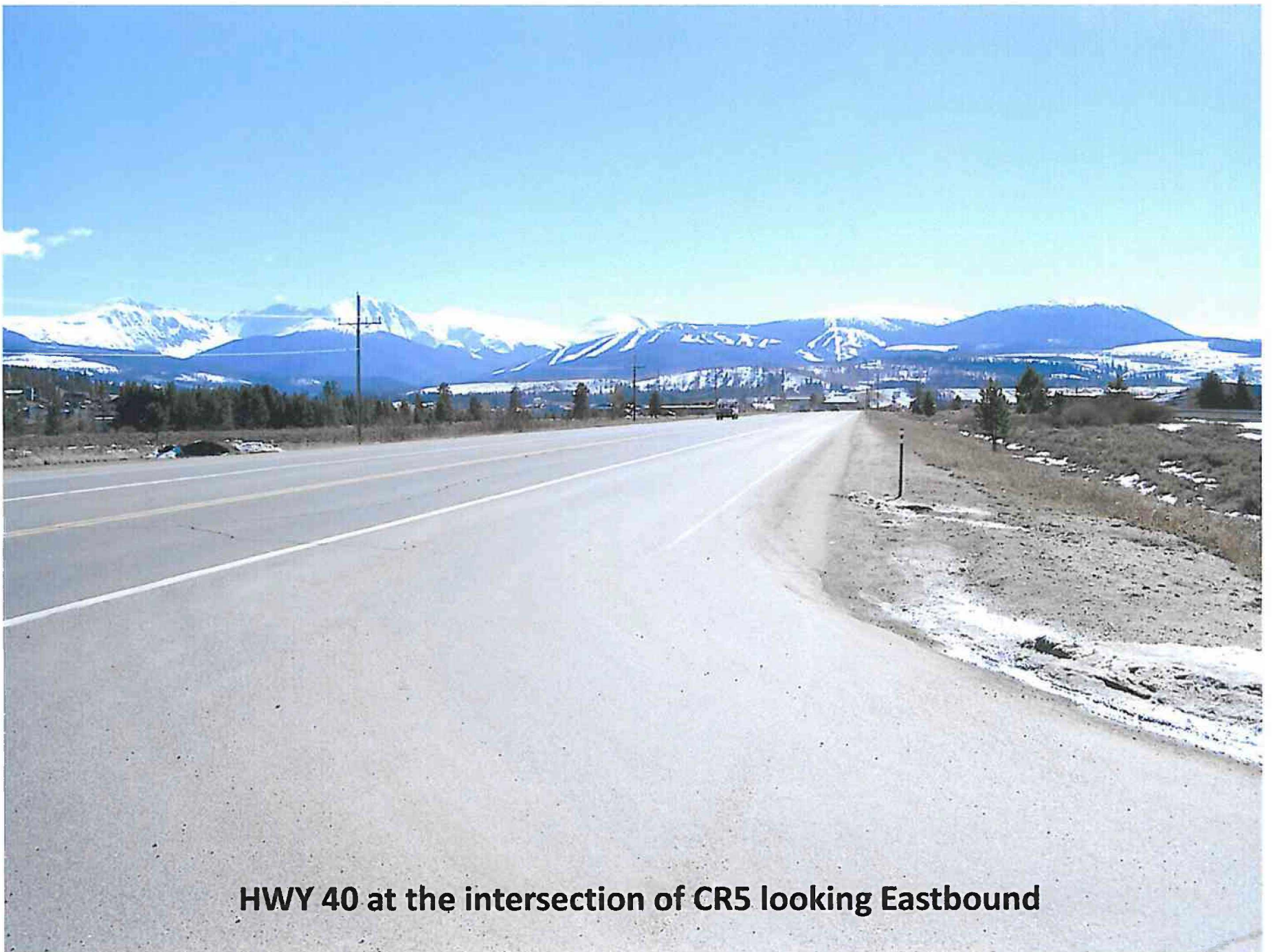
From RefPoint 222 To RefPoint 228

Route	Ref Point	End Ref Point	Start Point Description	AADT	AADTYR	AADT Single Trucks	AADT Comb. Trucks	Design Hour Volume (% of AADT)	AADT 2011	AADT Single Trucks 2011	AADT Comb. Trucks 2011
040A	223.030	224.000	ON SH 40 E/O CR 822 & CR 526, TABERNASH	8,100	2009	250	240	12	8,489	262	252
040A	224.000	226.188	ON SH 40, ZEREX ST N/O CR 8, FRASER	8,700	2009	230	260	12	9,109	241	272
040A	226.188	226.835	ON SH 40, ZEREX ST S/O CR 8, FRASER	9,600	2009	250	290	12	10,032	261	303

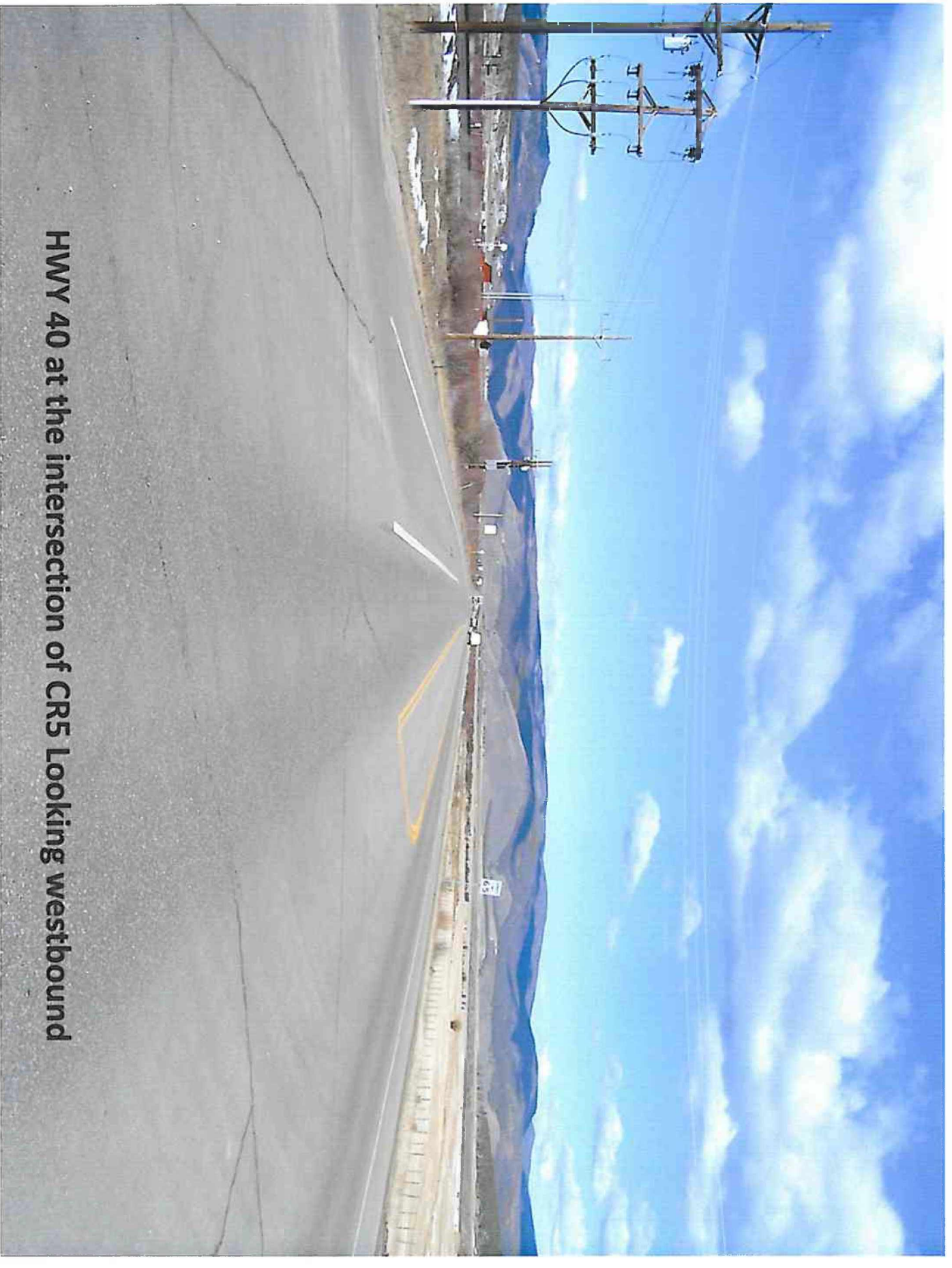
If you notice an error, bug or have any questions, Please [E-mail us](#).



