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The Town of Eagle Public Works Department 1050 Chambers Avenue Eagle Colorado
(970)328-6678 office (970)328-6066 fax

MEMO

Date: March 8, 2012
To: Town Board of Trustees
Cc: William Powell, Town Manager
Tom Boni, Town Planner
From: Tom Gosiorowski, PE, Town Engineer
Re: Eagle River Station Staged Traffic Analysis

The Eagle River Station applicant has asked that any approval of the development be provisioned to allow the construction of two elements of infrastructure to be delayed for some period of time – the western roundabout accessing the project from Highway 6, and the ECO trail connecting from Nogal Gulch through the project site.

The previous traffic analyses submitted with the application did not examine a delay of the western roundabout construction as is now being proposed. I asked the applicant to have their traffic engineer prepare an additional analysis (attached to this memo) that would determine the amount of development that could be built and occupied before traffic levels of service would degrade below existing conditions or be newly caused to drop below the Level of Service (LOS) C required by the Town's Adequate Public Facilities (APF) code. The conclusion of this additional analysis is that up to 300,000 square feet of commercial space and 250 residential units can be occupied before traffic conditions would fail these criteria. I have reviewed this analysis and concluded that it is properly prepared and accurate.

Additionally, I suggested to the applicant that the Town might be most interested in seeing the initial stage of the development be entirely commercial space with no residential units. During discussion with the applicant's traffic engineer we calculated that up to 330,000 square feet of commercial space with no residential units would also be acceptable. It is my recommendation that this possibility also be provided for in the development agreement should the Town Board agree to any delay in construction of the western roundabout.

With respect to a delay in construction of the ECO trail, the Planning Commission recommended that this trail be constructed with Phase I of the project, and a delay conditioned similarly to the western roundabout would allow this condition to be met. Prior to construction of the ECO trail, pedestrians traveling to/from the Eagle River Station site would be able to utilize the sidewalks along Chambers Avenue (these sidewalks will be constructed prior to occupancy of any building at Eagle River Station).

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My recommendation is that any delay of the western roundabout and ECO trail should be conditioned upon three triggers for construction of these improvements:

1) The western roundabout and ECO Trail shall be constructed prior to the occupied portion of the development exceeding a combination of 300,000 square feet of commercial space and 250 residential dwelling units.
2) The western roundabout and ECO Trail shall be constructed prior to the occupied portion of the development exceeding 330,000 square feet of commercial space with no occupied residential units.
3) In any event, the western roundabout and ECO Trail shall be constructed within three years after the first Temporary Certificate of Occupancy is issued within the Eagle River Station project.

This final condition is included so that there will be a clear expectation as to the absolute latest that the western roundabout and ECO Trail would be constructed.

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LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
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March 6, 2012

Mr. Jeff McMahon
RED Development, LLC
4717 Central
Kansas City, MO 64112

RE: Eagle River Station
Modified Phase 1 - Scenario 3
(LSC #110150)

Dear Mr. McMahon:

In response to your request, LSC Transportation Consultants, Inc. has prepared this memorandum for the proposed Eagle River Station. As shown on Figure 1, the site is located between I-70 and US Highway (US) 6 on the east side of Eagle, Colorado.

REPORT CONTENTS

This memorandum shows the reduction in Phase 1 land use that results in overall level of service (LOS) C or better along the Eby Creek corridor south of I-70 assuming Access Scenario 3. Scenario 3 assumes the construction of the East Eagle Interchange and the connector road south to US 6. Chambers Road would be extended through the site to the new connector road but would not have an intersection with US 6.

PROPOSED LAND USE

The May 3, 2011 *Eagle River Station Update* report by LSC assumed Phase 1 as 582,500 square feet of shopping center and 250 residential condo/townhome units. The Phase 1 analysis of Access Scenario 3 predicted the Eby Creek/Chambers Avenue intersection would degrade from LOS C to LOS D with the addition of Phase 1 traffic. This memorandum shows that reducing Phase 1 to 300,000 square feet of shopping center and 250 residential condo/townhome units would result in the LOS C being maintained. It is estimated that building the full Phase 1 from the May 3, 2011 report would require the second connection to US 6 via Chambers Road to maintain LOS C at the Eby Creek/Chambers Avenue intersection. This additional connection plus the improvements in Scenario 3 are the same improvements as was assumed in Scenario 4 from the May 3, 2011 report.

