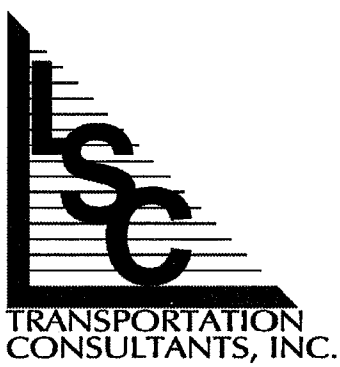
# TRAFFIC IMPACT ANALYSIS

# EAGLE RIVER STATION

## EAGLE, COLORADO



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TRANSPORTATION
CONSULTANTS, INC.

April 4, 2008

Mr. Michael Hans
Red Development
4717 Central
Kansas City, MO 64112

Re: Eagle River Station
Eagle, Colorado
(LSC #060831)

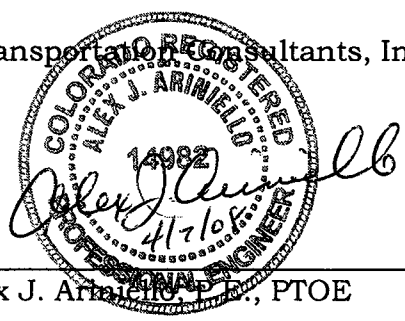
Dear Mr. Hans:

We are pleased to submit our revised Traffic Impact Study for the proposed Eagle River Station development located in Eagle, Colorado. This revision supersedes our November 30, 2007 Traffic Impact Study and incorporates additional comments received from the Town staff. This study first provides a summary of the existing roadways and traffic volumes in the vicinity of the proposed development and a summary of planned improvements to the roadway system. Next, estimates are made of the amount and directional distribution of vehicular traffic likely to be generated. This information is then combined with projected future traffic volumes in the vicinity to evaluate the impact of the new development on the future roadway system and, where appropriate, to make recommendations for the required roadway improvements.

We trust that our findings and recommendations will assist in the planning for the proposed Eagle River Station development. Please call us if we can be of further assistance.

Respectfully submitted,

LSC Transportation Consultants, Inc.




By: _____
Alex J. Ariniello, P.E., PTOE

AJA/wc

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**Traffic Impact Analysis**

# Eagle River Station

**Eagle, Colorado**

Prepared for

Red Development
4717 Central
Kansas City, MO 64112

Prepared by

LSC Transportation Consultants, Inc.
1889 York Street
Denver, CO 80206
(303) 333-1105

April 4, 2008
(LSC #060831)

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# SECTION A
# Introduction

The Eagle River Station development is located in the Town of Eagle, Eagle County, Colorado, about one mile east of the I-70/Eby Creek Road interchange. Eagle River Station is currently planned as a mixed-use development of 581 dwelling units, a 150-room hotel, a private school, and 649,000 square feet of commercial space situated north of the Eagle River and south of I-70.

LSC Transportation Consultants, Inc. has been retained by the developer, Red Development, to evaluate the traffic implications of the proposed development on the surrounding roadway system and the Level of Service standards set forth in the Town's adequate public facilities regulations. This report summarizes the following analysis procedures which were utilized in the evaluation:

- A review and analysis of present roadway and traffic conditions in the vicinity of the site and a review of planned and proposed roadway improvements in the general vicinity.
- A determination of the average weekday and peak-hour vehicle-trip generation for the proposed development.
- An analysis of the estimated directional distribution of site-generated traffic and an assignment of that traffic to the adjacent street network.
- A determination of the future traffic volumes in the vicinity of the site.
- An evaluation of the impacts of site-generated traffic expressed in terms of the Eagle River Station's traffic as an increment of total projected traffic on the surrounding roadway system and the resulting Levels of Service on the adjacent major roadways and intersections.
- A determination of appropriate roadway standards and improvements which will ensure optimum traffic operation for traffic entering and exiting the site.

This roadway network will accommodate all of the traffic generated by the proposed Eagle River Station development, at Levels of Service that meet or exceed the requirements outlined in the *Town of Eagle Adequate Public Facilities Regulations*.

## SECTION B
# Roadway and Traffic Conditions

The location of the Eagle River Station development is shown in Figure 1, which shows the regional area, and Figure 2, which shows the local vicinity. The site is within a tract of land located in the US 6 Corridor north of the Eagle River and south of I-70 within the Town of Eagle. It is situated about one mile south and east of the I-70/Eby Creek Road interchange. Access to the development will be provided by Chambers Avenue and US 6 along with a new road connecting US 6 with a new interchange on I-70.

### Area Roadways

Major roadways in the vicinity of the site are described below with a brief discussion of anticipated future roadway improvements.

- I-70: This is a four-lane freeway facility constructed to interstate standards. It provides the main highway link between the western slope of Colorado and the Urbanized Front Range. It also provides a high speed connection between the Town of Eagle and the employment and recreation areas of Eagle County such as Avon, Beaver Creek, Eagle Vail and Vail. The Colorado Department of Transportation (CDOT) has designated the I-70 corridor as a *State Significant Corridor* in the recently adopted *Colorado 2030 Transportation Plan.* The Town of Eagle has access to I-70 via Interchange No. 147 (Eby Creek Road), which is a full-diamond interchange. I-70 is posted at 75 mph. CDOT plans a new interchange between Eagle and Gypsum to serve the Eagle County Airport. A new interchange is proposed on I-70 about 1.8 miles east of the Eby Creek Road interchange. CDOT conditionally approved the location of this interchange on I-70 in late 2006.

- US 6: This is a two-lane state highway which used to be the primary route connecting Denver with Grand Junction until I-70 was built. With the construction of I-70, US 6 has become a frontage road in many places. It provides access between many local activity centers and I-70. In the vicinity of Eagle River Station, US 6 connects the Town of Eagle with Wolcott on the east and with the Eagle County Airport and Gypsum on the west. The roadway is classified as a non-rural arterial (NR-B) according to the *Colorado State Highway Access Code* and has been constructed as a two-lane roadway with paved shoulders within the Town. About ½ mile east of Eby Creek Road, the classification changes to rural arterial (RA) as US 6 heads east to Wolcott. US 6 is posted at 35 mph through the Town of Eagle and at 55 mph east of the Town limits.

- Eby Creek Road is the only north-south roadway in the area. It begins on the south at US 6 and continues in a northerly direction past Market Drive. It is a two-lane arterial roadway with auxiliary traffic lanes at its intersections with Chambers Avenue and the two I-70 ramp intersections as well as at Market Drive. Two intersections, I-70 westbound on/off-ramp and Chambers Avenue, are controlled by traffic signals. The intersection with the I-70 eastbound on/off-ramp is controlled by a Stop sign on the ramp. The intersection with US 6 is controlled by a roundabout.

- Chambers Avenue begins at Eby Creek Road and runs in an easterly direction for approximately one mile. This roadway serves the commercial development located between I-70 on the north and US 6 on the south. Traffic desiring to visit the businesses along Chambers Avenue must do so by way of the Eby Creek Road/Chambers Avenue intersection which is controlled by a traffic signal. As a part of the proposed development, Chambers Avenue will be extended to the east and then south until it meets up with US 6, approximately 1.75 miles east of Nogal Road.

- Road A will be built as a part of the proposed development. This roadway will provide access between the proposed East Eagle interchange with I-70 and US 6 on the south. Four roundabouts are proposed along this roadway at the I-70 westbound off ramp, I-70 eastbound off ramp, Road C, and US 6.

- Road C will be built as a part of the proposed development. This roadway will begin at the extension of Chambers Avenue and extend in an easterly direction until it reaches Road A. This access will be controlled by a roundabout.

## Transit Network

The Eagle-Gypsum area is served by the Eagle County Transit Authority. This service provides residents of the Town of Eagle with access to jobs in Avon, Edwards, Beaver Creek, and Vail as well as the recreational opportunities in Eagle County. Figure 3 depicts this bus network for the Eagle area.

## Bicycle Network

There are no dedicated bicycle paths in the area. However, bicyclists use US 6 as their primary route, rather than I-70, for traveling along the corridor. For the most part, bicyclists do not use I-70 even though bicycle use is permitted.

## Pedestrian Network

There are limited pedestrian amenities in the study area. Sidewalks do not exist along any part of US 6. Pedestrians must walk on the shoulder of US 6. West of Eby Creek

Road, the shoulder is sufficient for pedestrians to walk without being too close to the travel way. The situation is worse east of Eby Creek Road. The roadway is very narrow and there is a two-foot shoulder on either side until one reaches the bridge over the Eagle River. Once one gets past the Eagle River Bridge, the roadway opens up where there is more room for pedestrians to walk, but the amount of room is still not considered to be adequate.

For Eby Creek, a pedestrian bridge over the Eagle River does exist, but there is a missing section of sidewalk under the railroad bridge south of Chambers Avenue. The Eby Creek Road Bridge over I-70 does not have any sidewalks on either side of the bridge. There are no sidewalks on either side of Eby Creek Road from US 6 to Market Drive.

## Existing Traffic Conditions

Figure 4 illustrates the estimated average weekday traffic volumes and Figure 5 illustrates peak-hour traffic volumes in the general vicinity of the proposed development. These volumes are based upon Summer 2006 counts conducted by Counter Measures, Inc. Printouts of the 2006 counts are included in Appendix A.

## Existing Traffic Operations

Peak-hour Level of Service analysis was performed for the six intersections where peak-hour traffic counts were collected. Table 1 presents the results of this analysis. Of the six intersections analyzed, only three intersections currently experience operations issues: the intersections of Eby Creek Road/I-70 westbound off-ramp, Eby Creek Road/ I-70 eastbound on/off-ramp (left-turn movement), and US 6/Eby Creek Road (south-bound approach). The I-70 westbound off-ramp develops a queue due to heavy left-turning volumes. This queue occasionally extends to the I-70 mainline. In the case of Eby Creek Road/I-70 eastbound on/off-ramp, the poor performance is primarily due to the fact that this intersection is unsignalized and high levels of traffic on Eby Creek Road do not provide adequate gaps for traffic desiring to turn left onto Eby Creek Road. In the case of US 6/Eby Creek Road, the poor performance of the southbound approach is due to the high volume of right-turning vehicles.

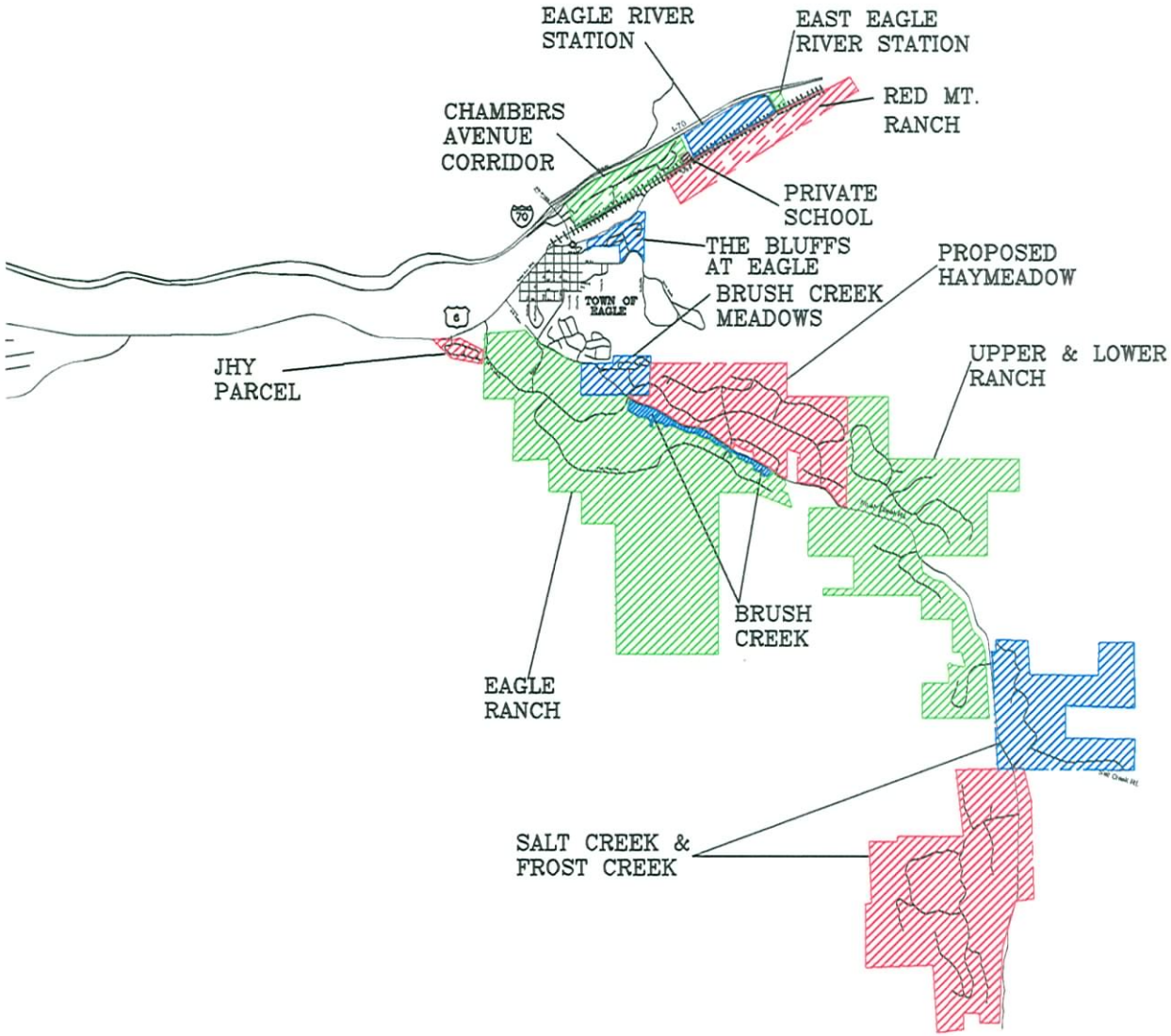
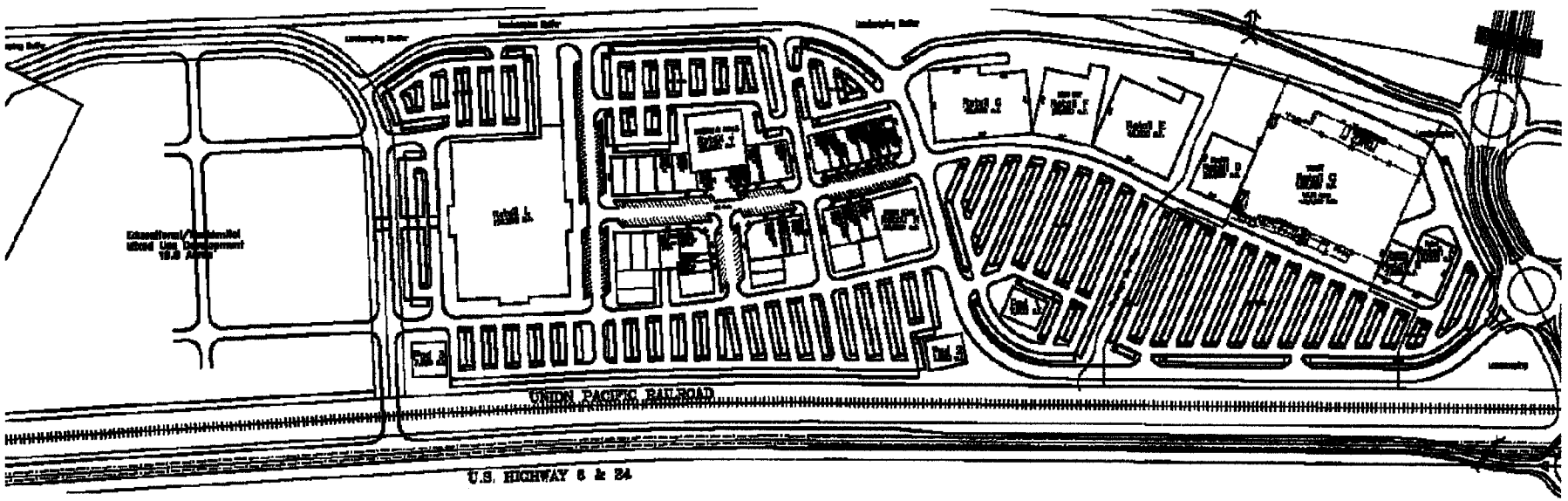



*Figure 1*

# *Location Map*

Eagle River Station (LSC# 060831)




*Approximate Scale*
*Scale: 1"= NTS*

*Figure 2*

# *Site Vicinity Map*

Eagle River Station (LSC# 060831)

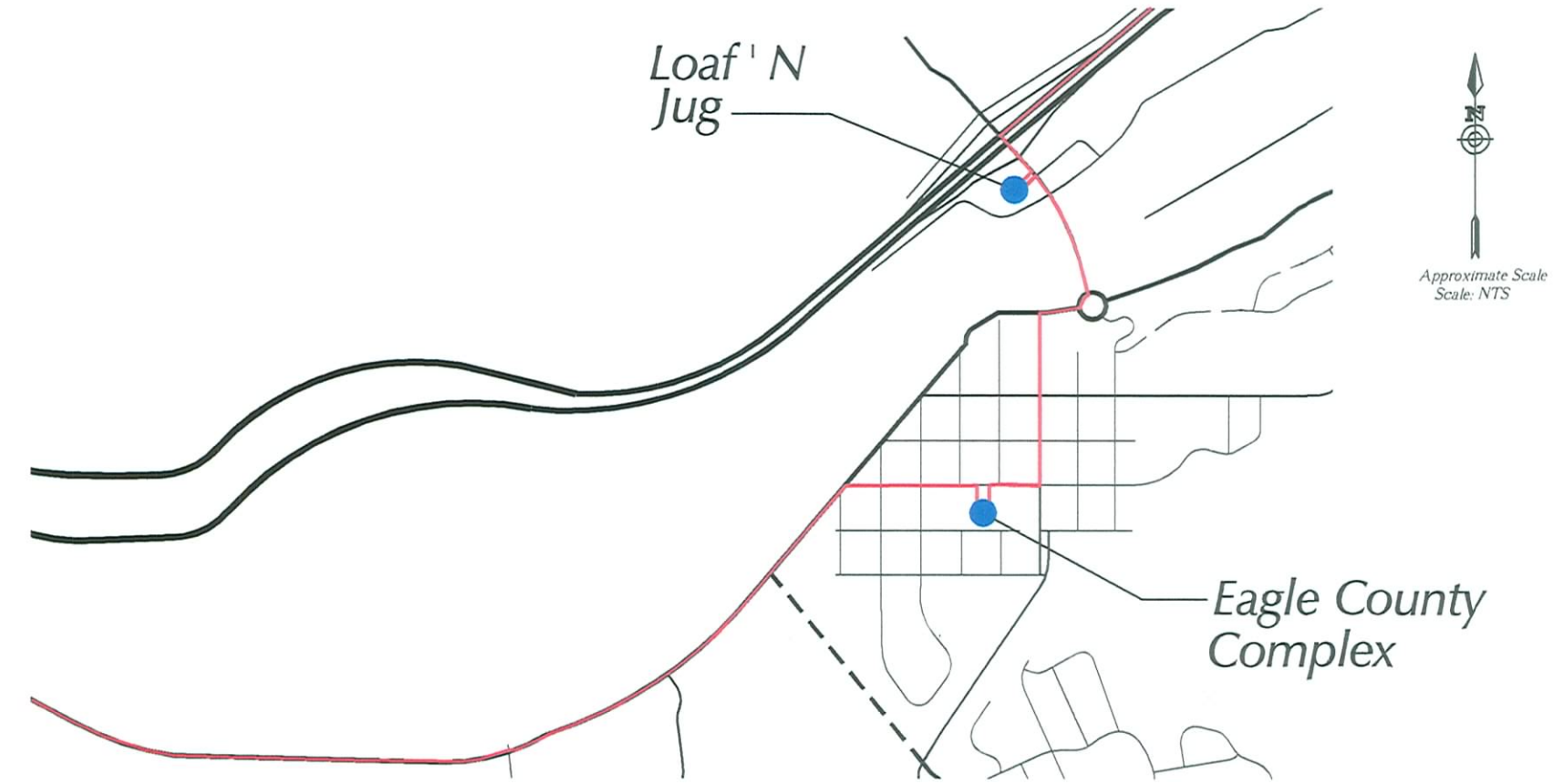
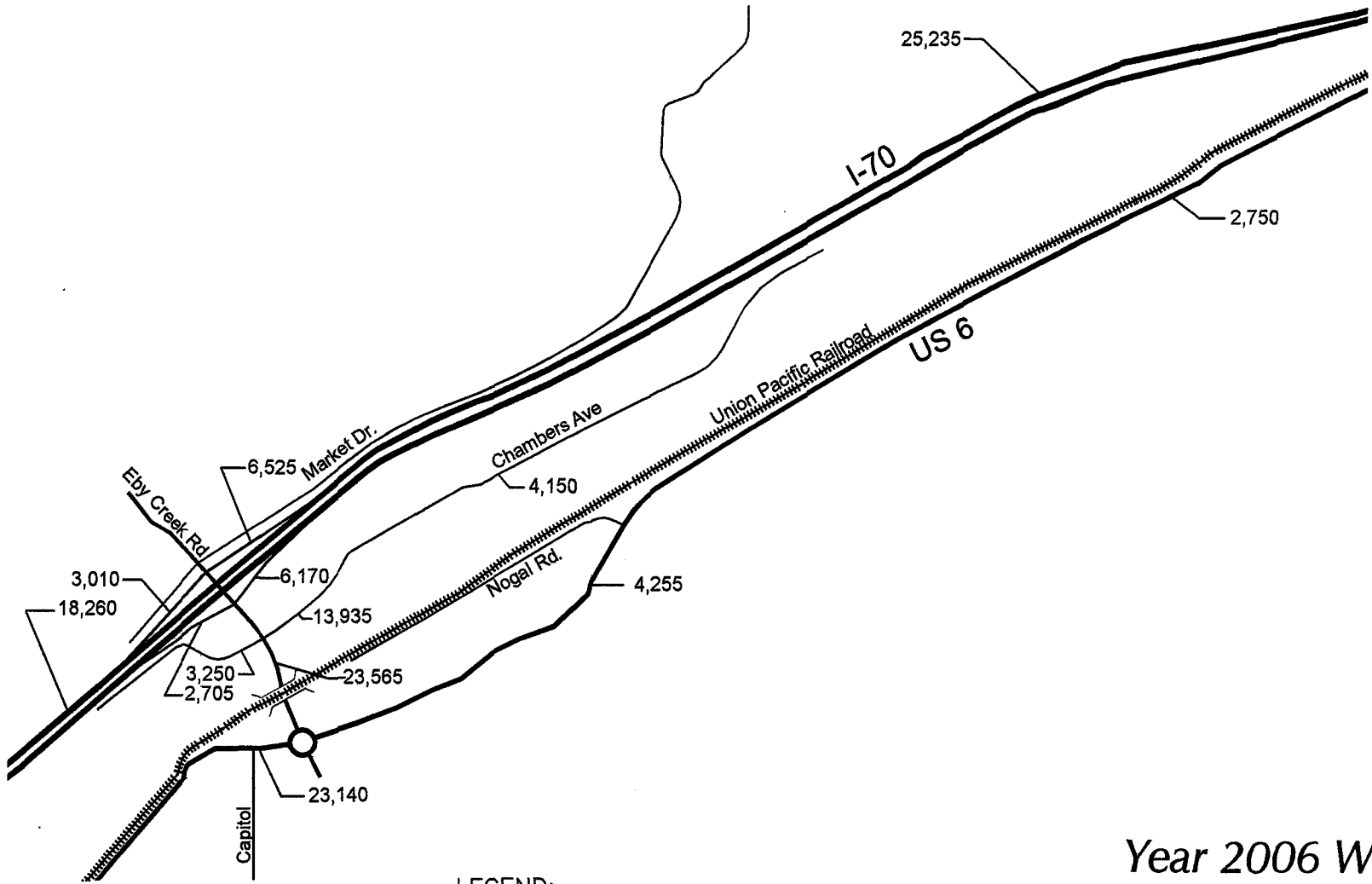



Figure 3

# Eagle County Transit System

Eagle River Station (LSC# 060831)




LEGEND:

11,575 = Average Daily Traffic

*Figure 4*

# *Year 2006 Weekday Daily Traffic Volumes*

Eagle River Station (LSC# 060831)