CR5 at the intersection of HWY 40 looking west



HWY 40 at the intersection of CR5 looking Eastbound



HWY 40 at the intersection of CR5 Looking westbound



CR5 at HWY40 Facing East

Grand County Road & Bridge
CDOT Region 3 Intersection Analysis and Prioritization

County Road 54

Priority #2

Region 3 Intersection Analysis and Prioritization
Intersection Application

Requesting Agency

Agency Name	Grand County
Contact Person	Ken Haynes
Title	Road & Bridge Superintendent
Email	khaynes@co.grand.co.us
Phone Number	970-887-2123
Mailing Address	467 E. Topaz Ave P O Box 9 Granby, CO 80446

Intersection Location

Highway (example, US 50)	US HWY40 and County Road 54		
Highway Milepost	MM218		
Local Cross Street name	Grand County Road 54		
Is the Cross Street (check one)	Public ROW XXX	Private Drive	Other

DEPARTMENT OF TRANSPORTATION

Traffic & Safety Section

Intersection Information

Type of Intersection (check one)	Signal	Minor St Stop XXX	All Way Stop	Other:
Nearby Driveways	Yes: Distance between intersections: 1038ft east of CR54 (north side) 555ft east of CR54 (south side)			No
Traffic Mix (check all that apply)	Trucks XXX	Pedestrians	Bicycles XXX	Other:
Intersection Issues	Please describe the types of safety or operational issues at the intersection.			
Safety Issues:	The HWY 40 westbound traffic must stop in the traveled lane while waiting for eastbound traffic to open in order to turn left onto CR54. This is a single lane, downhill left hand turn on very dangerous road. Travel speeds along this stretch of HWY 40 is 65mph. Left hand turning vehicles force following vehicles to stop as well. In many cases, these vehicles attempting to stop lose control due to adverse road conditions leading to the increase of traffic accidents.			
Operational Issues:				

Intersection Deficiencies

Please provide a brief description of the existing intersection deficiencies and associated safety concerns, including time of the concerns (day of the week/hour(s)/seasons/time/weekday/weekend/holiday/etc):

The issues with the intersection of Grand County Road 54 (CR54) and westbound HWY 40 are many, including but not limited to the points listed below:

1) Westbound traffic is forced to stop in the travel lane to wait for any eastbound traffic before turning. This condition forces any other westbound vehicles to slow down or stop for the turning vehicle. This action is very dangerous as the westbound traffic is traveling downhill at 65mph and into a curve. The weather at this intersection for approximately six (6) months out of the year is hazardous due to being located on the north side of a mountain, and typical weather conditions commonly found in high mountain communities.

2) The Homestead Hills Subdivision's only access is through this intersection. In July of 2005, the average daily traffic (ADT) count was 117 vehicles. Due to the development in this area, these counts have easily increased in the last five (5) years.

3) The Snow Mountain Ranch/YMCA of the Rockies is located one (1) mile east of this intersection and has a steady traffic flow from that location to the town of Granby.

4) The Winter Park Highlands Subdivision is located 1.5 miles east of this intersection and has a steady traffic flow from that location to the town of Granby.

5) Numerous accidents occur on the HWY in this area because of the grade and curves in the road. Guardrail is located on the South side of the HWY

DEPARTMENT OF TRANSPORTATION
Traffic & Safety Section

Mitigation

Please provide a brief description of possible mitigations, improvements, and/or projects to mitigate the safety concerns at the intersection:

The best mitigation practice for this area could include but is not limited to those listed below. Grand County's preference of which mitigation we would like to see to resolve this dangerous intersection is as follows:

- 1) Widening of the road in this area to accommodate for a full turn lane.
- 2) Re-adjustment of lane markings to allow a turn lane for the westbound traffic.
- 3) Signage indicating a turn lane, lane shift etc....

Please see Google Earth Street View for a more detailed view of the intersection.