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EXISTING CONDITIONS

Figure 2 shows the estimated 2011 traffic volumes while Figure 3 shows the existing traffic control for the area intersections. The 2011 traffic volumes are based on 2008 traffic counts and estimates used in the *East Eagle Interchange Access Request*. Review of data from the Automatic Traffic Recorder located on I-70 near Gypsum indicated little change in traffic volumes since 2008. The existing traffic volumes were reassigned for Access Scenario 3.

TRIP GENERATION

Table 1 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the reduced Phase 1 for the proposed site, based on the rates from *Trip Generation*, 8th Edition, 2008 by the Institute of Transportation Engineers (ITE).

The reduced Phase 1 of the site is projected to generate about 15,320 vehicle-trips on the average weekday. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 198 vehicles would enter and about 206 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 738 vehicles would enter and about 720 vehicles would exit the site.

PROJECTED LEVELS OF SERVICE

Table 2 shows the existing levels of service as well as the projected levels of service with the addition of the trips from the reduced Phase 1 land use for the site. The following is a summary of the impacts:

- Eby Creek Road/I-70 WB Ramps - the impact to this intersection is to increase the overall delay per vehicle of the intersection by 1.5 seconds from 37.5 seconds to 39.0 seconds in the afternoon peak-hour. Both values are within the LOS D range. This intersection is proposed to be improved with a roundabout in the near future.

- Eby Creek Road/I-70 EB Ramps - the impact to this intersection is to decrease the average delay per vehicle on the stop controlled eastbound approach from 124.7 seconds to 107.5 seconds. Both values are in the LOS F range. This intersection is proposed to be improved with a roundabout in the near future.

- Eby Creek Road/Chambers Avenue - the impact to this intersection is to increase the overall delay per vehicle of the intersection from 24.0 seconds to 34.9 seconds in the afternoon peak-hour. Both values are within the LOS C range. The May 3, 2011 report estimated that the full Phase 1 of the site would degrade this intersection to LOS D in the afternoon peak-hour.

- The intersections of Eby Creek Road/US 6, I-70 WB Ramps/Connector Road A, I-70 EB Ramps/Connector Road A, and US 6/Connector Road A were all estimated to operate at LOS C or better with the full Phase 1 land use assumed in the May 3, 2011 report. The reduced Phase 1 assumed in this memorandum will result in the short-term level of service improving slightly at each of these intersections. The values shown in Table 2 for these intersections reflect the findings of the May 3, 2011 report.

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CONCLUSIONS

Scenario 3 assumes construction of the East Eagle Interchange and the Connector Road south to US Highway 6. Chambers Road would be extended east through the site to the new connector road but would not have an intersection with US Highway 6. This scenario is considered acceptable for the reduced Phase 1 land use plan.

The new intersection of the Connector Road with US Highway 6 would function acceptably with a single-lane roundabout.

Land use beyond the 300,000 square feet of shopping center and 250 residential condo/townhome units will likely require the second connection to US 6 via Chambers Road as was assumed in the May 3, 2011 report in Scenario 4. This second connection would also be constructed as a single-lane roundabout.