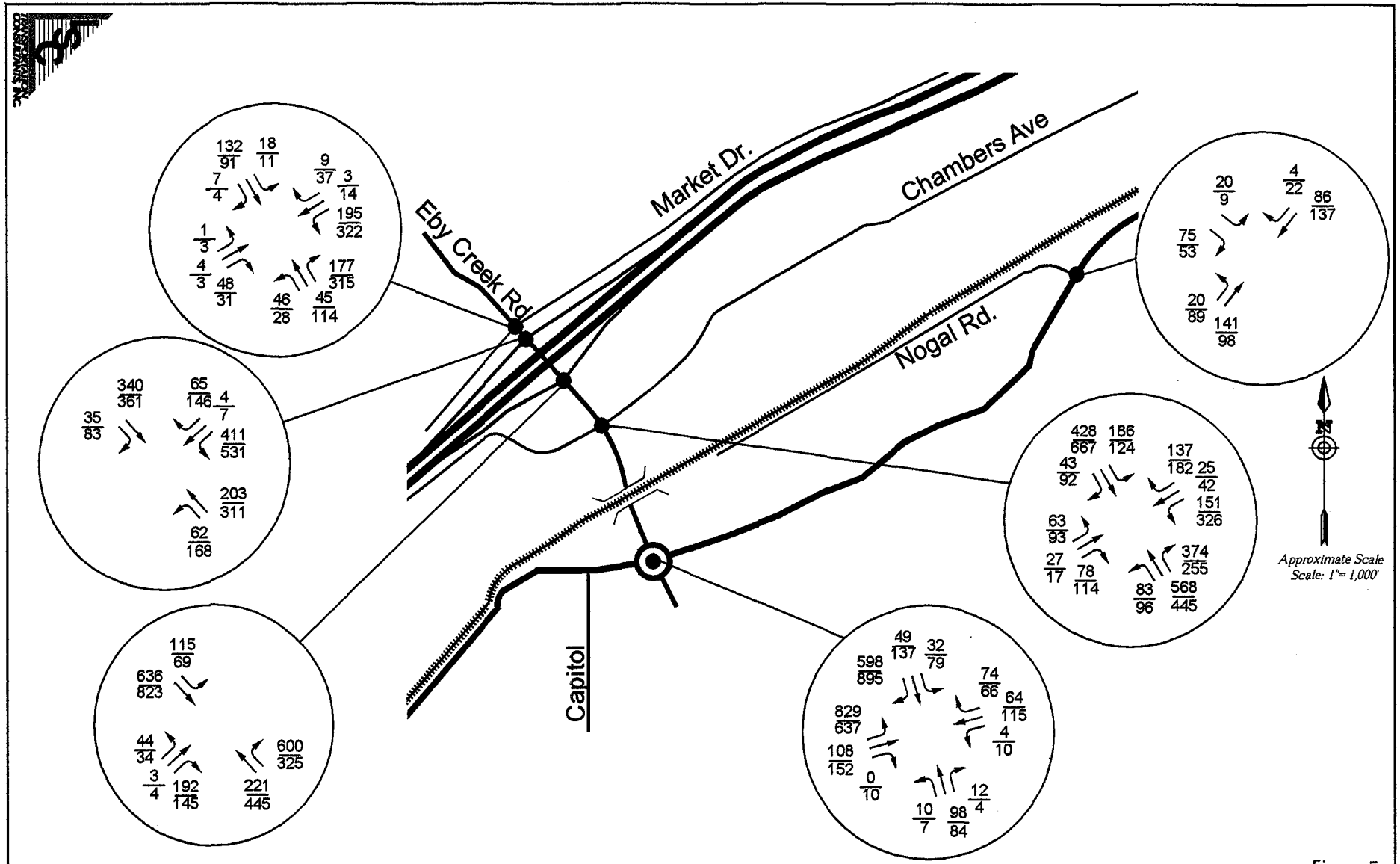



*Figure 5*

# *Year 2006 Weekday Peak- Hour Traffic*

Eagle River Station (LSC# 060831)

LEGEND:

$\frac{26}{31}$ = $\frac{\text{AM Peak–Hour Traffic}}{\text{PM Peak–Hour Traffic}}$

**Table 1**
**Intersection Level of Service**
**Eagle River Station, Eagle, CO**
**(LSC #060831; April, 2008)**

| Traffic Control | Intersection Location | Year 2006 Existing Traffic Level of Service AM | Year 2006 Existing Traffic Level of Service PM |
|---|---|---|---|
| Unsignalized (1) | Eby Creek Road/Market Drive | | |
| | Eastbound Approach | A | A |
| | Westbound Left | C | D |
| | Westbound Through and Right | A | B |
| | Northbound Left | A | A |
| | Northbound Through | A | A |
| | Northbound Right | A | A |
| | Southbound Approach | A | A |
| | Critical Movement Delay(sec /veh) | 19.9 | 27.7 |
| Signalized (1) | Eby Creek Road/I-70 WB Ramp | | |
| | Westbound Left | D | D |
| | Westbound Through and Right | B | B |
| | Northbound Left | A | D |
| | Northbound Through | A | B |
| | Southbound Through and Right | C | E |
| | Entire Intersection Delay (sec /veh) | 23.8 | 42.7 |
| | Entire Intersection LOS | C | D |
| Unsignalized (1) | Eby Creek Road/I-70 EB Ramp | | |
| | Eastbound Left | F | F |
| | Eastbound Through and Right | F | F |
| | Northbound Through | A | A |
| | Northbound Right | A | A |
| | Southbound Left | B | B |
| | Southbound Through | A | A |
| | Critical Movement Delay(sec /veh) | 120.7 | 777.8 |
| Signalized (1) | Eby Creek Road/Chambers Ave. | | |
| | Eastbound Left | C | C |
| | Eastbound Through and Right | C | B |
| | Westbound Left | D | F |
| | Westbound Through and Right | C | C |
| | Northbound Left | B | D |
| | Northbound Through | C | B |
| | Northbound Right | B | B |
| | Southbound Left | B | A |
| | Southbound Through | A | B |
| | Southbound Right | A | A |
| | Entire Intersection Delay (sec /veh) | 16.9 | 34.1 |
| | Entire Intersection LOS | B | C |
| Roundabout (2) | US 6/Eby Creek Road | | |
| | Northbound Approach | A | A |
| | Westbound Approach | A | A |
| | Southbound Approach | A | D |
| | Eastbound Approach | B | A |
| | Entire Intersection Delay (sec /veh) | 7.9 | 20.2 |
| | Entire Intersection LOS | A | C |
| Unsignalized (1) | US 6/Nogal Rd. | | |
| | Eastbound Left | A | A |
| | Eastbound Through | A | A |
| | Westbound Through | A | A |
| | Westbound Right | A | A |
| | Southbound Approach | A | B |
| | Critical Movement Delay(sec /veh) | 9.8 | 10.0 |

(1) - Based on *Highway Capacity Manual* (Synchro Version 6.0)
(2) - Based on Rodel Software

## SECTION C
# Traffic Generation

It is anticipated that Eagle River Station will include approximately 581 multi-family dwelling units, a 150-room hotel, a private school, and 649,000 square feet of commercial space. Using traffic generation rates found in *Trip Generation*, 6th Edition, published by the Institute of Transportation Engineers, Table 2 has been compiled. This table displays the estimated average weekday traffic volumes and the morning and evening peak-hour traffic volumes expected to be generated by Eagle River Station at buildout. Note that this table includes a ped/bike/transit reduction factor of 5% to account for the trips expected to be diverted from vehicle use due to the presence of pedestrian and bicycle facilities as well as the transit services that are to be provided.

Upon completion, the proposed development is estimated to generate approximately 26,962 vehicle-trips on an average weekday or about 13,481 vehicles entering and 13,481 vehicles exiting the site in a 24-hour period. During the AM peak-hour, approximately 517 vehicles will enter and 539 vehicles will exit the development. During the PM peak-hour, there will be about 1,247 entering and 1,237 exiting vehicles.

## Table 2
## TRIP GENERATION ESTIMATES
## Eagle River Station
## Eagle, Colorado
## (LSC #060831; April, 2008)

| Trip Generation Category | | Final Buildout Year Quantity | Trip Generation Rates (1) Weekday | AM Peak Hour In | AM Peak Hour Out | PM Peak Hour In | PM Peak Hour Out | Alternate Mode Reduction % | Vehicle-Trips Generated Weekday | AM Peak Hour In | AM Peak Hour Out | PM Peak Hour In | PM Peak Hour Out |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Retail | (2) | 649 KSF (3) | 35.29 | 0.45 | 0.29 | 1.59 | 1.72 | 5% | 21,758 | 277 | 179 | 980 | 1,060 |
| Hotel | (4) | 150 Rooms | 8.17 | 0.34 | 0.22 | 0.31 | 0.28 | | 1,226 | 51 | 33 | 47 | 42 |
| Multi-Family Residential | (5) | 581 DU (6) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | 5% | 3,234 | 39 | 204 | 199 | 105 |
| Private School (K-12) | (7) | 300 Students | 2.48 | 0.50 | 0.41 | 0.07 | 0.10 | | 744 | 150 | 123 | 21 | 30 |
| **Total** | | | | | | | | | **26,962** | **517** | **539** | **1,247** | **1,237** |

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 7th Edition, 2003
(2) ITE Land Use No. 820 - Shopping Center
(3) KSF = 1,000 Square Feet
(4) ITE Land Use No. 310 - Hotel
(5) ITE Land Use No. 230 - Residential Condominium/Townhouse
(6) DU = Dwelling Unit
(7) ITE Land Use No. 536 -Private School (K-12)

## SECTION D
# Traffic Distribution

The geographical distribution of site-generated vehicular traffic on the roadways providing access to and from Eagle River Station is a key element in the planning of the project's specific access requirements and in determining its traffic impacts on surrounding roadways and intersections. Major factors which influence the traffic distribution include:

- The site's location relative to the population centers in Eagle County;
- The roadway network serving the area;
- The specific access and circulation characteristics of the development plan;
- The expected home-to-work travel patterns of the residents of Eagle River Station; and
- The expected travel patterns of the users of the area's lodging and shopping areas.

Considering the combined effects of these factors, specific traffic distribution estimates have been made. Figure 6 illustrates the directional distribution percentages that were determined to be appropriate. For residential trips, 15 percent are assumed to travel to or from the east on I-70; ten percent are assumed to travel to and from the west on I-70; five percent are assumed to travel to or from the east on US 6; 20 percent are assumed to travel to or from US 6 west of Eagle; eight percent are assumed to travel to or from the Town of Eagle; ten percent are assumed to travel to and from the west on Chambers Avenue; seven percent are assumed to travel to and from the north on Eby Creek Road; five percent are assumed to travel to and from the south on Sylvan Lake Road; and 20 percent are assumed to be internal to the Eagle River Station development. The retail distribution is assumed to be oriented 44 percent to or from the east on I-70; 30 percent to and from the west on I-70; six percent to or from the east on US 6; 13 percent to and from the west on US 6; five percent to old Town Eagle and the Sylvan Lake Road corridor; and two percent internal to the development. The private school distribution is assumed to be oriented 44 percent to or from the east on I-70; 30 percent to and from the west on I-70; six percent to and from the east on US 6; and 20 percent to or from Sylvan Lake Road.

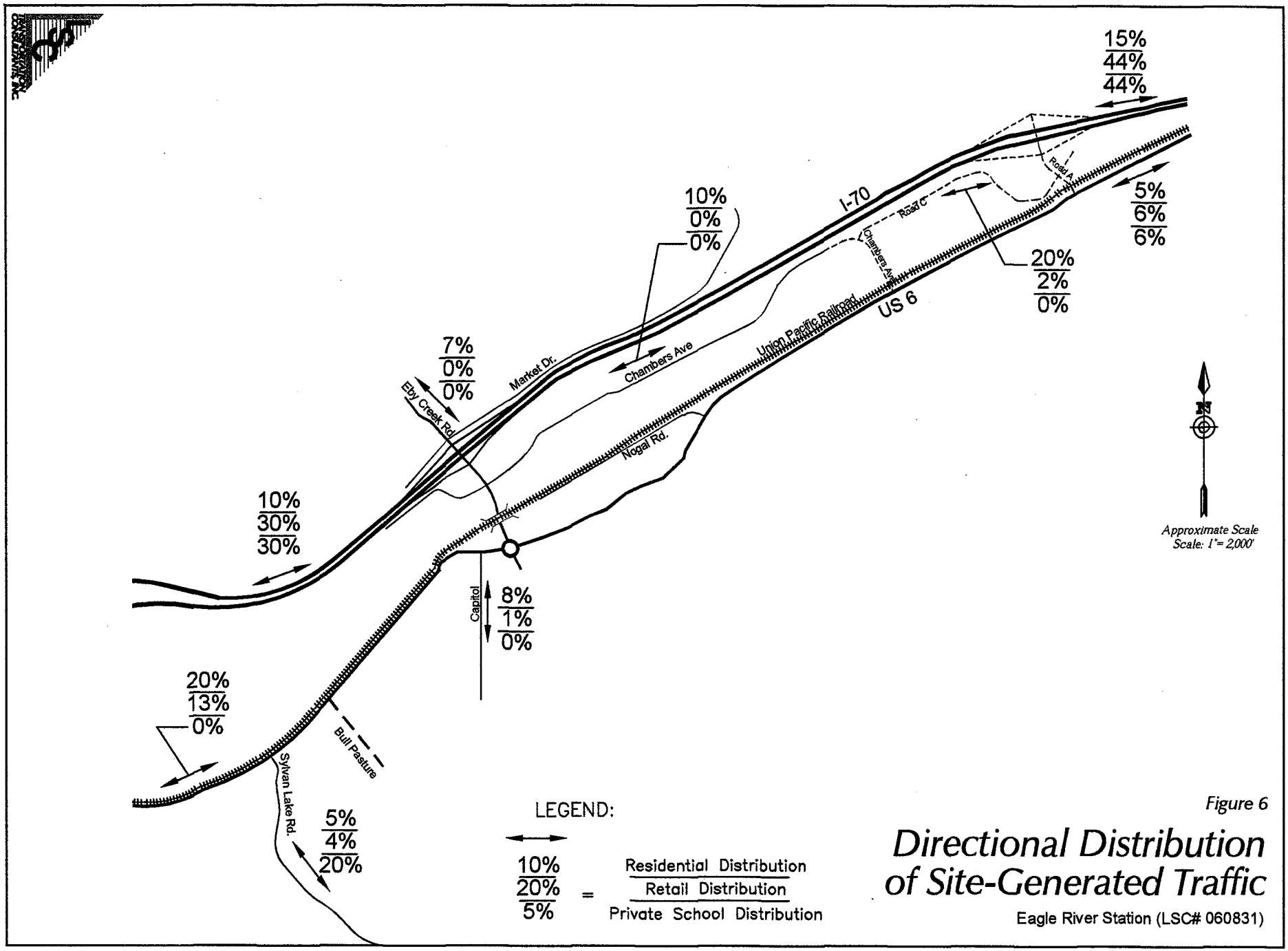



*Figure 6*

# *Directional Distribution of Site-Generated Traffic*

Eagle River Station (LSC# 060831)

## SECTION E
# Future Traffic Projections

In order to have a basis for determining future traffic impacts of the Eagle River Station development, projections of future Years 2008, 2015, and 2030 peak-hour traffic and average daily traffic were made. Year 2008 was chosen to evaluate the immediate impacts of the proposed Eagle River Station development on the surrounding road network. Year 2015 was chosen as the short range design year, since the new Gypsum interchange most likely will not be in place and other nearby developments are expected to be built out by that year, while 2030 was chosen as the long range horizon to coincide with the Colorado Department of Transportation's long range forecasts for the area.

### Network Scenarios

For the Years 2008 and 2015, the background roadway network consisted of the existing roadway network and the proposed network included the new East Eagle interchange on I-70 with the extension of Chambers Avenue east and south to connect to US 6. The Year 2030 background network assumed that the new Gypsum interchange on I-70 would be in place with the East Eagle interchange and Chambers Avenue extension added in the proposed network. The lane geometry for the Years 2008, 2015, and 2030 networks are shown in Figure 7.

Since the Years 2008, 2015 and 2030 proposed networks included the addition of the new I-70/ East Eagle Interchange, existing traffic was rerouted to take advantage of new travel paths that would be available with the new connection to I-70. Rerouting of existing traffic is illustrated in Figure 8.

### Forecast Methodology

For 2030, the following forecasting methodology was used:

1. The Year 2006 daily and peak-hour traffic volumes were used as the base;
2. All traffic from approved and planned developments in the Towns of Eagle and Gypsum was assigned to the Year 2030 networks;

3. Future background through trip volumes on I-70 were increased with no increase expected in background through traffic on US 6 and Eby Creek Road since new development will account for all growth in traffic;
4. The Year 2006 existing traffic volumes, background through traffic on I-70, and new traffic volumes for each network alternative were added to produce total traffic projections for the Year 2030.

For 2015, the same methodology was used but only about 50 percent of the traffic from planned but not approved developments in the Eagle/Gypsum area was assigned.

For Year 2008, the existing traffic volumes (daily and peak-hour) were increased by five percent per year. This growth rate represents the continued buildout of the area. To these expanded Year 2006 traffic volumes, traffic from the proposed Costco retail center and the proposed Eagle River Station development were added. It was felt that the application of a simple growth rate to the existing daily and peak-hour traffic volumes could not account for the increased traffic that is expected for regional retail centers like Costco and Eagle River Station. In addition, some existing traffic, as illustrated in Figure 8, was diverted from the existing Eby Creek Road/I-70 interchange to the proposed I-70/Road A interchange.

The land uses and trip generation estimates for approved and planned developments in the Eagle and Gypsum areas are listed in Table 3 for Year 2015 and in Table 4 for Year 2030. Trips from these developments were distributed using the distribution percentages depicted in Table 5. This distribution takes into account an internal capture rate of 35 percent for the Eagle/Gypsum area. The internal residential trips were distributed internally, with the commercial area trips reduced by the number of internal residential trips assigned to each commercial area. This method eliminated double-counting of internal trips.

Assignment of trips between origins and destinations were split among paths when multiple paths were available. Several path assignments are illustrated in Appendix B.

## Background Traffic Volumes (2008, 2015 and 2030)

The assignment of projected new development traffic (excluding the proposed Eagle River Station development) to the roadway network was made by applying the traffic

distribution percentages shown in Table 5 to the vehicle-trip generation estimates of Tables 3 and 4. These trips were then added to the existing traffic shown in Figures 4 and 5.

Resultant background peak-hour volumes for Years 2008 without the East Eagle interchange, Year 2015 without the East Eagle interchange, and the Year 2030 without the East Eagle interchange are shown in Figures 9, 10, and 11, respectively. These volumes constitute "background traffic", or traffic anticipated on the roadway system if no development took place on the proposed Eagle River Station site.

## Total Traffic Volumes (2008, 2015, and 2030)

Total traffic for Year 2008 with the East Eagle interchange, the Year 2015 with the East Eagle interchange, and the Year 2030 with the East Eagle interchange was calculated by applying the traffic distribution percentages for the proposed Eagle River Station development, depicted in Figure 6, to the vehicle-trip generation estimates of Table 2 and adding these to the background traffic volumes (modified to assign some existing traffic to the new interchange) shown in Figures 9, 10, and 11. Resultant total peak-hour traffic volumes are shown in Figures 12, 13, and 14 for Years 2008, 2015, and 2030, respectively.

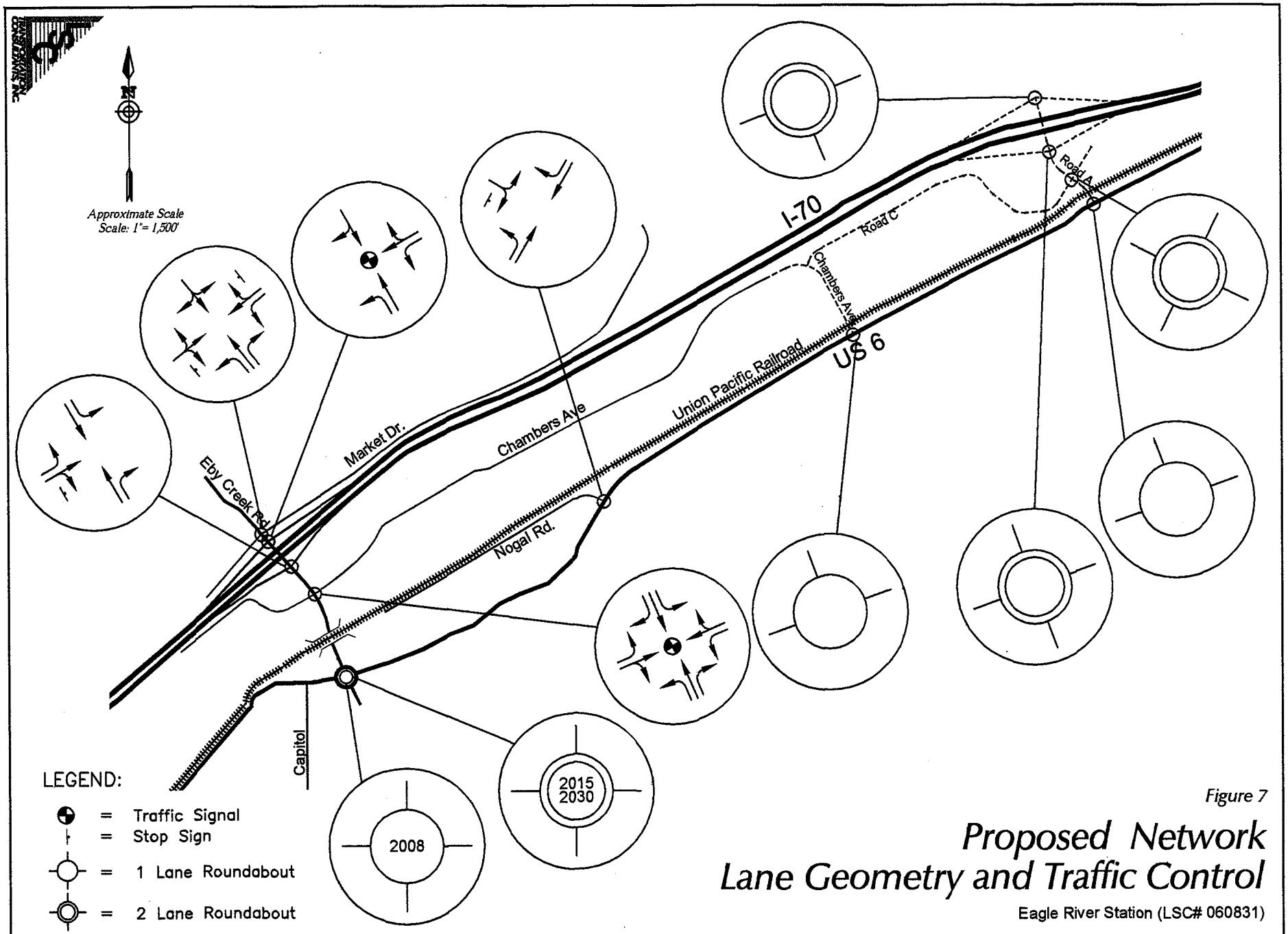



*Figure 7*

# *Proposed Network Lane Geometry and Traffic Control*

Eagle River Station (LSC# 060831)

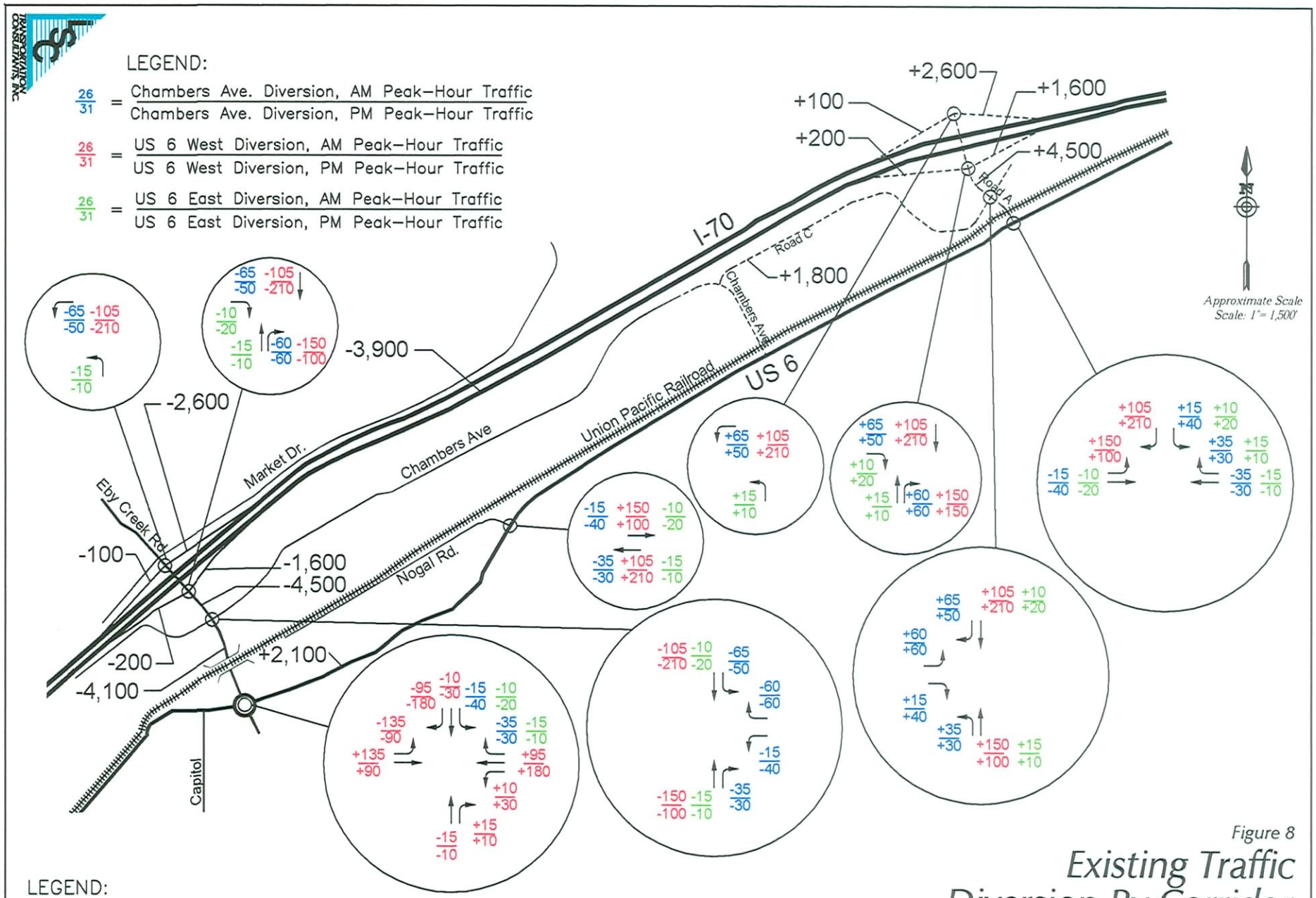



Figure 8

# Existing Traffic Diversion By Corridor

Eagle River Station (LSC# 060831)