Are there any existing plans for improvements for this intersection? Yes/No. If yes, please explain:
Unknown

Are any additional funding sources available for this project? Yes/No. If yes, please explain:
Unknown

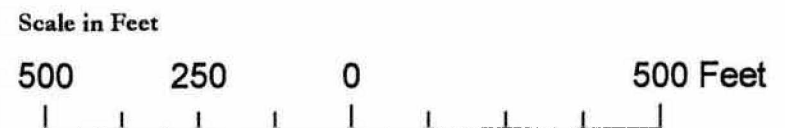
Does this intersection have impacts to adjacent intersections, roadways, etc? If yes, please explain:
No

DEPARTMENT OF TRANSPORTATION
Traffic & Safety Section

Additional Information

To assist in analyzing the intersection please attach the following information if available/applicable:

- Accident data, including police reports if available
- Traffic Volumes, such as AADT/ADT, peak hour volumes, peak hour turning movement counts
- Traffic Studies
- Pedestrian Counts
- Bicycle Counts
- Existing signal timing or Synchro files
- Existing construction plans
- Survey data
- Aerial photos
- Photographs of the intersection
- Right of Way maps
- Any other data/documentation to assist in analyzing the intersection



Grand County Road 54 & HWY 40



Image Data from USDA
National Agriculture Imagery
Program (NAIP) 1 Meter mosaic
in MSID Gen 3,
UTM Zone 13 N, NAD 83
Aerial Photography
Summer 2009

Grand County, CO, U.S.A.
Map Date: 08/2009
Scale: 1:50,000
Projection: UTM Zone 13 N, NAD 83
Datum: NAD 83
Units: Meters
Copyright: 2009 by the County of Grand, Colorado, U.S.A.
This product has been developed for County use only. The data and maps are provided for informational purposes only. The County of Grand, Colorado, is not responsible for any errors or omissions in this product. The County of Grand, Colorado, is not responsible for any damages or losses resulting from the use of this product. The County of Grand, Colorado, is not responsible for any claims or liabilities arising from the use of this product. The County of Grand, Colorado, is not responsible for any claims or liabilities arising from the use of this product.

Future Traffic Volumes for Highway 040

From RefPoint 222 To RefPoint 223

Route	Ref Point	End Ref Point	Start Point Description	AADT	AADTYR	AADT Single Trucks	AADT Comb. Trucks	Design Hour Volume (% of AADT)	AADT 2011	AADT Single Trucks 2011	AADT Comb. Trucks 2011
040A	223.030	224.000	ON SH 40 E/O CR 822 & CR 526, TABERNASH	8,100	2009	250	240	12	8,489	262	252

If you notice an error, bug or have any questions, Please [E-mail us](#).

Traffic Counts
Highway 040A, RefPoint 223.030, Station 101871
for July, 2009

Primary Direction (East)

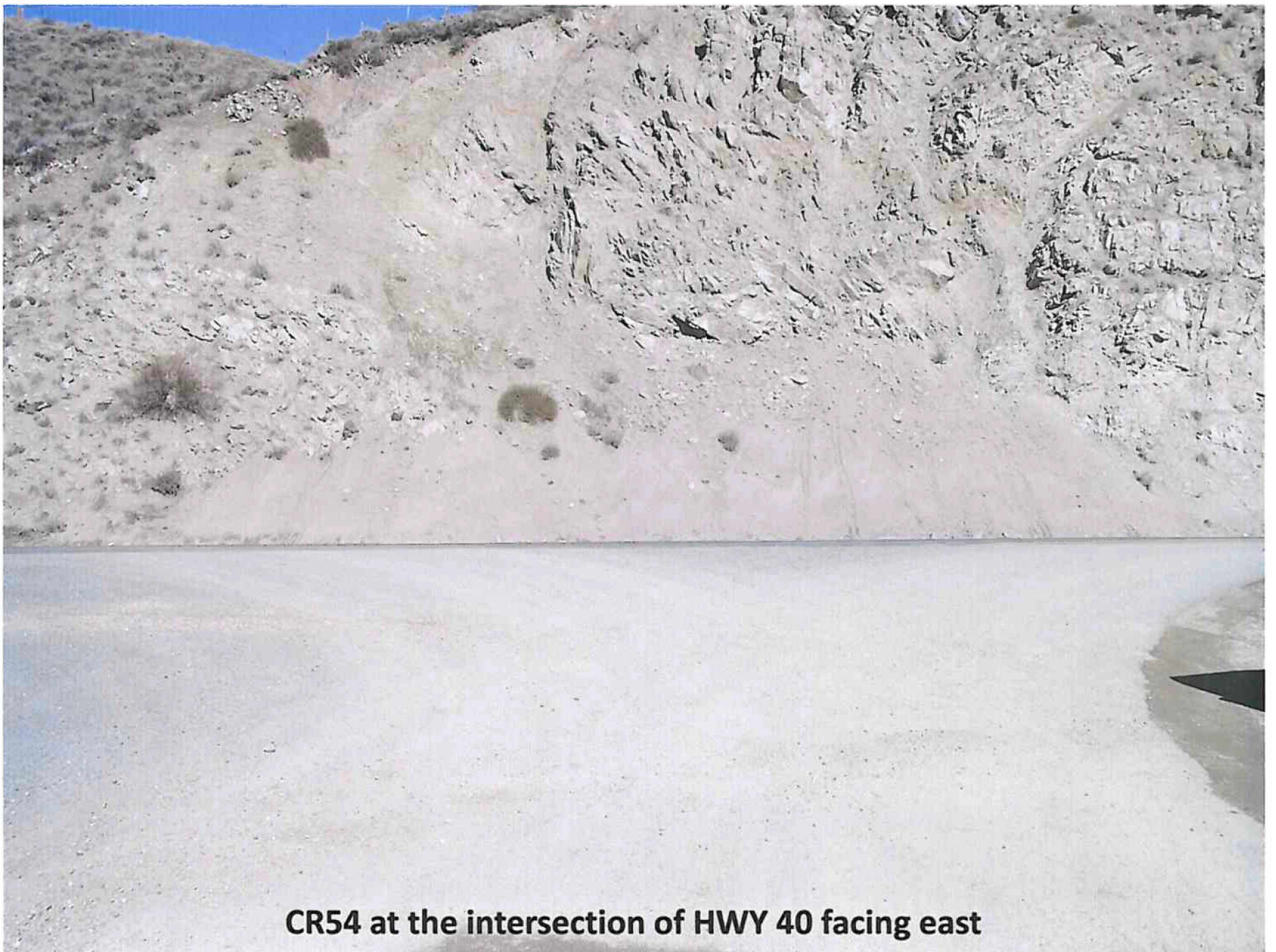
		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
07/08/09	Wed	29	13	7	2	6	37	78	194	272	315	327	374	359	360	365	370	424	435	298	169	192	128	82	29	4865
07/09/09	Thu	23	10	9	3	12	27	83	207	247	264	324	370	86	0	0	0	0	0	0	0	0	0	0	0	1665

Secondary Direction (West)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
07/08/09	Wed	14	7	3	7	17	37	142	275	389	332	328	339	365	351	372	372	390	385	286	220	148	83	57	29	4948
07/09/09	Thu	9	5	4	9	11	40	134	295	359	336	321	352	61	1	0	0	0	0	0	0	0	0	0	0	1937

Composite Direction (East and West)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
07/08/09	Wed	43	20	10	9	23	74	220	469	661	647	655	713	724	711	737	742	814	820	584	389	340	211	139	58	9813
07/09/09	Thu	32	15	13	12	23	67	217	502	606	600	645	722	147	1	0	0	0	0	0	0	0	0	0	0	3602