* * * * *

We trust this memorandum will assist you in your planning efforts for the Eagle River Station. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

COLORADO LICENSED
CHRISTOPHER S. McGRANAHAN
39018
PROFESSIONAL ENGINEER

By _____
Christopher S. McGranahan, PE, PTOE
Associate

3-6-12

CSM/wc

Enclosures: Tables 1 and 2
Figures 1 - 5

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Table 1
Eagle River Station
Trip Generation Estimate

Land Use Code	Land Use Description	Trip Generation Units		Trip Generation Rates (1) Average Weekday Traffic	Morning Peak-Hour In	Morning Peak-Hour Out	Afternoon Peak-Hour In	Afternoon Peak-Hour Out	Total Trips Generated Average Weekday Traffic	Morning Peak-Hour In	Morning Peak-Hour Out	Afternoon Peak-Hour In	Afternoon Peak-Hour Out
Phase 1 - Modified													
230	Residential Condominium/Townhouse	250	DU(2)	5.81	0.075	0.365	0.348	0.172	1,453	19	91	87	43
820	Shopping Center	300	KSF(3)	46.23	0.599	0.383	2.169	2.258	13,870	180	115	651	677
								Total =	**15,322**	**198**	**206**	**738**	**720**

Notes:
(1) Source: Based on *Trip Generation* , 8th Edition, 2008 by ITE
(2) DU = Dwelling Units
(3) KSF = 1,000 square feet

Source: LSC Transportation Consultants, Inc.

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Table 2
Intersection Level of Service
2011 Existing Traffic and 2014 Background Plus Modified Phase 1 of Site
Eagle River Station
(LSC #110150; March, 2012)

Traffic Control	Intersection Location	Year 2011 Existing Traffic Level of Service AM	Year 2011 Existing Traffic Level of Service PM	Year 2014 Scenario 3[3] Total Traffic Level of Service AM	Year 2014 Scenario 3[3] Total Traffic Level of Service PM
Signalized[1]	Eby Creek Road/I-70 WB Ramp				
	Entire Intersection Delay (sec /veh)	15.4	37.5	17.7	39.0
	Entire Intersection LOS	B	D	B	D
Unsignalized[1]	Eby Creek Road/I-70 EB Ramp				
	Southbound Left	B	A	B	B
	Eastbound Left/Through	F	F	C	F
	Critical Movement Delay(sec /veh)	74.3	124.7	19.0	107.5
Signalized[1]	**Mitigated**				
	Eby Creek Road/I-70 EB Ramp				
	Entire Intersection Delay (sec /veh)				9.9
	Entire Intersection LOS				A
Signalized[1]	Eby Creek Road/Chambers Ave.				
	Entire Intersection Delay (sec /veh)	17.9	24.0	24.2	34.9
	Entire Intersection LOS	B	C	C	C
Roundabout[2] [4]	US 6/Eby Creek Road				
	Entire Intersection Delay (sec /veh)	7.1	5.6	18.1	13.8
	Entire Intersection LOS	A	A	C	B
		(1 Lane) Modified	(1 Lane) Modified	(1 Lane) Modified	(1 Lane) Modified
Roundabout[2] [4] (2 Lane)	I-70 WB Ramp/Road A				
	Entire Intersection Delay (sec /veh)	–	–	2.4	4.2
	Entire Intersection LOS	–	–	A	A
Roundabout[2] [4] (2 Lane)	I-70 EB Ramp/Road A				
	Entire Intersection Delay (sec /veh)	–	–	2.0	2.8
	Entire Intersection LOS	–	–	A	A
Roundabout[2] (1 Lane)	US 6/Road A				
	Entire Intersection Delay (sec /veh)	–	–	A	A
	Entire Intersection LOS	–	–	6.1	7.3

(1) - Based on *Highway Capacity Manual* (Synchro Version 6.0)
(2) - Based on Rodel software
(3) - With East Eagle Interchange and Road A connection to US 6
(4) - Results are from the May 3, 2011 report by LSC. The impacts of a reduced Phase I is expected to improve operations slightly at each of these intersections.