**Table 3**
**Traffic Generation Estimates - Eagle Area (2015)**
**Eagle River Station**
**Eagle, Colorado**
**(LSC #060831; April, 2008)**

| Trip Generation Category | | Projected Unbuilt Land Uses | Trip Generation Rates (1) Weekday | AM Peak Hour In | AM Peak Hour Out | PM Peak Hour In | PM Peak Hour Out | Alt. Mode Reduc. | Vehicle-Trips Generated Weekday | AM Peak Hour In | AM Peak Hour Out | PM Peak Hour In | PM Peak Hour Out |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Ranch | | | | | | | | | | | | | |
| TND Homesites | (1) | 78 DU (12) | 7.75 | 0.15 | 0.45 | 0.53 | 0.28 | | 605 | 12 | 35 | 41 | 22 |
| Single-Family Residential w/ Golf Course | (2) | 20 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 191 | 4 | 11 | 13 | 7 |
| Recreational Homes | (3) | 38 DU (12) | 3.16 | 0.11 | 0.06 | 0.11 | 0.15 | | 120 | 4 | 2 | 4 | 6 |
| Retail | (4) | 80 KSF (13) | 63.71 | 0.89 | 0.57 | 2.82 | 3.06 | | 5,097 | 71 | 46 | 226 | 245 |
| Multi-Family Residential | (5) | 115 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 674 | 8 | 43 | 41 | 22 |
| Medical Facility | (6) | 175.2 KSF (13) | 36.13 | 1.94 | 0.49 | 0.99 | 2.67 | | 6,330 | 340 | 86 | 173 | 468 |
| Single-Family Residential | (9) | 150 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 1,436 | 29 | 84 | 98 | 54 |
| Accessory Dwelling Unit | (8) | 81 DU (12) | 6.72 | 0.10 | 0.41 | 0.40 | 0.22 | | 544 | 8 | 33 | 32 | 18 |
| | | | | | | | Subtotal | | 14,996 | 476 | 340 | 629 | 841 |
| Brush Creek Meadows | | | | | | | | | | | | | |
| Multi-Family Residential | (5) | 29 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 170 | 2 | 11 | 10 | 6 |
| Single-Family Residential | (9) | 18 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 172 | 3 | 10 | 12 | 7 |
| | | | | | | | Subtotal | | 342 | 5 | 21 | 22 | 12 |
| Frost Creek and Salt Creek | | | | | | | | | | | | | |
| Golf Course | (7) | 18 Holes | 35.74 | 1.75 | 0.47 | 1.21 | 1.53 | | 643 | 32 | 9 | 22 | 28 |
| Single-Family Residential | (9) | 49 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 469 | 9 | 27 | 32 | 18 |
| Multi-Family Residential | (5) | 16 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 94 | 1 | 6 | 6 | 3 |
| Equestrian Center | (11) | 1 | | | | | | | 148 | 0 | 2 | 12 | 16 |
| Shooting Range | (14) | 6 KSF (13) | 33.33 | 1.88 | 1.25 | 1.24 | 2.3 | | 200 | 11 | 8 | 7 | 14 |
| Recreation Center | (10) | 2.3 KSF (13) | 22.88 | 0.87 | 0.45 | 0.60 | 1.15 | | 53 | 2 | 1 | 1 | 3 |
| | | | | | | | Subtotal | | 1,607 | 55 | 52 | 80 | 80 |
| JHY Parcel | | | | | | | | | | | | | |
| Single-Family Residential | (9) | 55 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 526 | 11 | 31 | 36 | 20 |
| Brush Creek | | | | | | | | | | | | | |
| Single-Family Residential | (9) | 60 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 574 | 11 | 34 | 39 | 22 |
| Upper and Lower Ranch | | | | | | | | | | | | | |
| Single-Family Residential | (9) | 57 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 546 | 11 | 32 | 37 | 21 |
| Eagle River Station | | | | | | | | | | | | | |
| Retail | (4) | 614.7 KSF (3) | 35.29 | 0.45 | 0.29 | 1.59 | 1.72 | 5% | 20,608 | 263 | 169 | 929 | 1,004 |
| Hotel | (16) | 150 Rooms | 8.17 | 0.34 | 0.22 | 0.31 | 0.28 | | 1,226 | 51 | 33 | 47 | 42 |
| Multi-Family Residential | (5) | 581 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | 5% | 3,234 | 39 | 204 | 199 | 105 |
| | | | | | | | Subtotal | | 25,068 | 352 | 407 | 1,174 | 1,151 |
| East Eagle River Station | | | | | | | | | | | | | |
| Retail | (4) | 34.3 KSF (13) | 35.29 | 0.44 | 0.28 | 1.54 | 1.67 | 5% | 1,150 | 14 | 9 | 50 | 54 |
| Haymeadow | | | | | | | | | | | | | |
| Multi-Family Residential | (5) | 337 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 1,975 | 24 | 125 | 121 | 64 |
| Single-Family Residential | (9) | 283 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 2,708 | 54 | 159 | 184 | 102 |
| Recreational Homes | (3) | 32 DU (12) | 3.16 | 0.11 | 0.06 | 0.11 | 0.15 | | 101 | 4 | 2 | 4 | 5 |
| | | | | | | | Subtotal | | 4,784 | 81 | 285 | 309 | 171 |
| Red Mountain Ranch | | | | | | | | | | | | | |
| Single Family Residential | (9) | 37 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 354 | 7 | 21 | 24 | 13 |
| Chamber Avenue Corridor | | | | | | | | | | | | | |
| Retail | (4) | 75 KSF (13) | 42.92 | 0.63 | 0.40 | 1.80 | 1.95 | | 3,219 | 47 | 30 | 135 | 146 |
| General Light Industrial | (17) | 123 KSF (13) | 6.97 | 0.81 | 0.11 | 0.98 | 0.12 | | 857 | 100 | 14 | 121 | 15 |
| | | | | | | | Subtotal | | 4,076 | 148 | 44 | 256 | 161 |
| School Site | | | | | | | | | | | | | |
| Private School (K-12) | (18) | 300 Students | 2.48 | 0.5 | 0.41 | 0.07 | 0.1 | | 744 | 150 | 123 | 21 | 30 |
| | | | | | | | **TOTAL:** | | **54,768** | **1,321** | **1,397** | **2,676** | **2,576** |

Notes:
(1) ITE Land Use No. 210 - Single-Family Detached Housing adjusted for household size of 2-3
(2) ITE Land Use No. 210 - Single-Family Detached Housing adjusted for Golf Course
(3) ITE Land Use No. 260 - Recreational Homes
(4) ITE Land Use No. 820 - Shopping Center
(5) ITE Land Use No. 230 - Residential Condominium/Townhouse
(6) ITE Land Use No. 720 - Medical-Dental Office Building
(7) ITE Land Use No. 430 - Golf Course
(8) ITE Land Use No. 220 - Apartment
(9) ITE Land Use No. 210 - Single-Family Detached Housing
(10) ITE Land Use No. 495 - Recreational Community Center
(11) Estimate based on two employees and 40 riders per day
(12) DU = Dwelling Unit
(13) KSF = 1,000 Square Feet
(14) ITE Land Use No. 437, Bowling Alley
(15) ITE Land Use No. 710, General Office Building
(16) ITE Land Use No. 310, Hotel
(17) ITE Land Use No. 110, General Light Industrial
(18) ITE Land Use No. 536, Private School (K-12)

**Table 4**
**Traffic Generation Estimates - Eagle Area (2030)**
**Eagle River Station**
**Eagle, Colorado**
**(LSC #060831; April, 2008)**

| Trip Generation Category | | Projected Unbuilt Land Uses | Trip Generation Rates (1) Weekday | AM Peak Hour In | AM Peak Hour Out | PM Peak Hour In | PM Peak Hour Out | Alt. Mode Reduc. | Vehicle-Trips Generated Weekday | AM Peak Hour In | AM Peak Hour Out | PM Peak Hour In | PM Peak Hour Out |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Ranch | | | | | | | | | | | | | |
| TND Homesites | (1) | 132 DU (12) | 7.75 | 0.15 | 0.45 | 0.53 | 0.28 | | 1,023 | 20 | 59 | 70 | 37 |
| Single-Family Residential w/ Golf Course | (2) | 177 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 1,694 | 34 | 99 | 115 | 64 |
| Recreational Homes | (3) | 38 DU (12) | 3.16 | 0.11 | 0.06 | 0.11 | 0.15 | | 120 | 4 | 2 | 4 | 6 |
| Retail | (4) | 80 KSF (13) | 63.71 | 0.89 | 0.57 | 2.82 | 3.06 | | 5,097 | 71 | 46 | 226 | 245 |
| Multi-Family Residential | (5) | 115 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 674 | 8 | 43 | 41 | 22 |
| Medical Facility | (6) | 175.2 KSF (13) | 36.13 | 1.94 | 0.49 | 0.99 | 2.67 | | 6,330 | 340 | 86 | 173 | 468 |
| Single-Family Residential | (9) | 163 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 1,560 | 31 | 91 | 106 | 59 |
| Accessory Dwelling Unit | (8) | 88 DU (12) | 6.72 | 0.10 | 0.41 | 0.40 | 0.22 | | 591 | 9 | 36 | 35 | 19 |
| | | | | | | | Subtotal | | 17,089 | 517 | 462 | 771 | 919 |
| Brush Creek Meadows | | | | | | | | | | | | | |
| Multi-Family Residential | (5) | 29 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 170 | 2 | 11 | 10 | 6 |
| Single-Family Residential | (9) | 18 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 172 | 3 | 10 | 12 | 7 |
| | | | | | | | Subtotal | | 342 | 5 | 21 | 22 | 12 |
| Frost Creek and Salt Creek | | | | | | | | | | | | | |
| Golf Course | (7) | 18 Holes | 35.74 | 1.75 | 0.47 | 1.21 | 1.53 | | 643 | 32 | 9 | 22 | 28 |
| Single-Family Residential | (9) | 98 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 938 | 19 | 55 | 64 | 35 |
| Multi-Family Residential | (5) | 31 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 182 | 2 | 12 | 11 | 6 |
| Equestrian Center | (11) | 1 | | | | | | | 148 | 0 | 2 | 12 | 16 |
| Shooting Range | (14) | 6 KSF (13) | 33.33 | 1.88 | 1.25 | 1.24 | 2.3 | | 200 | 11 | 8 | 7 | 14 |
| Recreation Center | (10) | 2.3 KSF (13) | 22.88 | 0.87 | 0.45 | 0.60 | 1.15 | | 53 | 2 | 1 | 1 | 3 |
| | | | | | | | Subtotal | | 2,164 | 66 | 85 | 118 | 101 |
| JHY Parcel | | | | | | | | | | | | | |
| Single-Family Residential | (9) | 110 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 1,053 | 21 | 62 | 72 | 40 |
| Brush Creek | | | | | | | | | | | | | |
| Single-Family Residential | (9) | 135 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 1,292 | 26 | 76 | 88 | 49 |
| Upper and Lower Ranch | | | | | | | | | | | | | |
| Single-Family Residential | (9) | 114 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 1,091 | 22 | 64 | 74 | 41 |
| Eagle River Station | | | | | | | | | | | | | |
| Retail | (4) | 614.7 KSF (3) | 35.29 | 0.45 | 0.29 | 1.59 | 1.72 | 5% | 20,608 | 263 | 169 | 929 | 1,004 |
| Hotel | (16) | 150 Rooms | 8.17 | 0.34 | 0.22 | 0.31 | 0.28 | | 1,226 | 51 | 33 | 47 | 42 |
| Multi-Family Residential | (5) | 581 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | 5% | 3,234 | 39 | 204 | 199 | 105 |
| | | | | | | | Subtotal | | 25,068 | 352 | 407 | 1,174 | 1,151 |
| East Eagle River Station | | | | | | | | | | | | | |
| Retail | (4) | 34.3 KSF (13) | 35.29 | 0.44 | 0.28 | 1.54 | 1.67 | 5% | 1,150 | 14 | 9 | 50 | 54 |
| Haymeadow | | | | | | | | | | | | | |
| Multi-Family Residential | (5) | 673 DU (12) | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | | 3,944 | 47 | 249 | 242 | 128 |
| Single-Family Residential | (9) | 565 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 5,407 | 107 | 316 | 367 | 203 |
| Recreational Homes | (3) | 63 DU (12) | 3.16 | 0.11 | 0.06 | 0.11 | 0.15 | | 199 | 7 | 4 | 7 | 10 |
| | | | | | | | Subtotal | | 9,550 | 161 | 569 | 616 | 341 |
| Red Mountain Ranch | | | | | | | | | | | | | |
| Single Family Residential | (9) | 73 DU (12) | 9.57 | 0.19 | 0.56 | 0.65 | 0.36 | | 699 | 14 | 41 | 48 | 26 |
| Chamber Avenue Corridor | | | | | | | | | | | | | |
| Retail | (4) | 150 KSF (13) | 42.92 | 0.63 | 0.40 | 1.80 | 1.95 | | 6,438 | 95 | 60 | 270 | 293 |
| General Light Industrial | (17) | 245 KSF (13) | 6.97 | 0.81 | 0.11 | 0.98 | 0.12 | | 1,708 | 199 | 27 | 240 | 29 |
| | | | | | | | Subtotal | | 8,146 | 294 | 87 | 510 | 322 |
| School Site | | | | | | | | | | | | | |
| Private School (K-12) | (18) | 300 Students | 2.48 | 0.5 | 0.41 | 0.07 | 0.1 | | 744 | 150 | 123 | 21 | 30 |
| | | | | | | | **TOTAL:** | | **68,387** | **1,642** | **2,005** | **3,563** | **3,086** |

Notes:
(1) ITE Land Use No. 210 - Single-Family Detached Housing adjusted for household size of 2-3
(2) ITE Land Use No. 210 - Single-Family Detached Housing adjusted for Golf Course
(3) ITE Land Use No. 260 - Recreational Homes
(4) ITE Land Use No. 820 - Shopping Center
(5) ITE Land Use No. 230 - Residential Condominium/Townhouse
(6) ITE Land Use No. 720 - Medical-Dental Office Building
(7) ITE Land Use No. 430 - Golf Course
(8) ITE Land Use No. 220 - Apartment
(9) ITE Land Use No. 210 - Single-Family Detached Housing
(10) ITE Land Use No. 495 - Recreational Community Center
(11) Estimate based on two employees and 40 riders per day
(12) DU = Dwelling Unit
(13) KSF = Thousand Square Feet
(14) ITE Land Use No. 437, Bowling Alley
(15) ITE Land Use No. 710, General Office Building
(16) ITE Land Use No. 310, Hotel
(17) ITE Land Use No. 110, General Light Industrial
(18) ITE Land Use No. 536, Private School (K-12)

## Table 5
## Distribution Percentages for the Eagle Area
## Eagle River Station
## (LSC #060831; April, 2008)

| | | Destinations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Gypsum | US 6 East | Eby North | I-70 West | I-70 East | Old Town | Brush Creek | Eagle River | Eagle Ranch | Chambers | |
| Internal Zones (1) | | 1 | 3 | 4 | 5 | 6 | 9 | 11 | 12 | 13 | 14 | Total |
| Eagle Ranch | 1 | 32 | 2 | 5 | 10 | 20 | 5 | 1 | 5 | 15 | 5 | 100 |
| Brusch Creek | 2 | 32 | 2 | 5 | 10 | 20 | 5 | 1 | 5 | 15 | 5 | 100 |
| Upper Ranch | 4 | 32 | 2 | 5 | 10 | 20 | 5 | 1 | 5 | 15 | 5 | 100 |
| Hay Meadow | 5 | 32 | 2 | 5 | 10 | 20 | 5 | 1 | 5 | 15 | 5 | 100 |
| Salt Creek | 6 | 32 | 2 | 5 | 10 | 20 | 5 | 1 | 5 | 15 | 5 | 100 |
| Frost Creek | 7 | 32 | 2 | 5 | 10 | 20 | 5 | 1 | 5 | 15 | 5 | 100 |
| Eagle River | 9 | 0 | 6 | 0 | 30 | 44 | 0 | 0 | 0 | 0 | 0 | 80 |
| Gypsum Residential | 10 | 65 | 0 | 1 | 7 | 4 | 1 | 0 | 10 | 10 | 2 | 100 |
| Gypsum Commercial | 11 | 0 | 1 | 0 | 37 | 20 | 0 | 0 | 0 | 0 | 0 | 58 |
| Red Mt. Ranch | 12 | 20 | 5 | 7 | 10 | 15 | 8 | 0 | 20 | 5 | 10 | 100 |
| Chambers Corridor | 13 | 0 | 6 | 0 | 30 | 43 | 0 | 0 | 0 | 0 | 0 | 79 |
| Eagle River East | 14 | 0 | 6 | 0 | 30 | 44 | 0 | 0 | 0 | 0 | 0 | 80 |
| Eagle Ranch Retail | 15 | 0 | 2 | 0 | 9 | 12 | 10 | 2 | 0 | 0 | 0 | 35 |
| Private School | 16 | 0 | 6 | 0 | 30 | 44 | 0 | 10 | 0 | 10 | 0 | 100 |
| Eagle River Residential | 17 | 20 | 5 | 7 | 10 | 15 | 8 | 0 | 20 | 5 | 10 | 100 |

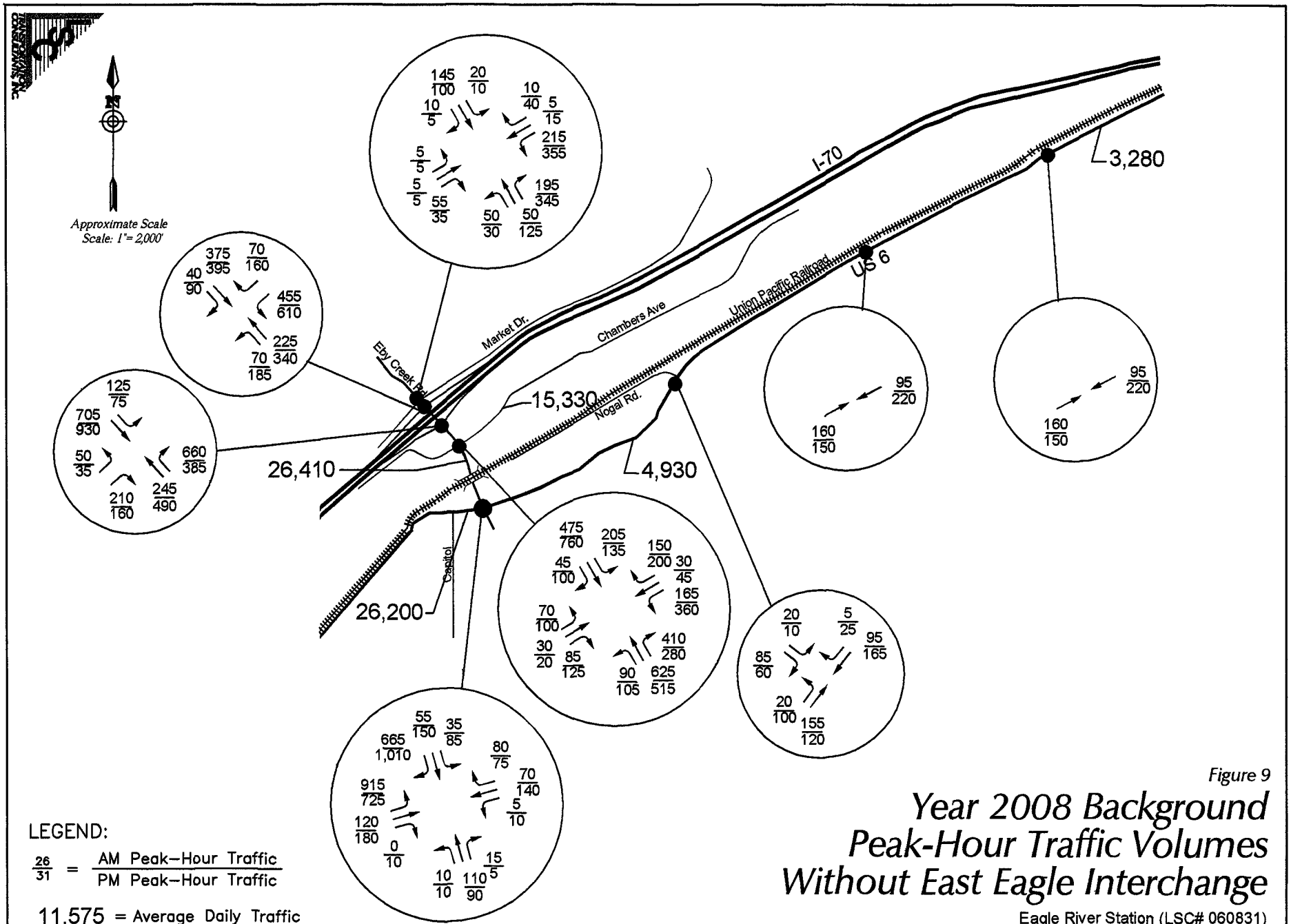



*Figure 9*

# *Year 2008 Background Peak-Hour Traffic Volumes Without East Eagle Interchange*

Eagle River Station (LSC# 060831)

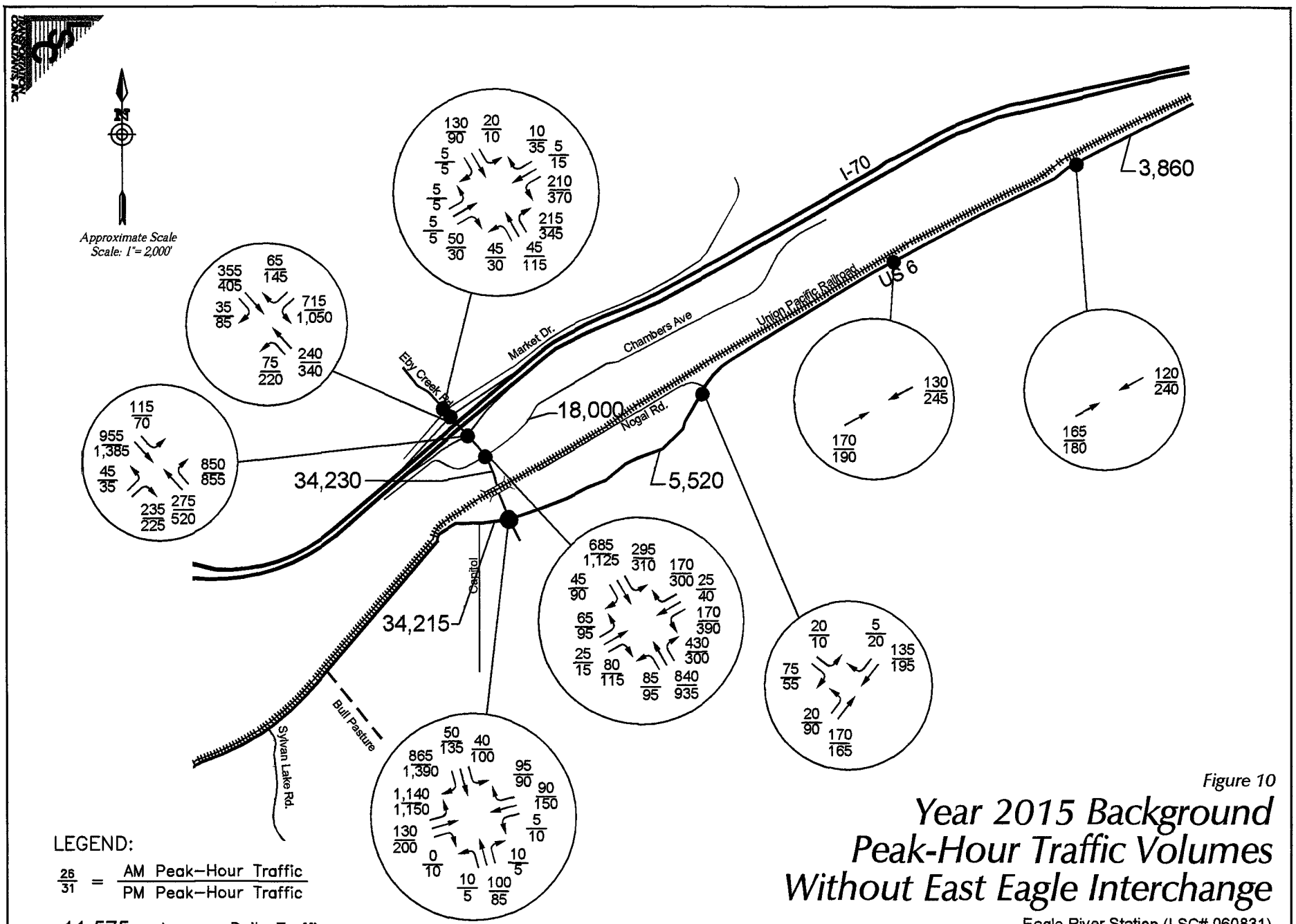



*Figure 10*

# *Year 2015 Background Peak-Hour Traffic Volumes Without East Eagle Interchange*

Eagle River Station (LSC# 060831)