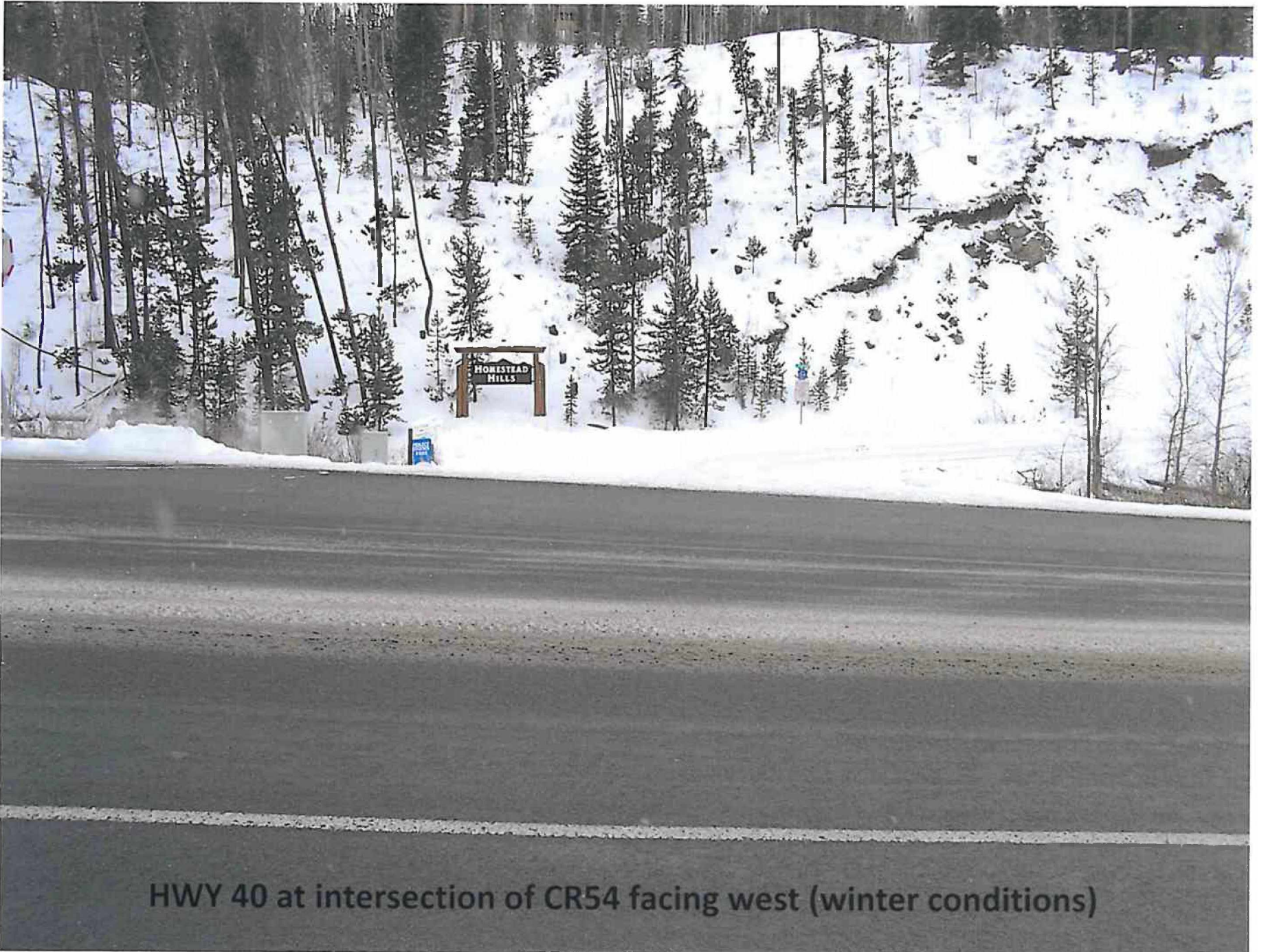
CR54 at the intersection of HWY 40 facing east



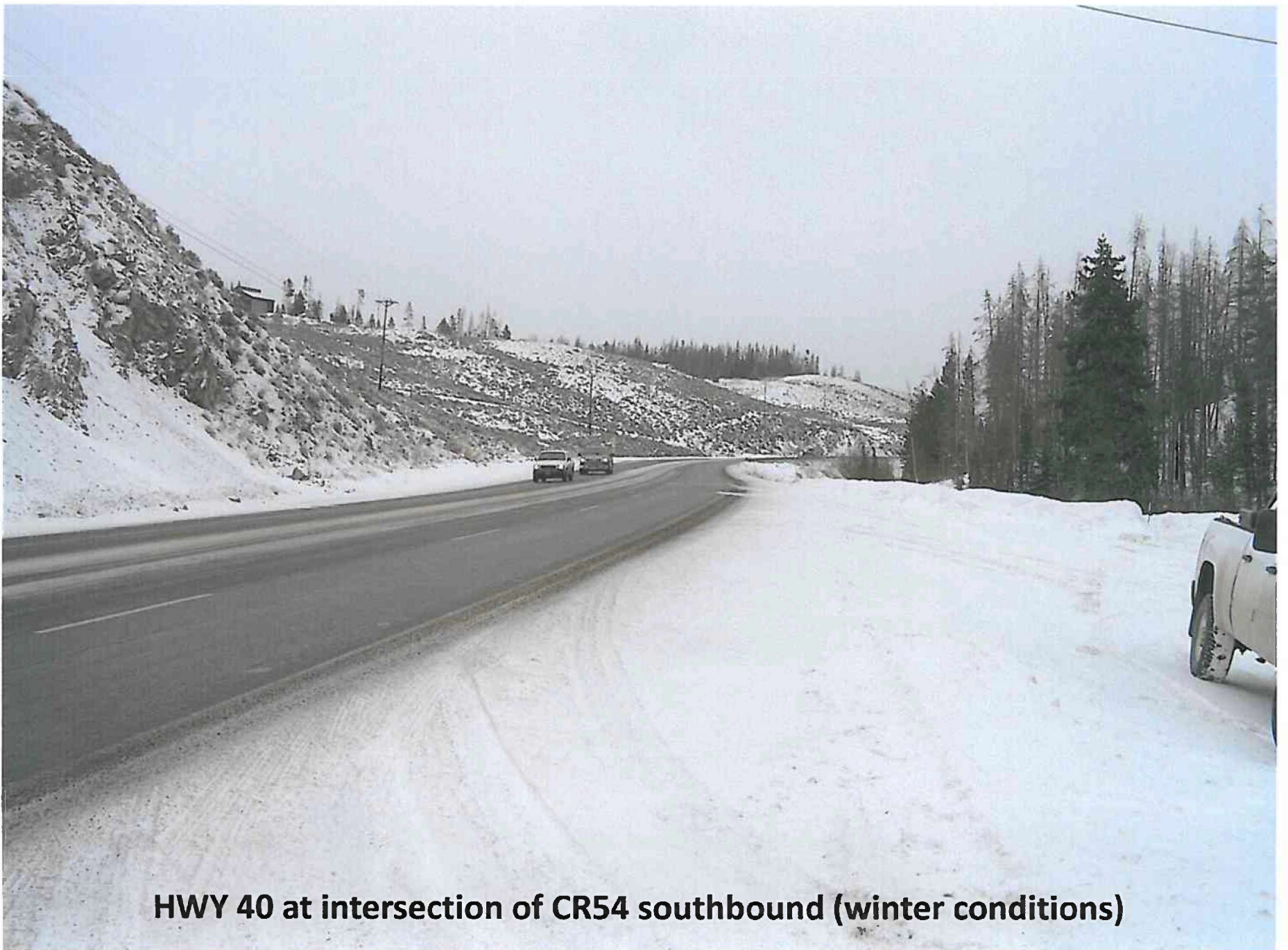
HWY 40 at the intersection of CR54 looking westbound