Approximate Scale
Scale: 1" = 2,000'

Figure 1

Vicinity Map

Eagle River Station (LSC# 110150)

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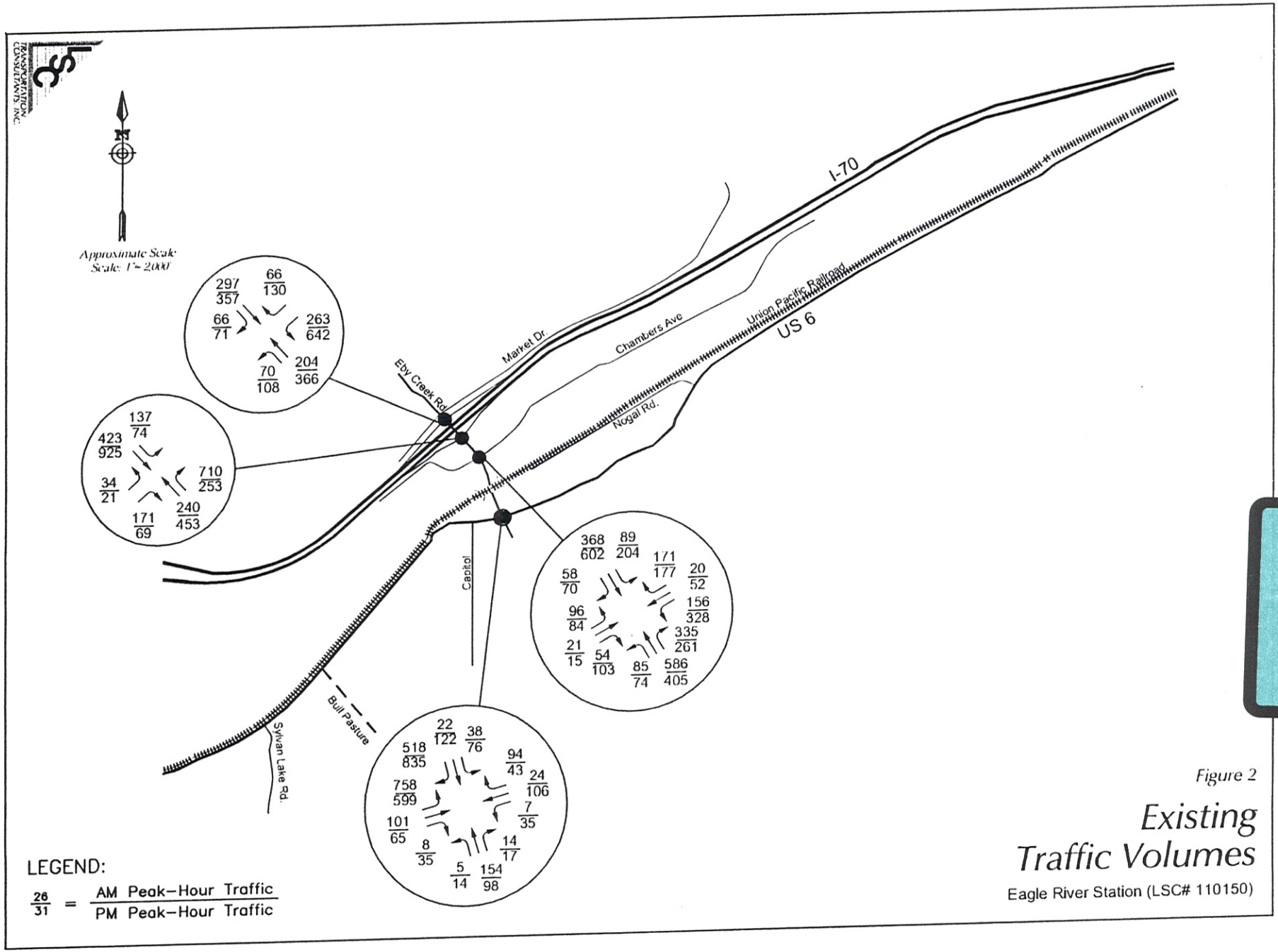

Figure 2

Existing Traffic Volumes

Eagle River Station (LSC# 110150)