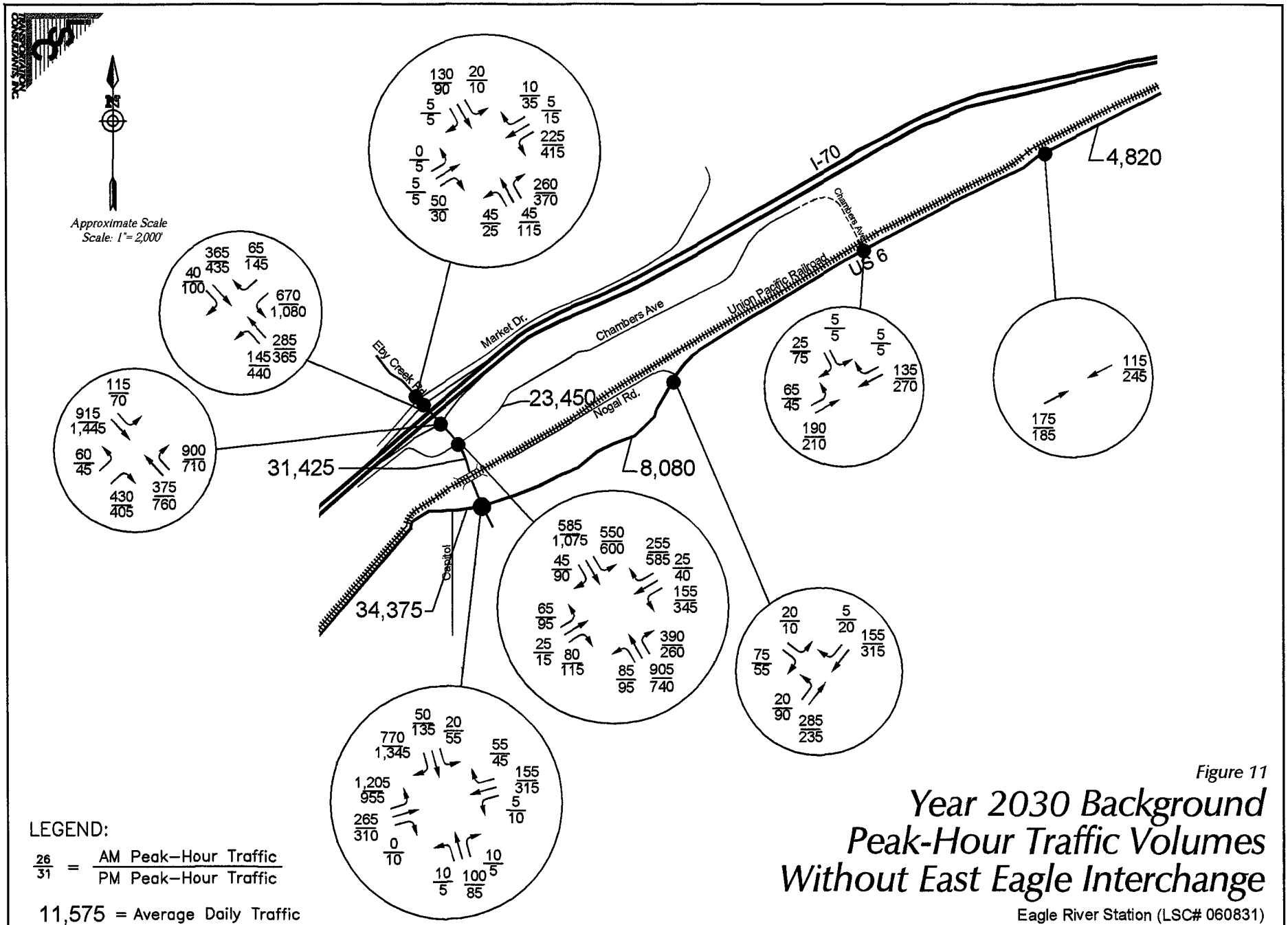



*Figure 11*

# *Year 2030 Background Peak-Hour Traffic Volumes Without East Eagle Interchange*

Eagle River Station (LSC# 060831)

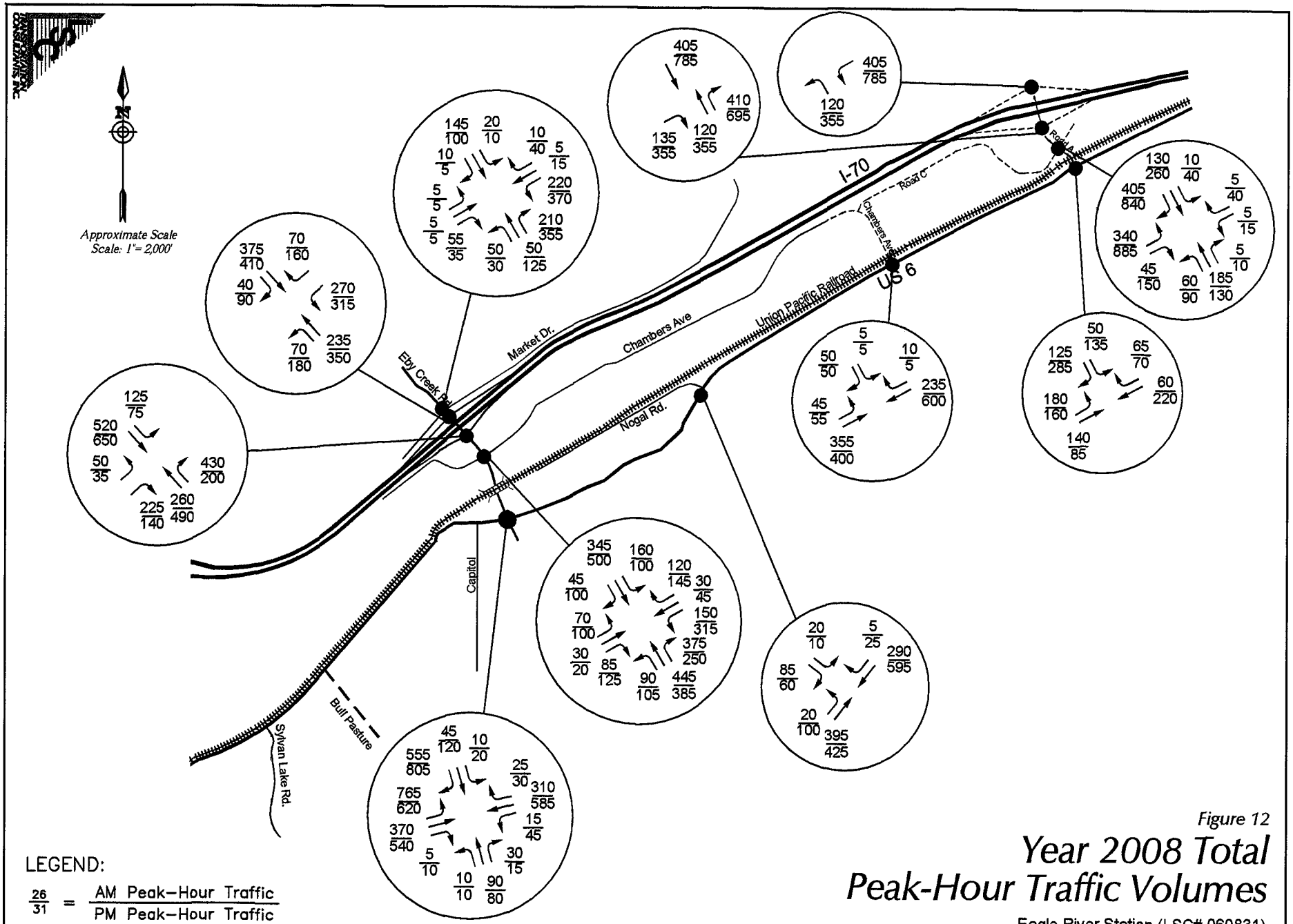



*Figure 12*

# *Year 2008 Total Peak-Hour Traffic Volumes*

Eagle River Station (LSC# 060831)

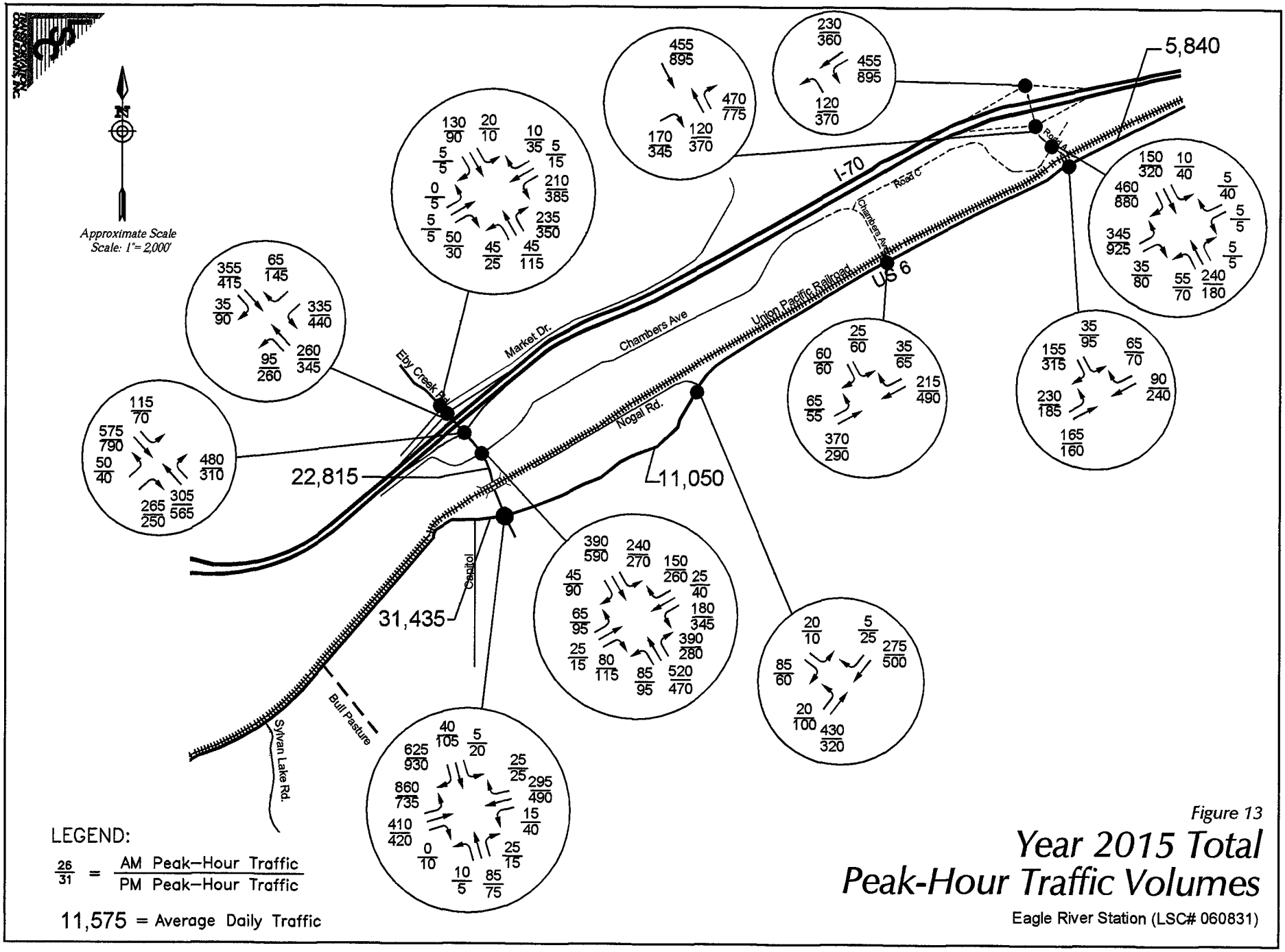



*Figure 13*

# *Year 2015 Total Peak-Hour Traffic Volumes*

Eagle River Station (LSC# 060831)

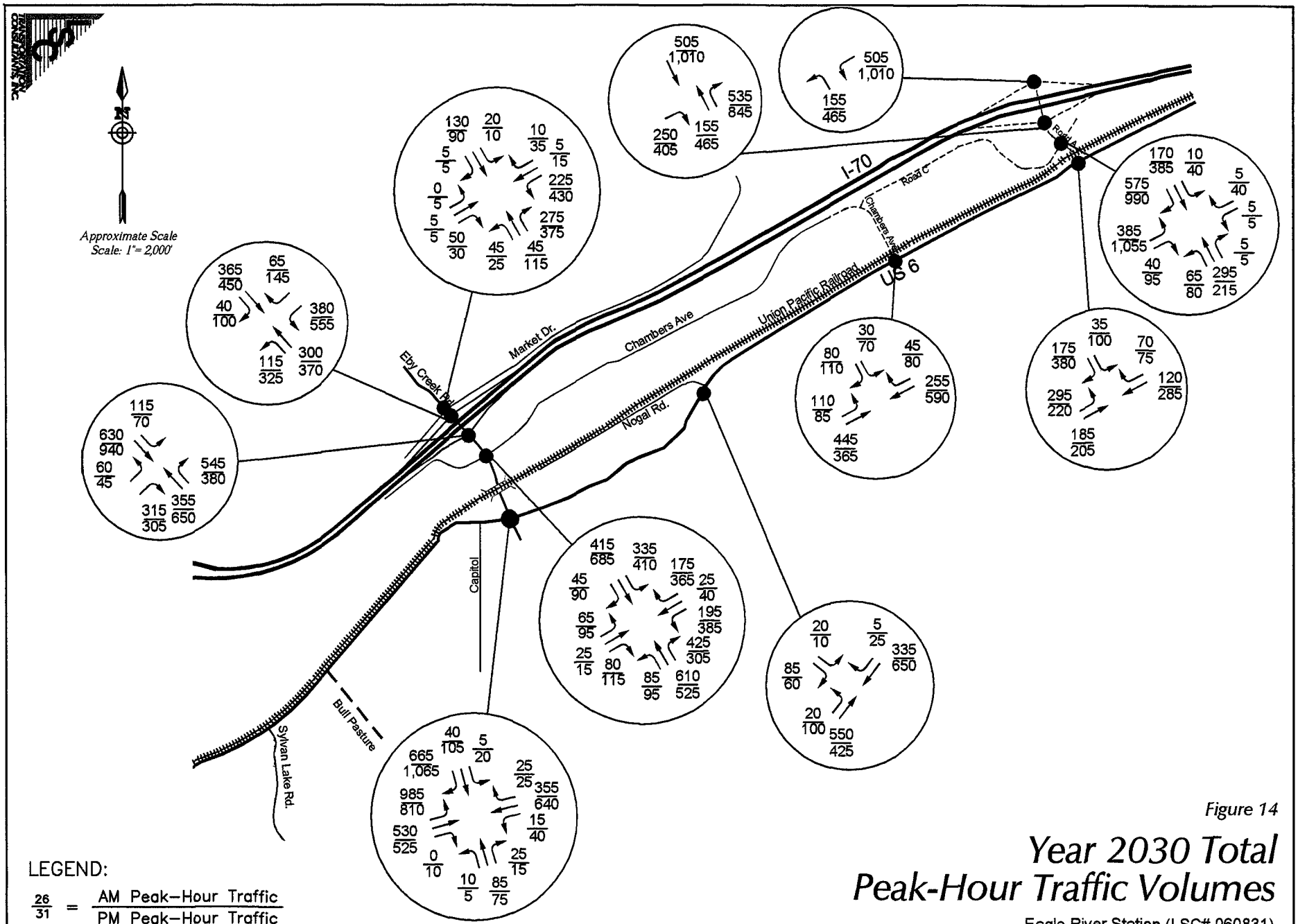



*Figure 14*

# *Year 2030 Total Peak-Hour Traffic Volumes*

Eagle River Station (LSC# 060831)

## Intersection Capacity Analysis

To analyze the specific traffic impacts associated with the proposed Eagle River Station development, intersection Level of Service analyses for the Years 2008, 2015, and 2030 were conducted for various intersections affected by the proposed Eagle River Station development. Based upon the total peak-hour traffic volume projections shown in Figures 9, 10, 11, 12, 13, and 14, "Signalized and Unsignalized Intersection Capacity" analyses have been performed, based upon procedures set forth in the *Highway Capacity Manual* (with 2000 update). For the roundabouts, the software program, Rodel, was used to estimate the Level of Service.

The concept of Level of Service (LOS) is used as a basis for computing combinations of roadway operating conditions. By definition, six different Levels of Service are used (A, B, C, D, E, and F) with "A" being a relatively free-flow condition and "E" representing the "capacity" of a given intersection or traffic movement. Level of Service criteria and characteristics are given in Table 6. The weekday peak-hour periods have been analyzed, since they are the times of maximum impact upon the street network. Tables 7 and 8 summarize the results of the morning and evening peak-hour LOS analyses for the proposed Eagle River Station development for the Years 2008/2015 and 2030, respectively. The computer analysis printouts are found in Appendix C.

- Eby Creek Road/I-70 WB Ramp: This intersection currently operates at an acceptable Level of Service (LOS "D" or better) during the AM and PM peak-hours. By the Year 2008, without the traffic from the proposed Eagle River Station development, this intersection is expected to operate at a capacity Level of Service (LOS "E") during the PM peak-hour based on no changes to the road-way network. When the traffic from the proposed development is added to the background traffic and the East Eagle interchange is assumed, this signalized intersection is expected to operate at a good Level of Service (LOS "C" or better) during the AM and PM peak-hours.

  By the Year 2015, without the traffic from the proposed Eagle River Station development, this intersection is expected to operate at an unacceptable Level of Service (LOS "F") during the PM peak-hour based on no changes to the road-way network. When the traffic from the proposed development is added to the

background traffic and the East Eagle interchange is assumed, this signalized intersection is expected to operate at a good Level of Service (LOS "C" or better) during the AM and PM peak-hours.

By the Year 2030, without any traffic from the proposed Eagle River Station development, this intersection is expected to operate at an unacceptable Level of Service (LOS "F") during the PM peak-hour based on no changes to the roadway network. When the traffic from the proposed development is added to the background traffic and the East Eagle interchange is assumed, this signalized intersection is expected to operate at a capacity Level of Service (LOS "E" or better) during the AM and PM peak-hours.

- Eby Creek Road/I-70 EB Ramp: This intersection currently operates at an unacceptable Level of Service (LOS "F") during the AM and PM peak-hours for the eastbound approach. As a result of this existing problem, this intersection is planned to have a traffic signal installed in the near future. Therefore, the analysis presented in this report assumes a traffic signal.

  By the Year 2030, without any traffic from the proposed Eagle River Station development, this intersection is expected to operate at a capacity Level of Service (LOS "E") during the PM peak-hour based on no changes to the roadway network. When the traffic from the proposed development is added to the background traffic and the East Eagle interchange is assumed, this signalized intersection is expected to operate at a very good Level of Service (LOS "B" or better) during the AM and PM peak-hours.

- Eby Creek Road/Chambers Avenue: This intersection currently operates at a good Level of Service (LOS "C" or better) during the AM and PM peak-hours. This signalized intersection will begin to experience long delays with 2008 background traffic and unacceptable delays with 2030 background traffic. As a result of the construction of the East Eagle interchange, this intersection is expected to operate at an acceptable Level of Service (LOS "D" or better) during the AM and PM peak-hours through the Year 2030 with the traffic from the proposed development.

- US 6/Eby Creek Road: This single-lane roundabout currently operates at an overall good Level of Service (LOS "C" or better) during the AM and PM peak-hours with LOS "B" on the southbound approach during the PM peak-hours. In the Year 2008 as a single-lane roundabout, this intersection is expected to operate at an unacceptable Level of Service (LOS "F") during the PM peak-hour and will operate at an unacceptable Level of Service (LOS "F") during both peak-hours with 2015 and 2030 background traffic. Modifying this roundabout for two-lane operation will be needed with or without traffic from the proposed Eagle River Station development. As a two-lane roundabout, it is expected to operate at a very good Level of Service (LOS "B" or better) during both AM and PM peak-hours through the Year 2030 with the addition of traffic from the proposed development and the East Eagle interchange in place.

- US 6/Nogal Road: All traffic movements at this unsignalized intersection are expected to operate at a good Level of Service (LOS "C" or better) during the AM and PM peak-hours through the Year 2030.
- US 6/Chambers Avenue: As a single-lane roundabout, this intersection is expected to operate at a very good Level of Service (LOS "B" or better) during both AM and PM peak-hours through the Year 2030 either with or without site-generated traffic.

- US 6/Road A: As a single-lane roundabout, this intersection will operate at a very good Level of Service (LOS "B" or better) during the AM and PM peak-hours through the Year 2030 either with or without site-generated traffic.

- I-70 WB Ramp/Road A: As a two-lane roundabout, this intersection is expected to operate at a very good Level of Service (LOS "B" or better) during the AM and PM peak-hours through the Year 2030.

- I-70 EB Ramp/Road A: As a two-lane roundabout, this intersection is expected to operate at a very good Level of Service (LOS "B" or better) during the AM and PM peak-hours through the Year 2030.

- Road A/Road C: This proposed two-lane roundabout is expected to operate at a very good Level of Service (LOS "B" or better) during the AM and PM peak-hours through the Year 2030 either with and without site-generated traffic.

## Average Daily Traffic Impacts

Figure 15 illustrates the broader, "average daily traffic" impacts that the proposed Eagle River Station development would have on the surrounding traffic system in the Year 2030. As shown, the average daily traffic of the proposed Eagle River Station development is shown along with the projected Year 2030 average daily traffic volume.