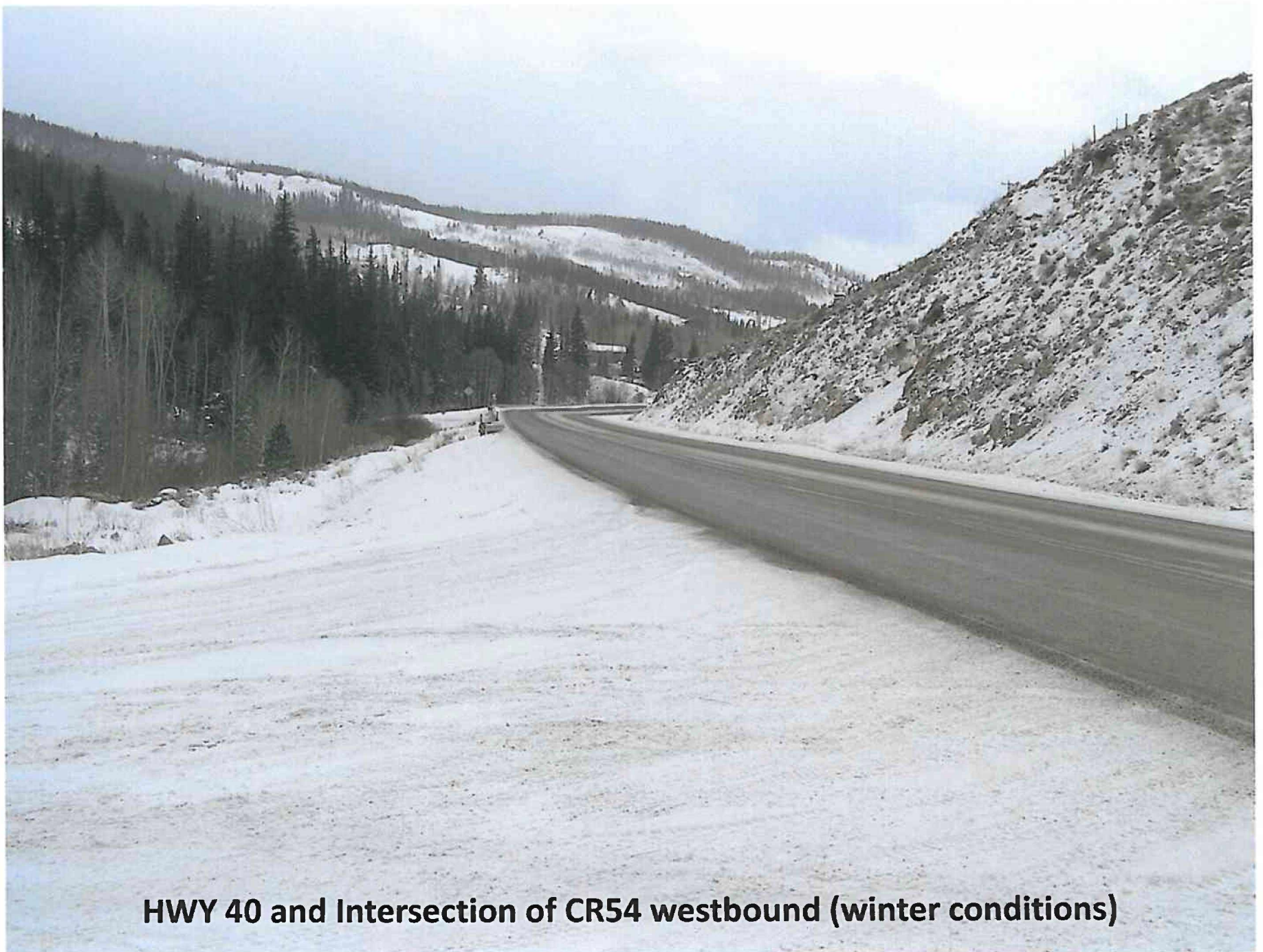
HWY 40 at the intersection of CR54 looking eastbound



HWY 40 at intersection of CR54 facing west (winter conditions)



HWY 40 at intersection of CR54 southbound (winter conditions)



HWY 40 and Intersection of CR54 westbound (winter conditions)

Grand County Road & Bridge

CDOT Region 3 Intersection Analysis and Prioritization

County Road 1

Priority #3

Region 3 Intersection Analysis and Prioritization
Intersection Application

Requesting Agency

Agency Name	Grand County
Contact Person	Ken Haynes
Title	Road & Bridge Superintendent
Email	khaynes@co.grand.co.us
Phone Number	970-887-2123
Mailing Address	467 E. Topaz Ave P O Box 9 Granby, CO 80446

Intersection Location

Highway (example, US 50)	Colorado HWY 9		
Highway Milepost	MM137		
Local Cross Street name	County Road 1 (AKA Trough Road)		
Is the Cross Street (check one)	Public ROW XXX	Private Drive	Other

DEPARTMENT OF TRANSPORTATION
Traffic & Safety Section

Intersection Information

Type of Intersection (check one)	Signal	Minor St Stop XXX	All Way Stop	Other:
Nearby Driveways	Yes: Distance between intersections:			No
Traffic Mix (check all that apply)	Trucks XXX	Pedestrians	Bicycles XXX	Other:
Intersection Issues	Please describe the types of safety or operational issues at the intersection.			
Safety Issues:	When exiting from CR1 to HWY 9, there is a limited site distance to the North and South. Highway speed at this intersection is 55MPH. Logging trucks, rafting and oversized Recreational vehicle traffic are common at this intersection. These types of slow acceleration vehicles pose a safety threat to the oncoming HWY 9 traffic due to the limited site distance. These vehicle types cannot accelerate to highway speeds safely with out the risk of impeding the HWY 9 through traffic. Site distance is			
Operational Issues:	impaired South of CR1 because of a rise and site distance is impaired North of CR1 because of a cut bank and curve.			