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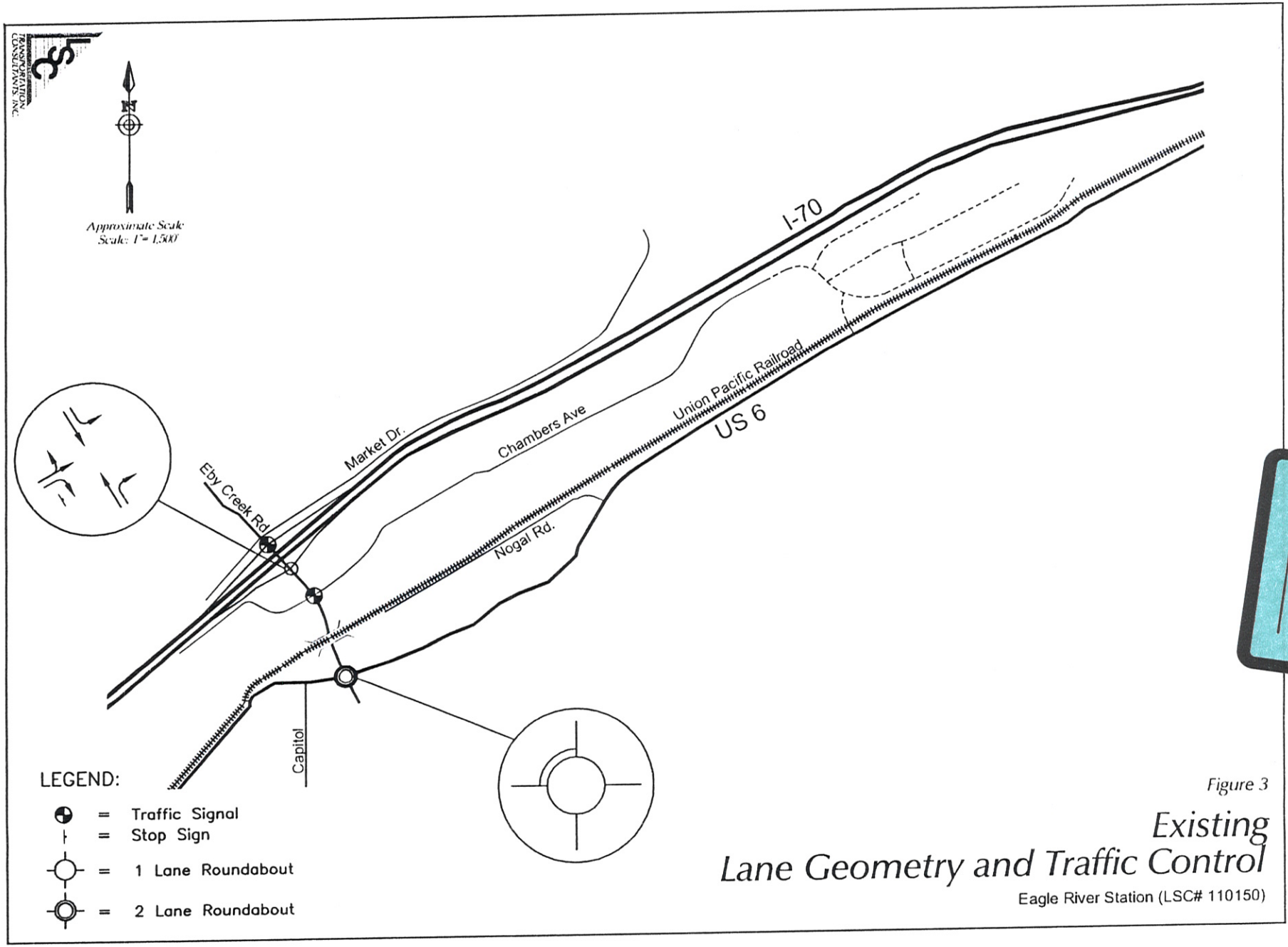

Figure 3

Existing Lane Geometry and Traffic Control

Eagle River Station (LSC# 110150)