## Table 6
## Level of Service Criteria

**Signalized Intersections**

| Level of Service (LOS) | Delay Range (seconds per vehicle) | Expected Delay at Intersection |
|---|---|---|
| A | < 10 | Very low delay. Most vehicles do not stop |
| B | > 10 and < 20 | Generally good progression of vehicles. Slight delays. |
| C | > 20 and < 35 | Fair progression. Increased number of stopped vehicles. |
| D | > 35 and < 55 | Noticeable congestion. Large portions of vehicles stopped. |
| E | > 55 and < 80 | Poor progression. High delays and frequent cycle failure. |
| F | > 80 | Oversaturation. Forced flow. Extensive queuing |

**Unsignalized Intersections**

| Level of Service (LOS) | Delay Range (seconds per vehicle) | Expected Delay to Minor Street Traffic |
|---|---|---|
| A | < 10 | Little or no conflicting traffic for minor street approach. |
| B | > 10 and < 15 | Minor street approach begins to notice abscence of available gaps. |
| C | > 15 and < 25 | Minor street approach begins experiencing delays for available gaps. |
| D | > 25 and < 35 | Minor street approach experiences queuing due to reduction in available gaps. |
| E | > 35 and < 50 | Extensive minor street queuing due to insufficient gaps. |
| F | > 50 | Insufficient gaps to allow minor street traffic demand to cross safely through a major traffic stream. |

Source: Transportation Research Board, *Highway Capacity Manual*, 2000 Edition

**Table 7**
**Intersection Level of Service - 2008 and 2015**
**Eagle River Station**
**(LSC #060831; April, 2008)**

| Traffic Control | Intersection Location | Year 2008 (3) Background Traffic Level of Service AM | Year 2008 (3) Background Traffic Level of Service PM | Year 2008 (4) Total Traffic Level of Service AM | Year 2008 (4) Total Traffic Level of Service PM | Year 2015 (3) Background Traffic Level of Service AM | Year 2015 (3) Background Traffic Level of Service PM | Year 2015 (4) Total Traffic Level of Service AM | Year 2015 (4) Total Traffic Level of Service PM |
|---|---|---|---|---|---|---|---|---|---|
| Unsignalized (1) | Eby Creek Road/Market Drive | | | | | | | | |
| | Eastbound Approach | B | B | B | B | A | A | A | B |
| | Westbound Left | D | E | D | E | C | C | C | C |
| | Westbound Through and Right | A | B | A | B | A | A | A | A |
| | Northbound Left | A | A | A | A | A | A | A | A |
| | Northbound Through | A | A | A | A | A | A | A | A |
| | Northbound Right | A | A | A | A | A | A | A | A |
| | Southbound Approach | A | A | A | A | A | A | A | A |
| | Critical Movement Delay(sec /veh) | 24.7 | 39.3 | 25.4 | 44.2 | 17.2 | 23.7 | 17.4 | 24.8 |
| Signalized (1) | Eby Creek Road/I-70 WB Ramp | | | | | | | | |
| | Westbound Left | D | F | C | D | D | F | C | D |
| | Westbound Through and Right | B | B | B | B | B | B | B | B |
| | Northbound Left | D | F | A | B | C | F | A | B |
| | Northbound Through | A | B | A | A | C | C | A | A |
| | Southbound Through and Right | C | E | B | C | D | F | B | D |
| | Entire Intersection Delay (sec /veh) | 28.1 | 70.7 | 15.7 | 22.6 | 37.5 | 140 | 16.9 | 28.6 |
| | Entire Intersection LOS | C | E | B | C | D | F | B | C |
| Signalized (1) | Eby Creek Road/I-70 EB Ramp | | | | | | | | |
| | Eastbound Left | C | C | C | C | D | D | C | C |
| | Eastbound Through and Right | C | C | C | C | D | E | C | C |
| | Northbound Through | A | A | A | A | A | A | A | A |
| | Northbound Right | B | A | A | A | C | B | A | A |
| | Southbound Left | A | A | A | A | A | A | A | A |
| | Southbound Through | A | A | A | A | A | C | A | A |
| | Entire Intersection Delay (sec /veh) | 9.3 | 6.8 | 6.9 | 5.8 | 14.4 | 20.7 | 6.6 | 7.0 |
| | Entire Intersection LOS | A | A | A | A | B | C | A | A |
| Signalized (1) | Eby Creek Road/Chambers Ave. | | | | | | | | |
| | Eastbound Left | C | B | C | B | D | F | C | B |
| | Eastbound Through and Right | C | B | B | B | C | C | C | B |
| | Westbound Left | E | F | C | E | F | F | D | E |
| | Westbound Through and Right | C | B | B | B | C | D | C | B |
| | Northbound Left | B | F | B | E | B | F | B | D |
| | Northbound Through | C | C | B | C | D | E | B | C |
| | Northbound Right | B | B | B | B | B | B | B | B |
| | Southbound Left | C | B | A | B | D | F | B | C |
| | Southbound Through | A | C | A | B | A | C | A | B |
| | Southbound Right | A | A | A | A | A | A | A | A |
| | Entire Intersection Delay (sec /veh) | 21.7 | 47.7 | 13.4 | 24.9 | 30.3 | 112.9 | 15.6 | 25.2 |
| | Entire Intersection LOS | C | D | C | C | C | F | B | C |
| Roundabout (2) | US 6/Eby Creek Road | | | | | | | | |
| | Westbound Approach | A | A | A | C | A | A | A | A |
| | Southbound Approach | A | F | A | F | A | F | A | A |
| | Eastbound Approach | C | B | E | F | A | A | A | A |
| | Northbound Approach | A | A | A | A | B | C | B | B |
| | Entire Intersection Delay (sec /veh) | 12.1 | 66.1 | 23.5 | 76.5 | 5.4 | 29.2 | 5.0 | 6.3 |
| | Entire Intersection LOS | B (1 Lane) | F (1 Lane) | C (1 Lane) | F (1 Lane) | A (2 Lane) | D (2 Lane) | A (2 Lane) | A (2 Lane) |
| Unsignalized (1) | US 6/Nogal Rd. | | | | | | | | |
| | Eastbound Left | A | A | A | B | A | A | A | A |
| | Westbound Right | A | A | A | A | A | A | A | A |
| | Southbound Approach | B | B | B | C | B | B | B | C |
| | Critical Movement Delay(sec /veh) | 10.1 | 10.5 | 13.7 | 20.6 | 10.0 | 10.4 | 12.3 | 14.8 |
| Roundabout (2) (2 Lane) | I-70 WB Ramp/Road A | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 2.6 | 4.5 | – | – | 2.7 | 5.0 |
| | Entire Intersection LOS | – | – | A | A | – | – | A | A |
| Roundabout (2) (2 Lane) | I-70 EB Ramp/Road A | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 2.3 | 3.7 | – | – | 2.4 | 4.3 |
| | Entire Intersection LOS | – | – | A | A | – | – | A | A |
| Roundabout (2) (2 Lane) | Road A/Road C | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 2.4 | 5.6 | – | – | 2.5 | 5.7 |
| | Entire Intersection LOS | – | – | A | A | – | – | A | A |
| Roundabout (2) (1 Lane) | US 6/Chambers Ave. | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 5.5 | 9.6 | – | – | 6.5 | 9.6 |
| | Entire Intersection LOS | – | – | B | A | – | – | A | A |
| Roundabout (2) (1 Lane) | US 6/Road A | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 4.9 | 6.8 | – | – | 5.4 | 7.0 |
| | Entire Intersection LOS | – | – | A | A | – | – | A | A |

(1) - Based on *Highway Capacity Manual* (Synchro Version 6.0)
(2) - Based on Rodel software
(3) - Without East Eagle Interchange
(4) - Includes East Eagle Interchange

**Table 8**
**Intersection Level of Service - 2030**
**Eagle River Station**
**(LSC #060831; April, 2008)**

| Traffic Control | Intersection Location | Year 2030 (3) Background Traffic Level of Service AM | Year 2030 (3) Background Traffic Level of Service PM | Year 2030 (4) With New East Eagle I-70 Interchange Total Traffic Level of Service AM | Year 2030 (4) With New East Eagle I-70 Interchange Total Traffic Level of Service PM |
|---|---|---|---|---|---|
| Unsignalized (1) | Eby Creek Road/Market Drive | | | | |
| | Eastbound Approach | A | A | A | B |
| | Westbound Left | C | D | C | D |
| | Westbound Through and Right | A | A | A | A |
| | Northbound Left | A | A | A | A |
| | Northbound Through | A | A | A | A |
| | Northbound Right | A | A | A | A |
| | Southbound Approach | A | A | A | A |
| | Critical Movement Delay(sec /veh) | 17.4 | 28.3 | 18.1 | 30.5 |
| Signalized (1) | Eby Creek Road/I-70 WB Ramp | | | | |
| | Westbound Left | D | F | D | F |
| | Westbound Through and Right | B | B | B | B |
| | Northbound Left | D | F | A | F |
| | Northbound Through | C | B | A | A |
| | Southbound Through and Right | D | F | B | E |
| | Entire Intersection Delay (sec /veh) | 42.2 | 229.9 | 18.2 | 62.3 |
| | Entire Intersection LOS | D | F | B | E |
| Signalized (1) | Eby Creek Road/I-70 EB Ramp | | | | |
| | Eastbound Left | C | C | C | C |
| | Eastbound Through and Right | E | F | C | D |
| | Northbound Through | A | A | A | A |
| | Northbound Right | E | A | A | A |
| | Southbound Left | A | A | A | A |
| | Southbound Through | B | F | A | B |
| | Entire Intersection Delay (sec /veh) | 36.5 | 71.4 | 7.4 | 11 |
| | Entire Intersection LOS | D | E | A | B |
| Signalized (1) | Eby Creek Road/Chambers Ave. | | | | |
| | Eastbound Left | F | F | C | D |
| | Eastbound Through and Right | D | C | C | B |
| | Westbound Left | F | F | D | F |
| | Westbound Through and Right | D | D | C | C |
| | Northbound Left | B | F | B | F |
| | Northbound Through | F | F | C | C |
| | Northbound Right | C | C | B | B |
| | Southbound Left | F | F | C | F |
| | Southbound Through | A | C | A | B |
| | Southbound Right | A | A | A | A |
| | Entire Intersection Delay (sec /veh) | 82.3 | 114.5 | 22.4 | 52.8 |
| | Entire Intersection LOS | F | F | C | D |
| Roundabout (2) | US 6/Eby Creek Road | | | | |
| | Westbound Approach | A | A | A | A |
| | Southbound Approach | A | F | A | C |
| | Eastbound Approach | A | A | B | A |
| | Northbound Approach | C | B | C | B |
| | Entire Intersection Delay (sec /veh) | 7.7 | 31.2 | 8.3 | 12.2 |
| | Entire Intersection LOS | A | D | A | B |
| Unsignalized (1) | US 6/Nogal Rd. | | | | |
| | Eastbound Left | A | A | A | A |
| | Eastbound Through | A | A | A | A |
| | Westbound Through | A | A | A | A |
| | Westbound Right | A | A | A | A |
| | Southbound Approach | B | B | B | C |
| | Critical Movement Delay(sec /veh) | 10.5 | 11.7 | 13.7 | 18.6 |
| Roundabout (2) (2-lane) | I-70 WB Ramp/Road A | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 2.9 | 7.4 |
| | Entire Intersection LOS | – | – | A | A |
| Roundabout (2) (2-lane) | I-70 EB Ramp/Road A | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 5.6 | 2.6 |
| | Entire Intersection LOS | – | – | A | A |
| Roundabout (2) (2-lane) | Road A/Road C | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 2.8 | 10.4 |
| | Entire Intersection LOS | – | – | A | A |
| Roundabout (2) (1-lane) | US 6/Chambers Ave. | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 7.5 | 10.9 |
| | Entire Intersection LOS | – | – | A | B |
| Roundabout (2) (1-lane) | US 6/Road A | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 6.0 | 8.6 |
| | Entire Intersection LOS | – | – | A | A |

(1) - Based on *Highway Capacity Manual* (Synchro Version 6.0)
(2) - Based on Rodel software
(3) - Excludes East Eagle Interchange
(4) - Includes East Eagle Interchange

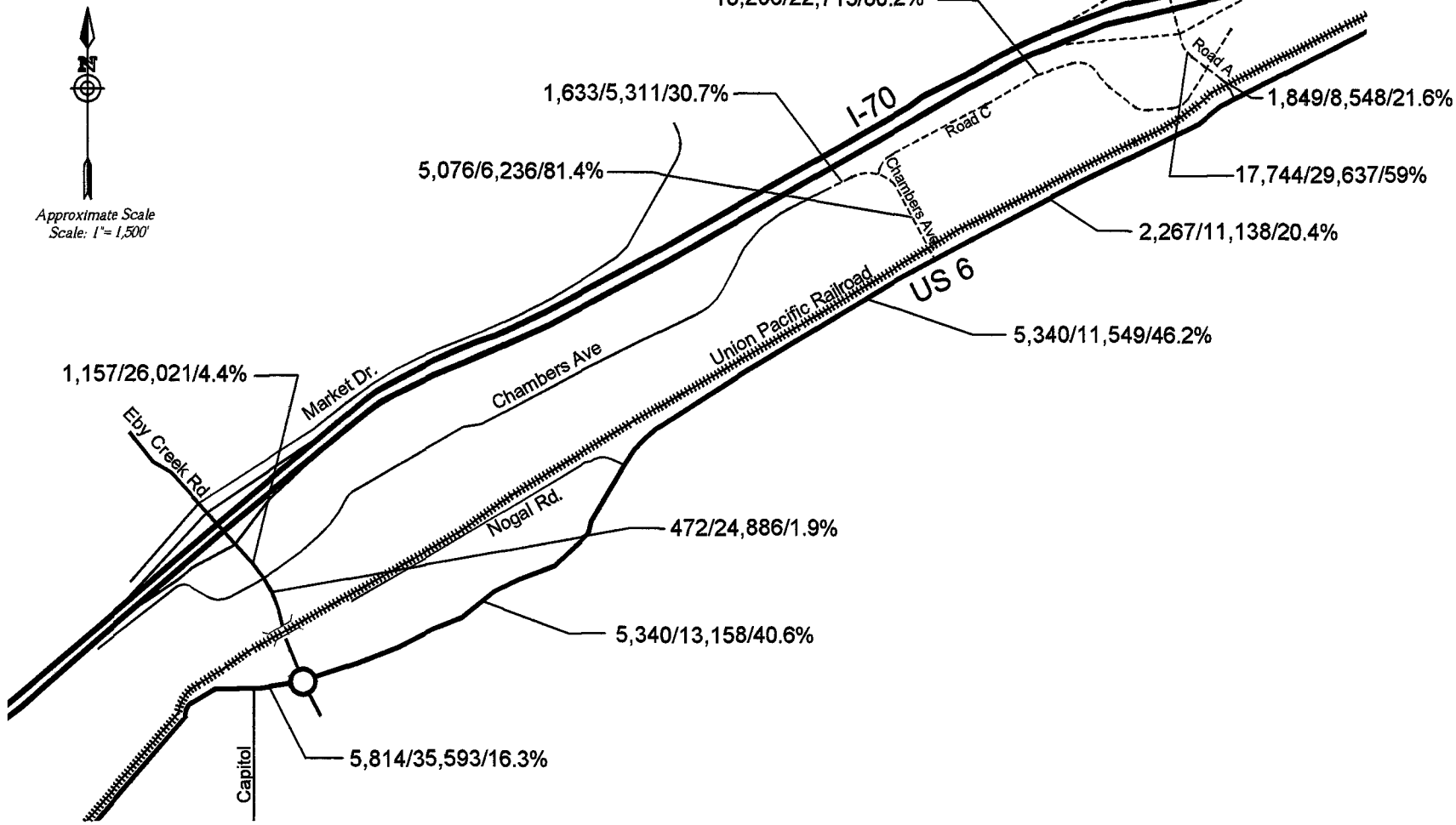



*Figure 15*

# *Year 2030 Revised Assignment Average Daily Traffic Impacts*

Eagle River Station (LSC# 060831)

LEGEND:

5,340/16,158/40.6% = Site-Generated Traffic / Total Traffic / Site-Generated % of Total

## SECTION G
# Access Recommendations

In order to accommodate traffic from the proposed Eagle River Station development, it is recommended that:

1. A new interchange should be constructed on I-70, approximately 1.8 miles east of the existing Eby Creek Road/I-70 interchange, along with a connector road, Road A, between the new interchange and US 6.

2. Road A should have two through lanes in each direction from the interchange to Road C and one through lane in each direction from Road C to US 6.

3. The westbound and eastbound ramp intersections with Road A should be constructed with two-lane roundabouts.

4. A new roadway, Road C, should be constructed between Chambers Avenue and Road A. The intersection of Road A and Road C should be constructed as a two-lane roundabout.

5. The US 6/Road A and US 6/Chambers Avenue intersections should be constructed as single-lane roundabouts.

6. The US 6/Eby Creek roundabout should be modified for multi-lane operations. Eagle River Station's share of the Year 2030 traffic at this intersection will be approximately 16 percent.

7. Pedestrian and bike facilities should be provided within Eagle River Station to provide connections to the Town of Eagle and Eagle County's pedestrian and bike networks. Internal sidewalks and bike paths should be provided within the proposed Eagle River Station development.

8. Transit amenities, such as bus stops and shelters, should be provided within the proposed development.

9. The construction of the East Eagle interchange on I-70 will be accomplished if the proposed Eagle River Station development is approved by the Town of Eagle. The construction of this interchange will not only serve the proposed Eagle River Station, but it will provide a significant reduction in traffic through the existing I-70/Eby Creek Road interchange which results in improved Levels of Service along Eby Creek Road.

# SECTION H
# Conclusions

Based upon the foregoing analysis, the following conclusions can be made concerning the traffic impacts and access requirements of the proposed Eagle River Station development:

1. The Eagle River Station is currently planned to contain approximately 581 multi-family dwelling units, a 150-room hotel, a private school, and 649,000 square feet of commercial space. An estimated total of 26,962 vehicle-trips would be generated per average weekday. Of these, approximately 1,056 and 2,484 vehicle-trips will occur during the AM and PM peak travel periods, respectively. About 65 percent of the vehicle-trips generated by the development will access the site via the new East Eagle interchange without having to travel on existing local roads in the area.

2. Access to and from the development will be provided from US 6, Chambers Avenue, and a new north/south connector road (Road A) between US 6 and a new interchange with I-70.

3. All internal intersections, the new I-70 ramps intersections, and site access intersections with US 6 can operate at Levels of Service that meet or exceed the requirements outlined in the Town of Eagle's *Adequate Public Facilities Regulations.*

4. The US 6/Eby Creek single-lane roundabout will operate at poor Levels of Service in the Years 2015 and 2030 either with or without the addition of the proposed Eagle River Station development. This roundabout should be modified for multi-lane operations. The development's share of 2030 traffic at this intersection will be about 16 percent.

5. A grade separation of Road A and the Union Pacific Railroad is unwarranted based on federal criteria, using the projected Year 2030 vehicular traffic and existing train traffic. Train traffic would have to increase to 20 - 25 trains per day to justify a grade separation at this location. Due to the impact of train blockages on the connections to US 6, the development plans should not preclude a grade separation at this location should it be needed at a later date.

6. The construction of the East Eagle interchange on I-70 will be accomplished if the proposed Eagle River Station development is approved by the Town of Eagle. The construction of this interchange will not only serve the proposed Eagle River Station, but it will provide a significant reduction in traffic through the existing I-70/Eby Creek Road interchange which results in improved Levels of Service along Eby Creek Road.

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TRANSPORTATION
CONSULTANTS, INC.

May 3, 2011

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

RE: Eagle River Station Update
Eagle, CO
(LSC #110150)

Dear Mr. McMahon:

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

## REPORT CONTENTS

This report updates our previous work for the Eagle River Station development submitted in April, 2008. It estimates the trip generation characteristics of a revised land use plan, updates the existing traffic conditions, and evaluates four different 2014 access scenarios to assist in your planning efforts.

## PROPOSED LAND USE

Two scenarios, Phase 1 and full site build out, were evaluated for 2014. Phase 1 includes approximately 582,500 square feet of shopping center space and about 250 apartment and/or townhome units. Build out would include an additional 300 apartment and/or townhome units and either 150,000 additional square feet of shopping center space or 60,000 square feet of medical office space.

## EXISTING CONDITIONS

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

## TRIP GENERATION

Table 1 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site, based on rates found in *Trip Generation, 8th Edition, 2008* by the Institute of Transportation Engineers (ITE). The top part of Table 1 shows the land use and trip generation estimates for the most recent land use plan, submitted in September, 2009, indicating an expected daily weekday total of about 24,135 vehicle-trips.

### Phase 1

Phase 1 includes approximately 582,500 square feet of shopping center space and about 250 apartment and/or townhome units. It is projected to generate about 21,660 vehicle-trips on the average weekday. During the morning peak-hour, about 270 vehicles would enter and about 250 vehicles would exit the site. During the afternoon peak-hour, about 1,045 vehicles would enter and about 1,045 vehicles would exit the site.

### Build Out

Build out would include an additional 300 apartment and/or townhome units and either 150,000 additional square feet of shopping center space or 60,000 square feet of medical office space. It was determined the addition of 60,000 square feet of medical office space or an additional 150,000 square feet of shopping center space would generate a similar amount of daily traffic. For this analysis, the medical office space was used for the build out scenario. Build out of the site is projected to generate about 25,375 vehicle-trips on the average weekday. During the morning peak-hour, about 395 vehicles would enter and about 380 vehicles would exit the site. During the afternoon peak-hour, about 1,200 vehicles would enter and about 1,235 vehicles would exit the site. Note that build out would result in about 1,240 more daily vehicle-trips than the land use plan of September, 2009.

## PROPOSED ACCESS SCENARIOS

Four separate 2014 access scenarios were modeled to determine the probable roadway improvements that would be needed for each. 2014 background traffic volumes include 2011 estimated traffic volumes plus traffic expected to be generated by growth from new developments in the Eagle area. The Phase 1 and build out projected levels of service for the major intersections in each access scenario are shown in Tables 2 and 3, respectively. Note that in all scenarios, the I-70 EB Ramps/Eby Creek Road intersection performs poorly, as it does with existing traffic and should be considered an existing deficiency.

### Scenario 1

Scenario 1 assumes existing conditions plus an extension of Chambers Road east to the site and then south to US Highway 6. The projected total traffic volumes, including growth in background traffic,

are shown in Figures 4 (Phase 1) and 5 (build out) while the recommended roadway improvements are shown in Figure 6.

This scenario will require extensive improvements to the Eby Creek Road corridor between I-70 and Chambers Road. The existing traffic signal control at the intersections of I-70 WB Ramps/Eby Creek Road and Eby Creek Road/Chambers Road and the existing unsignalized control at the intersection of I-70 EB Ramps/Eby Creek Road will require two-lane or partial two-lane roundabouts to accommodate heavy left-turn volumes. While these improvements are significant they will cost considerably less than construction of the East Eagle interchange.

The new intersection of the Chambers Road extension and US Highway 6 involves a railroad crossing and would function acceptably in 2014 with stop-sign control on Chambers Road. A conventional intersection would require separate right- and left-turn lanes on the southbound approach and right- and left-turn deceleration lanes as well as a right-turn acceleration lane on US Highway 6. A single-lane roundabout may be preferable as it would not require auxiliary lanes.

**Scenario 2**

Scenario 2 assumes construction of the East Eagle Interchange plus an extension of Chambers Road east to the site and then south to US Highway 6. A connection would be provided from Chambers Road through the site to the new interchange. The projected total traffic volumes, including growth in background traffic are shown in Figures 7 (Phase 1) and 8 (build out), while the recommended roadway improvements are shown in Figure 9.

This scenario will require signalization of the intersection of I-70 EB Ramps/Eby Creek Road.

The new intersection of the Chambers Road extension and US Highway 6 involves a railroad crossing and would function acceptably in 2014 with stop-sign control on Chambers Road. A conventional intersection would require separate right- and left-turn lanes on the southbound approach and right- and left-turn deceleration lanes as well as a right-turn acceleration lane on US Highway 6. A single-lane roundabout may be preferable as it would not require auxiliary lanes.

**Scenario 3**

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 connection but would not have an intersection with US Highway 6. The projected total traffic volumes, including growth in background traffic are shown in Figures 10 (Phase 1) and 11 (build out), while the recommended roadway improvements are shown in Figure 12.

This scenario will require signalization of the intersection of I-70 EB Ramps/Eby Creek Road.

The new intersection of the Connector Road with US Highway 6 involves a railroad crossing and would function acceptably in 2014 with stop-sign control on the southbound approach. A conventional intersection would require separate right- and left-turn lanes on the southbound approach and right- and left-turn deceleration lanes as well as a right-turn acceleration lane on US Highway 6. A single-lane roundabout may be preferable as it would not require auxiliary lanes.

**Scenario 4**

Scenario 4 assumes construction of the East Eagle Interchange and the Connector Road south to US Highway 6. Chambers Road would be extended east to the site and then south to US Highway 6. A connection would be provided between Chambers Road through the site to the Connector Road. The projected total traffic volumes, including growth in background traffic are shown in Figures 13 (Phase 1) and 14 (build out), while the recommended roadway improvements are shown in Figure 15.

This scenario will require signalization of the intersection of I-70 EB Ramps/Eby Creek Road.

The two new intersections with US Highway 6 each involve a railroad crossing and would function acceptably in 2014 with stop-sign control on the southbound approach. A conventional intersection would require separate right- and left-turn lanes on the southbound approach and right- and left-turn deceleration lanes as well as a right-turn acceleration lane on US Highway 6. Single-lane round-abouts may be preferable as they would not require auxiliary lanes. A slight variation to Scenario 4 would be the extension of Chambers to US Highway 6 as a right-in/right-out intersection. In the short term, no turn lanes may be needed until turn lane thresholds are reached.

**Summary of Phasing Scenarios**

Table 4 summarizes the Phasing Options showing associated access evaluations and ballpark cost estimates. The cost estimates are based on costs developed for the EEI Environmental Assessment and are for comparison only. These should be verified with your civil engineers. While Scenario 1 is less costly than the other scenarios, it has significant drawbacks in terms of convenient access. Scenarios 2 and 3 do not appear to have significant benefits over Scenario 4 and have slightly worse LOS on Eby Creek Road.

* * * * *

We trust this update 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.