Intersection Deficiencies

Please provide a brief description of the existing intersection deficiencies and associated safety concerns, including time of the concerns (day of the week/hour(s)/seasons/time/weekday/weekend/holiday/etc):

The issues with the intersection of Grand County Road 1 (CR1 / Trough Road) and HWY 9 traffic are many, including but not limited to the points listed below:

- 1) Traffic entering North or Southbound traffic flow on HWY 9 from CR1 is impaired due to the lack of site distance caused by topography. Southbound traffic on HWY 9 is on top of you before you know it.
- 2) During adverse weather conditions which are common to our County, acceleration onto HWY 9 can be slow due to the adverse road condition.
- 3) Highway speeds on HWY 9 are 55mph at this intersection and with the limited site distance, a safety hazard is present.
- 4) No acceleration or de-acceleration lanes are present on HWY 9 at this intersection.
- 5) Traffic Count data collected by Grand County on CR1 at this intersection in July of 2010 was 755ADT. Data collected on CR1 at this intersection in June of 2010 was 329. As indicated by these traffic counts, during the summer months traffic increases due to the recreational opportunities located on CR1.
- 6) CR1 is used by traffic as a bypass route when Interstate 70 is closed due to adverse weather conditions. Also, it is used as a cut across route for traffic traveling to Glenwood Springs by reducing traveling time by 30 minutes.
- 7) CR1 is used by recreationalist, logging trucks and the general public on a daily basis.

DEPARTMENT OF TRANSPORTATION

Traffic & Safety Section

Mitigation

Please provide a brief description of possible mitigations, improvements, and/or projects to mitigate the safety concerns at the intersection:

The best mitigation practice for this intersection would be to widen HWY 9 at this intersection and lower the road alignment to allow for an acceleration lane and a de-acceleration lane and better line of sight.

This can be achieved by removing dirt from the east side of HWY9 at the intersection of CR1 and widening the highway to accommodate for the accel and decel lanes. Also, by lowering the current elevation of HWY 9 would allow for a better line of sight for southbound traffic on HWY 9.

Our records indicate that CDOT possesses an adequate amount of ROW is present to accomplish this.

Grand County is aware of the BLM historical site located on the west side of HWY 9 at CR1 and feel the only option for CDOT would be to expand the roadway to the east.

Please see Google Earth Street View for a more detailed view of the intersection.

Are there any existing plans for improvements for this intersection? Yes/No. If yes, please explain:

Unknown

Are any additional funding sources available for this project: Yes/No. If yes, please explain:

Unknown

Does this intersection have impacts to adjacent intersections, roadways, etc? If yes, please explain:

No

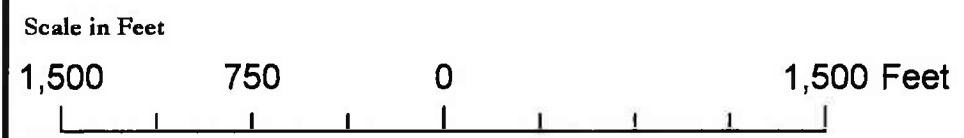
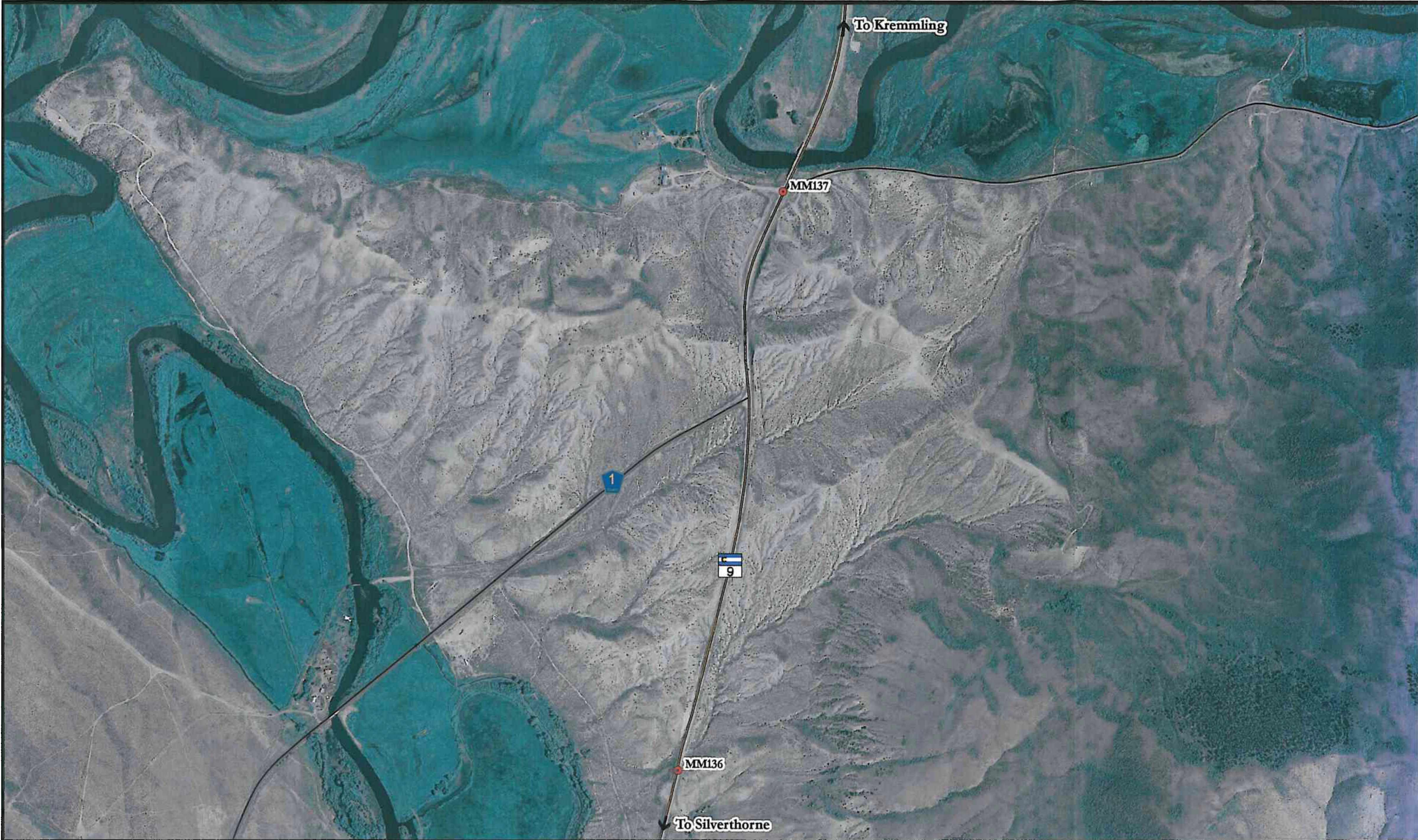
DEPARTMENT OF TRANSPORTATION