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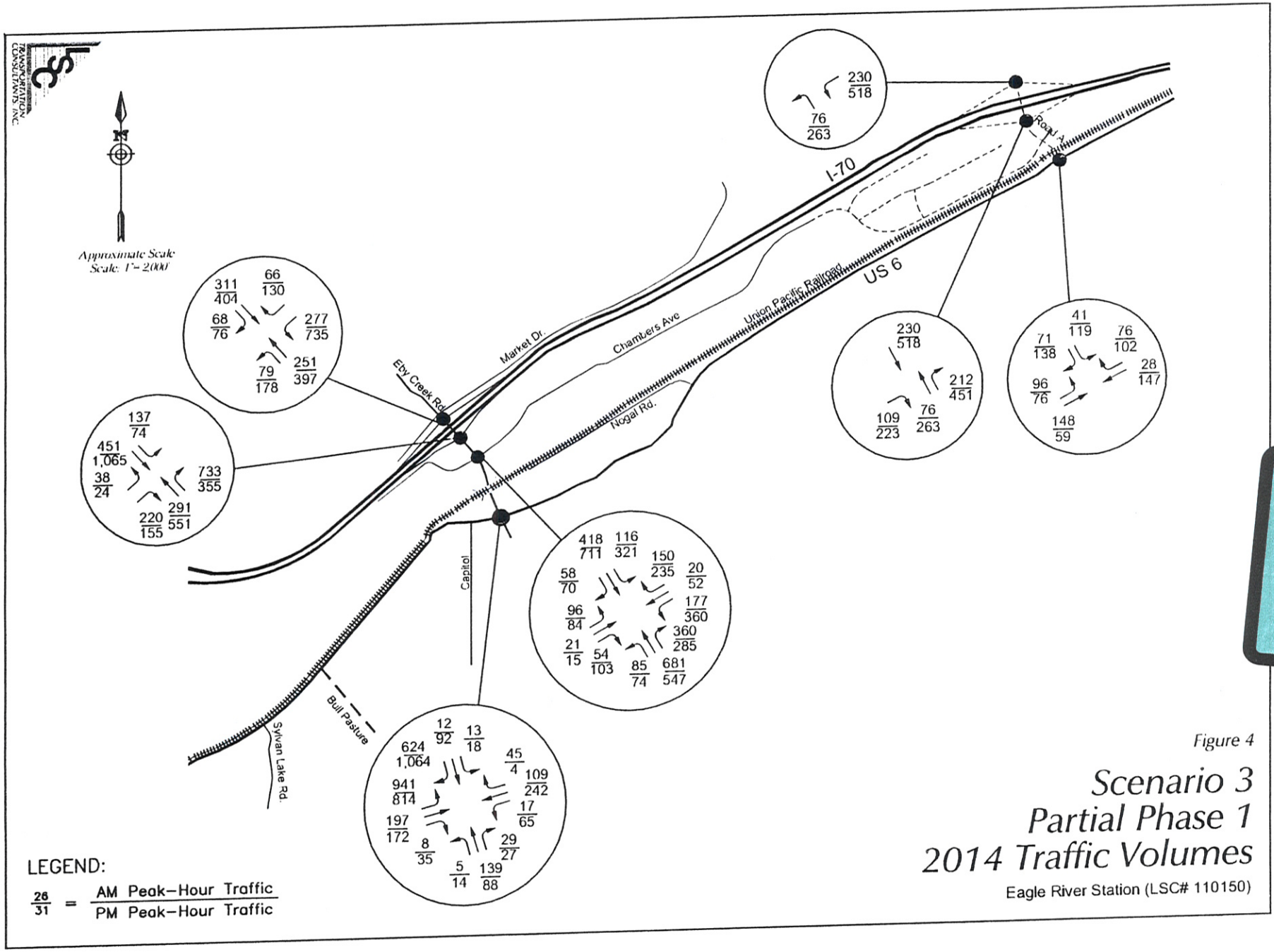

Figure 4

Scenario 3
Partial Phase 1
2014 Traffic Volumes

Eagle River Station (LSC# 110150)