By_____
Alex J. Ariniello, P.E., PTOE
President

CSM/AJA/wc

Enclosures: Tables 1 - 4
Figures 1 - 15

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**Table 1**
**Eagle River Station**
**Trip Generation Estimate**
**Eagle, Colorado**
**(LSC #110150; May, 2011)**

| Land Use Code | Land Use Description | Trip Generation Units | | Trip Generation Rates [1],[2] Average Weekday Traffic | Morning Peak-Hour In | Morning Peak-Hour Out | Afternoon Peak-Hour In | Afternoon Peak-Hour Out | Alternate Mode Reduction % | Total Trips Generated Average Weekday Traffic | Morning Peak-Hour In | Morning Peak-Hour Out | Afternoon Peak-Hour In | Afternoon Peak-Hour Out |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***September, 2008 Land Use Plan*** | | | | | | | | | | | | | |
| 230 | Residential Condominium/Townhouse | 581 | DU[3] | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | 5% | 3,234 | 39 | 204 | 199 | 105 |
| 310 | Hotel | 150 | Rooms | 8.17 | 0.34 | 0.22 | 0.31 | 0.28 | | 1,226 | 51 | 33 | 47 | 42 |
| 820 | Shopping Center | 555.8 | KSF[4] | 37.26 | 0.48 | 0.31 | 1.68 | 1.82 | 5% | 19,675 | 253 | 164 | 887 | 961 |
| | | | | | | | | | | **24,135** | **343** | **401** | **1,132** | **1,108** |
| | ***May, 2011 Land Use Plan*** | | | | | | | | | | | | | |
| **Phase 1** | | | | | | | | | | | | | | |
| 230 | Residential Condominium/Townhouse | 250 | DU | 5.81 | 0.075 | 0.365 | 0.348 | 0.172 | 5% | 1,380 | 18 | 87 | 83 | 41 |
| 820 | Shopping Center | 582.5 | KSF | 36.65 | 0.456 | 0.292 | 1.743 | 1.814 | 5% | 20,282 | 252 | 161 | 964 | 1,004 |
| | | | | | | | | **Total =** | | **21,662** | **270** | **248** | **1,047** | **1,044** |
| **Build Out** | | | | | | | | | | | | | | |
| 230 | Residential Condominium/Townhouse | 550 | DU | 5.81 | 0.075 | 0.365 | 0.348 | 0.172 | 5% | 3,036 | 39 | 191 | 182 | 90 |
| 720 | Medical-Dental Office Building | 60 | KSF | 36.13 | 1.817 | 0.483 | 0.934 | 2.526 | 5% | 2,059 | 104 | 28 | 53 | 144 |
| 820 | Shopping Center | 582.5 | KSF | 36.65 | 0.456 | 0.292 | 1.743 | 1.814 | 5% | 20,282 | 252 | 161 | 964 | 1,004 |
| | | | | | | | | **Total =** | | **25,377** | **395** | **380** | **1,200** | **1,237** |

Notes:
(1) Source: Based on *Trip Generation*, 7th Edition, 2003" by ITE for April, 2008 Land Use Plan
(2) Source: Based on *Trip Generatiion*, 8th Edition, 2008", by ITE for May, 2011 Land Use Plan
(3) DU = dwelling units
(4) KSF = 1,000 (thousand) square feet

*Source: LSC Transportation Consultants, Inc.*

**Table 2**
**Intersection Level of Service - 2011 Existing Traffic and 2014 Background Traffic plus Phase 1 of Site**
**Eagle River Station**
**(LSC #110150; April, 2011)**

| Traffic Control | Intersection Location | Year 2011 Existing Traffic Level of Service AM | Year 2011 Existing Traffic Level of Service PM | Year 2014 Scenario 1[3] Total Traffic Level of Service AM | Year 2014 Scenario 1[3] Total Traffic Level of Service PM | Year 2014 Scenario 2[4] Total Traffic Level of Service AM | Year 2014 Scenario 2[4] Total Traffic Level of Service PM | Year 2014 Scenario 3[5] Total Traffic Level of Service AM | Year 2014 Scenario 3[5] Total Traffic Level of Service PM | Year 2014 Scenario 4[6] Total Traffic Level of Service AM | Year 2014 Scenario 4[6] Total Traffic Level of Service PM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Signalized[1] | Eby Creek Road/I-70 WB Ramp | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 15.4 | 37.5 | 25.2 | >120 | 17.7 | 41.9 | 17.7 | 41.3 | 16.2 | 27.5 |
| | Entire Intersection LOS | B | D | C | F | B | D | B | D | B | C |
| Roundabout[2] | **Mitigated** | | | | | | | | | | |
| | Eby Creek Road/I-70 WB Ramp | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | | | | 24.5 | | | | | | |
| | Entire Intersection LOS | | | | C | | | | | | |
| Unsignalized[1] | Eby Creek Road/I-70 EB Ramp | | | | | | | | | | |
| | Southbound Left | B | A | C | E | B | B | B | B | B | B |
| | Eastbound Left/Through | F | F | F | F | C | F | C | F | C | E |
| | Critical Movement Delay(sec /veh) | 74.3 | 124.7 | 71.9 | >999 | 19.2 | 120.3 | 19.1 | 115.9 | 15.9 | 48.4 |
| Signalized(1) | **Mitigated** | | | | | | | | | | |
| | Eby Creek Road/I-70 EB Ramp | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | | | | | | 14.7 | | 14.6 | | 10.8 |
| | Entire Intersection LOS | | | | | | B | | B | | B |
| Roundabout[2] (2 Lane) | **Mitigated** | | | | | | | | | | |
| | Eby Creek Road/I-70 EB Ramp | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | | | 5.7 | 24.2 | | | | | | |
| | Entire Intersection LOS | | | B | C | | | | | | |
| Signalized[1] | Eby Creek Road/Chambers Ave. | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 17.9 | 24.0 | 107.9 | >120 | 24.3 | 40.3 | 24.2 | 41.2 | 21.0 | 30.5 |
| | Entire Intersection LOS | B | C | F | F | C | D | C | D | C | C |
| Roundabout[2] | **Mitigated** | | | | | | | | | | |
| | Eby Creek Road/Chambers Ave. | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | | | 6.2 | 28.4 | | | | | | |
| | Entire Intersection LOS | | | B | D | | | | | | |
| Roundabout[2] | US 6/Eby Creek Road | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 7.1 | 5.6 | 17.7 | 14.2 | 18.2 | 14.6 | 18.1 | 13.8 | 18.5 | 15.9 |
| | Entire Intersection LOS | A (1 Lane) Modified | A (1 Lane) Modified | C (1 Lane) Modified | B (1 Lane) Modified | C (1 Lane) Modified | B (1 Lane) Modified | C (1 Lane) Modified | B (1 Lane) Modified | C (1 Lane) Modified | C (1 Lane) Modified |
| Roundabout[2] (2 Lane) | I-70 WB Ramp/Road A | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | – | – | 2.3 | 4.1 | 2.4 | 4.2 | 2.4 | 4.7 |
| | Entire Intersection LOS | – | – | – | – | A | A | A | A | A | A |
| Roundabout[2] (2 Lane) | I-70 EB Ramp/Road A | | | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | – | – | 2.0 | 2.7 | 2.0 | 2.8 | 2.1 | 3.1 |
| | Entire Intersection LOS | – | – | – | – | A | A | A | A | A | A |
| Unsignalized[1][7] | US 6/Chambers Ave. | | | | | | | | | | |
| | Eastbound Left | – | – | A | A | A | A | – | – | A | A |
| | Southbound Left | | | B | C | B | B | – | – | B | C |
| | Critical Movement Delay(sec /veh) | – | – | 12.2 | 17.4 | 13.0 | 15.0 | – | – | 14.5 | 18.9 |
| Unsignalized[1][7] | US 6/Road A | | | | | | | | | | |
| | Eastbound Left | – | – | – | – | – | – | A | A | A | A |
| | Southbound Left | – | – | – | – | – | – | B | B | C | C |
| | Critical Movement Delay(sec /veh) | – | – | – | – | – | – | 12.2 | 13.7 | 17.8 | 20.8 |

Notes:
(1) - Based on *Highway Capacity Manual* (Synchro Version 6.0)
(2) - Based on Rodel software
(3) - With Existing Roadway Infrastructure and Chambers connection to US 6
(4) - With East Eagle Interchange and Chambers connection to US 6
(5) - With East Eagle Interchange and Road A connection to US 6
(6) - With East Eagle Interchange and Chambers and Road A connections to US 6
(7) - Could also be built as single-lane roundabout which would eliminate the need for left- and right-turn deceleration lanes and right-turn acceleration lanes on US 6

**Table 3**
**Intersection Level of Service - 2014 Background Traffic plus Build Out of Site**
**Eagle River Station**
**(LSC #110150; April, 2011)**

| Traffic Control | Intersection Location | Year 2014 Scenario 1 [3] Total Traffic Level of Service AM | Year 2014 Scenario 1 [3] Total Traffic Level of Service PM | Year 2014 Scenario 2 [4] Total Traffic Level of Service AM | Year 2014 Scenario 2 [4] Total Traffic Level of Service PM | Year 2014 Scenario 3 [5] Total Traffic Level of Service AM | Year 2014 Scenario 3 [5] Total Traffic Level of Service PM | Year 2014 Scenario 4 [6] Total Traffic Level of Service AM | Year 2014 Scenario 4 [6] Total Traffic Level of Service PM |
|---|---|---|---|---|---|---|---|---|---|
| Signalized[1] | Eby Creek Road/I-70 WB Ramp | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 29.3 | >120 | 17.7 | 44.6 | 17.7 | 43.4 | 16.2 | 28.3 |
| | Entire Intersection LOS | C | F | B | D | B | D | B | C |
| Roundabout[2] | **Mitigated** | | | | | | | | |
| | Eby Creek Road/I-70 WB Ramp | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | | 25.2 | | | | | | |
| | Entire Intersection LOS | | D | | | | | | |
| Unsignalized[1] | Eby Creek Road/I-70 EB Ramp | | | | | | | | |
| | Southbound Left | C | F | B | B | B | B | B | B |
| | Eastbound Left/Through | F | F | C | F | C | F | C | F |
| | Critical Movement Delay(sec /veh) | 125.4 | >999 | 19.5 | 137.6 | 19.4 | 119.9 | 16.2 | 50.7 |
| Signalized[1] | **Mitigated** | | | | | | | | |
| | Eby Creek Road/I-70 EB Ramp | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | | | | 15.2 | | 15.1 | | 10.8 |
| | Entire Intersection LOS | | | | B | | B | | B |
| Roundabout[2] (2 Lane) | **Mitigated** | | | | | | | | |
| | Eby Creek Road/I-70 EB Ramp | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 6.4 | 26.2 | | | | | | |
| | Entire Intersection LOS | B | D | | | | | | |
| Signalized[1] | Eby Creek Road/Chambers Ave. | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 112.7 | >120 | 24.6 | 41.5 | 24.6 | 44.5 | 21.6 | 34.3 |
| | Entire Intersection LOS | F | F | C | D | C | D | C | C |
| Roundabout[2] | **Mitigated** | | | | | | | | |
| | Eby Creek Road/Chambers Ave. | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 7.0 | 30.0 | | | | | | |
| | Entire Intersection LOS | B | D | | | | | | |
| Roundabout[2] | US 6/Eby Creek Road | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | 17.6 | 14.6 | 18.1 | 14.9 | 18.0 | 14.7 | 18.4 | 16.2 |
| | Entire Intersection LOS | C (1-Lane) Modified | B (1-Lane) Modified | C (1-Lane) Modified | B (1-Lane) Modified | C (1-Lane) Modified | B (1-Lane) Modified | C (1-Lane) Modified | C (1-Lane) Modified |
| Roundabout[2] (2 Lane) | I-70 WB Ramp/Road A | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 2.4 | 4.5 | 2.4 | 4.7 | 2.5 | 5.3 |
| | Entire Intersection LOS | – | – | A | A | A | A | A | A |
| Roundabout[2] (2 Lane) | I-70 EB Ramp/Road A | | | | | | | | |
| | Entire Intersection Delay (sec /veh) | – | – | 2.0 | 2.9 | 2.0 | 3.0 | 2.1 | 3.3 |
| | Entire Intersection LOS | – | – | A | A | A | A | A | A |
| Unsignalized[1][7] | US 6/Chambers Ave. | | | | | | | | |
| | Eastbound Left | A | A | A | A | – | – | A | A |
| | Southbound Left | B | C | B | C | – | – | B | C |
| | Critical Movement Delay(sec /veh) | 12.7 | 19.7 | 13.3 | 16.6 | – | – | 14.9 | 20.6 |
| Unsignalized[1][7] | US 6/Road A | | | | | | | | |
| | Eastbound Left | – | – | – | – | A | A | A | A |
| | Southbound Left | – | – | – | – | B | B | C | C |
| | Critical Movement Delay(sec /veh) | – | – | – | – | 12.4 | 14.7 | 18.2 | 22.0 |

Notes:
(1) - Based on *Highway Capacity Manual* (Synchro Version 6.0)
(2) - Based on Rodel software
(3) - With Existing Roadway Infrastructure and Chambers connection to US 6
(4) - With East Eagle Interchange and Chambers connection to US 6
(5) - With East Eagle Interchange and Road A connection to US 6
(6) - With East Eagle Interchange and Chambers and Road A connections to US 6
(7) - Could also be built as single-lane roundabout which would eliminate the need for left- and right-turn deceleration lanes and right-turn acceleration lanes on US 6

**Table 4**
**Eagle River Station**
**Summary of Phasing Options**

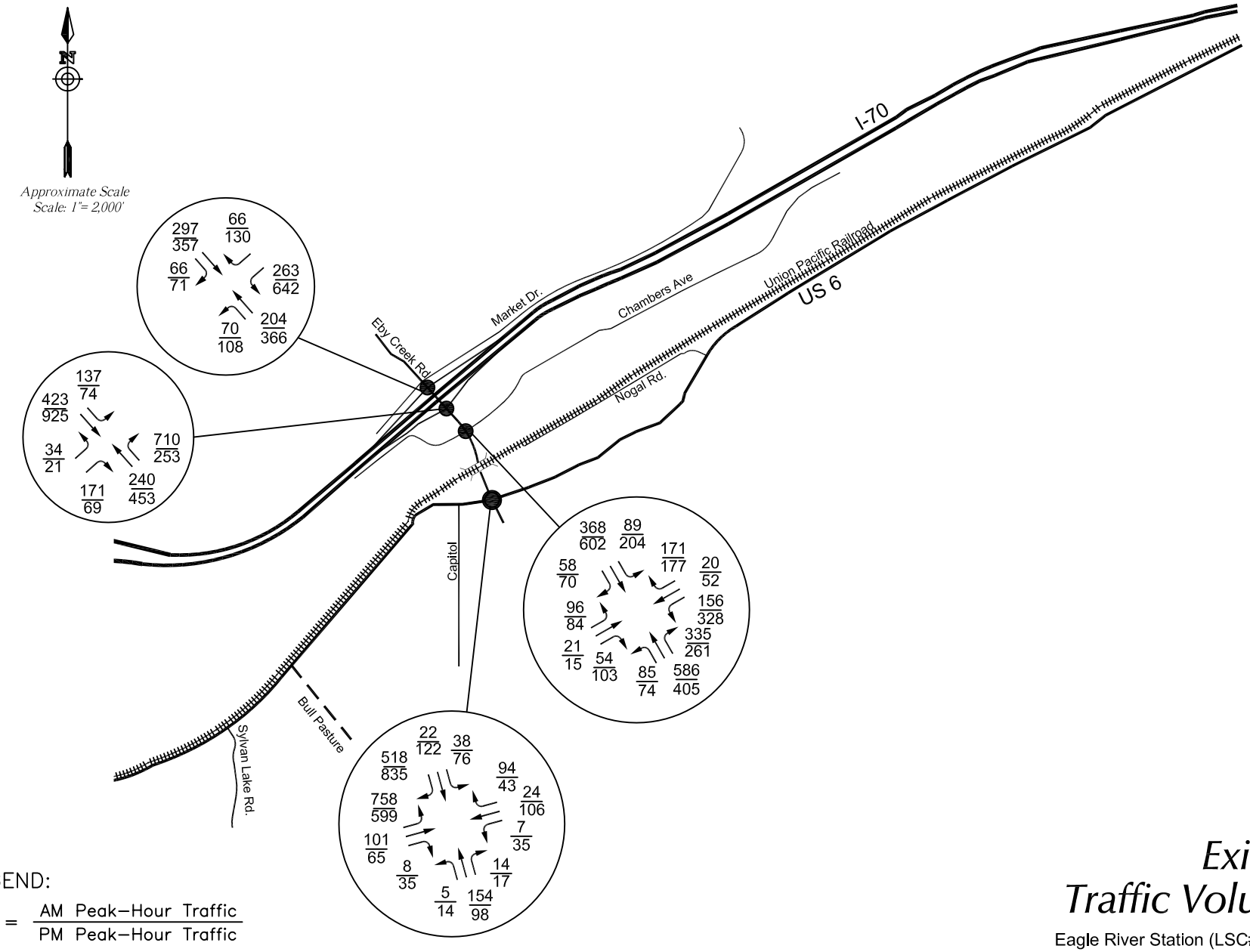
| Scenario | Phasing Option Description | Access Issues | Recommended Improvements | Cost Impacts |
|---|---|---|---|---|
| 1 | No East Eagle Interchange Extend Chambers to US 6 | Traveling one-mile east on Chambers will discourage shoppers | Construct Roundabout at Eby Creek Road/I-70 Westbound Ramps | $1 to 2 million for Eby Creek Improvements |
| | | | Construct Roundabout or Traffic Signal at Eby Creek Road/I-70 Eastbound Ramps | $1 to 2 million for Eby Creek Improvements or 0.5 for Traffic Signal and Improvements at EB Ramps |
| | | | Construct Roundabout or add lanes at Eby Creek Road/Chambers Ave | $1.5 to 2.5 million for Eby Creek Improvements |
| | | | Roundabout or turn lanes at Chambers/US 6 | $1 to 2 million for roundabout or 0.5 million for turn lanes |
| 2 | Construct East Eagle Interchange, Extend Chambers to US 6 | EEI will provide convenient access for shoppers to ERS | Construct EEI and Chambers extension to US 6 | $12 to 15 million for EEI |
| | | | Roundabout or turn lanes at Chambers/US 6 | $1 to 2 million for roundabout or 0.5 million for turn lanes |
| 3 | Construct East Eagle Interchange and Connector Road to US 6 | EEI will provide convenient access for shoppers to ERS | Construct EEI and Connector Road | $12 to 15 million for EEI |
| | | | Roundabout or turn lanes at Connector Road/US 6 | $1 to 2 million for roundabout or 0.5 million for turn lanes |
| 4 | Construct East Eagle Interchange and Connector Road to US 6. Extend Chambers to US 6 | EEI will provide convenient access for shoppers to ERS | Construct EEI and Connector Road | $12 to 15 million for EEI |
| | | | Roundabout or turn lanes at Connector Road/US 6 | $1 to 2 million for roundabout or 0.5 million for turn lanes |
| | | | Roundabout or turn lanes at Chambers/US 6 | $1 to 2 million for roundabout or 0.5 million for turn lanes |


*Approximate Scale*
*Scale: 1"= 2,000'*

*Figure 1*

# *Vicinity Map*

Eagle River Station (LSC# 110150)




LEGEND:

$\frac{26}{31} = \frac{\text{AM Peak-Hour Traffic}}{\text{PM Peak-Hour Traffic}}$

*Figure 2*

# *Existing Traffic Volumes*

Eagle River Station (LSC# 110150)

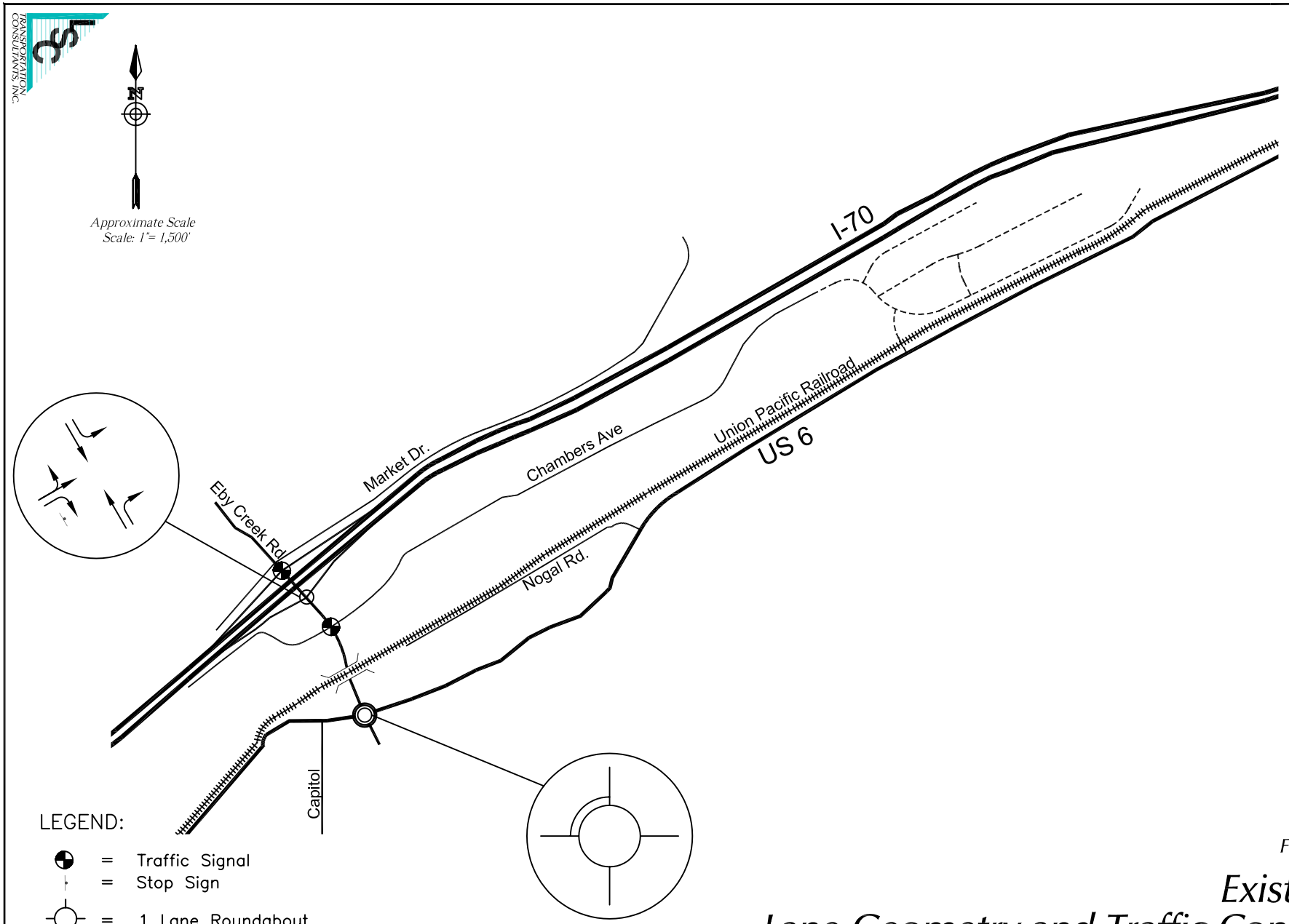



*Figure 3*

# *Existing Lane Geometry and Traffic Control*

Eagle River Station (LSC# 110150)

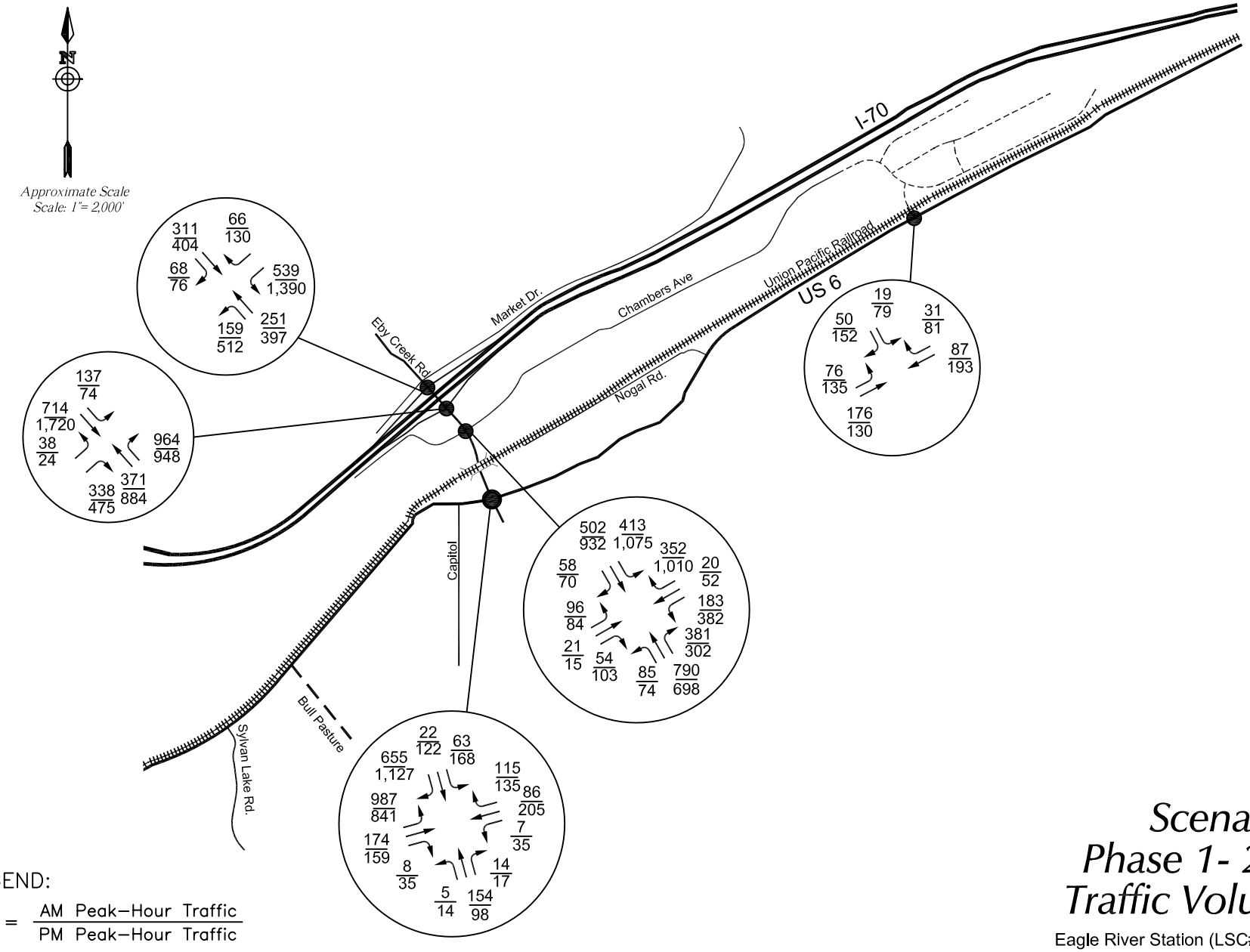



*Figure 4*

# *Scenario 1 Phase 1- 2014 Traffic Volumes*

Eagle River Station (LSC# 110150)