Traffic & Safety Section

Additional Information

To assist in analyzing the intersection please attach the following information if available/applicable:

- Accident data, including police reports if available
- Traffic Volumes, such as AADT/ADT, peak hour volumes, peak hour turning movement counts
- Traffic Studies
- Pedestrian Counts
- Bicycle Counts
- Existing signal timing or Synchro files
- Existing construction plans
- Survey data
- Aerial photos
- Photographs of the intersection
- Right of Way maps
- Any other data/documentation to assist in analyzing the intersection



County Road 1 & Hwy 9



Image Data from USDA
 National Agriculture Imagery
 Program (NAIP) 1 Meter mosaic
 in MrSID Gen 3,
 UTM Zone 13 N, NAD 83
 Aerial Photography
 Summer 2009

Scale: 1:25,000
Projection: UTM Zone 13 N, NAD 83
Units: Meters
Source: USDA National Agriculture Imagery Program (NAIP) Summer 2009
Author: Grand County GIS Department
Version: 1.0
Keywords: County Road 1, Hwy 9, MM136, MM137, Grand County, Colorado

Future Traffic Volumes for Highway 009D From RefPoint 120 To RefPoint 140

Route	Ref Point	End Ref Point	Start Point Description	AADT	AADTYR	AADT Single Trucks	AADT Comb. Trucks	Design Hour Volume (% of AADT)	AADT 2011	AADT Single Trucks 2011	AADT Comb. Trucks 2011
009D	126.042	136.608	ON SH 9 S/O CR 1	2,800	2009	120	230	14	2,971	127	244
009D	136.608	138.237	ON SH 9 N/O CR 1	3,500	2009	160	220	12	3,714	170	233
009D	138.237	138.633	ON SH 9, 6TH ST E/O 13TH ST, CR 396, KREMMLING	3,500	2009	130	220	12	3,672	136	231
009D	138.633	138.920	ON SH 9, 6TH ST S/O SH 40, PARK AVE, KREMMLING	3,900	2009	170	200	12	4,083	178	209

If you notice an error, bug or have any questions, Please [E-mail us](#).

Traffic Counts
Highway 009D, RefPoint 126.042, Station 100524
for October, 2005

Primary Direction (North)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
10/04/05	Tue	5	1	4	9	4	22	41	97	77	81	91	85	95	90	78	91	135	121	102	39	35	27	10	8	1348
10/05/05	Wed	3	4	5	6	8	13	39	81	68	78	63	81	76	109	78	97	111	130	109	66	37	40	23	13	1338

Secondary Direction (South)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
10/04/05	Tue	7	5	1	7	18	54	75	89	93	89	111	96	92	111	103	111	121	95	72	41	17	9	6	3	1426
10/05/05	Wed	4	5	7	7	20	48	71	81	95	81	79	118	83	93	95	99	115	92	79	55	33	21	11	5	1397

Composite Direction (North and South)

		Hour																								
Date	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
10/04/05	Tue	12	6	5	16	22	76	116	186	170	170	202	181	187	201	181	202	256	216	174	80	52	36	16	11	2774
10/05/05	Wed	7	9	12	13	28	61	110	162	163	159	142	199	159	202	173	196	226	222	188	121	70	61	34	18	2735

Vehicle General Flow Report - Grand Totals

Average Daily Traffic (ADT)

<u>Weekday</u>		<u>Weekend</u>		<u>Total ADT</u>	
Cars :	455 (83%)	Cars :	363 (81%)	Cars :	429 (82%)
Trucks :	91 (17%)	Trucks :	83 (19%)	Trucks :	88 (18%)
Total :	546	Total :	446	Total :	518

Speed Totals

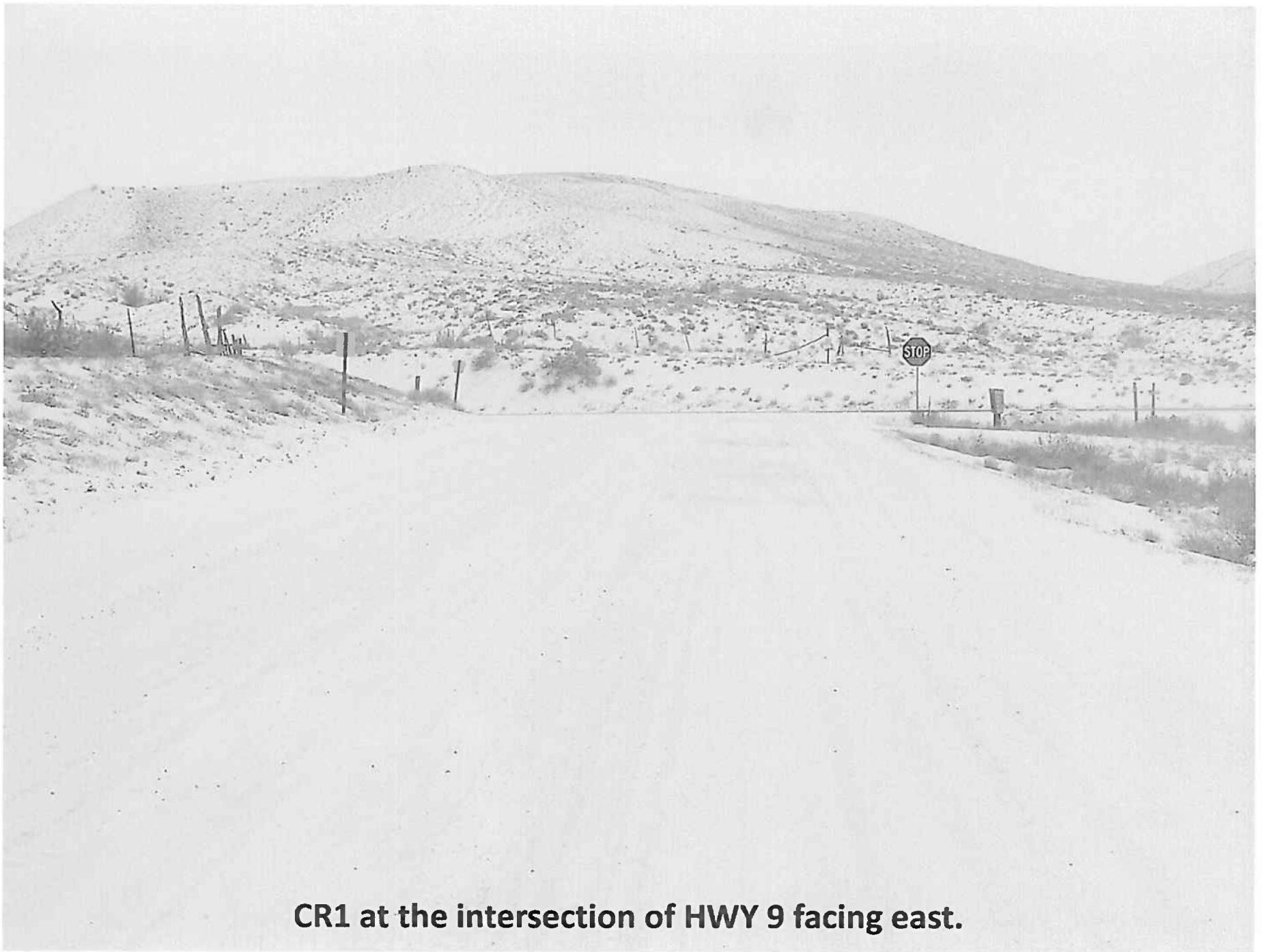
50 % : 41.9 mph	Top Speed : 114.7 mph	Average Truck Speed : 42.6 mph
85 % : 50.7 mph	Low Speed : 2.7 mph	Average Car Speed : 42.3 mph
Avg : 42.4 mph		