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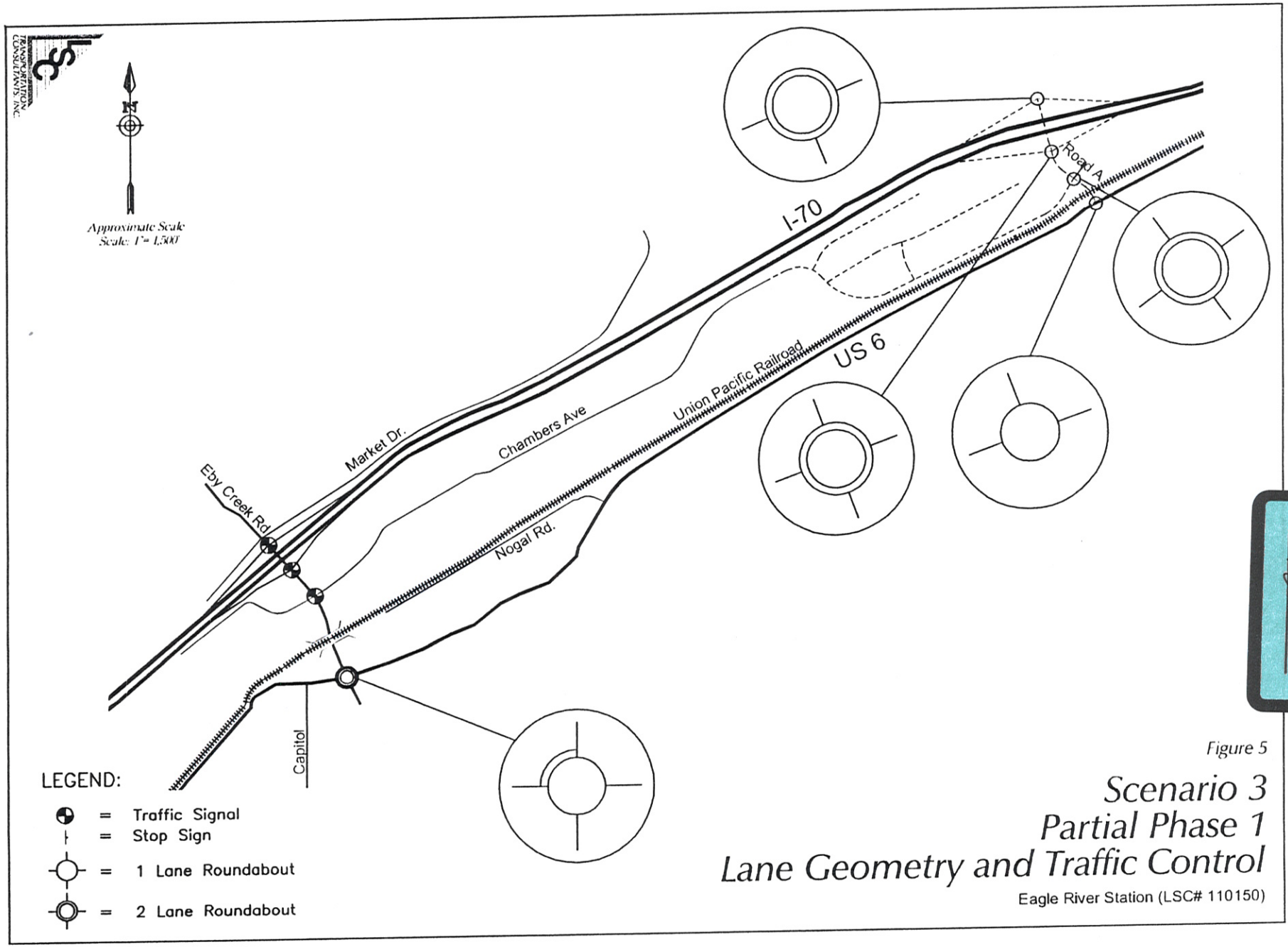

Figure 5

Scenario 3
Partial Phase 1
Lane Geometry and Traffic Control

Eagle River Station (LSC# 110150)