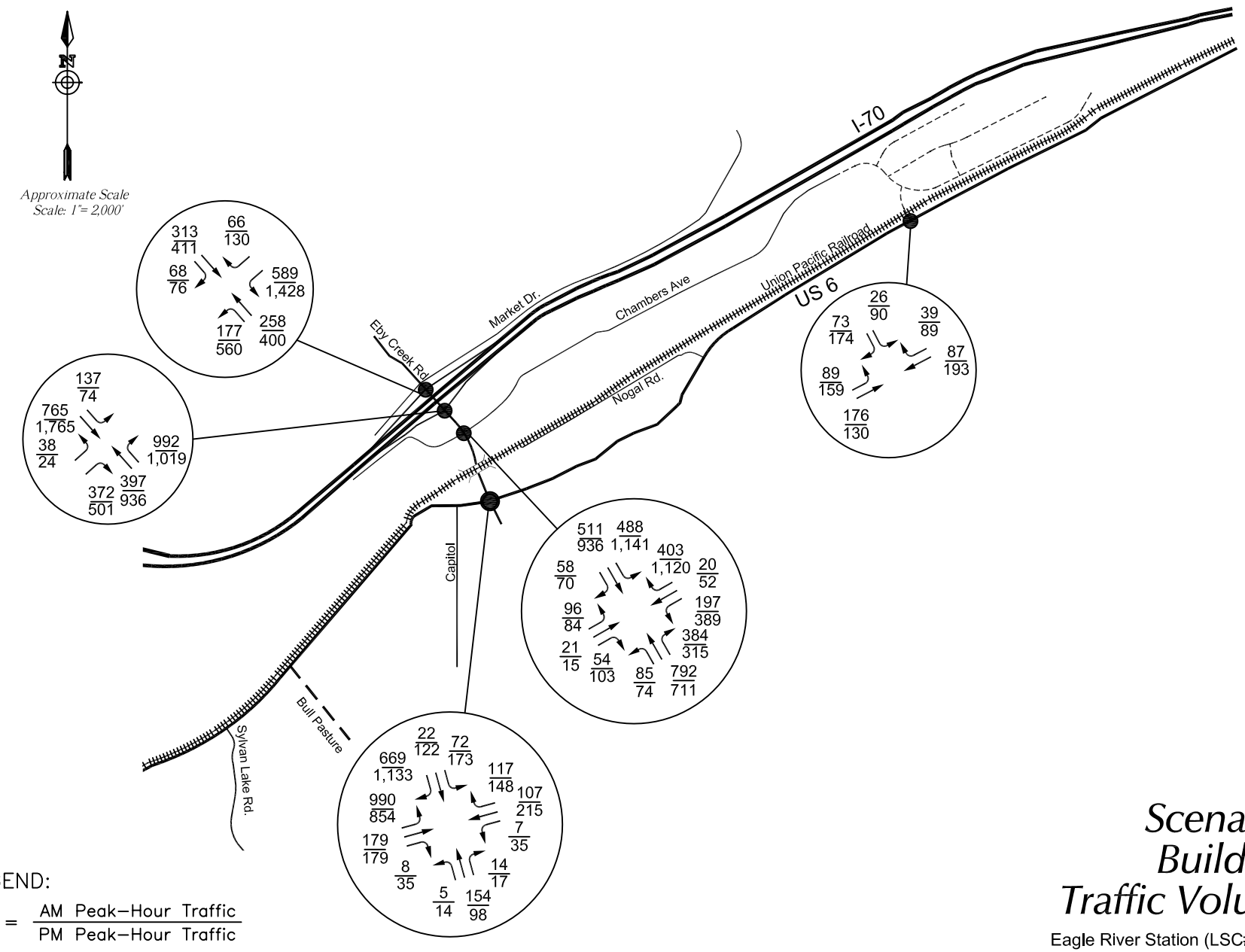



*Figure 5*

# *Scenario 1 Build Out Traffic Volumes*

Eagle River Station (LSC# 110150)

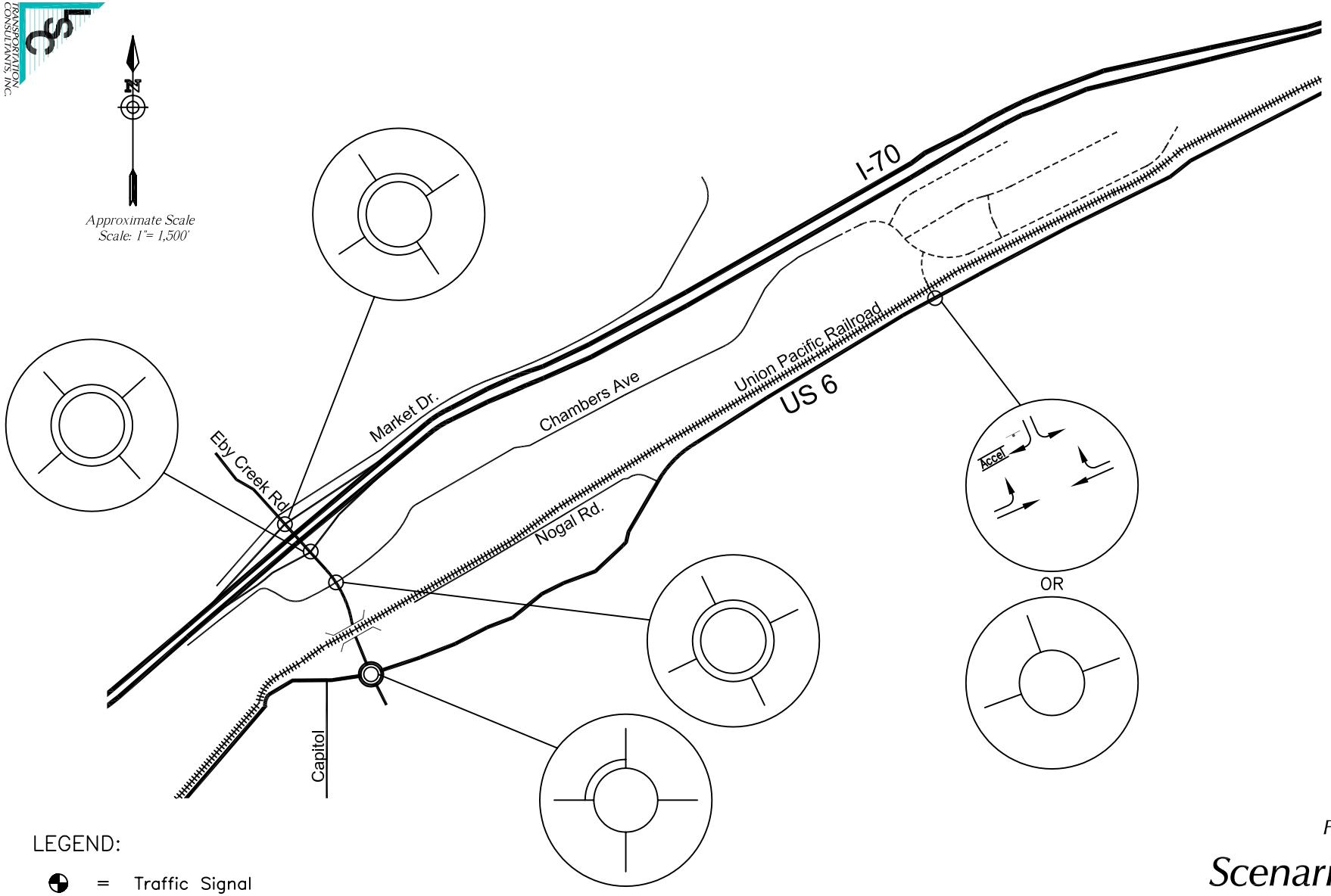
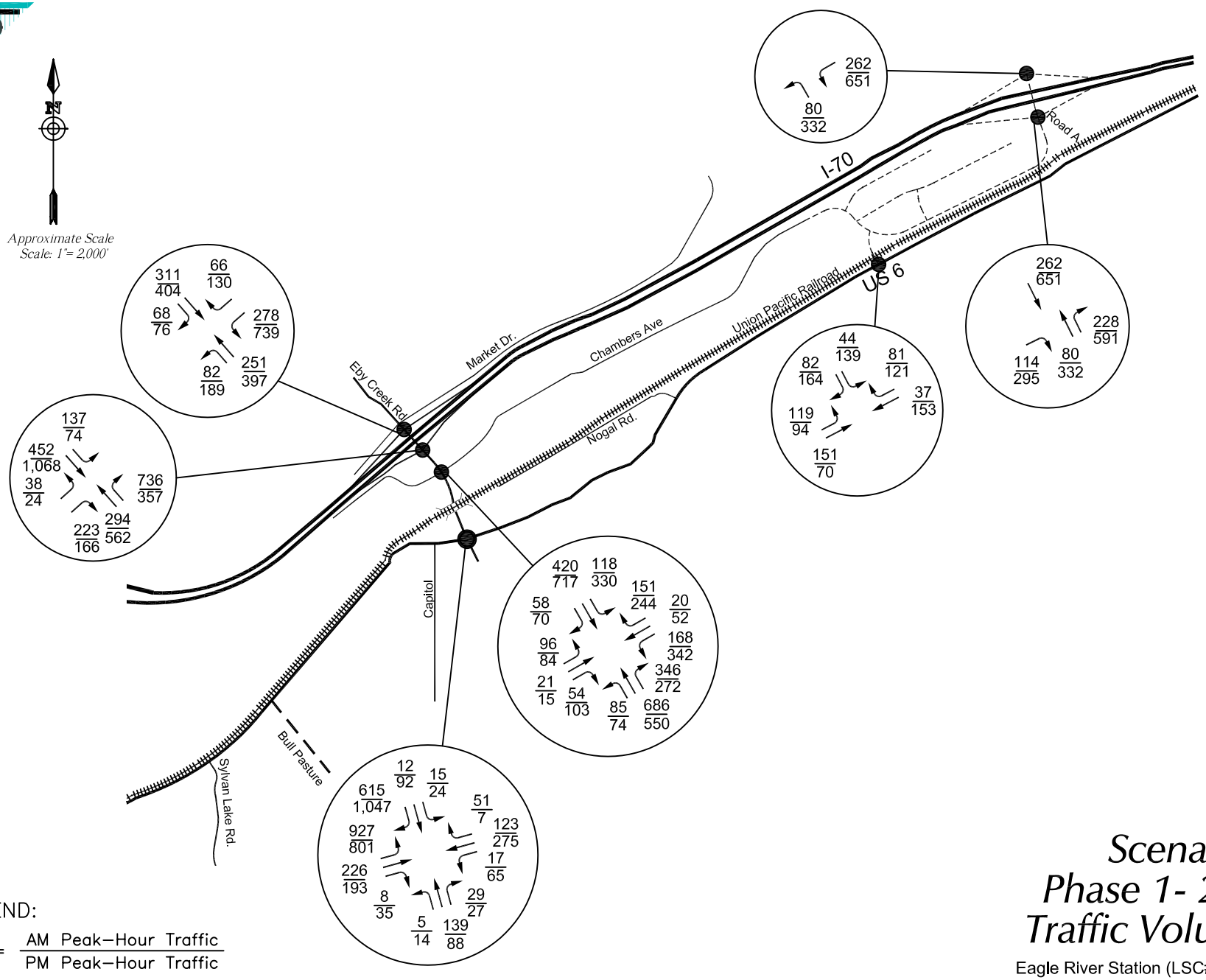



*Figure 6*

# *Scenario 1 Lane Geometry and Traffic Control*

Eagle River Station (LSC# 110150)



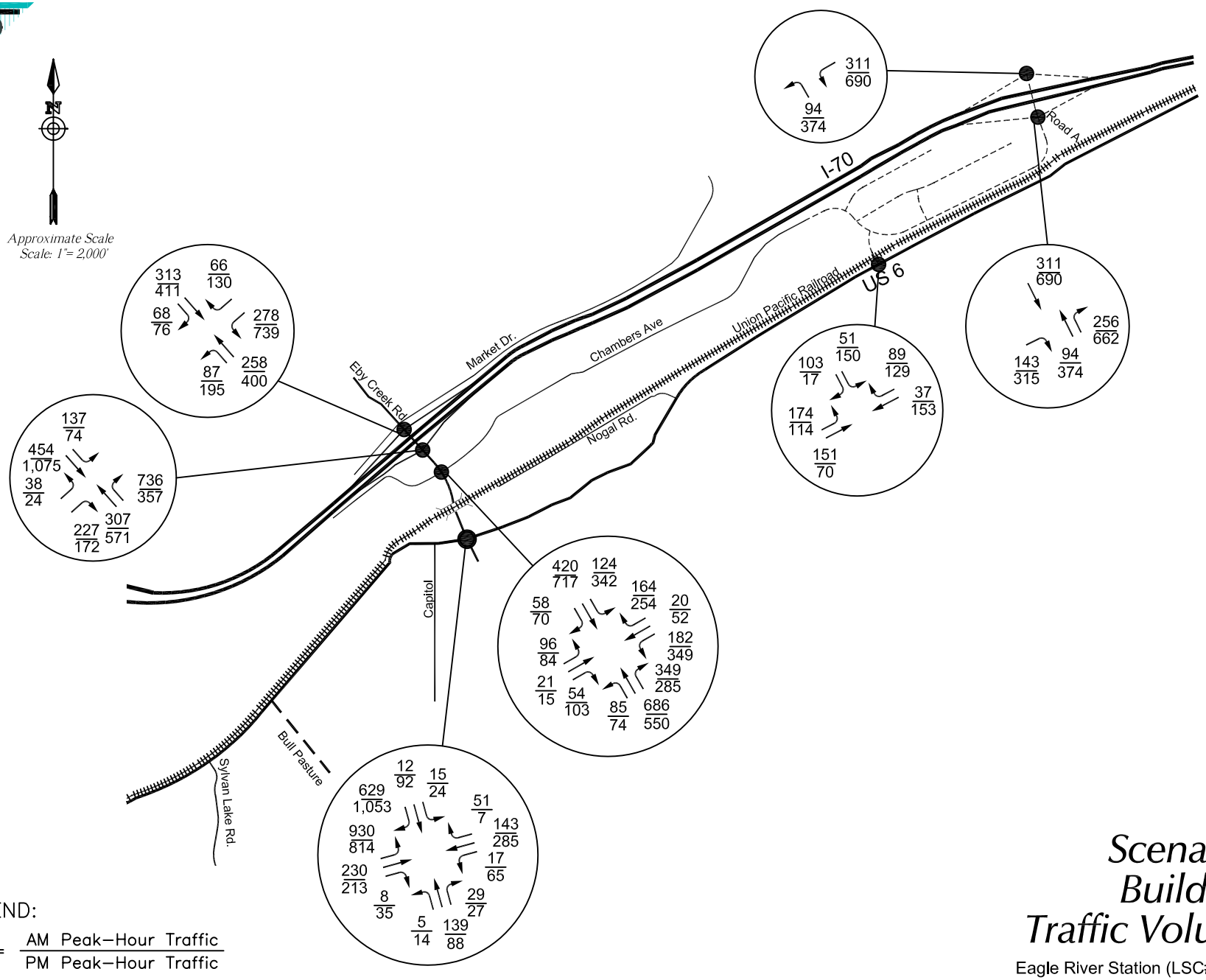

LEGEND:

$\frac{26}{31}$ = $\frac{\text{AM Peak–Hour Traffic}}{\text{PM Peak–Hour Traffic}}$

*Figure 7*

# *Scenario 2 Phase 1- 2014 Traffic Volumes*

Eagle River Station (LSC# 110150)




LEGEND:

$\frac{26}{31} = \frac{\text{AM Peak-Hour Traffic}}{\text{PM Peak-Hour Traffic}}$

*Figure 8*

# *Scenario 2 Build Out Traffic Volumes*

Eagle River Station (LSC# 110150)

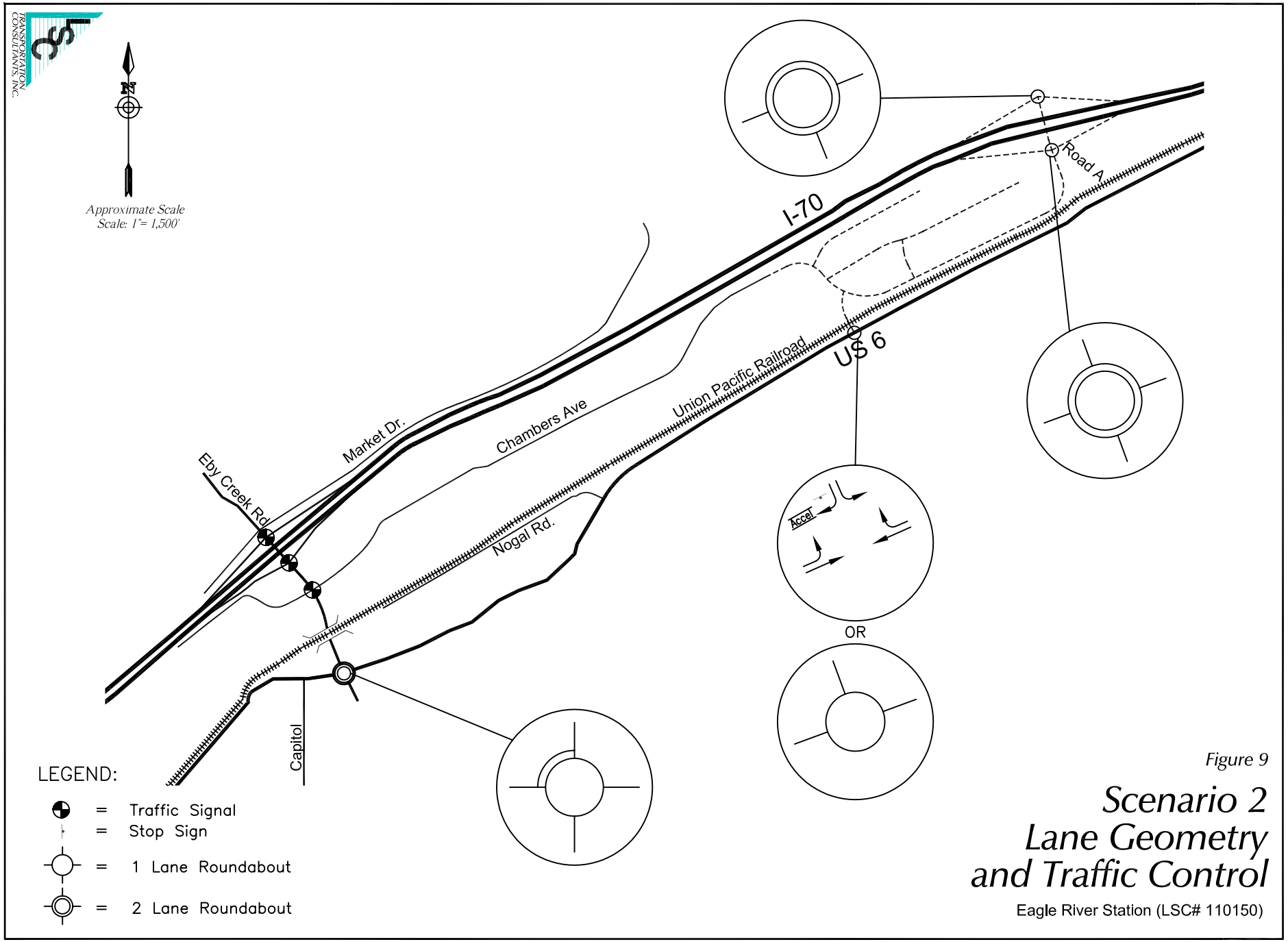



*Figure 9*

# *Scenario 2 Lane Geometry and Traffic Control*

Eagle River Station (LSC# 110150)

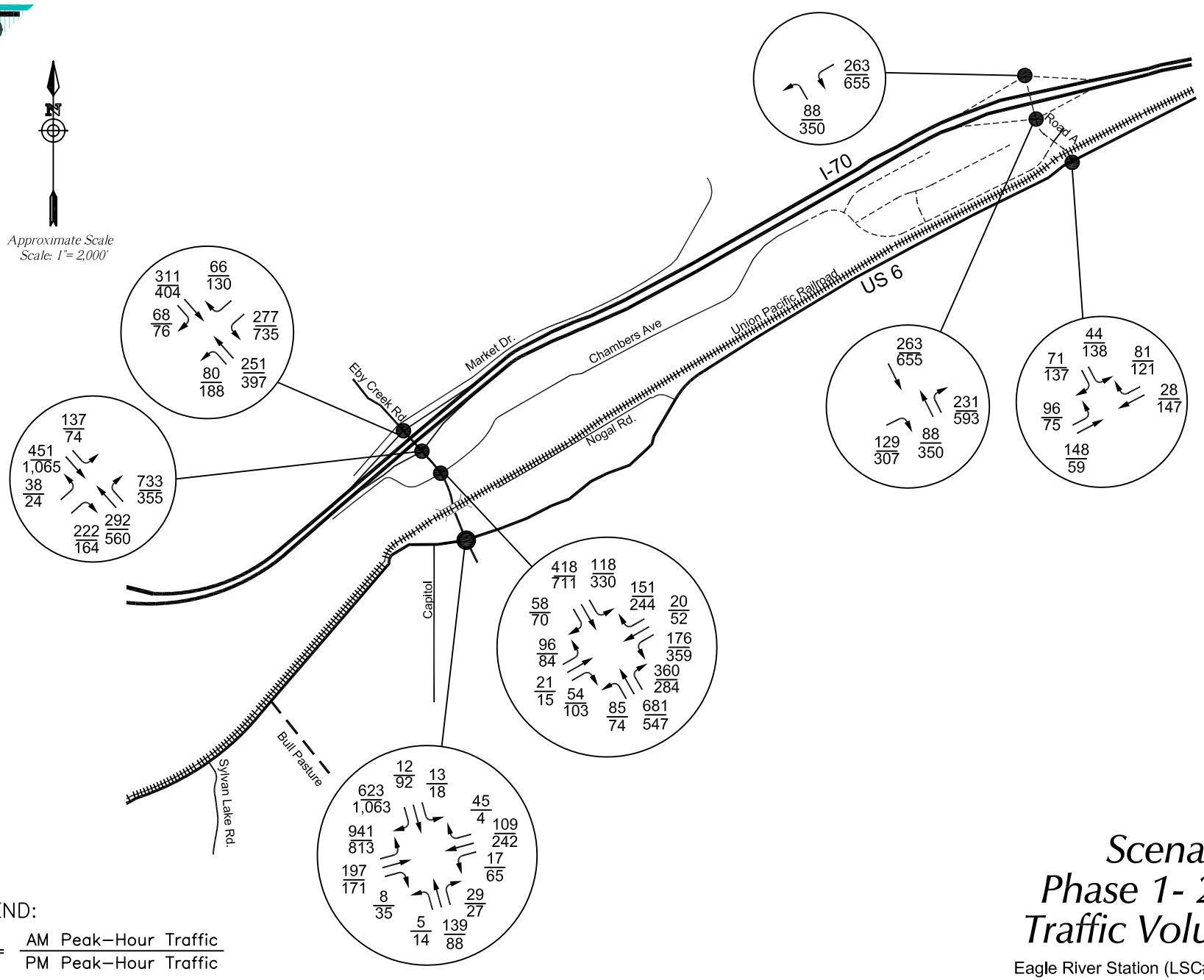



*Figure 10*

# *Scenario 3 Phase 1- 2014 Traffic Volumes*

Eagle River Station (LSC# 110150)