Peak Hour Totals

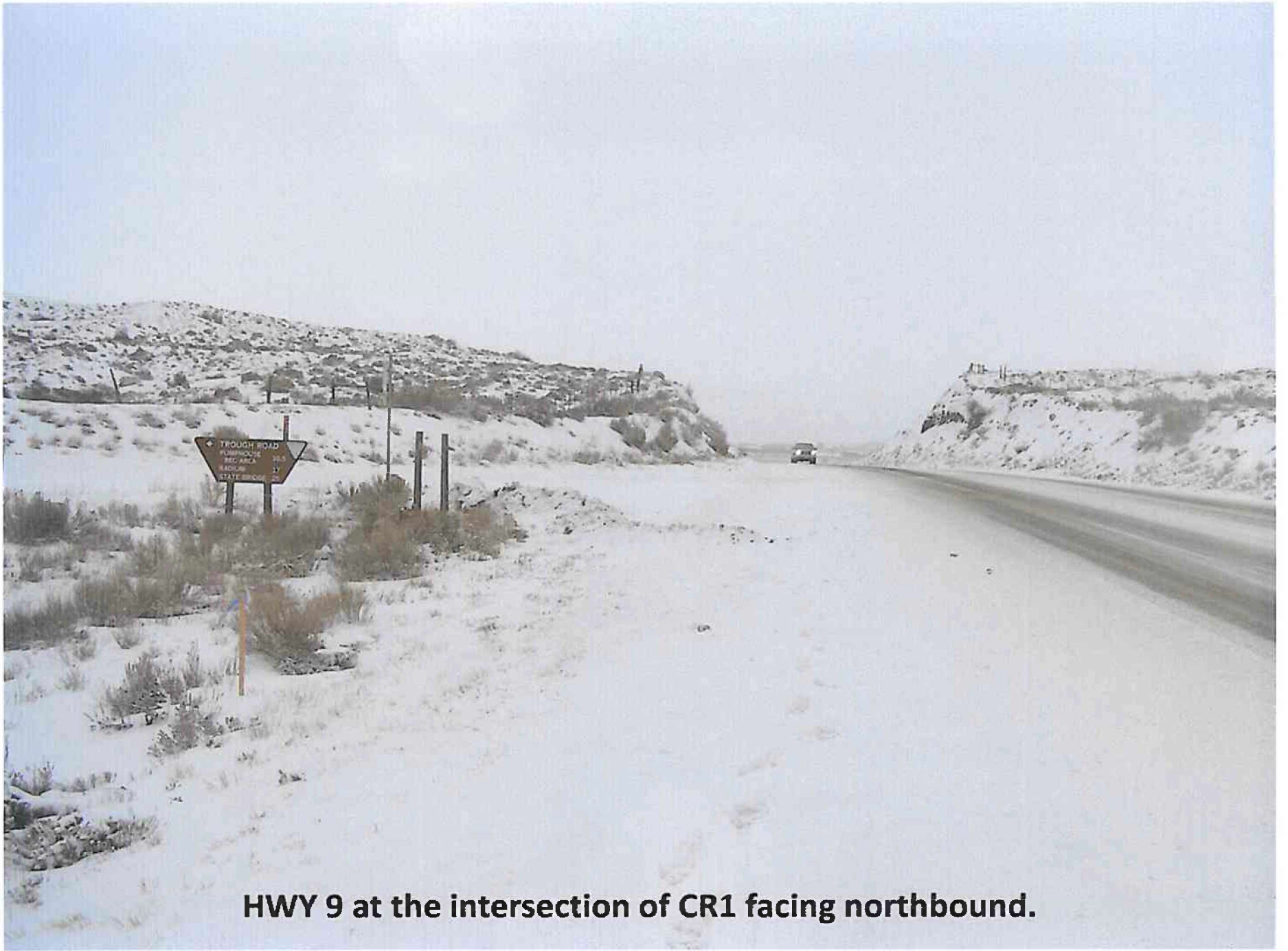
<u>AM Peak Hour (Volume)</u> Weekday : 10:00 - 11:00 (Avg 35) Weekend : 10:45 - 11:45 (Avg 35)	<u>AM Peak Hour (Speed)</u> 00:30 - 01:30 (44.0 mph) 01:15 - 02:15 (55.5 mph)
<u>PM Peak Hour (Volume)</u> Weekday : 12:15 - 13:15 (Avg 113) Weekend : 14:30 - 15:30 (Avg 40)	<u>PM Peak Hour (Speed)</u> 12:30 - 13:30 (57.9 mph) 15:45 - 16:45 (43.0 mph)

Grand Totals

Total Cars : 9011 (429 ADT)	Average Length : 16.0 ft	Average Headway : 152.0 sec
Total Trucks : 1867 (88 ADT)	Average Axles : 5.0	Average Gap : -700.5 sec
Total Volume : 10878 (518 ADT)		



CR1 at the intersection of HWY 9 facing east.



HWY 9 at the intersection of CR1 facing northbound.



HWY 9 at the intersection of CR1 facing southbound.



HWY 9 at the intersection of CR1 facing west.