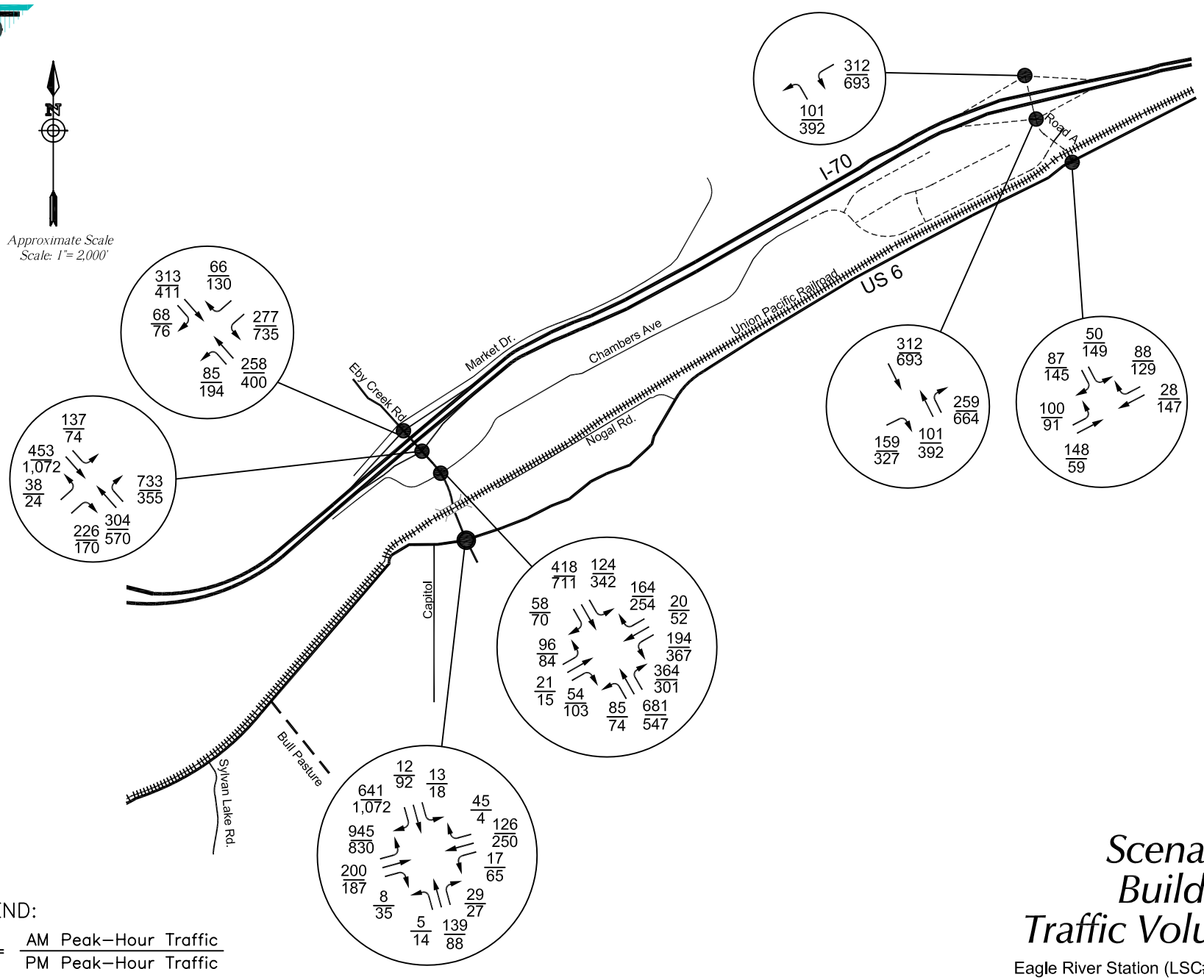



*Figure 11*

# *Scenario 3 Build Out Traffic Volumes*

Eagle River Station (LSC# 110150)

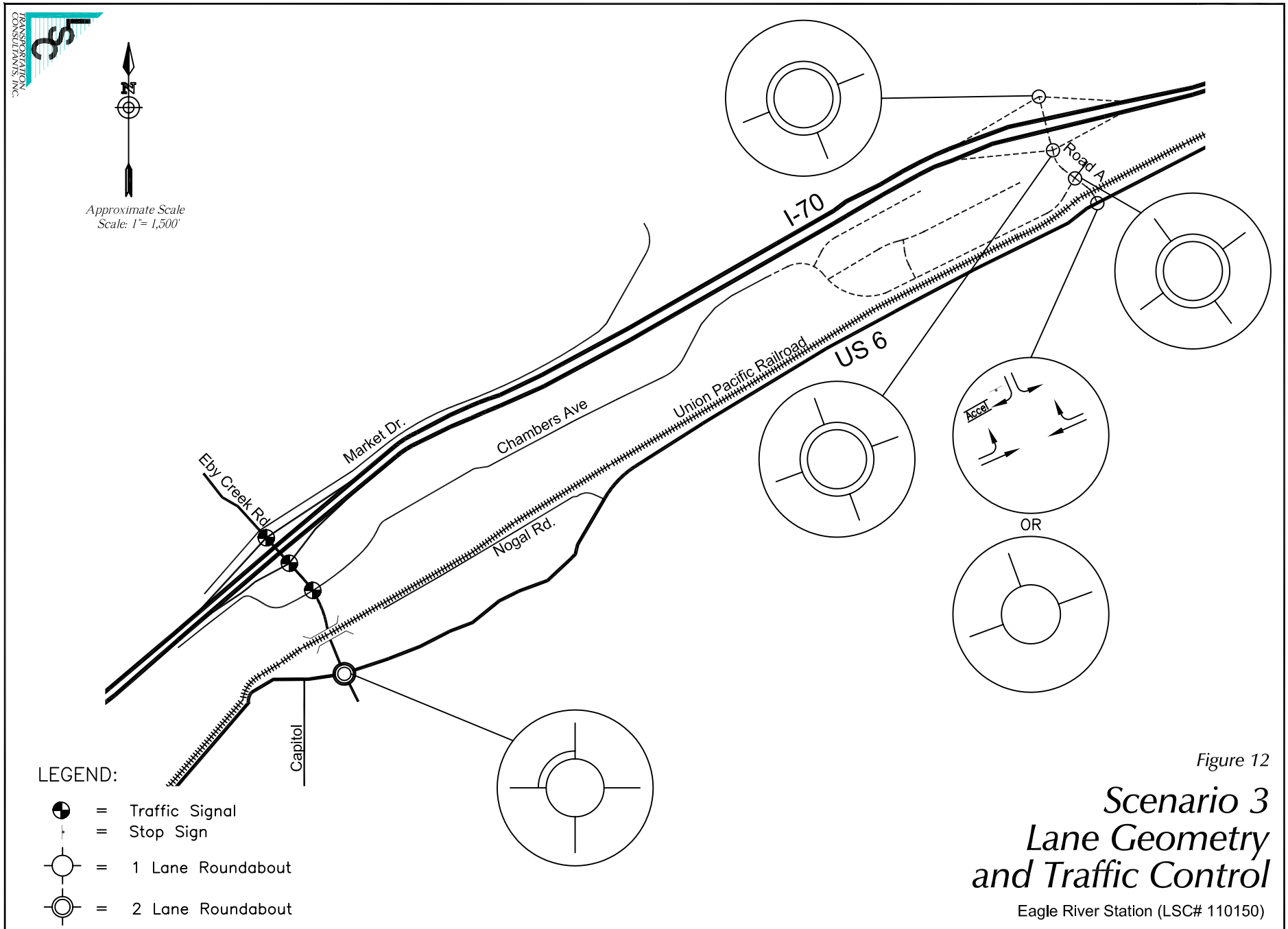
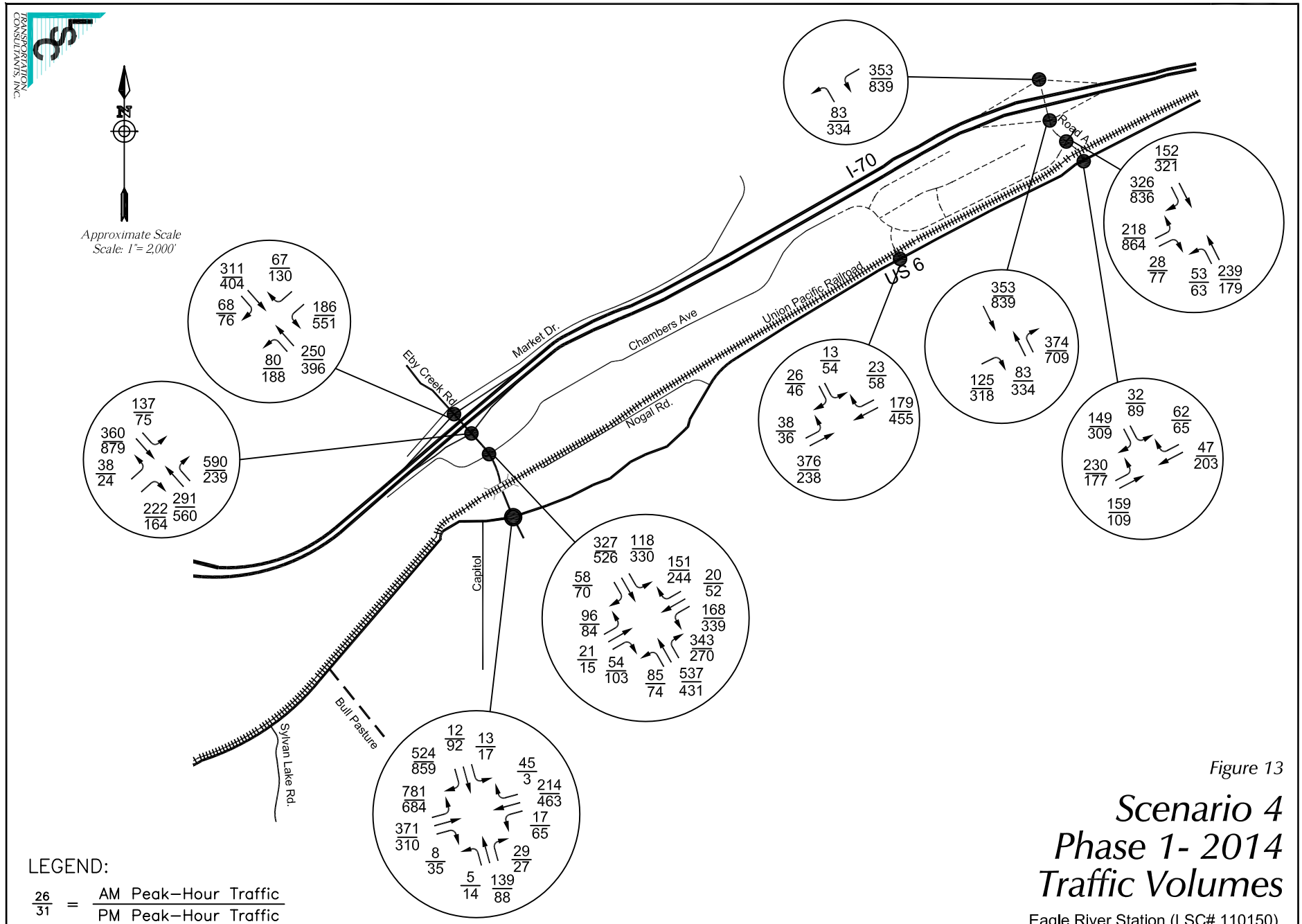



*Figure 12*

# *Scenario 3 Lane Geometry and Traffic Control*

Eagle River Station (LSC# 110150)



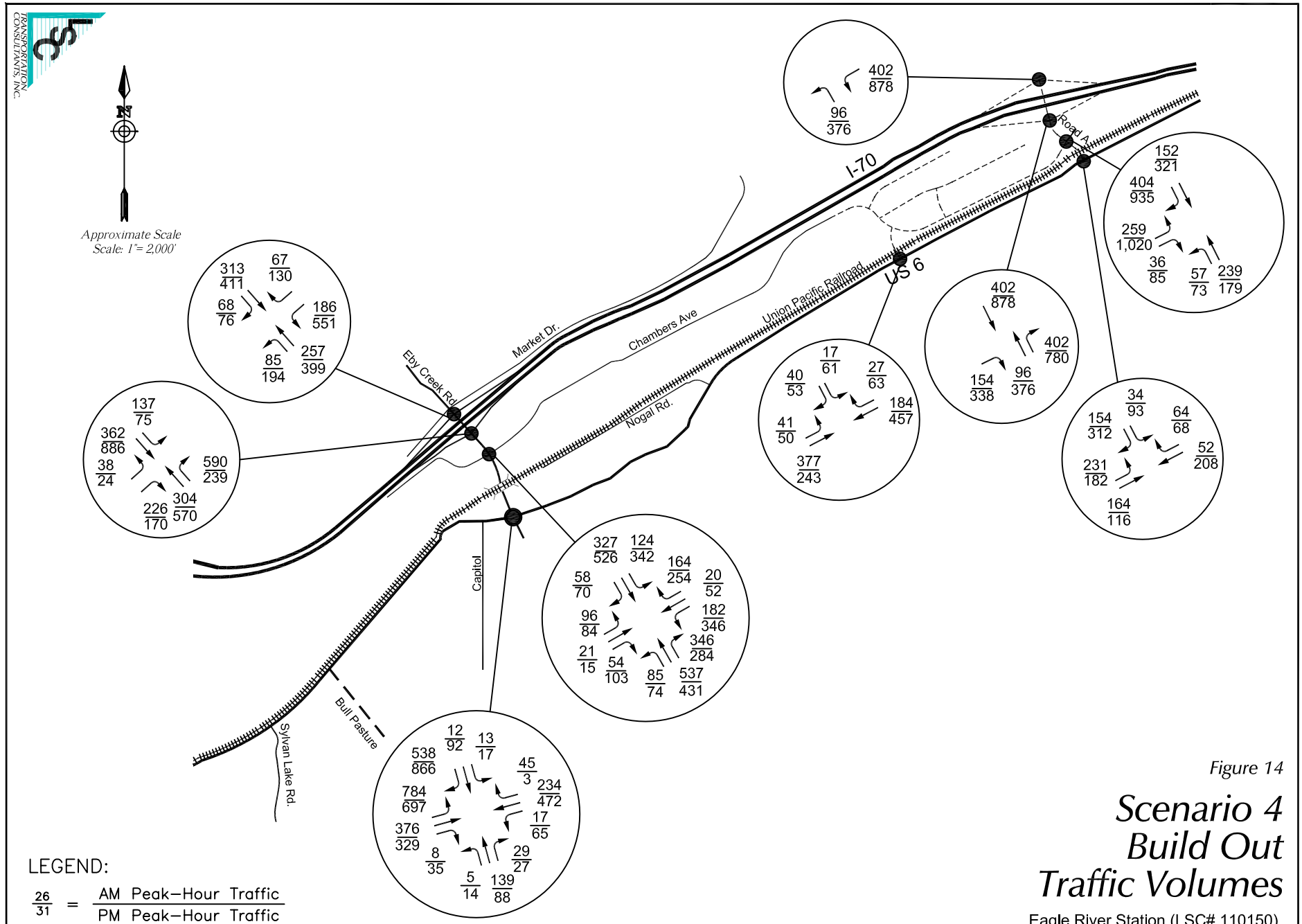

LEGEND:

$\frac{26}{31}$ = $\frac{\text{AM Peak–Hour Traffic}}{\text{PM Peak–Hour Traffic}}$

*Figure 13*

# *Scenario 4 Phase 1- 2014 Traffic Volumes*

Eagle River Station (LSC# 110150)




LEGEND:

$\frac{26}{31}$ = $\frac{\text{AM Peak-Hour Traffic}}{\text{PM Peak-Hour Traffic}}$

*Figure 14*

# *Scenario 4 Build Out Traffic Volumes*

Eagle River Station (LSC# 110150)

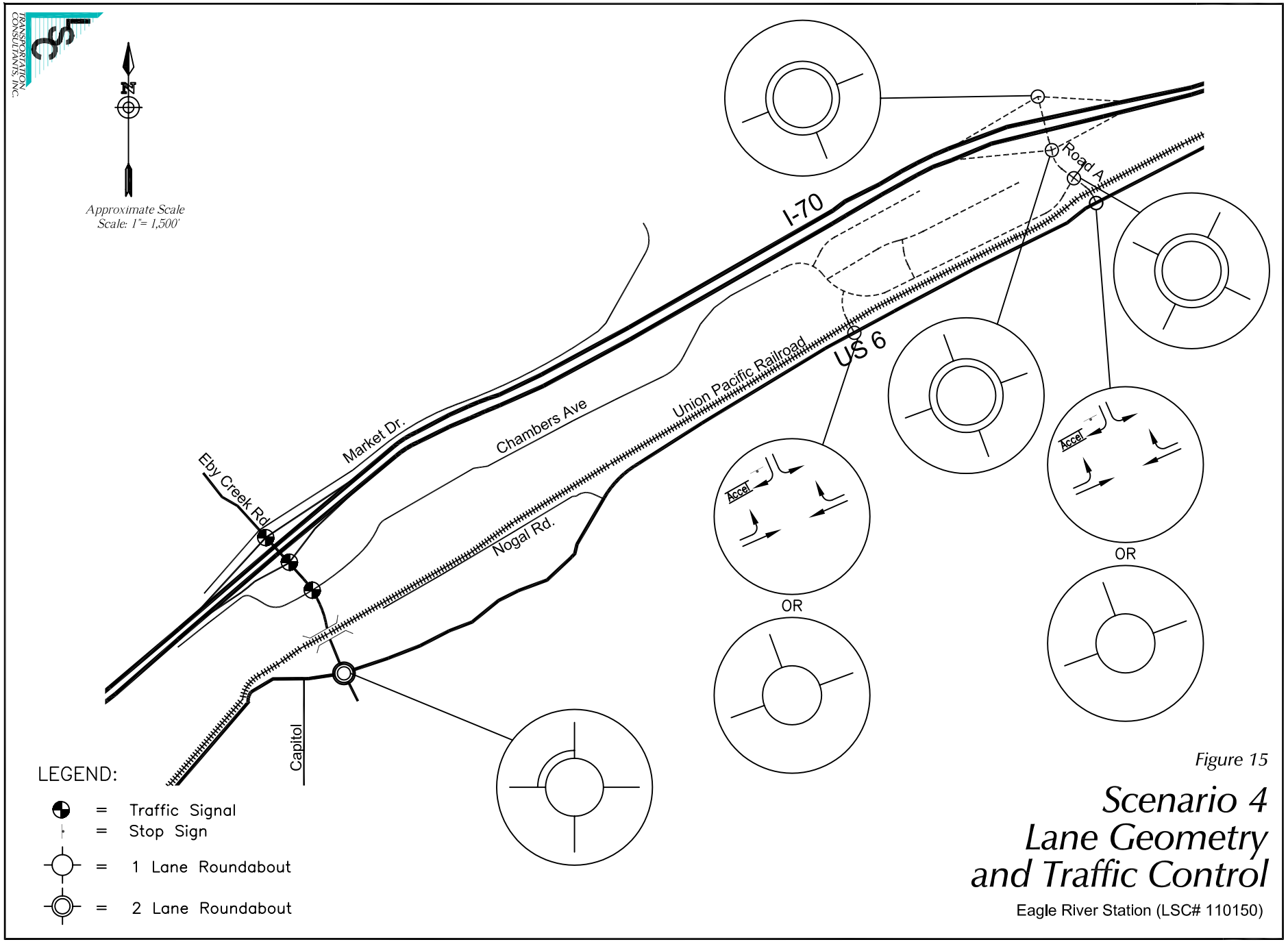



*Figure 15*

# *Scenario 4 Lane Geometry and Traffic Control*

Eagle River Station (LSC# 110150)

**LSC TRANSPORTATION CONSULTANTS, INC.**

**1889 York Street**
**Denver, CO 80206**
**(303) 333-1105**
**FAX (303) 333-1107**
**E-mail: lsc@lscdenver.com**
**Web Site: http://www.lscdenver.com**

TRANSPORTATION
CONSULTANTS, INC.

May 4, 2011

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

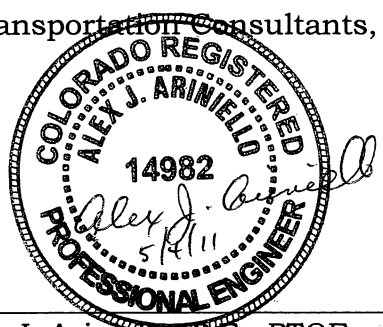
Re: Eagle River Station Update
Eagle, CO
(LSC #110150)

Dear Mr. McMahon:

In response to your request, LSC Transportation Consultants has reviewed the Eagle River Station land use plan, dated May, 2011, and compared it with the land use plan, dated April, 2008, for which we prepared a full traffic impact analysis, dated April 4, 2008. The access plan is similar and includes the proposed I-70 East Eagle Interchange which will serve the great majority of trips generated by the ERS development. The trip generation estimates for the current plan will be slightly less, both on a daily basis and a peak-hour basis, as shown in the attached Table 1. It is therefore our opinion that the conclusions and recommendations contained in our April 4, 2008 Traffic Impact Analysis are still valid.

Sincerely,

LSC Transportation Consultants, Inc.




By_____
Alex J. Ariniello, P.E., PTOE

AJA/wc

Enclosure: Table 1

G:\LSC\Projects\2011\110150\Report\Comparison-letter.wpd

**Table 1**
**Eagle River Station**
**Trip Generation Estimate**
**Eagle, Colorado**
**(LSC #110150; May, 2011)**

| Land Use Code | Land Use Description | Trip Generation Units | | Trip Generation Rates [1],[2] Average Weekday Traffic | Morning Peak-Hour In | Morning Peak-Hour Out | Afternoon Peak-Hour In | Afternoon Peak-Hour Out | Alternate Mode Reduction % | Total Trips Generated Average Weekday Traffic | Morning Peak-Hour In | Morning Peak-Hour Out | Afternoon Peak-Hour In | Afternoon Peak-Hour Out |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***April, 2008 Land Use Plan*** | | | | | | | | | | | | | |
| 230 | Residential Condominium/Townhouse | 581 | DU[3] | 5.86 | 0.07 | 0.37 | 0.36 | 0.19 | 5% | 3,234 | 39 | 204 | 199 | 105 |
| 310 | Hotel | 150 | Rooms | 8.17 | 0.34 | 0.22 | 0.31 | 0.28 | | 1,226 | 51 | 33 | 47 | 42 |
| 536 | Private School (K-12) | 300 | Students | 2.48 | 0.5 | 0.41 | 0.07 | 0.1 | | 744 | 150 | 123 | 21 | 30 |
| 820 | Shopping Center | 649 | KSF[4] | 35.29 | 0.45 | 0.29 | 1.59 | 1.72 | 5% | 21,758 | 277 | 179 | 980 | 1,060 |
| | | | | | | | | | | **26,962** | **517** | **539** | **1,247** | **1,237** |
| | ***May, 2011 Land Use Plan*** | | | | | | | | | | | | | |
| **Phase 1** | | | | | | | | | | | | | | |
| 230 | Residential Condominium/Townhouse | 250 | DU | 5.81 | 0.075 | 0.365 | 0.348 | 0.172 | 5% | 1,380 | 18 | 87 | 83 | 41 |
| 820 | Shopping Center | 582.5 | KSF | 36.65 | 0.456 | 0.292 | 1.743 | 1.814 | 5% | 20,282 | 252 | 161 | 964 | 1,004 |
| | | | | | | | | **Total =** | | **21,662** | **270** | **248** | **1,047** | **1,044** |
| **Build Out** | | | | | | | | | | | | | | |
| 230 | Residential Condominium/Townhouse | 550 | DU | 5.81 | 0.075 | 0.365 | 0.348 | 0.172 | 5% | 3,036 | 39 | 191 | 182 | 90 |
| 720 | Medical-Dental Office Building | 60 | KSF | 36.13 | 1.817 | 0.483 | 0.934 | 2.526 | 5% | 2,059 | 104 | 28 | 53 | 144 |
| 820 | Shopping Center | 582.5 | KSF | 36.65 | 0.456 | 0.292 | 1.743 | 1.814 | 5% | 20,282 | 252 | 161 | 964 | 1,004 |
| | | | | | | | | **Total =** | | **25,377** | **395** | **380** | **1,200** | **1,237** |

Notes:
(1) Source: Based on *Trip Generation*, 7th Edition, 2003" by ITE for April, 2008 Land Use Plan
(2) Source: Based on *Trip Generatiion*, 8th Edition, 2008", by ITE for May, 2011 Land Use Plan
(3) DU = dwelling units
(4) KSF = 1,000 (thousand) square feet

*Source: LSC Transportation Consultants, Inc.*